Chapter 2

Emergence of Waste as a by-product of Technoscience in Kerala: A History of Waste Debates

This chapter mainly focuses on tracing out the history of waste debates in Kerala with an understanding that waste as a technoscience risk. As part of this one of the objectives of the whole study has been taken for detailed discussion which is tracing the history of the discourse on waste in Kerala with a special emphasis on the origin and evolution of new social movements with waste as central concern. This chapter also tries to sketch the various waste controversies as part of tracing the history of waste debates in Kerala. Pettipalam waste related controversy has been taken to discuss in this chapter in detail to shape and substantiate the arguments and to justify the particular objective has been taken. This chapter mainly consists of two parts. First part of this chapter is dealing with the emergence of waste as a technoscientific by-product in Kerala and it tries to understand the relation between late modernity and technoscience. Second section of this chapter starts with the evolution of the solid waste management in the world. After a brief exploration about it the study moves to scrutinize the history of waste debates in Kerala in detail and the emergence of new social movements with waste as central concern and it also explores the different new social movements of Kerala. For making better clarity of this, I will examine the Pettipalam waste related controversy in detail because it has a long history than the united Kerala.44

2.1. Technoscience and Late Modernity

Before going to the detailed discussion about the particular theme of this chapter, I would like to introduce the complex term “technoscience”. Various scholars like Latour (1987), Haraway (1991, 1997), Pickering (1992), Cetina (1999), Kastenhofer and Schwrz (2011), Bensaude-Vincent (2008), Forman (2007), and Nordmann (2006) had used this term and tried to explain the different dimensions of technoscience like cultural, material with everyday observation and practices within the science and

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44 The state Kerala was formed by uniting the Malayalam speaking regions in 1956.
technology. This hybrid term has been utilized generally in contemporary research is a vague notion and it is often perceived as an expression of the primacy of utilitarian values that would occupy the field of pure form of science (Bensaude-Vincent 2008, 1). Forman (2007) used the term technoscience as a reversal of the values associated to science. Technoscience gives emphasis to an overlapping and sophisticated condition of science and technology and it extend the complexity to represent and intervene, to understand and perform and / or of the nature and the artificial (Kastenhofer and Schwrz 2011, 61). It mainly tried to make a distinction between modern and traditional scientific activities with a different epistemic interest producing different objects with a different ontological status (ibid, 62). In other words, science and technology meet together and it is very difficult to understand the boundary between them.

Hoog (2013) describes that technoscience has been a fraction of modernity which is for creating productive and fruitful technologies and vigorous system that have to work outside the laboratory instead of justified imaginary reality and it offers a new epistemological situation and attitude towards the social values articulated in search of better human living conditions. At the same time Haraway (1997) explains that technoscience is a combination of different things which breaks the boundaries between science and technology as well as nature and artefact. Let me quote Haraway (1997, 3) to make this clearer: “technoscience indicates a time-space modality that is extravagant, that overshoots passages through naked or unmarked history”. She adds more to make sure this idea that technoscience is a heterogeneous cultural practice which should not be explained or engaged from scientists’ or engineers’ point of view (Ibid 50–51). Haraway has taken into a new kind of understanding of technoscience and its relation with the complex world and its various sophisticated elements like time, space and gender in her classic work Modest_Witness @ Second_Millennium.FemaleMan©_Meets_OncoMouse™ (1997) with exposing the complexities of the same.

Technoscience implies that science and technology are not separate elements but they are relational and coproduced by enabling mutually (Latour 1987). This term indicates different types of amalgam of human and non-human entities and to describe all the
elements tied to scientific contents (ibid). He used the word technoscience to explain
the alliances between heterogeneous actors involving humans and non-humans in
relation with science, nature, society, economics and politics. I employ the term
technoscience in this study to understand (with an understanding that technology and/or
science and society are not separate circles but they are closely connected each other)
the relationship between science and technology with the society and how publics are
engaging or negotiating with it for their social needs. Waste became a technoscientific
product due to the involvement of technology in the generation of waste like plastics
which cannot be fully solved by the technology itself. And this waste creates crisis in
the society as social, ecological and health risks hence there will be a controversy over
waste. Technoscience would be modern when it could fulfil the social needs of all kinds
of people and the development of technology should make a positive social impact on
society. But in the actual scenario, the situation is not matching with this kind of
understanding, more over technologies are threatening the livelihood of many social
groups. But at the same time some are getting it benefits. My point is that the whole
process of establishing any kind of technology is excluding the lay-knowledge of citizen
and not addressing their issue. We will discuss it in chapter 5 in detail.

After Industrial revolution the era of modernity has been started and this modernity
represent to the wholeness of the technology along with politics, economy, culture. Due
to this there is a rapid technological advancement in the last few decades and the
development of technoscience visibly affected on people’s immediate life and culture
(Aarden 2009). Modernity has occupied its place against history, but it has become a
paradox because the way it imposes on the people of lower strata of the society which
is the same way many things imposed in the history. I use Haraway to understand the
relation between technoscience and modernity and she pointed out that “[t]echnoscience
extravagantly exceeds the distinction between science and technology as well as those
between nature and society, subjects and objects, and the nature and the artificial that
structured the imaginary time called modernity” (1997, 3). The agenda of technoscience
for everyone is being decided by a small group of people who are holding political,
social and economic prominent power (Haraway 1997, 57). But this agenda is
constructing different publics which are coming under losers and winners. Alienation
of certain social groups from all forms of fundamental rights is due to the implementation of technology shows that the intimacy of technoscience with modernity.

The debate on late modernity or reflexive modernity\(^\text{45}\) is very important in the contemporary situation because numerous public controversies over technoscience (waste in this study) are arising in different parts of the world which is considered as anti-modern or anti science movements. Purification process or separation or alienation is one the main ideas of modernity which is actually contrary to the basic idea of technoscience, but when it comes to reality technoscience is overlapping with the idea of modernity. Latour (1993) argues that we should reconsider our definition, distinction explanation and constitution of modernity itself because modernity defines the purification practice which is contrary to amalgamation of the world. The thing is that we are trying to distinct or separate one thing from another or trying to find the purity of the things which defines to the modernity and ignoring totally that the world is an amalgamation of many things or is highly hybrid.

Technoscience is blurring and narrowing down the boundary between science and technology, but when we look at this with society as an inseparable element. Adding to this, implementation of technology is highly threatening the environment and the general notion is that it is modern while the resistance against the risks of technoscience is considered as anti-modern. The resistance against risks of solid waste treatment plants are considered as anti-science movements, especially in Kerala which will be discussed the next 3 chapters. We need to narrow down or blur the boundaries of different disciplines to understand the complexity of the world, for well beings of whole human beings. The reality is that as part of the elitism in the modern globalised world people are going for the purification practices (caste and religion in Indian context) which refers that we have never been modern (Latour 1993). In the contemporary situation

\(^{45}\) “[It] refers to is a distinct second phase: the modernization of modern society. When modernization reaches a certain stage it radicalizes itself. It begins to transform, for a second time, not only the key institutions but also the very principles of society. But this time the principles and institutions being transformed are those of modern society” (See Beck, Bonss and Lau 2003).
solid waste becomes social, environmental and political issues because the production of waste is directly linked with engagements of human beings with nature and technoscience which is highly connected with late modernity (Beck 1992). Due to this engagement of human beings with technoscience in the epoch of globalisation a huge amount of waste has been generated which highly complicated to manage eco-friendly using the existing science and technology, so that this waste became a risk to the humanity.

2.2. Waste as Technoscientific Risk in Kerala

In the past, the hazards [waste] could be traced back to an undersupply of hygienic technology (Beck 1992, 21). Due to the advanced technoscience and industrial developments in the last decades of twentieth century, overproduction of the goods and materials occurred. Excess eating of foodstuffs has become a health risk to some while this overconsumption has triggered off poverty as a risk to some others. Risks are visibly threatening the livelihood of some social groups while invisibly threatening others. Generally, waste is now considered to be a social problem and nearly all ecological risks are related to one way or another to waste (Loon 2002, 106) because it turns out to create social, environmental and health risks. It should be recognised that almost all the problems associated with any kind of risks are cultural which is very much linked with the scientific uncertainty, and this scientific uncertainty is not merely a scientific issue but it has been fabricated by society and science (Srinivas 1998, 1023).

Risks are visibly threatening the livelihood of some social groups while invisibly threatening others. Waste is directly threatening (visible risk) the day to day life of some people and it is a short term or long term threat for the plants, soil which may change the environmental balance and become a risk (invisible risk) to other social groups which may visible in a later period. From a different point of view, a group may become highly threatened by a risk while another group is concerned about that risk but ignoring it because of its usefulness to their day to day life. However, it may become a serious risk to their life also, in a later phase. The notion of risk has been used in modern times to give strong emphasis to the domain of threatening uncertainty (Wilkinson 2010, 15).
“[T]he environmental pollution and health hazards created by plastic waste, which is a grave concern for the scientific-citizen publics,\textsuperscript{46} often do not attract opposition from political society: plastic waste–and garbage in general–is a life affirming resource for the quasi-publics, helping to eke out a living by collecting and selling them” (Varughese 2012, 248). In the technoscientific epoch, risks are playing an important role in everyday politics (Stirling 2008, 95) and waste is considered as a risk which has already occurred social and political place in the last decades in everywhere including Kerala. Public controversies over science and technology have been occurred in numerous occasions in the last few decades, shifting from stem cell research to nuclear energy to genetically modified organisms to global warming (Aardon 2009, 1) and the same time we cannot change the path of these controversies as we wish or it is very difficult to stop these controversies abruptly when we need to conclude it (Latour 1987).

Accumulation of waste and lack of eco-friendly disposal methods would lead to serious health risks and due to this, people would not able to go for job which may destroy their economic security. Along with this there are some social risks and social boycott in the dumping yard nearby places.\textsuperscript{47} Because of serious health issues, foul smells and increased disturbance of various insects, people are not ready to make marriage relations from the particular places.\textsuperscript{48} The price of land and property went down. Environment risks like ocean acidification, global warming, acid rain, soil infertile and climate change are also linked with waste. The present crisis is that the risk of waste accumulation cannot be completely solved by the current waste management technologies; the waste keeps coming back in other forms as an irreducible ‘excess’ created by our technoscientific culture. Science has not yet reached a position in which it can gain a full understanding of the possible impact of technology on the environment in the longer term (Denny 2005, 160-161). For any kind of public controversy is created by science, science will not be able to give a sufficient answer as a solution (Shah 2011, 32).

\textsuperscript{46} A kind of public is being constituted by the civil society, according to Varughese 2012.
\textsuperscript{47} The researcher has been informed by the people nearby Vilappilsala, Lalur and Pettipalam solid waste dumping yard when gone for the data collection.
\textsuperscript{48} Ibid.
The industrial revolution was one of the main reasons for the environmental degradation and pollution. Rapid population explosion and strong industrialisation in India has led to the migration of people from villages to cities, which generate a huge amount of Municipal Solid Waste daily (Bundela et al. 2010, 591). In India, the increased generation of solid waste cannot be handled properly leading to eco-friendly disposal because most of the Urban local Bodies (ULBs) are still using the open land filling and burning as waste disposal methods (Harilal, Kumar and Ravindran 2007). Unscientific disposal method like open dumping invites many environmental issues like soil contaminations surface and ground water contamination, bird and rodent menaces, animal menaces, foul odour and release of poisonous gases (ibid) resulted increased health issues. Industrialisation has increased production and offered better life to the people, but along with it a huge amount of waste is produced. Authorities use a number of methods like open dumping, open burning to dispose the generated waste, but this has failed to solve the waste problem permanently. In an attempt to accelerate the pace of its industrial development, an economically developing nation like India has failed to pay adequate attention to solid waste management (NSWAI 2010). Such a failure incurs a severe penalty at a later time in the form of resources needlessly lost and a staggering adverse impact on the environment and on public health and safety (ibid).

The industrialisation process in Kerala has been exploiting the environment. It produced a huge amount of solid waste which is dumped in different parts of the state, especially in rural areas. It happens because of less resistance in early stages of dumping waste or construction of waste treatment plants, and/or ignorance of the local people about the consequences of dumping waste and working of waste treatment plants. The technological advancements boost up the speed of industrialisation process resulted in overproduction is occurred which increased the production of solid waste. The data shows that Kerala has gone through serious industrialisation process in the last few decades and hence the number of factories increased rapidly (Economic Review 2013). In the common understanding, the state of Kerala is largely an agriculture-service sector based economy with less industrialisation but the graph shows totally different information. There is an increase in the number of industries in the state. In 1971, the number of factories was 3024, after economic reforms the number of registered factories
was increased rapidly and by the end of 2012 it became 20473 (Economic Review 2013). Along with urbanisation, these factories (including small and medium scale) are contributed their share for the generation of industrial waste in some regions of the state like Kalamassery Aluva, Eloor-Edayar.

![Number of Factories in Kerala](diagram)

Graph 1: Number of Factories in Kerala (Source: Economic Review 2013)

As part of the rapid urbanisation process and increased urban population, the speed of industrialisation is increased in Kerala and the working of factories huge amount of hazardous waste is produced both in urban and rural areas (see graph 1, 2 and 3). Waste produced due to the working of the factories is a product of technoscience and this technoscientific product creates new risks to the society, which is not easily manageable with existing mechanism. Along with the introduction of modern technology, the industries became more modernised with more efficiency. The production of industrial waste is increased due to these reasons and the toxicity of the waste also increased which has been threatening the environment.
Graph 2: Number of towns in Kerala (Source: Economic Review 2013)

Graph 3: Urban Population in Kerala
(Source: http://www.kerala.gov.in/docs/pdf/census/4.pdf accessed on September 02, 2016)
The number of towns in Kerala has been increased to 520 in 2011 which was 159 in 2001 (*Economic Review* 2013) and 47 percentage of total population of the state is urbanised (Census 2011). To accommodate this huge urbanised population a number of flats, apartments, villas have been built in cities. The statistics shows that in last one decade the urban population became double and the number of town became triple in Kerala. One of the main reasons for urban population growth is the rapid increase in number of urban places and also the urbanisation of the peripheral areas of the existing major urban centres (*Economic Review* 2013).

In Kerala an amount of 71,050 metric tonnes of hazardous industrial waste has been produced in a year and 30,000 kilogram bio-medical waste is generated every day, at the same there is only one facility in Kerala to process the bio-medical waste which is situated in Palakkad (CPCB 2012). This bio-medical waste treatment plant (IMAGE) is a venture of Indian Medical Association, Kerala state branch and this plant is situated in Puthussery grama panchayat of Palakkad district. This is the one and only plant in Kerala to ‘dispose’ the whole bio-medical waste from all the hospitals of the state. The plant does not have much capacity to accommodate for treating the whole amount of bio-medical waste, and a huge part of waste has been dumping in the premises of the plant which leads to the serious health risk to the animals including human beings. People organised and started protest against the ‘unscientific’ functioning of the plant and dumping of the bio-medical waste in the premises of the plant. There are 4,500 health care establishments (which contains more than 1,00,000 bed strength in total and each bed produces approximately around 1.3–2 kg waste per day) linked with this plant and this plant manages 75 percentage of total bio-medical waste is generated in Kerala. This shows that 25 percentage of total bio-medical waste are gone uncollected and dumped in somewhere by these institutions. Medical institutions are the places to address the health risks of waste but in the actual scenario, these medical institutions become a source of waste generation which adds to the complexity of the waste

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49 IMAGE stands for Indian Medical Association Goes Eco-Friendly. This is established by Indian Medical Association, Kerala state chapter in 2003 to manage and dispose bio-medical waste by following the Biomedical Waste (Management and Handling) Rules, 1998 (See the website http://www.imageima.org/about-us. Accessed on January 14, 2017).

management crisis in the region. It should be noted that this plant is an establishment of Indian Medical Association (IMA) who are very much responsible for public health. The immediate life situations of nearby people of this plant has been threatened due to its functioning.

Shift to ‘modern’ life style and the way of market functions turn out to be the main reasons behind the generation of huge amount of waste in urbanised areas. For example, we are getting some amount of plastics and other covering including the carry-bag when we purchase any dress from any shop which may not be useful for later time, and these packing materials turn to waste. Hospitals, educational institutions, markets, hotels and restaurants, slaughter houses and farming houses, barber shops and beauty parlours, marriage halls, conferences, constructions etc. have been contributing their share to accumulate huge amount of waste in different parts of the state. Different sources of municipal solid waste and their contributions are given below:

Graph 4: Sources of Municipal Solid Waste in Kerala (Source: Economic Review 2017)
The above diagram shows that the main contributor of municipal solid waste generation in Kerala is household which 50 percentage of the total municipal solid waste is. This seems to be due to rapid increase of urban populations. Some other sources of municipal solid waste are hotels, marriage halls and education institutions, and they produce 13 percentage of total waste. Commercial and markets are contributing 16 percentage of total municipal waste. Apart from this 12 percentage waste has been collected by street sweeping and 1 percentage are collected from slaughter houses and 3 percentage hospitals. It is noted that a huge amount of waste is collected from street sweeping which is around 12 percentage of total waste. It shows that people have an attitude to throw their waste outside without any concern about the environment or ignoring the risk of waste. The statistics which shown here just about the collected waste and there are a huge amount of waste presents different parts of the state which remains as uncollected waste which is almost 6500 tonnes per day. The municipal corporations and other governing bodies are unable to handle the large amount of waste generated. Due to this the waste becomes spread to the public places such as roads, grounds, and riverside. Waste became a serious issue in Kerala for the last two decades and the amount of waste dumped in the streets has increased rapidly, this situation is everywhere in Kerala—both in urban areas and in urbanising rural places.\(^5\)

Kerala is top in the list of states which produce the most per capita waste. The per capita solid waste generation in corporation, municipality and grama panchayat is given in below table.

<table>
<thead>
<tr>
<th>Region</th>
<th>Population (in 2011)</th>
<th>Per Capita MSW Generation (gram/day)</th>
<th>Total MSW Generation (TPD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporations</td>
<td>3011629</td>
<td>470</td>
<td>1415</td>
</tr>
<tr>
<td>Municipalities</td>
<td>12923297</td>
<td>350</td>
<td>4523</td>
</tr>
<tr>
<td>Grama Panchayat</td>
<td>17471135</td>
<td>235</td>
<td>4106</td>
</tr>
</tbody>
</table>

It indicates the difference between the lifestyle of urban and rural people and the production of waste. The per capita of MSW generation in Corporations is just double of grama panchayats which indicates that urbanisation along with changing lifestyle will increase the production of MSW. The table shows that Kerala is producing approximately 10044 Tonnes MSW per day. Out of total amount of this solid waste a fourteen percentage has been generated by the six municipal corporations, forty five percentage by the 87 municipalities and the rest by 941 grama panchayats of Kerala (forty one percentage). It shows that 47 percentage of urban population (both corporations and municipalities) is contributing 59.12 percentage MSW to the total MSW of Kerala.

Graph 5: Category of Municipal Solid Waste in Kerala (Source: Economic Review 2017)
Out of the total amount of municipal solid waste which is collected, 80 percentage waste is biodegradable. Inerts, earth and domestic hazards are nine percentage of total waste. Seven percentage of total waste is a mixture of plastic, rubber, metal and glass wastes, and paper waste is four percentage of total waste. The main content of municipal solid waste is biodegradable waste which can be used for different useful purposes like energy production, biogas production, bio-fertilizers production. But the problem is that municipality authorities have been collecting this waste from household or from other sources without segregating to different category according to their character. Due to this, this mixture of waste is very difficult to manage and in most of the cases this waste has been dumped in dumping yards, and most of the dumping yards are situated in rural areas. Dumping yard of Thiruvananthapuram corporation situated in Vilappilsala (in Vilappil grama panchayat) and dumping yard of Thalassery municipality situated in Punnol (in Newmahi grama panchayat) are examples for this.

Apart from this, a huge amount of electronic waste has been coming from the developed countries to Kerala. Hindustan newsprint factory which is situated in Vellur, Kottayam district, imports waste papers from foreign countries for producing newsprints, but the horrible thing is that a huge amount of electronic waste also comes with these waste papers. It was reported that approximately 1 tonne electronic waste (mostly computer CDs) coming along with the old newspaper per day. Cochin Newspaper Company in Brahmapuram is another example for the same. It is needed another graph of different category of municipal solid waste of Kerala to explore more about the status of municipal solid waste management of Kerala and the problems associated with it. There is no specific estimation about exact amount of electronic waste generation in Kerala (Economic Review 2017).

The main risk to human health and the environment arise from the presence in e-waste of heavy metals, pops, flame retardants and other potentially hazardous substances. As part of the recycling and material recovery process of e-waste, there are three main groups of substances being released to the environment. These are original constituents

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53 Ibid.
of equipment such as lead and mercury; substances that may be added during some recovery processes such as cyanides; and substances that may be formed by recycling processes such as dioxins (Lundgren 2012). These substances are highly toxic which has power to change the decorum of the environment and the human health. This waste is neither collected scientifically for recycling or reuse, nor is properly disposed.

The aggravation of waste problem in Kerala is due to the unscientific pattern of urbanisation and unplanned development process, and the solid waste management crisis has become more complex in the post economic reform period. As we have seen, it is the unplanned urbanisation and uncontrolled development process that led Kerala into this crisis in the post-1990s. Due to improper solid waste management and disposal waste became turned to be a serious crisis that opened up the Pandora’s Box resulted many public protests in the state. The following session will be briefing about the old and new social movements in Kerala including waste as a central concern.

2.3. “Old” and “New” Social Movements of Kerala: Tracing the Links

If we analyse the history of social movements of India we will see that Kerala has a long and strong history of struggles and political protest against different forces and these have been a driving force behind social transformation in the region. Interestingly these struggles were covered almost all kinds of socio-economic-political issues of social life of people (especially Dalits, women and farmers) like land rights, employment, un-touchability. The lower strata of society have a good political and social consciousness about their rights as well as their responsibilities in Kerala. Communist party had played a crucial role in the creation of this political consciousness (Jeffrey 1992) along with social reformers like Ayyankali54, Sree Narayana Guru55,

54Ayyankali was a social reformer in Kerala who spent his whole life for the well-being of dalits especially for pulaya-paraya community (See Greeshnam 2015).
55Sree Narayana Guru was a social reformer who led an important social movement in Kerala against caste system of hindu religion and encouraged to spread the new values of spiritual freedom and social equality (see Indira and Srinivasan 2003).
Chattambi Swamikal.\textsuperscript{56} Sahodaran Ayyappan.\textsuperscript{57} In the early days of Kerala (before the formation of the state) at one side there were number of struggles had been organised by the communist party like Punnapra-Vayalar struggle\textsuperscript{58}, Kayyur struggle\textsuperscript{59} with the help of farmers, other workers and people for land rights as well as demanding better wages, against the landlords and colonial/capitalist forces. Especially the Malabar region had witnessed number of agrarian movements led by communist party in the 1940s and 1950s (Kodoth 2010). In the other side, there were various social movements organised in different parts of the state by different social groups. Channar women’s movement\textsuperscript{60} is one of the main movements in this category. There were number of struggles had been organised like Malabar revolt,\textsuperscript{61} Attingal rebellion\textsuperscript{62} as part of the resistance of people against the British colonisation in India. Indian National Congress (INC) was also actively participated in various social movements under the leadership of K. Kelappan, P. Krishna Pillai, A.K Gopalan, K. Madhavan. They organised

\textsuperscript{56} Chattambi Swamikal was a social reformer in Kerala who had spent his life for initiating of many social, religious, literary and political organisation and movements in Kerala for the betterment of marginalised people and dalits (See Sheeja and Ayyappan 2013).

\textsuperscript{57} Sahodaran Ayyapan was a follower of Sree Narayana Guru. He was one of the social reformers of Kerala, worked for the advancement of dalits and rejected the caste system of hindu religion (See Sheeja 2010).

\textsuperscript{58} Punnapra and Vayalar are two places in Alappuzha district which were the part of Travancore princely state. Punnapra-Vayalar struggle was done for the freedom against the oppression of the state by the Diwan CP Ramaswami and it was organised by communist party on 24 October 1946 in Punnapra and 27 October 1946 in Vayalar with the help of worker of coir, most of them from Ezhava community. (See this link http://www.prd.kerala.gov.in/punnapra.htm. Accessed on January 10, 2017).

\textsuperscript{59} Kayyur is a small village in Hosdurg Taluk in Kasargode district. Kayyur struggle was a peasant movement organised by communist party against the local landlords in 1940. With the help of police, government totally controlled the movement and many people were arrested among them four (Madathil Appu, Koyithattil Chirukandan, Podore Kunjampunair and Pallikkal Abubacker) were hanged on 29 March 1943 and Chirukandan Krishnan was given sentenced life Imprisonment (See http://www.cpimkerala.org/eng/struggles-72.php?n=1. Accessed on January 10, 2017).

\textsuperscript{60} Channar revolt refers to incidents surrounding the rebellion by women asserting their right to wear upper-body clothes against the caste restriction.

\textsuperscript{61} Malabar rebellion or Mappila rebellion was an armed uprising against the British authority and Hindus in the Malabar region of southern Indian by Mappila Muslims.

\textsuperscript{62} Attingal rebellion was the first ever united rebellion against the British.
movements like Guruvayur sathyagraha\textsuperscript{63} and Vaikkom sathyagraha\textsuperscript{64} against casteism and un-touchability.\textsuperscript{65} Before going to the details of the various social movements, I would like to discuss about the idea of new social movements briefly.

The New Social Movement (NSM) theory has been emerged from the European traditions of social theory and political philosophy in the post-industrial era (Cohen 1985) and it is an important response to the insufficiencies of classical Marxism to address the various issues apart from labor issues rooted in industrial epoch (Buechler 1995). “New Social Movement” is a term which indicates that a group of different collective actions mainly looked to many other kind of basis of identity like sexuality, gender and ethnicity [environment] that replaced the old social movements of workers revolution initiated in industrial age linked with classical Marxism (Ibid, 442). Walsh (1988) argues that the tag “new social movements” is used by many authors of Western Europe to indicate the qualitative shift from the old social movements (linked with economic and class concern) to the present collective actions in terms of its origin, values focus. He added that the shift was from the factories and ghettos to universities, civil societies and middle class neighbourhood (Ibid). Habermas (1981) pointed out that new social movements are the immediate reaction to the power concentration held by well-established capitalists groups in the modern society.

\textsuperscript{63} Guruvayur is a place in present Thrissur district, the upper caste people were not allowing to lower caste people to come inside the Temple because of the Untouchability and caste system. In 1931, a sathyagraha was organised under the leadership of K. Kelappan and many prominent leaders came into the struggle like P. Krishnapillai, AK Gopalan, and K. Madhavan, who later led the communist party. Due to this sathyagraha, in 1936 Travancore maharaja granted temple entry to the lower caste by temple entry proclamation (See Jeffrey 1976).

\textsuperscript{64} Vaikom is a small town in the bank of Vembanad Lake in the present Kottayam district. Upper caste people were not allowed to enter lower caste people into the Siva temple which situated in Vaikom and even they could not use the public roads near to the temple. K.P Kesava Menon, the Kerala provincial congress committee president decided to violate the law by approaching to the temple with lower caste people on 30 March, 1924. Number of leader like K Kelappan, Mannath Pathmanaban (led an upper caste people’s march in support of this Satyagraha), EV Ramswamy were also participated in this sathyagraha at different time. On November, 1925 roads were opened for the lower caste people but few lane were not (See Jeffrey 1976).

\textsuperscript{65} Untouchability is the product of caste system based on Manusmruthy in Hindu religion. It is not only the merely meaning of physical un-touchability but it is an attitude of upper caste people to the lower caste people for marginalise from the mainstream in various dimensions and to get benefits. This social evil is still practicing very strongly in different places of India especially in villages. (See Macwan, Davenport and Stam 2010).
The new social movements have taken many different subjects for political deliberation especially environmental devastation in the technoscientific age which actually replaced the old kind of social movements occurred in the industrial era by the factory workers and farmers. New social movements address social, cultural, and quality of life controversies such as gender, sexuality, environmental protection (Walsh 1988). Due to the enormous economic growth of the 1950s and 1960s all over the world after the great recession, the welfare state tried to satisfy the basic human needs (D’Anieri, Ernst and Kier 1990) which led to the destruction of our ecosystem. In this situation a new kind of politics has emerged which addresses environmental issues including the quality of life of human beings. According to Melucci (1989), the new social movement theory identifies a number of various issues and networks which offer undergird for combined actions instead of understanding that an established systematic form of movements against the forces like proletariat revolutions. This concept has been a fresh addition to the old social theories that challenges the various elements (micro and macro) of history (Pichardo 1997, 411) and at the same time it has activated new sites of deliberations which are associated with the immediate life situations (Buechler 1995, 446). Habermas (1989) identified that new kinds of conflicts have been come up in the post-industrial era in different areas like social integration, cultural reproduction and socialisation and this conflicts led to the formation of new kind of protest forms unlike parliamentary and institutional protest rooted in industrial era and linked with classical Marxism. “[T]he new conflicts [new social movements] are not sparked by problems of distribute on, but concern the grammar of forms of life” (Ibid, 33) and this is the important change from the “old” to “new” social movements.

This change in social movement had influenced the Indian social movements too. Chipko Movement in Uttarakhand (1973),\textsuperscript{66} Jungle Bachao Movement\textsuperscript{67} in Bihar

\textsuperscript{66} Chipko movement was a non-violent resistant activities of by the people in the forest area of Garhwal of Himalaya in Uttarakhand to protect the forest from commercial felling. People were protecting the forest from commercial encroachment by embracing the trees (See Shiva and Bhanyopadhyay 1986).

\textsuperscript{67} Jungle Bachao Movement was started in 1978 to protect the forest from devastation in the Kohlan-Singhbhum area in South Bihar. Later it became a part of Jharkhand (See Erni 2011).
(1978), Appikko Movement in Karnataka (1982), Narmada Bachao Andolan in Gujarat, Maharashtra and Madhya Pradesh (1985), anti-liquor movements are some examples. In India the new social movements on ecology and environmental issues has been emerged by the peasant and adivasis, and they started fights for their livelihood on the issue of forest, food, and fishing not only against the state but also against the penetration of ‘civilised’ people from urbanised India (Omvedt 1984). Parallel to this, there was a great influence in the social movements of Kerala. As part of development process, urbanisation process, rapid economic growth and implementation of modern technologies, the state has been facing many issues, especially environmental degradation.

A new kind of environmental activism or new social movement has emerged in Kerala in the early 1960s to protest against the unscientific development pattern; in 1964, environmental protection struggles were started with the Chaliyar river protection movement against the pollution caused by the working of Mavoor Gwalior Rayons. After that number of environmental movements emerged. Some of them are the Silent-Valley anti-dam movement (1976), Protest against industrial pollution in Elloor-Edayar region (1979), Nita Gelatine factory strike in Kathikudam (1994), the anti-

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68 Appikko movement is similar to Chipko movement. The villagers were resisting the massive tree felling in the Kalase forest of Karnataka by hugging the trees (see Sharma 2008).
69 Narmada Bachao Andolan is to protect the forest and people in the banks of Narmada River by resisting the construction of dam through this river (See Narula 2008).
70 Mavoor is a small village, outskirt of Kozhikode city and 25 kilometres away from the city approximately. Mavoor Gwalior Rayon factory started in the bank of Chaliyar River in Kozhikode district by Birla groups of company in 1950s. The waste, both solid and liquid from the factory was dumped in to the river of Chaliyar. At that time there were number of drinking water projects working in that river. The contamination of water, air pollution etc made serious health issues in that village. People were formed an action council against the working of the factory and they were strongly argued for the closure of this factory (See Surendran 1988).
71 Silent Valley anti-dam movement is popular in national wide. It was a protest against the decision of the state government to builds a dam for the production of electricity (Irshad, S. Muhammed. 2007. “Paristhitthi Samarangaliloode Keralam”, Malayalam Weekly, 43-48, 45.).
72 This company is situated in Kadukutti grama panchayat and due to heavy pollution panchayat closed the working of factory using their special power but high court of Kerala had given permission to open the factory with some clause. People of Kadukutti grama panchayat are formed an action council against this factory and they are demanded for the immediate closure of this factory. Action council started a sathyagraha before two years and still it is continuing for their better livelihood (See this link http://savekathikudam.blogspot.in/2011/01/kathikudams-tryst-withdevelopment.html#!/2011/01/kathikudams-tryst-with-development.html accessed on August 07, 2016).
Endosulfan movement in Kasargode (1999)\textsuperscript{73} and the anti Coco Cola movement in Plachimada (2002).\textsuperscript{74} Since the late 1990s there are other political movements also lead by Dalits and Adivasis for land rights such as Muthanga land struggle\textsuperscript{75} and Chengara land struggle.\textsuperscript{76} The state of Kerala has a strong historical background of struggles aimed at the protection of livelihood and the rights of the marginalised. Protest against mining of clay in Velichikkala (Kollam District) and Mangalapuram (Thiruvananthapuram), Mullaperiyar dam issue and protest against Aranmula airport are giving a different dimension to the environmental protection struggles in Kerala. It also leads to a blurring of the boundary between the private and public spheres which I will discuss in the following chapter in detail while drawing the various waste related new social movements. The above mentioned controversies or collective actions are constructed a new kind of politics and this politics is entirely different from the old politics of old social movements. Adding to this, Malayalam literature has played a crucial role to spread the awareness regarding protection and importance of environment. A number of writers have written many poems, stories and novels in connection with environment which gave a strong understanding of importance and protection of ecology to the people of lower strata of the society.\textsuperscript{77}

\textsuperscript{73} In Kasargode district for cashew nut plantation, the highly toxic pesticide Endosulfan has been aerially sprayed more than permitted concentrated amount by Plantation Corporation of Kerala from 1979 to 2001, three times per year and this plantation covers several villages. This highly toxic pesticide contaminated the soil, air, ground water as well as surface water and due to this many people residing near to this plantation have been suffering from different kinds of illness.

\textsuperscript{74} In April 2002, the Coca Cola Virudha Janakeeya Samara Samithi began protest against the plant of Coca Cola which is situated in Plachimada, Palaghat district. This plant stopped functioning in 2004 after the High Court upheld the government order (See Bijoy 2006).

\textsuperscript{75} Muthanga is a small village (the border village of Kerala, Tamil Nadu and Karnataka) in Wayanad district, which is Adivasi dominated area. In August 2001, adivasi people started their protest under Adivasi Gothra Mahasabha against the government after the death of many Adivasi due to poverty and they demanded enough land for them, Kerala government agreed all their demands. On 19 February 2003 Adivasi people gathered in Muthanga under the Adivasi Gothra Mahasabha leaders C.K. Janu and Geethanandan because government not kept their promise which given to them. Police took action against these protesters, they fired many rounds one Adivasi killed and many injured, and one policeman killed by protesters. C.K. Janu and Geethandan were arrested by the police and they brutally handled by the police (See Kjosavik 2006).

\textsuperscript{76} Chengara is a small village, where Adivasi people are majority in number, in Pathanamthitta district. Adivasi people were started protest under the leadership of the Laha Gopalan for land and houses. After a long two years struggle, government announced a package for them and the agreed.

\textsuperscript{77} Some of the major works in Malayalam literature are Vyopilli Sridharamenon (Kaippavalari), N.V Krishna Variar (Baakki Vallathumundo?), Edasserry Govindan Nayar (Kuttippuram Palam), O.N.V.
Kerala has witnessed a different kind of protest after the new economic reforms in the 1990s related to the solid waste dumping/disposal. There are several public protests emerged in the context of the crisis of waste management in Kerala. Approximately fifty places are facing the problem of solid waste in the state including small dumping yards are presents in different pockets of the states according to a recent estimate. Some of the municipal solid waste management controversies in contemporary Kerala under public deliberation are Kelugudai, Kallangana and Sheethancoil in Kasargode district, Pettipalam and Chelora in Kannur district, Njeliyanparamb in Kozhikkode district, Pirivusala in Palghat district, Lalur and Chakkumkandam in Thrissur district, Brahmapuram in Eranakulam district, Vaduvthur, Fathimapuram and Kunnathupara in Kottayam district, Kozhancheri in Pathanamthitta district, Kureepuzha in Kollam district and Vilappilsala in Thiruvananthapuram district. Apart from these issues, there are small dumping yards are present in different parts of the state like Koyilandi in Kozhikode district, Shabarimala in Pathanamthitta district, Guruvayur in Thrissur district. The above mentioned controversies have been started in different time periods but most of them gained momentum in recent decades. Many of them are recently emerged. These controversies show that the existing ‘system(s)’ are highly inefficient.

Let us discuss the Pettipalam municipal solid waste management controversy in detail to know the internal ambivalence in the centralised waste management system.

2.4. The Pettipalam Waste Controversy

The Thalassery municipality, one of the oldest municipalities in India, was established in the year 1866. Situated in Kannur district, which is towards the northern part of Kerala, this coastline city is famous for cricket and circus. According to the Census (2011), the municipality has a population of about 92,558 people. The controversy

Kurupp (Bhoomikkoru Charmageetham), Sugatha Kumari (Oru Paattu Pinneyum), N.N Kakkad, Kadammanitta (Kunj Mulappal Kudikkarath), Ayyappapanikkar (Kadevide Makkale), Vishnu Narayanan Namboothiri (Kadu Valarthuvin), Vinayachandran (Kaadu), Murukan Kaattakada (Paka), Sachidanandan (Haritham), Ambikasudhan (Ranu Mathsyangal), Vaikkam Muhammed Basheer (Bhoomiyude Avakashikal).

79 See the website of Municipality of Thalassery http://www.thalasserymunicipality.in/about accessed on May 27, 2018.
80 Ibid.
associated with waste management of Thalassery municipality dates back to the time even before the formation of the state of Kerala. The history of waste debates has its beginning with the dumping of human excreta of Thalassery municipality at Pettipalam around 80 years back from now. Pettipalam is one of the wards of Newmahi grama panchayat (Earlier it used to be a part of Kodiyeri grama panchayat) and is located ten kilometres away from the city along the coastal line. The dumping yard in Pettipalam is not more than 100 meters away from the sea and it is located right in between the sea and the national high way 212.

There was no modern toilet system in the municipality to handle the human excreta and people were using *Patta kakkoose* system for relieving themselves at those times. The cleaning workers of (scavenging community) municipality would collect human excreta every day and would dump it at the dumping yard situated in Pettipalam. The practice continued for around 45 years. Along with human excreta, the municipality also took to the dumping of other municipal solid wastes at Pettipalam from 1951. Apart from this, the only slaughter house of Thalassery municipality situated in Pettipalam followed suit and began the dumping of the waste from the slaughter house in the open at the dumping ground. This was followed by an increase in the number of street dogs and insects that took to disturbing the villagers. Due to this the villagers began a protest against the solid waste dumping in Pettipalam against the Thalassery municipality in the year 1952. The protests that were started by the villagers was unguided and lacked a leader. The villagers raised their voice against the improper dumping of wastes however, their protests were held in a disorganised manner.

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81 Ajayakumar (Chairman, Pettipalam Malinya Virudha Vishala Samara Munnani), interviewed on July 17, 2016 at Mahi.
82 The meaning of Paatta Kakkoose is dry latrine. It was used by the city dwellers to defecate before the introduction of modern toilet. It is highly connected with casteist practice which will be discussed in the Chapter 3.
83 Abdul Nasser (Chairman, Pothujanaarogya Samrakshan Samithi), interviewed on April 03, 2016 at Pettipalam.
84 Ibid.
85 Ibid.
87 Abdul Nasser (Chairman, Pothujanaarogya Samrakshan Samithi), interviewed on April 03, 2016 at Pettipalam.
An organised protest for the same came on about much later in 1957 and the protesters submitted a request to the then health minister of Kerala (first ministry of Kerala after the formation of united Kerala in 1956). However the government did not take any action to address the issue.\textsuperscript{88} There was no continuity in the protest because it was affected by a small group of people who stayed nearby the yard. Moreover, the waste was human excreta which created a problem only as it was being transferred.\textsuperscript{89} However people often organised themselves for protesting against the dumping of solid wastes due to the difficulties that they had to face especially during the rains, and due to the smoke, that arose when the municipality burned its wastes.\textsuperscript{90} During the times of heavy rain, the waste would flow towards nearby places leading to the pollution of unprotected wells.\textsuperscript{91}

The municipality began dumping solid wastes in the dumping ground around the 1960s and the dumping of human excreta soon came to an end with the introduction of the modern toilet system.\textsuperscript{92} The problem however didn’t end there and the condition of the dumping grounds worsened with the dumping of a huge amount of other wastes thereby adding to the troubles of the life of people who lived in Pettipalam.\textsuperscript{93} The Communist Party of India (Marxist) (CPI (M)) made a move against this issue and against the municipality under the banner of \textit{Parisara Malineekarana Virudha Samithi} (The Forum against Environmental Pollution, hereafter Samithi).\textsuperscript{94} In 1987, the Samithi decided to protest against the municipality and the protest was inaugurated by the then Member of Legislative assembly of Thalassery constituency, Kodiyeri Balakrishnan (CPI (M)).\textsuperscript{95} The Samithi built a permanent \textit{samara panthal} near the dumping yard so as to organise

\textsuperscript{88} Jabeena Irshad (Core member, \textit{Pothujanaarogya Samrakshana Samithi}), interviewed on April 03, 2016 at Pettipalam.
\textsuperscript{89} Ajayakumar (Chairman, \textit{Pettipalam Malinya Virudha Vishala Samara Munnani}), interviewed on July 17, 2016 at Mahi.
\textsuperscript{90} Ibid.
\textsuperscript{91} In those days, people were not building fence to cover the wells.
\textsuperscript{92} Abdul Nasser (Chairman, \textit{Pothujanaarogya Samrakshana Samithi}), interviewed on April 03, 2016 at Pettipalam.
\textsuperscript{93} Ibid.
\textsuperscript{94} Ibid.
\textsuperscript{95} Ibid.
demonstrations.\textsuperscript{96} At the same time CPI (M) took to conducting strong campaigns against the municipality and the Newmahi panchayat (both were under Indian Union Muslim League (IUML)) by visiting every house in the vicinity.\textsuperscript{97} In the late 1990s these struggles became stronger after the introduction of plastics.\textsuperscript{98}

The public had become conscious about the risks of the improper dumping of common wastes. Due to the strength of the protest, the municipality made agreements with the Samithi not once but several times to solve the crisis, but they did not make any attempts to execute it.\textsuperscript{99} CPI (M) had a different political agenda concerning the protest. They also had an aim to get the power over the governing body of municipality from IUML that had been in control of the municipality since a long time. This protest had given a desirable push in the interests of CPI (M) in the urban body elections that were conducted in 1995 and they managed to capture power from IUML. Nevertheless, CPI (M) slowly withdrew its support to this protest and later on worked their ways to mess up and weaken the protest. The dumping of municipal solid wastes continued even after CPI (M) managed to get power in both the municipality and the panchayath. In this situation, a group of people from Pettipalam gathered on 26\textsuperscript{th} May, 1996 without any leadership and all the representatives of the political parties participated in it.\textsuperscript{100} However, it was not able to attain a huge success unlike an organised protest against the dumping of wastes due to the difference in ideas of the various political parties. And they were expecting a solution from the newly elected governing body, as CPI (M) had promised a permanent solution to the problem prior to the election.\textsuperscript{101}

One year after from that, in 1997, under Jamaat-e-Islami a forum was formed called the \textit{Pothujanaarogya Samrakshana Samithi} (Forum for Protection of Public Health, hereafter Forum).\textsuperscript{102} Abdul Nassar, Jabeena Iqbal and Ajayakumar were the major

\textsuperscript{96} Risal (vice chairman, \textit{Pettipalam Malinya Virudha Vishala Samara Munnani}), interviewed on August 20, 2016 at Thalassery.
\textsuperscript{97} Ibid.
\textsuperscript{98} Ibid.
\textsuperscript{99} Abdul Nasser (Chairman, \textit{Pothujanaarogya Samrakshana Samithi}), interviewed on April 03, 2016 at Pettipalam.
\textsuperscript{100} Ibid.
\textsuperscript{101} Ajayakumar (Chairman, \textit{Pettipalam Malinya Virudha Vishala Samara Munnani}), interviewed on August 17, 2016 at Mahi.
\textsuperscript{102} Ibid.
leaders. But the Forum could not achieve much against the matter of the dumping of wastes. Apart from CPI (M), all political parties extended their support to this protest. It should be noted that when CPI (M) organised a protest against the municipality, not a single political party including INC and IUML extended their support to the cause. CPI (M) used this waste crisis as a political tool to manage to get power over the municipality governing body. After winning the election, CPI (M) stopped in its tracks and the protests and the issue of wastes took a back seat. At the same time the earlier ruling parties (i.e. INC and IUML) identified the act of dumping wastes at Pettipalam as a crisis. It shows how the debate over wastes became a political issue rather than a simple engineering problem.

By the end of 1997, the Forum managed to acquire a written agreement from the municipality, and according to the agreement the issue concerning the improper management of wastes was to get resolved within a period of six months. As a response to this, the Forum duly stopped their protest taking into consideration their agreement with the municipality. However, nothing much was done during this period by the municipality to resolve the issue and they continued with the dumping of wastes as before. Upon this, the Forum became reactive and resumed their protest in June 1998. And on 9th August 1999, the Forum filed a writ in the high court of Kerala about the issues related to the dumping yard. The High court taking into consideration this writ demanded the Kerala State Pollution Control Board to submit a report on the issue. The report recommended to stop the dumping of wastes at Pettipalam. As per report, on 25th November, 1999 the high court issued an order to stop the dumping of wastes in the dumping yard. Upon this, the municipality had a meeting with the Forum with the help of political parties including INC and IUML, and made another

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103 Ibid.  
104 Ibid.  
105 Abdul Nasser (Chairman, Pothujanaarogya Samrakshana Samithi), interviewed on April 03, 2016 at Pettipalam.  
106 Ibid.  
107 Ibid.  
108 Ajayakumar (Chairman, Pettipalam Malinya Virudha Vishala Samara Munnani), interviewed on August 17, 2016 at Mahi.  
109 Ibid.  
110 Ibid.  
111 Ibid.
agreement seeking a period of six months to solve the crisis. The Forum stopped their protest temporarily, but upon the municipality’s violation of its promise, the protest was resumed by the Forum yet again on 30th May, 2000.

After a long continuous struggle by the villagers under the banner of the Forum, to find out a solution for the issue the then district collector of Kannur Dr. V. Venu also sat with the protesters on 31st October 2001. The collector promised that the municipality would not dump waste at Pettipalam, and asked the protesters for a time period of six months to find out a solution for solving the problem. As per the request, the Forum gave the municipality another six months’ time to solve the crisis, but unfortunately nothing happened even after a year. On 1st November, 2002, the protesters shifted their samara panthal to the front of the trenching ground from the Pettipalam town inorder to block the dumping of waste. The then Minister of Industries, Information technology and Social Welfare Kunjalikutti called a meeting on 16th November, 2002 and asked for another six months’ time to solve the crisis. The Forum was ready to give six months’ time to the government on the condition that they explain the method of problem solution. The municipality and the minister failed to give an answer to this thereby resulting in the protestors to go on with their protest.

These peaceful protests continued almost for about three months and they succeeded to block the dumping of wastes during this period. But the municipality, upon its inability to find a place or means to dispose the waste struggled because of its inefficiency and the city soon began getting filled up with waste. In this situation, the

112 Abdul Nasser (Chairman, Pothujanaarogya Samrakshana Samithi), interviewed on April 03, 2016 at Pettipalam.
113 Ibid.
114 Ibid.
115 Ibid
116 Ibid.
117 Ajayakumar (Chairman, Pettipalam Malinya Virudha Vishala Samara Munnani), interviewed on August 17, 2016 at Mahi.
118 Risal (vice chairman, Pettipalam Malinya Virudha Vishala Samara Munnani), interviewed on August 20, 2016 at Thalassery.
119 Ibid.
120 Ibid.
121 Jabeena Irshad (Core member, Pothujanaarogya Samrakshana Samithi), interviewed on April 03, 2016 at Pettipalam.
municipality tried to transfer the wastes to Pettipalam, but this attempt failed due to the strong resistance from the villagers. On 3rd February, 2002, with the help of the police, waste dumping was resumed by the municipality. This was the first time that the police interfered in this issue and it created a terror in the minds of the people. Slowly, the resistance from the villagers lost its vigour and the municipality made use of the opportunity to get things done in its way.

Post this incident, no continuous movement of protest was carried out until November 2010 and the municipality went on with its act of dumping the wastes at the dumping ground. On 12th November, 2010, suddenly a protest was initiated by the Forum after finding poultry waste in the wells. The villagers made a blockade in front of the trenching ground which stopped the dumping of waste. In this situation, the then collector V.K. Balakrishnan came up to sit with protesters and to negotiate with them so as to solve the issue. He proposed a project to solve the waste crisis in Pettipalam and the Forum agreed it. The proposal was to reduce the amount of waste dumping in the dumping ground bringing it down to zero in consecutive steps within one year. But unfortunately, the plan did not get executed even after 11 months since its proposal which created a greater anger in the minds of protesters and the Municipality continued with its mismanagement of wastes. On 31st October, 2011, the Forum resumed their protest and called it as Anthima Samaram (the last protest), and announced that there would not be any kind of negotiation with the municipality and the government. They built a samara panthal yet again, but this time right in front of the trenching yard which

122 Ibid.
123 Ibid.
124 Abdul Nasser (Chairman, Pothujanaarogya Samrakshana Samithi), interviewed on April 03, 2016 at Pettipalam.
125 Ibid.
126 Ajayakumar (Chairman, Pettipalam Malinya Virudha Vishala Samara Munnani), interviewed on August 17, 2016 at Mahi.
127 Ibid.
128 Ibid.
129 Ibid.
130 Ibid.
131 Jabeena Irshad (Core member, Pothujanaarogya Samrakshana Samithi), interviewed on April 03, 2016 at Pettipalam.
created a blockade for the passing of trucks. It was a day-night protest carried out with a strong fervour.\textsuperscript{132} But there were some issues within the Forum.

As the researcher has already mentioned, the Forum was under the leadership of Jamaat-e-Islami, so there were some issues within the group regarding the method of holding the protest. Jamaat-e-Islami was against the idea of adopting violent ways into its mode of protest thereby questioning the ways of some members of the Forum who came from other political parties especially from INC and IUML. From the analysis, it has been found that Jamaat-e-Islami never had an intention to play a political game to get hold of the power in running the municipality governing body. But INC and IUML wanted to get back the municipality and their political agenda was at discord with the views of Jamaat-e-Islami. Under the leadership of Ajayakumar (INC), Risal (IUML) and Ramdas Kathiroor (Peoples Democratic Party (PDP), later he joined the Rashtriya Swayam Sevak (RSS)) \textit{Pettipalam Malinya Virudha Vishala Samara Munnani} (Pettipalam Anti-Waste Protest Front, hereafter Front) was formed on 1\textsuperscript{st} November 2011.\textsuperscript{133} Both the Forum and the Front were demanding for the permanent closure of the dumping yard.\textsuperscript{134}

The Forum successfully mobilised women to participate in this protest. During the day time women sat in protest and at the night time men took over the act of protesting by sitting in the \textit{Panthal}. Jabeena Irshad, one of the leaders of the Forum remembers that they were a big group of protestors that had approximately 50 women including children.\textsuperscript{135} As it was a Muslim dominated area, the majority of women involved in the protest were Muslim.\textsuperscript{136} The Forum came with a number of different kinds of demonstrations such as the \textit{School Adapp Samaram} (closing the school),\textsuperscript{137} \textit{Adukkala Samaram} (kitchen protest),\textsuperscript{138} \textit{Samara Perunnal} (Protest on Eid),\textsuperscript{139} \textit{Thattukada}

\begin{itemize}
  \item \textsuperscript{132} Ibid.
  \item \textsuperscript{133} Ibid.
  \item \textsuperscript{134} Ibid.
  \item \textsuperscript{135} Ibid.
  \item \textsuperscript{136} Ibid.
  \item \textsuperscript{137} In School Adapp Samaram, all the students from the Pettipalam skipped their classes and sat with protesters.
  \item \textsuperscript{138} In Adukkala Samaram, the protesters set a kitchen in the samara panthal and prepared food there.
  \item \textsuperscript{139} Samara Perunnal was done on an Eid day. The protesters celebrated their Eid in the Samara Panthal.
\end{itemize}
**Samaram** ( ).

*Paper bag making, cloth bag making etc.* At the same time, the Front decided to give sweets which were made using the waste water to the chairperson of the municipality as gift, however they failed to demonstrate it. Medha Patkar visited this site of protest on 8th January, 2012 and extended her support to this struggle. Medha Patkar gave a message to the local people who are struggling for their livelihood; which said “your protest will not be a failure: women leading protests are always a success in the last. If not, those who are doing protest only for success never make any solutions for the problems”.

The protest went on for 140 days until the night of 20th March, 2010 when the police marched into the venue at around 4 am in the morning and destroyed the *samara panthal*. They arrested around 40 protesters from both Forum and Front including 8 women, and sent them into Dharamadam (men) and Thalassery (women) police station. They started a protest at the police station and refused to disclose their names to the police, and also put forth a demand to be produced before the Magistrate of Thalassery Court. On the outside, followed by this the rest of the protesters started an agitation in the morning by making a blockade on the national highway and the police arrested another batch of 27 people. After getting a bail from the court, they rebuilt the *samara panthal* at Pettipalam town because of the presence of a huge police force in front of the trenching ground, and continued with their struggle. With the protection of police, the authority of municipality yet again resumed the act of dumping waste. On 20th May, 2012, the collector Dr. Rathan U. Kelkar called up a meeting with the protesters and announced that the municipality would not dump waste anymore in Pettipalam. After

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140 In Thattukada Samaram, the protesters started a thattukada in the panthal and prepared different food item, and sold to the people.
141 Jabeena Irshad (Core member, *Pothujanaarogya Samrakshana Samithi*), interviewed on April 03, 2016 at Pettipalam.
142 Medha Patkar is a popular activist who engaging with issues of farmers, Dalits, tribe and women. She has initiated the Narmada Bachao Andolan against the construction of the Sardar Sarovar Dam.
144 Ibid.
145 Jabeena Irshad (Core member, *Pothujanaarogya Samrakshana Samithi*), interviewed on April 03, 2016 at Pettipalam.
146 Ibid.
147 Ibid.
148 Ibid.
the collector’s declaration no waste trucks came to Pettipalam. These creative methods of protests received lots of media attention and with it came on about new ways and methods of holding protests. After that a number of such creative resistances came on about against waste dumping, which made the waste management crisis a matter of serious political concern for the general public. Throughout the dispute on this waste management crisis we can see how the waste management is faulty and mismanaged when it comes to the matters of its disposal. Waste as a technoscientific product, has to be managed very carefully to reduce the risks associated with it. This controversy points out at the ruckus that a casual approach towards waste management created in the lives of the people of Pettipalam village and also showers light upon the social and the ecological risks that it put them into.

2.5. Conclusion

The study throws light at the contradictory stance adopted by Keralites with regards to matters of personal hygiene and that of public hygiene. While there is a great focus and importance for matters concerning personal hygiene in a Malayalee household a matter of public concern and of great relevance such as the disposal of wastes is neglected or given least consideration. These new social movements around wastes are neither anti-science movements nor are they against the solid waste treatment plants, however they speak strongly against the improper dumping and disposal of wastes in the name of technological treatment of waste. The different public controversies that are mentioned earlier began at different time periods but most of them gained momentum in the recent decades. Many of them however are of recent origins. These cases have a number of similarities regarding the way in which a controversy comes into being, how the people organise themselves, the response of the government and their attitude towards the social movements etc. The study thus shows strikingly uniform patterns regarding the various controversies. The state government is not able to constitute a waste management policy due to unplanned urbanisation and lack of political will power. This has worsened the situation making the issue more complicated. We have seen it in the case of Pettipalam solid waste controversy. The open waste dumping yards made the

\[149\text{ Ibid.}\]
life of the villagers of Pettipalam miserable due to pollution and hence they organised themselves against the state to protect their fundamental rights, democracy, justice and safeguard their immediate life situations.

As per the direction of the Municipal Solid Wastes (Management & Handling) Rules, 2000, the municipality has done till disposal, but they have failed to find out a solution for a safe disposal of waste. The rules suggest landfilling as a method of waste disposal, but it is only possible when wastes are segregated. The government’s political will power starts from here, by making the citizen aware about the importance of segregation of waste. And also, to find out a sustainable way of disposing wastes with the engagement of its citizens.

This chapter has tried to understand the formation of waste as a technoscientific risk by tracing the history of waste debates in Kerala and the linkage between modernity and technoscience. This linkage has initiated a new kind of politics (conflicts) in Kerala and replaced the older form of politics and has led to the inauguration of numerous new social movements with waste as their central concern. These movements are a site of sub-politics around solid wastes. As a part of this, new sites of political deliberations and public engagements have also come up around waste management.