THE IMPACT OF MULTINATIONAL CORPORATIONS ON LOCAL ECONOMY- A CASE STUDY OF COCACOLA AT PLACHIMADA

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Certified that this written document on ***"THE IMPACT OF MULTINATIONAL CORPORATIONS ON LOCAL ECONOMY- A CASE STUDY OF COCA COLA AT PLACHIMADA"*** is submitted for award of the Degree of Doctor of Philosophy of the University of Calicut is a bonafide record of research work done by Ms. Jeeja K. S., under my supervision. No part of this work has been submitted earlier for any other purposes.

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DECLARATION

I Jeeja K.S., do hereby declare that this written account titled ***"THE IMPACT OF MULTINATIONAL CORPORATIONS ON LOCAL ECONOMY- A CASE STUDY OF COCA COLA AT PLACHIMADA"*** is a bonafide record of research done by me under the guidance of Dr.LAKSHMY DEVI. K. R, Supervising Teacher, Department of Economics, University of Calicut.

I also declare that this thesis has not been submitted by me earlier for the award of any degree, diploma, title or recognition.

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ABSTRACT

Liberalized India has been receiving enormous foreign investment by Multinational Corporations and simultaneously anti-MNC struggles have been emerging at an alarming rate. One of the prominent struggles is the Plachimada struggle against Coca Cola. The study enquires into the impact of the Coca Cola Company at Plachimada after a decade of closure of the plant. The study also analyses the common property right of natural resources in the context of MNC led globalization.

The findings of the study reveals that even ten years after the closure of the Company, the groundwater contamination still persists, though the water table has been gradually picking up. The marshy land, ideal for rice cultivation and sustenance of groundwater, is completely lost. Casual labourers still struggle for employment due to shift in crops from rice to coconut. The Company created more unemployment than the employment it generated. The glaring fact is that the people of Plachimada still struggle for freshwater as the wells remain contaminated. Now, the people of Plachimada have to pay price for water. The marginalization of tribal people was intensified since the operation of the plant. The destruction of rice cultivation and shift to less labour intensive coconut adversely affected the employment and income of the tribal community. The loss of workdays and scarcity of freshwater led to deterioration of their health and income. This has drawn them into the struggle and hence their apparent participation in the mass movement against the Company.

Elinor Ostrom's theory of common property resource management and the mass movement organised by the people of Plachimada have close correspondence. According to Ostrom, community based management of natural resources along with other ingredients such as government support and civil society activity can be effective in sustainable use of natural resources. Taking into account its proven benefits, governments all over the world are advocating community based management of natural resources. Hence, the study supports the demand of the people of Plachimada that the ownership right of groundwater should be assigned to them.

Key Words: Multinational Corporations, common property resources, mass movements, groundwater, and community based natural resource management.

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ABBREVIATIONS

ASHA	Accredited Social Health Activist.
BBC	British Broadcasting Corporation.
BIS	Bureau of Indian Standards.
CAGR	Compound Annual Growth Rate.
CAPART	Council of Advancement of People's Action and Rural Technology.
CFCs.	chlorofluorocarbons
CGB	Central Groundwater Board.
CGWB	The Central Ground Water Board.
CO_2	carbon dioxide.
CPR	Common Property Rights.
CSE	Centre for Science and Environment.
CVSS	Coca Cola Virudha Samara Samithi.
DIPP	Department of Industrial Policy and Promotion.
DMO	District Medical Officer.
ESG	Environmentally Sensitive Goods.
ETP	Effluent Treatment Plant
FDI	Foreign Direct Investment.
FERA	Foreign Exchange Regulation Act.
FIIA	Foreign Investment Implementation Authority.
FIPB	Foreign Investment Promotion Board.
FMCG	Fast Moving Consumer Goods.
GDP	Gross Domestic Product.
HCCBPL	The Hindustan Coca Cola Beverage Private Limited.
HC	High Court.
ILO	The International Labour Organization.
INTACH	Indian National Trust for Arts and Cultural Heritage.
IPO	Initial Public Offer.
IRTC	Integrated Rural Technology Centre.
ISEC	The International Society for Ecology And Culture.
IT	Information Technology.
JPC	The Joint Parliamentary Committee.
KPCB	Kerala Pollution Control Board.
KSSP	Kerala Sasthra Sahithya Parishad.
KSSP	Kerala Sastra Sahitya Parishad.

LBW	Low Birth Weight
LSGD	Local Self Government Department.
MNC	Multinational Corporations
MRTP Act	Monopolies Restrictive Trade Practices Act,
NAPM	National Alliance for People's Movements.
NGC	National Green Corps.
NGOs	Non Government Organizations.
NIMBY	Not In My Back Yard.
NTBs	Non Tariff Barriers.
OBC	Other Backward Castes.
OECD	Organization of Economic Cooperation and Development.
PESAAct	Panchayatraj Extended to Scheduled Area Act
PHC	Primary Health Centre
PRIs	Panchayat Raj Institutions
PUCL	People's Union for Civil Liberties.
R&D	Research and Development.
RBI	Reserve Bank of India.
RCA	Revealed Comparative Advantage.
SAPs	Structural Adjustment Programs.
SC	Scheduled Caste.
SCMC	Supreme Court Monitoring Committee
SGBs	State Groundwater Board.
SH	Sample Households.
ST	Scheduled Tribe.
TCCC	The Coca Cola Company.
TED	Television Entertainment Design.
TH	Total Households.
UDCs	Under Developed Countries.
UK	United Kingdom.
UNCTAD	UN Conference on Trade And Development.
UP	Uttar Pradesh.
USA	United States of America.
VAK	Vikas Adhyayan Kendra.
WTO	World Trade Organization.

1 Introduction

CHAPTER -1

INTRODUCTION

1.1. Introduction

India has been pursuing a liberalized policy towards foreign investment by Multinational Corporations[1] (MNCs) since the New Economic Reforms of 1991. Further, for the sake of attracting more MNCs, the nation is constantly relaxing several of its policies including environmental regulations. As a result, India has become one of the best destinations for multinationals. The World Investment Report, 2012 of the UN Conference on Trade And Development (UNCTAD) finds India as the third best destination for multinational investment after USA and China. The effects of the MNCs on Indian economy are ambiguous. The positive effects of MNCs are creation of job opportunities, technology transfer, managerial expertise and a source of income for the government. The negative effects are the desertion of domestic companies, excessive natural resource extraction, environmental pollution and the transfer of obsolete technology. While developing countries like India loosen their stringent foreign investment policies and environmental policies to attract MNCs, the multinationals on the other hand seek resource abundance, huge market, and a platform for both production and sale of the product in the host country. In recent years, India has become one of the fastest growing economies of the world and at the same time there arises the concern over natural resources and its sustainability. The activities of MNCs have placed immense pressure on environmental sustainability challenging the human dependence on our environment. Consequently, India has been witnessing a series of local resistances against multinational companies and one of the most prominent mass movements is the Plachimada struggle against Coca Cola.

1.2. **Background of the Problem**.

The growing importance of MNCs as an engine for economic growth has caused considerable debate over their longstanding effects on the environment. The

[1] Multinational Corporations are enterprises or organizations that manage production or offer services in more than one country.

link between MNCs and the environment are multiple, complex and important. The MNCs have a 'resource seeking' nature in developing economies. These economies have received disproportionate amount of investment into their natural resource extracting sectors. In developing economies, the export of Environmentally Sensitive Goods[2] (ESG) and foreign investment in natural resource extracting sector is predicted to rise faster in the upcoming years. In the past decades the world has witnessed environmental hazards like greenhouse gas emission, deforestation, loss of bio- diversity and groundwater depletion at an alarming rate. The MNCs have their due share in this degradation (Mabey and McNally,1999). It is therefore crucial to understand the environmental effects of MNCs on the local economies.

The invisible hand of capital has now reached the hitherto untouched places where resources are abundant; forests, minerals, water and mountains. To use these resources, the MNCs are practicing myriad tactics to push the indigenous people out of their land. Examples of these are available from practically every continent,'Save Antarctica': the Bayaka in Central African Republic whose community is being destroyed by logging; the Dinka and Nuer in Sudan whose lands are being taken over for oil reserves; the Wichi in Argentina facing a major highway through their territory; gold mining on Miskito lands in Nicaragua; eco-tourism on Kuna land in Panama; mining on Australian aboriginal lands are just a few of them. The list is never ending: industrial plantations in the tropical forests of the Dayak people in Indonesia; export coffee plantations evicting Montangards from their homeland in Vietnam; uranium mining generating toxic waste that destroys ecosystems in Dene and Cree in Canada; over-fishing jeopardizing the survival of the Chukchi and Eskimos in Russia; mining in North American Indian lands that affects the Western Shoshone, Quechan Nation, Mohawk, and Zuni people (Doyle and Maranan, 2014).

The situation in India is also alarming. There are incidents of land acquisition and displacement of tribal communities caused by mining and large

[2] Environmentally Sensitive Goods are threatened wildlife, timber, hazardous waste, and ozone-depleting substances.

industries in the states of Jharkhand, Chhattisgarh, Orissa, West Bengal and Maharashtra. Multinational Companies have taken over the agricultural lands, water and forests of the tribals. The examples being, groundwater extraction by the Coca Cola Company (USA) in Plachimada, Vedanta Resource Group (U.K.) doing unsafe mining in Orissa, the Neta Gelatine (Japan) polluting the river in Kerala, the privatisation of Kelo river and Sheonath river in Chhattisgarh, deforestation by Essar Group at Mahan forest in Madhya Pradesh etc. Even though the research findings do not prove the Pollution Haven Hypothesis[3] in the Indian framework (Chakravarthy, 2010), certain events in India reveal the presence of MNCs in polluting sectors. The common factor linking these events is the pollution it exerts on the common pool resources of the region like air, water, ocean and forest. In most cases the poor and vulnerable sections of the society bear the brunt of environmental degradation.

These places of multinational investments have become the focus of attention because of the mass movements organized by the local people against the culpable MNCs in those regions. A series of similar movements against MNCs are still taking place in different parts of India. The common characteristic of all these struggles is that it is the poor and marginalized sections of the society who are fighting for their livelihood and existence. One of the prominent struggles is Plachimada (Kerala) struggle against the Coca Cola Company. However, the struggle against the Coca Cola Company in Plachimada is not a stand-alone incident. Similar incidents are taking place all over India, the villages such as Kaladera (Rajasthan), Mehdiganj (Uttar Pradesh) and Sivaganga (Tamil Nadu) that are protesting against Coca Cola Company for its unscrupulous groundwater extraction(Menon, 2013).

1.3. Literature Review

A Multinational Corporation is “an enterprise that engages in Foreign Direct Investment (FDI) and owns or controls value adding activities in more than one country” (Dunning 1993). Multinational companies are the main agencies

[3] The Pollution Haven Hypothesis is the idea that polluting industries will relocate to jurisdictions with less stringent environmental regulations.

through which globalization are taking place, which in turn promotes the rapid development of multinational or global companies. In other words, they feed off and reinforce each other (Dehesa, 2006).

Foreign private investment through multinationals is typically seen as a way of filling in the gaps between the domestically available supplies of savings, foreign exchange, government revenue and skills and the planned level of those resources necessary to determine development targets (Todaro, 1985). The growth-oriented development serves the interests of the middle classes with considerable consuming power while the marginalized sections of society are left unable to participate in the market. Apart from their exclusion, they are also often left to bear the consequences of the development priorities practised as part of this compromise which includes various forms of primitive accumulation or accumulation by dispossession. These consequences often take the form of forced takeover of land for large development and infrastructure projects leading to loss of livelihood, or sickness due to exposure to toxic pollutants flowing in water bodies, or placid tolerance to the stench from urban waste disposal sites located near rural residential areas (Panicker, 2012).

When a developed country MNC sets up their overseas production plants in developing countries, 'efficiency seeking' forces (cheap labour), and 'resource seeking' forces are mainly at work(Rajan et al 2008). The natural resource seeking investors have a poor record of environmental management relative to global best practice. Often investors maximize returns from the host country's resources, through overexploitation and unsustainable use. The last decade has seen a rapid proliferation of FDI and related trade flows, but also unprecedented environmental destruction and depletion (Mabey and McNally 1999).

Globalization brings with it potentially huge benefits as well as uncalculated risks. The challenge is to manage the process of globalization in such a way that it promotes environmental sustainability and equitable human development. The more integrated, environmental and trade policies are, the more sustainable economic growth will be and the more globalization can be harnessed for the benefit of the environment (Panayotou, 2000). The lax environmental

policy tends to attract more capital inflow from the US for pollution intensive industries (Xing and Kolstad, 2000). Another research finding is of the view that U.S. environmental regulations cause U.S. firms to move capital and jobs abroad (Hanna, 2006).

A study using disaggregated MNC data and panel data regression, found that, “dirty” or polluting MNC outflow is positively correlated with environmental policy in eleven Organization of Economic Cooperation and Development(OECD) countries. It is also found that MNC inflow is not significant in explaining the level of pollution and energy use in fourteen non-OECD countries (Aliyu and Mohammed, 2005).Another research finding underlines the possible existence of competition in environmental standards between countries to attract MNC and confirms the existence of a negative relationship between MNC and environmental stringency (Kukenova and Monteiro, 2008). Thus, the less developed regions are found to be sacrificing the environmental policy while acting as an instrument to attract MNC (Ljungwall and Linde, 2005).

However, evidences to whether the host countries deliberately alter their environmental regulatory system to attract MNC are not consistent, and perhaps limited by the lack of availability of information from host countries. A growing concern is that environmental laws and their enforcement may be subject to pressure to attract foreign investment. In situations where environment management is paramount to a business operation, the need to provide economic development may lessen the priority of environmental protection(Gray, 2002).

The research evidences of Lee.C.G reveal that the flow of money from overseas may not necessarily guarantee the region’s sustained economic growth. The MNC has been a major engine for the rapid growth of the economy, but the success of these economies has been achieved at the expense of the environment. Lee considers this growth as transitory rather than permanent. MNC inflows explain only the short term adjustment of GDP per capita which should not be an engine for sustained economic growth because they may not always serve the long term interest of the host countries (Lee, 2010).

Liberalization of FDI policy regime in India since 1991 has resulted in a substantial expansion of FDI approvals and flows. The total number of approvals of foreign collaborations went up from 950 in 1991 to 1854 by 1994, registering an increase of over 95%, (Bhattacharyya and Paalahe, 1992).The empirical results of Soumyananda on India suggest that globalization helps developed countries to reduce carbondioxide (CO_2) emission while developing countries strive to raise CO_2 emission (Soumyananda, 2006). Another research finds a statistically significant long run positive, but only a marginal impact of MNC inflow on GDP growth in India during 1980-2003. On the other hand, the study finds that the long run growth impact of MNC inflow on CO_2 emissions is quite large. The actual impact on the environment, however, may be larger because CO_2 emission is one of the many pollutants generated by economic activities. CO_2 being a global air pollutant, the finding has some far reaching implications for the global environment as well, with India having emerged as the fourth highest in the global ranking of CO_2 emissions by turn of this century (Acharya, 2009). Yet another research finds that the main reason and motive of German investment in India during the post liberalization period(1991-96)are, availability of cheap labour, toothless labour legislations, India's huge domestic markets of goods and services and India's lax environmental and public health regulations with their ineffective implementation by the state machinery (Singh, 1997).

India needs to adopt a flexible framework to lure foreign investment, but that should not be at the cost of preservation, conservation and restoration of the environment. The Ministry of Environment is entrusted with the task of looking into the 'environmental hazards' of any new investment projects. However, most of the new projects including foreign investment have been coming into ecologically fragile areas where ecological or environmental considerations are not given adequate attention. This has to be rectified through measures such as institutional interventions of environmental auditing, but without adversely affecting the climate for the inflow of more foreign investment. It is a challenging task to develop a 'middle path', which satisfies the environmental and industrial requirements in this dilemma. With some foresight, planning and imaginative response, this will be feasible (Pillai and Nair, 1995).

The developing countries have welcomed foreign investors with relatively liberal laws and have consequently seen a market influx. It is gradually recognized that foreign investment does not bring benefits in the form of improved access to capital markets, managerial and technical resources and marketing skills. Environmental concerns are becoming increasingly important; but the developing countries are often more concerned about developing their resources and raising living standards than about protecting environment. In short, the pendulum stopped swinging in the host countries' favour and has moved back towards in favour of foreign investors (CrowSon, 1991).

Since the 1950s, the rapid growth of international direct investment resulting in the emergence of the MNCs has made these organizations a crucial component in the world economy. Today the concern which has been voiced about this international organization is based on scale and method of these enterprises, which poses dramatic potential threats to individual economies or even to economic independence. The foray of MNC raises the threats of a new form of economic colonialism and significantly reduces the power of individual nation states to determine their own independent economic and hence social and other such policies (Channon and Jalland, 1979).

Another study reveals that the steadily rising MNCs' demand for raw materials, industrial inputs and energy have been the main drivers of the depletion and degradation of natural resources in the developing economies (Cronin, 2009).

A study finds that the multinationals involved in exploiting natural resources of African countries are disrupting the communities and are instrumental in political and social conflicts regarding the ownership, management and control of natural resources (Alaoabiodun, 2007).

One more study found that the greater MNC inflows are robustly associated with lower access to potable water in developing economies. The findings also reveal that the Indian states which attracted higher levels of MNC are experiencing a considerably worse water situation relative to states with less MNC (Rudra and Joshi, 2011).

Water commercialization practices are mounting world-wide with MNCs penetrating the agrarian-ecology and diverting the natural resources in general and water in particular. Globally, there is a water trade nexus with international organizations like World Trade Organization (WTO), World Bank and other bilateral agreements framing policies; international think tanks ensure public communication that water is an economic good; and the International Monetary Fund, United State AID, Asian Development Bank etc. are giving financial aid to the MNCs to commercialize water. The existing money-centric consumerist economy is unable to provide a feasible solution on water issues. The rationality of the individual has become a practical cliché in the market. Besides, the existing economic pricing methods and valuation techniques are totally incapable of solving the water commercialization issue. Plachimada has experienced ecological, ethical and institutional failures that have resulted in a huge environmental crisis, subsequently throwing the region into the abyss of socio-economic development (Thomson, 2010).

The Plachimada issue is a classic case in the globalized context, when the state and corporate world are focused on industrialization disregarding the basic environment and culture for market and profit. This move is detrimental to the local communities. State and global corporation stand in opposition to the local people and community. The story of Perumatty Panchayat's struggle to save its natural resources and livelihood has brought to the fore a vital aspect that when the Panchayat and civil society organization come together on issues of public interest, globalization makes way for localization (Nair, 2006).

The daily extraction of around five lakh litres of groundwater by the Cola Company aggravated the water problem. High levels of hazardous chemicals such as lead and cadmium are observed in water sources in the close vicinity of the Cola Company. The sludge provided by the Company which contained dangerous levels of these chemicals also contributed to water pollution (Nair et al , 2008).

The Plachimada struggle is an indicator that the interference of the local community is the best solution to protect groundwater supply in the area. The MNC’s production at the cost of the environment which further impoverished the

poor rural people of Plachimada is an example of an ecologically unequal exchange (Wramner, 2004).

The burden of water scarcity problems subsequent to the operation of the Cola Company seriously affected the backward sections, since only the Other Backward Caste and General category are endowed with own well because the water access is associated with the size of landholdings in Plachimada. This necessitated the involvement of the tribal sections leading the mass movement against the Company (George, 2012).

During the Plachimada struggle, the Panchayat stood by the people while the Pollution Control Board and the legal system favored the Company (Karthika,2008).The indefinite battle between the Coca Cola and the people has to be fought not only in the Supreme Court but also in the "people's court"- in their minds and on the streets (Surendranath, 2007).

It is the present groundwater law that allowed the Company to extract groundwater without any restrictions and to deny the water rights of others who are dependent on the same resource. This legal environment paves the way for incidents similar to those in Plachimada repeating elsewhere in India. To avoid this, a revision of the statutory framework governing groundwater is necessary. The state intervention in such cases is desired. The legal framework of ownership of groundwater needs to be recast in favour of the local community that is primarily dependent on the resource for both drinking and agriculture. In a country with great social injustices and poor access to water, the needs of persons dependent on groundwater for drinking water and livelihood needs must be prioritized over the demands for large withdrawals by the MNCs (Menon,2013, Koonan, 2010).

The communities like the ones in Plachimada perceive natural resources as 'Mother Nature' since their livelihoods are intricately intertwined with natural processes. Communities in India consider 'nature' as a socio-cultural-cum-livelihoods space, but the state looks at such spaces as a source of resources that are to be exploited. Hence, the state's claims over natural resources continue to be

in conflict with those of the local communities resulting in the latter asserting their traditional right through struggles. Therefore, the Plachimada struggle is to be viewed in the context of communities asserting their traditional rights over resources that go beyond the logics of the state (Patibandla, 2015).

Plachimada is an example of the consequences of transnational investment. Transnational corporations define water as an exchange value and put price tag on it; therefore, they trade it for profit.In an attempt to increase economic growth in the country; the government permitsMNCs to invest in their economy. Rural communities see water as use value and need water for sustaining their livelihood; hence, they share it among the villagers. In a liberalized economy, water is conceptualized through policies and regulations, which are managed and organized by international financial institutions. Water is traded easily between countries because of deregulated policies of international financial institutions and promotion through policies and regulations. Those special regulations and policies have a positive impact on transnational investments and the national economic strategy; not without exerting a negative influence on the people, who rely on water for daily use and on their environment as a natural resource (Savarin, 2012).

The absence of specific laws relating to the governance of groundwater is being exploited by the MNCs resulting in untold misery to the poor local people. Favourable laws granting ownership of groundwater to the community may ensure sustainable management of the resource. To enable the Gram Saba to exercise this natural right, it is therefore necessary that relevant state laws such as (a) The Kerala Panchayat Raj Act, 1994; (b) Kerala Groundwater (Control and Regulation) Act, 2002; (c) The Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988; and (d) any other relevant laws as are applicable are to be amended. The 73rd Amendment, the Panchayat Raj Act, 1993 should be reviewed and amended conferring the command over natural resources to the Gram Sabas. The solutions for problems of democracy lie in further democratization (Bijoy, 2006).

1.4. Statement of the Problem

The 'resource seeking' multinationals, taking advantage of the absence of well- defined common property right of developing economies, find it easier to over extract the common pool resources like water, forests etc. , thereby posing a threat to the life of the people who are dependent on them for their survival.

The present study identified these issues in the context of Plachimada struggle, where the tribal community is engaged in an indefinite protest against the multinational giant the Coca Cola. The Coca Cola Company, one of the largest multinational giants in the soft drink business established its plant in Plachimada, a small backward village in Palakkad. Numerous lab reports and studies done by both government and private agencies revealed that the groundwater has depleted and been contaminated as a consequence of the over extraction of groundwater by the Company. The long walk to fetch water, agricultural destruction, air pollution and health hazards aggravated their miseries. The vulnerable and voiceless people were drawn into the inevitable struggle for their survival. The people's struggle was an influential factor in the shutting down of the factory in March 2004. A decade after the closure of the Company, problems are still rampant. The pilot survey revealed that water contamination still persists and the people's struggle for compensation from the Company has not ended. In this context, the present study intends to analyse the impact of the operation of the Coca Cola Company on the local economy of Plachimada. The legal dispute over the groundwater ownership is still pending in the Supreme Court. Parallels to the Plachimada situation can be seen all over the country. The study aims to capture the crux of the legal dispute in the context of common pool resource theory. A well- defined common property right of groundwater; preferably to the community may be a solution to prevent such issues in future. There are many instances where community management of common pool resources had proved a success. Community ownership of groundwater may ensure a workable mechanism through which the local people can find solutions for themselves.

In a neo-liberal world, MNCs are controlling the water resources of developing economies for making profit. Eventually, billions of people are

elbowed out of their right to water. The ownership right of water resources to the community may ensure that people, not profit, come first.

1.5. Significance of the Study

The privatization and globalization of local resources are a global phenomenon. Local resistances led by poor communities are emerging from the developing world. The vulnerable and voiceless segments of the developing world are displaced and exploited. Meanwhile, developing economies like India continue to attract MNCs with liberal policies and more dominant and polluting MNCs come to these economies, threatening the human life on this part of the earth. In this context it is crucial to study the impact of MNCs on local economies by taking Plachimada as a case study. There is a dearth of empirical research in India on the relationship between MNCs and environment. The present study is an attempt in this direction. The findings of People's Union for Civil Liberties (PUCL) (2002) Jananeethi Report (2003), Vikas Adhyayan Kendra (2004), Indian National Trust for Arts and Cultural Heritage (INTACH) Report (2004), Nair, K.N et al (2008) reveal that the operation of the Company has exasperated the groundwater contamination and depletion of the region. Numerous other studies and lab reports also confirmed the role of Coca Cola in water pollution. The Government Enquiry Committee also reported that the Coca Cola Company has overexploited the groundwater, creating misery and hardships to the local people. The Committee estimated Rs.261/-Crore as compensation from the Company. The people of Plachimada still carry on their indefinite struggle for their proper rehabilitation and compensation for denying them the right to live. The Plachimada struggle has been studied by various agencies and individuals at various perspectives. The present study is an attempt to examine the impact of Multinational Corporations on common pool resources and its consequent effects on life of the local people and the study uses a subaltern perspective. Moreover the study is significant when the government after government follow pro corporate policies and continuously lax the environmental and FDI policies to create an 'investment friendly' environment for the multinationals. The mass movement is a caution to rethink existing policies. The study is also important in the light of the property right of the common pool

resources. Even 68 years after independence, India follows the Pre- British laws in the natural resource governance and these mass movements are a pointer to amend the laws governing common pool resources.

1.6. Research Questions

- Why is the Coca Cola Company attracted to India and especially to Plachimada?
- Why did the Kerala state invite the Coca Cola Company?
- How did the investment by the Coca Cola Company influence the quality and standard of living of the local people?
- What inferences does the Plachimada struggle against the Coca Cola Company conveys?

1.7. Objectives

1. To analyse the socio- economic profile of people in Plachimada.
2. To analyse the impact of the Coca Cola Company in the local economy of Plachimada.
3. To evaluate the role of the people's movement against the Coca Cola Company in safeguarding the interests of the local people.

1.8. Hypothesis

It is presumed the Coca Cola Company in Plachimada has a negative effect and the people's movement in Plachimada has a prominent role in safeguarding the interests of the people, especially in protecting groundwater. In India in general and in Kerala in particular there is a lingering argument that there is no well-defined property right over groundwater and there is an ambiguity in the existing laws governing groundwater. This might have attracted the Coca Cola Company or other investors to invest in these natural resources in the country. Plachimada might have been chosen by the Coca Cola Company because of the availability of groundwater in abundance. In the absence of property rights and laws protecting groundwater, overexploitation is a sure outcome. This might have happened in Plachimada and consequently affected their drinking water availability. The

involvement of the state might have been inadequate to protect the interests of the local economy. This could have got the local people mobilized, not solely against the Company, but with the sole intention of protecting their drinking water. The people of Plachimada asserted their right over their groundwater in the absence of property rights even in the presence of a dominant MNC. This study argues that the communities are capable of managing the natural resources around them.

1.9. Methodology

The study uses both primary and secondary data. The primary data were collected from the local people. Secondary data were collected from the reports of the Pollution Control Board, Groundwater Department, Government Enquiry Committee Report, articles and previous studies. As per the pamphlets of the Coca Cola Virudha Samara Samithi (CVSS), and the Plachimada Study Circle, it is evident that a region of 3 KM around the Coca Cola plant is affected by water pollution and depletion. The plant is bordered by four colonies: Plachimada, Vijayanagr, Madhavan Nair Colony and Rajiv Nagar. All the four colonies except Rajiv Nagar Colony belong to the Perumatty Panchayat; Rajiv Nagar Colony that lies in the southern part of the Coca Cola Plant belongs to the Pattenchery Panchayat. The present study took samples from each colony in proportion to their respective total households. Out of 2035 total households, 305 households, which amounts to 15 percentage of the total households were randomly selected and surveyed. The actual number of households from each area was taken from Panchayat records and respective Anganwadies. Schedules were used for collecting information. The primary survey was conducted during the months of November and December of 2014 and January of 2015. Out of the 305 samples, 77 respondents belonging to the survey area worked in the Coca Cola Plant while it was in operation. Closely 83 respondents were agriculturists and 70 respondents belonged to the scheduled tribe. Responses from these three categories were separately analysed to capture the perceptions of the ex-employees of the plant, and to gain insight into the impact on agriculture sector and the impact on the tribal population.

Concepts and Definition

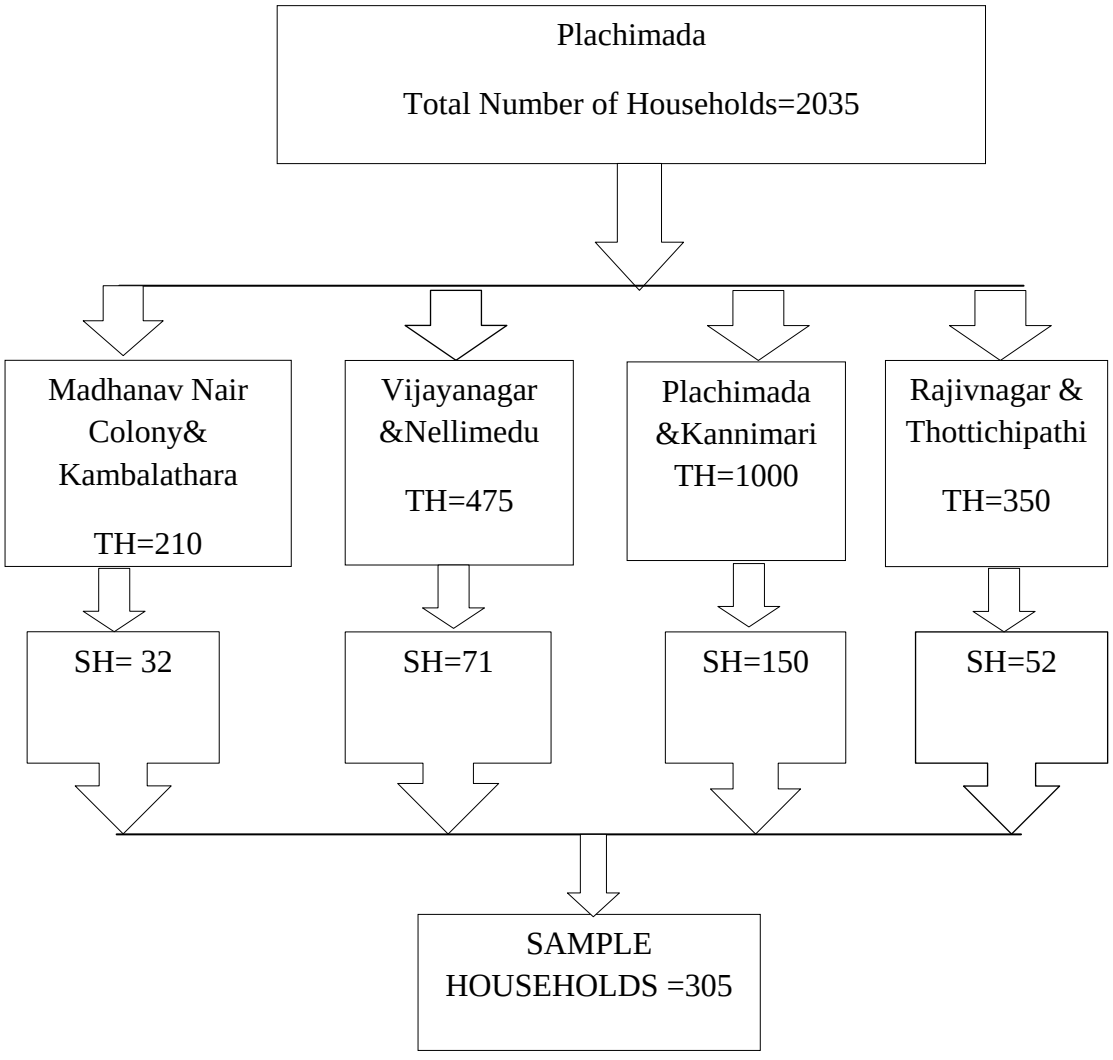
Household: A group of persons living together and taking food from a common kitchen constitute a household.

Plachimada: Although Plachimada is one of the four colonies around the Coca Cola Plant, this study uses the name Plachimada for the entire study area.

Time period: There are three phases in this study: Pre- Cola period (before 2000), Cola period (2000-04) and Post- Cola period (after 2004). The impact analysis is done focusing on these time periods.

Study Area and Sample

Flow Chart .1.1. Sample Frame.



Flow Chart 1.1 shows the sample selection process. There are 210 households in Madavan Nair Colony and Kambalathara regions that lie on the northern side of the Coca Cola Plant. Just 32 households that is 15 percentages of 210 total households were surveyed in this region. Similarly, households were taken from all sides of the plant. From the East, 71 households of Vijayanagar Colony and Nellimedu regions, from West, 150 households of Plachimada and Kannimari regions, and from South, 52 households from Rajivenagar and Thottichipathy regions were taken as sample households.

Methods and Tools Applied in the Study

The study uses an adapted version of Elinor Ostrom's multifaceted approach of common pool resource management along with a subaltern perspective. A detailed discussion on the formulation of this analytical framework is given in the second chapter. The details of the adaptation of Ostrom's theory in the present study are given in the seventh chapter. Ostrom has identified the presence of certain attributes on the natural resource concerned and its users, for the success of common pool resource management. In order to analyse the role of people's movement in protecting the groundwater in Plachimada, the study scrutinizes the presence of Ostrom's attributes in the Plachimada struggle.

To analyse the socio economic profile of Plachimada, the study has used Gini Co-efficient, Lorenz Curve and Kruskal Wallis Tests. Inequality among the households was analysed on the basis of variables such as total monthly income and total monthly expenditure of households, area of landholdings possessed by them and the value of movable and durable assets owned by these surveyed households. Gini Co- efficient and Lorenz Curve were used to capture the extent of distributional inequalities in income, expenditure, land holdings and assets in the study area. An attempt was made to examine caste wise economic inequalities in the study area for which Kruskal Wallis tests were applied. To analyse the caste wise inequalities in each of these variables, separate Kruskal Wallis Tests were applied. A non- parametric test was purposively used as the distribution of data on income, expenditure, area of land and values of assets could not be normalized despite attempting a log transformation.

The study has examined the impact of the Coca Cola Company on various aspects of the economy of Plachimada using statistical tools like Chi- Square Tests, Kruskal Wallis, Mann Whitney U Tests, and Likert Scale Analysis. The study relied on the aforementioned non- parametric tests as the data did not tend to be normal. Special focus was placed on the impact of the Company on environment reckoning factors such as availability of water and the levels of contamination of water sources. In order to analyse the environmental impact of the Coca Cola Company, responses on various statements pertaining to environmental degradations were recorded from the respondents using a five point Likert Scale.

Chi-Square was used to test the association between the presence of the Coca Cola Company and availability of water. In an attempt to analyse the condition of water in the three time periods, Chi-Square Test was applied. Again, to analyse the association between the borewell dependence and presence of the Company and also between lorry water dependence and presence of Company, Chi-Square test was applied. The drought condition and presence of the Coca Cola was again tested by Chi-Square test. The increase in the bore well depth and presence of the Cola Company was tested by Mann Whitney U Test.

The impact of the Company on the agricultural economy was analysed, based on the presence of wet lands in the study area following the operation of the Cola Company, for which Chi-Square test was used. To analyse the health condition and presence of the Cola, Kruskal Wallis test was used.

In the secondary data analysis of FDI inflow from 1970 to 2013, percentage increase/decrease and Compound Annual Growth Rate (CAGR) were used.

1.10.Limitations of the Study

Due to the paucity of Company data, the study did not attempt the water foot print analysis[4]. The concept of water footprint is useful to study the impact of

[4] Water foot print - water foot print analysis helps to know the quantity and type of water used in the production of a particular product. There are three types of water use, green, blue and grey water foot prints. Green water foot print is the volume of rain water used in the product. Blue water is the volume of surface or groundwater used in the product, grey water is the volume of polluted water released during the production.[4]

a business or a product because the water footprint of the product will show the use of blue, green and grey water incorporated in its production. Further, the vulnerability of the local water system where the footprint is located, the actual competition over the water in the local system and the negative externalities associated with the use of water all help in the impact analysis. Another area missed out by the study is virtual water trade analysis, since this also requires Company data. When a commodity or service is traded, the buyer essentially imports (virtual) water used in the production of the commodity. MNCs in soft drink and bottled water business are actually exporting the value of our virtual water by selling our own water to us and bringing profit to their home country. The unfavorable virtual water trade is enormous in this context.

In the context of international trade, the Plachimada issue can capture empirical evidence and insights on the concept 'curse of natural resources' which states that an economy of large natural resource endowment lacking strong environmental policies and with an ill-defined common property rights may be exposed to detrimental development outcomes. The study has not viewed the issue in this perspective also.

The Plachimada issue took place in 2000-2004. It was very difficult to collect data from the respondents regarding the health and education during that time. Only a few respondents could recollect details of those issues.

1.11. Chapter Scheme

The first chapter is the introductory chapter where the significance of the study, statement of the problem, objectives, methodologies and limitations of the study are discussed. The second chapter discusses the theoretical background of the study and explains the analytical framework of the study. The third chapter is an overview of Multinational Corporations, its role, trend and impact on Indian economy. The fourth chapter is a review of the history of Plachimada issue through previous studies. The fifth chapter analyses the present socio economic profile of people of Plachimada through primary data. The sixth chapter analyses the impact of the Coca Cola Company in Plachimada through primary survey especially on

drinking water, agriculture and employment. The seventh chapter analyses the role of people's movement in protecting the groundwater. This chapter also analyses the current groundwater scenario of Kerala, the current groundwater governance and significance of the community based management system of natural resource. The eighth chapter briefly summarizes the thesis. The following are the chapter headings.

1. Introduction.
2. Theoretical Framework.
3. Multinational Corporations; An Overview
4. Plachimada; Issue and Concerns
5. Socio Economic Profile of the Sample Respondents.
6. Impact of the Coca Cola Company on Local Economy of Plachimada.
7. Implications of People's Movement in Plachimada
8. Summary, Findings and Conclusion.

Thus the introductory chapter discussed the background of the study, statement of the problem, research questions, objectives, hypothesis, and methodology. The next chapter is about the formulation of an analytical framework based on theoretical foundation.

2

Theoretical Framework

CHAPTER 2
THEORETICAL FRAMEWORK

2.1. Introduction

The study '*The Impact of Multinational Corporations on Local Economy: A Case Study of Coca Cola at Plachimada'* employs a trans- disciplinary approach to International Trade Theory, Environment Economics and Development Economics. The impact of Coca Cola on local economy, livelihood issues, civil society movements and the common property right issue of groundwater subsequent to the operation of the Coca Cola Company at Plachimada are the key areas of the study.

The corporate led globalization has enormous positive and negative impacts on the developing world. The reports and documents of the countless environmental and social justice groups around the world reveal the corporate involvement in various environmental problems that have surfaced in the developing world. In the academic research many attempts have been made to build an analytical framework based on which these issues can be studied. An attempt is made here in this direction. This chapter is divided into in four sections. The first section deals with the theories of Multinational Corporations considering their overwhelming presence in the developing world. The second section talks about the theories relating to the impact of MNCs on the developing economies. Endowed with bountiful natural resources, developing countries are bound to use environment as a critical input necessitating a perusal of the theories of natural resource economics and environment as focused in the third segment. The fourth segment develops a theoretical perspective of environmental impact of operations of MNCs in developing countries reckoning the fact that environmental laws are lax and seldom enforced in these countries.

Since globalization, the impact of MNCs on developing economies has become a topic of great debate. The MNCs using natural resources have serious impact on the environment of the economy. The natural resource depletion and environmental pollution seriously affect the life and livelihoods of the

marginalized and vulnerable sections of the society. The environmental justice movements all over the world and the reports of the various environmental agencies claim the corporate involvement in most of the trade related environmental issues. Resolutions at the United Nations Conference on Trade And Development (UNCTAD) conference have also increasingly reflected a growing suspicion of FDI. The peoples' movements have been evolving as an effective weapon to resist the harmful multinational activity.

Kerala has also witnessed an environmental justice movement against the multinational giant the Coca Cola Company in Plachimada. The people's movement was against the unscrupulous water extraction and pollution of water by the Company in the local economy of Plachimada. The peoples' struggle along with the active involvement of the Panchayat and Non-Governmental Organizations resulted in the closure of the Company. But the environmental degradation and water scarcity still haunt the people. The people's movement still continues for the compensation from the Company. Several studies have been done on this issue, especially on the role of the Coca Cola Company in the water pollution and water scarcity.

2.2. Theories of MNCs

The classical economists Adam Smith (1776) and David Ricardo (1817) could very well establish through their respective theories; Absolute Cost Advantage and Comparative Cost Advantage theories, the gains from free trade. But both in theory and practice, the effect of MNCs led trade is to nullify these theories. The Factor Price Equalization theorem of Paul A Samuelson (1948) also seems apprehensive to function in the context of MNCs led trade. Thus, most theories which support free trade are not applicable in the settings of MNCs. The major reason may be that any theory of free trade is based on the assumption of perfect competition and any theory of Multinational activity is based on imperfect competition.

There are a few theories which explain why multinationals do investments overseas. One explanation is given by the Internalization Theory (Rugman, 1979)

Investments by MNCs are considered as a profitable alternative of exporting the product or giving license to produce them. The operations of MNCs are pre occupied with profit.

The Internalization Theory states that, MNC embodies in itself specific advantages in research, knowledge, management and technology. These advantages cannot be sold on a market and are protected by the MNC through its decision to set up foreign subsidiaries that produce the same type of product as in the home country. This allows the MNCs to maximize its level of profit. It was also shown that foreign operations give an additional advantage to the MNC in that the risk of its profits can be reduced through international diversification of sales. Thus by locating production in low cost countries and making standardized product, a multinational Company keeps costs low and reap huge profits.

Another technique through which an MNC can accumulate profit is through transfer pricing. A developing country attract multinationals with the hope of mobilizing the public financial resources for development projects by taxing the MNC profits and participating financially in their local operations. But, MNC on the other hand, can avoid much local taxation by artificially inflating the prices it pays for the intermediate products purchased from overseas affiliates so as to lower its stated profits. This phenomenon is known as ‘transfer pricing’. Transfer pricing is a major practice of MNCs and over which host governments can exert little control (Todaro, 1985).

Moreover, Dunning's Eclectic Paradigm (1980) identified 3 potential advantages of foreign operations of an MNC. They are Ownership advantages, location advantages, and internalization advantages which give the MNC the monopoly power and thereby make the foreign operations profitable. Ownership advantages consist of proprietary technological know- how, Research and Development (R&D) capacity, reservoir of experienced workers and managers with industry specific human capital, trademarks and known brand names. Internalization advantages include the internal economies of production such as production sharing, economies of scale in overhead operations, economies from a broader market position and avoidance of costs of negotiating contracts. Location

specific factors comprise the price of internationally immobile inputs, differences in quality of infrastructure, transportation costs, tariffs and Non-Tariff Barriers (NTBs), economies of marketing when production is located near the market and difficulties of foreignness.

Finally, Industry specific Multinational investment takes two important forms: horizontal and vertical integration. Large corporations wish to integrate horizontally by opening new subsidiaries in various parts of the world. This is often done in a predatory way: one or several existing, competing firms in the host country are simply bought up by large international rival. In this process competition is reduced. Vertical integration is also a strong motive for multinational investment. The MNC through its overseas investment integrate vertically the backward and forward production processes. One obvious reason for vertical integration is a desire to reduce risk.

From all these theories, it is evident that the multinationals engage in a range of activities, many of which have little to do with the development aspirations of the countries in which they operate.

The next segment is concerned with the theories of impact of MNCs on developing economies.

2.3. MNCs on Developing Economies

There are various theories regarding the impact of MNCs on the developing economies such as classical political theories, Marxian theories, Neo Liberal, Keynesian, Dependency School, World-System theories, Race To Top Hypothesis and Race To Bottom Hypothesis, NIMBY Hypothesis, North-South trade relation argument and Revealed Comparative Advantage Theory.

The three classical political views on MNCs are radical, free market and pragmatic nationalism. Radical (Hymer, 1966 and Cohen, 1979) view treats MNCs as an instrument of imperialism and a vehicle for exploiting domestic resources and people by foreign capitalist and firms. The free market (David Ricardo and Joseph Schumpeter) approach on MNCs suggest that, MNCs, unrestricted by

government intervention, will enable countries to tap into their absolute or comparative advantages by specializing in the production of certain goods and services. Most countries practice a pragmatic nationalism (Prebish, 1950) on MNCs, considering both the pros and cons of FDI and approving the MNCs only when its benefits outweigh its costs.

The Marxists (Baran, 1952, Frank, 1967 and Sweezy, 1966) saw the MNCs in the beginning of the twentieth century as the natural consequence of a maturing capitalism, the logical fruits of an ever hardening competition, and the last manifestation of a doomed system before its collapse. Direct investment has in the Marxian tradition played a double role, and in both roles they have important political implications. In the first variant, direct investments are necessary to postpone the collapse of capitalist system and in the second middle variant they are merely one of many forms of capitalist oppressions.

Neo liberals (Milton Friedman 1951 and his followers) advocate for MNCs in developing economies since they believe that it will contribute to the development of the country. They emphasized the positive spillover effects of MNCs such as technology, efficiency and corporate governance which the developing economy seriously lacks. These pro-MNCs economists emphasis the 'halo effects' of MNCs that the host country can incorporate from the best practices of developed countries like corporate and environmental governances, accounting rules and legal traditions.

The Keynesian school presents a cautious approach to MNCs. They argued that the effects of MNCs are different from country to country and it is different even within countries at different time as conditions change. They believe that free market may not ensure efficiency, the imperfect information, and different interests of host and home country can lead to market failure.

The Dependency School (Singer and Prebisch, 1949) argues that MNCs benefit the 'core' industrial economies at the expense of the 'peripheral' underdeveloped countries. As a result, MNC can contribute to an increase in the world inequalities instead of giving positive externalities.

The New Dependency School (Tausch, 2003) believes that the rise of MNCs has placed greater economic restrictions on the development of less developed economies. They regard MNCs as agents of dependency.

In underdeveloped countries, by contrast it is true that MNCs investment has created a few industrial jobs .World system theories (Immanuel Waller stein, 1974) are critical of such jobs, because, they pay low wages, offer few health benefits and provide a relatively unsafe working environment. World System theory opposes investment by MNCs in developing economies since it (1) slows economic development in poor countries, (2) harms their quality of life, (3) exploits women in poor countries, and (4) increases instability in some developing regions.

Even though MNCs extract raw materials from periphery and also build factories there to manufacture products cheaply, MNCs can be influenced to some extent, by factors with in countries; for example, government of poor countries can place environmental restrictions on MNCs or tax them more heavily. But now international banks and foreign governments insist on implementation of Structural Adjustment Programs (SAPs), of liberalization and deregulation of foreign investment, which prevent the less developed economies to influence the MNCs and thereby worsen the environment and quality of life for Under Developed Countries (UDCs) (Shaw and Wallace, 1996).

However there are debates regarding the environmental impact of MNCs by Race To Top Hypothesis (Berle and Means, 1932) and Race To Bottom Hypothesis (William, 1974). The Porter Hypothesis deep rooted in the Race To Top Hypothesis postulate that the stronger environmental policies can improve competitiveness in the market place by fostering innovation and efficiency thereby attracting investors. This phenomenon is also termed ‘pollution halo’ or ‘California effect’ (where higher air standards in California led to other US states to adopt similar levels).

The Race To Bottom Hypothesis is a counter argument to Race To Top Hypothesis. This hypothesis is explained by Pollution Haven theory according to

which the investors seek countries that have less strict or non - existent environment regulatory regime. But it seems to be unlikely that states will deliberately lower their standards and thus act contrary to national interest. It need not be deliberately lowering but the prevailing institution might be that weak which attract the MNCs. However, there is strong evidence that consciously maintaining low environmental restrictions in the hope of attracting more foreign industry is an extremely risky strategy (A dust bin strategy).

The Race To Bottom Hypothesis is also explained by NIMBY (Not In My Back Yard) Syndrome (Gray, 2002). It refers to opposition by residents to an investment proposal because it is close to them. Such residents believe that developments are needed in society but should be further away from their environment. Such opposition and local pressure vary depending on education, awareness, and income levels of the community.

The NIMBY Syndrome is justified by the North- South trade relation argument (Prebisch 1950). North–South trade relation has traditionally been characterized in terms of asymmetry in information. Now the environmental factor produces the asymmetry in the pattern of trade. The pattern of trade is apparently exploitative in the sense that the North (Developed world) consumes the dirty goods without having to damage its environment to produce them; the environmental cost is borne by the South (Developing world). If the same degree of environmental restrictions exists in South and North, asymmetry will be removed and there will be uniform distribution of dirty industries across the two worlds which would increase Southern welfare. This means imposition of Northern standards on the Southern production economy. Once the gap between the private and social cost is bridged in the North and the South alike, prices will reflect the social cost and the pattern of trade will reflect the true comparative advantage, stemming from either technology or factor endowment (Sanyal, 2001).

The North –South trade relation argument has been empirically vindicated by Patrick Low and Alexander Yeats in 1992 through Revealed Comparative Advantage. The Revealed Comparative Advantage (RCA) refers to a country's comparative advantage in a particular industry as reflected in its actual trade flows.

If a country‘s actual trade flows constitute greater share of dirty goods (pollution intensive goods) in its total exports, that country has Revealed Comparative Advantage in dirty industries. The empirical evidences reveal that, the relatively lenient environmental policies in the South (developing countries) may give them a comparative advantage in pollution intensive goods (Low and Yeats, 1992).

The Revealed Comparative Advantage theory is again established by the Industrial Flight Hypothesis (Leonard, 1988). There are attempts to offset the disadvantages of environmental pollution from those countries in which environment is already over utilized. One such attempt is to drive away the pollution- intensive industries to developing countries where the environment endowment is abundant. This is known as the industrial flight hypothesis.

It was widely predicted that differential national environmental factor endowments would have become more prominent in determining comparative advantage in industrial production and would reduce the location advantages of the highly industrialized nations where environmental factors have become increasingly scarce. It is a perverse rather than genuine comparative advantage.

Theoretically, investment flows into a country to maximize returns by exploiting the comparative advantage that exists in the form of cheap skilled and unskilled labor, abundant natural resources, lack of environmental regulation, and lax labor laws. Thus, the openness to trade and foreign direct investment might harm the environment of the host county.

The next section deals with the theories of natural resource economics and environmental economics. There is a tradeoff between MNCs activity and environment. Most of the trade related issues are concerned with the environment especially with the common pool resources, directly or indirectly. The following section deals with the theories of common pool resources.

2.4. **Theories of Common Pool Resources**.

Common pool resources occupy an important position both in natural resource economics and environmental economics. The high rivalry in

consumption and low excludability in nature are the main characteristics of common pool resources such as water, air, meadows, plants, forests, fish stock etc. Free or open access to the common pool resources often leads to negative externalities and market failure. A common pool resource or congestible good is rivaled in consumption. These resources have a zero price; everyone can take as much of the resource as is available without having to pay for the resource: it has a zero price. For, common pool resources, there is no gate keeper to control access. If common pool resource is scarce, the market will fail to efficiently allocate its use. Common pool resources are major cause of market failure. A common pool fishery causes the market to fail, so will a common pool wilderness area, a commonly-owned air space, a common pool aquifer, a common pool rain forest and a common pool road. As the market economy becomes the yardstick for measuring the worth of everything, more people are grabbing portions of the common pool resources as their private property. Many essential elements of society including ecosystems are slipping through our hands, and into the pockets of the rich and powerful.

There are three models giving the prediction that those using common pool resources will not co-operate so as to achieve collective benefits. They are Hardin's Tragedy of Commons (1968), Prisoners' Dilemma Game and Mancur Olson's Logic of Collective Action (1965). According to Tragedy of Commons, individuals acting independently and rationally according to each one's self-interest, behave contrary to the whole group's long-term best interests by depleting some common pool resources. Thus, freedom in a common pool resource eventually brings ruin to all. Tragedy of Commons leads to negative externality. The negative externalities are costs associated with an economic activity that are borne by the population at large but do not appear in the calculations of the producer. In the presence of externality, there is divergence between private and social costs and benefits. Private costs underestimate social costs, if the externality is negative. Under these circumstances a market failure occurs; because prices fail to provide the proper signals to consumers and producers. In developing economies the involvement of multinationals in market failure is very frequent in recent years. To save the common pool resources there is a need for either

privatization, which he believes prevents exhausting of natural resources, or other ways of posing limits to a free – for- all access to common pool resources (Hardin Garret, 1968). Prisoner's Dilemma Model of strategic choice and Olson's (1965) Logic of Collective action also lead to the conclusion that, rational, self-interested, individuals will not act to achieve their common interests. The recommended solution is either coercion from outside the group to force people to reach and maintain the social optimum or a change to private property regime.

William C Clark commented critically on Hardin's privatization solution that he was concentrating too much on the individual, forgetting what local communities together can achieve. Clark argued that under appropriate social and political conditions, conditions must be fostered and protected, local communities can and do co-operate in a sustainable way in using common- pool resources. He also emphasized the bottom-up learning for designing the management of common pool resources. He reiterated that open access of common pool resources has long been vital to the livelihood of many poor people; enclosure can have devastating effects on their prospects of survival. Efforts to protect the common pool resources must be integrated with the efforts to protect the common people (Clark, 1986).

Early in the 20th century the English economist Arthur C. Pigou argued for the government imposition of taxes on generators of pollution. Since the social cost of pollution is in excess of the private cost to the polluter (actually polluters have a negative cost since they save money by polluting), the government, the coercion body, should identify the polluter and intervene with a tax, making pollution more costly to the polluter. If the pollution is more costly to produce, the polluter will produce less pollution. This tax is popularly known as Pigouvian Fee or Pigouvian Tax. There will not be any difficulty for a giant MNC to pay Pigouvian Fee and over extract the common pool resource of the host country. Therefore, this solution is not ideal for common pool resource management.

While Pigouvian solution relies on government intervention, the Coasean approach relies on the pricing or free market. The Coase Theorem, developed by Ronald Coase (1960), describes the efficiency of an economic allocation or outcome in the presence of externalities. This approach facilitates bargaining

between the polluter and the victims. In practice, obstacles to bargaining a poorly defined property rights can prevent Coasian bargaining. One normative conclusion drawn from the Coase theorem is that property rights should initially be assigned to the actors for whom avoiding the costs associated with the externality problem are the lowest. But assigning property rights with no transaction costs is less likely to exist in the real world. The unfortunate aspect of institutional innovations triggered by market forces is that they pass on the greatest part of burden on those who have the least capacity to shoulder.

The tragedy of commons has several other potential solutions. One is to make the good excludable by charging a fee equal to the cost that using the good imposes on the system. Another solution is to assign Common Property Rights (CPR) to the resources. As per National Sample Survey 54th Round, resources accessible to and collectively owned\held\managed by an identifiable community and on which no individual has exclusive property rights are called common property resources. Access, use and exclusion are controlled by this group and thereby forcing users to internalize the effects that they are having on the good.

It is possible that within this group, members may have free access to the resources. But it is very likely that the group will develop rules and norms of use, restricting the use that any one individual is allowed to make of the resource. The reason that such rules emerge is the cognizance of the fact that unrestricted use by each individual is more likely to lead to resource extinction, adversely affecting the welfare of everyone and perhaps imposing an irreversible damage (costs) on future generations. A common property solution generally lies between the profit maximizing and the free access solution. However, common property solution can break down if, for instance, the defined group gets larger and larger because of population growth and in-migration. It may then pay any one individual to defect, break ranks and maximize individual benefit at the expense of the resource and the community's overall interests (Pearce and Turner, 1990).

Thus one can observe in the world that neither the state nor the market is uniformly successful in enabling individuals to sustain long term productive use of natural resource systems. This has prompted the communities to rely on

institutions resembling neither the state nor the market to govern some resource systems with reasonable degrees of success over a long period of time.

Common property resources are natural resources owned and managed collectively by a community or society rather than by individuals. In common property regimes, access to the resource is not free and common-pool resources are not public goods. While there is relatively free but monitored access to the resource system for community members, there are mechanisms in place which allow the community to exclude outsiders from using its resource. Thus, in a common property regime, a common-pool resource appears as a private good to an outsider and as a common good to an insider of the community. The resource units withdrawn from the system are typically owned individually by the appropriators. In the case of common property resources no one effectively owns the resources. The government can help the local institutions by providing a legal framework, and perhaps technical assistance. The legal framework should make it possible for local collective action to obtain legally enforceable recognition of their identity and rights within the society, and to call upon the state as an enforcer of last resort.

Even if CPR is assigned and government enforces the legal framework for collective ownership and use of common pool resources, it is difficult to ensure the availability of these resources to all the classes equally in a caste ridden society with feudal or semi- feudal past. Whenever, they are available they are not of equal significance to different classes. Those who have access to private sources either self- owned or bought, would not starve if the common property resources are degraded. On the other hand the poor would have to travel long distance if it gets degraded. The programs for management of common property resources could be developed in such a manner that poor who have greater dependence and greater stakes in the improvement and management of these natural resources do not bear excessive burden of its degradation, simply because they are not the only ones who led to the degradation in the first place. The survival needs of the poor in the short run must be explicitly provided for in any developmental strategy so that the ability of the poor to participate in the contest for control of value added resources in long

run is enhanced. The tragedy will be far more severe if common pool resource improves without improving the lot of common people.

A comprehensive solution to common pool resource dilemma was provided by Elinor Ostrom (1990). She explains how societies have developed diverse institutional arrangements to manage natural resources and avoid ecosystem collapse even though some arrangements have failed to prevent resource exhaustion. Her work emphasized the multifaceted nature of human–ecosystem interaction and argues against any singular "panacea" for individual social-ecological system problems.

Ostrom identified eight "design principles" of stable local common pool resource management:

1. Clearly defined boundaries (effective exclusion of external un-entitled parties);
2. Rules regarding the appropriation and provision of common resources that are adapted to local conditions;
3. Collective-choice arrangements that allow most resource appropriators to participate in the decision-making process;
4. Effective monitoring by monitors who are part of or accountable to the appropriators;
5. A scale of graduated sanctions for resource appropriators who violate community rules;
6. Mechanisms of conflict resolution that are cheap and of easy access;
7. Self-determination of the community recognized by higher-level authorities; and
8. In the case of larger common-pool resources, organization in the form of multiple layers of nested enterprises, with small local CPRs at the base level.

Thus, Ostrom's multifaceted approach incorporates the functioning of the community, state, and the NGOs to protect the natural resources and safeguard the interests of the local people.

Even though Ostrom has not developed her theory in the context of MNCs, her approach for common pool resource management is vindicated in the Plachimada struggle, where the people's movement with the support of state and NGOs has succeeded in protecting environment and safeguarding the interests of the local community. The details of the adaptation are given in the seventh chapter.

The last section discusses the analytical framework for studying the MNCs related environmental issues.

2.5. Towards an Analytical Framework

The economic development and strategies for obtaining economic growth, especially in globalized world involves the extraction and utilization of natural resources at a pace that by far exceeds their capacity to regenerate. The benefits and gains from this exploitation are controlled by a privileged few at the expense of millions who are dependent on nature for their subsistence (Kothari, 1996). Since the new economic reforms, the flow of investment through multinationals is tremendous in India. The impact of these investments is ambiguous. However, the growing anti- MNC movements primarily led by the subaltern people for their basic right to survive necessitate a subaltern perspective in foreign investment policies. Someone asked Mahatma Gandhi how a suitable development project could be selected. His answer was that if a development project benefits the poorest of the poor that project is considered to be the most suitable. This perspective is called subaltern. It refers to any person or group of inferior rank and station, whether because of race, class, gender, sexual orientation, ethnicity, or religion. At the macro level, the MNCs from the rich nations make profits at the cost of environmental degradation of the developing nations. At the micro level, within the developing countries, the poorest of the poor whose dependence on environment is enormous, are the victims of the multinational led displacement and exploitation.

There exists a division of North- South environmentalism. In more affluent countries environmentalism tend to be about protecting wild species and natural habitats whereas poor people in less developed countries seek to stop environmental degradation because it directly affects their subsistence. Nature must be saved and conserved, not for its own sake but because natural resources are needed for daily survival. Thus, Northern preservation of wilderness contrasts against Southern conservation for survival (Guha and Alier, 1997). Moreover, in developing economies the dependence of poor people on natural resources is so intense that their survival, life and beliefs systems are intertwined with rivers, forests and mountains. So care should be taken to protect and respect their life. In this context a subaltern perspective of viewing the study seems imperative.

2.6. **Conclusion**

This chapter analysed theoretically the relation between MNCs and its impact on developing economies. The poor and vulnerable sections of the society are worst affected by environmental destructions by the extractive MNCs. Thus, a subaltern perspective is selected as theoretical perspective. We need investment by MNCs, with a subaltern perspective of asking, how this investment will benefit the poorest of the poor. And in the context of MNCs exploiting the common pool resources, we need the weapon of people's movement equipped with the essential ingredients of Ostrom's approach such as democratic decentralization, active NGOs involvement and Common Property Right of natural resources.

Thus the common characteristic of MNCs is to exploit the weaknesses of a local economy. The over extraction of groundwater at Plachimada by the Coca Cola Company is seen as an act of exploitation of the MNC, who gave priority to development via employment generation. Soon they realized there is no life without nature, without water. The struggle against the Company was begun by the poorest of the poor, especially women folk in Plachimada, as they were the worst affected by the water contamination. One of the demands of this subaltern people was ownership and governance right over their water. Thus, an adapted version of Ostrom's multifaceted approach to the management of common pool resources

along with a subaltern perspective may be taken as an analytical framework to study the issue.

The size and extension of MNCs in developing economies are ever expanding. The debate over the impact of MNCs still continues. Hence the next chapter elaborates certain aspects of MNCs.

3

Multinational Corporations: An Overview

CHAPTER. 3.

MULTINATIONAL CORPORATIONS: AN OVERVIEW.

3.1. Introduction

This chapter is an attempt to capture an overview of Multinational Corporations (hereafter MNCs). An attempt is also made to describe the trend of inflow of foreign companies in India. The chapter is classified into 4 segments. The first segment is introduction, the second, is impressions on MNCs, the third, is trend of foreign companies in India, and the fourth segment is conclusion.

The rise and development of MNCs have played a crucial role in the extraordinary growth of international trade and capital flows during the past few decades. These huge business firms present a unique opportunity and a host of serious problems for the many developing countries in which they conduct their business (Todaro, 1985). In the short time since the 1950s the rapid growth of international direct investment resulting in the emergence of the MNCs has made these organizations a crucial component in the world economy. Multinational companies are the main agency through which globalization is taking place, and globalization is in turn promoting the rapid development of multinational companies. In other words they nourish each other. Globalization is a process which promotes the growth of large companies because to be successful and to increase their market share they need a presence in the maximum number of countries. However, accurate data is not available for the MNCs; therefore, the focus of multinational activity is often limited to the level of Foreign Direct Investment (hereafter FDI). James. R. Markusen (2004), in his book titled 'Multinational Firms and the Theory of International Trade'; use the abbreviations MNC and FDI fairly interchangeably.

3.2 On Multinational Corporations

The International Labour Organization (ILO) observes, "The essential nature of a MNC lies in the fact that its managerial headquarters is located in one country while the Company carries out operations in a number of other countries as

well''. Their headquarters are usually located in the industrialized market economies. The basic advantage of FDI through multinationals is that it is more stable than other financial flows and represents a long term commitment to the host country. This investment is easier to service. Multinational activity takes the form of (a) acquiring stock of the existing foreign enterprises to participate in the management of the concerned enterprise; mergers and acquisitions, (b) establishing abroad new subsidiary with 100 percentage ownership; Greenfield investment,(c)participating in a joint venture through stock holdings; joint venture, and (d) establishing new branches or expanding existing ones by acquiring shares; licensing agreement.

The MNCs have become the dominant organizational form of modern capitalism. James. B. Glattfelder (2012) in his TED[5] talk "Who Controls the World" observes that less than one percent of the companies were able to control 60 percentage of the global revenue and this less than one percent of the companies constitute the top 20 MNCs. It now commands tremendous influence and power over the economies, social, political and cultural lives of many nations and people. This development has given rise to many conflicts, contradictions and very often destabilizing forces within both the national and international economies.

There are plenty of evidences to show that the beneficiaries of the massive expansion in international trade are MNCs. The fact is that multinationals are currently responsible for two – thirds of world exports of goods and services, almost 10 percent of all domestic sales in the world. This gives some idea of their growing importance. For example 51 percentages of top 100 economies in the world are led by MNCs. Just 500 MNCs control 70 percentage of international trade and a mere 1 percentage of the MNCs control half of the world's FDI. And whilst the global economy typically grows at 2 to 3 percentage every year, multinational corporations have 8 to 10 percentage growth rate. MNCs are now as big as many nation states- 300 MNCs now account for 25% of world assets. Individual companies now have more wealth than whole countries. Mitsubishi is

[5] TED (Technology, Entertainment, Design) global set of conferences run by a non- profit sapling foundation under the slogan" Ideas worth Spending".

equal to the 22nd largest economy in the world, General Motors the 26th, Ford the 31st. Each is larger than the economies of Denmark, Thailand, Turkey, South Africa, Saudi Arabia, Norway, Finland, Malaysia, Chile and New Zealand, to name but a few. Corporate sale account for two third of world's output, and as much as 40% of the world trade now occurs within the MNCs (Dehesa, 2006).

Table 3.1. The List of the Top 10 Countries on the Basis of Number of Multinational Companies in 2015.

Rank	Country	Number of MNCs.
1	US	128
2	China	98
3	Japan	54
4	France	31
5	UK	29
6	Germany	28
7	South Korea	17
8	Netherlands	13
9	Switzerland	12
10	Canada	11

Source: "Global 500, 2015" Fortune. Number of Companies, data taken from the "Country" box.

Table 3.1 shows the country wise ranking on the basis of number of MNCs. The US economy holds the first position with 128 MNCs, followed by China with 98 companies. India ranks 114th position in this list. Table 3.2 shows the top ten MNCs in the world.

Table 3-2. Ranking of Multinational Corporations on the basis of revenue, 2014-2015.

Rank	Company	Country	Field
1	Wal-Mart Store	US	Retail
2	Sinopec	China	Petroleum
3	Royal Dutch Shell	Netherlands	Petroleum
4	China National Petroleum	China	Petroleum
5	Exxon Mobil	US	Petroleum
6	British Petroleum	UK	Petroleum
7	State Grid	China	Power
8	Volkswagen	Germany	Automobile
9	Toyota Motors	Japan	Automobile
10	Glencore	Switzerland	Mining.

Source: "Global 500, 2015", Fortune.

Table 3.2 is taken from fortune magazine, an annual ranking of the top 500 corporation world- wide as measured by revenue. US based Wal-Mart occupies the first position in the ranking. China has three Multinational giants to its credit. The Indian Oil Corporation of India occupies a 119th rank in the Global 500 list.

The MNCs produce a large proportion of all manufactured products, employ tens of millions of workers, greatly influence consumer choices and dominate important segments of the world's economies through their global operations. The enormous and varied capital resources of these major corporations enable them to adopt and change technology on a massive scale. The MNCs are characterized by gigantic scale of operations, large research budgets and geographical as well as product diversity. They own intangible assets such as established brand names, proprietary technology, a reservoir of skills and organization capable of mastering complex tasks, which gives them an edge over their rivals (Vernon, 1977). MNCs are equipped with international information networks and respond to global opportunities with centralized decision making.

MNCs are likely to have concentrations in industries in which their intangible assets provide them with an edge over their local counter parts. MNCs' assets, their competitive rivalry and other aspects of conduct are different from those of their local counterparts. These characteristics of MNCs have implications for the industrial distribution, conduct and performance of their affiliates in host countries.

Foreign investment by MNCs gives rise to costs and benefits for the investing country and the recipient country. There is no idea on what types of costs are borne and what benefits are enjoyed by the investor and the recipient. Each side has arguments to prove points. This disagreement is indicated in the two schools of thought; one holding pro-globalization and the other holding anti- globalization views (Chopra, 2003).

Hollis.B. Chenery in his 'Two Gap Model' states that the main hindrance of developing economies' attempt to development is saving gap and trade gap. Since the domestic savings is inadequate to meet the desired investment in such economies, there is a gap between the targeted investment and domestic savings. The developing economies can upsurge their export through the MNCs. Thus foreign investment through MNCs helps to bridge saving gap as well as the trade gap. Thus, contributes in increasing the rate of investment in the economy.

MNCs bring new technologies in both production process and products. Developing countries have abundant skilled laborers to absorb these technologies and can benefit in this way. Studies have revealed that FDI is an important vehicle for the transfer of technology thus contributing to the growth of the host country since it develops a minimum threshold level of human capital.

Compared to the advanced economies, the developing economies have a narrow domestic market with low degree of specialization of labor. This will hinder their export led development strategy. The MNCs helps these economies to reduce this constraint since they can export easily from these countries because MNCs have the unique advantages of managerial skill, technology and linkage to

the world markets. However, 'the market- seeking' MNCs are less export oriented, so the expected export led development is less likely to occur.

In addition to that, the developing countries consider foreign investment by MNCs better than borrowing. Since in the case of MNCs, the outflow will occur only when actual profit is earned and repatriated. But in the case of borrowing or debt servicing, outflow will occur at good and bad times alike.

Another advantage of MNCs is that it is less vulnerable to external shocks like recession. MNCs have been playing a crucial role in helping the developing economies to supply the ever increasing demand for infrastructure. The MNCs' investment is notable in key sectors like electricity, telecommunication, and transport.

On the contrary, currently the concerns which has been voiced by the United Nations, the International Labor Office, individual nation states and many other national and international organizations are based on the scale and methods of these enterprises, which pose dramatic potential threats to individual economies or even to economic independence. For the coming of MNCs raises the threat of a new form of economic colonialism and significantly reduces the power of individual nation states to determine their own independent economic, social and other such policies (Channon and Jalland, 1979). Moreover, the dictionary of the International Society for Ecology and Culture (ISEC) defines globalization as, 'the process by which governments give away the rights of their citizens in favor of speculative investors and MNCs'.

The anti-MNCs school of thought believes that MNCs are economically detrimental to the growth and development and a source of great potential for significant social harm. The reasons for this are numerous. MNC's overwhelming economic activity may lead to lower the rate of domestic investment due to crowd-out effect. Sometimes the MNCs investment may relatively be an expensive source of foreign capital, because the actual capital flow may not be very large and that MNCs through their market power, raise cheap funds in the host country and

crowd out other socially desirable activities. Most of the MNCs are monopolistic or oligopolistic in nature. Through non–price competition, they raise the entry barriers which the domestic firms cannot afford. The existing firms merge with the MNCs because they cannot compete with the multinational giant. Thus, the presence of MNCs in a host country may conflict with building strong national firms. Moreover the capital contribution of MNCs may take the form of machinery or capitalized intangible such as know-how and good will etc., these are not going to help the developing economies in terms of finance capital.

Another argument against MNCs is that, MNCs often exploit the labors in developing economies by paying them low salary and other emoluments. MNCs increase the level of inequality; the employment generation by MNCs is focused on the educated skilled laborers. Furthermore, Corporate Watch[6] (2000) data shows that the 200 top MNCs together employ just 0.75 % of the global workforce and many of them are busy in 'downsizing' by shedding jobs.

Similarly, anti-MNC school of thought argues that, the MNCs affect the market structure aggressively by their brand name and advertisement. The MNCs are providing inappropriate, unhealthy product to the developing economies, the products of MNCs are not suitable to the developing nations' taste and preference. The MNCs' presence may lead to adverse development, such as political bribery, malpractices, tax evasion and falsification of records to hide illicit practices or weakening control over economic policies, false advertising claims, price fixing, marketing of untested and unsafe products, pollution of the environment and disregard of safety regulations in the manufacture of products. The MNCs have often significantly changed the earth's ecological environment and balance on a large scale. Their ethics and sense of social responsibility have been seriously questioned. Moreover, the MNCs, because of their size and international connections, have certain flexibility for escaping regulations imposed in one country.

[6] An independent agency acts as watch dog of the activities of MNCs.

Also, the dependence and prevalent conflict between the host country and MNCs are related to the integration of these economies into a system of corporate imperialism based on international capitalism where fundamental power in the world system is held by the owners and managers of capital, who exercise this power over the developing economies to appropriate surpluses and accumulate further capital. Thus in the developing economies, the governmental bureaucracies, workers, peasants, and the unemployed are to a greater or lesser degree dominated and exploited by the MNCs.

Often, the basic objective of MNCs and governments may contradict. The host governments aim at development within a national context. The MNCs seek to enhance their competitiveness in an international context. Or, a host country may seek new technologies while foreign affiliates may wish to use mature technologies. Or again, an MNC may find it efficient to close affiliates in the face of import liberalization or shifting comparative advantage while a host country wants to preserve employment. The MNCs may seek stronger protection for intellectual property rights, while a host country may favor weak intellectual property rights to permit greater diffusion of technology. There are many situations in which strategies and needs can differ between the MNCs and host countries. Not all MNCs are, therefore, always in the best interest of the host countries. Some can have an adverse effect on development.

Analogously, MNCs like other firms have to respond to government's policies. However, they are better equipped than national firms to escape the constraints of policies that they find inconvenient. They can move their activities abroad more easily, or use internal channels (e.g.; transfer pricing) not accessible to national firms. In addition to that, they can also respond to policy signals in a differentiated manner. An MNC can simultaneously have import- substituting and export –oriented facilities in different host countries. Under certain conditions, they can persist more than national firms because of their access to a whole range of resources.

Economic globalization paved the way for the corporate dominance of political life, which poses a serious threat to democracy. Countries are forced to compete with each other to attract MNCs. Developing countries on their rush to create an 'investment friendly atmosphere' for the MNCs with low tax and deregulated environment, is replacing public spending by inducement to potential investors; corporate welfare is getting priority over human welfare on governments agendas. Just as investors are free to come, so they are free to go. Actual or threatened relocation of MNCs to less regulated, lower waged economies is exerting downward pressure on jobs and labor standards throughout the world.

The urgent need for a tighter regulatory framework for MNCs is illustrated by the effect they have on the environment. Mass movements against the MNCs that the developing world witnessed in the last two decades were mainly for their environmental effects. MNCs produce more than half of the global greenhouse emission from the industrial sectors that have the greatest impact on global warming. They have virtually exclusive control on the production of chlorofluorocarbons (CFCs) and their replacement gases. MNCs dominate the extraction and trading of natural resources that threaten global forests, water and marine resources together with the people who depend on them. MNCs have rarely accepted responsibility for the social and environmental impact of their activities unless publically shamed into doing so by civil society movements.

All previous efforts to regulate MNCs at the international level have failed. In 1993, attempts to finalize a code of conduct on MNCs were formally killed off and the United Nations center on MNCs itself was closed down. UNCTAD's code of conduct on technology transfer and its set of principles on restrictive business practices have been marginalized by developed countries who do not want to see them come into effect.

Nowadays, elections make no difference and the political system fails to respond to common man's concerns, however, protests have emerged as enough of a response. The mass movements against the MNCs have been evolving as a panacea to check the evil practices of MNCs. However, not all mass movements

are fruitful in their mission. The power certainly has been handed away from the politicians to the MNCs on an unprecedented scale, and companies now have extraordinary strength and influence, sometimes far more than governments. This may not be allowed to become a signal of death of democracy, rather be the furnace for a new politics, strong, local and national governments.

The next segment is the trend of foreign investment through MNCs in India.

3.3. Trend of Foreign Direct Investment by MNCs in India.

Since 1991, the growth of MNCs in India is tremendous. However, the corporate led development has initiated a great debate regarding the intention of the Multinationals in India. The FDI through multinationals has helped India to become one of the ten fastest growing economies in the world. At the same time, the country witnessed a series of anti–MNC movement to safeguard the interest of the poorest of the poor. Table 3.3 shows the number of foreign companies operating in India from 1960 to 2015.

Table 3-3. Number of Foreign Companies Operating In India

Year	Foreign Companies	Percentage Increase/decrease
1960	565	-
1965	582	3
1970	561	-3.6
1975	510	-9
1980	315	-38
1985	324	2.8
1990	469	44.75
1995	619	31.98
2000	1045	68.8
2005	1840	76
2010	3138	70.5
2014-2015	3306	5.3

Source: Ministry of Corporate Affairs, Govt. of India.

From Table 3-3, it is evident that there is substantial increase in the number of foreign companies in India from 1990 onwards. During the period 1960 to 1990, the number of foreign companies reduced from 565 to 469. During 1980, there was a percentage decrease (-36) in foreign companies. However since liberalization of Indian economy in 1991, the number of foreign companies increased tremendously, at present there are 3306 foreign companies in India. The highest percentage increase was in 2000-2005, ie. 76 percentages. The reason for this shift may be due to the structural transformation of Indian economy from License Permit Quota Raj to Liberalization, Privatization and Globalization Regime.

Table 3-4. The inflow of Foreign Direct Investment in India during the period, 2001-2012.

Category	2001-04	2005-06	2006-07	2008-09	2010-11	2011-12
FDI inflow in Billion Rupees	251.05	394.57	1026.52	1906.00	1181.00	1555
FDI as a percentage of Gross Fixed Investment	3.4	3.6	8.3	12.9	6.9	8.6
FDI as percentage of GDP	0.9	1.2	2.9	4.6	2.4	3.0

Source: Handbook of Statistics of Indian Economy, 2011-12, RBI.

The annual average inflow of FDI in India over the years increased tremendously and reached peak during 2008-09 to Rs.1906 billion. There was a slowdown in the inflow in the succeeding years, because of the global financial crisis and economic slowdown. However from 2011 onwards the inflow picked up gradually as Indian economy was not much affected by the global recession (see Table 3.4).

The contribution of FDI in gross fixed capital formation has also been increasing and has reached its peak during 2008-09 to 12.9 percentage. Then due to

global slowdown, it slipped down to 6.9 percentage. The same trend is happening for the contribution of FDI as a percentage of GDP of Indian economy(see Table 3.4)

Table 3.5 shows the inflow of FDI in India from 1970 to 2013. A tremendous increase in FDI flow can be seen over the years especially from 1995 onwards.

Table 3-5. The Inward Flow of FDI in India from 1970-2013.

(US Dollar at Current Prices and Current Exchange Rate in Millions.)

Year	Amount	Percentage Increase/Decrease
1970	45	
1975	85	88.8
1980	79	(-)7.05
1985	106	34.17
1990	237	123.58
1995	2151	807.59
2000	3588	66.8
2005	7622	112.43
2010	27431	259.89
2013	28199	2.799

Source: UNCTAD, unctadstat.unctad.org.

Compared to the pre- reform period, the post reform period received substantial increase in the amount of FDI inflow to India. While there was a percentage decrease of (-) 7.05 in 1975-80, in 1990-95 the percentage increase in FDI inflow was 807.59(see Table 3.5).

The Compound Annual Growth Rate (CAGR) value calculated from the formula $Y=ab^t$ from 1978 to 1990 gives the value of 18.34 percentages. The CAGR value for 1990 to 2013 gives the value of 26.15 percentage. In the post

reform period the inflow of FDI increased from 18 to 26 percentages. (Complete table is given in Appendix 2).

The reason for such increase in the inflow of FDI is attributed to the liberalization of foreign investments policies. The New Industrial Policy of 1991 and all other succeeding policies have been intended in making India an' investor friendly' destination for FDI. This is obvious from the relaxation of ceiling of 40 percentage foreign equity under Foreign Exchange Regulation Act (FERA), removal of registration under Monopolies Restrictive Trade Practices (MRTP) Act, removal of restrictions of FDI in low technology sectors, automatic permission for technology agreement in high priority industries and removal of conditions for FDI with necessary technology agreements.

Moreover, Foreign Investment Promotion Board (FIPB) was established in 1990 and authorized to provide a single window clearance for all projects proposals regarded by it. The FIPB was reconstituted in 1996, with the transfer of the FIPB to Department of Industrial Policy and Promotion (DIPP). The state also introduced dual approval system for FDI proposals viz (1) through an automatic approval channel for FDI in 35 priority sectors by RBI up to equity participation of 51 % and (2) through formal Government of India channel via DIPP.

In addition to that in August 1999, Government of India set up Foreign Investment Implementation Authority (FIIA) within the Ministry of Industry to facilitate quick translation of FDI approval into implementation by providing a pro-active one step after care service to foreign investor like helping them obtain necessary approvals and their operational problems. FIIA is assisted by Fast Track Committee which has been established in 30 ministries or departments of Government of India for monitoring the difficulties for sector specific projects.

As per the N.K. Singh Committee Report on FDI (September 2002), the Government of India has raised the FDI limit to 100 percentages in sectors such as oil marketing, petroleum exploration, banking and financial services and real estate. However, some FDI restrictions have been imposed by the Government of

India in order to protect the interest of the country. Sectors such as atomic energy, lottery business and gambling and betting are prohibited.

The Central Government introduced a Consolidated FDI Policy of 2015 which aims to improve the ease of doing business and also to make the country the top investment destination. As per this policy, the foreign investment in defense and insurance hiked from 26 percentages to 49 percentages and prior approval of government is declared not necessary.

The UNCTAD ranking of the major countries using the Inward Potential Index covering 140 countries is depicted in Table 3.6.

Table 3.6. Country Ranking by Inward *FDI* Potential Index, 2011

Economy	Market Attractiveness	Availability of Low Cost Labor and Skills	Enabling Infrastructure	Presence of Natural Resources	Overall Rank
China	6	3	43	6	1
India	24	1	79	5	3
U.S.A	20	25	11	1	2
Russia	14	24	31	2	6
Korea	10	5	13	28	4
Australia	25	-	39	4	5

SOURCE: UNCTAD, 2011.

China ranks first in the Inward Potential Index, followed by, USA and India. The major attraction of Indian economy for the foreign investors is the availability of low cost skilled labor. The area where India lags behind is infrastructure. Thus, India is considered to be one of the best destinations for MNCs (see Table 3.6). The main features of Indian economy which attract MNCs are; huge market, availability of low cost skilled labor, the flexible environmental policies, weak institutional set up, abundant natural resources with absence of

Common Property Right of natural resources and strong macro- economic indicators.

The 2012 Attractiveness Survey done by Ernst & Young, states that the leading cities in India such as Bangalore, New Delhi, Pune, Mumbai, and Chennai draw 42 percent from the investment related projects that come to India from outside the country. They also generate 36 percent of the jobs that are created in India from these projects and account for 28 percent of the aggregate worth of such projects. The other cities in question are also performing creditably as far as foreign direct investment is concerned and taking several steps to spruce up their economy so as to enhance their viability for potential investors.

Table 3.7. The List of Top 10 MNCs in India

Rank	Name of the MNC	Field
1	Microsoft Corporations	IT Service
2	Nokia Corporations	Infrastructure Service
3	Nestle	Food and Beverage
4	Coca Cola	Soft drinks
5	Procter and Gamble	FMCG[7]
6	International Business Machine	IT
7	Pepsi Co	Soft Drinks
8	Sun Pharmaceutical	Pharmaceutical
9	Sony Corporations	Consumer Electronics
10	Citi Group	Financial Service

Source: Business Maps of India, July 8, 2015.

The top ten MNCs in India and their respective fields of operation are shown in Table 3.7. Microsoft Corporation, in the service of Information Technology(IT) is the leading MNC in India. The Coca Cola Beverage Company in the soft drinks field ranks the fourth position.

[7] Fast moving consumer goods- include non-durable goods processed foods, soft drinks and toiletries.

Further, the Indian Sectors attracting highest FDI inflows are electrical equipment, transportation industries, telecommunication, fuels, food processing industries and services, cement and gypsum products, metallurgical industries, chemicals, and drugs and pharmaceuticals. The major investor countries in India are Mauritius (35%), Singapore(14%), U.K (9%), Japan (7%), U.S.A (6%), Netherlands (6%), Germany (3%), Cyprus (3%), France (2%), and Switzerland (1%).

Even though India has received only a small proportion of the world FDI stock, MNC affiliates constitute an important segment of the corporate sector.

3.4. Conclusion

Thus, from this chapter it is revealed that the practice of MNCs carries risks as well as benefits. The ability of a nation lies in its skill to reduce the risks and promote the benefits. To maximize the growth and development benefits of MNCs in developing states, the policy makers may endeavor to prioritize the gradual improvement of institutional capacity and make public administration participatory and transparent; along with the provision of a favorable investment climate for foreign and domestic investments. Also, focus should be placed on political and macroeconomic stability, a sound regulatory framework, efficient institutions and adequate physical and social infrastructure. Furthermore, policy makers may seek to strengthen public sector institutional quality through training, and adopting a zero tolerance for corruption and the abuse of executive power for rent-seeking.

The soft drink and mining industries have received huge multinational investment in India in the recent past and they are also alleged for creating havoc in the environment. The multinational companies in these extractive industries have received considerable people’s protest from various parts of the country. The Plachimada struggle against the Coca Cola Company is one of the prominent mass movements in India. The movement was instrumental in shutting down the plant at Plachimada, and it is still going on for the compensation from the Company. In this context, the next chapter intends to review the history of Plachimada issue.

Chapter 4

PLACHIMADA; ISSUE AND CONCERNS

4.1. Introduction

This chapter intends to provide the history of the Plachimada issue. The detailing of history is primarily based on previous studies and reports which traces the operations of MNC (The Coca Cola Company) in Plachimada and its impact on the common property resource (groundwater) and livelihood issues of the people (water scarcity) and also the people's movement directed against the Coca Cola Company.

4.2. The Coca Cola Company (TCCC)

International beverage Company, The Coca Cola Company (TCCC) is one of the most popular brands in the world today. The Coca Cola Company was founded in 1886 in the city of Atlanta in the United States of America. Coca Cola is a carbonated soft drink and the Coca Cola Company produces more than 3, 500 beverages around the globe. In 2013, its revenues stood at US$ 46.854 billion and its operating income at US$ 10.228 billion. Its net income in the same year stood at US$ 8.584 billion and its total assets were worth US$ 90.055 billion. Its total equity stood at US$ 33.44 billion. As of December 2013, the Company had 130,600 employees (www.Coca-Colaindia.com).

The Coca Cola India is the leading MNC in soft drink business in India. Together with its franchisees, The Coca Cola India has 56 bottling plants in India. In addition, it has 21 contract packers that make various products for the Company. While The Coca Cola India manufactures and sells concentrate, beverage bases, and powdered beverage mixes, the Hindustan Coca Cola Beverage Private Limited prepare, package, sell and distribute beverages under certain specified trademark of The Coca Cola Company (www.Coca-Colaindia.com).

The Coca Cola India manufactures brands such as Coca-Cola, Fanta Orange, Fanta Apple, Limca, Sprite, Thums Up, Burn, Kinley, Maaza, Maaza Milky Delite, Minute Maid Pulpy Orange, Minute Maid Nimbu Fresh and Nestea

Iced tea, the Georgia Gold range of teas and coffees and Vitingo. They spend 2 billion dollars every year for the promotional advertisements (business.mapsofindia.com).

Coca Cola was banned in India in 1977 when it failed to comply with the Foreign Exchange Regulation Act (FERA) under which it was to reduce its equity stake. The Company returned to India in 1993 when the decision was made in 1991 by the then ruling government to initiate an economic reform that opened the doors of the country to globalization and privatization. Since its re-entry, The Coca-Cola India has invested more than one billion US dollar in their operations in India (Karthika, 2008).

The Hindustan Coca Cola Beverage Private Limited (HCCBPL), one of the Indian affiliates of The Coca Cola Company, established its largest bottling plant in Asia at Plachimada, a remote village in Kerala in 2000. The Company suspended its operation in 2004 by receiving a closure notice from the Kerala Pollution Control Board (KPCB). Plachimada, the tribal predominant village has become popular around the world for its indefinite struggle against the multinational giant- HCCBPL. Before discussing the details of the impact of the operation of the HCCBPL, the study describes the background in which the government invited The Coca Cola Company into the state.

4.3. Background

The debate over the sustainability of Kerala model of development and the shift from egalitarianism to developmentalism based on economic growth was deep–rooted in Kerala since 1991. Kerala witnessed 'the development compromise'[8] as part of neo-liberal reforms. In 1999, the then Kerala government invited the Hindustan Coca Cola Beverage Private Limited – the Indian subsidiary of The Coca Cola Company to set up a manufacturing unit at Plachimada in

[8] It entails a shift from welfare system towards increasing market orientation. The left democratic parties in Kerala adopted this attitude since 1980s in order to generate economic growth. Heller termed this concept in 2007.

Palakkad district. The license was provided through 'Green Channel'[9] (Panicker 2012).

It is reported that the Company with the aid of American satellites discovered the rich groundwater source of this area and decided to operate in this area to tap this resource. The Company is located about 3 KM north of the Meenkara dam reservoir and a few hundred metres west of the Kambalathara and Vengalakkayam storage reservoirs. The Moolanthodu main canal from the Moolathara barrage passes hardly 10 metres north of the factory compound. The main Chitturpuzha itself is 2 KM due north of the plant (see Appendix 3). The Kerala Sastra Sahitya Parishad (KSSP) in their study presumes that Coca-Cola wanted to use water from these irrigation dams. The KSSP also believes that the location was picked up for infrastructure reasons; through the Palakkad gap it is easy to reach markets across India. According to KSSP, Coke transports water in tanker lorries from six different locations along the Periyar River to their location in Plachimada (Nair, 2008). After discussing the background in which the Company was invited, the study moves on to the geographical profile of Plachimada.

4.4. Profile of Plachimada

Plachimada is located in a rain shadow region in Chittur taluk of the Palakkad district of Kerala. It is part of the Moolathara village, which is one among the three villages of Perumatty Gramapanchayat, the second largest Panchayat in the district. There are 15 wards in the Panchayat and the total area is 60.79 Sq. Kilometers. According to the 2011 Census, the population of the Panchayat is 30445 of which are 15110 males and 15335 are females. The Moolathara village shows gently undulating topography and is drained by the Chitturpuzha stream (Panchayat Documents, 2014-15).

Agriculture forms the major source of livelihood of the people of Plachimada area. Rice, coconut, and ground nut are the major crops. Vegetables,

[9] It is a single window licensing system for easy clearance of the cumbersome licensing procedures for starting an industrial activity.

Sugar cane, horse gram, maize, mango and banana are the other crops grown. Soil profile of the Panchayat is diverse ranging from red soil, black cotton soil, clay soil etc. South West Monsoon is the main source of rainfall. Cultivation is mostly confined to plain lands. The *poonthal padam* (marshy lands) cultivation of rice exists here. This Panchayat has 2350 hectares of rice fields out of which 1500 hectares are in Moolathara village, where the factory is located. About 35 per cent of the state's rice production is from Palakkad district and hence it has long been known as the 'rice chest' of Kerala. Plachimada as such gets very little rainfall. In 1998, the average rainfall in Palakkad district which was 2425.8 mm showed a considerable decline to 1750.3 mm in 2002. This indicates that the entire region has to depend on irrigation canals and groundwater resources for domestic and agricultural purposes (VAK,2004).

Plachimada is an agriculturally dominant region and the inhabitants of this region are socially and economically backward. The landless 'Adivasis' are the predominant inhabitants of the village, followed by the scheduled castes. They work as agricultural wage labourers with 80 per cent of them earning their living as farm labourers. They get around 100-120 work days per year. The educational and health status of these people are well below the average of Kerala (Jananeethi Report, 2003).

The bottling plant started its construction in 1998 on a 42 acre plot, hitherto a multi-cropped paddy field, in violation of the Kerala Land Utilization Act, 1967, intended to prevent the use of agricultural land for non-agricultural purposes (VAK, 2004).

Besides, the Company selected this area on the misconception that the tribes would not recognize and resist if a problem arose. These people were made to believe that a theatre was under construction and the voice of resistance was silenced during that time (George, 2012). The Coca Cola plant is built in such way that they can easily transplant the Company if there arises a problem (Vijayan, 2006).

The plant was commissioned in March 2000, to produce its popular brands such as Coca-Cola, Fanta, Sprite, Limca, Kinley Soda, Maaza and Thumps-Up. There were three lines of production, namely, returnable glass bottle line, PET line and Maaza line. The Kerala Pollution Control Board (KSPCB) gave a permit to produce 5, 61,000 litres of soft drink per day requiring 3.8 litres of water for a litre of soft drink. The firm employed about 130 permanent workers and 250 contract labourers (Bijoy, 2006). The majority of the workers were recruited on political party lines across the state while the local population was highly marginalized. The recruited persons of the locality were mainly from the OBC and SC category (George, 2012).

The unit has a working capacity of 5,00,000 liters of water-based products. Around 85 truck loads of beverage products carrying around 600 cases with each case holding 24 numbers of 300 ml. bottles are dispatched per day. The earning of the Company should be above Rs.11,016,000/- per day, as per the market price of the products. However, the total expenditure including cost of production, labour charge and transportation does not exceed Rs.25000 per day. Statistics point out that, 15 lakh litres of clean water per day is required for the production process (Nair, 2008).

All the water requirements of the plant were met from six deep bore wells (said to be more than 60) and two large diameter open wells sunk within the factory compound. There are also two large open wells. The plant site being located just a few meters away from the main irrigation canal from the Moolathara barrage and one of the main pumping points located lower than the canal, the canal waters being sucked out by the Plant also cannot be ruled out (INTACH, 2004).

The Company claims that it is restoring water into the aquifer through water harvesting. However, Dr. Achuthan, a noted hydrologist opined that the extraction is from the deeper aquifer, whereas the recharge goes to the gravity zone only. Therefore, the pumping can cause depletion of groundwater continuously. Dr. Achuthan questions even the relevance of a plant of this sort, which is located in a declared drought prone area. He asks: *"In such a region, what should be the*

priority for distribution of water? Domestic needs, agricultural needs, small industries or a non-essential industry like Cola?"(VAK, 2004).

Moreover, 'Down to Earth' magazine states that the Coca-Cola Company did not make environmental impact assessment before setting up the plant. However, The Coca-Cola India responded to allegations on their website:

We conducted an environmental due diligence study as per our international corporate policy of good environmental practice before setting up the plant and conducted scientific tests before we located our plant in this part of Kerala. These included a satellite imagery study to determine the extent and nature of the aquifer and a pumping test to establish the sustainable yield of water from the bore wells. The plant has consistently operated the bore wells below these safe limits (Coca-Cola India's website quoted in Wramner, 2004).

The Coca Cola India is one of the major investors in India; however, the Company used unethical methods to overcome FDI ownership regulations, which stipulates that foreign companies must hold an Initial Public Offer (IPO) when establishing a Company, allowing locals to buy a stake. The power generation inside the plant is also ambiguous in nature since it does not draw from the common grid (VAK,2004).

The Coca Cola Company was given license for installing 2600 HP Electrical Motor for running the bottling plant and for manufacturing, storing and sale of aerated water and cool drinks, a fact mentioned in the show cause notice issued by the special grade secretary of the Perumatty Gram Panchayat to HCCBP Ltd on September 18, 2003. The notice added, 'after the manufacturing started, the Company started extracting water from the bore wells and open wells installed by using electric pumps without license duly obtained from the Panchayat'(Veerendrakumar, 2003).

The Panchayat as per the direction of the Public Health Authority of Palakkad district put forward a condition in the licensing agreement that the HCCBPL should install an appropriate waste disposal mechanism. As per the

licensing agreement, they were also allowed to use 1265KW of electricity. Local people were suspicious that these stipulations were flouted and the HCCBPL extracted more groundwater than was allowed under the licensing agreement (VAK, 2004).

Thus, the Coca Cola Company, a water intensive industry, established its plant in one of the Government declared water stress and drought prone areas.

4.5. Impact on Groundwater

Within two years of the operation of the Company, water availability in the open wells and shallow bore wells over an extensive area had fallen drastically. The SC/ST colonies such as Plachimada, Vijaynagaram, Velur and Madhavan Nair colonies in the Perumatty Panchayat and the Rajeev Nagar and the Thodichipathi colonies in the Pattanchery Panchayat were the worst affected. They drank contaminated water and faced acute water scarcity. Salinity and hardness of the groundwater had also increased. The water in the wells turned brackish and a milky white substance appeared on the surface of the water. The water was no longer fit for drinking, cooking and bathing. People who were forced to depend upon the brackish water complained of a variety of illnesses (INTACH, 2004).

Women, who used this water, reported that rice and *dal* did not get cooked but became hard. Food prepared with such water, they reported, was going bad quickly. They complained of a burning sensation on the facial skin and a greasy sticky feel on the hair when they used the water. Water from some of the domestic wells on boiling and subsequent cooling developed an intensely milky colour. A considerable amount of whitish material emerges, when water was left to stand for hours. People who regularly use such water complained of stomach disorders (INTACH, 2004).

The villagers had to walk miles to fetch water for their domestic purposes. They had to walk for more than 4 hours for water. The women folk had to bear the burden of fetching water, doing domestic work and going for their daily casual work. Most of the time they had to quit their daily farm labor work to fetch water.

The reduced family income adversely affected their food intake and consequently affected the family's health. The girl child had to leave school to assist in the water fetching process (Jananeethi Report, 2003).

People reported that they could earlier pump water for irrigation, continuously for 24 hours. But after the plant started functioning, within 4 hours of pumping, their wells went dry. Farmers were unable to fetch sufficient water required for irrigation of farmlands. Routine agriculture of hundred acres of paddy lands was adversely affected due to the water scarcity. The agricultural laborers suffered the worst in terms of lack of potable water and growing days of unemployment. When instability in livelihood persisted, many were forced to move out of the village in search of a steady livelihood causing a displacement issue to surface in the area (Karthika 2008).

Cattle rearing had become very difficult because the cattle too did not drink water from the water sources near the factory, because of which the owners were compelled to bring water for the cattle too. The multi-cropped poondalpadam went dry (Jananeethi Report, 2003).

The Company had given the sludge to the agriculturists free of cost as manure. The farm laborers, who had been exposed to this material, had developed rashes and skin disorders particularly around the ankles within a short time. There was foul odor emanating from the Company, periodically, usually at night. It was causing violent reactions in pregnant women, the old people and the children. People described it as very likely the smell from a putrid dead body (Nair, 2008).

In the irrigated coconut groves, the waste material/sludge had got spread around through the irrigation canals over a large area and was seeping into the soil, contaminating soil, water and air. Many people living in the nearby villages are 'adivasis' or dalits affected with diseases like hair-loss, burning of eyes, cough, vomiting, pain in limbs etc. (VAK, 2004).

People generally had the opinion that contaminated water and air pollution by way of smell were affecting their health. Some were complaining of asthma, stomach ache, dizziness and excessive hair loss (Jananeethi Report, 2003).

Casual women laborers who were employed to spray the partially processed waters on the lawn inside the factory compound reported strong skin reactions and deep dark pigmentation on the outer surface of the palms and forearms which got wet during their work. The same pigmentation also developed on the upper surface of the feet. Their soles were deeply cracked and the painful open wounds had secondary infections (INTACH, 2004).

An investigation done by the eminent scientist V.T Padmanabhan on birth weight of children of Plachimada found that 15 percentages of the children born before the operation of the Company were Low Birth Weight (LBW). This more than doubled during the operation of the Company (VAK, 2004).

4.6. A Brief History of the Plachimada Issue.

Just about six months after the Coca-Cola factory was set up in Plachimada in 2000, the villagers and farmers living nearby the factory started to notice changes in both the quantity and quality of the well water. Before the advent of the Company, the wells in the colony used to meet the needs of the neighbouring colonies too. Now all the nine wells ·in the colony had become unusable. The local people allegedly blamed the Company for these effects and subsequently they expressed their protests through processions and marches towards the Panchayat, Company and the police stations. However these protests went unnoticed. Before the initiation of the mass movement in Plachimada, the Outlook News Magazine had commissioned –Sargam Metal Laboratories to carry out water analysis – they reported that the water cannot be used for cooking, washing and agriculture (Bijoy, 2006).

Dr. Satish Chandran Director of INTACH conducted another study. His presumption was that the waste water used for watering the lawn in the plant

compound might have leached into the water table and contaminated the groundwater (INTACH, 2004).

Haritha Development Association, an NGO had given a complaint against the Coca Cola Company to the Kerala Pollution Control Board (KPCB). The KPCB conducted a study and its water analysis reported that waste water contained chemicals but at a permissible level. They declared that the water is potable. However, warned the Company not to discharge the waste water without proper treatment and also advised them to use the effluent treatment plant regularly (Plachimada Study Report, 2005).

By then the protestors who had formed the Plachimada Coca Cola Virudha Samara Samithi with the help of numerous civil society organizations and NGOs, started mass movement on 22nd March 2002. The first five months of the mass movement propagated arguments against the corporatization and commercialization of water. The Kerala Sastra Sahithya Parishad(KSSP) released its report stating that the water is unpotable. The study by Jananeethi reported that water is unfit for human consumption. Another study by Yuvajanavedi also reported in the same manner. Vikas Adhyan Kendra, a Mumbai based NGO, reported that the contaminated water is causing serious diseases in the locality. The NSS Engineering College, Palakkad, also published their study report about the water contamination (Panicker, 2013).

Subsequently the Kerala Groundwater Authority monitored 20 wells in Plachimada. They published their two reports in January and September 2003. These reports state that the water pollution is not solely attributed to the operation of the Company. However, they ordered the Company to reduce the water intake from 5 lakh litres to 3 lakh litres per day and also insisted them to adopt proper waste water treatment. The Central Groundwater Board (CGWB) also reported that the water is potable (Bijoy, 2006).

Meanwhile, the Coca Cola Company invited emeritus scientist R.N.Athavale of National Geophysical Research Institute to conduct a study on the

issue. The report indicated the fall in rainfall as the reason for the depletion of the water table. A turning point in the Plachimada issue occurred when the Panchayat refused to renew the license of the Cola Company in April 19, 2003. In the show cause notice, the Panchayat accused the Cola Company for the contamination and depletion of water in the region. This was followed by a series of lawsuits in the later years (Plachimada Study Report, 2005).

The Company filed a petition against the Panchayat in the High Court. They put five arguments in to support their side.

1. The Coca Cola Company operating all over the world has adopted environmental protection policy for each plant.
2. As per the policy, it has spent rupees 3 Crores to build Effluent Treatment Plant (ETP).
3. The filtered water is used for watering the garden.
4. The study reports of Kerala Groundwater Authority state that the pollution and contamination of groundwater cannot be attributed to operation of the Coca Cola Company.
5. The study by emeritus professor R.N Athavale reports that the water contamination cannot be due to the operation of the Coca Cola plant.

The High Court asked the Company to handle the issue in Local Self-Government Department (LSGD). The LSGD Secretary issued a stay order over the Panchayat decision, stating that the Company is not proved to be responsible for the pollution. However the LSGD asked the Panchayat to conduct a study within 3 months with the help of Kerala Groundwater Authority, Health Department, and Kerala Pollution Control Board, then decide whether to issue the license or not. The Panchayat filed an appeal petition questioning the stay order of the LSGD.

The Panchayat raised the following four arguments before the LSGD.

1. The Panchayat has visited the site and the water contamination was evident.
2. The Palakkad District Medical Officer (DMO) found that the well water in Plachimada was contaminated.

3. The study report of the Kerala Groundwater Authority should submit the lab reports of the water quality along with the report.
4. The study report of R.N. Athavale contradict the report of the DMO.

However, the LSGD did not approve these arguments; rather it asserted that even though there is water contamination, the existing facts is not enough to prove the liability of the Cola Company for this. The Panchayat filed a lawsuit in High Court. The Single Bench decision was in favour of the Panchayat quoting the Public Trust Doctrine[10]. The Single Bench judge had observed that, the existing legal position was that groundwater is a public trust and the state has a duty to protect it against excessive exploitation. The Judge also made a link between the public trust and the right to life and thus recognized that a system which leaves groundwater exploitation to the discretion of landowners can result in negative environmental consequences. The Company challenged the Single Bench decision and filed an appeal to the Division Bench of the High Court (Koonan, 2010).

Meanwhile following the water contamination report of the Palakkad DMO, the Government Primary Health Centre also concluded that the water around the factory is "not potable" on the basis of the analysis carried out by the Government's Regional Analytical Laboratory and asked the Panchayat to ensure that the public be duly informed about its grave consequences (Plachimada Study Report, 2005).

A twist in the issue occurred when the British Broadcasting Corporation (BBC) telecasted the chemical report of the Company waste. For three years, the Coca Cola factory had been dumping the sludge from the plant in open fields and offloaded most of it to local farmers as manure/ fertilizer. An investigation by BBC found that it contains a known carcinogen and the report was released in August 2003 in the '*Face the Facts'* program by John Waite. Actually John Waite had sent

[10] Public Trust Doctrine-The Public Trust Doctrine, in principle, is a part of environmental jurisprudence in India. In 1997, the Supreme Court of India has categorically stated that the state is a trustee of all natural resources which are by nature meant for public use and enjoyment. The public at large is the beneficiary of the sea shore, running water, air, forests, and ecologically fragile lands. However, the application of the Public Trust Doctrine *visa- vis* groundwater is not clear. This issue came before discussion in Plachimada case.

the samples of solid waste to the University of Exeter. David Santillo, of the University of Exeter, said the results were alarming: "Of the three solid wastes analysed, one showed relatively high levels of two toxic metals, namely cadmium and lead. "Repeated applications of sludge will be transferred to plants grown in these soils and, therefore, into the food chain. Contamination of nearby surface waters and underlying ground waters may also be expected as a result of leaching, run-off and air transport of contaminated dusts"(Bijoy, 2010).

The KSPCB confirmed the BBC Report, and its study released reporting a figure more than double of what the BBC reported and four times the legally prescribed norm. The KSPCB ordered Coca Cola to stop supplying the waste, recover all the waste transported outside and store them safely in the plant site. It later carried out one more test, which reported negligible traces of carcinogens. The government itself had to reject this later as being unscientific.

The Centre for Science and Environment (CSE), New Delhi, reported that soft drinks, including that of Coca-Cola, tested for pesticides higher than the permissible level in the US and European Union. Consequently the Coca Cola was banned in the parliament. The Joint Parliamentary Committee (JPC) asked the Kerala State Pollution Control Board (KSPCB) about the matter. The letter of the KSPCB states that the solid waste contains the toxic material beyond permissible level.

After that, JPC requested the KSPCB and the CPCB to jointly investigate the matter. They find that the solid waste contains toxic material beyond the permissible level. However, they asked the Company to find methods to treat the effluent.

In the meantime, the Division Bench of the High Court held the decision in favor of the Company. Here the HC referred the Common Law[11], the Division Bench asserted the primacy of landowners' control over groundwater in the

[11] Common Law- the Indian law on groundwater makes the right over groundwater a part and parcel of ownership over land.

absence of a specific law prohibiting groundwater extraction. The general rule is that the owner of a land has got a natural right to all the water that percolates or flows in undefined channels within his land and that even if his object in digging a well or a pond be to cause damage to his neighbour by abstracting water from his field or land, it does not in the least matter because it is the act and not the motive which must be regarded (Koonan, 2010).

With this legal strength, Coca Cola requested the Panchayat for the renewal of license for five years. But the Panchayat laid down three conditions for issuing the license. They were, as follows,

1. The Company should not take groundwater anywhere from Perumatty Panchayat.
2. The hazardous waste (sludge) should not be dumped outside the Company premises.
3. In the context of JPC investigation reporting the toxic chemicals in the Cola products, the Company should convince the Panchayat that the products are healthy and safe.

The Company replied to the Panchayat that as the three conditions were pending before the Court, it would be an act breaking the legal system. On February 2003, the KSPCB found that no proper treatment of the effluent is undertaken in the Company. Under the Hazardous Waste Management Rule, the KSPCB, ordered the Company to stop its operation. The Panchayat cancelled the license in March 2004, stating that the reply of the Coca Cola Company is not satisfactory. However the LSGD issued stay order over the Panchayat's cancellation on April 2004. The Panchayat filed an appeal against the LSGD in Supreme Court. Now the case is pending before the Supreme Court of India (Plachimada Study Report, 2005).

The JPC asked the Supreme Court Monitoring Committee to constitute a Regional Environmental Protection Agency. The Supreme Court Monitoring Committee on Hazardous Wastes (SCMC) constituted to monitor the issue, visited Plachimada on August, 2004. Its report indicated that Coca Cola Company is

responsible for "the unauthorised disposal of sludge"..."without prior approval of the authorities concerned". However no attempt was made to assess the damages caused by the Company, even though the Hazardous Waste Rule clearly state that the one who fails to dispose hazardous waste properly has the liability for damages caused to the environment (Plachimada Study Report, 2005).

As the Plachimada dispute was intense, based on the Kerala Groundwater Act (2002) that was already in force, in 2004 they have classified five blocks (including Chittur block in which the Coca Cola Company is situated) as overexploited, 15 as critical and 30 as semi critical. This declaration imposed strict limits on the usage of water in this area. In August 2005, the plant was closed, when the Kerala State Pollution Control Board had sought clarification from the Coca Cola Company of the excessive amount of Cadmium in the effluent.

4.7. The History of the Mass Movement

The pollution and contamination of groundwater and the ensuing miseries drew the people of Plachimada into protests. In the initial stage the protest was not so organized. Later with the involvement of civil society organizations and NGOs the movement became organized. After the closure of the Coca Cola factory the movement is still going on for the demand for compensation from the factory.

Initially, the local political leaders were keen to mediate the negotiations between the protestors and the Company. The Company cajoled the protesters by providing drinking water and giving employment to the local people and by increasing the existing wage rate. However, the numerous independent and scientific study reports released at that time revealed that water is unpotable. Such findings and the continued misery of the local people inspired the activists and the protestors to pursue the movement without any compromise.

On April 22, 2002, Coca Cola Virudha Samara Samithi (CCVSS) was formed under which, the protests became organized. C.K. Janu inaugurated the first protest against the Coca Cola. CCVSS decided to follow a non- violent form of struggle. Since the launching of CCVSS, the focus was to achieve public

support through campaigns, marches, demonstrations, pamphleteering and public debates. They built the "*samara pandal*" in front of the Coca Cola Plant, as the struggle ground. This was the platform for public meeting, debates and the site of sit-in-demonstrations. Later the "*samara pandal*" spread all over the world as a symbol of protest and gained huge support for the movement, ideologically and financially (Panicker, 2010).

During the initial stage of CCVSS, the state government, Perumatty Panchayat, and local self –government institutions opposed the movement. The police force tried to suppress the movement by filing false cases upon the leaders and activists. Some of them, including women were arrested without any charge.

Apart from the strong opposition from the state government, the local political parties and the labour unions, especially unions within the Coca Cola Plant, opposed the movement labeling it as "anti- development" movement.

By June 2002, the CCVSS gained large scale support from civil society organizations. It organized a protest march to the Panchayat. A number of activists, associated with various social movements in Kerala, attended the protests and expressed solidarity to the movement. Eventually renowned activists and tribal men and women were arrested. Now the media gave an extensive coverage to these events. The movement became popular thereafter. The civil society activists formed a Solidarity Committee to popularize the movement, and to provide legal and other support. The media started to write extensively about the movement. Several organizations of poor and marginalized people extended their support to it. Gradually the public opinion moved in favour of the movement. The movement spread to all the 14 districts and statewide anti- Coca Cola rallies were held.

In 2002, V.S. Achuthanandan of CPM, the leader of the opposition in Kerala's Legislative Assembly, declared his support for the Plachimada movement. Eventually, other political leaders also extended their support for the movement.

The approach of the state government gradually softened; thus, the incidents of police atrocities on the activists became fewer.

A Committee on Environmental Affairs was appointed by the Legislative Assembly of Kerala to assess the groundwater in Plachimada. The Committee reported that the use of 600 Kiloliters of water every day by the Company amounted to overexploitation of groundwater, which may contribute to lowering of water table and drought conditions.

Soon, the Panchayat started to support the movement. By March 2003, the Company's license to operate the plant had come up for renewal. The Panchayat took the decision not to renew the license.

The National Alliance for People's Movements (NAPM), a federation of various ongoing social movements in India, supported the movement and incorporated the Plachimada movement into an argument against commodification of natural resources and common pool resources in the interest of neoliberal capitalism on a global scale. With the support of the NAPM, the Plachimada movement participated in the World Social Forum (WSF) meeting organized in Mumbai, India, in 2004. The Plachimada movement, at the WSF, gained national and global attention as 'a fight of the most marginalized people against one of the largest transnational corporations in the world'

In January 2004, the movement organized a "World Water Conference" in Plachimada. Several activists from various countries participated in this conference. The Plachimada declaration[12] was made resolving that water is a common resource and the right to manage water should remain with the local communities. The Kerala government declared Chittur taluk, of which Plachimada is part, as an area experiencing over-exploitation of water. This declaration imposed strict limits on the usage of water in this area. Soon after, the Company was shut down. Since the shutdown of the plant, the CCVSS has been fighting legal suits for the compensation from the Coca ColaCompanyfor the losses

[12] See appendix 4

suffered by the people of Plachimada. The *'Samara Pandal'* still remains as the platform for the movement (Panicker, 2013).

4.8. Women Participation in the Struggle

One of the peculiarities of Plachimada struggle is the participation of women folk of the community. The women with their children and old women came in to the *Samara Pandal* for sit-in- demonstrations against the Company. They were arrested and held in police custody without any charge. Most of the women folk belong to the tribal community. It may be because it was the tribal community that was completely marginalized due to the operation of the Company. They did not have employment in the Company rather they lost their agricultural work due the water scarcity. Drinking water scarcity and the mile long walk for water compelled the women folk to leave their available casual labour. Water-borne diseases and other health hazards drew the previously reluctant community into the struggle. Mayilamma, illiterate women, a member of the Eravalar tribe, was the pioneer in the campaign against the Coca-Cola Company. She was the founder of the Coca-Cola Virudha Samara Samiti (Anti Coca-Cola Struggle Committee) in Plachimada which has spearheaded the campaign against the Coca-Cola. The Anti-Coca-Cola Struggle Committee has held a continuous vigil directly outside the Coca-Cola's factory gates since April 22, 2002, demanding its permanent closure. The local people's initiative to protect their natural resources owes much to her leadership. She was given the Speak Out award by *Outlook* magazine and the Sthree Shakthi Award. Mayilamma died on January 6, 2007.

4.9. The Plachimada Tribunal Bill

There have occurred a number of significant developments in Plachimada since the closure of the Company. The unresolved legal disputes were followed by the intervention of agencies such as the Kerala Pollution Control Board, the Central Pollution Control Board and the Supreme Court Monitoring Committee. Yet, the issues of liability and compensation were not a part of these developments.

The Supreme Court Monitoring Committee on Hazardous Wastes noticed the dumping of wastes outside the Company premises and the Central Pollution Control Board found that the sludge which was supplied by the Company to farmers for use as fertilizer contains hazardous metals like lead and cadmium in excess of the permissible limits. Subsequently the KSPCB issued a closure order to the Company on the basis of Hazardous Waste Rule. However, no further action was taken to assess the damages, caused by the Company. There is a serious institutional flaw that even though the Hazardous Waste Rules explicitly recognized the responsibility to dispose hazardous wastes properly and in case of failure to do so, offender has the liability for damages caused to the environment. A significant development with regard to the issue of compensation took place when the Kerala Government on a recommendation by the Kerala Groundwater Authority, constituted a High Power Committee in May 23rd 2009, for assessing the scale and nature of the damages caused by the Coca Cola Company in Plachimada. The 'polluter pays' principle and the right to life as enshrined in Article 21 of the Constitution of India have been used by the Committee as the base for arriving at the culpability of the Company. Some of the legal violations by the Coca Cola Company noted by the High Power Committee are given below.

1. Water (Prevention and Control of Pollution) Act, 1974.
2. The Environment (Protection) Act, 1986.
3. The Factories Act, 1948
4. Hazardous Waste (Management and Handling) Rules, 1989.
5. The SC-ST (Prevention of Atrocities) Act, 1989.
6. Indian Penal Code.
7. Land Utilization Order, 1967.
8. The Kerala Groundwater (Control & Regulation) Act, 2002.
9. Indian Easement Act, 1882.

The Committee recognized that no amount of money can be a true compensation for the damages incurred, however it estimated that the following

amount should be paid by the Coca Cola Company as compensation to the Plachimada people.

Agricultural loss	: Rs.84. 16 Crores
Health damages	: Rs.30. 00 Crores
Cost of providing water	: Rs.20.00 Crores
Wage loss and opportunity cost	:Rs.20.00 Crores
Cost of pollution of the water resources	: Rs.62.10 Crores
TOTAL	: Rs.216.26 Crores

The Committee submitted its report in March 2010 confirming the role of the Company in causing damages to individuals, agricultural economy and the environment. The report estimated Rupees 216.26 Crores as reasonable compensation to be recovered from the Company (The Plachimada Coca-Cola Victims Relief and Compensation Claims Special Tribunal Bill, 2011).

The Plachimada Coca-Cola Victims Relief and Compensation Claims Special Tribunal Bill, 2011 was passed unanimously by the Kerala Legislative Assembly on 24 February 2011. The Bill provides for the constitution of a special tribunal to settle compensation claims of the people in Plachimada. The Bill has been reserved for the approval of the President of India because of the apparent conflict between the Bill and some of the existing laws enacted by Parliament. The assent is still awaited (Koonan, 2010). The Union government has questioned the Kerala State Government regarding the power of latter's legislative competence under the Constitution to enact such a bill, mainly on the ground that the existence of laws passed by Parliament such as the Environment (Protection) Act, 1986 and the National Green Tribunal Act, 2010 renders the Bill ineffective and inoperative if brought into force. The power of the Kerala Government has also been questioned on the ground that the Kerala Assembly passed a resolution in 1968 which vests the power to pass laws for the State on 'Prevention of Water Pollution from Domestic and Industrial Waste' in Parliament, and therefore the Bill is

outside the scope of the Kerala Legislature to the extent that it covers matters referred to in the 1968 resolution (Koonan, 2011).

4.10. Conclusion

The review of history of Plachimada struggle, pointed out the entry of the Coca Cola Company into Plachimada, the destructions that followed subsequent to the operation of the plant, the origin and popularity of mass movement and the shutdown of the plant. Even after 10 years of the closure of the plant, the people still struggle for freshwater, the water sources remain contaminated, the legal disputes over the groundwater governance is pending in the Supreme Court of India, and the people's mass movement still continue for compensation from the Company. In this context the next chapter aims to capture the current socio-economic profile of Plachimada from primary survey.

5

Socio Economic Profile of the Sample Respondents.

CHAPTER 5

SOCIO ECONOMIC PROFILE OF THE SAMPLE RESPONDENTS

5.1. Introduction

The aim of the chapter is to analyse the current socio economic profile of the sample respondents of Plachimada. The data was collected from the local people residing around the plant. The Plachimada study group from the very beginning was gathering information regarding this issue, and reported that the people residing in the adjacent colonies, spanning around 3 KM area were severely affected by the operation of the plant. The boundary of the plant is shared by four colonies: Plachimada, Vijayanagr, Madhavan Nair Colony and Rajiv Nagar. All the three colonies except Rajiv Nagar Colony belong to the Perumatty Panchayat, Rajiv Nagar Colony that lies in the southern part of the Coca Cola plant belongs to the Pattenchery Panchayat. Out of 2035 total households, 305 households were randomly selected and surveyed. Out of the 305 sample households, 253(83%) households were from Perumatty Panchayat and 52 (17%) households from Pattenchery Panchayat. Table 5.1 shows some demographic features of sample population.

Table. 5.1. Demographic Features of the Sample Respondents

Category	Divisions	Number of households	Percentage	Total
Gender	Male	110	36	305
	Female	195	64	
Marital Status	Married	256	84	305
	Unmarried	24	8	
	Separated	7	2	
	Widow	18	6	
Religion	Hindu	274	89.8	305
	Muslim	30	9.8	
	Christian	1	0.3	
Castes	SC	26	9	305
	ST	70	23	
	OBC	169(139+30)	55	
	General	40	13	

Source: Primary Survey, 2014-15.

Female respondents predominate male respondents in the study area. About 84 percentage of the respondents are married, while 90 percentage of the respondent are Hindus. Majority of the population, i.e., 169 belong to the OBC section (55%) of which 30 Households are Muslims and 139 households belong to Ezhava community. About 23 percent of the total sample households constitute tribal community and SC category constitutes 9 percent. The people classified under the General category mainly belong to the Muthaliyar and Nair communities constituting 40 households; which accounts for 13 percent of the sample size.

Table 5.2 shows age and gender wise classification of the respondents

Table.5.2 .Age and Gender Wise Classification of the Respondents

Category	Sex		Total
	Male	Female	
18-28	2	38	40 (13.1)
29-39	28	44	72 (23.6)
40-50	30	55	85 (27.9)
51-61	28	27	55 (18.0)
62-72	19	24	43 (14.1)
73-83	3	6	9 (3.0)
84-94	0	1	1 (0.3)
Total	110 (36)	195(64)	305 (100)

Source: Primary Survey, 2014-15.

The general trend of high middle aged population and high sex ratio in Kerala are seen in Plachimada also. It is found that 28 percent of the total respondents belong to the age group of 40-50. Gender wise, female respondents (64%) surpass their male counterparts (36%) (see Table 5.2).

Table 5.3 shows gender wise educational status of the sample respondents.

Table 5.3. Gender Wise Educational Status

Gender	Educational status						Total
	Illiterate	Primary	UP	HS	HSS	Degree	
Male	19(6)	47(15)	3(1)	28(9)	7(2)	6(2)	110(36)
Female	64(21)	59(19)	9(3)	49(16)	11(4)	3(1)	195(64)
Total	83(27)	106(34)	12(4)	77(25)	18(6)	9(3)	305(100)

Source: Primary Survey, 2014-15.

Kerala ranks first in terms of literacy in India with a total literacy of 94 percentage. Among the districts of Kerala, Palakkad has the lowest literacy rate of 89 percentage. Among the Taluks of Palakkad, Chittur Taluk has the lowest literacy rate of 75%. In Chittur Taluk, Perumatty Panchayat has the lowest literacy of 73.8 %. (District Census Palakkad, 2011). It is found that 83(27%) respondents are illiterate. The literacy rate of the sample respondents is 72.7%. About 106 respondents have only primary education. Almost all the respondents having primary education are not able to read and write. So the total number of illiterates can be calculated as the aggregate of illiterate and primary educated. Thus 189 respondents (61 percentage) are illiterate. Following the trend of Kerala state in illiteracy, female illiteracy is prominent in Plachimada also. Only 3 percentage of the respondents are graduates. Graduation is the highest qualification in Plachimada.

Table 5.4 shows caste wise educational status of sample respondents.

Table 5.4. Caste Wise Educational Status

Educational status	Caste				Total
	SC	ST	OBC	General	
Illiterate	9(3)	30(10)	40(13)	4(1)	83(27)
Primary	10(3.2)	24(8)	47(15.4)	25(8.1)	106(35)
UP	2(0.6)	1(0.3)	8(2.6)	1(0.3)	12(4)
HS	3(1)	12(4)	53(17)	9(3)	77(25)
HSS	2(0.6)	3(1)	13(4)	0(0)	18(6)
Degree	0(0)	0(0)	8(2.6)	1(0.3)	9(3)
Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15.

Caste wise inequality in terms of education is noticeably high in Plachimada. The predominance of agriculture as the mainstay and the lack of educational institutions in the region can cited as the reason for general backwardness in education. Irrespective of caste, almost all respondents exhibit a backward profile in terms of education. Illiteracy is the highest among the OBC category, followed by tribal community. However, out of the total 9 degree holders, 8 degree holders belong to the OBC category. There are no degree holders in the SC/ST category.

5.2. Land Holdings

Land holdings are the major forms of assets in the study area as the Plachimada economy is agriculture oriented. Extreme inequality exists in the size of land holdings in Plachimada. There are households with 1800 cents of land and 4 cents of land. Most of the households, very adjacent to the Coca Cola plant have only 4 cents of land. The predominant tribal households in these colonies had migrated there around 60 years ago from Tamil Nadu to take up agriculture. Most of them have got their land either from their landlord or from the Government. Table 5.5 shows caste wise area of land holdings in Plachimada.

Table 5.5. Area of Land Holdings Among Different Groups

Castes	Category of land holdings in cents				Total
	Below 5 cent	6-15	15-30	Above 30	
SC	20(6.5)	2(0.65)	0(0)	4(1.3)	26(8.5)
ST	51(16.7)	14(4.5)	1(0.3)	4(1.3)	70(23)
OBC	89 (29)	32(10)	5(1.6)	43(14)	169(55)
General	6(2)	6(2)	2(0.6)	26(8.5)	40(13)
Total	166(54.4)	54(17.7)	8(2.6)	77(25)	305(100)

Source: Primary Survey, 2014-15.

About 54.4 percent of the respondents own below 5 cents of land, while 25 % households have more than 30 cents of land and 1.3 percentages of the SC and ST households have land holdings of more than 30 cents. More than 50 percentage of the general category have more than 30 cents of land. It is found that 85 OBC households own below 5 cents of land and 43 OBC sections have more than 30 cents of land. Most of the successful agriculturists were from OBC and general category.

To measure the exact extent of inequality in land holdings, the study uses the Gini Co-efficient. The co-efficient varies from zero to one. The zero co-efficient reflects complete equality and when the value is one it indicates complete inequality.

The inequality in the land holdings is shown through the Gini Co- efficient.

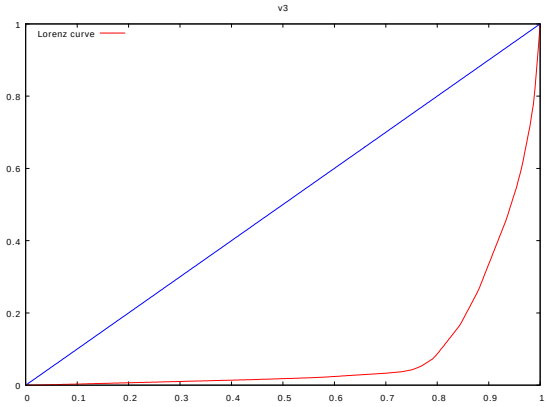
Number of observations = 305

Sample Gini Co-efficient = 0.820321

Estimate of population value = 0.82302

The 0.82 Co-efficient indicates high inequality which can be presented through Lorenz Curve (see Figure 5.1).

Figure. 5.1. Lorenz Curve Showing Inequality in Land holdings



Source: Primary Survey, 2014-15.

The straight diagonal line shows complete equality and the line beneath diagonal is the Lorenz Curve which shows the reality of the distribution of the land holdings. The farther the Lorenz Curve from the line of equality, the greater will be the inequality. So from this graph, it is obvious that the inequality in land holdings is huge as confirmed by the Gini Ratio.

To analyse the distribution of the land holdings among the various caste groups, Kruskal Wallis Test is applied. A non- parametric test was purposively used as the distribution of data on area of land could not be normalized despite attempting a log transformation. Kruskal Wallis test is used when we have one nominal variable and one ranked variable and it tests whether the mean ranks are the same in all groups. Hence the mean ranks of land holdings of all the caste groups are computed. Table 5.6 shows the mean ranks of land holdings of the SC, ST, OBC and General categories.

Table No.5.6. Area of Land Holdings Ranks

Caste	Number	Mean Rank
SC	26	120.19
ST	70	118.00
OBC	169	155.19
General	40	226.33
Total	305	

Source: Based on Primary Survey, 2014-15.

The highest rank 226.33 is attributed to General category, followed by OBC and SC. The ST category has got the least position in the ranking.

Table No.5.7. Test Statistics

Area of land holdings	
Chi-Square	51.864
Df	3
Asymp. Sig.	.000
a. Kruskal Wallis Test	
b. Grouping Variable: Caste	

Source: Based on Primary Survey, 2014-15.

The result is statistically significant, as shown by the P value 0.000. The distribution of landholding varies significantly among different caste groups suggesting a high degree of inequality in the ownership of land holdings among various caste groups in the study area.

Almost all the sample respondents live as nuclear families. A very few respondents live as joint families.

5.3. Income Status

The main factor determining the income of the people of Plachimada is agricultural casual labour**.** As the income from this occupation is very meagre to sustain their lives, almost all the members are forced to work as casual labourers. Moreover the people hardly find employment in the agriculture sector, as there is a shift in the cropping pattern from rice to coconut. There is the problem of seasonal unemployment in the region. Table 5.8 shows the family size and the number of earners in a household.

Table No.5.8. Family Size and Number of Income Earners

Family size	Number of Earners			Total
	1-3	4-6	7-9	
1-3	123(40.3)	0(0)	0(0)	123(40.3)
4-6	152(50)	20(6.3)	0(0)	172(56.3)
7-9	6(2)	3(0.9)	0(0)	9(2.9)
more than 9	1(0.3)	0(0)	0(0)	1(0.3)
Total	282(92.3)	23(7.5)	0(0)	305(100)

Source: Primary Survey, 2014-15

The average family size is in the range 4-6. In the sample, 172 households have 4-6 as family size. The average number of earning members is in the range of 1-3. About 92.3% of the households (282 households) have 1-3 earning members. Table 5.9 shows the family size and number of dependents.

Table 5.9. Family Size and Number of Dependents

Family Size	Number of Dependents							Total
	0	1	2	3	4	5	6	
1-3	48(16)	58(19)	16(5)	1(0.3)	0(0)	0(0)	0(0)	123(40.3)
4-6	15(5)	29(10)	66(22)	47(15.4)	12(4)	3(0.9)	0(0)	172(56.3)
7-9	1(0.3)	0(0)	1(0.3)	0(0)	3(0.9)	3(0.9)	1(0.3)	9(2.9)
9	0(0)	0(0)	1(0.3)	0(0)	0(0)	0(0)	0(0)	1(0.3)
Total	64(21)	87(28)	84(27.5)	48(16)	15(5)	6(2)	1(0.3)	305(100)

Source: Primary Survey, 2014-15

The average number of dependents is also 1-2. A majority of households have only one dependent. Almost all the members of the households are earning members. The casual laborers are paid low wages in Plachimada. The illiteracy of the local people and the caste based agrarian structure can be cited as the reason for low wages in the region. This forces everyone in the family to go for casual work in order to survive. So the ratio of dependence is low here.

Table 5.10 shows the aggregate monthly income of the households across different castes.

Table No.5.10. **Monthly Income Status Among Different Castes**

Category of Monthly Income	Caste				Total
	SC	ST	OBC	General	
0-5000	26(8.5)	70(23)	132(43)	26(8.5)	254(83)
5000-10000	0(0)	0(0)	19(6.2)	7(2.2)	26(8.5)
10000-15000	0(0)	0(0)	9(3)	2(0.6)	11(3.6)
Above 15000	0(0)	0(0)	9(3)	5(1.6)	14(4.6)
Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15.

Extreme inequality exists in the income scenario in Plachimada. Irrespective of caste, 83 percent of the households have a monthly income below Rs.5000/-. No one in the SC or ST category has a monthly income above Rs.5000/- About 14(4.6%) households have monthly income above Rs.15000/-. Some households have a monthly income of more than Rs.1 lakh. Such households belong to either the OBC or general category. Table 5.11 shows the sum total of the monthly income of all the earning members of each household of the sample population.

The total monthly income of the households ranges from below Rs.5000/- to Rs.1 lakh. About 51 percentages of the households fall between a total monthly income bracket of Rs.5000-10000/-. The households in this income bracket depend on casual agricultural work for their livelihood. About 17 percentages of the households have an income below Rs.5000/-. Most of these households have only

one or two casual laborers and in some households old people manage with their old age pensions.

Table No.5.11. Total Monthly Income of Sample Households

Income Category in Rupees.	Caste				Total
	SC	ST	OBC	General	
0-5000	4(1.3)	14(4.2)	29(9.5)	5(1.6)	52(17)
5000-10000	19(6.2)	47(15)	81(27)	9(3)	156(51)
10000-20000	2(0.7)	9(3)	39(13)	18(5.8)	68(22)
20000-30000	1(0.3)	0	13(4.2)	5(1.6)	19(6.2)
30000-100000	0	0	7(2.3)	3(0.9)	10(3.2)
Total	26(8.5)	70(23)	169(5)	40(13)	305(100)

Source: Primary Survey, 2014-15.

A meagre, i.e., 3.2 percent have an income above Rs.30,000/- per month. Most of the household members in this income bracket are big agriculturists. No households belonging to the SC and ST category have fallen in this income bracket indicating the caste wise inequality in the total monthly income.

Total Monthly Income Inequality of the Sample Households Expressed Through Gini's Co- Efficient.

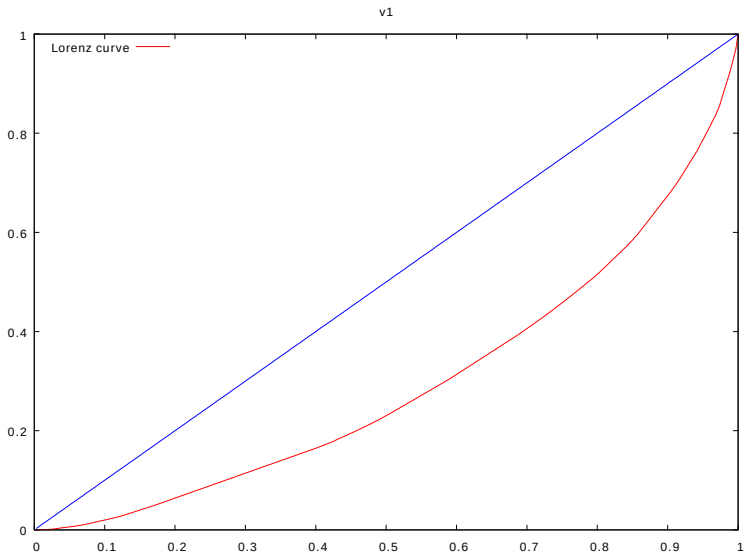
Number of observations = 305

Sample Gini Co-efficient = 0.409901

Estimate of population value = 0.411249

The Gini Co-efficient value of 0.40 for total monthly income of the 305 households shows a moderate inequality in the study area. The Lorenz Curve also represents the same picture as the curve is not farther from the line of equality (see Figure 5.2).

Figure 5.2. Lorenz Curve Showing Inequality in the Monthly Income.



Source: Primary Survey, 2014-15.

To analyse the caste wise inequality in the aggregate income of the households, the study again uses the Kruskal Wallis Test. For that the mean ranks of each caste group were calculated. It can be noted that the general category has got the highest rank in the aggregate monthly income, followed by OBC and SC. The ST category has got the lowest rank.

Table. No. 5.12. Total Monthly Income Ranks

Caste	N	Mean Rank
SC	26	122.38
ST	70	107.65
OBC	169	161.68
General	40	215.59
Total	305	

Based on Primary Survey, 2014-15.

Table. No. 5.13. Test Statistics

Total monthly Income	
Chi-Square	44.010
df	3
Asymp. Sig.	.000
a. Kruskal Wallis Test	
b. Grouping Variable: Caste	

Based on Primary Survey, 2014-15.

As the test result is statistically significant, represented by the P value of 0.000, it is possible to surmise that there exists inequality in the distribution of total monthly incomes among these caste groups in the study area.

5.4. Monthly Expenditure.

To evaluate the socio economic profile of the people of Plachimada, the monthly expenditure of food and non-food items across different households were analysed. Table 5.14 shows the family size and expenditure on non- food items.

Table No. 5.14. Family Size and Expenditure on Non-Food Items

Family size	Expenditure in Rupees on non-food items					Total
	Below1000	1000-2000	2000-3000	3000-4000	above 4000	
1-3	31(10)	15(5)	1(0.3)	0(0)	0(0)	47(15)
4-6	78(25)	67(21)	33(10.8)	10(3.2)	3(1)	191(63)
7-9	16(5.2)	24(7.8)	10(3.2)	8(2.6)	0(0)	58(19)
more than 9	0(0)	3(1)	4(1.3)	2(0.6)	0(0)	9(3)
Total	125(41)	109(36)	48(16)	20(6)	3(1)	305(100)

Source: Primary Survey, 2014-15.

In the sample 125 (41%) of the households spend below Rs.1000/- for non-food items. Even the big families also spend below Rs.1000/- for non- food

items like electricity charges, education, entertainment and other such items. This is an indication of their low purchasing power and poor economic background. However, there are some families who spend Rs.4000/- as electricity charge only (see Table 5.14).

Table No.5.15. Family Size and Total Expenditure on Food and Non- Food Items in a Month

Family Size	Total Monthly Expenditure in Rupees					Total
	0-5000	5000-10000	10000-20000	20000-30000	Above 30000	
1-3	22(7.2)	18(6)	5(1.6)	1(0.3)	1(0.3)	47(15)
4-6	24(7.8)	107(35)	42(13.7)	9(3)	9(3)	191(63)
7-9	4(1.3)	26(8.5)	16(5.2)	10(3.2)	2(0.6)	58(19)
more than 9	0(0)	4(1.3)	5(1.6)	0(0)	0(0)	9(3)
Total	50(16)	155(51)	68(22)	20(6.5)	12(4)	305(100)

Source: Primary Survey, 2014-15

The total monthly expenditure comprises the total of food and non-food expenditure. Extreme inequality can be seen in the total monthly household expenditure also. There are 12 households whose monthly expenditure is greater than Rs.30000/-. However, 155 (51 percent) households have total monthly expenditure of Rs.5000- 10000/- (see Table 5.15).

Table 5.16 shows the monthly expenditure on food and non-food items across castes.

Table No.5.16. Total Monthly Expenditure Across Different Caste

Total Monthly Expenditure In Rupees	Caste				Total
	SC	ST	OBC	General	
Less Than 3000	5(1.6)	22(7.2)	14(4.5)	2(0.6)	43(14)
3000-6000	16(5.2)	42(13.7)	80(26)	22(7.2)	160(52.4)
6000-9000	5(1.6)	6(2)	59(19)	13(4.2)	83(27.2)
9000-12000	0	0	15(5)	3(0.9)	18(5.9)
More Than 12000	0	0	1(0.3)	0	1(0.3)
Total	26(8.5)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15.

About 52.4 percentage of the households spend about Rs.3000-6000/- on food and non- food expenditure. Only one person spends more than Rs.12000/- in a month. No households belonging to the SC and ST category were coming under the higher total monthly income categories. Only 19 households spend Rs.9000/- per month for total expenditure.

The inequality in the total expenditure of all households is measured through the Gini Co- efficient.

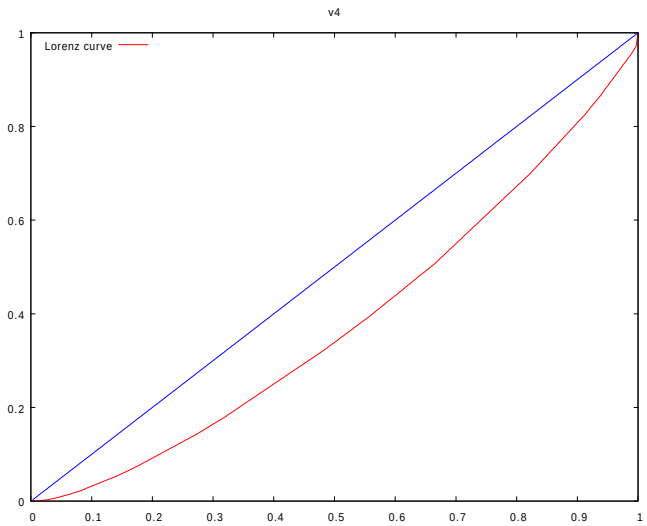
Number of observations = 305

Sample Gini Co-efficient = 0.236406

Estimate of population value = 0.237184

The Gini ratio of 0.23 shows that even though there is an income inequality, the consumption pattern shows almost equality. The Lorenz Curve here is closer to the line of equality, showing lesser inequalities in the consumption pattern (see Figure 5.3).

Figure.5.3. Lorenz Curve Showing the Inequalities in the Monthly Expenditure



Source: Primary Survey, 2014-15.

Although the Gini Ratio shows almost equality in the total expenditure among the total sample respondents, it is important to analyse the caste wise variations in the total expenditure patterns. For this purpose Kruskal Wallis test is applied again and the caste wise ranks are calculated. Table 5.17 shows the ranks of various caste groups.

Table.5.17. Caste Wise Ranks in Total Expenditure.

Caste	N	Mean Rank
SC	26	118.90
ST	70	98.39
OBC	169	172.37
General	40	188.88
Total	305	

Source: Based on Primary Survey, 2014-15.

It is noted that the general category ranks the highest followed by the OBC and SC. The total expenditure of the tribal category ranks the least.

The Kruskal Wallis test results are given in Table 5.18.

Table. No.5.18. Test Statistics onTotal expenditure

Chi-Square	46.043
df	3
Asymp. Sig.	.000
a. Kruskal Wallis Test	
b. Grouping Variable: caste	

Source: Based on Primary Survey, 2014-15.

The null hypothesis was that there were no significant variations in the total expenditure among various caste groups. The P value of 0.000 indicates the test is statistically significant and therefore rejects the null hypothesis. Thus though in the Gini Co-efficient Test, there was very little inequality in the total consumption expenditure for the entire sample households, the Kruskal Wallis Test

shows that among the different caste groups there exists inequality in the total consumption expenditure.

5.5. Asset Distribution.

The study also uses the value of durable movable assets to capture the economic status of the sample households. The major movable durable assets considered by the study are, radio, television, clock, emergency light, fan, refrigerator, iron box, LPG stove, pressure cooker, mobile phone, camera, sewing machine, vehicles, water tanks, tractor, pump sets etc. The approximate market values of those items are calculated. Table 5.19 shows the caste wise distribution of the movable durable assets across the sample households.

Table. No. 5.19. Value of Durable and Movable Assets Among Different Groups

Asset Value in Rupees	Caste				Total
	SC	ST	OBC	General	
0	1(0.3)	12(3.9)	2(0.65)	1(0.3)	16(5.2)
1000	1(0.3)	16(5.2)	2(0.65)	0	19(6.2)
1001-10000	12(3.9)	32(10)	58(19)	5(1.6)	107(35)
10000-1 lakh	11(3.6)	9(3)	74(24)	8(2.6)	102(33.4)
1 lakh -10 lakh	1(0.3)	1(0.3)	25(8)	21(6.8)	48(15.7)
More than 10 lakh	0	0	8(2.6)	5(1.6)	13(4.2)
Total	26(8.5)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15.

Table 5.19 shows there are 16 (5.2%) households with zero assets. Out of the 16 households, 12 asset less households belong to the ST category. The highest percentages (35%) of households belong to the asset value category of Rs.1001-10000/-, followed by asset value category of Rs.10000-1 lakh (33.4%). There are 48 households with asset value in between Rs.1 lakh and Rs.10 lakh. In this category, there is the presence of one household each from SC and ST category. There are 13 households in the category of more than Rs.10 lakh asset

value; 8 households from OBC and 5 from General category. No households in the SC and ST category belong to the category. The inequality in the asset distribution for the entire sample is measured by the Gini Co- efficient.

Inequality in the Distribution of Value of Movable and Durable Assets.

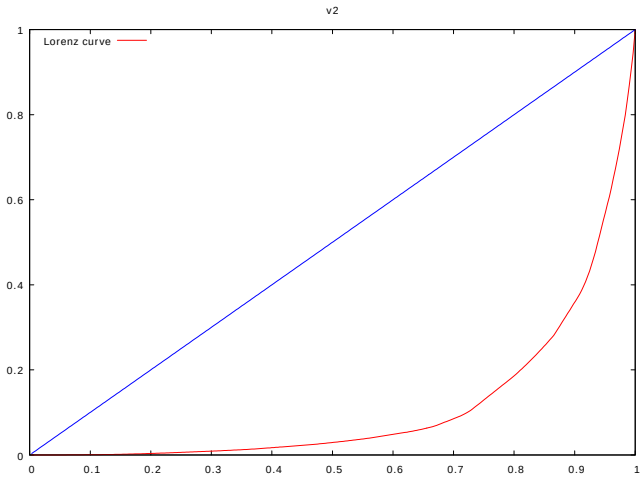
Number of observations = 305

Sample Gini Co-efficient = 0.773738

Estimate of population value = 0.776283

The 0.77 Gini ratios presents a high inequality in the distribution of the assets in the sample households. The Lorenz curve also shows a divergence from the line of equality (see Figure 5.4).

Figure.5.4. Lorenz Curve Showing Inequalities in the Distribution of Value of Assets.



Source: Primary Survey, 2014-15.

To test the inequality in the asset value across the caste groups, mean ranks were measured and presented in Table 5.20.

Table 5.20. Ranks in Asset Value across Castes.

Caste	N	Mean Rank
SC	26	128.23
ST	70	71.16
OBC	169	172.24
General	40	231.03
Total	305	

Source: Based on Primary Survey, 2014-15.

In Table 5.20 also, the general category got the highest rank, followed by the OBC, SC, and ST. The results of the Kruskal Wallis test are used to confirm the formulated null hypothesis that there does not exists inequality in the distribution of assets among the caste groups.

Table 5.21. Test Statistics of Asset Value Across Castes.

Chi-Square	101.930
df	3
Asymp. Sig.	.000
a. Kruskal Wallis Test	
b. Grouping Variable: caste	

Source: Based on Primary Survey, 2014-15.

The P value of 0.000 indicates that the null hypothesis can be rejected and the asset values among the caste groups differ significantly. Thus, there are inequalities in asset value across the castes.

5.6. Drinking Water Scenario

Subsequent to the operation of the Coca Cola Company there was water depletion and contamination. Almost all people irrespective of caste were affected by the drinking water scarcity. Table 5.22 shows the present (post Cola phase) drinking water scenario in Plachimada.

Table No.5.22. Caste -Wise Access to Drinking Water

Sources of Drinking Water		Caste				Total
		SC	ST	OBC	General	
1	Own Well	0(0)	1(0.3)	10(3.2)	1(0.3)	12(3.9)
2	Own Borewell	0(0)	0(0)	1(0.3)	2(0.6)	3(0.9)
3	Public bore well	0(0)	0(0)	0(0)	1(0.3)	1(0.3)
4	Own Pipe	25(0.8)	59(19.3)	136(45)	35(11.4)	255(83.6)
5	Rain Water Tank	0(0)	1(0.3)	4(1.3)	0(0)	5(1.6)
6	Lorry Water	0(0)	9(2.9)	12(4)	1(0.3)	22(7.2)
7	Neighbor's Well	1(0.32)	0(0)	6(2)	0(0)	7(2.2)
Total		26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15

Realizing the difficulties of the people of Plachimada, in the Post Cola period, the Panchayat has laid individual pipelines to each household with an initial installation charge of Rs.2500/- and a monthly user charge of Rs.90/-. The respondents report that water supply is sometimes once in a week that too for a few hours in the morning. However they are dependent on the pipeline as all other water sources still remain contaminated. It is found that 83.6 percent of the respondents have a pipeline connection. However in some colonies, the pipeline facility is not yet available and they (7.2%) still depend on lorry water for their domestic purposes. Presently, only 15 households (4.8%) have got their own open well and bore well. These households have a very large area of agricultural land and they have dug new borewells and some have dug new open well. Some households still solely depend on their rain water tank. The people who cannot afford to install the Panchayat pipeline, still depend on their neighbours' well. Almost all the owners of the open wells opine that prior to the advent of the Cola Company, their drinking water from open wells tasted like tender coconut; now that is only memory.

5.7. Occupational Status.

Even after the destruction of the agriculture, majority of the people in the area continue in their occupation as agricultural casual laborers as they are familiar with agriculture and the prospects of other occupations are dim. Table 5.23 shows caste wise occupational status of the respondents.

Table No.5.23. Occupation Wise Distribution of Population Across Caste

Sl.No	Occupation	Caste				Total
		SC	ST	OBC	General	
1	Agriculture labor	17(5.5)	53(17)	73(24)	6(2)	149(49)
2	Agriculture	4(1.3)	5(1.6)	45(15)	29(9.5)	83(27)
3	Business	0(0)	1(0.3)	4(1.3)	1(0.3)	6(2)
4	No occupation	3(1)	8(2.6)	35(11)	3(1)	49(16)
5	Self - Employment	1(0.3)	1(0.3)	6(2)	0(0)	8(2.6)
6	Others	1(0.3)	2(0.6)	6(2)	0(0)	9(3)
7	Coca Cola Company	0(0)	0(0)	0(0)	1(0.3)	1(0.3)
	Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15.

Majority of the respondents work as casual agricultural laborers (49%), followed by agriculturists (27%). Alternative employment opportunities are very thin in Plachimada. About 16 percent of the respondents have no occupation. Self -employment initiatives are very rare: only 2.6% of the respondents are engaged in self – employment. The prospects of such employment are not so favourable in Palchimada because of the economic backwardness. Only one person was found to continue in the Coca Cola factory in Hyderabad. He was transferred to Hyderabad when the Plachimada unit was shut down in 2004. Business opportunities are also not bright in Plachimada. Most of the business ventures such as hotels, tea shops and grocery shops, started subsequent to the operation of the Coca Cola Plant, were

the only kinds of business in the region. The self –employed respondents are doing petty business like making brooms and selling in the neighborhoods. In Kerala, it is hard to find a rural area in the real sense of the term; however, Plachimada is truly a remote area in every sense.

Table No.5.24. Total Monthly Income Among Different Categories Of Occupation.

Category of Total Monthly Income in Rs.	Occupation						Total
	agriculture labor	Agriculture	Business	No occupation	Self-Employment	Others	
0-5000	24(7.86)	8(2.6)	0(0)	15(5)	3(1)	2(0.6)	52(17)
5000-10000	102(33.4)	21(6.8)	3(1)	21(6.8)	5(1.6)	4(1.3)	156(51.1)
10000-20000	21(7)	31(10)	3(1)	9(2.9)	0(0)	4(1.3)	68(22.3)
20000-30000	2(1)	14(5)	0(0)	3(1)	0(0)	0(0)	19(6.23)
30000-100000	0(0)	9(2.9)	0(0)	1(0.3)	0(0)	0(0)	10(3.3)
Total	149(49)	83(27)	6(2)	49(16)	8(2.6)	10(3.2)	305(100)

Source: Primary Survey, 2014-15

Most of the agricultural casual workers (33.4 percent) belong to the total monthly income group of Rs.5000-10000/-. Majority of the agriculturists belong to the total income category of Rs.10000-20000/-. The highest monthly income category of Rs.30000-100000/- is earned by the respondents who are agriculturists. None of these respondents who were involved in occupation such as business, self-employed and in other occupation could earn this much (see Table 5.25).

5.8. Other Indicators

The socio economic status of the people of Plachimada is analysed through various other indicators such as nature of ration cards, membership in social safety nets such as MGNREGS, Kudumbasree, nature of ownership of houses, toilet facilities, cooking gas connection, electricity connection etc. Table 5.25 shows the type of ration card among different caste groups.

Table No.5.25. Nature of Ration Card Across Castes

Castes	Ration Card Category			Total
	APL	BPL	No ration card	
SC	8(2.6)	16(5)	2(0.6)	26(9)
ST	1(0.3)	65(21)	4(1.3)	70(23)
OBC	95(31)	72(23.6)	2(0.6)	169(55)
General	36(11.7)	3(1)	1(0.3)	40(13)
Total	140(46)	156(51)	9(3)	305(100)

Source: Primary Survey, 2014-15

About 51 percentage of the respondent have Below Poverty Line (BPL) ration card, while 93 percent of the ST respondents are in Below Poverty Line. Further, 62 percent of the SC households, 42 percent of the OBC households and 7.5 percent of the households belonging to the general category are BPL. Only 3 percent of the total households have not been issued ration cards. Some of the Above Poverty Line (APL) card holders complain that they should belong to the category of BPL as their living conditions testify to this.

As MGNREGS could be a source of income, Table 5.26 shows the age wise beneficiary of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS).

Table. No.5.26. Age Wise Beneficiary of MGNREGS program

Age Group	MGNREGS		Total
	Member	Non- Member	
18-28	13(4)	27(9)	40(13)
29-39	29(9.5)	43(14)	72(23.6)
40-50	34(11)	51(17)	85(28)
51-61	14(5)	41(13)	55(18)
62-72	10(3)	33(11)	43(14)
73-83	1(0.3)	8(2.7)	9(3)
84-94	0(0)	1(0.3)	1(0.3)
Total	101(33)	204(67)	305(100)

Source: Primary Survey, 2014-15

The MGNREGS program was initiated in 2006, with the objective of enhancing livelihood security in rural areas by providing at least 100 days of guaranteed wage employment in a financial year. However, the MGNREGS program is not very strong in Plachimada. A large majority, i.e., 67 percent are not under this social safety net. The absence of effective Kudumbasree network and delay in the payment of remuneration may be the reason for this. Some respondents say that they have registered their name in the MNREGS program, the delay in the payment compelled them to renounce this safety net.

Table 5.27 shows the households membership in the Kudumbasree program. The Kudumbasree program was launched by the Government of Kerala in 1998, to wipe absolute poverty from the state, through intensive community action under the direction of the local self- governments.

Table No. 5.27. Membership in Kudumbasree Program.

Age Group	Kudumbasree		Total
	Member	Non- Member	
18-28	11(4)	29(9)	40(13)
29-39	26(8)	46(15)	72(23)
40-50	32(10)	53(17)	85(27)
51-61	12(4)	43(14)	55(18)
62-72	9(3)	34(11)	43(14)
73-83	1(0.3)	8(2.6)	9(3)
84-94	0(0)	1(0.3)	1(0.3)
Total	91(30)	214(70)	305(100)

Source: Primary Survey, 2014-15

Kudumbasree activities are also very inefficient. Only 30 percent households have Kudumbasree membership. Irrespective of caste, all segments lag behind in Kudumbasree participation. This can be taken as a low social interaction among different people. The respondents in the age group of 40-50 years show highest participation in Kudumbasree activities. Illiteracy and the absence of awareness regarding the benefits of joining the Kudumbasree activities may be the reason for this backwardness. Table 5.28 shows the caste wise participation in Kudumbasree programs.

Table.No.5.28. Caste wise Membership of Women in Each Households in Kudumbasree.

Castes	Kudumbasree		Total
	Member	Non- Member	
SC	9(2.9)	17(5.57)	26(9)
ST	15(4.9)	55(18)	70(23)
OBC	63(20.6)	106(34.7)	169(55)
General	4(1.3)	36(11.8)	40(13)
Total	91(30)	214(70)	305(100)

Source: Primary Survey, 2014-15.

From Table 5.28, it is evident that irrespective of caste, a very small number of households from each caste groups have membership in the Kudumbasree programs. Some tribal women, who were members in the Kudumbasree program, claimed to have later quit it because of the inconvenience of weekly participation in its meetings. However, the local people have membership in Evangelical Social Action Forum, (*ESAF*), a microfinance program started in 1992, to alleviate unemployment.

Table. No. 5.29. Nature of Ownership of House Across Different Castes

Nature of Ownership of House	Caste				Total
	SC	ST	OBC	General	
Own	26(9)	68(22.2)	167(54)	40(13)	301(98.6)
Rented	0(0)	1(0.3)	2(0.6)	0(0)	3(0.9)
other	0(0)	1(0.3)	0(0)	0(0)	1(0.3)
Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15

A significant majority, i.e., 98.6 percent of the respondents live in their own houses. However, very few people have built their houses with their own money. Most of the houses were provided by the Government through various housing programs. Only 3 households live in rented house. One respondent who is a widow from the tribal community lives in a relative's house using different kitchen. Her husband died of cancer and she had to sell her land and house for his treatment. She lives with her two kids. They have applied for grant for purchasing land. About 49 percent houses in the sample population were built from the various

housing schemes of government. Around 12.5 percent households have incurred financial liability as part of completion of construction activities (see Table 5.29). Though 62 percentage respondents say that they are satisfied with the various government schemes, 38 percent opine that they are not happy with the government schemes as the amount is inadequate to complete the work.

Table. No. 5.30. Nature of Houses Across Castes

Nature of Houses	Caste				Total
	SC	ST	OBC	General	
RC	0(0)	7(2)	34(11)	12(4)	53(17)
Tiled	24(8)	45(14.7)	121(39)	25(8)	215(70)
Thatched	2(0.6)	18(6)	14(4.5)	3(0.9)	37(12)
Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15

Majority of the households have tiled roofs. Earlier they had roofs thatched. Various government programs enabled them to replace them recently by tiles or concrete. The households of people in the SC category do not have concrete roofs. Only 17 percent of the total households have got concrete roof. About 70 percent of the respondents have got tiled roofs, while 12 percent of the households still have roof with coconut leaves. The ST households form highest percentage of thatched roofs.

Table 5.31 shows the nature of toilets across castes.

Table. No. 5.31. Nature of Toilet among Different Castes

Nature of Toilet	Caste				Total
	SC	ST	OBC	General	
Attached	0(0)	4(1)	49(16)	27(9)	80(26)
Near the Premises	23(7.5)	37(12.1)	76(23)	9(3)	145(48)
No toilet	3(0.9)	29(10)	44(14)	4(1)	80(26)
Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15.

Around 26 percent of the total households have no toilet. It is found that 29 ST households and 44 OBC households have no toilets. Even though 145 households have got toilets near their house premises, most of them do not use

toilets because of scarcity of water; most of the toilets are in very pathetic condition.

Table. No. 5.32. Cooking Gas Connection Across Different Caste

Cooking Gas	Caste				Total
	SC	ST	OBC	General	
Yes	7(2)	3(0.9)	100(33)	27(9)	137(45)
No	19(6)	67(22)	69(23)	13(4)	168(55)
Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15

About 55 percent of the total households have no cooking gas connection. While, majority of the households belonging to the general and OBC category have got cooking gas connection, majority of the SC/ ST households do not have cooking gas connection (see Table 5.32).

Table No.5.33. Electricity Connection among Different Castes

Electricity	Caste				Total
	SC	ST	OBC	General	
Electricity	24(8)	48(16)	154(50)	40(13)	266(87)
No Electricity	2(0.6)	22(7.2)	15(5)	0(0)	39(13)
Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15

It is surprising to note that 39 households constituting 13 percent of the total households still have no electricity. Most of the kutcha houses have no electricity since their wall and roof are made of coconut leaves. Electricity connection is technically not possible for such houses (see Table 5.33)

Table.No.5.34. Bank Account Holders Among Different Castes

Bank Account	Caste				Total
	SC	ST	OBC	General	
Yes	13(4.2)	27(8.8)	156(51)	39(12.7)	235(77)
No	12(4)	43(14)	12(3.9)	1(0.3)	68(22)
NA	1(0.3)	0(0)	1(0.3)	0(0)	2(1)
Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15

A sizeable majority, i.e., 77 percent of the households have a bank account. However, 2 households did not want to reveal any details. The ST

category lags behind in banking habits too. Various government programs such as house grants, land purchase grants, maintenance grants, MGNREGS and the Kudumbasree net- work may be instrumental in making 77 percentages bank accounts in this remote region (see Table 5.34).

As far as political participation is concerned, the people of Plachimada regularly cast their votes. However 53.4 percentage of the respondents participate regularly in Gram Saba, while others rarely participate in it. Only 20.7 percent express their views in the Gram Saba. Only 32.5 percentages say that they get answer to their questions. None of the tribal households participate in Gram Saba. The tribal people participate only if their problems are discussed. They never speak out in the Gram Saba. Even if they dare to speak, they will not get proper reply also. The tribal people interact with the government through their tribal promoter, and they have special meetings for their own needs.

Only 33 percentage of the respondents have strong affiliations to any political party. A significant majority, i.e., 74 percentages trust the state institutions and its activities.

A look into the social life of the people of Plachimada, through the field survey, revealed that 59 percentages of respondents have high ability to meet unforeseen contingencies. About 63.6 percentage of the respondents believe that they will get support from the society if they encounter any problem. About 42 percentages households have regular social interaction. Only 20 percentages of the households subscribe to newspapers. A large majority, i.e., 76 percentages know the news by listening to others.

5.9. Conclusion

The current socio economic analysis of Plachimada, brings to the forefront the fact that extreme social inequalities exist among different households in general and caste wise inequalities in particular. The inequalities in land holdings, total monthly income, total monthly expenditure, and asset value for the entire sample population are confirmed by the Gini Co-efficient and Lorenz Curve analysis. The

Kruskal Wallis test results indicate that caste wise inequalities exist in these variables.

Though the colonies in the study area are predominantly tribal colonies, non-tribals also reside there. The regions beyond the colonies belong to the agriculturists. They are mainly from Ezhava caste followed by those of the general category. The landlord- tenant type of social life still prevails in Plachimada with most of the tenants being tribal people. The people belonging to the scheduled caste and Ezhava community also work as agricultural labourers under a wealthy landlord, on the contrary, the living conditions and surroundings of the tribes, SC, OBCs are different. When compared to the housing environment of the tribes and SCs, the OBCs live in better houses. The socio economic analysis shows that the tribes lag behind other sections in all socio and economic indicators. The next chapter is an analysis of the impact of the Coca Cola Company on the local economy of Plachimada.

6

The Impact of Coca Cola Company on the Local Economy of Plachimada

CHAPTER 6

THE IMPACT OF COCA COLA COMPANY ON THE LOCAL ECONOMY OF PLACHIMADA

This chapter analyses the impact of the Coca Cola Company (hereafter Company) on the local economy of Plachimada. Out of the 305 sample respondents, 80 (26%) respondents got employment directly or indirectly in the Coca Cola Plant while it was in operation. Out of the 305 respondents, 83(27%) respondents were agriculturists and 70 (23%) respondents belonged to the scheduled tribe. Many factors relating to these three categories were separately analysed to capture the response of the ex-employees of the plant, to get an understanding of its impact on the agricultural sector as well as on the tribal sections. The chapter is divided into two sections. The first section deals with the impact of the Company on employment, availability of water, agriculture, health, education, environment and other aspects. The second segment specifically analyses the impact on tribal population.

Section.1.

6.1. Impact of the Coca Cola Company on Employment.

The fundamental objective of inviting any Multinational Corporation is to generate employment opportunities. The Company provided employment to the local people. The employment generated by the Company helped to create a social legitimacy for the Company among the local people. From the secondary data it was evident that 70 permanent workers and 150- 250 casual labourers were employed in the factory. The studies also indicate that a few local people were given employment (PUCL Bulletin 2002, Jananeethi Report 2003, Wramner, 2004). From the sample survey, out of 305 households, 80 households got either direct or indirect employment opportunities. It is understood that only 26 percent of the local residents in the sample around 3KM area of the plant received the benefit of employment due to the operation of the MNC. Since caste wise inequality was identified in almost all aspects of life in Plachimada as analysed in

chapter five, a caste wise distribution of sample respondents employed in the Company is shown in Table 6.1.

Table.6.1. Caste Wise Population Employed in the Coca Cola Company

Castes	Respondents	Employment	Caste Wise
SC	26(8)	2 (2)	7.6
ST	69(23)	4(5)	5.7
OBC	170(56)	66(83)	39.4
General	40(13)	8(10)	20
Total	305(100)	80(100)	26.5

Source: Primary Survey, 2014-15.(figures in parenthesis are percentages)

From Table 6.1, it is observed that the OBC section got the highest employment in the factory (67 i.e. 83 percent), followed by the general category (8 i.e. 10%). Two persons from SC category got employment in the plant, i.e. 2 percent. Only 4 persons from the ST category got employment in the factory. The two persons belonging to the ST category quit employment within a week's time, since the Company paid salary only at the end of the week. The tribal sections are so poor that they live off their daily income. Initially, the Company paid only a meagre amount as salary which was too insufficient to meet even their basic needs. This led them to quit their occupation, even without demanding the two day's wages.

Table.6.2.Number of Employment Generated by the Company and the Category of Employment.

Sl. No	Category	Number of Respondents	% of the Total Households
1	Temporary workers	76(95)	25
2	Permanent worker	1(1.25)	0.3
3	Indirect employment	3 (3.7)	1
Total		80 (100)	26.3

Source: Primary Survey, 2014-15

One more person quit the work, in 2002 when the mass movement was initiated and subsequently joined the Plachimada struggle. Only one person from the tribal community worked till the shutdown of the factory. Rose Mary George's

study reveals that the Company authorities said that it is difficult to rely on the working skills of the scheduled tribe people. The majority of the workers were recruited on political party lines across the state while the local tribal population was highly marginalized (George, 2012). Out of the 80 households, 77 households got direct employment in the plant. Three households indirectly got employment due to the functioning of the Company. Surprisingly only one person was found to have got permanent employment. He was transferred to the Coca Cola branch at Hyderabad when the plant in Plachimada was shutdown in 2004.

Only 27(34%) ex-employees were found to be from the adjacent colonies. Only a few locals were employed as casual labourers in the factory. This finding is supported by the studies of Roshan (2011), and George(2012).

Table.6.3. Category of Work in the Company.

Sl.No	Nature of work	Number of employees
1	Bottling Plant	50 (62.5)
2	Loading	16 (20)
3	Cleaning	5 (6.25)
4	Lift Open	2 (2.5)
5	Supervisor	3 (3.7)
6	Labeling	1 (1.2)
7	Others	3 (3.7)
Total		80(100.0)

Source: Primary Survey, 2014-15

Most of the workers were working in bottling plant (62.5%), followed by loading section (20%). These two works were carried out under the sub-contracting regime. The contractors appointed the locals on a contract basis and all the contractors hired the workers by political influence. Some workers lost their work after a few months, mainly because of political pressure to appoint somebody else. Only a few employment opportunities were available under other categories such as cleaning, labeling and lift operating etc. (see Table 6.3).

Regarding the nature of occupation, only a few people could get permanent employment, which was given to highly qualified persons. From the sample survey, only one person was appointed permanently, and he is still working in the Coca Cola Company situated in Hyderabad. The majority of the employees, 76 people i.e. 95 percent, were appointed temporarily on contract basis. This category of employees belongs to the sub- contracting section. Normally the employees entered into contractual agreement with an outside person of the Company to perform some specific tasks of the Company such as loading and bottling. The main purpose of the Company in hiring subcontractors is generally to reduce costs and to mitigate project risks. Usually, the workers have to work from 7 am to 3 pm. However, they can opt to work for more hours with double wages. The majority of the workers, 93.75 percent were given overtime work at the Company. The loading and bottling sections had given the highest overtime work.

Two people got indirect employment due to the functioning of the Company. One was a tailor who secured a contract to stitch the uniforms of the employees. Another person was running a hotel for the employees. During the field survey, it was found that the ex-employees of the Company appreciated the Company and the life when the Company was operational. Majority of those who got employment in the Company were agriculturists, who considered the Company job as a status symbol rather than as a source of livelihood. Despite being paid low wages, the locals flocked to the Company as it was a multinational one. The meagre income provided by the Company was not a problem to them. About 93.8 percent ex- employees say that they were satisfied with the salary paid by the Company. Only 3.7 percent say that the salary of Rs.30- 40/- per day, was not enough. Even though the salary was low, they preferred to remain in the Company, as they considered it a permanent job. They expected increment in their salary year after year and promotion too. Moreover the local economy was facing serious seasonal unemployment problem. The employment generated by the Company was a source of employment security to many. Gradually they were given small increment in the wages, but when the strike started, the wages were raised to Rs.75 – 100/- per day. The employment opportunities provided by the Company were

hardly suitable for the poorest of the poor. However, it was suitable for those with other means of livelihood.

The Company had given training to the employees to improve their work efficiency. During the training, they were shown demonstrations of their work. Around 88.9 percentage of the employees participated in the program. About 75 percent say that the training has improved their efficiency, but, 99 percent say that the training program was not helpful to secure work elsewhere.

Most of the employees expressed the feeling that they were given full freedom to work in the Company. They could work and earn overtime wages as per their ability. The loading work and overtime enabled them to earn more than Rs.12000/- per month. They could adjust their working hours according to their convenience as there were three shifts. They could join in any shift or all shifts. Usually, they had to work from 7 am to 3 pm. But they could overwork for one or two hours with double wages. The majority of the workers, 92.6 percent got overtime work at the Company. The ex- employees (81.25 percent) say that they were extremely happy while working in the Company. Only 15 percentage expressed displeasure with the working conditions.

The work in the Company enabled a majority of the employees (97.5 percent) to secure durable assets like household durables goods, to expand their houses and maintenance work at home. They are of the opinion that the Company employment gave them stability in their income and helped them to purchase domestic durable goods on instalment basis. The consistent income from the Company was a source of confidence to them. When the Company shut down and their stable income stopped, they could not pay back the money. The business men engaged in selling consumer durables in instalment had took their goods. Some ex-employees blame the strikers for being instrumental in shutting down the Company. Most of the ex-employees of the Company expressed their opinions in favour of the Company. A general prosperity they claimed prevailed during the operation of the Company.

Out of 80 workers, 34(43%) workers said that they were afraid of the management. Most of them opined that the behavior of the management was satisfactory. A few people say that their behavior was not acceptable. Almost all employees said that they had never experienced any unpleasant incidents while they worked in the Company. They had never experienced any ill treatment on the part of the management towards them or to their colleagues. All workers claimed that the Company had never given any medical allowances to the workers nor had it taken any interest in their children's education. They said that they were asked to contribute an amount for the provident fund. However, they complained that they had not received the provident fund amount when the Company suspended its operation. Only 24 percent of the employees got back their provident fund. While 76 percent were disappointed.

Soon after the Company started functioning, the local area showed signs of development. From this plant, 85 lorry/truckloads of beverage products with each load containing 550-600 cases and each case containing 24 bottles with 300 ml capacity leave the factory premises every day (PUCL Report, 2002). A lot of employees working in the Company arrived at the area and innumerable trucks and heavy vehicles halted there for hours waiting to fill the load of Coca Cola bottles. Soon the area was crowded with people. The functioning of the Company had opened overseas for business opportunities such as hotels, small tea shops, and stationary shops to flourish. A good number of residents near the factory built lodges and other buildings to let out for stay or for running business.

The business people on the road side were the greatest beneficiaries of the factory. Four hotels were concentrated just opposite to the plant when the Company was in operation. Now there is only one. The lone tea shop which is still open belongs to a family who extended their house as a hotel. Every hotel earned a profit of Rs.10000/- daily. The customers were the lorry and truck drivers from outside and inside Kerala, and employees of the Company. All had to depend on these hotels as there was no canteen within the factory premises.

A lot of kutcha hotels were run by the residents. Even though there were a lot of permanent hotels and temporary sheds near the plant, it was not enough to

feed the workers of 3 shifts as well as the truck and heavy vehicle drivers. A good number of workers who had vehicles went to nearby towns to have food. Even the hotels in the 10 KM area around the plant were able to earn a good profit during the operation of the Company.

A kutcha hotel owner says that he could earn a profit of Rs.10000/- every day at that time. Almost all the staff in the plant depended on the hotels near the plant as there was no canteen inside the plant. After the shutdown of the Company, he had to close his hotel. He disposed all the things used in the hotel and has taken into rearing cows.

In another hotel just opposite of the plant, the entire front area of the house was converted into dining area of the hotel and separate buildings were added to it. The hotels provided meals and breakfast. They affirmed that the hotels hardly closed and worked 24 hours with all the family members actively involved in preparing the food. They claimed that they had earned Rs.15000 to Rs.20000/- everyday. Now they run the hotel as tea shop where only tea and snacks are served and hardly earn Rs.500/- a day. The same is the case with a stationary shop run by a woman, who earned more than Rs.5000/- when the factory was in operation, but who now earns below Rs.1000/- a day.

The barber along the road side had 3 saloons, run by his father, brother and himself while the Company was in operation. He could earn more than Rs.1000/- every day then. Now the customers have considerably reduced and he hardly gets Rs.300/-. He was forced to close two shops, his father has died and his brother has gone to Tamil Nadu in search of job. A tailor in Kambalathara has a similar story. He got the orders of the Company to stitch the uniform shirts and pants for the employees of the Company. According to him there were 180 permanent staff in the Company. The Company gave 2 sets of uniform free of cost to the permanent employees. He used to stitch a total of 360 sets of uniforms every year, for which he used to be paid Rs.200/- for each set. He used to purchase the cloth and take the measurement by going to the Company. They used to pay him by cheque. The payment was timely and the attitude of the Company management was pleasant.

The mass movement against the Company began in 2002 and in order to lure the employees to their side, the Company had increased the wages during that time, and some employees voluntarily quit the Company employment and joined the mass movement. Another group pursued the Company employment and conducted a parallel movement to protect their employment in the Company. However the latter movement did not last long because of the huge political support, media coverage, the involvement of the environmentalists from various parts of the world, and enormous civil society personalities backing the people of Plachimada in their struggle against the Company. During the primary survey even the ex-employees, who were disappointed because of their loss of employment, agree that the Company was making exorbitant profit by 'selling our own water to us'. Table 6.4 shows the participation of employees in the mass movement.

Table. 6.4. Participation of Employees in the Mass Movement.

Participation in Mass Movement	Employment in Cola		Total
	No	Yes	
Yes	93(30.5)	31(10)	124(40.6)
No	132(43.3)	49(16)	181(59.4)
Total	225(74)	80(26)	305(100)

Source: Primary Survey, 2014-15

Out of 305 respondent, 124 (40.6%) actively participated in the mass movement against the Company. Out of this 10 percentages were the ex - employees. Out of the 80 employees, 31 participated in the struggle. Although the ex-employees considered the life during the operation of the Company as happiest time period, deep inside their mind they were disturbed and worried about the over exploitation of the groundwater by the Company. That may be the reason for 31 employees quitting the Company job and joining the mass movement against the Company. Out of the 70 (23 percentage) persons of the tribal community, 15 percent actively participated in the struggle and others indirectly supported the struggle.

Table 6.5 shows changes in the occupation subsequent to the advent of the Company.

Table.6.5. Changes in the Nature of Occupation

Sl.No	Occupation	Pre Cola Period	Cola Period	Post Cola Period
1	Daily wage	173	148	173
2	Agriculture	72	64	71
3	Business	11	12	11
4	Home maker	13	8	14
5	Self- employment	26	24	25
6	Others	10	6	10
7	Coca Cola employment	0	43	1
	Total	305	305	305

Source: Primary Survey, 2014-15

The change in the nature of occupation during the three time periods is shown in Table.6.5. Only 43 local employees remained in the Company till its shut down. Only one local employee was given permanent employment in the Company. The women home makers got temporary employment in the Company. The operation of the Company was instrumental in the loss of agricultural employment opportunities to 257 respondents (84.3%) due to groundwater depletion. The employment insecurity felt by this majority was enormous during that period. Casual agricultural activities reduced considerably and of the 148 casual workers in the Cola period, a majority of them went outside Plachimada in search of occupation. The respondents say that they went to Palakkad town and some have even moved to Trissur district and Tamil Nadu in search of employment opportunities. They had to incur high travel cost in order to get casual work and their net income reduced considerably due to this. About 166 respondents say that the employment insecurity started with agriculture destruction caused by the operation of the Company. The Likert scale value of 3.94 shows huge support for this opinion. The Company created more unemployment in the agriculture sector

than the employment they generated through the Company. This finding is supported by the studies of Vikas Adhyan Kendra (2004) and others.

6.2. Impact of Coca Cola on Drinking Water Scenario.

Although the Company started the production in 2000, by accepting the license agreement that it will use surface water, promising that it will not over extract the groundwater and will not pollute the environment, gradually they started violating it. Their intrusion into the deeper aquifers through the gigantic bore wells, extracted more than 10 lakh litres of groundwater every day. Eventually, the water level in the locality dropped considerably, the open wells and bore wells dried up, some wells got contaminated, and the water became unpotable for drinking, bathing, and cooking. The four to six hour long walk in search of fresh water intensified the misery of the people of Plachimada especially that of the women folk.

Apart from this, the Company sold their waste as manure to the agriculturists who used it in their fields. Later, numerous lab reports including the Exeter University revealed that the soild waste of the Company contains hazardous chemicals like led and cadmium. The studies presume that these chemicals might have leached into the water sources during the rain (INTACH, 2004).

When the scarcity of fresh water, the long walk for water and the subsequent miseries crossed the tolerance limit, the people of Plachimada decided to fight against the Company. Even after the closure of the Company in 2004, the water problems still haunt the people in the locality despite some of the efforts of the Panchayat and NGOs.

Table.6.6 shows changes in the water sources in three phases.

Table.6.6. Changes in the Sources of Drinking Water in Three Phases.

S.N	Sources Of Water	Pre-Cola	Cola	Post Cola Period
1	Own Well	86(28.2)	46(15.1)	12(3.9)
2	Own Borewell	12(3.9)	16(5.2)	3(1)
3	Public Well	119(39)	2(0.7)	0
4	Public Borewell	41(13.4)	2(0.7)	1(0.3)
5	Own Pipe	16(5.2)	7(2.3)	255(83.6)
6	Rain Water Tank	1(0.3)	10(3.3)	5(1.6)
7	Lorry Water	4(1.3)	212(69.5)	22(7.2)
8	Neighbor's Well	26(8.5)	10(3.3)	7(2.3)
	Total	305(100)	305(100)	305(100)

Source: Primary Survey, 2014-15

Table 6.6 shows the changes in the sources of water during the three time periods. In the pre- Cola period 86 (28.2 percent) households had their own wells, 119 (39%) households primarily poor households in and around the Vijayanagar Colony depended on the public well for their domestic and drinking water needs. The dependence on the public borewell was also high 41(13.4%). During the Cola period, due to groundwater contamination and depletion, 40 private wells got contaminated and depleted, subsequently some dug borewells, and the number of borewells had increased in the Cola period from 12 to 16. The public well in the Vijayanagar Colony which was the sole sustenance of nearby colonies also got contaminated. The 119 households had to travel miles to fetch water for the entire family and to rear domestic animals also. The local residents had cooperatively cleaned the public well several times but the water remained contaminated. However, 2 households used the contaminated water in the Cola period. The study by George (2012) finds that the advent of HCCBPL intensified the water scarcity. The study by Nair (2008) finds that daily extraction of lakhs of litres of groundwater by the HCCBPL aggravated the water problem. It was found that 212(69.5%) households depended on lorry water in Cola period. The irregularity and long hours of waiting for lorry water affected their domestic and casual work resulting in girls' dropping out of schools or students being regularly late for class.

More than 40 households covered their private wells since a lot of cleaning attempts still left the water contaminated. Some have dug new borewells and deepened their existing wells, but the situation remained the same. Even after the closure of the Company the groundwater remains contaminated in the public well and most of the private wells also. So, recently in 2013-14 the Panchayat had laid individual pipe lines to each household at an initial installation charge of Rs.2500/- and monthly user charge of Rs.90/-. There are poor households without individual pipeline because they cannot afford to pay for the pipeline. In the post Cola period the 255(83.6%) households have individual pipeline. Still, there are colonies where the pipeline facility has not been implemented. It is observed that 22 sample households from Amman Colony still depend on lorry water for their water needs. Like the lorry water, the pipe line water is also irregular; sometimes water will not be supplied weeks. Even if there is water supply, it is for a few hours in the morning, so people have to wait for hours and sometimes have to leave their work to collect water. Some households, especially the financially sound households even doubt the quality of water coming through the pipeline and they purchase drinking water at Rs.45/- per bottle from the open market. However, people belonging to the poor households use the pipeline water for drinking also.

To analyse the association between the presence of the Company and the availability of water, Chi-Square test is applied. The null hypothesis was that there is no significant association between the availability of water and the presence of the Company. Table 6.7 shows the Chi-Square test results.

Table. 6.7. Chi-Square Test Result

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1150.907[a]	14	.000
Likelihood Ratio	1172.335	14	.000
Linear-by-Linear Association	117.637	1	.000
N of Valid Cases	915		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.33.			

Source: Based on Primary Survey, 2014-15.

The operation of the Company has adversely affected the water availability in the area. As per Chi-Square value, the association between water availability and presence of the Company is statistically significant confirmed by p value at 0.000 (see Table 6.7).

A Non- Governmental Organization called Council of Advancement of People's Action and Rural Technology (CAPART) has built rain water harvesting tanks to the households with RC or tiled roofs. Since majority of the households have no strong roof, only a few households could benefit from this project. Even the Anganawadi in the Vijayanagar colony was denied this facility due to the absence of a strong roof.

The conditions of water in three time periods are shown in Table 6.9.

Table 6.8. Condition of Water in Three Time Periods.

S. No	Category of Water Condition	Time period		
		Pre Cola	Cola	Post Cola
1	Surplus Fresh Water	279	0	5
2	Surplus Contaminated Water	0	294	15
3	Depleted Fresh Water	0	6	1
4	Depleted Contaminated Water	0	5	4
5	Rare Fresh Water	26	0	280
	Total	305	305	305

Source: Primary Survey, 2014-15.

In the pre Cola period, 279 respondents say that there was surplus fresh water. Only 26 respondents opined that fresh water was rare even in pre Cola also. In the Cola period, 294 respondents said that the water was contaminated; yet it was surplus in the public well as well as in the private wells. Only 5 respondents reported that along with contamination, water got depleted also. However 6 respondents said that water was depleted but it was not contaminated. In the post Cola period, there is a slow improvement in the water condition, 5 respondents said

that water has become abundant and also potable but also said that it did not taste like before. Some wells including the public well in Vijaya Nagar colony still remain contaminated.

To analyse the role of the Company in the water contamination, Chi-Square test is applied. The null hypothesis was, 'there is no association between the changes in the water quality and the presence of Coca Cola '. Table 6.9 shows the Chi-Square test result.

Table 6.9. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1553.676[a]	8	.000
Likelihood Ratio	1644.097	8	.000
Linear-by-Linear Association	627.786	1	.000
N of Valid Cases	915		
a. 6 cells (40.0%) have expected count less than 5. The minimum expected count is 2.33.			

Source: Based on Primary Survey, 2014-15.

The result is statistically significant as seen from the p value at 0.000. The Chi-Square value of the condition of water in Plachimada establishes the fact that the working of the Coca Cola factory has negative impact on the water condition in the study area.

The well water still remains contaminated in many areas. Frequent cleaning of the wells failed to better the condition of water. Water by boiling gets a white color substance at the bottom of the pot and the utensils gets damaged easily. The cooking problems in the Cola period still persist in many areas where the well water is being used for cooking

The water quality test result of the Integrated Rural Technology Centre (IRTC) a research institute established at Palakkad under the Kerala Sasthra Sahithya Parishad (KSSP), which collected water samples from three sample open wells of Plachimada during the years of 2002, 2005 and 2011, confirm the Chi-

Square result presented in Table 6.9. The water quality data regarding the three parameters such as total hardness, calcium hardness and magnesium hardness tells that over the years, the hardness of water has reduced considerably after the closure of the plant. As per the Bureau of Indian Standards (BIS), the permissible level of total hardness is 300mg/l, the permissible level of calcium hardness is 75mg/l, and the permissible level for magnesium hardness is 30mg/l.

Table 6.10. Water Quality of three sample wells in Plachimada, in the years 2002, 2005 and 2011.

Parameter	Total Hardness(mg/l)			Calcium Hardness(mg/l)			Magnesium Hardness(mg/l)		
Year	2002	2005	2011	2002	2005	2011	2001	2005	2011
Sample1	1110	1526	312	450	420	74	660	114	32
Sample 2	1140	800	224	105	260	57	1035	36	20
Sample 3	300	1651	800	75	421	205	30	114	74

Source: IRTC Chemical Laboratory, 2015.

The water quality for some samples is not normal even after the closure of the plant. Even though the pre Cola water quality data is not available, the reduction in the hardness causing elements after the closure of the plant shows that the water quality is becoming better since the closure of the plant (see Table 6.10). The Director of the IRTC Chemical Laboratory Dr. P.K. Ravindran says that, 'the Chittur area contains limestone deposits, therefore there will be hardness of water in the region, however, when the Coca Cola plant sucked the water excessively, huge amount of chloride came into the water quickly and it adversely affected water quality. After the closure, the water quality is gradually picking up year after year. Even though there is no pre Cola water data, we can assume from this trend that water quality would have been better in the pre Cola period'.

6.3. Impact of Coca Cola Company on Agriculture

Agriculture was the mainstay of Plachimada. Even though the annual rainfall is very scanty since it lies in the rain shadow region, the major crop cultivated was rice. The *'poonthal padam'* a type of marshy land was the unique

geographical feature of this region that facilitates rice cultivation. However, as a consequence of the operation of Coca Cola Plant, the groundwater depleted and marshy lands disappeared tremendously compelling the traditional rice cultivators to shift to other crops.

Table. 6.11.Crops Shifted by the Agriculturists

Crops shifts	Frequency	Percent
Shifted crops	46(55.4)	14.6
Not shifted	37(44.6)	11.7
Total	83(100)	27

Source: Primary Survey, 2014-15

Out of the 83 agriculturists in the sample, 46 (55.4%) have shifted their crops. Out of the remaining 37(44.6%) agriculturists who have not shifted their crops, some had already been cultivating coconut or other less water intensive crops and a few have stopped cultivating their land (see Table 6.11). Table 6.12 shows the reasons for crop shifting.

Table 6.12. The Reason for Crop Shifts

Sl.No	Reasons	Number of Agriculturist	Percent
1	Not shifted	37(44.6)	12
2	Water scarcity	44(53)	14
3	Profit motive	1(1.2)	.3
4	Labour scarcity	1(1.2)	.3
	Total	83(100)	27

Source: Primary Survey, 2014-15

Around 53 percent say that they have changed crops due to water scarcity. Labour scarcity and profit motive was mentioned as a reason by one respondent each. It is found that 55 percent had shifted their crops in the Cola period, 53 percent said that they have shifted crops due to water scarcity problem. Hardly one percent claimed that they have shifted due to labor scarcity or for profit motive

(see Table 6.12). Table 6.13 shows the distribution of agriculturists among different castes.

Table.6.13. Number of Agriculturists across Castes

Sl.No	Castes	Frequency	Percent
1	SC	5(6.02)	1.6
2	ST	4(4.8)	1.3
3	OBC	43(51.8)	14
4	General	31(37)	10
	Total	83(100)	27

Source: Primary Survey, 2014-15.

Caste wise there is huge inequality in agriculture in Plachimada. The majority of the agriculturists belong to the OBC (51.8%) and general category (37%). SC and ST together constitute only 3 percent of the total agriculturists. OBC category predominates in the agricultural activity (see Table 6.13). Three agriculturists were not natives of the region. They bought land here since the land price is very cheap in Plachimada. Moreover, the agriculture labourers are abundant and also wages are low in Plachimada.

Table 6.14 shows the changes in the cropping pattern in three time periods.

Table. 6.14. Crops under Cultivation during the Three Phases.

Sl.No	Crops	Pre-Cola	Cola	Post Cola
1	Rice	46 (55)	22(26.5)	14(16.8)
2	Coconut	16 (19)	29(35)	44(53)
3	Groundnut	3 (3.6)	2(2.4)	1(1.2)
4	Vegetables	15(18)	4(4.8)	9(10.8)
5	Plantain	2(2.4)	6(7.2)	2(2.4)
6	Tapioca	1(1.2)	0	0
7	Coco	0	1(1.2)	1(1.2)
8	Mango	0	2(2.4)	6(7.2)
9	Maize	0	1(1.2)	1(1.2)
10	Ginger	0	0	1(1.2)
11	No farming	0	16(19)	4(4.8)
	Total	83(100)	83(100)	83(100)

Source: Primary Survey, 2014-15

In the pre- Cola period, 55 percent agriculturists cultivated rice. In the Cola period the rice cultivation reduced to 26.5 percent and in the post- Cola period, it further reduced to 16.8 percent. The rice cultivation was the greatest provider of casual employment in the Plachimada region. When the rice cultivation was replaced by the other less labour intensive crops, the local people became unemployed. In the Cola period, 19 percent agriculturists refrained from any farming activity. The number of people unemployed due to reduction in agricultural activity was huge. Thus, the rate of unemployment subsequent to the destruction of agriculture was greater than the rate employment generated by the Coca Cola factory in the local economy. The coconut cultivation increased from 19 percent in the pre Cola period to 35 percent in the Cola period and 44 percent in the post Cola period. Groundnut production and vegetables production has reduced. The new crops tried in Cola period are coco, mango and maize. In the post Cola period mango cultivation increased from 2.4 percent to 7.2 percent. People started cultivating ginger also in the post Cola period. It is important to note that 19 percent of the agriculturists, most of the time, did not cultivate during the Cola period. In the post Cola period, groundwater situation is gradually picking up, 14.2 percentage of the people have returned to agricultural activities. Now only 4.8 percent are abstaining from agriculture (see Table 6.14).

The unique geographical feature of Plachimada was the presence of wet (marshy) lands. The presence of marshy lands enriches the deeper aquifers. The predominance of rice cultivation also helps in sustenance of these wet lands. This is nature’s way of providing water security through groundwater to Plachimada, where rainfall is scanty. These wet lands enabled the agriculturists to cultivate rice three times in a year. This provided employment security throughout the year to the casual agriculture labourers. A coconut tree climber in Plachimada colony has revealed about some of his observations during the functioning Company. When he used to climb the coconut trees outside the Company compound, he could see that as the Company started the motors to extract water in the morning, the pond outside the compound and the nearby *poonthal padam* (wet land) would dry. In the afternoon the Company would switch off the motor, and store the water in the huge tank constructed within the Company compound. By the time he finished the work

in the evening, the pond and the *poonthal padam* would again fill with water. This is an evidence for the existence of rich aquifers in the region. However, the functioning of the Coca Cola Plant and its massive extraction of groundwater led to the disappearance of these marshy lands which in turn adversely affected the rice cultivation. Table 6.15 shows the presence of wet lands in three time periods.

Table.6.15. Wet lands in Three Time Periods

Wet Lands	Time Periods			Total
	Pre Cola	Cola	Post Cola	
No	8	83	83	174
Yes	75	0	0	75
Total	83	83	83	249

Source: Primary Survey, 2014-15.

Table 6.15 shows the presence of wet lands in three time periods. The Cola period witnessed the complete loss of wet lands in the study area. In the post Cola period also marshy lands are absent; however deeper aquifers are gradually collecting water. But the problem that remains unresolved is the contamination and pollution of the aquifers.

The Chi-Square test is applied to analyse the association between presence of wet lands and presence of the Coca Cola. The null hypothesis was there is no association between presence of the Coca Cola and presence of wet lands. The Chi-Square test results are given in Table 6.16.

Table.6.16 Chi-Square Test

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	214.655[a]	2	.000
Likelihood Ratio	252.084	2	.000
Linear-by-Linear Association	160.345	1	.000
N of Valid Cases	249		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.00.			

Source: Based on Primary Survey, 2014-15.

The result is statistically significant as the P value is 0.000 and the null hypothesis is rejected. There is a significant association between presence of wetlands and presence of Coca Cola. In the Cola and post Cola phase, there is a significant decline in the wetlands considered to be essential for paddy cultivation.

Table 6.17 shows the agricultural land cultivated during the three phases.

Table.6.17. Land Kept as Idle During the Three Phases

Sl.No	Category	Pre Cola	Cola	Post Cola
1	Idle	0(0)	16(19.3)	0
2	Cultivated	83(100)	67(80.7)	83(100)
	Total	83(100)	83(100)	83(100)

Source: Primary Survey, 2014-15

In the pre- Cola period all the agriculturists were engaged in agricultural activity. In the Cola period, due to water scarcity 19.3 percent avoided doing agriculturists activities. In the post Cola, all the agriculturists are back into the agriculture since the groundwater situation is showing a recovery stage. However, due to the change in the cropping pattern from rice to coconut and other less labor intensive crops, there is a considerable reduction in the absorption of the unemployed people. Hence, the unemployment problem is very acute in Plachimada now.

Table 6.18 shows the tendency of agriculturists in Plachimada to lease out their land.

Table.6.18. Land Given for Lease During the Three Phases

Category	Pre Cola	Cola	Post Cola
Lease out	0	3(3.6)	3(3.6)
Cultivated	83(100)	80(96.4)	80(96.4)
Total	83(100)	83(100)	83(100)

Source: Primary Survey, 2014-15

In the pre Cola period, nobody gave their land on lease. In the Cola period, due to water scarcity 3.6 percent leased out their land in order to avoid risk of agriculture. In the post Cola period also the same percentage are lending their land for cultivation since they find it easier to lease out than to cultivate.

Table 6.19 shows the number of open wells during three phases.

Table.6.19. Number of Open Wells During Three Phases

Sl.No	Category	Pre Cola	Cola	Post Cola
1	Irrigation/rain/borewell	17(20.5)	54(65)	24(28.9)
2	One open well	45(54.2)	28(33.7)	36(43.4)
3	Two open well	21(25.3)	1(1.2)	23(27.7)
	Total	83(100)	83(100)	83(100)

Source: Primary Survey, 2014-15

In the pre Cola period nearly 79.5 percent of the total agriculturists were dependent on open well for their farming activity. In the Cola period only 34.9 percent people relied on their open wells for agricultural purposes. The main reason for this was the depletion of water level in the open wells and also severe contamination of the well water. A lot of farmers have covered their open wells as a result of contamination. In the post Cola period, farmers have dug new wells and their existing wells are showing higher water levels. Now 71.1 percent depend on open well for agriculture (see Table 6.19).

Table.6.20. Number of Borewells During Three Phases

Sl.No	Category	Pre Cola	Cola	Post Cola
1	Irri/rain/openwell	74(89)	58(69.8)	58(69.8)
2	One borewell	8(9.6)	18(21.6))	17(20.4)
3	Two borewell	1(1.2)	2(2.4)	4(4.8)
4	Three borewell	0(0)	4(4.8)	4(4.8)
5	Four borewell	0(0)	1(1.2)	0(0)
	Total	83(100)	83(100)	83(100)

Source: Primary Survey, 2014-15

From Table 6.20, it can be understood 10.8 percent farmers had borewells during the pre- Cola period. About 30 percent farmers depended on borewell for agriculture in the Cola period. The same percentage of farmers depend on bore wells in the post Cola period also. In the Cola and post Cola period, the number of borewells of each farmer has increased considerably.

Table. 6.21. Number of Agriculturists Depended on Bore wells in Three Time Periods

Category	Time periods			Total
	Pre Cola	Cola	Post Cola	
No	74	58	58	190
Yes	9	25	25	59
Total	83	83	83	249

Source: Primary Survey, 2014-15.

Table 6.21. shows the borewells dependence of agriculturists in three time periods. In the pre Cola period, only 9 agriculturists (10.8%) depended on bore wells for agricultural purposes. However in the Cola and post Cola period, this dependence has increased to 25 percent. Now 25 agriculturists depend on bore wells. This is an indication of the depletion of the water table. Chi-Square test is used to test the association between the presence of Coca Cola and increased dependence of bore wells. The null hypothesis was 'there is no association between the bore well dependence and presence of Coca Cola'. The test result is given in Table. 6.22.

Table.6.22.Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.373[a]	2	.003
Likelihood Ratio	12.552	2	.002
Linear-by-Linear Association	8.495	1	.004
N of Valid Cases	249		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 19.67.			

Source: Based on Primary Survey, 2014-15.

As p value is statistically significant at 0.003, it can be observed that there is a significant association between the dependence on bore well and presence of Cola Company. This further confirms depletion of groundwater in the Cola and post Cola phase vis-à-vis pre Cola phase.

Table 6.23 reveals the extent of the depletion of water table as it shows the depth of borewells in three periods.

Table.6.23. Depth of Bore Well During Three Phases(Depth In Feet)

Sl. No.	Depth of bore well	Pre Cola	Cola	Post Cola
1	No bore well	71(85.5)	58(69.8)	58(69.8)
2	200	3(3.6)	3(3.6)	0
3	225	2(2.4)	0	0
4	280	0	1(1.2)	1(1.2)
5	300	1(1.2)	4(4.8)	2(2.4)
6	350	2(2.4)	4(4.8)	0
7	400	4(4.8)	10(12)	16(19.2)
8	450	0	0	3(3.6)
9	500	0	1(1.2)	1(1.2)
10	520	0	0	1(1.2)
11	700	0	1(1.2)	1(1.2)
	Total	83(100)	83(100)	83(100)

Source: Primary Survey, 2014-15.

In the pre Cola period the minimum depth of borewells was 200 feet and maximum depth was 400 feet. In the Cola period due to depletion of water table a lot of farmers have deepened their borewells and the maximum depth has increased to 700 feet. In the post Cola period, the minimum depth of the borewells became 280 feet and the numbers of borewells with 400 feet depth have increased from 12 percent to 19.2 percent.

The increase in borewell depth in the Cola and post Cola phase was analysed by 'Mann Whitney U' Test. To apply this test the mean ranks and sum of ranks of each periods is to be calculated. The calculated ranks are given in Table 6.24.

Table 6.24. Mean Ranks of Bore Well Depth

	Period	N	Mean Rank	Sum of Ranks
Borewell Depth	Cola	24	19.85	476.50
	Post Cola	24	29.15	699.50
	Total	48		

Source: Primary Survey, 2014-15.

The mean ranks and sum of ranks are highest in the post Cola period. The Mann Whitney U Test result is given in Table 6.25. The null hypothesis was there is no difference in the depth of bore wells in the Cola and post Cola phase.

Table 6.25. Test Statistics

	Bore Well Depth
Mann-Whitney U	176.500
Wilcoxon W	476.500
Z	-2.511
Asymp. Sig. (2-tailed)	.012
a. Grouping Variable: period	

Source: Based on Primary Survey, 2014-15.

There is a significant difference in the depth of the bore wells in the Cola and post Cola phase as p value is statistically significant at 0.012 implying depleted groundwater levels despite the Cola factory being wound up.

A lot of farmers have incurred huge losses by digging bore wells repeatedly, due to failure of successive bore well attempts. Table 6.26 shows the number of borewells which failed since the Cola period.

Table.6.26. Number of Failed Bore Wells Since the Cola Period

Sl.No	Number of borewells	Number and Percentage of Borewells
1	No borewell	73(87.9)
2	One borewell	3(3.6)
3	Two borewell	1(1.2)
4	Three borewell	5(6)
5	Seven borewell	1(1.2)
	Total	83(100)

Source: Primary Survey, 2014-15

Three farmers have lost one borewell each. One farmer has lost 2 bore wells. Five farmers have lost 3 successive bore wells. One farmer has a failed number of 7 borewells since the Cola period. One bore well requires an expense of almost Rs.50, 000/-.

A few numbers of farmers have bought lorry water for their agricultural purpose which costs Rs.400/- per supply. Table 6.27 shows the dependence of agriculturists on lorry water in the Cola and post Cola periods.

Table. 6.27. Dependence on Lorry Water in Three Time Periods

Category	Time periods			Total
	pre Cola	Cola	post Cola	
No	83	30	83	196
Yes	0	53	0	53
Total	83	83	83	249

Source: Primary Survey, 2014-15.

In the pre Cola period, no agriculturists relied on lorry water for agriculture purposes. But in the Cola period 53 agriculturists (64%) depended and purchased lorry water to irrigate their crops. However, in the post Cola period, nobody depends on lorry water for farming activities. To test the association between the

dependence of lorry water and the presence of Cola Company, Chi-Square test is used. Table 6.28 shows the Chi-Square results. The null hypothesis was there is no association between the dependence of lorry water and the presence of Cola Company.

Table 6.28. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	134.663[a]	2	.000
Likelihood Ratio	149.215	2	.000
Linear-by-Linear Association	.000	1	1.000
N of Valid Cases	249		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.67.			

Source: Based on Primary Survey, 2014-15.

The p value at 0.000 is statistically significant and the null hypothesis is rejected to conclude that there is a significant association between dependence on lorry water and presence of the Cola Company.

Table.6.29. Drought Conditions In Three Time Periods

Drought Condition	Time periods			Total
	Pre Cola	Cola	Post Cola	
No	83	8	13	104
Yes	0	75	70	145
Total	83	83	83	249

Source: Primary Survey, 2014-15

Table 6.29 shows the drought conditions in the agricultural activities in Plachimada. In the Cola period, 75 agriculturists (90%) opine that they were experiencing drought conditions. Among the sample respondents, 70 agriculturists(84%) in the post Cola period say that they are still experiencing drought conditions. This is an indication that the ramifications of the Coca Cola Company prevail even after ten years of its shut down. The Chi- Square test was

conducted to analyse the association between the drought conditions and the presence of Coca Cola Company.

Table.6.30. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	174.201[a]	2	.000
Likelihood Ratio	213.723	2	.000
Linear-by-Linear Association	120.875	1	.000
N of Valid Cases	249		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 34.67.			

Source: Based on Primary Survey, 2014-15.

Table 6.30 shows the Chi-Square test result. The null hypothesis was 'there is no association between the drought conditions and the presence of the Coca Cola Company'. As p value is 0.000, the null hypothesis is rejected and concludes that there is a significant association between drought conditions in the study area and presence of Company. The INTACH (2004) Study on the Plachimada issue also confirms this result. The study says that in the pre Cola period, they could pump the bore well or open well 24 hours a day, in the Cola period they could hardly pump for 4 hours, by then the borewell or open well got dried up, leading to a decline in the harvest.

In 2015, the Perumatty Panchayat was declared as the first agricultural Panchayat in the state. The Panchayat will not allow any industries to function in the Panchayat area. Production of agriculture will be promoted through Pada Sekhara Samithi. No land will be allowed to stay fallow. The Panchayat will take up the land of those who are not willing to cultivate and give it on lease and a reasonable income will be given to the landowner. Rashtriya Krishi Vikas Yojana will be implemented in the Panchayat to promote mechanization of agriculture in the region. Now there are 29 Pada Sekhara Samithi in the entire Panchayat and 3000 farmers cultivate rice only over 1000 hectares of land.

6.4. Impact of the Coca Cola Company on Education.

The Plachimada issue received public attention, when Narendranath, a teacher at Vandithavalam Higher Secondary School, noticed that a few students from Plachimada were regularly coming late to the school. He found that the children had to travel one to two kilometers to fetch water since the water in their nearby wells had become contaminated. Being the officer in the school in charge of National Green Corps (NGC), an environment organization under the Ministry of Environment and Forests, Government of India, he conducted a survey, and found that the well water surrounding the Coca Cola Company had been contaminated. He presented his survey report in the district level meeting of NGC. Later the issue was discussed widely among the local people (Nair K.N et al 2008). From the field survey, it is found that 13 girls and 65 boys had quit their studies during the Cola period, as they had to assist the family in collecting water. Usually, it was to the student community that the parents give responsibility to collect water since majority of the parents are illiterate and the community is educationally backward. The water issue might have increased the educational backwardness during that time. However the reason for the students dropping out of school cannot be solely attributed to the Coca Cola Company.

6.5. Impact of the Coca Cola Company on Health.

The water contamination and pollution subsequent to the operation of the Company was ensued by a series of health issues in Plachimada. The use of Company waste as manure in the rice fields caused allergic and other serious skin diseases as it contained hazardous lead and cadmium. As cadmium adversely affects the bones, knee pain and joint pain was severe among the people. The inflammation in the skin after bath was common at that time. About 5 percent households reported that they had undergone kidney stone surgery during the Cola period. The groundwater contamination and freshwater scarcity affected the health of people around the plant. The long walk for water deteriorated the health of women and girl children. Giddiness and jaundice was common during the Cola period. To analyse the quality of health in three time periods, the mean ranks of each time period on health rating were calculated. Table 6.31 shows the ranks.

Table 6.31. Mean Ranks of Health Rating

	Time	N	Mean Rank
Rating on Health	Pre Cola	305	760.00
	Cola	305	153.00
	Post Cola	305	461.00
	Total	915	

Source: Primary Survey, 2014-15

The health rating got highest rank in the pre Cola period; followed by post Cola period and the Cola period got the lowest rank in the health rating. The Kruskal Wallis Test conducted on this rating is given in Table 6.32. The null hypothesis was that there are no significant variations in the health rating in three time periods.

Table 6.32.Test Statistics

	rating on health
Chi-Square	903.998
df	2
Asymp. Sig.	.000
a. Kruskal Wallis Test	
b. Grouping Variable: time	

Source: Based on Primary Survey, 2014-15.

The p value at 0.000 indicates that the null hypothesis is to be rejected as the result is statistically significant. The quality of health as evaluated by respondents in the pre Cola period, Cola period and post Cola period varied significantly. The health status of the people of Plachimada deteriorated considerably from the pre Cola to the Cola period, and shows improvement in the post Cola period. The health data compiled from the Anganawadies and Primary Health Centre (PHC) also confirm our results. The details of the health data collected from the PHC are given in Table 6.33.

Table.6.33. Details of Quality of Health in Three Time Periods.

	Indicator	Pre Cola Period	Cola Period	Post Cola
1	Infant Mortality	4	8	2/1000
2	Sick New Born	3	7	4/1000
3	Malnourished	18	23	16/1000
4	Infant Pneumonia	50	62	53
5	Birth Weight Under 2.5	13	19	12/1000
6	Pregnant Women With High Risk	15	22	18
7	Pregnant Women With Anemia	18	25	17
8	Life Expectancy	60-65	55-60	65-70
9	Morbidity Rate	100/1000	240/1000	140/1000

Source: Data compiled from the Anganawadi and PHC, Plachimada. 2014-15

The only positive indicator in Table 6.33 is life expectancy and it is comparatively low in the Cola period. All other negative indicators such as infant mortality, sick new born, malnourished, infant pneumonia, low birth weight, high risk pregnant women, anemic pregnant women and morbidity rate are higher in the Cola period compared to the pre Cola and post Cola period.

About 30 percent employees of the Company reported that they had experienced ill health while working at the Company. These workers belong to the bottling and cleaning sections. However, 70 percent reported that the work they indulged in the Company was not hazardous in nature. However, a person working in the loading section was affected by a disc problem, while he was working in the Company. Since loading was under the sub- contracting regime, he was not given any medical allowance by the Company. He had spent all his wealth for his treatment and is now not in a situation to do manual work.

6.6 Impact of the Coca Cola Company on Environment

The operation of the Company adversely affected the flora and fauna of the locality. This was evident during the survey. A lot of respondents opined that the functioning of the plant had badly affected the vegetation and a lot of greenery has disappeared forever. A toddy labourer opined that during the functioning of the plant, when the Company operated its water extracting motors during the day time the lake behind the Coca Cola Plant would dry up for a short period, then by evening the lake would again fill up with water. In the pre Cola period he used to catch fishes, crabs and frogs from the ponds and lakes but these species had disappeared now. The quality and quantity of toddy has also reduced considerably since the Cola period. The moisture in the soil is no longer present. The unique geographical feature of Plachimada, the *poonthal padam* (marshy land), suitable for rice cultivation and sustenance of groundwater, has completely dried up now. The respondents say that the taste of well water in Plachimada had a unique taste like tender coconut. Beginning from the Cola period and even to the present day the well water remains unpotable. An agriculturist in the Plachimada colony during the pilot survey said that "if the Coca Cola would not have shut down, the region would have become a desert". This statement was being asked in the survey and 164 respondents strongly agreed to this statement and the Likert scale value is 3.92 which shows high percentage of support to this statement. A farmer cultivating groundnut opined that his crops failed in consecutive years since the functioning of the Company. He has not got yield to store even for seeds. He commented that the situation was like '*karannukudichalum aruthukudikkaruth*' meaning, one should not kill the cow to drink milk. The Company had drawn massive quantities of water at a stretch destroying the region for profit.

Table 6.34 shows the responses of the respondents on various statements related to environment. The responses are measured and rated on five point Likert Scale. For positive answers 5 points are given to strongly agree, 4 points for agree, 3 point for no opinion, 2 point for disagree, 1 point for strongly disagree. Then number of responses is multiplied with the corresponding points. The sum of these numbers is divided by the sample size 305 to get the average. The average value ranges from five to one. When the value is five it is the most favorable response

possible. When the value is three, there is a neutral response and when the value is one the response is most unfavorable. The ranges of these values are given below.

When the value is 1-2.3 strongly disagree with the statement.

When the value is 2.3-3.6- no opinion

When the value is 3.6- 5- strongly agree.

Table.6.34. Responses on Statements Pertaining to the Environment.

Sl No	Statement	S. Agree	Agree	No Opinion	Disagree	Strongly Disagree	Average
1	"If the Coca Cola would not have shut down the region would have become a desert"	164	60	17	23	41	3.92
2	"We feel reduction in our welfare since the functioning of the Coca Cola Company"	109	102	21	42	31	3.89
3	"Unemployment started with the destruction of agriculture"	166	62	13	23	41	3.94
4	"Water insecurity led to personal insecurity"	172	59	13	21	40	3.99
5	" If the Cola Company again starts functioning, by providing all basic needs including water will you accept the offer"-	68	33	17	24	163	2.40
6	"Compensation will restore the environmental damage"	161	26	112	0	6	4.10
7	Evaluation of rating of environment in the pre-Cola period	302	0	3	0	0	4.98
8	Evaluation of rating of environment during the Cola period	37	55	14	4	195	2.13
9	Evaluation of rating of environment in the post Cola period	76	176	8	19	26	3.84

Source: Primary Survey, 2014-15

The respondents strongly agree with the statement one in Table 6.34 that is "If the Coca Cola would not have shut down the region would have become a desert" with 3.92 Likert value. The people of Plachimada strongly agree with the statement that they feel reduction in their welfare since the operation of the Company (3.89 Likert value). Agriculture destruction subsequent to the operation of the Company was instrumental in creating unemployment was supported by the respondents with 3.94 Likert value. Water insecurity led to the personal insecurity has got huge support with 3.99 Likert value. The statement, 'suppose the Company restart its operation with all promises of basic needs will you accept the offer' has got mixed response with 2.40 Likert value. This response reveals the present employment insecurity in the region. The respondents strongly agree with the statement that the compensation will restore the environmental damage with 4.10 Likert value. Evaluation of the rating of environment was done by rating the quality of community woodlots, pastures, lakes, ponds, soil moisture, vegetation and greenery. The ratings were done for pre Cola, Cola and post Cola period. The pre Cola rating got highest favourable attitude with Likert value 4.98. The Cola period environmental ranking got unfavorable rank with 2.13 and in the post Cola period the environmental rating has improved to favouable Likert value of 3.84 indicating the recovery of environment in the post Cola period.

6.7 Other Impacts of the Coca Cola Company

There was tremendous hike in the price of land, soon after the arrival of the Coca Cola. A real estate broker in Plachimada said that the land price increased from Rs.15000/- per cent to Rs.30000/- per cent. But later due to the water scarcity, the land price was reduced to Rs.20000/- per cent. Recently there is an emergence of non- natives in agriculture in Plachimada. A land price hike is noticeable in Kerala, but in Plachimada due to the water issue, the land price remains at Rs.20000/- per cent, this attracted the non – natives especially people from Trissur district to purchase agricultural land in bulk and practice agriculture, mainly coconut cultivation by hiring the tribal people. However, these non- natives do not settle in Plachimada, the tribal people are assigned duties to look after the agriculture. One non- native agriculturist says that there is no place in Kerala where the land price is so cheap.

During the field survey, one of the ex- employees opined that the Company had undertaken some activities as part of Corporate Social Responsibility. They have put street light along the road sides from Meenakshipuram to Thatthamangalam. They have given coolers to all employees, when the water issue surfaced, they have laid pipelines to nearby households and have given drinking water to the employees.

It is evident from the Panchayat documents that the Panchayat has been getting Rs.4.65 lakh per year as building tax; the Company has been remitting Rs.71875/- as license fee and Rs.1.5 lakh as professional tax. The government gets this revenue from the Coca Cola Company every year even after the shutdown.

Section. **2**.

6.8 Impact of the Coca Cola Company on Tribal People.

This section is intended to illustrate the status of the tribal people due to the functioning of the multinational giant the Coca Cola Company in Plachimada. There are many criticisms on the role played by multinationals in developing countries. The people's movement against the MNCs is common in recent years. Most of the people's movement is led by the subaltern people for protecting their right to live on the earth. In India, most of the mass movement against the MNCs is led by the tribal people. The Vedantha Company, a UK based MNC is doing unsafe bauxite mining in Niyamagiri mountains in Orissa, The movement against this MNC was led by Dongria Kond tribe who considers Niyamagiri mountain as God. Another mass movement headed by the tribal people is Mahan movement in Madhya Pradesh, where UK based Essar Company is mining the coal. Mahan forest is one of the oldest Sal forests of Asia. Both these mass movements succeeded in stopping the MNC invasion.

This section also aims to explore why the tribal community in Plachimada is leading the struggle. The answer to this will emanate by analyzing the impact of operation of the Coca Cola Company on the tribal people of Plachimada.

Tribal communities have evolved historically through a different socio-economic and political process. These primary inhabitants have co-existed by deep

interaction with the ecosystem. Their social and cultural life has revolved around the ecosystem. Even if tribals make up just 8 percentage of the population, they account for more than 40 percent of the 60 million people displaced following development projects in India. Official data on all indicators of development reveal that India's tribal people are the worst off in terms of income, health, education nutrition, infrastructure and governance. They have also been unfortunately at the receiving end of the injustices of the development process itself since more than 50 percent of most minerals and dam sites are mainly in tribal regions (Shah, 2015). The indigenous people are the marginalized sections in the entire world. Globalization and free market has brushed away their life and livelihood. It not only marginalized them but also threatened their existence.

There are 320 tribal households around the Coca Cola Plant, 70 tribal households were taken as samples. These people belong to Irula and Malasar tribe. Majority of them work as agriculture labourers. They settled in this place 60 years ago from Tamil Nadu. Most of them are illiterate. They live in 4 cents of land provided by the government. In Palakkad district 53% of the tribal population lives below poverty line (Panicker, 2008), whereas in Plachimada, all the sample respondents belonging to the tribal community are living under Below Poverty Line. About 48 (68.6%) households depend on public well and public borewell for domestic water needs including drinking water. Only 6 (8.6%) households have got their own well.

Table. 6.35 show the educational status of the tribal people in the study area.

Table.6.35. Educational Status of Tribal People

Sl.No	Category	Number of Respondents	Percent	Cumulative percent
1	Illiterate	30	42.9	42.9
2	Primary	24	34.3	77.1
3	UP	1	1.4	78.6
4	HS	12	17.1	95.7
5	HSS	3	4.3	100.0
Total		70	100.0	

Source: Primary Survey, 2014-15

Even though 42.9 percentages have not gone to school at all and are illiterate, those who have done their primary education are also the same as the illiterate as they cannot read and write. So the total percentage of illiterate can be taken as 77.1 percentages, which is the cumulative frequency of illiterate and primary education.

Table .6.36. Area of Land Holdings

Area in cents	Number of Respondents	Percent
Below 5	51	72.9
6-15	14	20.0
16-30	1	1.4
More than 30	4	5.7
Total	70	100.0

Source: Primary Survey, 2014-15

Out of 70 households, 51 households (73 %) have below 5 cents of land got through various government programs. Only 4 (5.7%) households have got more than 30 cents of land. This land they got from their landowners. Even if these people got agriculture land, the living conditions are very bad.

The mean age of the members of the households is 43. About 52 percentage belong to the age category of 30 to 50 years of age. The average family size of the household is three. Out of the 70 households, 29 (41.4%) have no toilet. Nearly, 22 households (31.4%) have no electricity connection. About 67 households (95.7%) have no cooking gas connection. It is observed that 50 households (71.4 %) have no telephone connection. The modal value of durable assets of households is only Rs.1000/-. Around 43 households (61.4%) have no bank account.

Table 6.37 shows the present details of roofs of tribal households.

Table.6.37. Status of Houses

Sl. No.	Nature of roof	Number of Households	Percent
1	Concrete	7	10.1
2	Tiled	45	64.2
3	Thatched	18	25.7
	Total	70	100.0

Source: Primary Survey, 2014-15

Only 10 percent of the tribal people have got concrete houses. Majority lives in tiled roof houses. It is surprising to note that even in the modern age, 25.7 percent live in thatched houses.

Table 6.38 shows the drinking water scenario of the tribal households during the Pre- Cola, Cola and Post Cola Period. In the pre Cola period 68.5 % depended on public open well and borewell for their water requirements. In the Cola period, the water turned unfit for human consumption, they relied on lorry water and in the post Cola period the Panchayat had laid pipelines to each household.

Table No.6.38. Water Sources of Tribal People in the Three Periods

Sl. No.	**Source of Drinking Water**	**Pre Cola Period**	**Cola Period**	**Post Cola Period**
1	Own Well	6 (8.5)	2 (2.8)	1 (1.4)
2	Public Well	37 (52.8)	1(1.4)	0
3	Public Borewell	11 (15.7)	1(1.4)	0
4	Own Pipe	3 (4.2)	1(1.4)	60 (85.7)
5	Lorry Water	1 (1.4)	65(92.8)	9(12.9)
6	Neighbor’s Well	12 (17.1)	0	0
	Total	70 (100)	70(100)	70(100)

Source: Primary Survey, 2014-15

Plachimada and Vijaya Nagar, two tribal predominant colonies, are very adjacent to the Coca Cola factory. The residents of these colonies depend on public open well and public borewell for their drinking water requirements. After the functioning of the Company, the groundwater has got depleted and contaminated. The water in and around 3 KM area of the Coca Cola Company has become unfit for drinking. This made the tribals to travel miles to fetch water. Most of the time water collection was the duty of the women folk. They have to leave their casual work to fetch water, since it took more than 6 hours to fetch water including waiting. The long travel made their health weak and loss of work days affected their income levels and subsequently their food intake has reduced making them vulnerable to disease and hunger. The malnourishment and lack of hygiene and sanitation affected the health conditions of the entire family members including kids. The situation of other tribal colonies such as Amman Colony, Madhavan Nair Colony, Kochikkadu and Rajivnagar was also the same. Even after a decade had passed, the situation of drinking water remains the same. The study by Rose Mary George (2012) finds that there is a close correlation between the land rights and water rights. Only the OBC and general category are endowed with own wells and the burden of water scarcity problems seriously affected the backward sections. This may be the reason for tribal people leading the mass movement.

The Gram Panchayat has put individual pipelines to each household, with the initial installation charge of Rs.2500/- per household and with a monthly usage charge of Rs.90/-. This monthly user charge is more than double compared to the Jalanidhi water scheme which is supplying water in the other regions in the Perumatty Panchayat itself. A few local households have not applied for the water connection because of financial difficulties. Majority of the tribal households have got the connection but the water comes very rarely, sometimes there would be no water supply for an entire week. Even if there is, the supply is only for 2 hours in the morning. Again they sacrifice their casual work to collect water. The tribal and other poor households do not have enough water storage facilities like tanks, barrels and other utensils. Now water is not a free good to this remote village. This

indigenous people who struggle to meet both ends, have to pay for the basic fundamental right- drinking water.

The study earlier mentioned about CAPART that has built rain water harvesting tanks to the households in Plachimada, during the Cola period. But this facility required RC or tiled roofs. The majority of the tribal households could not benefit from this since they have no strong roof; most of them have leaves as roofs (see Table. 6.37). However, a few households could benefit from this project. Table 6.39 shows the occupational status of tribals in Plachimada. Nearly, 54 people (77%) work as agricultural labourers.

Table No.6.39 Occupational Status of Tribal

Sl.No	Category of Occupation	Frequency	Percent
1	Agriculture labor	54	77
2	Agriculture	4	5.7
3	Business	1	1.4
4	No Job	8	11.4
5	Self- Employment	1	1.4
6	Others	2	2.9
Total		70	100.0

Source: Primary Survey, 2014-15

Even though 4 people have got more than 30 cents of land, they rarely do agricultural work but work as casual labourers whenever they get work. The four agriculturists cultivate only in the monsoon season, since they do not have their own borewell or open well. So they cultivate only once in a year. Otherwise, they work as casual labourers. Two women work as Accredited Social Health Activist (ASHA) workers. A man who has got technical education in electronics is running an electronic repair shop in his own house. One old lady who lives alone makes brooms and sells them to the nearby houses. She gets only a meagre income (see Table 6.39).

Most of the agricultural workers, who lost their casual agricultural work, were tribal people. The employment insecurity felt by this majority was enormous during that period. Even though the Company is bordered by tribal predominant colonies, it is surprising to note that only one person from tribal community got employment in the Coca Cola factory. Since the inception of the Company there was an unusual urge from the local villagers to migrate into the factory. This urge was exploited by the local political leaders. By influencing the Company management the political leaders allotted them workers. The tribal hardly had any political influence. One or two tribal people in the Plachimada Colony got employment but they voluntarily quit job because the Company paid them only in weekly and initially the wage was too low, Rs.30/- per day. The tribal lives with their daily earned income. Their consumption depended on their daily income. They rarely save for the future. The multinational job was suitable to those people who had some other means to survive.

The local political leaders opine that the tribal have no physical capacity to work in the factory and to train them is also a difficult task. The loss of agriculture as a consequence of water scarcity, subsequent to the functioning of the Coca Cola Company has made the tribal to move out of their village to find new job. Some travelled to nearby villages and others have even moved to town in search of job. Thus, functioning of the Company ruined the employment security of the tribal. Their income level reduced considerably. The food intake and health also got adversely affected. At the same time the mile long travel to fetch water aggravated their miseries.

Out of 70 tribal households, only 4 have got agricultural land. All of them cultivated rice in their fields. During the functioning of the Company the water shortage compelled the agriculturists to shift their crops to less water intensive crops such as plantain, coconut and mango. But the tribal agriculturists stick to rice only. They never attempted crop shift, rather they gave up agriculture for few years and incurred huge loss and went for casual work. The main reason was that they do not have the income to invest in crop shifting and have no entrepreneurship to attempt new crops. Now the water scenario is gradually picking up, some have started cultivating rice and others have given out their land for lease.

Table 6.40 shows the area of agriculture land holdings of the four tribal households. Even though they have agricultural land, they cultivate once in a year that too depending on monsoons. Usually they live with their casual work.

Table 6.40. Agricultural Conditions of the Tribal People in Three Time Periods.

Area in Cents	No: of Households	Pre- Cola period			Cola period			Post- Cola period		
		Crop	Lease out	Idle	Crop	Lease out	Idle	Crop	Lease out	Idle
70	2	Rice	No	No	0	No	yes	0	yes	no
400	1	Rice	No	No	0	No	yes	Rice	lease	Yes
500	1	Rice	No	No	Rice	Yes	No	Rice	lease	No
Total	4									

Source: Primary Survey, 2014-15

In the pre Cola period the four agriculturists were cultivating rice. During the Cola period, one household cultivated rice only in a small area and the rest he leased out for others. All others kept their land idle. However in the post Cola period, the groundwater level becoming normal, the rice cultivation has slowly started again. No agriculture households in the tribal community have either a borewell or a pump set. That shows their farming practice solely depend on the monsoon.

Health situation has become pathetic due to reduction in food intake, long walk for water, lack of hygiene and sanitation. The use of polluted water has led to serious water borne diseases like kidney stones, skin allergies, giddiness, knee pain, jaundice and stomach diseases. During the operation of the Coca Cola, the morbidity rate was high, low birth weight and infant mortality rate was very high. The abortion was very common. The weak health deprived them of their casual work days and consequently led to loss in income and food intake. This in turn ruined their productivity and income. Thus, the presence of the Coca Cola Company aggravated the vicious circle of poverty and the destruction of tribal households.

A tribal girl says that she dropped her studies in the Cola period. Her parents were agricultural labourers. Functioning of the Coca Cola plant and subsequent agricultural destruction compelled her parents to leave early in the morning to faraway places in search of jobs. Somebody had to be at home to collect water, since it required more than 6 hours to collect water. She gave up her studies and had not attended the plus one exam. Now she is 21 years old, doing domestic work. Their father had left home. Her mother is working in Plachimada now, since agriculture is picking up slowly after the closure of the Company. The field survey finds that there are 24 (34.28%) tribal children who had to leave school in such similar instances.

While the ruin of agriculture had led to livelihood insecurities, the government sponsored program of Mahatma Gandhi National Rural Employment Guarantee Scheme, 2005 (MGNREGS), guaranteeing 100 days of wage employment has been a great relief to the unskilled manual workers. But the tribal could not benefit from this social safety net because of the delay in the payment of remuneration.

The NGO's role is very significant in Plachimada. CAPART (Council for Advancement of People's Actions and Rural Technology) had built up Roof Top Rainwater Harvesting Tank free of cost to each household in 2005. The system of harvesting water from rooftops is useful mainly for drinking water purposes. In this system rain water falling on the roofs can be collected through a system of pipes and semi- circular channel of galvanized iron or PVC and is stored in tanks in a suitably sized storage tank for providing sufficient water for reasonably long duration. On the rooftop, as well as at the entry to the tanks simple filters are placed to remove dust and other particles. A simple diversion system is provided to keep out dirt from season's first rain, or rain after a long gap, which may bring along accumulated dirt from the roof. The package of Rainwater harvesting provides a system of pipes for collecting rainwater from roofs and a 3000 litres Ferro Cement Tank for each household.

These rainwater tanks were built by CAPART during the Cola period: when the water scarcity and contamination was acute. However, majority of the tribals could not benefit from this activity, because the adoption of this facility requires

roof preferably be tile, RCC, RBC, GI etc., preferably with slight slope. Most of the tribals lived in kutcha houses with thatched roofs at that time. Even though in the post Cola period, some of the households got the privilege to convert their roofs to tile or concrete through various government provisions, the NGO have stopped that project.

Though the functioning of the Company affected the entire people around the area badly, it is the tribal people who led the struggle against the MNC. The reason was it is they who lost the life and livelihood. The rest has some means of livelihood. Although the income status of the tribal and OBC sections are almost the same, their living conditions differ significantly. The tribals lives in untidy houses, lack basic facilities, such as own well, toilet, sufficient utensils, and other necessary items. The tribals have no choice but to revolt, the struggle united them. The mass movement of Plachimada soon got momentum since the issue was a human rights violation. The struggle didn't improve their economic standards, but improved their attitude and behavior. The mass protests and demonstrations around the country have imparted some leadership skills. The interactions with the global world leaders and environmentalists and social scientists bring out their latent leadership. The empowerment of women folk is enormous. The women participation was the main attraction of the struggle. No one could bribe them to deter from the indefinite strike. The multinational giant has surrendered all its managerial tactics under this stubborn struggle for the right to live. The Plachimada movement led primarily by the tribal conveyed an important perception to the whole world regarding natural resources, that the local people are the owners of the natural resources and they have the right to protest whenever their environment is under threat. The tribal community could receive mass support from humanity and the democratic participation enabled the local institutions to take actions against the Company. Subsequently the Company had to shut down its operations.

Table.6.41. Caste -Wise Participation in the Mass Movement.

Participation	Caste Category				
	SC	ST	OBC	General	Total
Participated	10(3.27)	47(15)	60(19.6)	8(2.6)	124(40.6)
Not Participated	16(5.24)	23(7.5)	109(35.7)	32(10)	181(59.4)
Total	26(9)	70(23)	169(55)	40(13)	305(100)

Source: Primary Survey, 2014-15

About 40.6 percent of the total respondents actively participated in the struggle against the Company. About 67% of the tribal people directly participated in the struggle. Since the agricultural laborers and the agriculturists were largely affected by the operation of the Company, their presence is huge compared to other sections of the society.

This analysis came to the conclusion that the investment by the Coca Cola Company did not help the tribal community directly or indirectly, but rather it worsened their life and livelihood and made them stay in their low level equilibrium trap putting them permanently into the vicious circle of poverty and made their take off even difficult. The rehabilitation activities of the Government and the NGOs have also marginalized them. A quote of Ragnar Nurkse “the poor are poor because they are poor” is appropriate here.

It is not just a question of immediate survival, for many people affected by environmental degradation it’s also a matter of identity, threatening their way of life. In India among the worst victims of this uneven development are the indigenous communities; most of the large scale mining, dam building and industrial projects are being implemented on their land. This displaced tribal population loses not only their source of subsistence but also their identity and their culture (Kothari 1996). A redefinition of the very meaning of reforms to make them pro-poor, rather than merely pro-corporate may lessen such inequalities. Without these reforms, inequality in India might continue to escalate and create

dangerous tensions, threatening the very survival of the delicate fabric of Indian democracy (Shah, 2015).

Conclusion

Theanalysis of impact of Coca Cola Company in Plachimada reveals that the operation of the plant has inculcated more harm than benefits. The prime motive of inviting an MNC to create employment opportunities and that was not realized in the Plachimada case. The agricultural destruction resulted in loss of already available employment opportunities. The series of health hazards, educational problems and environmental issues are irreversible. The functioning of the Multinational Company has intensified the marginalization of the tribal community in various ways. Thus, the multinational led investment in Plachimada has not benefitted the poorest of the poor. The next chapter is about the role of people's movement in Plachimada and also an attempt is made to find solution to the groundwater management in the context of multinational led globalization.

7

Role of People's Movement in Plachimada

CHAPTER 7

ROLE OF PEOPLE'S MOVEMENT IN PLACHIMADA

This chapter is an attempt to answer the research questions raised in chapter 1, what are the inferences that the Plachimada struggle conveys and how do we protect our natural resources in the context of corporate led globalization. These questions are important in the context of present groundwater scenario of Kerala and the present groundwater governance system. So the first section deals with the present groundwater scenario and the second section explains the laws pertaining to groundwater management. Then the study moves on to find the insights that the Plachimada struggle conveys, for that the study seeks empirical evidences of Ostrom's theory in Plachimada struggle. So the third section deals with the correspondence of Plachimada struggle with Ostrom theory. The last section explores the relevance of the community based management of natural resource as a panacea for natural resource management.

7.1. Groundwater Scenario

Nature has been recycling the same water over and over and sending it back to earth. Nearly 70 percent of our planet is covered with water. About 97 percent of this water is salt water. The remaining 3 percent is freshwater, a major proportion of which is frozen. Groundwater constitutes 0.06 percent of earth's available water. This relatively small volume is critically important as it represents 98 percent of freshwater readily available to humans. Hence, there is precious little to be shared among the world's 7 million people (Bagai, 2013).

Water existing in the voids of the geological stratum below the surface of the earth is called groundwater. Groundwater is found in pores and fissures of rocks. It is regulated by the quantum and speed of rains, extent of vaporization at the time of rain, temperature, slope of land, dryness of air, porosity and permeability of rocks, vegetative cover and water absorbing capacity of the soil. Groundwater is located up to a depth of 4 kilometers of the earth's surface. It is also called sub surface water since it is found below the surface of the earth. The main source of groundwater is rainfall. It infiltrates through seepage slowly into the earth and collects there. It is also called 'plutonic water'. Groundwater is an

important part of water cycle on earth. In this water cycle, groundwater also acts as an organizing link. Groundwater also serves as natural pipeline and water reservoir. This slow moving water is again brought back on earth by man or by vegetation (Gurjar & Jat, 2008).

In India, groundwater is being pumped faster than it is getting renewed, thus relegating it to the categories of non-renewable resources (Bagai, 2013). It has always been considered to be a readily available source of water for domestic, agriculture and industrial use. This resource is being overexploited in many areas causing a permanent depletion of the aquifer system and associated environmental consequences (Dasgupta, 1998). Indian agriculture largely depends on groundwater and the World Bank estimated that by 2025, sixty percent of the groundwater will be in the critical danger of drying up (Athrady,2010). For sustainable use, water cannot be withdrawn from the reservoir and other sources faster than it is replenished through the natural hydrologic cycle. No technology can significantly expand this basic resource (Inderjeet, 2005).Contamination of groundwater is difficult to detect because of its slow process. In the light of the changing nature of groundwater use and a market oriented economy taking shape, there is a need to change the Indian legal approach to groundwater.

Kerala is one among the most thickly populated regions in the world and the population is increasing at a rate of 14% per decade. In spite of being blessed with South West and North East monsoons and 44 rivers, Kerala, faces acute fresh water shortage. The huge population, urbanization and development initiatives necessitate the need for enormous quantities of water. The natural water bodies like lakes, ponds, tanks, and springs are being abandoned for development activities in almost all parts of the state. People are over depending on groundwater for their domestic, irrigation and industrial purposes. Groundwater meets the drinking water requirements of 60 % of Kerala’s population. Groundwater contamination is one of the major issues in Kerala (Shaji. et. al, 2008).

Table 7.1 shows the extent of safe drinking water shortage in Kerala. Kerala has the lowest percentage of households in terms of access to safe drinking water.

Table.7.1.Access to Safe Drinking Water in Households in India (in percentages)

Sl.No	States	**1991**	**2001**	**2011**
1	Andhra Pradesh	55.1	80.1	90.5
2	Kerala	18.9	23.4	33.5
3	Gujarat	69.8	84.1	90.3
4	Karnataka	71.7	84.6	87.5
5	Maharashtra	68.5	79.8	83.4
6	Tamil Nadu	67.4	85.6	92.5
7	West Bengal	82	88.5	92.2
8	Delhi	95.8	97.2	95
9	Rajasthan	59	68.2	78.1
10	All India	62.3	77.9	85.5

Source: Economic Survey, 2014-15.

Only 33.5 percent of households have got access to safe drinking water in Kerala in 2011, while the all India average being 85.5 %.

Table 7.2.Availability of Drinking Water in Kerala

	Within the premise	Near the premise	Away
All Kerala	77.7	14.1	8.2
India	46.6	35.8	17.6

Source: Census of India, 2011.

In Kerala, 77.7 percent people have water access within their premises. Most people depend upon their own open wells for their drinking water requirements. The ease and simplicity of its extraction has played an important role in its development (see Table 7.2).

Table 7.3 shows the changes in the main sources of drinking water in percentages among the districts of Kerala during the last decade.

Table 7.3.Changes in the Sources of Drinking Water

Main Source of Drinking Water, 2001-2011									
Sl. No.	District	Tap water		Well water		Bore well		Other sources	
		2001	2011	2001	2011	2001	2011	2001	2011
1	Thiruvananthapuram	26.6	38.2	69	56.9	1.2	2.1	3.2	2.8
2	Kollam	13.6	27.1	82.3	68.9	0.8	0.8	3.3	3.2
3	Pathanamthitta	13.9	19.1	80.6	74.4	1.2	1.3	4.3	5.2
4	Alappuzha	26.9	35	58.5	45.8	9.7	14.3	5	4.9
5	Kottayam	18.3	22.9	76.7	69.9	1.1	1.6	3.9	5.6
6	Idukki	24.1	30.2	43.3	40.3	2.3	4.1	30.2	25.4
7	Ernakulam	47.4	57.2	49.8	40.5	1.1	1	1.8	1.3
8	Thrissur	19.7	27.5	71.8	63.2	7.1	7.8	1.3	1.5
9	Palakkad	26.8	42.9	64.7	48.4	5.1	5.7	3.5	3.1
10	Malappuram	7.6	14.9	86.7	78.4	2.6	3.3	3.1	3.4
11	Kozhikkode	11.7	21	83.4	72.8	1	2.1	4	4.1
12	Wayanad	14.2	22.6	73.7	65.9	2.9	3.2	9.2	8.3
13	Kannur	5.9	11.7	87.9	81.3	1.1	2.5	5.2	4.5
14	Kasargod	7.4	13.7	77.1	62.6	6.4	15.2	9.1	8.6
	All Kerala	20.4	29.3	71.9	62	3	4.2	4.8	4.4
	India	36.7	43.5	18.2	11	41.2	42	3.9	3.5

Source: Census of India, 2011.

In all the districts, the dependence on open wells for drinking water is greater than all other sources. Presently there is an increasing trend of dependence on borewell. But the groundwater potential of Kerala is very low when compared to that of many other states in the country. The estimated groundwater balance is 5590Mm³. The open well density in Kerala is perhaps the highest in the country – 200 wells per Sq.KM in the coastal region, 150 wells per Sq.KM in the midland and 70 wells per Sq.KM in the high land. The groundwater withdrawal is estimated as 980Mm³ and the State Groundwater Department calculate the effective recharge

as 8134 Sq Mm³. The groundwater level receding drastically during the summer months and drying up of wells are common features of the groundwater levels in many parts of Kerala. Recent problems of decline in water table, contamination of groundwater, seawater intrusion etc. are being reported at many places. Even though drinking water is available to the large population within the premise in Kerala, the groundwater mining at deeper levels led to the decline in the quality of water. At depths greater than a few hundred meters, water is likely to contain such high concentration of minerals that it is unusable.

The excessive extraction has depleted the aquifers which led to slipped back habitation. Table 7.4 shows the number and percentage of slipped back habitations in Kerala.

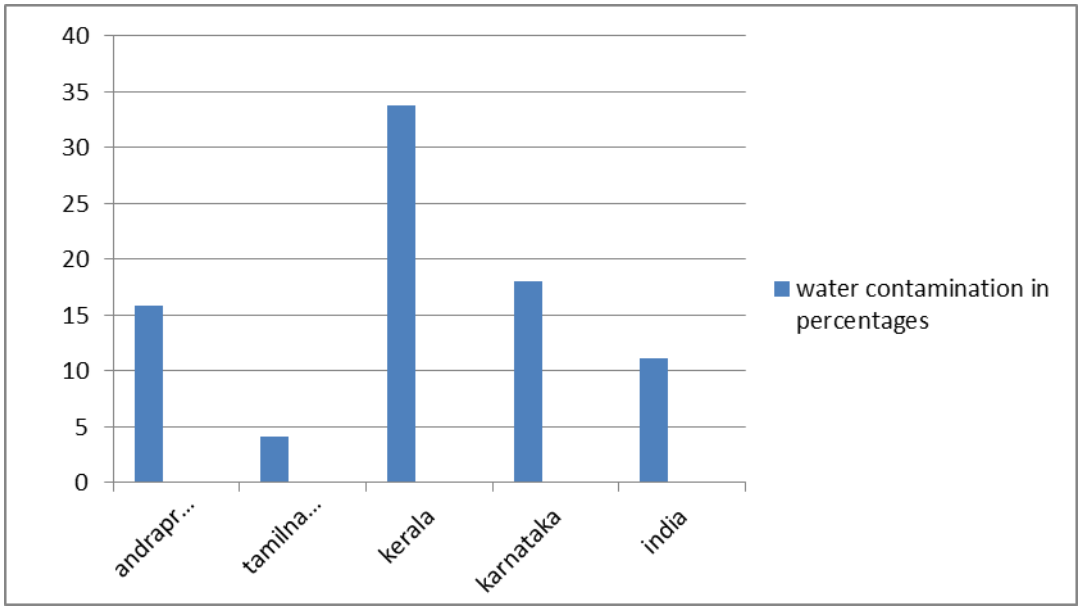
Table.7.4. Slipped Back Habitations

Sl No	District	Total Habitation	Slipped Back Habitation	% to Total Habitation
1	Thiruvanthapuram	1038	32	3.08
2	Kollam	1023	69	6.74
3	Pathanamthitta	640	14	2.19
4	Alappuzha	808	155	19.18
5	Kottayam	888	5	0.56
6	Idukki	617	32	5.19
7	Ernakulam	875	15	1.71
8	Thrissur	1077	90	8.36
9	Palakkad	1136	205	18.05
10	Malappuram	1438	60	4.17
11	Kozhikkode	883	97	10.99
12	Wayanad	359	25	6.96
13	Kannur	625	69	11.04
14	Kasargod	476	66	13.87
	Total	11883	934	7.86

Source: Economic Review 2012, State Planning Board, Kerala.

Those categorized as safe position in drinking water are now slipped back into semi critical or critical or over exploited. Out of the 11883 habitations, 934 habitations slipped back into unsafe position. This is a matter of concern for a densely populated region like Kerala. As far as the quality of drinking water is concerned, Kerala has the least position among the South Indian states. Figure 7.1 shows the level of contamination in drinking water across the South Indian states.

Figure.7. 1: Quality of Drinking Water.

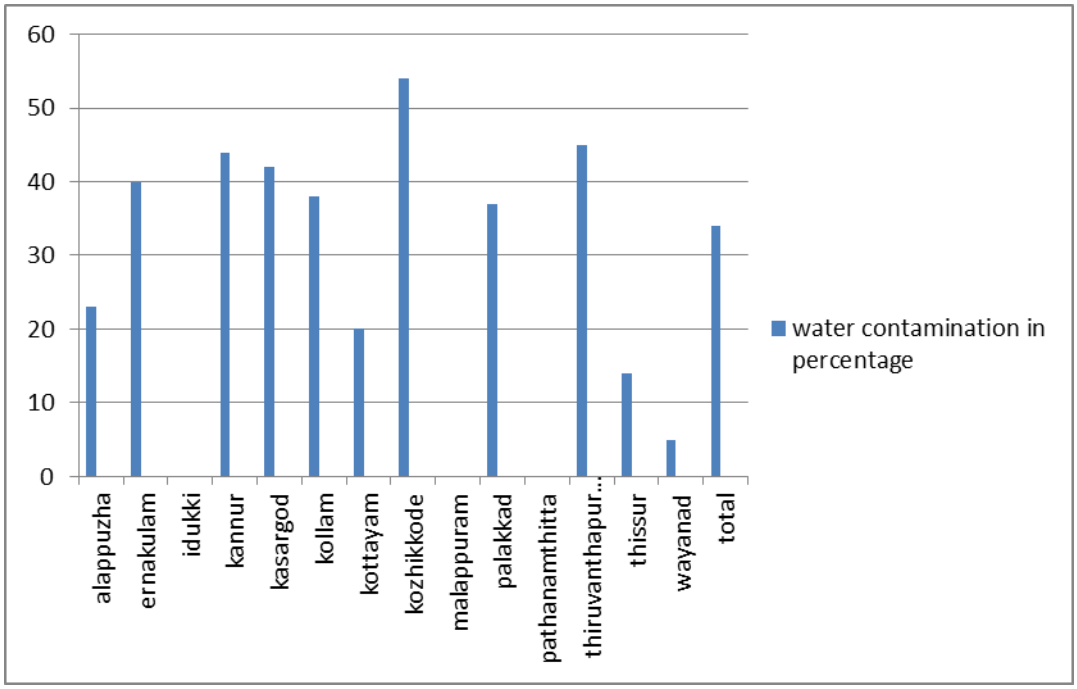


Source: *Economic Review 2012, State Planning Board, Kerala.*

Among the south Indian states, Kerala has 34 percent, the highest contamination in drinking water. The percentage of contamination is higher than 11 percentages of national average in Kerala.

The availability of freshwater is very thin in Kerala. Almost all districts face the problem of contamination of drinking water. Figure 7.2 shows the status of all districts in Kerala in terms of water quality.

Figure 7. 2: Quality of Drinking Water among Different Districts in Kerala



Source: Economic Review 2012, State Planning Board, Kerala.

From the figure 7.2, it is evident that only three districts in Kerala are free from contamination of drinking water, they are Idukki, Malappuram and Pathamthitta. In Kozhikkode district, the contamination is 54 percentages. Palakkad has 37 percent contamination.

The rapid change in the groundwater scenario of the state during the last 20 years is mainly attributed to RURBAN (rural + urban) nature of the state which has resulted in indiscriminate boring for more groundwater. In addition, heavy withdrawal of groundwater for non-domestic purposes, reduction in the recharge component due to urbanization , filling up of low lying areas, large scale reclamation of wetlands for developmental purposes, poor water management practices and neglecting traditional water harvesting practices are aggravating the situation (Shaji. E et. al, 2008).

7.2. Groundwater Governance

The legal lacuna of groundwater governance in Kerala can be studied through the Plachimada legal dispute. In 2003, the Perumatty Panchayat decided

not to renew the license of the Coca Cola Company since the local people and the Panchayat believed that the Company over extracted the groundwater that led to water scarcity. The Company filed a petition in the High Court of Kerala over the Panchayat's right to cancel the license over the issue of over exploitation of groundwater. The Single Bench of the High Court favoured the Panchayat referring the Public Trust Doctrine. The Judge observed that even without a specific groundwater regulation, the state has a duty to protect the groundwater as public trust under the right to life guaranteed by the constitution and can control the excessive exploitation. Referring the Public Trust Doctrine and the right to life, the judge acknowledged that overexploitation of groundwater can lead to adverse environmental consequences.

The Company filed an appeal petition in the Division Bench of the High Court against this verdict. The Division Bench of the High Court, referring the Common Law, asserted primacy of landowner's control over groundwater in the absence of specific law prohibiting groundwater over extraction. The Judge declared that the Coca Cola Company has done nothing unlawful and the Panchayat has no right to cancel the license on this ground. Subsequently the Company got license to produce, however receiving a closure notice from the Kerala State Pollution Control Board (KSPB) under the Hazardous Waste (Management and Handling Rules) 1989, the Company suspended its operation in March 2004. The Panchayat filed an appeal in Supreme Court against the High Court Division Bench decision. The issue is now pending in the Supreme Court.

It is crucial to analyse the legal aspects of the two verdicts namely the High Court Single Bench verdict based on Public Trust Doctrine and the High Court Division Bench decision based on Common Law, to understand the situation of groundwater governance of Kerala. The main lacuna of Public Trust Doctrine was that it emphasizes on duties and not on rights. The doctrine postulates that the state has a duty to protect, preserve and manage the use of the trust property to further the public interest involved. In the context of water, this translates to mean that "the state, which holds the natural waters as a trustee, is duty bound to distribute or utilize the waters in such a way, that it does not violate the natural right to water of

an individual or group and safeguards the interest of the public and of ecology or nature" (Koonan, 2010).

Public Trust Doctrine is dictated by public interest and determining public interest can be a very tricky affair. For instance, large withdrawals for drinking water supplies to neighbouring urban settlements can be argued to be in public interest. Allowing soft drink companies to extract water as it brings foreign investment and hence valuable foreign exchange can also be a public interest argument. The question then is whose public interest is being furthered. In Plachimada and the Plachimada like situations, it is notable that the State governments have supported these initiatives as they brought investments and jobs. The community that depended on the groundwater resource is affected and they had no voice when the public interest question was being debated on. This is typically because water problems are local problems and the decision makers live far away from the affected area, so they feel no immediate need to take a position that favors the community affected by it (Menon, 2013).

The Division Bench of the High Court in the absence of any specific law on groundwater referred the Indian Easement Act, 1882 and favored the Company's position. The Indian groundwater law called the Indian Easement Act enacted in 1882, was derived from the British Doctrine or the Common Law. Under the Common Law, the water is the absolute property of the owner of the overlying land in perpetuity (Piper, 1960). The Indian Easement Act 1882, considers groundwater as private property. A landowner may withdraw any quantity of groundwater that he wishes to. And the legal position is that it is not unlawful even if the land owner excessively extracts water that injures his neighbor or the public. The State cannot control the operation of wells, tanks or tube wells which existed within private lands.

The Constitution of India makes no specific reference to groundwater per se and it is generally assumed that water includes groundwater. Entry 17 in the State list makes water (except interstate rivers) the legislative domain of the State. This means that changes to law of groundwater will have to be made by the States and the Parliament is barred from legislating on the subject.

Reforms to the groundwater laws can be said to have begun in the 70s when the Ministry of Water Resources of the Central Government circulated a Model Bill to regulate and Control the Development and Management of Groundwater, amongst the States. The Model Bill was then revised in 1992, 1996, 2005 and finally in 2011. The Bills up to the 2011 revisions follow a model of setting up an authority at the State Level which is empowered to notify Areas to regulate and control the Development and Management of groundwater. Users of groundwater in the notified area are to obtain a permit from the said authority before sinking a new well and users from existing wells are to inform the authority of the same. The authority can grant or refuse permission after evaluating the public interest involved. Failure to comply with these provisions can attract penal sanctions. The main feature of these laws is the limited extent of their applicability only to the "notified areas" which in turn also becomes their major limitation. Moreover, the State governments are not precise for making these notifications on time. The Central Groundwater Board and the Central Groundwater Authority have the right to ban groundwater withdrawal in areas where the water table is very low; but they have done so no more than 11 spots in the whole of India. Thus the Central Groundwater Authority (CGWA) and the Central Groundwater Board (CGB) in support of the State Groundwater Board (SGBs) are the primary agencies for groundwater management. Albeit having the potential to become champions of sustainable groundwater management, these institutions are severely handicapped by their chronic understanding and lack of co-ordination with a large number of other government agencies impacting the resource (Koonan, 2010).

The Kerala Groundwater (Control and Regulation) Act (2002) is the latest development in the groundwater scenario in Kerala. According to this Act, it is necessary in the public interest to regulate the extraction and use of groundwater of any area, declare by notification, such area as notified. The Act requires the grant of permit to extract and use groundwater by digging a new well or converting the existing well into pumping well. In granting or refusing the permit, the Authority shall consider the following matters; the purpose or purposes for which the water is used, the other existing users of that locality, the availability of groundwater of that area, the quality of groundwater in connection with its use, the distance of the

proposed well with the adjoining well and the number of wells in the area and the chance of interference with existing wells, chances of groundwater pollution, the long term nature of groundwater level in the area and any other factors relevant thereto.

As the Plachimada dispute was intense, the Kerala Groundwater Act 2002 was already in force, however, no notifications under the Act were issued and no functional authorities were set up. However in 2004 they have classified five blocks (including Chittur block in which the Coca Cola Company is situated) as overexploited, 15 as critical and 30 as semi critical. The five blocks are Kasargod, Kodungalloor, Athiyannoor, Chittur and Kozhikkode in Kerala state. In critical areas and over-exploited areas, there should be intensive monitoring and evaluation and future groundwater development be linked with water conservation measures and micro level studies (KSPCB, 2003). It has also been observed that in States where notifications were issued, the exploitation simply moved on to the non-notified areas. Apart from these, the general criticisms of ineffective implementation of laws and poor monitoring apply with full force in this context too.

It has also been revealed that these kinds of regulations negatively impact the poor farmers, who are required to deal with more regulations. But most of all, it needs to be noted that the Model Bill and the State Acts are silent about ownership of the resource. Thus, once the wells are sunk, the Common Law position takes effect that all the groundwater beneath the soil belongs to the owner of the land and that he is free to extract it, free of any quantitative restrictions. This legal terrain of bundling water rights with land rights also has the side effect of leaving the landless without access to groundwater. On the one hand, there is immense dependence on groundwater by way of public wells and on the other, a right to draw groundwater emanating only from ownership of land. In India, with vast number of landless people, this regime excludes the landless lot who has a direct stake in the matter. It can also give the landowners a disproportionally larger access to groundwater and exclude landless farmers from accessing groundwater (Koonan , 2010).

Thus the major lacunae of groundwater laws are its absence of conceptualization of groundwater as a community resource and prioritization of water distribution. The Planning Commission's groundwater expert group has observed that the international experience indicates limitations of legal measures and the state level experience of groundwater legislation shows that it is not very effective and requires community based management. The Planning Commission's expert group report emphasize that the community cooperation is critical for sustainable use of groundwater (Planning Commission Report, 2007).

The national and state water policies have been reviewed and upgraded in respective years when issues and challenges emerge in the development and management of water resources. Even though the water policies have conceptualized the community ownership of groundwater, the water policies do not have statutory status, thus cannot be legally enforced. They contain guidelines to the state to follow with some priorities in the allocation of water among various categories of users. Both national and state water policies follow the following water allocation priorities: (1) domestic use, (2) agriculture use, (3) power generation, (4) agro based industrial use (5) industrial and commercial use (6) all other uses.

The National Water Policy of 2012 in detailing the present water scenario of water resources in India describes several concerns. One among the major concerns is inequitable distribution and overexploitation of groundwater in several areas. The reason behind this situation is cited as the perceived notion of groundwater as a private property rather than as a community resource. The State Water Policy of 2008 considers water as a community resource primarily utilized for public benefit and asserts that individual's interest shall not be allowed to take precedence over public interest. The policy proclaims to regulate the commercial exploitation of water by private individuals. The policy also aims to create awareness about the rights and responsibilities in the use of water and to put in place better management practices in the utilization of this invaluable resource. For this it ensures people's participation in water sector with the framework of

decentralized democratic institutions to evolve suitable framework and strategies for the continual up gradation of water environment. The guiding principle is access to water is a human right. The policy asserts that the ownership of water resides with the state as a publically owned resource. In addition to that the policy considers water as a common heritage having economic value and entrusted the responsibility of the conservation upon the community without owning it.

Moreover various government departments dealing with water such as groundwater, drinking water and irrigation is confrontational in nature. Often the decisions of these departments seem to conflict with each other. The legal institutional framework for groundwater protection is also complex. The Water (Prevention and Control of Pollution Act of 1974 and the Environmental (Protection) Act of 1986 deals with pollution issues in India, and there are thirteen other related policy and legal ordinances. The Central Pollution Control Board (CPCB) and at the state level, the State Groundwater Authorities and the State Pollution Control Board are the main responsible agencies; but 14 other organizations also play a role within this framework. However, often the decisions of these departments seem to conflict each other. Thus enforcement is not easy and the state agencies are not well equipped (Hector et al 2011). The coherence and cooperation among and between the groundwater laws, the Pollution Control Laws and the Pollution Control Board, the Panchayat and the Central Groundwater Board would be a major challenge (Koonan , 2010).

Thus it is evident that it is the present groundwater law that allowed the Coca Cola Company at Plachimada to extract groundwater without any restrictions and to deny the water rights of others who are dependent on the same resource. This legal environment creates the risk of incidents such as Plachimada repeating elsewhere in India. To avoid this, a revision of the statutory framework governing groundwater is necessary. The state intervention in such cases is desired. The legal framework of groundwater ownership needs to be recast in favour of the local community that is primarily dependent on the resource for both drinking and agriculture. In India, the needs of persons dependent on groundwater for drinking

water and livelihood needs must be prioritized over the demands for large withdrawals by the MNCs (Menon, 2013).

In the era of global sharing of resources through multinationals, water has become a contestable resource. The growth of multinational investment in soft drinks and bottled water industry is growing at a whopping rate of 55% annually. Sales of bottled water grew from $189 million (UDS) in 2003 to $599 million in 2008, a growth rate of 216 %. With this figure projected to double in the next 5 years, India is being touted as one of the fastest growing bottled water markets in the world. The total annual bottled water consumption in India has tripled to 5 billion litres in 2004 from 1.5 billion litres in 1999. The global consumption of bottled water was nearing 200 billion litres in 2006. India is the 10 th largest bottled water consumer in the world in 2002, the industry had an estimated turnover of Rs.10 billion. With over 1000 bottled water producers, the Indian bottled water industry is big by even international standards. There are more than 200 brands, nearly 80 % of which are local. Most of the small scale producers sell non-branded products and serve small markets (Reinhart, 2011).

While the present groundwater law has become outdated and inadequate to protect the interest of the common people, the Indian bottled water industry has been growing at a Compound Annual Growth Rate (CAGR) of 19 percent and is continuing its momentum and is expected to grow at a CAGR of 22 percent by 2020 (Times of India, June 25, 2012). In this context, the mass movement organized by the local people in Plachimada has many implications. One may be a pointer to amend the laws pertaining to the groundwater in favour of the common people. The other implications that the mass movement encompass can be analysed by examining its correspondence with Ostrom's theory.

7.3. The Plachimada Struggle and Ostrom's Common Pool Resource Theory

According to Elinor Ostrom whenever a common property resource is under threat or when extraction exceeds regenerative capacity of the resource, there will emerge a cooperation to protect that resource. Ostrom's theory of common –pool resources and related research programs present a convincing argument that appropriators are capable of resolving common-pool resource

dilemmas. The case studies demonstrated that appropriators are not always helplessly trapped in tragedies of their own creation. Ostrom has identified the conditions under which appropriators are likely to cooperate to govern the common pool resources in a sustainable way. (Ostrom, 2000)

However, it is important to note that common pool resource theory of Ostrom does not predict that the appropriators always will be successful. Instead, success or failure is conditioned by the specific circumstances in which appropriators and policy makers find themselves (Ostrom, 2000). Nevertheless, Ostrom has identified certain attributes for the common pool resource and for the appropriators conducive for cooperation to emerge. She has also identified the attributes for long success of such cooperation.

The study analyses the presence of these attributes in the Plachimada struggle. This theory solves the common pool resource dilemma and provides plausible solution for governing common pool resources. However, Ostrom has not invented the model in the context of Multinationals. Moreover her study mainly focuses on cooperation among the appropriators for protecting and ensuring sustainable use of common pool resources. The appropriators depend on these resources for earning their livelihood. All the appropriators in her model are equally responsible for the common pool resource depletion.

Where as in the Plachimada struggle, common pool resource is groundwater and the only appropriator responsible for depletion and contamination of groundwater is the Coca Cola Company that was thrown out by the cooperative movement led by the people of Plachimada whose existence depended on groundwater.

So the major deviations of Plachimada struggle from Ostrom's theory are

- The context of multinationals
- There is only one culpable appropriator, the Coca Cola Company, whose indiscriminate extraction of groundwater for commercial purpose made the life of people of Plachimada miserable. It is a different common pool resource

dilemma from the tragedy of commons, problem of collective action and prisoners' dilemma model.

- The co-operative action was took under the name of Coca Cola Virudha Samara Samithi (hereafter CCVSS), an organization formed by the people of Plachimada to fight for their water rights. These people wanted to protect groundwater to sustain their life in the region rather than for sustainable use of the resource.

So an adapted version of the Ostrom's multifaceted approach to common pool resource management is taken to analyse the role of CCVSS in protecting the groundwater for the community. The local people of Plachimada being the actual users of water for several uses including agriculture and hence they are identified as the appropriators in this context and the Coca Cola Company was regarded external to eco system. So the CCVSS symbolizes the cooperation of appropriators or local users of groundwater in the adapted version of Ostrom model. Another difference between the cooperative movement mentioned by Ostrom and the Plachimada struggle is that the former stands for sustainable use of common pool resources among the appropriators whereas the latter exists for protecting the groundwater from an external unethical appropriator.

When the water contamination and water scarcity became intense, subsequent to the operation of the Coca Cola Company in Plachimada, the local people started their protests. These small resistances gradually got an organized form when the CCVSS was formed in April 2002 against the Coca Cola Company. More than 100 Non- Government Organizations, Civil Society Organizations, and social and environmental activists from various parts of the world supported the Plachimada struggle under the CCVSS. However, the main members are the local people, affected by the groundwater contamination and depletion. The important demand of the CCVSS was to shut down of the plant and to assign ownership right of groundwater to the community.

When the people's movement in Plachimada was intense in 2004, the Kerala Groundwater Authority as per the Kerala Groundwater Act (2002), have classified five blocks (including Chittur block in which Coca Colais situated) as

overexploited, 15 as critical and 30 as semi critical. This declaration imposed strict limits on the usage of water in this area. Moreover the popularity of the people movement was also instrumental in inviting the BBC's attention to this matter. Subsequent to the BBC report on cadmium and lead content in the Company effluent, the Kerala State Pollution Control Board had sought clarification from the Coca Cola Company of the excessive amount of Cadmium in the effluent and afterwards the plant was closed.

Table.7.5. The Attributes of Common-Pool Resources Supportive of the Emergence of Cooperation.

Ostrom's Attributes of Common Pool Resources		**Groundwater of Plachimada**
1	*Feasible improvement: resource conditions are not at such a point of deterioration that it is useless to organize, nor are they so underutilized that little advantage results from organizing.*	The CCVSS was formed at the initial stage of water contamination and depletion that was instrumental in the shutdown of the factory. About 73 percent of the respondents agree with the statement- "If the Coca Cola would not have shut down the region would have become a desert" this means that the civil society organization was useful in preventing the region to become a desert.
2	*Indicators: reliable and valid indicators of the condition of the resource system frequently are available at a relatively low cost;*	Even before the forming of CCVSS, a number of NGOs and institutions had undertaken scientific research on the groundwater condition in the locality. These reports were providing the necessary information to the CCVSS, regarding the groundwater scenario in the locality at free of cost. With the active intervention of the CCVSS, innumerable agencies studied the issue scientifically. One of the prominent studies undertaken by the Exeter University was reported in the BBC by John Waite. Subsequently the issue

Ostrom's Attributes of Common Pool Resources		Groundwater of Plachimada
		got global attention that compelled the state institutions to reinvestigate their report. This report was encouragement to the CCVSS to pursue their demand unrelentingly.
3	*Predictability: the flow of resource units is relatively predictable.*	The local people consisting of marginal farmers to big agriculturists were worried about the future flow of groundwater if the Company continues to function in the same manner. This shows that they were aware of the future flow of groundwater. Their indigenous and traditional knowledge gave them this awareness. From the survey, 64 % opine that no human effort will restore the previous quality of groundwater. About 36% has reported that they don't know if there is any mechanism through which quality can be restored.
4	*Spatial extent: the resource system is sufficiently small, given the transportation and communication technology in use, those appropriators can develop accurate knowledge of external boundaries and internal micro environments.(Ostrom, 2000)*	The spatial extent of the resource system is small and the users of groundwater had perfect knowledge or common sense about the external boundary of the resource system and they considered Coca Colaas external to their ecosystem who has no interest in the sustainability of the groundwater system. They knew very well about the gradual environmental destruction happening in their locality. It was the common people residing around the plant who first identified the changes in the quality and quantity of groundwater. About 69 percent of the residents opine that they will not allow the Company to come back.

Thus the four attributes of Ostrom's cooperative action is present in the Plachimada struggle.

Table.7.6. Appropriator Attributes Supportive for the Emergence of Cooperation.

	Ostrom's Attributes of Appropriator	**Attributes of Users of Groundwater in Plachimada**
1	*Salience: appropriators are dependent on the resource system for a major portion of their livelihood or other important activity.*	The appropriators depend on the groundwater for life and livelihood. The major occupation in Plachimada is agriculture that mainly depends on groundwater. Since Plachimada lies in the rain shadow region it receives scanty rainfall, however abundant in groundwater resource. 100 % of the respondents depended on the groundwater for their drinking water purposes and agriculture purposes.
2	*Common understanding: appropriators have a shared image of how the resource system operates …and how their actions affect each other and the resource system;*	There is common understanding how the groundwater resource system works and they are aware how their actions and any external activity affects the groundwater resource. Only 15 % of the residents have borewell. The range of depth of the well was 200ft to 400 ft. From the sample survey six agriculturists increased the depth of their bore wells. In the pre Cola period the maximum depth was 200ft whereas in the Cola and post Cola period, the depth increased to 700ft. Around 27 borewells got dried up in the study area. The number of bore wells in the pre-cola, Cola and post Cola period in the study area are, 10, 38 and 27 respectively. They used the water for agriculture purposes, which will penetrate into the ground gradually. While Coca Cola exported the groundwater in bottles into rest of India. The groundwater depletion compelled the local users to travel

	Ostrom's Attributes of Appropriator	Attributes of Users of Groundwater in Plachimada
		miles in search of drinking water.
3	*Low discount rate: appropriators use a sufficiently low discount rate in relation to future benefits to be achieved from the resource.*	The users of groundwater expect future flow of groundwater with low discount rate and would like water to remain viable for future. It is this wish that drives them into the struggle against the Coca Cola. About, 69 percentages of respondents feel reduction in their welfare since the functioning of the Coca Cola Company.
4	*Trust and reciprocity: appropriators trust one another to keep promises and relate to one another with reciprocity.*	The residents trust each other to keep promises and relate to one another with reciprocity. Because majority of the respondents depend on Panchayat well for domestic needs. About 66 percentages of the respondents are not willing to invite the Coca Cola even if it provides all basic facilities including drinking water. The environment rating of the respondents in the pre cola, Cola and post Cola period are 4.89, 2.13, 3.84 respectively. These data indicate that local users of water have trust and reciprocity.
5	*Autonomy: appropriators are able to determine access and harvesting rules without external authorities countermanding them;*	The fifth character was explicitly absent in the local community of Plachimada. But implicitly every local people had the feeling of autonomy over the local groundwater. Mayilamma the founder of CCVSS declared that "water is our birth right". This clear declaration of ownership right of the community might have made the civil society to organize an agitation over the MNC. But gradually with the civil society movement got momentum, the High Court ordered that the statutory power to control groundwater resides with the community. However this decision was

	Ostrom's Attributes of Appropriator	Attributes of Users of Groundwater in Plachimada
		still pending in the court due to absence of specific groundwater governing law.
6	*Prior organizational experience and local leadership: appropriators have learned at least minimal skills of organization and leadership through participating in other local associations or through studying ways that neighboring groups have organized(Ostrom, 2000).*	The prior organizational skill among the local people was lacking in Plachimada. But a number of organizations and environmental groups and agencies both international and national supported the movement and have imparted necessary organizational skills to the local people.

Thus the attributes of the appropriator (here users of groundwater) are present in the people of Plachimada.

According to Ostrom the cooperative action will succeed in the long run if these institutions are characterized by **eight design principles** listed in Table 7.7.

Table.7.7. Eight Design Principles Needed for the Success of Cooperation.

	Ostrom's 8 Design Principle for Successful Cooperation	CCVSS
1	*Individuals or households who have rights to withdraw resource units from the common pool resource must be clearly defined, as must the boundaries of the common pool resource itself. This is commonly referred to as the principle of exclusion.*	The people of Plachimada declared that they are the owners of the groundwater and asserted that the Coca Cola Company is robbing their right to life by extracting their water excessively. For the first time, they declared groundwater as their property and proclaimed as their birth right.
2	*Appropriation rules restricting time, place, technology and or quantity of resource units, are related to local conditions and to provision rules requiring labor, material, and money.*	As the mass movement got momentum, the Panchayat decided to renew the license by stipulating some conditions upon the Company. Appropriating rules such as restricting extraction during April and May,

	Ostrom's 8 Design Principle for Successful Cooperation	**CCVSS**
		stipulating extraction of only 3.5 lakh liters per day, ordered to draw a quantity of groundwater required to irrigate 38 acres of agriculture land.
3	*Most individuals affected by the operational rules can participate in modifying them.*	These operating rules are imposed by the Panchayat that modified it by consulting the civil society which constitutes the affected people.
4	*Monitors, who actively audit common – pool resource conditions and appropriator behavior, are accountable to the appropriators or are the appropriators.*	The monitors are mainly affected people who are responsible and accountable to other users. Moreover a lot of scientific studies were undertaken by different agencies during the period which had given an insight to the local people regarding the Coca Cola's behavior.
5	*Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offense) by other appropriators, by officials accountable to these appropriators or by both.*	The Coca Cola's unethical groundwater appropriation led to serious consequences in the local economy. The mass movement compelled the Panchayat to graduate sanctions upon the Coca Cola by cancelling the license.
6	*Appropriators and their officials have rapid access to low –cost local arenas to resolve conflicts among appropriators or between appropriators and officials.*	The local appropriators have rapid access to low cost solutions for the conflicts. The local conflicts were resolved in the Grama Saba and in the Panchayat. However, the conflict over groundwater appropriation by the Coca Cola is still continuing in the Supreme Court due to lacunae of groundwater governance laws.

	Ostrom's 8 Design Principle for Successful Cooperation	**CCVSS**
7	*The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.*	The CCVSS, the civil society organization devised by the Plachimada people was not challenged by the government authorities. Rather the CCVSS got appreciation and support from the political and government authorities on humanitarian ground. Revealed by the purpose of the CCVSS the Panchayat decided to cancel the license of the Company and are fighting against the Company in the court for lager public interest. The Plachimada Coca-Cola Victims Relief and Compensation Claims Special Tribunal Bill, 2011 was passed unanimously by the Kerala Legislative Assembly on 24 February 2011 signifying the support of all political parties regarding the aims of CCVSS.
8	*Appropriation, provision, monitoring, enforcement, conflicts resolution, and governance activities are organized in multiple layers of nested enterprise. (Ostrom 1990)*	The appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of the society. There are various departments concerning each item such as groundwater departments, Pollution Control Board, legal system, local bodies such as Gram Saba, Panchayat, LSGD, various ministries such as water and environment.

According to Ostrom, the single solution for natural resource management is unwise. She advocates a multifaceted approach, where community, government institutions, NGOs, and civil society organizations can play an active role. However she emphasizes community management of natural resources, if the

attributes of common pool resources and appropriators are present in a particular situation. The underlying argument behind this strategy according to Ostrom is "downward accountability" that would ensure economic efficiency, sustainability of resource and improvement of social and economic equity. Devolution in the case of natural resource is seen as a tool to achieve political as well as economic (distributional) equities at local level. While political equity is about who gains influence in decision making, economic equity is more concerned about who gets what benefits. The basic belief is that, the more grass root level local institutions, the better will be knowledge of local needs and aspirations and decentralization would provide incentives for local communities to take their own decisions, resulting in environmentally sustainable development (Ghate, 2009).

Decentralization in natural resource management is seen as a strategy of governance to facilitate transfer of power to the local communities. Ostrom's eight design principles have got strong support from the research on fisheries, irrigation systems, and groundwater basins. Tang's (1991) evidence prove that appropriators (actual users) are better than government agencies at crafting governance structure that fit well to specific situations.

Research by William Blomquist (1992) on the governance of groundwater basin in California suggests that governments can be of greatest benefit to appropriators (actual users) by providing a supportive environment that encourages appropriators to devise their own solutions to the dilemmas that they face (that is , design principles six, seven and eight) (Schlager, 2004).

Agarwal and Gibson(1999) observe that the policy makers while designing common pool resource solutions should not assume that communities are small spatial units whose members are economically, politically, and socially homogeneous, and who share norms and beliefs that encourage resource conservation. Rather they argue that implementation of policies should be based instead on a careful understanding of the multiple actors and their diverse interests with one another and the institutional arrangements that structure their interaction.

The common pool resource theory necessitates both flexibility and varied approaches to inclusivity. The governments should facilitate a fair conflict

resolution mechanism. The activities that the governments can involve in are many and varied, however the policymakers must primarily invest in the communities' governing capacities rather than in command-and – control policy prescriptions. Thus the common pool theory points to the importance of allowing community to devise their own solutions or at least to participate actively in problem solving. The risks of common pool resource policies still remain unanswered. It will unfold when humanity find ways to address their particular issues worldwide (Schlager, 2004).

Moreover, the local community control shows the best qualification for protecting the groundwater supply in Plachimada (Wramner, 2004). The Plachimada struggle to save its natural resources and livelihood has brought to the fore one vital aspect: when the Panchayat and community come together on issues of public interest, globalization makes way for localization (Nair, 2006).

Furthermore, the Government of India identifying the relevance of community based management of natural resources has introduced the certain laws such as Forest Right Act 2006, Panchayatraj Extended to Scheduled Area (PESA) Act 1996 etc. These acts recognize the community based management of natural resources.

In this context, the segment 7.4 explains the community based management of natural resource as a way forward in the context of corporate control over natural resources.

7.4. Community Based Management of Natural Resources.

While groundwater is under pressure due to over extraction, the corporations are monopolizing it to make profit. Treating water as a commodity is going to be a disaster to the environment and to poor people. The poor are pushed out from their traditional community water rights, thereby threatening their cultures and livelihoods.

Traditional collective water management with rules and limits to water use, set by the community involving the people, ensured both sustainability and equity. Communities from ancient times are protecting and governing their water bodies

sustainably in India. Anupam Mishra, an eminent water conservationist observes that “the ways of collecting drops of rainfall in Rajasthan are not to be found in any text books but are actually couched in the memory of our society”(Siva, 2002). Sir Arthur Cotton, a well- known British engineer of the British period exclaimed seeing the traditional tanks “the natives have constructed tens of thousands of tanks in almost every kind of soil with earthen bund without the puddle bank, which English engineers fancied necessary”. A tank is a simple rainwater harvesting structure located in hydrologically favorable sites designed using indigenous wisdom and constructed with community support. They have constantly maintained, monitored and conserved through community effort called “kudimaramath”(Shanmugham, 2007). Communities can better formulate suitable plans for themselves, programs for social and economic development, identify beneficiaries, certify utilization of funds, protect natural resources, including minor forest produce and be consulted prior to land acquisition. The infallible traditional management practices of community resources, compel many states including India to accept a clear-cut role for the community; it gives wide-ranging powers to community which had hitherto been denied to them by the lawmakers of the country. However the devolution of power has reached only up to the Panchayat level. Further, deepening the democracy by transferring powers to the grass root level communities may ensure sustainable management of natural resources.

Community based management of natural resources provides comprehensive powers for traditional management practices of natural resources, safeguard and preserve community resource and planning and management of minor water bodies. The indigenous people with their long term historical experience and diachronic data that is intricately linked to practice and beliefs have proved to be effective in sustainable natural resource management. The current efforts are to harness this indigenous knowledge for natural resource conservation. For this indigenous cultures need to be conserved which in turn necessitates assigning and legalizing of communal resource- use rights. The common property theories provide guidelines and policy prescriptions for the success of such indigenous people based conservation. The people’s participatory democratic

governance system might work when the primary command over the water resources is entrusted to the community.

The community while exercising its powers to safeguard and preserve groundwater resources and minor water bodies, shall have the power to ensure water to its members, both in sufficient quality and quantity. The community can take necessary steps and penalize the violators that threaten the quality and quantity of water resource. Resolutions of community against the violators can automatically lead to cancel their water right. However as per Ostrom's approach, the reliance over a single panacea is not wise. To enable the community to carry out the responsibilities of groundwater management, it can seek the assistance from groundwater authorities, Pollution Control Board, Panchayat Raj Institutions (PRIs) and other relevant bodies. The civil society organizations and NGOs can act as a watch dog over the activities of these multiple layers of institutions.

Thus, more than any other resource, water needs to remain as a common good and requires community management since it is the ecological basis for all life and because its sustainability and equitable distribution depend on the cooperation among the community members.

7.5. Conclusion

From this chapter, it is observed that groundwater is a fast depleting resource and the appropriate laws governing the groundwater seldom exist in the country. There is complete absence of community property right of natural resources in general and groundwater in particular. However, the people of Plachimada proved that communities are capable of managing the natural resources in the absence of a common property right. The shutdown of the Company as a result of the people's movement is an evidence of the success of a community asserting their traditional rights over their water sources. The people's movement in Plachimada has close correspondence with Ostrom's multifaceted approach to common pool resource management. The Plachimada struggle has the attributes identified by Ostrom's theory, which suggests a community based management of common pool resources along with the involvement of state, NGOs and other institutions as the situation demands.

8

Summary, Findings and Conclusion

CHAPTER 8

SUMMARY, FINDINGS AND CONCLUSION

8.1. Introduction

The study was undertaken in the context of the prevailing paradox of co-existence of MNC led development process on the one hand and MNC led marginalization of the vulnerable sections on the other. It is imperative in this situation to analyse the impact of multinationals in the local economies. Does the pro- MNC policies designed to create an 'investment friendly atmosphere' by relaxing the foreign investment rules and environmental stipulations lead to welfare of the nation? The growing anti- MNC movement all over the country indicates doubt regarding the perceived notion of MNC as an engine of growth. The unique feature of these movements is the emergence of the common people as crusaders of common pool resources. It is in this background the case study of Plachimada has been taken.

The harmful activities of multinationals are repeating ever since the launch of globalization in India. The absence of appropriate state machinery to check their evil practices invite repeated incidents. The study throws light over the need for adequate policy changes to circumvent such issues. The Plachimada issue was not studied in the theoretical framework of MNCs, common pool resources, and people's movement.

The introductory chapter indicates the statement of the problem, objectives, methodologies, significance of the study and limitations. The second chapter is about arriving at an analytical framework through the discussion of theories related to MNC, impact of MNC and common pool resource theories. The third chapter is an overview of MNCs which discusses the role of MNCs, impact of MNCs, trend and sector wise share of MNCs. The fourth chapter briefly explains Plachimada issue. The fifth chapter deals with the first objective, the analysis of socio economic profile of sample respondents. The sixth chapter analyses the second objective the impact of the Coca Cola Company at Plachimada. The seventh chapter analyses the role of Coca Cola Virudha Samara Samithi (CCVSS) and its close correspondence with Ostrom's common pool resource theory. The chapter

also discusses the present groundwater situation in Kerala and elaborates the legal aspects of laws pertaining to the groundwater and emphasizes the importance of implementing community based management of natural resources.

8.2. Findings

The main empirical findings are chapter specific and through the chapter titled 'The Plachimada Issue' the answer to two research question why Kerala invited Coca Cola and why Coca Cola is attracted to invest in India especially in Plachimada were revealed.

Kerala invited the Coca Cola Company in the context of witnessing a 'development compromise' as a part of neo liberal policies. During the 1991, there was debate raging over the sustainability of 'Kerala model' of development, and the shift from egalitarianism to developmentalism based on economic growth of the state was deep rooted. Development compromise entails a shift from welfare system towards increasing market orientation. The left democratic parties in Kerala adopted this attitude since 1980s in order to generate economic growth. In 1999, the Kerala government led by Left Democratic Front invited the Coca Cola Company to establish its plant in Kerala. Later when the mass movement started against the Company, this political party extended its support initially, eventually the mass movement got all party support.

The Coca Cola Company was attracted to India because of absence of the specific groundwater law. The abundance of groundwater, cheap labour, huge market and lax environmental policies are other factors that attracted the Coca Cola Company to India. Plachimada's unique geographical feature of its rich aquifers was captured by the Coca Cola Company through satellite pictures was a decisive factor in establishing its plant at Plachimada. The other locational advantages of the unit at Plachimada were its proximity to Moolathara irrigation canal and Chitturpuzha in the North and Kambalathra and Vengalakkayam Dam storage reservoir in the West. The location was chosen because of its infrastructural specialty as the Palakkad gap makes it easy to reach markets in the rest of India.

The bottling plant started its construction on a 42 acre plot, previously a multi-cropped paddy field, in violation of the Kerala Land Utilisation Act, 1967, intended to prevent the use of agricultural land for non-agricultural purposes. Besides, the Company selected this area on the misconception that the adjacent tribal colonies would not recognize and resist if a problem arose. These people were made to believe that a theatre was under construction and the voice of resistance was silenced during that time. The Coca Cola plant is built in such way that they can easily transplant the Company if any problem emerges. Thus the plant started functioning without any environment impact assessment.

Chapter five under the title 'Impact of Coca Cola on The Local Economy of Plachimada' seeks to answer another research question, namely, how the investment by the Coca ColaCompanyinfluenced the quality and standard of living of the local people of Plachimada. To analyse the changes in the aspects influencing the quality of life and standard of living, the time period is divided into three; the pre-Cola period, the Cola period and the post Cola period. The impact of the Coca Cola Company on employment, availability of drinking water, impact on agriculture, impact on health and education and environmental impact were analysed in detail. A brief summary of the findings are given here.

The fundamental objective behind inviting the multinational giant was creation of employment opportunities. It is evident from the sample survey that only 80 respondents (23%) got employment directly or indirectly. Out of which 77 got direct employment and three got indirect employment due to the operation of the Company. Out of the 77 ex-employees, only one person was given permanent employment. Two persons voluntarily quit the job due to the Company's weekly payment. Later 33 persons quit the job and joined the mass movement organized under Coca Cola Virudha Samara Samithi (CCVSS) for protecting groundwater. Though the factory is surrounded by tribal colonies, only one tribal respondent was given employment in the Company. The wages provided by the Company was initially Rs.30-40/- per day and was increased up to Rs.100-120/- per day when the mass movement began. Twenty ex-employees who were agriculturists considered the multinational job more as a status symbol than as a means to earn income. Most of the respondents were working under subcontractors in the bottling plant

and loading sections. The Company generated more unemployment than the employment opportunities it created.

The Company's over extraction depleted the groundwater level and the emission of waste water and sludge contaminated the groundwater. Consequently agriculturists shifted crops from rice to coconut and other less water intensive crops. The labour saving crops expelled the casual workers from agricultural activity. Out of 83 agriculturists surveyed, three leased out their land to avoid the risk of agricultural activity and 16 farmers (19%) kept their land idle during Cola period due to scarcity of water. The Chi-Square test shows that there is a significant association between degradation of wetlands and presence of the Coca Cola. In the Cola and post Cola phase, there is a significant decline in the wetlands considered to be essential for paddy cultivation. The number of open wells declined during the Cola period due to covering up of their wells subsequent to contamination. The open well dependence declined from 79.5% in pre Cola period to 34.5% during Cola period. The number of bore wells increased from 10.8 % in the pre Cola period to 30 % in the Cola period. The Chi-Square result on the bore well dependence shows that there is a significant association between the dependence on bore well and the presence of the Cola factory. This further confirms depletion of groundwater in the Cola and post Cola phase vis-à-vis pre Cola phase. The maximum depth of bore well increased from 200 feet in the pre Cola period to 700 feet in the Cola and post Cola period. The Mann Whitney U test shows that there is a significant difference in the depth of the borewells in the Cola and post Cola phase as p value is statistically significant at 0.012 implying depleted groundwater levels despite the Cola factory being wound up. The failed number of bore wells for the farmers range from a low of 1 to a high of 7. Unsuccessful bore well attempts have significance given the fact that one borewell requires an expense of almost Rs.50,000/-. A few farmers have bought lorry water which costs Rs.400/- for their agricultural needs. The Chi-Square test shows that there is a significant association between dependence on lorry water and the presence of Cola Company. The Chi-Square test shows that there is a significant association between drought conditions in the study area and presence of the Coca Cola Company.

In an attempt to regain the *poonthal padam*, the unique geographical feature of Plachimada, the Perumatty Panchayat was declared as the first agricultural Panchayat in 2015. The Panchayat will not allow any industries to function in the Panchayat. It was decided that production of agriculture will be promoted through the Pada Sekhara Samithi and no land will be allowed to stay fallow. Those who are not willing to cultivate the Panchayat will take up their land on lease and a reasonable income will be given to the landowner. Rashtriya Krishi Vikas Yojana was implemented in the Panchayat to promote mechanization of agriculture in the region. Now there are 29 Pada Sekhara Samithi in the entire Panchayat and 3000 farmers cultivate rice only over 1000 hectares of land. The people of Plachimada expect that rice cultivation will augment the aquifers.

As far as the drinking water scenario is considered, the people still struggle for fresh water. The main water sources of people around the plant is the public well that still remain contaminated even after repeated cleaning. From the sample survey, it is found that 40 individual open wells were covered due to contamination. During the Cola period 212 (70%) households depended on lorry water. Now the Panchayat has laid individual pipelines to each household at an initial installation charge of Rs.2500/- and monthly user charge of Rs.90/-. Out of the 305 households, 255 (83.6%) households have got pipeline connection. However, like the lorry water, the pipe line water is also irregular; with no water supply for weeks. Even if water comes, the supply is only for a few hours in the morning, so people have to wait for hours and sometimes have to leave the work to collect water. Some households especially non – poor households even doubt the quality of water coming through pipeline. So they purchase drinking water at rupees 45/- per bottle from open market. However people belonging to the poor households use the pipeline water for drinking also. There are poor households without individual pipeline because they cannot afford to pay for the pipeline. As per Chi-Square value, the association between freshwater availability and the presence of the Coca Cola Company is statistically significant confirmed by p value at 0.000. The Chi-Square value of the condition of water in Plachimada establishes the fact that the working of the Coca Cola factory has negative impact on the water condition in the study area. The data were collected from the chemical

laboratory of Integrated Rural Technology Centre (IRTC), a research institute established by the Kerala Sastra Sahitya Parishad (KSSP) that gathered water samples from the three open wells of Plachimada during the years of 2002, 2005 and 2011. The water quality tests conducted by IRTC based on the three parameters such as total hardness, calcium hardness and magnesium hardness tells that over the years the hardness of water has reduced considerably after the closure of the plant. After the closure, the water quality is gradually picking up year after year. Even though there is no pre Cola water data, we can assume from this trend in data that water quality would have been better in the pre Cola period.

From the survey, it is found that 13 girls have given up their studies during that period. And 65 boys have quit their studies during the Cola period; however the reason for dropping the study is not solely attributed to the Coca Cola Company. Since, Palakkad has the lowest literacy rate of 89 percentage and among the Taluks of Palakkad, Chittur Taluk has the lowest literacy rate of 75%. In Chittur Taluk, Perumatty Panchayat has the lowest literacy of 73.8 %.

The quality of health as evaluated by respondents in the pre- Cola period, Cola period and post Cola period varied significantly as confirmed by Kruskal Wallis test result. The data compiled from Anganawadi in Plachimada and the PHC also show the pathetic health indicators during the Cola period.

The environmental rating calculated through Likert scale of pre Cola, Cola and post Cola phases are 4.98, 2.13, and 3.84 respectively. For environmental assessment the rating of indicators such as rivers, ponds, greenery, agriculture woodlots, soil moisture etc. were asked. The pre Cola environment rating is high, the Cola period environment rating is very low signifying a low quality of environment at that time. The post Cola period shows a recovery of environmental quality.

For the statement ‘if the Coca Cola Company would not have shut down, the region would have become a desert’ got a Likert scale value of 3.92 which represent high percentage of support for this statement. The people of Plachimada strongly support the statement that they feel reduction in their welfare since the operation of the Company (3.89 Likert value). Agriculture destruction subsequent

to the operation of the Company was instrumental in creating unemployment was strongly supported by the respondents with 3.94 Likert value. Water insecurity affected the personal security has got huge support with 3.99 Likert value. The statement, 'suppose the Company restarts its operation with all promises of basic needs will you accept the offer' has got mixed response with 2.40 Likert value. This response reveals the present employment insecurity in the region. The respondents strongly support the statement that the compensation will restore the environmental damage with 4.10 Likert value.

The apparent participation of tribal community in the mass movement and huge inequality in income, size of land holdings, assets etc. necessitate a special analysis of the impact of the Coca Cola Company on tribal community. The empirical findings show that the Coca Cola Company has not given employment opportunities to the tribal community even though the plant was surrounded by tribal households. The type of employment given by the Coca Cola Company was not suitable to the tribal sections, the weekly payment and the meagre income provided by the Company was not acceptable to this sections. Moreover from the field survey, it was observed that the Company officials doubted the capability of the tribal people in doing Company jobs.

The tribal people in Plachimada belong to the Irula and Malasar tribe, settled here around 60 years ago. They came from Tamil Nadu in search of agriculture work. The agriculture destruction in the Cola period subsequent to the groundwater depletion and contamination affected the tribal people largely since traditionally they know only the agricultural activity. The loss of employment in the agriculture sector compelled them to go outside Plachimada that required a lot of hardships in terms of travel expense and deterioration of health, decline in leisure time and their reduced net income, which in turn affected the health and quality of life of the entire family. The job insecurity, personal insecurity, water insecurity affected the very fabric of their existence in the region.

The mile long walk for water affected the health of women and children especially girl children. Some have dropped their studies because someone has to collect water for the entire family. If the parents collected water they had to

sacrifice their daily work which would affect the food intake of the entire family. The water scarcity seriously affected the health and hygiene of the tribal sections, they were prone to water borne diseases due to lack of sanitation facilities. These vulnerable sections were trapped into the vicious circle of poverty and the multinational led marginalization made their take off even difficult. Under this helpless situation they were drawn into an inevitable struggle against the Company which in turn was their struggle for existence.

While other sections of the society could benefit from the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) to gain 100 days of casual work in a year, the tribal community refrained from this social safety net due to delay in the payment of wages. A Non- Government Organization (NGO) called Council for Advancement of People's Action and Rural Technology (CAPART) has built up rain water harvesting tanks that could collect 3000 litres of rain water to individual households free of cost. However, a few tribal households could benefit from this facility since it required tiled or concrete roofs and majority of the tribal lives in kutcha houses with leaves as roofs.

Out of 70 tribal households four, households have got agricultural land on which they cultivate rice. In the Cola period they left their land idle while other agriculturist adopted crop shift. The absence of entrepreneurships and capital inhibited them. Thus from this analysis, it is evident that the tribal people were seriously affected by the multinational activity than any other sections in Plachimada. This validates their preponderance in the struggle against the Company.

The next empirical finding is explained in the seventh chapter, which seeks to answer the research question: How do we protect our groundwater and livelihood in the context of corporate led globalization? The chapter illustrates the groundwater scenario and groundwater governance of Kerala to capture the necessity of an amendment in the current groundwater laws. This chapter also draws the close correspondence of Plachimada struggle under CCVSS and Ostrom's common pool resource management theory.

The groundwater scenario of India depicts, Kerala as the lowest percentage of households in terms of access to safe drinking water. Among the south Indian states, Kerala has 34 percent, the highest contamination, in drinking water. The percentage of contamination in Kerala is higher than the national average. The excessive extraction has depleted the aquifers which led to slipped back habitation. Those categorized as safe position in drinking water are now slipped back into semi critical or critical or over exploited. Out of the 11883 habitations, 934 habitations slipped back into unsafe position. This is a matter of concern for a densely populated region like Kerala. Yet the groundwater governance in Kerala is based on the Indian Easement Act of 1882, which gives the ownership right of groundwater to the owner of the land. Referring this law, the Division Bench of the High Court declared that, the Coca Cola has done nothing unlawful. Thus the major lacunae of groundwater laws are its absence of conceptualization of groundwater as a community resource and prioritization of water allocation. Even though the national water policies and environmental policies proclaim groundwater as common property resource and prioritize the allocation of water among various categories of which domestic use comes first, the water policies do not have statutory status and thus cannot legally be enforced. They are a sort of guideline that the state is obliged to follow. In the context of bottled water market growing at a whopping rate of 55% annually, the current groundwater governance laws are outmoded.

In this context, how can we protect groundwater? Ostrom proposes a community based management system of common pool resources and as she is against the single panacea for natural resource dilemmas, she recommend the active involvement of government institutions, NGO and civil society. According to her theory, whenever a common pool resource is under threat, there will emerge a cooperate action to protect them. She has devised certain attributes for such cooperation to evolve: the attributes of common pool resource as well as the attributes of appropriators of the resource. In an adapted version of Ostrom's theory, cooperative action of Ostrom was replaced by the mass movement under CCVSS. The appropriators in this context are actual users of groundwater. Under this framework all the attributes of CCVSS are in concomitant with Ostroms's

theory. If the presence of these attributes is established, Ostrom proposes a community based management of common pool resources. Thus here a community based management system of groundwater is well established.

The proven benefits of community based management system of natural resources have been accepted as an effective tool by the governments around the globe. India has already recognized the importance of community based management of common pool resources and has hence implemented Acts such as Forest Right Act 2006 and Panchayatraj Extended to Scheduled Area (PESA) Act 1996, which transfers the power of natural resource governance to the community. Community management practices provides comprehensive powers for traditional management practices of community resources that help to safeguard and preserve community resource and planning and management of minor water bodies. The indigenous people with their long term historical experience and diachronic data that is intricately linked to practice and beliefs have proved to be effective in sustainable natural resource management. The current efforts are to harness this indigenous knowledge for natural resource management. For this indigenous cultures must be conserved which in turn requires assigning and legalizing of communal resource- use rights. The common property theories provide guidelines and policy prescriptions for the success of such indigenous people based conservation. The primary command over the water resources should legally be entrusted to the community then only the people's participatory democratic governance system will work. The real empowerment would be a reality, when the state gives powers to the disempowered.

The communities shall be given the command over the natural resources. The communities while exercising its powers to safeguard and preserve groundwater resources and minor water bodies, shall have the power to ensure water to its members, both in sufficient quality and quantity. The Gram Saba can take necessary steps and penalize the violators that threaten the quality and quantity of water resource. Resolutions of community against the violators can automatically lead to the cancellation of license. To enable the community to carry out these responsibilities and functions it can seek the assistance from groundwater authorities, Pollution Control Board, Panchayat Raj Institutions (PRIs) and other

relevant bodies. The civil society organizations can play as a watch dog over the activities of these multiple layers of institutions.

8.3. Theoretical Implications

The perceived notion of foreign trade as an 'engine of growth' in the context of multinational led trade is debatable. The theories of multinationals and the empirical findings prove that they have nothing to do with the development aspirations of the developing countries. In this context it will be conducive to revisit the foreign investment regime of India.

The present groundwater laws are found to be archaic in the context of Plachimada case so they need to be amended by incorporating the community ownership of groundwater and prioritizing the allocation of groundwater.

In the context of governments all over the world recognizing the proven benefits of community based management system of natural resource management, policies need to be implemented in its favour. In the context of multinational led globalization, there is global sharing of resources, jeopardizing vulnerable sections at different parts of the country, the community based management of natural resources will ensure sustainable natural resource management, empower the disempowered and ensure inclusive growth.

8.4. Recommendation for Future Research

The water foot print analysis of the Coca Cola plant will help in analyzing the extent of water extraction and water pollution by investigating the use of blue, green and grey water elements in the production process. Further the vulnerability of the local water system where the footprint is located, the actual competition over the water in the local system and the negative externalities associated with the use of water all help in the impact analysis.

The virtual water trade analysis of the Coca Cola plant is another area for future research. When a commodity or service is traded, the buyer essentially imports (virtual) water used in the production of the commodity. MNCs in soft drink and bottled water business are actually exporting the value of our virtual

water by selling our own water to us and making profit to the home country. The unfavorable virtual water trade is enormous in this context.

In the context of international trade, the Plachimada issue can capture empirical evidence and insights on the concept 'curse of natural resources' which states that an economy endowed with large natural resources along with absence of strong environmental policies and ill-defined property rights may likely be detrimental to its developmental outcomes. A study from this perspective is also suggested for future research.

The Plachimada issue can be studied in the perspective of global sharing of water in the context of massive growth of bottled water business. The data pertaining to the bottled water business is very difficult to get, however a future study in this line is also worth doing.

Some recent victories of anti MNC movements have created a belief that mass movements are evolving as a panacea for evils of multinational companies. Plachimada issue can be studied from this perspective also.

8.5. Conclusion

Thus, there is undoubtedly a negative impact of the Coca Cola Company in Plachimada as established by the primary analysis and its findings. The people's movement in Plachimada has played a crucial role in the shutdown of the Company on the one hand and subsequently protection of the groundwater of the region on the other. The capacity of the community in asserting their rights over water in the presence of a multinational giant like Coca Cola is the greatest insight that the Plachimada struggle provides. This insight has several implications such as assigning community ownership right of groundwater to the people of Plachimada, or amending the existing groundwater laws in favour of the community at large, or serving as a pointer for a change in the foreign investment policies in natural resource sectors.

Finally, the study is significant in the context of neo colonialism, where the multinational corporations are ruling the world and the corporates are monopolizing the common pool resources resulting in socio economic imbalance. No country can escape from globalization. However, it has a choice of the MNC that it chooses to invite. Even if there are powerful laws protecting the interests of the common people, the assured presence of a vigilant civil society, and the community ownership of natural resources, it will be helpful to ask a question prior to the approval of an MNC: How will this multinational investment benefit the poorest of the poor?

Appendix 1.

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Appendix .2.

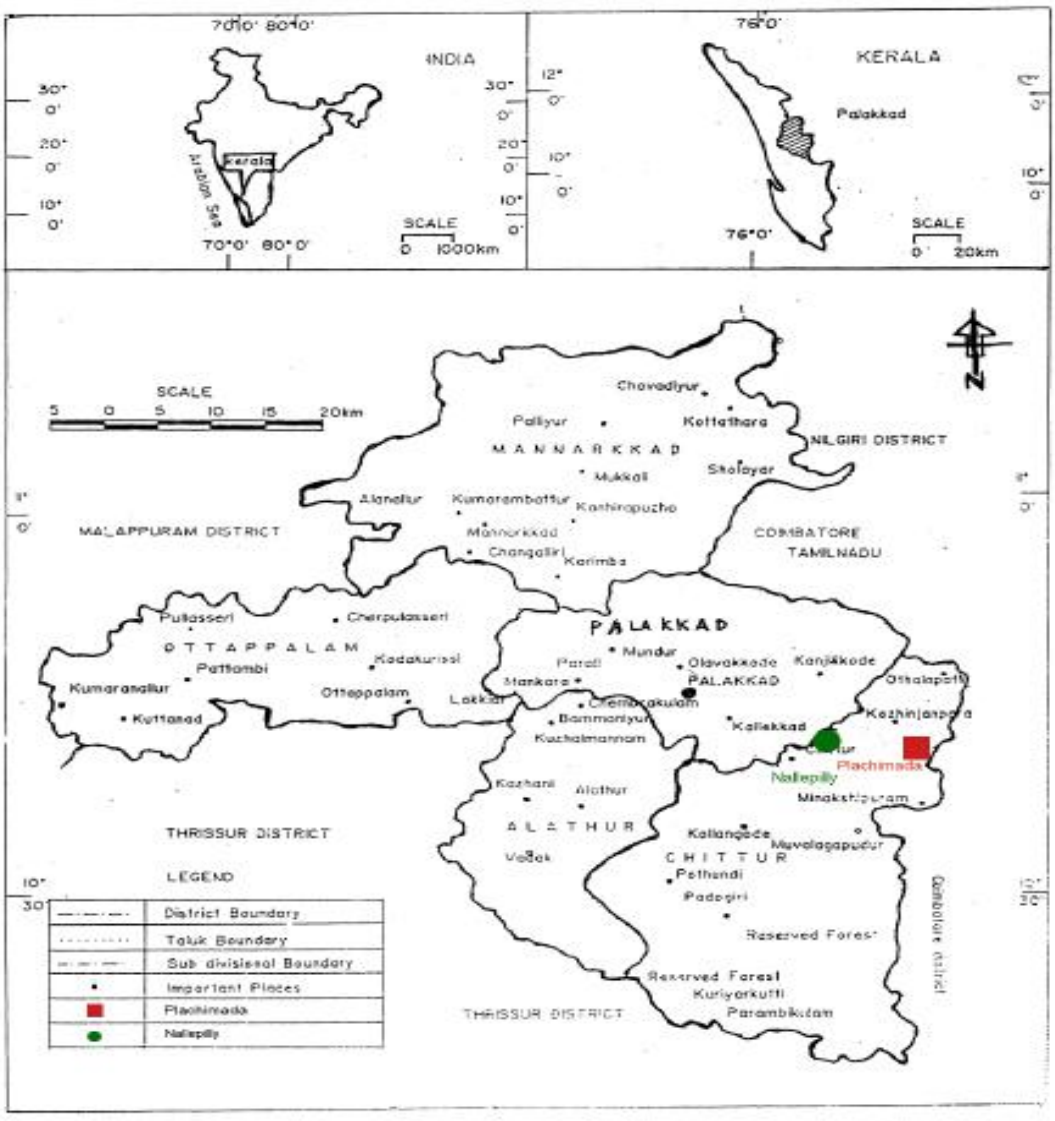
The inward flow of FDI in India from 1970-2013

(US Dollar at current prices and current exchange rate in millions.)

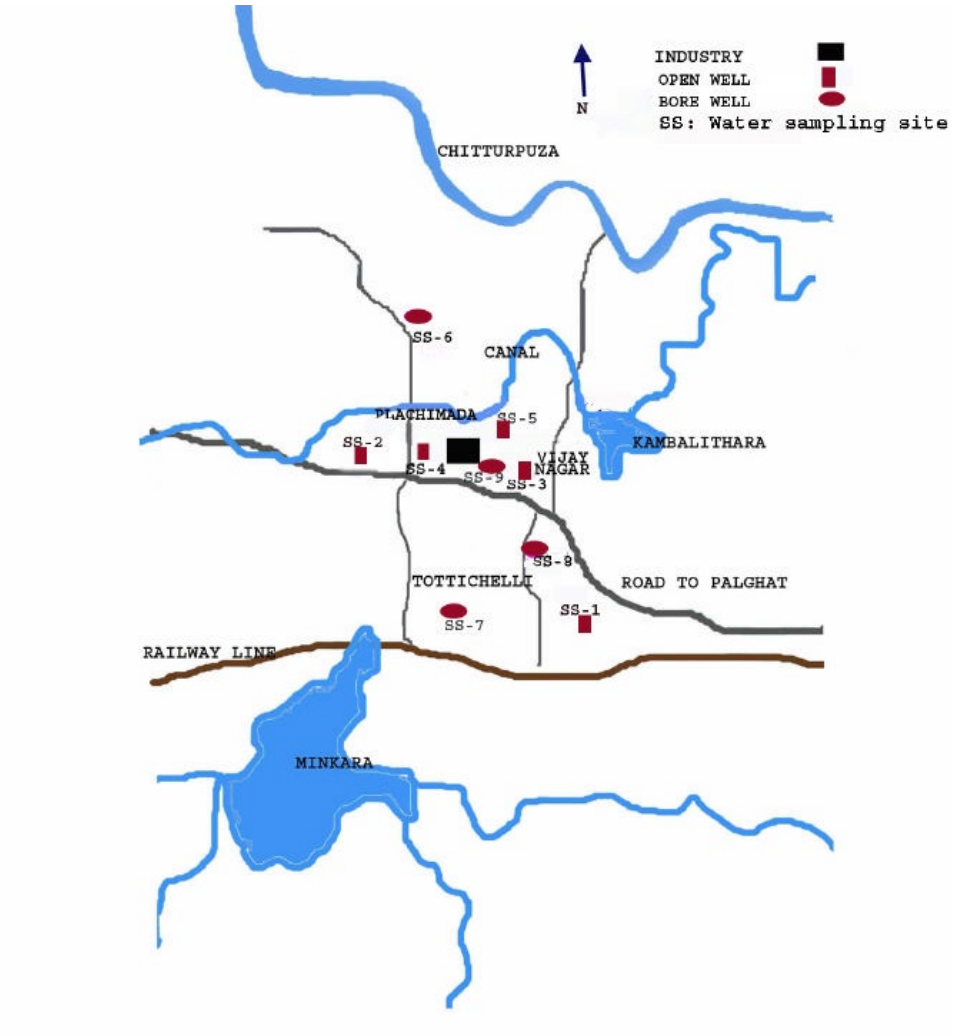
Year	Amount	year	Amount
1970	45	1992	252
1971	48	1993	532
1972	18	1994	974
1973	38	1995	2151
1974	57	1996	2525
1975	85	1997	3619
1976	51	1998	2633
1977	-36	1999	2168
1978	18	2000	3588
1979	49	2001	5478
1980	79	2002	5630
1981	92	2003	4321
1982	72	2004	5778
1983	6	2005	7622
1984	19	2006	20328
1985	106	2007	25350
1986	118	2008	47139
1987	212	2009	35657
1988	91	2010	27431
1989	252	2011	36190
1990	237	2012	24196
1991	75	2013	28199

Source: UNCTAD, 2013

Appendix. 3.



Courtesy: Plachimada Tribunal Bill. (2011)



Courtesy:Hazards Centre, New Delhi

Appendix.4.

TABLE OF EVENTS

Year /month	Events
1998	HCBPL acquired 34.64 acres, mostly paddy fields in Plachimada.
1999 October 8	Hindustan Coca-Cola Beverages Pvt. Ltd. Applies to Perumatty Panchayat for a license to set up a bottling plant at Plachimada.
2000 January 27	Perumatty Panchayatgives permission to build the factory.
2000 March	HCBPL factory commissioned at Moolathara Village, Perumatty Panchayat
2001/2002	Villagers around the factory start to notice changes in water quality.
January 2002	Symbolic protest march against the Coca-Cola factory in the Plachimada.
22.4.2002	Plachimada struggle launched by Coca-Cola Virudha Janakeeya Samara Samithy (Anti Coca-Cola Peoples Struggle Committee) on 'Earth Day'.
April 22	Campaign was launched, 2000 demonstrators outside the plant. Several arrests. Dharna outside factory walls started.
June 7	Protest march ending with throwing cow dung at the factory, which was later cleansed by broomsticks.
June 8	Politicians defending the factory, saying it create employment.
June 9	Protest rally in Plachimada, 130 people arrested.
August 4	Protest march by 1000 people started 6 km away in Pallimukkuending with a public meeting in Plachimada
2003 April 7	Perumatty panchayat decides not to renew Coca-Cola's license due to over exploitation of water resources.
April 9	Panchayat issues notice to HCBPL
April 13	Last day of sale before Coca-Cola and Pepsi boycott due to the US war on Iraq.
April 22	HCBPL files objection petition to Kerala High Court.
May 6	Coke's representatives appear for hearing at the panchayat office.
May 15	Panchayat sticks to its decisions to revoke the licens.
May 16	High court directs Coke to file an appeal petition in front of an appropriate authority.

Year /month	Events
May 22	Coke approaches the state's Local Self Government Department (LSGD).
June 11	LSGD holds hearing. Panchayat and Coke representatives attend
July 25	British Radio 4 report on toxins in sludge.
August 5	CSE finds pesticides in 12 soft drinks by Coke and Pepsi.
August 9	Kerala Pollution Control Board order investigation on heavy metals in sludgefrom Coca-Cola factory
August 30	Demonstration outside the Kerala Ground Water Board in Palakkad City with accusation of inefficiency. 13 people arrested.
September 18	Perumatty Panchayat issues a second notice to the Coke.
October 6	Coke files a second petition to the High Court.
October 8	Coca-Cola replies to the Show-cause notice from the Panchayat.
2003 October 13	LSGD passes interim order, questioning the Panchayat's action of cancelling Coke's license and asks the Panchayat to form a committee of experts.
October 29	Panchayat files a writ petition to the High Court.
November 3	Panchayat asks a set of 16 questions from HCBPL and tells the company's representatives to appear before it with all supporting documents and reports.
November 13	Coke requests the Panchayat not to hold the hearing.
November 14	HC dismisses Coke's seconds petition and asks it to appear before the Panchayat on November 17
November 17	HCBPL representatives turn up without documents at the Panchayat's office, instead asks question about the Panchayat's findings.
December 16	A single Bench of the High Court says license should be given if Coke finds other sources of water than groundwater. Only the amount of groundwater corresponding to the normal use of an equivalent land area could be used.
2004 January 8	Division Bench allowed Coca-Cola to go on using water until the next hearing was scheduled, but on condition that it should install water meters at all its wells and to allow the inquiry committee to monitor the readings.
January 21-23	World Water Conference at Plachimada.
February 21	Government order ban Coke from drawing groundwater until

Year /month	Events
	June15.
March 9	HCBPL suspends its operation in Plachimada.
Sep. 2007	The committee on Plachimada appointed by KGWA visits Plachimada. PSC, PSSC, Farmers, Local residents etc. submit memoranda to the committee members.
Oct. 2007	KGWA approves the report submitted by the committee on Plachimada and decides to recommend to the state government for further action on the issues of compensation of damages occurred at Plachimada.
Aug. 2008	PSC and PSSC submits memorandum to KGWA to reconsider the issue of Plachimada.
Aug. 2008	KGWA appoints sub- committee for a detailed examination of the Plachimada issue. Revisiting Important Water Conflicts in Kerala.
Sep. 2008	The sub committee appointed by KGWA submits report recommending KGWA to form a High Power Committee to consider various dimensions of the Plachimada issue.
Oct. 2008	KGWA decides to recommend to the Govt. of Kerala for forming a High Power Committee on Plachimada to assess the damages occurred.
Feb. 2009	2500th day of Plachimada struggle. PSC & PSSC conducts a march towards Chief Minister's residence at Thiruvananthapuram for speeding up the formation of high power committee on Plachimada.
Feb. 2009	In a reply to submission by Kutty Ahamedkutty at Kerala Legislative Assembly Chief Minister ensures that the high power committee on Plachimada will be formed soon.
Apr. 2009	Cabinet Meeting of Kerala Govt. decides to appoint high power committee on Plachimada.
Mar. 2010	High Power Committe on Plachimada releases its report holding Coca-Cola responsible for causing pollution and water depletion in Plachimada.
Feb. 2011	Kerala State Legislative Assembly passes legislation titled 'Plachimada Coca-Cola Victims' Relief and Compensation Claims Special Tribunal Bill, 2011' setting up a tribunal that has the powers to adjudicate on matters related to claims of compensation as a result of Coca-Cola's operations in Plachimada.

Courtesy: C.R Bijoy and Gaurav Dwivedi

Appendix. 4.

PLACHIMADA DECLARATION

1. Water is the basis of life; it is a gift of nature; it belongs to all living beings on earth.
2. Water is not private property. It is a common resource for the sustenance of all.
3. Water is the fundamental right of all people. It has to be conserved, protected and managed. It is our fundamental obligation to prevent water scarcity and pollution and to preserve it for generations.
4. Water is not a commodity. We should resist all criminal attempts to marketize, privatize and corporatize water. Only through these means can we ensure that the fundamental and inalienable right to water for people all over the world.
5. The water policy should be formulated on the basis of this outlook.
6. The right to conserve, use and manage water is fully vested with local community. This is the very basis of water democracy. Any attempt to reduce or deny this right is a crime.
7. The production and marketing of the poisonous products of the Coca Cola, Pepsi Cola corporates lead total destruction and pollution, which also endangers the very existences of local communities.
8. The resistance that has come up in Plachimada, Pudussery and in various parts of the world is the symbol of our valiant struggle against the devilish corporate gangs who engage in piracy of our water.
9. We, who are in the battlefield in full solidarity with the adivasis who have put up resistances against the tortures of the horrid commercial forces in Plachimada, exhort the people all over the world to boycott the products of Coca Cola and Pepsi Cola.

Courtesy: Mathrubhoomi,15/01/2005.

Appendix .5.

SCHEDULE

1. Name of the Panchayath :
2. Distance from the Coca Cola Plant :
3. Name of the colony :
4. Name of the respondent :
5. Age :
6. Sex :(1)Male,(2) Female
7. Religion :1) Hindu,2) Muslim,3) Christian, 4) Others
8. Caste :1)SC,2) ST,3) OBC,4) General
9. Marital status :1)Married, 2)Unmarried, 3)Separated, 4) Widow.
10. Educational qualification :1)Illiterate, 2) primary, 3)high school 4)higher secondary,5)graduate,6)post graduate
11. Occupation :1)wage labour,2)agriculture,3) Govt Servant,4)private sector, 5)business, 6)home maker
12. Monthly income :
13. Ration cardcategory : 1)APL, 2)BPL3) no ration card
14. Details of family members :

Sl.no	Relation with the respondent	Age	Educational status	Marital status	Employment status	Monthly income

15. Nature of ownership of the house : 1) own, 2) rented, 3) lease, 4)other.
16. The area of the land :

17. Have you got the house through any government program :1) YES 2)NO

18. Have you added any extra work from your own expenses :1)YES 2) NO

19. Do you have any loan or liabilities :1)YES, 2)NO

20. Do you have a bank account :1)YES 2) NO

21. Housing status :

code	Nature of roof	Nature of wall	Nature of floor	Number rooms	toilets	Energy source	kitchen
1	concrete	Cement	Cement	1	attached	electricity	Inside with partition
2	tiled	Mud	Tiled	2	near the premise	kerosene	Inside without partition
3	thatched	Kutcha	Cow dung	3	No toilet	solar	Outside
4	other	Other	other	other	Community toilet	none	Open air

22. Drinking Water Scenario :

Source of water	Pre-cola	Cola period	Post cola
1.Own well 2.Own borewell 3.Community open well 4.Community bore well 5.Rain water harvesting 6.Tanker lorry 7.Neighbor's well 8.Own tap			
Availability of water			
Total water use in litre			
Distance of water source			
Time spending for water collection			
Quality of water(potable or not)			

Alernative source of water 1.Panchayath 2.Open market 3.Neighbour			
User charges of Water by alternative sources			
Total expenditure for collecting water Rs(new pots, tanks and other storage vessels			

23. Details of changes in the availability of clean water

Serial	Water sources	Pre cola	Cola	Post cola
1	Own open well			
2	Own Bore well			
3	Public well			
4	Public bore well			
5	Neighbors well			

Mark (1) for Surplus, (2) fresh water, (3) Depleted, (4) contaminated.

24. Intensity of Groundwater dependency

activity	More than50%	50%-20%	Less than 20%
bathing			
cleaning			
cooking			
Animal husbandry			
agriculture			

25. Details of impact of water depletion and contamination

Code	disease	Educational	Occupation	Family	expenses	Social life	Livestock	Cooking
1	Skin	dropout	quit	peace	utensils	participation	rearing	time
2	Stomach	Failure	Late going	union	treatment	interaction	expenses	taste
3	Lungs	Low score	Poor	leisure	wood	functions	difficulty	smell

			health					
4	Eye	enrolled	Loss of job	feud	soap	visit	profit	storing

Mark (+)for increment and(-) for decrement.

26. Monthly electricity bill :

27. Do you have cooking gas connection? : YES/NO

28. If yes how many cylinders you require per month:

29. If No, what fuel is used : 1) kerosene, 2)charcoal, 3)wood and dry leaves, 4)any other

30. Do you have telephone connection: 1)YES 2) NO

31. If yes, How many mobiles are there in your family:

32. How you evaluate your health : 1) very and dry leaves,4)others

33. Details of health

sl.no	age	sex	health	uncommon health problems	pregnancy problems	reasons	Total health Expenses in Rs

34. Details of changes in the occupational status

Sl.no	Number of persons	Occupation in the pre cola period	Cola period	During strike	Post cola period
1					
2					
3					
4					
5					

35. Other income sources

	Pre cola	Cola period	Post cola
Petty shops			
Cattles			
Other live stocks			
Contract agriculture			
Income(imputed) from domestic coconut, plantain etc			

36. Expenditure incurred for food and non- food items in the last month.

Items	Amount
Food items	
Non- food items	
Total	

37. Asset Accounting:

Items	Value
Radio	
Television	
Watch	
Emergency light	
Camera	
Phone	
Vehicles	
Water tank	
Pump sets	
Tractor	
Fan	
Refrigerator	
Iron box	
LPG stove	
Pressure cooker	
Sewing machine	
Other items	

38. Self-assessed skill : 1) reading, 2) writing, 3) arithmetic, 4) technical, 5)listening .

39. Participation in life- long learning: l) yes, 2) no.

40. Are you a member of Kudumbasree? : 1)yes, 2) no.

41. Are you a beneficiary of MNREGA? :1)yes,2)no

42. Have you volunteered any type of organizations? :1)Almost always,2) sometimes,3) every once in a while,4)rarely, 5) never.

43. Frequency of social contact: 1) regularly, 2) frequently, 3) occasionally 4) rarely,5)never.

44. Potential to receive social support: 1)very high,2) high,3) very low, 4) low,5)none.

45. The ability to face unexpected expenses: 1)very high,2) high,3) very low, 4) low,5)none.

46. Are you a member of any political party: 1) yes, 2)no.

47. Do you have trust in the present institutions: 1) very much,2)somewhat, 3) no comment,4) not really, 5)not at all.

48. Are you satisfied with the public services:1)Very much,2)somewhat, 3)no comment,4)not really,5)not at all.

49. Do you feel any discrimination from the state: 1)almost always,2) sometimes, 3) every once in a while,4)rarely, 5) never.

50. Do you participate in the Gram Saba : 1)almost always,2) sometimes, 3) every once in a while, 4)rarely, 5) never.

51. Do you express your opinion or your grievances : 1)almost always, 2) sometimes, 3) every once in a while, 4)rarely, 5) never.

52. Do you think your questions were answered properly: 1) very much, 2)somewhat, 3) no comment,4) not really, 5)not at all.

53. Have you received any benefits from the Panchayath led development program:1) very much,2)somewhat,3) no comment,4) not really, 5)not at all.

54. Specify your answer?

55. Do you cast vote :1) regularly, 2) frequently, 3) occasionally 4) rarely,5)never.

56. Have you participated in the struggle: 1)YES 2) NO

57. Have you gone to work at that time: 1)YES 2) NO
58. If NO. How did you meet your day to day expenditure: 1)Savings 2)Borrowing 3)Provided in the samara panthal 4) any other
59. Have you lost any assets during the struggle: 1)YES 2) NO
60. How many hours of work you have lost due to participating in the struggle : 1)One year 2)A few months 3)A few weeks,4)a few days.
61. Do you have any liability or debt after the changes in the occupation : 1)very much,2)somewhat,3)no comment4)not really5) not at all.
62. How the indefinite struggle affected your life:

area /	Social life	Economic life	empowerment	Personal life	Community unity
Opinion					

Mark (1) for improved, (2) deteriorated (3) no change.

63. Details of changes in the standard of living

period	celebration	Food	clothing	hygiene	checkup	Travel	functions	entertainment	maintenance
Pre cola									
Cola									
Post cola									

Mark (+)for every positive answer and(-) for negative .

64. Did you experience any problems due to lack of water:
    1) Feud, 2) violence,3) isolation, 4) any other
65. Did you face any conflict (physical or other) for getting drinking water? Explain.
66. Do you believe that the compensation will restore your previous lifestyle:
    1) very much,2)somewhat,3)no comment4)not really5) not at all.
67. Waste water disposal arrangement in your house : 1) Drainage,2) Sewage 3) nothing.

EX- EMPLOYEE

68. Have you got employment in the Coca Cola Plant:1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
69. What job you were doing :1)loading,2)bottling plant,3)superviser,4)cleaning.
70. The nature of employment:1)contract,2)daily,3)part time,5)permanent.
71. Have you got any indirect employment opportunity due to the Coca Cola Plant: 1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
72. Have you got better payment in the company?: 1)Yes, 2) No
73. Have you got any training?:1)Yes, 2)No
74. Do you think your efficiency has improved after the training: 1) very much,2)somewhat,3)neutral,4)not really,5) not at all.
75. Has this training helped you work anywhere else:1) very much,2)somewhat,3)neutral,4)not really,5) not at all.
76. How many hours you had to work in the company:1)6hr, 2)8 hr, 3)10hr,4)12hr
77. How many shifts was there in the company: 1) none,2)one 3)two,4)three.
78. How many leave you can avail per Year: 1) no leave,2)20,3)10,4)5.
79. How was your attendance marked: 1)signature,2)punching
80. Were there any benefits for overtime work:1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
81. When was bonus given :1)onam,2)deepavali,3)Christmas,4)new year.
82. What was the bonus amount? :
83. Have you used to celebrate the festive occasions:1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
84. Have you provided food from the company freely:1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
85. Have you had to wear uniform:1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
86. Was that provided by the company free of cost:1)yes,2)no
87. How was your promotion based:1)efficiency,2)qualification,3)years of work,4)other.
88. Mode of payment of Salary:1)cash, 2)cheque 3) bank,4)other.
89. Have you ever engaged in cultural meeting, get together or tour in the company:1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
90. Was there any encouragement to the kid's education like scholarship, or award:1) very much,2)somewhat,3)neutral,4)not really,5) not at all.

91. Was there any program to cover the medical expenses:1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
92. How was late coming or absence treated in the company:1)salary cut,2)warning,3)other
93. Have you experienced any health problem due to working in the company:1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
94. Have you had any bad experience from the management to you or to your friends in the company:1) almost always,2) sometimes,3) every once in a while,4)rarely,5)never.
95. Was there existed personal interaction between the management and the staff:1) very much,2)somewhat,3)neutral,4)not really,5) not at all.
96. Do you have freedom of expression in the general meetings of the company:1) very much,2)somewhat,3)neutral,4)not really,5) not at all.
97. Have you had any form of fear towards the management:1) very much,2)somewhat,3)neutral,4)not really,5) not at all.
98. Do you have any compulsory saving or insurance on the part of the company:1)yes,2)no
99. Have you got all benefits while relieving the job: 1) Yes 2) No
100. How you rate your life during the working years in the company :1) happy,2)somewhat happy,3)neutral,4)not very happy,5) not at all happy.
101. How was the behavior of the management to you:

1) Very good,2) Somewhat Good,3)satisfactory,4)not very good,
5) not at all good.

102. Have you earned any assets through the income from the plant: 1) Yes 2)No .

AGRICULTURE

103. Please give a brief description of your agriculture experience (water focused)?
104. Have you shifted your crop? :1) Yes, 2) No.
105. The reason for crop shifting?:1)Water shortage,2) Labor shortage 3)Loss of fertility of soil 4)Profit motive
106. Agriculture scenario:

(a)Land holdings in pre cola period

	Particulars(in acres)			Normal income in Rs.
	crop	Wet garden	dry	
Owned				
Leased in				
Leased out				

(b) Landholdings during cola period

Particulars (in acres)				Normal income in Rs.
	crop	Wet garden	dry	
Owned				
Leased in				
Leased out				

(C) Land holdings in the post cola period.

				Normal income in Rs.
	crop	Wet garden	dry	
Owned				
Leased in				
Leased out				

107. Irrigation

	Pre cola	Cola period	Post cola
Area equipped for irrigation			
Area irrigated with groundwater			
Area irrigated with surface water			
Area irrigated with any other sources of water			
Irrigated water requirement			

108. Particulars of water sources in agriculture

	Pre cola	Cola	Post cola
No of open wells			
No of bore wells			
Depths			
Other sources			
Year of digging			
Cost of digging in Rs			
Year of deepening			
Cost of deepening in Rs			
Capacity			
Duration of pumping in hours 1. Normal year 2. Dry year			

Water level in the well in feet			
Cost for fuel and maintenance in RS			

109. Environmentrating

Serial no		Pre cola	Cola	Post cola
1	Community woodlots			
2	River, lakes			
3	Agriculture fields			
4	Soil moisture			
5	greenery			
6	pastures			

Mark(1 for very good,2 for good,3 for no comment,4 for bad,5 for very bad.)

110. "The land would have been barren if the company had not left":(1)Strongly agree, 2)agree,3) neither4)disagree,5)strongly disagree.

111. Are there any unadjusted pay gap (gender gap):
1) very much,2)somewhat,3) no comment,4) not really, 5)not at all.

112. "We feel deterioration in the well- being after the company has started production(1)Strongly agree, 2)agree, 3) no comment4) strongly disagree,5) disagree.

113. "Job insecurity increased subsequent to the loss of agriculture":
1) Strongly agree,2)agree,3) neither, 4)strongly disagree,5)disagree

114. "Water insecurity in the region led to personal insecurity":
1) Strongly agree, 2) agree, 3) neither 4) strongly disagree, 5)disagree.

115. Suppose you were asked to allow the company function again and you were promised to give a job in the company, other emoluments and water. Will you accept the offer?: 1) very much,2) somewhat,3) neutral,4)not really,5) not at all.

116. What do you think the state can do to redress the environmental damages:
1) Close the existing wells and dig new wells, 2) Groundwater recharge techniques,3)Any other.

117. The price of the land in Plachimada before 2000 and after 2006: /per cent

118. Health status of the household(PHC)

	Water borne diseases affected persons in numbers		
	Pre cola	Cola period	Post cola
Dysentery			
Jaundice			
Cholera			
Burning eye			
Hair falling			
Cough			
Pain in Limbs			

Stomach Ache			
Fatigue			
Giddiness			
Vomiting			
Asthma			
Diarrhea			
Slain disease			
Fever			
Other			

The Coco Cola Company at Plachimada

Water Scarcity

The Plachimada struggle

Mayilamma

Samara Pandal

Check post in front of the Company

World Water Conference at Plachimada

The Company after Shutdown

The Struggle for Compensation

Public Open Well at Plachimada in 2015