

**Womens' Participation in Environment  
Protection Movement: A Study of the Kairali  
Village in Wayanad District of Kerala**

**By**

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*Dissertation submitted in partial fulfilment of the requirements for the  
Degree of Master of Philosophy in Political Science*



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## **Declaration**

I, Reena Joseph hereby declare that the subject matter of this dissertation is the record of word done by me, that the contents of this dissertation did not form basis for the award of any previous degree to me or to the best of my knowledge to anybody else, and that the dissertation has not been submitted by me for any research degree in any other university/institute.

This is being submitted in partial fulfilment of the requirements for the degree of Master of Philosophy in the Department of Political Science, School of Social Sciences, Sikkim University.

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## **Certificate**

This is to certify that the dissertation entitled “**Womens’ Participation in Environment Protection Movement: A Study of the Kairali Village in Wayanad District of Kerala**” submitted to Sikkim University in partial fulfilment of the requirements for the degree of Master of Philosophy in Political Science is the result of bonafide research work carried out by Ms Reena Joseph under my guidance and supervision. No part of the dissertation has been submitted for any other degree, diploma, associateship and fellowship.

All the assistance and help received during the course of the investigation have been duly acknowledged by her.

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**Reena Joseph**



### *List of Abbreviations*

|         |  |
|---------|--|
| AES     | Adivasi Ekopana Samithi                                  |
| ASHA    | Accredited Social Health Activist                        |
| ATREE   | Ashoka Trust for Research in Ecology and the Environment |
| AWAKE   | Association for Welfare Action in Kerala Environment     |
| BME     | Budapest University for Technology and Economics         |
| CAbC    | Community Agro-biodiversity Centre                       |
| CBOs    | Community Based Organizations                            |
| CEPA    | Cochin Environmental Protection Agency                   |
| CESS    | Centre of Earth Science Studies                          |
| CII     | Confederation of Indian Industry                         |
| CITES   | Convention on International Trade in Endangered Species  |
| CPCB    | Central Pollution Control Board                          |
| CPI (M) | Communist Party of India (Marxist)                       |
| CRZ     | Coastal Regulation Zone                                  |
| CWRDM   | Centre for Water Resources Development and Management    |
| DGSM    | Dasholi Gram Swarajya Mandal                             |
| DMG     | Department of Mines and Geology                          |
| DYFI    | Democratic Youth Federation of India                     |
| EA      | Ecologists-Alternatives                                  |
| ECOSOC  | Economic and Social Council                              |
| ENGO    | Environmental Non Governmental Organisation              |
| ENVIS   | Environmental Information System                         |
| EPA     | Environment (Protection) Act                             |
| EPPPC   | Environmental Protection Programme Planning Committee    |
| EPTF    | Environment Protection Task Force                        |

|        |   |
|--------|---|
| FAO    | Food and Agricultural Organization                                |
| FD     | Forest Department   |
| FFC    | Fact Finding Commission   |
| GDP    | Gross Domestic Product  |
| GOI    | Government of India   |
| HCBPL  | Hindustan Coca Cola Beverages Private Limited                     |
| HDR    | Human Development Report  |
| ICSI   | Institute of Company Secretaries of India                         |
| ICSU   | International Council for Science                                 |
| IDRC   | International Development Research Centre                         |
| IIEE   | Indian Institute of Ecology and Environment                       |
| IISAC  | International Institute for Scientific and Academic Collaboration |
| INTACH | Indian National Trust for Arts and Cultural Heritage              |
| IPCC   | Intergovernmental Panel on Climate Change                         |
| IRTC   | Integrated Rural Technology Centre                                |
| IT     | Information and Technology  |
| IUCN   | International Union for the Conservation of Nature                |
| IUD    | Intra Uterine Death   |
| IUML   | Indian Union Muslim League  |
| JEC    | Joint Ecological Council  |
| JFM    | Joint Forest Management   |
| KAU    | Kerala Agriculture University                                     |
| KEDES  | Kerala Educational Development and Employment Society             |
| KSBB   | Kerala State Biodiversity Board                                   |
| KSCSTE | Kerala State Council for Science Technology and Environment       |
| KSPCB  | Kerala State Pollution Control Board                              |
| KSSF   | Kerala Social Service Forum                                       |
| KSSP   | Kerala Shastra Sahitya Parishad                                   |
| KVS    | Kuttanad Vikasana Samithi   |
| LDF    | Left Democratic Front   |
| LGBT   | Lesbian, Gay, Bisexual, and Transgender                           |

|         |  |
|---------|--|
| MDS     | Malanadu Development Society                                 |
| MGNREGA | Mahatma Gandhi National Rural Employment Guarantee Act       |
| MILMA   | Kerala Co-operative Milk Marketing Federation Limited        |
| MNC     | Multi National Corporations                                  |
| MOEF    | Ministry of Environment and Forests                          |
| MEFCC   | Ministry of Environment Forest and Climate Change Programme  |
| MSME    | Micro Small Medium Enterprises                               |
| MSSRF   | M.S. Swaminathan Research Foundation                         |
| NABARD  | National Bank for Agriculture and Rural Development          |
| NBA     | Narmada Bachao Andolan                                       |
| NCT     | National Capital Territory                                   |
| NGIL    | Nitta Gelatin India Limited                                  |
| NGOs    | Non Governmental Organisations                               |
| NHG     | Neighbourhood Groups   |
| NRDC    | Natural Resources Defence Council                            |
| OISCA   | Organization for Industrial Spiritual & Cultural Advancement |
| OSCE    | Organisation for Security and Co-operation in Europe         |
| PAN     | Pesticide Action Network                                     |
| PTI     | Press Trust of India   |
| PUCL    | Peoples' Union of Civil Liberties                            |
| RFSTE   | Research Foundation for science, Technology and Ecology      |
| RT      | Responsible Tourism  |
| SC/ST   | Scheduled Castes /Scheduled Tribes                           |
| SEED    | Student Empowerment for Environmental Development            |
| SEEK    | Society for Environmental Education in Kerala                |
| SEWA    | Self Employed Womens' Association                            |
| SIRD    | State Institute of Rural Development                         |
| SMPB    | State Medicinal Plants Board                                 |
| SPEK    | Society for the Protection of Environment of Kerala          |
| STEC    | State Committee on Science Technology and Environment        |
| U.K.    | United Kingdom   |

|          |  |
|----------|--|
| U.S.A.   | United States of America                                 |
| UNCCC    | United Nations Climate Change Conference                 |
| UNCED    | United Nations Conference on Environment and Development |
| UNDP     | United Nations Development Programme                     |
| UNEP     | United Nations Environment Programme                     |
| UNESCO   | United Nations Economic and Social Council               |
| UNO      | United Nations Organisation                              |
| UNRISD   | United Nation Research Institute for Social Development  |
| WAN-IFRA | World Association of Newspapers and News Publishers      |
| WCED     | World Commission on Environment and Development          |
| WWF      | World Wide Fund for Nature                               |
| YWCA     | Young Womens' Christian Association                      |

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## *Preface*

The question of environmental protection is important to the extent that living mechanism including human and non human cannot survive without proper conservation of environment. The environmental conservation activities are undertaken globally by Environmental Non Governmental Organisations, international organisations, nation states and on behalf of different institutions of political as well as religious sphere. The prime victims of environmental degradation and disasters are children, adivasis and women, which compel them to take active participation in environmental protection, which is the base of their very existence. The innate relation between women and other marginalised sections and nature paved the way for the theory of ecofeminism.

This study seeks to analyse the women participation in environmental protection movements and methods in Kerala in general adivasi women in Kairali village of Wayanad district in particular from an ecofeminist theoretical base. The first chapter deals with theoretical underpinning of environment and ecofeminism. It also deals with the objective, research questions and methodology of the study.

The second chapter deals with women environmental protection methods and movements in Kerala. The problem of environmental degradation in Kerala, the environmental protection efforts by government in Kerala, NGOs, political parties, media, and religious institutions are discussing in the chapter. The participation of women in Kerala on environmental protection movements and environmental conservation methods collectively as well as individually from ecofeminist theoretical base are discussing in the chapter.

The third chapter concerned with the case study on environmental protection methods of Paniya women in Kairali village in Wayanad district. The schedule and interview method used for case study for find out environmental protection methods of Paniya women, the

problems faced by and suggestions for improvement of participation on environmental protection efforts on behalf of them are discussing from ecofeminist analysis.

The fourth chapter deals with the analysis of the survey on Kerala womens' participation in environmental protection methods and movements, the difficulties face by them and suggestion for improvement of environmental protection participation from ecofeminist point of view. The chapter fifth is the conclusion of the study.

# Chapter I

## Environment and Ecofeminism: Theoretical Underpinnings

### I.1. Introduction: Synopsis and plan of the study

Environment is the milieu that moulds the organism in its lifetime. Environment is the source of all forms and support system of life (UNESCO & ICSU, 1999). Basic survival needs like food, water, air to breathe required for the entire life and life based activities have their roots in environment which includes nature and its resources. Living organism cannot prolong without the genuine protection of environment. The word Environment is derived from the French word “Environ” which means “surrounding”. Our surrounding includes biotic<sup>1</sup> factors like human beings, Plants, animals, and microbes, and abiotic<sup>2</sup> factors such as light, air, water, and soil (Mozhi, 2012). Section 2 (a) of the Environment (Protection) Act 1986 defines environment as follows: “Environment includes water, air and land and the interrelationship which exists among and between water, air and land and human beings, other living creatures, plants, micro-organism and property”. According to Boring “A person’s environment consists of the sum total of the stimulation which they receive from their conception until death.” This reveals the fact that there are different types of environment comprises different types of forces such as physical, intellectual, economic, political, cultural, social, moral and emotional<sup>3</sup> (Pachhauri, 2012). According to the Great Soviet Encyclopaedia, 1979, “In the broad sense (the macro environment), the environment encompasses the socioeconomic system as a whole—the productive forces, aggregate of social relationships and institutions, social consciousness, and culture of a given society. In the narrow sense (the microenvironment), as an element of the total environment, it includes an individual’s immediate surroundings—his family and work, school, and other associations”.

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<sup>1</sup> Relating to life or living organism.

<sup>2</sup> Absence of life or living organism.

<sup>3</sup>Physical environment refers to geographical climate and weather or physical conditions affects individual lives. Social Environment includes an individual’s social, economic and political condition wherein they live. The moral emotional cultural environment includes the moral, cultural and emotional forces influence the life and nature of individual behaviour (Sirisawad et al., 2015).

The concept of environment in the present study is the natural environment. It consists of four interlinking systems of the atmosphere<sup>4</sup>, the hydrosphere<sup>5</sup>, the lithosphere<sup>6</sup> and the biosphere<sup>7</sup> which are in constant change and these changes are affected by human activities and vice versa. It is the natural world, which consist of surroundings or conditions in which a person, animal, or plant lives, as a whole or in a particular geographical area which are especially as affected by human activity (Jeffrey & Harriss, 2014). The reliance of human life on environment is so as that environment can stand without human but human cannot survive unaccompanied by environment. Hence for the survival of humans protection of environment is the basic necessity.

With the understanding of the importance of environmental protection both at the national and international levels various efforts have been taking place on behalf of UNO and countries reached multinational agreements on environment protection as it is a global phenomenon (Mitchell, 2003). Non Governmental Organisations (NGOs) are actively participating in environment protection efforts at international level as well as state level through means of promoting environment education, training and capacity building among the people thus playing a crucial role in environmental protection, conservation and development (Dildeep & Pooja, 2012; Hunter, 1999). Indian Constitution ensures environment protection through Directive Principles of State Policy as well as Fundamental Rights and Duties as well as laws and departments to prevent environmental degradation (Vardhan, 2015; Ussain et al., 2012).

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<sup>4</sup>The atmosphere implies the protective blanket of gases, surrounding the earth; the atmosphere is composed of nitrogen and oxygen. Besides, argon, carbon dioxide, and trace gases (The Great Soviet Encyclopaedia, 1979).

<sup>5</sup>The Hydrosphere includes all types of water resources oceans, seas, lakes, rivers, streams, reservoir, polar icecaps, glaciers, and ground water (The Great Soviet Encyclopaedia, 1979).

<sup>6</sup> Lithosphere is the outer mantle of the solid earth. It consists of minerals occurring in the earth's crusts and the soil e.g. minerals, organic matter, air and water (The Columbia Electronic Encyclopaedia, 2013).

<sup>7</sup>Biosphere indicates the sphere of living organisms and their interactions with environment, viz atmosphere, hydrosphere and lithosphere. It is envelope of the earth's air, water, and land encompassing the heights and depths at which living things exist (The Columbia Electronic Encyclopaedia, 2013).

The problem of environmental degradation compels peoples to take active participation in environmental protection movements in India which is representing various points of view and mainly against mining, conservation of coastal areas, construction of big dams, and deforestation (Krishna, 1996; Shiva, 1991). The origin of the environment protection movement in India dates back to the Kejari movement and gained momentum through the Chipko movement, Appiko movement, Save Silent Valley movement and Narmada Bachao Andolan and the major trend in the environmental protection movements in India emphasises the fact that environment movements in India reflect the trend that most participants are women, Adivasis, and poor people (Shiva, 1988; Baviskar, 1995).

Women and environment are closely bounded and the intimate relation between women and nature led to the emergence of the theory of ecofeminism, which is a field bridging ecological ethics and feminism that seeks to explore the conceptual connections between environmental degradation and sexist oppression (Warren, 1993). Ecofeminism also analyses how the problems of racism, class, colonisation, heterosexism and other oppression interconnect women oppression and environmental degradation (Gardd, 1993). Ecofeminism is ecological, feminist and multicultural in character according to Warren. Studies assert that women are prominent actors and contributors to environmental rehabilitation and conservation. Women through their role as farmers and collectors of water and fire-woods have a close connection with their local environment and women children as well as marginalised sections are the prime victims of environmental degradation especially at times of natural disasters (Akwa, 2008; Raymond et al., 1994). Thus women actively participate in environment protection than men as women are directly affected and influenced by nature than men (Rao, 2012). The whole arguments of ecofeminism reach to the point that women and environment are closely related and degradation of environment is same as degradation of women.

Kerala has a history of women participation in environment protection through Governmental Organizations, Non Governmental Organisations and participation through movements such as Save Silent Valley movement, Anti-Coca Cola struggle and Anti Endoulfan movements with leaders as C.K. Janu, Sugathakumari, Sara Joseph and Mayilamma (Joy, 2005; Jaysree, 2015; Rohit, 2012; Raman, 2010). The

women, Adivasis in Kerala through active participation in environmental protection movements such as quarrying mining, forest protection, agriculture and animal husbandry, water conservation upholds the need and importance of environmental protection, thus the study of awareness of environment and environmental protection movements and methods among women in Kerala, especially Adivasi women find meaning.

### **I.1.2. Review of literature**

A number of literature have been reviewed to find out knowledge gap on the theme under discussion.

Navjot S. Sodhi & Paul R. Ehrlich (eds.) (2010). *Conservation Biology for All*. London: Oxford University Press. This book provides a detailed study on important topics such as balancing environment conservation and human needs, climate change, conservation planning, designing and analyzing conservation research, ecosystem services, endangered species management, extinctions, fire, habitat loss, and invasive species are. The chapter 'The roles of people in conservation' by C. Anne Claus, Kai M. A. Chan, & Terre Satterfield is very useful for the proposed study by providing study on history of environment conservation, a brief history on humanist's history of influencing ecosystem, the factors mediating human environment relations such as cultural, political and economic institutions. It also contains the examples of successful conservation movements such as, Chipko movements, and Zimbabwean *Compfire* (Communal Area Management Programme for Indigenous Resources).

Report of Comptroller and Auditor general of India on Environment (1993) (Retrieved from [http://saiindia.gov.in/english/home/Public\\_Folder/Training/Structure%20Training%20sModule/Environment%20Auditing/Directory](http://saiindia.gov.in/english/home/Public_Folder/Training/Structure%20Training%20sModule/Environment%20Auditing/Directory)). This report on environment audit contain the environment and its meaning, its conservation, degradation, measures to prevent environment degradation, international accords, international cooperative efforts to protect environment, environment legislation, research on environment, role of public and NGOs in environment protection, need of environment education in Indian and worldwide.

Singh, Katar (2009). 'Environment Degradation and Measures for its Mitigation with Special Reference to India's Agriculture Sector,' *Indian Journal of Agriculture*

*Economy*, 64 (1):40-61. This article is helpful to the study as it analyses the environment degradation from an Indian perspective. It deals with the basic concept of environment, types and extent of environment degradation with special reference to land, water, fisheries, biodiversity and climate change in India. The causes of environment degradation in this article include economic, technological and liberalization. It also provides information on the mitigation methods of environment degradation such as institutional, technological and educational methods.

Steele, Robert (2010). *Reorienting Teacher Education to Address Sustainable Development: Guidelines and Tools Environmental Protection*. Bangkok: UNESCO. This book helped to the study by providing a systematic study on what is environment, what are the causes and consequence of environment problem, the possible steps to solve the environment problem, role of education in solving the environment problem and the importance of ecological literacy.

United Nation Research Institute for Social Development (1994). UNRIEDS (Briefing Paper No.3) World Summit for Social Development. The paper named Environmental Degradation and Social Integration deals with the social integration and its impact on environment degradation. It concentrates on the environment degradation on rural areas of developing countries. This paper argues Environmental degradation, including depletion of renewable and non-renewable resources and pollution of air, water and soils, can be a significant source of stress upon societies and environmental degradation can be understood on the context of social relation. It also deals with the forms of environment degradation and consequence of it on humans thus helped for the study.

Aneel, Salman (2007). 'Ecofeminism and movements from North to South', *Pakistan Development Review*, 46 (4):853-864. This article discusses about the ecofeminist movements, women's connection with nature, ecology and feminism and case study of various successful environment movement led by women. These include Chipko movement in India, Green belt movement in Kenya, Love Canal movement in USA, the case study of ecofeminism in Pakistan and Women and Tree Movement in Bangladesh. The difference between North and South movements is also discussed.

Anju (2014). 'Feminist Intervention to Environmental Protection and Sustainable Development,' *Review of Research Journal*, 3(7): 1-6. This paper discusses on the feminist intervention and activism on environment. This paper concentrates on the environment movements such as Chipko movement in Himalaya, Bishnoi movement in Rajasthan, Narmada Bacho Andolan in Madhya Pradesh and Gujrahi Appiko Movement in Western Ghats, Save Silent Valley Movement in Kerala and Green Belt Movement in Kenya.

Dankelman, T, Irene (2009). *Women: Agents of Change for a Healthy Environment*. This paper discusses about the women participation in environment process by analysing the history of various successful environment movement led by women. It includes the study of Bishnoi and Chipko movements in India, Nakabaru Womens' Society and Sanroku Womens' Society against power plant in Japan, Friends of Earth Brazil, Green Belt Movement of Wangari Maathai in Kenya. It also provides information on women who have played crucial roles in enhancing public awareness and political will for environmental protection and conservation such as Rachel Carson, Donella Meadows, Gauri Devi, Rigoberta Menchú Tum, Gro Harlem Brundtland, Jane Goodall, Wangari Maathai, Anita Roddick, Bella Abzug and Noreena Hertz. The force behind the women's participation in environment protection, the future challenges which are discussed in the paper also helped for the study.

Jain, Shobhita (1984). 'Women and People's Ecological Movement: A Case Study of Women's Role in the Chipko Movement in Uttar Pradesh,' *Economic and Political Weekly*, 19(41): 1788-1794. This article discusses about the Chipko Movement, its history, social setting when Chipko Movement originated, the implication of Chipko movement to the future environment protection movement, and how the gender relation changed after Chipko Movement. All this information was useful for the study.

Wangari, Maathai (2004). *The Green Belt Movement: Sharing the Approaches and Experience*. New York: Lantern Books. This book provides the information on the history of Green Belt Movement, the value and goal, constraints she faced, the achievements and lessons learned from it. The future of the movements and a detailed interview with Wangari Maathai is included in this book.



Adrianna A. Semmens (2005). 'Engendering Deliberative Democracy: Womens' Environmental Protection Problems', *Human Ecology Review*, 12 (2): 96-105.

Glenton O. Guiriba (2013). 'Ecofeminism: Womens' Work on Environmental Conservation in Sorsogon Province, Phillippines', *International Journal of Social Science*, 13(1):123-133., concentrates on the women participation on environment protection. It also helped to the study by providing information on the challenges faced by women in environment protection and recommendations to improve their participation.

Agarwal, Bina (1992). 'Gender and Environment Debate: Lesson from India', *Feminist Studies*, 18(1): 119-158. , deals with women relation with environment from the new concept of feminist environmentalism. Here author criticises the conventional ecofeminist theories. The conceptual issues in ecofeminism, method for combat environmental degradation, class and gender perspective of environment protection, all this analysis helped for the study.

Agarwal, Bina (2000). 'Conceptualising Environmental Collective Action: Why Gender Matters', *Cambridge Journal of Economics*, 24 (1):283-310. This paper deals with the importance of gender in environment conservation through the method of community forestry. The paper helped understand the importance of women participation in environment protection from eco feminist perspective. It also includes the working of community forestry protection method in India and Nepal. This also help the proposed study to get result on the factors affecting the gender participation by the variables of, participation, distributional equity, efficiency, the achievement and constraints faced by women.

K.N. Shoba (2013). 'Ecofeminist Discourse in Postcolonial India: A Critique of Capitalism, Modernity and Patriarchy', *IJELLH*, 1(3): 39-50, helps to proposed study by providing a critical understanding of ecofeminist discourse in India. It contains the ecofeminist ideas of Vandana Siva, Bina Agarwal, and J. Devika. This helped to get a theoretical understanding on need to protect environment from an ecofeminist point of view.

Gredes, Paul (1998). 'Response to Agarwal', *Maclester International*, 6(17):164-172., gives a critical review of Bina Agarwal's ideas on ecofeminism. This helped to the

study various ecofeminist trajectories and clear understanding on the feminist environmentalism of Bina Agarwal .

N.C. Saxsena (2011). *Womens' Right Forest Spaces and Resources*. New Delhi: UN Women, provides information on forest management and importance of role of women in it, forest policies and management and its loopholes affecting women. It also contain womens' role as managers of community forestry, producers of farm forestry, and issues relating to women participation in community forestry. Thus it provides a detailed account of management of community forestry by women which helped to analyse the Community Forestry in Kerala.

Rao, Manisha (2012). 'Ecofeminism at the Crossroads in India: A Review', *DEP*, 20(12): 124-142., deals with ideas on ecofemism especially in Indian context. It includes the emergence of ecofeminism, nature and perspective and criticism. It also explains the various environment movements in India, all which helped for the study.

Renu & Baljith (2011). 'Role OF Women in Environmental Conservation', *EXCEL International Journal of Multidisciplinary Management Studies*, 1(2):162-167, deals with role of women in environmental Protection. This helped for study by providing detailed analysis of the relation between women and environment and need for womens' participation in environment protection. These article also analyse the various movement initiated by women in environment protection, the rationale behind environment degradation effect on women ,gender perception on environment, suggestion for improvement on environment participation for women and feminine approach to environment degradation and protection.

Shiva,Vandana (1998). *Staying Alive: Women, Ecology and Survival in India*. New Delhi: Kali for India, provides information on ecofeminist theory in India, how development and maldevelopment affect on ecology and women, what is the role of women in environment, women role in forest management and water crisis. This book provides a detailed study on how women relate to nature in different form, and what is the importance of participation of women in environment protection. Vandana shiva inter relates women and nature relation to old Hindu tradition of Shakti and Prakrti. This book helped to the theoretical part of the study.

S.M. Dev (2012). Small Farmer's in India: Challenges and Opportunities (Working Paper no.014). , deals with the problems that faces by the small farmers especially women farmers in India. It also stress on the recommendation for improve their participation in environment protection. Thus it benefited for the study.

UNEP magazine for youth (2007). 'Gender Equity and the Environment, *TUNZA*, 1 (4):1-23., which help in understanding why gender is important in question of environment protection. It also contains data on the gender inequality on important fields of life and analyse how it adversely affect women relation in environment. This magazine help in study by getting information on important women who are actively participate on environment protection and their field of work. The case studies in this magazine helped for the study to understand women environment relation.

Devika, J (2009). 'Caregivers VS. Citizen? Reflections on Ecofeminism from Kerala State, India', *Man In India*, 89 (4): 751-769., this paper discusses the possibilities of a local ecofeminist politics from within the context of changing gender and eco-politics in Kerala. This concentrates on examination of the critical debate of ecofeminism from within the local context of Kerala. It examines dominant institution of care, the modern family and caring to environment from eco feminist point of view.

Hemamalini, M (2005). *Ecofeminism in P.Valsala's Novels*. (Published doctoral thesis) Mahatma Gandhi University, Kottayam.. This thesis provides detailed study of ecofeminism, definitions, its origin, the tenants of ecofeminism, aims and types of ecofeminism, and ecofeminism in Kerala literature which helped the study.

Department of Environment, Government of Kerala. (2009). This department deals with Kerala Government's environment policy which contains policies on environmental initiatives undertaken, strategies and action plans on Wetland ecosystem, water conservation, agricultural land system, coastal resources ,biodiversity conservation, environment policy structures, and environment audit which helped the study to understand how institutions participate in environment protection.

K.P .Joy (2005). *Environmental Communication a Case Study of Kerala*. (Published doctoral thesis) Mahatma Gandhi University, Kottayam. The chapter Development of Environmental Communication, in Kerala through Non Governmental Organizations,

Governmental Organizations and Voluntary agencies, helped to study by providing a detailed description on how environmental communication is done through GOs and NGOs in Kerala. It explains various NGOs activities method of programmes, and how womens' environment awareness is creating through NGOs.

Malayalam Literary Survey (2014). 'Special Issue on Ecology and Malayalam Literature' *Kerala Sahitya Academy*, 34(1):1-92, helped to the study by providing a detailed description of how Malayalam and environmental literature are related. It contains analysis by Vaikom Muhammad Basheer, D.Vinayachandran, S.Devika, V.M.Girija, G.Sangeetha, Danya Raj, and Meena Panicker on women and environment.

Sebastain, Amsrtong (2014). *Kamala Das: The Ecofeminist Pioneer of Kerala*. (Published doctoral thesis) Mahatma University, Kottayam., helped the study by providing useful information on the history of ecofeminism in Kerala. It also provides account of the ecofeminist writers like Sara Joseph, P.Valsala, Sugatha Kumari and especially Kamala Das, who is the pioneer among ecofeminist in Kerala and how Silent Valley movements paved the way for development of ecofeminist thought in Kerala.

### **I.1. 3. Scope of study**

Environment degradation is crucial problem. Women and environment are closely bounded and they are actively participating in protection of environment. Women are prominent actors and contributors to environmental rehabilitation and conservation. Kerala has a history of women participation in environment protection. The Silent Valley Movement, struggle against Coca Cola at Plachimada, Anti Endosulfan movement are important examples. The movements under the leadership of Sugatha Kumari, Sara Joseph, C.K. Janu and Mayilamma and various Environmental NGOs encourage the Kerala womens' participation to protect environment. The environmental protection activities of Kudumbasree, Self Help Group, Agriculture and animal husbandry, Kitchen gardens, Forest protection, Water conservation, the Non Governmental Organization's activities, female students club at schools and collages indicates the important role played by women and Adivasis in environment protection. The study on the women participation in environment protection thus

becomes important. The study concentrated on the movements, institutions, and activities of women in environment protection and challenges faced by them and the possible prospects in their activities to improve environmental protection efforts. It also concentrated on the case study of environmental protection efforts by Paniya Adivasi women in Kairali village in Wayanad district.

#### **I.1.4. Objectives of study**

The study has following objectives such as:

1. To study the various activities, movements and institutions of environment protection by women in Kerala, especially Paniya Adivasi women in Kairali village in Wayanad district.
2. To understand the challenges faced by women in environment protection.
3. To understand the recommendation and suggestion on behalf of women to improve their environmental protection participation.

#### **I.1.5. Research questions**

The proposed study rests on the following research questions:

1. What is the role of women in environment protection in Kerala, especially in Kairali village of Wayanad district?
2. What are the important movements and methods of environment protection by women in Kerala?
3. What are the challenges faced by and contribution by women in environment protection in Kerala?
4. What are the suggestions and recommendations on behalf of women to improve their environmental protection efforts?

#### **I.1.6. Methodology**

The study followed analytical method. In this study both qualitative and quantitative methods are used. Qualitative method followed to develop a theoretical understanding

of ecofeminist perspective of environmental protection. A general understanding on environmental protection by women, and specific focus on environment protection efforts of women in Kerala along with Paniya Adivasi womens' environmental protection method in Kairali village was done. It also focused on challenges and problems faced by women in environment protection. Quantitative methods like survey and case study was done to obtain the necessary data for analysis. A case study was done in Kairali village of Wayanadu district in Kerala with Schedule and interview to make a detailed study on Paniya Adivasi womens' innovative livelihood development endeavours in farming and how they survived the adverse conditions of poverty, mal nutrition and environmental degradation. The sampling technique used was simple random sampling. For survey on women participation in environmental protection methods in Kerala in general, Stratified random sampling method was used. The population under study was women in Kerala and it again divide into working women, Adivasi women, old age women, housewives and college students. The intention of survey was to know about women attitude to environment protection, how nature relates to women life, challenges, and suggestions for better participation of women in environment protection. The survey was conducted through questionnaire with structured and unstructured question. The source of materials for study would be primary as well as secondary source of data. Books, journals, magazines, reports, publications, articles and data collected from web sites are used for this study.

## **I. 2. Environment and ecofeminism: Concepts and issues**

### **I.2.1. Environmental protection**

Environment protection or protection of natural environment is necessary for the existence of living organisms, include human. Environment protection can be defined as “a set of activities which aim to prevent or mitigate threats, damages and pollution of the environment, reduce the consequences of existing damage, attempt to recreate a pre pollution state of affairs” (BME, 2013). Environment protection is the sum total of all actions that reduce the impact of human activities on nature, the biosphere, as well as various measures to avoid or minimise these impacts through technical, political and other means (Baltic University, 2009). According to U.S Department of Health and Human Services (2007) Environment protection include actions taken to prevent

or minimize adverse effects to the natural environment. It also include numerous measures such as monitoring of environmental pollution, development and practice of environmental protection principles (legal, technical, and hygienic), comprising risk assessment, risk management and risk communication. Environment protection is vital with increased industrialization as it resulting in over exploitation of natural resources pollution of air, water, flora and fauna (ICSI, 2010; Mozhi, 2012). Consequently balanced development and industrialization is needed for protection of environmental resources for better lives of human. Protection of natural resources is the basis of survival of human being, thus environment protection becomes the question of human right, since for humans, the rewards of economic security, social security, and health security that emanate from a pollution free environment. Thus the urge for a vigorous and healthy life and brighter future for next generation impel for environment protection.

### **1.2.2. Environmental degradation**

Deterioration of natural environment is major threat facing by human beings. The overexploitation and extinction of natural resources make the life miserable in earth. When the natural resources like water, soil, and biodiversity are depleted, living organisms include human existence is under threat. Any problem to the environment caused by human and non-human activity is called environment degradation (Tellegen & Wolsink, 2013). This is the deterioration of environment and its resources. Environmental Degradation is the process by which our environment i.e., air, water and land, progressively contaminated, over-exploited and destroyed (Gosh, 2015). Environmental degradation can be defined as the deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems and the extinction of wildlife. It is described as any change or disturbance to the environment which is dangerous or undesirable (Johnson et al., 1997) The main grounds of environment degradation are environmentally harmful activities of human beings like deforestation, pollution, soil erosion, loss of biodiversity and land degradation (Anand, 2013).

The environmental degradation is also result of the dynamic interplay of socio-economic, and institutional effects (Ministry of Finance, 1998-99).The social factors comprise population growth which results in excess use of natural resources and

production of wastes. The social problem of poverty acts as causes as well as result of environment degradation. The rapid and unplanned urbanization results in urban environment degradation. The economic factors as globalization impacts, the market failure and changes in price system of environment production along with lack of property right and absence of proper economic development is also result in environmental degradation (Ministry of Finance, 1998-99).The process of globalisation along with consumerism put ever increasing stress on the limited resources of the earth, which results in destruction of wildlife habitat and the disposal of toxic waste in turn leads to environment degradation (Graham, 2000). As per the Report of Ministry of Finance (1998-99), the institutional factors of lack of coordination between the environment protection institutions result in environmental degradation. Thus with environmentally harmful activities the life support system is under danger.

The consequences of environment degradation include weather change, famine, and drought, loss of biodiversity, conflicts, human rights abuse, extreme poverty and migration. Many studies show that the implications of natural catastrophes in developing countries and underdeveloped countries are grave (Benson, 1997; IPCC, 2001; Otero & Marti, 1995; Sen, 1999; World Bank, 2000a). One upshot of environmental degradation is ‘environmental refugees’ which creates far reaching socio, economic cultural repercussions on migrating as well as original countries (De Haas, 2001, Hugo, 1996 & Hunter, 1998). The people in Somalia, Ethiopia, Bangladesh and Maldives are forced to migrate and became refugees in their own land as a consequence of environment degradation (UNESCO, 2007).

### **I.2.3. Environmental refugees**

The concept of environmental refugees is relevant as environmental degradation deprives people their rights in mother countries. It is a grave consequence of environment degradation. The grave disasters like drought, flood, wildfire, earthquakes which is the consequence of environment degradation, leaves the areas uninhabitable which compel people to migrate from original countries and had to live other countries as refugees (Terminski,2012). The concept of environmental refugees was introduced by Lester Brown of the World watch Institute in the 1970s. It entered into common usage after a 1985 United Nations Environment Programme policy



paper entitled 'Environmental Refugees' (Renaud et al., 2008). El-Hinnawi (1985) defined environmental refugees as: "those people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life". Myers and Kent (1995) have described environmental refugees as "persons who no longer gain a secure livelihood in their traditional homelands because of what are primarily environmental factors of unusual scope". Astri Suhrke further refined the definition with the distinction between environmental migrants and environmental refugees and states that "migrants make a voluntary rational choice to leave their country whereas refugees are compelled to flee by sudden, drastic environmental change that cannot be reversed" (as cited in Horn, 2006).

There are different schools of thought on Environmental Refugees. Suhrke (1994) identifies two schools of thought on 'environmental refugees'. The first as 'maximilist', among comes authors such as El-Hinnawi and Jacobsen. These authors, emphasis the existence of large numbers of 'environmental refugees' and also predicts greater numbers in the future. They place their argument on environmental refugees of the link between changes in the physical environment and human migration as direct. Another school of thought according to Suhrke is the 'minimalists', and among includes authors such as Bilsborrow and McGregor, who, emphasize the complexity of the interaction between environmental and social systems, and thus question the assumption of a direct causal link between environmental change and migration (Suhrke 1993: 1994). Jacobson (1988) identified different types of environmental refugees: as (a) those displaced temporarily due to local disruption such as an avalanche or earthquake: (b) those who migrate because environmental degradation has undermined their livelihood or poses unacceptable risks to health; and (c) those who resettle because land degradation has resulted in desertification or because of other permanent and untenable changes in their habitat (as cited in Renaud et al., 2008). All scholars emphasis the fact that due to environment degradation many people are forced to leave their traditional habitat and remained as refugees in other countries.

There are natural as well as human causes for origin of environment refugees. Examples of natural causes include drought or floods caused by a shortage or excess of precipitation, volcanoes, hurricanes, and earthquakes. But examples of human causes include over-logging, dam construction, biological warfare, and environmental pollution (Karpilo, 2015). The existing examples of environmental refugees are due to deforestation (in areas of Central America, Amazon basin and India), rise of sea level (South Pacific, Maldives and Bangladesh) desertification and drought (Sahel and Africa), land degradation (Sudan and Latin America) (Suhrke, 1993). The relevance of problems of environmental refugees are increasing as it has socio economic cultural and political implications. While the problem of environmental refugees emanates from environmental problems, it results in issues of political, social and economic sorts. It also becomes a cause of conflict and violence (Myers, 2005). Thus the concept of environmental refugees is important problem to be addressed in environmental debate.

The severe issues of acid rain, climate change, and grave diseases urge people to reflect on conservation of environment and mitigation of degradation. Hence issues related to environment peculiarly towards its protection have emerged as a serious note of concern across human activities. As a result emphasising the significance of the correlation between the human activities and environment, several theories like theory of natural selection<sup>8</sup>, social ecology<sup>9</sup>, tragedy of commons<sup>10</sup>, deep ecology<sup>11</sup>, animal rights, ecofeminism, eco socialism<sup>12</sup>, bio regionalism<sup>13</sup>, eco psychology<sup>14</sup>, and

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<sup>8</sup>The process of natural selection represents the idea that, individuals in a population who are well-adapted to a particular set of environmental conditions have an advantage over those who are not so well adapted. The advantage comes in the form of survival and reproductive success (Ridley, 2010).

<sup>9</sup>The social ecological theory deals the factors affecting behaviour. It also provides guidance for developing successful programs through social environments. Social ecological models emphasize different levels of influence including as individual, interpersonal, organizational, community and public policy and the idea that behaviours both shape and are shaped by the social environment (Glanz & Bishop, 2010).

<sup>10</sup>The theory of Tragedy of Commons is developed by Garrett Hardin. This Tragedy of the Commons model predicts the overexploitation or degradation of all resources used in common (Feeny et al., 1990).

<sup>11</sup>Deep Ecology emphasis “biospheric egalitarianism”, which deals with the view that all living things are alike in having value in their own right, independent of their usefulness to others (Dewey, 1910).

<sup>12</sup>Eco Socialism is Socialism with Marx’s important understanding on ecology that, socialism committed to the fight against ecological destruction (Angus, 2013).

<sup>13</sup>Bioregionalism “is a body of thought and related practice that has evolved in response to the challenge of reconnecting socially-just human cultures in a sustainable manner to the region-scale ecosystems in which they are irrevocably embedded” (McGinnis, 1999).

<sup>14</sup>Eco psychologism is a theory deals with deep psychological questions relating to human being as how we grow, why we suffer, how we heal. This theory emphasis that these questions are connected to

eco theology<sup>15</sup> (Inglis, 2008) have been came out. These theories stress the fact that the environment protection and grave problem of environment degradation is not only national but also global which demands international efforts and cooperation.

#### **I.2.4. Environmental protection efforts at international level**

Identifying the significance of environment and its protection both at the national and international levels various efforts have been taking place. UNO, different international agencies and nations emphasised on the steps needs to be taken by the member countries at individual and international levels. Countries reached multinational agreements on environment protection as it is a global phenomenon. These agreements have a long history with some multinational agreements took place early 1910 in Europe, America and Africa (Mitchell, 2003).

The United Nations Environment Programme (UNEP)<sup>16</sup> established in 1972, is an agency of the United Nations to coordinate environmental protection activities of UNO and to assist developing countries in implementing environmentally sound policies and practices. Vienna Convention for the protection of Ozone Layer in 1985 is a multilateral agreement to protect Ozone layer (UNEP Ozone Secretariat, 2011). Rio Declaration on Environment and Development in 1992, consist of principles to protect ecosystem (UNEP, 1992). Kyoto Protocol signed in 1997 is an international treaty to reduce greenhouse gas emission (Hunter, 1999).United Nations Conference on the Human Environment, held in Stockholm in 1972 comprised of important 26 principles concerning environment and development (UNEP, 1972).The United Nations Climate Change Conference, commonly known as the Copenhagen Summit held in 2009 was to reach global agreement on climate change (UNCCC, 2009). Earth Summit 2012, which was held in Rio de Janeiro, is an international conference on reconciling the economic and environmental goals of the global

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our relationship with natural world as well as environmental question are deeply rooted in the human psyche ( Davis, 2011).

<sup>15</sup>Eco theology describes theological discourse that highlights the whole "household" of God's creation, especially the world of nature, as an interrelated system (Paul, 2013).

<sup>16</sup>Strong discussions are going on to replace UNEP with a stronger World Environment Organisation as UNEP is argued as being weak in implementation of environmental policies. The initiatives are from governments of Brazil, France, Ger- many, New Zealand, Singapore, and South Africa (Biermann, 2001).

community (Endl & Berger, 2012). All these international level efforts are to prevent environment degradation.

The awareness among people about the need to protect environment for survival compel them to find out solution for environment degradation. The danger of environment degradation which has grave consequences on life paved way for genesis and growth of environmental movements. The most promising development for protecting the global environment since the Earth Summit is the rise of global environmental movement (Hunter, 1999).

### **I.2.5. Environmental protection efforts by Non Governmental Organisations**

Non Governmental Organisations (NGOs) are inevitable part of every political system. They are partaking in environment protection efforts by promoting environment education, training and capacity building among the people, thus playing a crucial role in environmental protection, conservation and development (Vadaon, 2011). Environmental NGO<sup>17</sup>s by promoting environment education through projects, workshops, audio visual aids and quiz competitions, participates in environmental conservation. It deals with policy related and research on environmental subjects. They also spread awareness on science, technology and development along with pushing the government to create policies and programmes for individual and community actions in environment matters. They involved in environment issues like pollution control, forest conservation, energy conservation, and natural resources conservation (Vadaon, 2011).

NGO participation have changed the nature of international environmental policymaking<sup>18</sup> positively. With the involvement of environment NGOs, international community has begun to recognize the need for effective and meaningful agencies for involvement in international policymaking and implementation in the matters of environment (Wapner, 2000). A number of environmental NGOs which addressing international environmental issues gathers and analyze technical information on

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<sup>17</sup>ENGO is the Non Governmental Organization which deals with environmental issues.

<sup>18</sup> With the 1972 Stockholm Conference on the Human Environment that led to the founding of United Nations Environment Programme, role played by NGOs in shaping the international environmental agenda come to focus. The United Nations Conference on Environment and Development (UNCED), 1992 and Agenda 21 at the Rio Earth Summit emphasised the importance of NGO in environmental matters (Gupta, 2012).

environmental issues, gained the attention of key policymakers to act upon environmentally related issues (Hunter, 1999). NGOs are involved in global environmental governance in a variety of forms (Esty, 1998: 2002). Their involvement covers areas of expert advice and analysis, intellectual competition to governments, mobilization of public opinion, representation of the voiceless, service provision, monitoring and assessment, and legitimization of global-scale decision making mechanisms (Gemmill & Bamidele, 2013). One of the most important roles that NGOs play in global environmental governance is the supply of up-to-date information on critical environmental issues. These groups are providing the accurate, up-to-date research and data on the most pressing environmental issues, the example is the TRAFFIC<sup>19</sup>. Environmental NGOs are crucial actors in compliance monitoring of international agreements and also provides more accurate data than governments which intended to. NGOs in many countries have been highlighting disparities in who bears environmental burdens and who gets the benefits of environmental investments, thus creating environmental consciousness. They also have brought public interest litigation to defend environmental rights as well as to clarify and enforce laws, thus playing a prominent role in environment protection (Gemmill & Bamidele, 2013).

There are different types of Environment NGOs. Andrew Hoffman (2009) came up with five different types of ENGOS on the basis of relationship exist between business and environment. They are (1) isolates, (2) mediators, (3) bridges, (4) independents and (5) captives. (1) **Isolates** are ENGOS, which are against the partnership with corporate and does not concern with corporate sectors problem. Examples of isolates are Greenpeace and The Wildlife Society. (2) Another type of Environmental NGO is **Mediators**, which are central to the corporate network. These ENGOS are practical and are able to influence change due to their corporate ties. The example is, The Nature Conservancy, Natural Resources Defence Council (NRDC), World Resources Institute, and WWF<sup>20</sup> (Hoffman, 2009). Between the two extremes of Isolates and Mediators there are three hybrid roles that ENGOS can play. (3) **Bridges** is one of the ENGOS mentioned by Hoffman in this regard. This is one of the hybrid groups

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<sup>19</sup>TRAFFIC is a partnership between WWF – World Wide Fund for Nature and IUCN – The World Conservation Union. It was established in 1976 to assist the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) Secretariat in implementing the provisions of the Convention (Gemmill & Bamidele, 2013).

<sup>20</sup> World Wide Fund for Nature.

among the Isolates and Mediators. Bridges connect between a specific set of corporate sector issues to the rest of the group. For example, the Centre for Clean Air Policy is a Bridge focused on solving climate, air quality, and energy problems, but it maintains ties with oil and gas sectors (Hoffman, 2009). (4) **Independents**, which is the second type of the hybrid group, has small link with corporate but maintains a wide variety of relation with sectors other than corporate sector, which gives them more autonomy than others. These ENGOs concentrates more on innovative solutions that involve collaboration among various sectors. An example is the River Network, which helps freshwater protection organizations (Hoffman, 2009). (5) **Captives**, The final of the hybrid group, which is on the periphery of the corporate network, and their sector links is concentrated limited on marine, firearms, and beer and alcohol. African Wildlife Foundation and Fauna & Flora International are examples of this type. These ENGOs have greater credibility with the sectors they work with. Captives choose not to be central to the network, to maintain autonomy (Hoffman, 2009).

According to the level of operation, Environmental NGOS can be classified as (1) Community based, (rise out of local or specific situation, example is Legambiente in Italy), (2) National based (nationally affiliated, example is Environmental Investigation Agency) and (3) International based (Usually issue based and are responsible for funding local NGOs. Examples are World Wildlife Fund, International Union for the Conservation of Nature and Greenpeace) and in some cases a combination of these different scales are exists. There are also Operational NGOs, which task themselves with designing and implementing programs and activities and Advocacy NGOs , which concentrate more on collecting information, raising awareness and lobbying (Smith & Klaas, 2015).

The important NGOs dealing with environment protection are Earthwatch Institute of USA, Friends of Earth International, Greenpeace which was founded in Canada, Environmental Foundation for Africa, Mountain Institute, European Wildlife and World Nature Organization (Thaddeus et al., 1996).

There are arguments in favour of and against Environmental NGOs. Their role in environmental protection and conservation through methods such as promoting environment education, training and capacity building among the people, by playing a crucial role in environmental protection, conservation and development and inputs for

environmental research leads favouring the advancement and promotion of ENGOs (Vadaon, 2011; Hoffman, 2009; Gemmill & Bamidele, 2013; Hunter, 1999). According to Ribot “undifferentiated category of ‘civil society’” is no longer comprised of “environmental villains”, but, instead, are now heroes “whose local knowledge and affinity with nature will save the earth’s threatened resources” thus stands in favour of the enthusiasm played by ENGOs ( as cited in Morrison & Lane, 2004).

But the criticism on NGOs as activities of NGOs is coloured with vested interest of the neo-liberal market world questions their aim. The target of many NGOs is to sustain the imperialist agenda of funding nations. The original goal of NGOS is distorted with the acceptance of funding from nations which has imperial agendas (Petras, 1997; Deshabakthan, 2007; Shivji, 2007; NGO Monitor, 2009).The agencies as Oxfam and World Vision are receiving lion’s share of its fund from Britain and USA respectively (Zaleski, 2006). A fundamental shift in the landscape over which NGOs operate, is visible with increasing market influence on it (UNEP, 2003). Critics also question the assumption that NGO collaboration necessarily maximise benefits to poorer members of society or increase environmental expertise. They sometimes challenges the local beliefs or alternative visions of development in Environmental matters through vested agendas and assumptions guiding environmental policy (Forsyth, 1999). Thus ENGOs are also facing criticisms.

According to the World Commission on Environment and Development (WCED), ENGOs play “an indispensable role in identifying risks, in assessing environmental impacts and designing and implementing measures to deal with them, and in maintaining the high degree of public and political interest required as a basis for action” (WCED, 1987) Thus in short ENGOs role is crucial in environment protection policies, programmes and implementation.

### **I.2.6. Environmental problems and issues in India**

India is facing environmental problems. The major environmental issues in India are: (1) Land and Soil Degradation, (2) Pollution, (3) Deforestation, (4) Loss of Biodiversity, (5) Problem regarding Waste Disposal, and (6) Coastal Pollution.

(1) **Land and soil degradation.** Most of the land area in the country shows evidence of degradation, which in turn affecting the productive resource base of the economy. Land and soil degradation include forest and agricultural land degradation. An estimated 60% of cultivated land suffers from soil erosion, water logging, and salinity, and the reason for land degradation are the extension of cultivation to land of low potential, non-adoption of adequate soil conservation measures, improper crop rotation, indiscriminate use of agro-chemicals such as fertilisers and pesticides, improper planning and management of irrigation systems and extraction of groundwater in excess of the recharge capacity (Pacharuri , 2003; Yadav, 2013) (2) **Pollution** is another important environmental concern in India. It consist of (a) Air pollution, which has been increasing by developments and industrialisation, growing cities, increasing traffic, rapid economic development and industrialisation, and higher levels of energy consumption.(b) water pollution, sources of water pollution include discharges from industries and no proper treatment of sewages ( Yadav, 2013). (3) **Deforestation**, which is a growing concerns in India is the result of number of factors such as population pressure, land hunger, greed of business concerns, and state subsidies (Myers, 1980; Repetto, 1988 as cited in Gadgil,1991).(4) **Loss of biodiversity** is another major environmental issue in India. The biodiversity in forests, grasslands, wetlands and mountains, deserts and marine ecosystems is subject to many pressures (Economic Survey 98-99). With the intense population pressure and ill-conceived developmental activities, the number of endangered species is increasing. As per the IUCN Red List<sup>21</sup>, 2008, India has 43 globally threatened faunal species, which is approximately 4.9% of the world's total number of threatened faunal species and 246 globally threatened flora species which constitute approximately 2.9% of the World's total number of threatened flora species (Chauhan, 2014). (5) **Improper waste disposal** is a problem facing by India. Unregulated growth of urban areas without necessary infra-structural services and proper collection, transportation, treatment and disposal of solid wastes has resulted in increased pollution and health hazard from these wastes (Economic Survey 98-99). (6) Coastal Pollution is one of the major threats to India's natural environment. The coastal areas of India, with a coastline of over 7500 km is rich for a variety of

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<sup>21</sup>The International Union for the Conservation of Nature (IUCN) is the world's main authority on the conservation status of species. Within the Red List comes the endangered species.



specialized marine ecosystems like mangroves, coral reefs, salt lakes and mud flats ,where endangered marine species and commercially important marine flora and fauna is flourishing These are exposed to environmental stress (Economic Survey 98-99). The main causes of coastal pollution are overexploitation and harvesting of coastal resources, deposit of waste, contamination, exotic species, soil recovery, dredging, global climate change and the pollution by plastic debris (Vikas & Dwarakish, 2015). These are the main environmental problems facing by India.

The development of India is hampered by environmental degradation. A report released by the World Bank (2013) estimates that environmental degradation is costing India around 5.7% of its GDP every year. Social factors such as population growth, poverty, and urbanisation contribute to environment degradation in India. The uncontrolled population growth which led to poverty compels people to reckless exploitation of natural resources. The unplanned urbanisation process also led to the destruction of natural resources. Apart from these social factors, economic and institutional factors also speed up the process of environment degradation (Kaurh, 2012). The lack of economic development is considered as reason for environmental degradation in India sometimes, such as inadequate sanitation and clean drinking water, but the growth of economic activity also consider as reason for environmental degradation as problems of air and water pollution are arising out of it (Pacharuri, 2003). Environment degradation is also the result of market failure in India as the nonexistent proper functioning markets for environmental goods and services, which result in over exploitation of goods. The level and pattern of economic development also affect the nature of environmental problems in India. With the adoption of new manufacturing technology through intensive and reckless use of resource and energy use (fossil fuel, minerals, timber) the natural resources depletion such as water, air and land contamination, health hazards along with degradation of natural ecosystems is increasing (Economic Survey, 1998-99).

There are also institutional factors which speed up environmental degradation. The lack of close coordination with environmental policy making institution such as ministries in State Governments, Pollution Control Boards, and number of scientific and technical institutions, universities, non-Governmental organisations creates lag in proper planning and implementation of environment policies by the Ministry of

Environment & Forests in India. On the part of enforcement of policies and inception/planning stage of the project, environmental institutions, both at the centre and the state face the problem of lack of effective coordination. Most of the State Government institutions are suffering from inadequacy of technical staff and resources. Lack of trained personnel and comprehensive database delay many projects is hampering the proper implementation of environmental policies (Economic Survey, 1998-99). Thus India is facing environmental problems, which compel to take strong environment protection methods.

### **I.2.7. Environmental protection efforts in India**

Indian Constitution ensures environment protection through Directive Principles of State Policy as well as Fundamental Rights and Duties. Article 51 a (g) ensures protection and improvement of the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures, Article 48 ensures organisation of agriculture and animal husbandry, Article 48(a) deals with protection and improvement of environment safeguarding of forests and wildlife, and Article 21 of constitution ensures right to life and personal liberty (Vardhan, 2015)

#### **I.2.7.1. Environmental protection efforts by Government of India**

India has adopted various international and national strategies to mitigate environmental problems and passed several laws relating to environmental protection. The important laws for prevention of environment degradation in India are Water (Prevention and Control of Pollution) Act of 1974, (amended in 1988), Air (Prevention and Control of Pollution) Act of 1981, (amended in 1987), Environment (Protection) Act of 1986 (EPA), Public Liability Insurance Act of 1991, National Environmental Tribunal Act of 1995, and National Environmental Appellate Authority Act of 1997. The Government also enacted the National Environment Policy in 2006 for environmental conservation with the help of state governments (Parikh, 2014). Ministry of Environment and Forests (MOEF), the Central Pollution Control Board (CPCB), State Department of Environment, State Pollution Control Board and municipal corporations are liable to enactment of environment laws in India (Ussain Saheb et al., 2012).

At administrative and ministry level the Department of Environment was established in 1980 with the objective of providing a healthy environment for the country. The department took steps for environment conservation including establishment of environmental courts, encouragement of environment friendly products, ban on harmful pesticides and establishment of National Waste Management Council (UNCSD, 1999).

Government of India took initiatives to prevent environment degradation and took measures for controlling the pollution generated motor vehicles by introducing international emission standards, environment friendly power generation by establishing Solar Energy Commission, and passed the Acts prohibiting smoking in public places. It also took policy decisions like National River Action Plan to protect rivers (UNCSD, 1997).

To propagate information related to environment within the purview of decision makers, policy planners, scientists, engineers, researchers, students and other stakeholders of the country, the Government of India established an Environmental Information System (ENVIS) as a plan programme in 1982 (MEFCC, 2002). All these efforts to protect the environment will reach their goals only with the public participation which can be achieved through awareness and environment education. Media institutions both public and private are also taking part in these awareness programmes.

All India Radio and National Television are broadcasting various programmes about environmental protections (IIEE, 2014). Environment education has become part of education system in schools and colleges. Parliament of India passed National Green Tribunal Act in 2010 (Ministry of Environment, Forest and Climate Change, 2010) for creation of a special tribunal to handle the expeditious disposal of the cases pertaining to environmental issues. The Swachh Bharat Abhiyan<sup>22</sup> programme started

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<sup>22</sup> the important objectives of Swachh Bharath Abhiyan are to eradicate the system of open defecation in India, to remove the system of manual scavenging, to make people aware of healthy sanitation practices by bringing behavioural changes in people, to link people with the programmes of sanitation and public health in order to generate public awareness, to build up the urban local bodies strong in order to design, execute and operate all systems related to cleanliness, to completely start the scientific processing, disposals reuse and recycling the Municipal Solid Waste and to provide required environment for the private sectors to get participated in the Capital Expenditure for all the operations and maintenance costs related to the clean campaign (Vyas, 2014) .

in 2014 is a national cleanliness campaign with the objective of accomplishing various goals and the vision and mission of “Clean India”. It is planned to fulfil by 2<sup>nd</sup> of October 2019 which is 150<sup>th</sup> birth anniversary of Mahatma Gandhi. It is one of these awareness programmes by government which involves widespread people participation (Ministry of Information and Broadcasting, 2014).

### **I.2.7.2. Environmental protection efforts by the State Governments**

The state governments in India are engaged in environmental protection. It is constitutionally asserted under Article 48-A of our Constitution, that "The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country". The 42<sup>nd</sup> amendment of the Constitution in the year 1974 asserts the responsibility of the State Government to protect and improve the environment and to safeguard the forests and wildlife of the country (Vardhan, 2015). States in India took initiative in the field of environmental protection. Orissa River Pollution Prevention Act, 1953, and, Maharashtra Prevention of Water Pollution Act, 1969 are examples regarding river protection. It extended to rivers, watercourses, inland water both natural and artificial, and subterranean streams (Singh, 2013).

The government of Delhi is undertaking various scheme on environment protection by addressing the problem of air, noise and water pollution, disposal of wastes include, municipal, e-waste, bio medical waste, protecting greenery by planting trees, protecting parks and measures in response to climate change. The department has fourteen schemes for undertaking various programmes which facilitates environment awareness among citizen of NCT (National Capital Territory) of Delhi. The programmes are multidimensional in nature which include research projects, actual field oriented activities and specific campaigns aim at educating the general public through plans including public environmental awareness activities, eco clubs in schools and colleges, pollution control and government management, environment data generation, survey, and research projects, and assistance from NGO (Government of NCT of Delhi, 2015). In Tamil Nadu the state government, under Ministry of Environment and Forests undertook initiatives for biodiversity

conservation by creation of major protected areas include 3 Biosphere reserves, 5 National Parks, 8 Wildlife Sanctuaries 4 elephant reserves, 3 Tiger Reserves, and 13 Bird sanctuaries These protected areas of the state contain populations of threatened wildlife; rare species and ecosystem include habitats, landscapes and wildlife corridors. They are undertaking projects and research programmes for better conservation of natural resources in the area (Tamil Nadu Forest Department, 2007).

As mining is a big problem facing by Karnataka State , Government took preventive measures against mining through the Department of Mines and Geology (DMG) in Mineral Exploration and Administration include Survey & investigation and exploratory mining, Administration of Major Minerals (Granting mining leases and administering mining activity), Administration of Minor Minerals (Sanction of quarry leases for building materials and other minerals), collection of royalty and dead rents for both major and minor minerals, Laboratory investigation of minerals and Publication of Mineral investigation, maps and library services. The administrative and regulatory functions include inspection of mining and quarrying operations, control of illegal movement of minerals and levying of penalty. Government of Karnataka while understanding the menace of pollution undertook measures to prevent air, water, noise pollution under Pollution Control Board along with environment protection activities under Department of Ecology and environment (EMPRI, 2005).

The Government of Gujarat involves in environmental protection through taking initiative to prevent pollution of air, water and noise pollution, hazardous waste and biomedical waste through Pollution Control Board. Cleaner production, cleaner technology assessment, eco industrial development, emission reduction, energy efficiency enhancement and conversion of wastes to value added products to optimize life cycle benefits, promoting the concept of green buildings, all are initiated by Gujarat with a view to environment protection (Gujarat Pollution Control Board, 2011).

North Eastern States<sup>23</sup> in India has its own forest polices and environment protection Acts like Assam Forest Policies 2004, Meghalaya Forest Regulation, 1980

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<sup>23</sup>The North Eastern States of India consist of Arunachal Pradesh, Assam ,Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

(Department of Environment & Forest, Government of Assam.) The Government of Sikkim launched a unique and innovative programme called “State Green Mission,” which expected to generate awareness on environment & forests and bringing in effect of participation and ownership among people in the whole process of environment protection. “Solid Waste Management” was implemented in the state in for garbage free clean Sikkim. Eco-Clubs have been established in the schools of Sikkim under National Green Corps Programme. The state government banned the use of non biodegradable materials like plastics, poly-bags, Bio-medical / chemical waste in 1997. In 2000 all agencies in the State were directed to use the alternatives of wood in construction to conserve the forests & ecology A State Medicinal Plants Board (SMPB) was established in June 2002 for conservation and development of medicinal plants sector. It becomes the Organic State (no use of chemicals, pesticides & insecticides in agriculture). It has conservation zones for protection of biodiversity (State of Sikkim, 2007).

State of Rajasthan has its rules on prevention of pollution such as Water (prevention and control of Pollution) Amendment rules, 1995, Air (prevention and control of Pollution) Amendment rules, 1995, and Municipal Solid Waste Management & Handling Rule, 2000. Rajasthan government took initiative towards developing Non-conventional sources of energy through windmills and solar energy based power plants. For protection of wildlife, A Wildlife & Protected Area Network has been created within the State with two national parks and 25 wildlife sanctuaries (State of Environment Report for Rajasthan, 2007). West Bengal has West Bengal Pollution Control Boards to deal with air, water and noise pollution. It has rules to protect biodiversity and wetland conservation such as West Bengal Inland Fisheries (Amendment) Act, 1993 & 2008, West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005, The West Bengal Land Reforms (Amendment) Act, 2005, and West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006. (Department of Environment Government of West Bengal, 2012).

The government of Himachal Pradesh under the initiative of Forest Department involves peoples in Joint forest Managements. It also adopted National Wild Life Plan for conservation of Biodiversity. The Department of Horticulture took initiatives in protection and production of varieties of fruits. Department of Agriculture is

implementing various schemes related to soil and water conservation. It has waste management laws and pollution control laws. Himachal Pradesh is the first Indian state to sell carbon credits<sup>24</sup> under the UNO -mandated Clean Development Mechanism to the World Bank from new forests to be developed largely on waste ground (State Environment Report on Himachal Pradesh, 2009).

Kerala Government with a view to ensure healthy living to the people initiated environmental protection measures. With a view to environmental protection and conservation, the State Government through their various departments such as Department of Environment, Science and Technology, Health and Family Welfare, Forests and Wildlife, Factories and Boilers, Industries, Mining and Geology and Groundwater have been implementing several regulatory and promotional measures (Brand, 2007). The Wildlife (Protection) Act, 1972<sup>25</sup> The Water (prevention and Control of Pollution) Act, 1984 as amended in 1998, The Water (Prevention and Control of Pollution) Cess Act, 1977 amended in 1991, 2003, The Forest (Conservation) Act, 1980 as amended in 1988, 1992 and 2003, The air (prevention and Control Pollution) Act, 1981 as amended in 1987, The Coastal Regulation Zone Notification 1991,<sup>26</sup> The Municipal Solid Wastes (Management & Handling) Rules 2000, The Biological Diversity Act 2002 and the Biological Diversity Rules 2004, Kerala River Bank Protection and Sand Mining Regulation Act (2001) are some acts enacted by Kerala State Government with view of environment protection (Kerala State Environment Policies, 2009).

The state of Kerala banned thin plastic carry bags below 30 microns in 2013 as it is dangerous to environment and animals (Info Change, 2015). Kerala is one of the first States in India to constitute a State Pollution Control Board for monitoring and regulating measures for curtailment of pollution. For building up of the Research & Development in field of environment, the Government have established Kerala State Council for Science, Technology and Environment. The Government constituted Environmental Protection Programme Planning Committee (EPPPC) and an

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<sup>24</sup>Carbon credit is "a generic term for any tradable certificate or permit representing the right to emit one tonne of carbon dioxide or the mass of another greenhouse gas with a carbon dioxide equivalent (tCO<sub>2</sub>e) equivalent to one tonne of carbon dioxide"(Collins,2012).

<sup>25</sup> It amended in 1983, 1986 and 1991, 1992, 1993, 1995, 1998, 2002, and 2003.

<sup>26</sup>The Coastal Regulation Zone Notification 1991act also amended in 1998, 1999, 2001, 2002, and 2003.

Environment Protection, Task Force (EPTF) for the implementation of environmental protection, regulation and management measures. For documentation, conservation and sustainable utilization of the State's rich biodiversity, the State Government has established the Kerala State Biodiversity Board (KSBB) (Brand, 2007).

With regard to conservation and sustainable use of wetlands, drinking water and irrigation state has taken initiatives in respective areas. Laws and policies are there to protect, forest, wildlife, ponds, mangroves and lakes, protect agriculture, conservation of paddy land). Kerala government with intention to protect existing paddy field and wetland introduced Conservation of Paddy Land and Wetland Act of 2008 (Indian Law Reports, 2011). State's Organic Farming Policy ensures non use of pesticides and limited chemicals in agriculture (Kerala state environment policies, 2009). Paddy protection and homestead farming assistance and monitoring system, rules for coastal and marine resources conservation and animal husbandry policies and programmes are introduced by Kerala State Government. At Panchayat, Municipality and Corporation levels, there is People's Biodiversity Register<sup>27</sup> for biodiversity conservation introduced in Kerala by Government. Conservation of biodiversity is ensured by Kerala State Government through a network of protected areas including heritage sites, biosphere reserves, sanctuaries, gene conservation centres, national parks, wetlands, mangroves, sacred groves, and, natural habitats of biodiversity (Kerala state environment policies, 2009).

Regarding industrial development and quarrying and mining state has its own rules to prevent pollution and environment degradation. For conservation of energy, plans of Government includes adoption of clean technologies for energy production including utilization of wastes for power generation, energy conservation in all sectors including households, agriculture, industry and transportation, and energy conservation education and awareness activities among people (Brand, 2007). For environmental friendly human settlement it adopted environment-friendly techniques and material in housing in the State. As tourism is one of the sources of income of Kerala, Government has adopted policy of promotion of tourism on the basis of assessment of

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<sup>27</sup>According to Madav Gadgil, "People's Biodiversity Register programme is an attempt to record people's knowledge and perception of the use, status, history, ongoing change, and forces driving this change in the biological diversity resources of their own localities. It also aim at document people's perspective on who is the gainer and loser are in the ongoing changes in the ecological settings and utilization of biodiversity resources and how they feel the resources ought to be managed" (Gadgil , 2000).



the target areas with about their carrying capacity, and availability of infrastructure facilities includes transport, fuel, water and sanitation. It also implemented regulation of tourism in Protected Areas<sup>28</sup> especially forests and ecologically sensitive areas such as grasslands and wetlands (Kerala state environment policies, 2009).

In order to promote environment awareness and initiatives among teachers who imparting instruction in various aspects of Environmental Sciences, government of Kerala organises special training programmes for them. With a view to promote public awareness and ensure involvement of people in environmental activities, village level NGOs and literacy centres are promoted by Kerala State Government. It also promoting special environmental awareness programme for women and conducting awareness programmes through womens' organisations and local bodies. Government provides assistance for women to take up conservation programmes which are income generating, self-financing and sustainable on a long-term basis (Kerala state environment policies, 2009).

With a view to boost up level of the awareness regarding environmental issues in Kerala, Government of Kerala undertake several programs linking to environmental management and sustainable development including the Panchayat Level Resource Mapping Programme, as a tool for assessment of natural resource based planning at the village level and for realizing the goal of spatial planning ,the Kerala Total Sanitation and Health Mission (1999), The Clean Kerala Mission (2003) for enabling the urban and rural local bodies to establish integrated municipal solid waste management system, and The Suchitwa (Sanitation) Mission (2003) for providing advisory support to the state government and support to the local bodies (Brand, 2007).

By understanding the importance of natural resources and environment management for sustainable development of the state and promoting livelihood of the poor and the deprived sections of the society, the People's Planning Campaign took initiatives in the matter and natural resource and environment management and sustainable

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<sup>28</sup> Protected Areas are "A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values"( Dudley, 2008).

development was one of the topics in the training module on local plan formulation for all the stakeholders of local governance. For the designing and implementing the training module on natural resources and environment the support is from the Centre of Earth Science Studies (CESS), Centre for Water Resources Development and Management (CWRDM) Kerala Agriculture University (KAU), State Institute of Rural Development (SIRD) and institutions managed by NGOs like, Integrated Rural Technology Centre (IRTC), Peerumedu Development Society (PDS),

Malanadu Development Society (MDS) (Environment Assessment Report, n.d). Thus states governments in India participate in environmental protection.

### **I.2.7.3. Environmental protection efforts in India by NGOs**

In India the NGOs are actively participating in environment protection programmes including creating awareness among people on environmental issues with their solutions, creation of awareness on human rights for a clean environment, conduct rural participation in environment programmes, disseminate information with means of newsletter, brochures, articles, and audiovisuals. They also help the village administrative officials in the preparation, application and execution of projects on environmental protection (Ramesh, 2014). Important environmental NGOs working in India are Greenpeace India, Awaz Foundation, Centre for Science and Environment, Goa Foundation, Centre for Environmental Research and Education India, Foundation for Ecological Security, Exnora International, and Winrock International India (Dildeep & Pooja, 2012). The environmental NGO like Greenpeace conducted a campaign against coal mining in Tigar lands of Madhya Pradesh, Chhattisgarh, Jharkhand and Odisha, against Mercury plant of Unilever in Tamil Nadu, protest against Dharma Port Project in Odisha which destroyed the habitat of sea turtles, and protest against Union Carbide Corporation (Human Rights Documentation, 2007; Glanz & Bishop, 2010). The people who are aware of the need for conservation of environment become members of environmental NGOs and work to ensure a deterioration free environment.

### **I.2.8. Important environmental protection movements in India**

Democratic system in India provides opportunities for growth of environmental movements. It allows environmental protection movements to provides adequate

opportunities to people to participate in the process of decision-making and the environment also “involves the issues on which everyone has some right to be consulted” (Lafferty, 1996). The environmental movement in India is kaleidoscopic in nature, representing various points of view (Krishna, 1996). The mainstream environmental movements are predominantly against construction of big dams for power generation and irrigation, mining, conservation of coastal areas, and destruction of forests (Shiva, 1991).

#### **I.2.8.1. Khejri movement or Bishnois movement (1726)**

Any debate on environment movements in India would begin with a remark on Khejri<sup>29</sup> movement or Bishnois movement. The Bishnoi<sup>30</sup> people of Rajasthan credited for the first use of Chipko<sup>31</sup> tactics against tree felling (Gottlieb, 1996). Bishnois movement began with the royal order of Maharaja Abhay Singh to cutting of Khejri trees, worshipped by Bishnois, for construction of fortress. The villagers under the leadership of Amrita Devi protested against the order as she hugged the tree, as a new form of dissent. Amrita Devi and her three daughters were beheaded for disobeying royal order. Just before her martyrdom, Amrita Devi declared, “If a tree is saved even at the cost of one's head, it's worth” (Moksha, 2014). Maharaja stopped order as 363 Bishnois lost their lives in non violent method for protection of trees. They are upholding eco friendly principles still by saving water by traditional water harvesting system, indigenous cultivation method for local areas and not killing any animals (Butt, 2008). Thus Bishnois movement laid the foundation of environment protection movement in India.

#### **I.2.8.2 Chipko movement (1973)**

Chipko movement was started in 1973 at Garhwal division of Uttar Pradesh specially Chamoli District. The protest movement was organised by Chandi Prasad Bhatt, who

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<sup>29</sup> Khejri ( *Prosopis cineraria*) is a tree commonly in Rajasthan and Haryana. It is famous for not only thrives in drought conditions and in poor soils, but also encourages the growth of crops (Krishnan & Jindal, 2015).

<sup>30</sup>Bishnois, is a Vaishnavite sect, living in western Rajasthan on the fringe of the Thar Desert. They are protecting the flora fauna and environment even by sacrificing their lives (Jain, 2010).

<sup>31</sup>The word Chipko, means "tree-huggers."

aired the slogan of "ecology is permanent economy." Chipko movement was led by Sunderlal Bahuguna, Bachi Devi, Gaura Devi and women of the Garhwali area. The movement began with the government refusal to supply ash tree to the Dasholi Gram Swarajya Mandal (DGSM), (workers' cooperative) for processing plant of forest produces (especially for making plough) in Chamoli District. Instead government gave green signal for Simon Company to cut ash trees for production of sporting goods. The DGSM organised protest against government decision to promote Simon Company instead of villagers. This boosted the Chipko protest. The cutting of trees by Company has massive repercussions. The reduction of monsoon as a result of tree felling affected annual crops of wheat, paddy, and oil seeds. The problem of flood and soil erosion resulted from reckless cutting of trees totally affected the life system of people. The collection of Minor Forest Produce<sup>32</sup> by women becomes a big question which in turn affects the roles played women in family.

Women formed Mahila Mandal for the protection of forest as they understand the forest degradation has more direct impact on their lives. For poor men of the area development opportunities by the Simon Company are new avenues for reduce the dependence on women, by works on hotel, and construction works. But women want to preserve the status quo and protect environment through forest protection of Garhwali Hills as it is the question of their survival (Jain, 1984). The method of tree hugging protest led by Gaura Devi and Bachi Devi found success against chopping down the trees. Simon Company stopped cutting of trees. The main slogan of women were, the forest is our mother's home, we will defend it with all our might which prove their eagerness to protect forest (Bhatt, 1992). The slogan of "Cut me down before you cut down a tree," by women generated a lot of media coverage, bringing the idea of environmental concerns in forefront (Guha, 1989).

There are different views regarding nature of Chipko movement as Vandana Shiva (Shiva, 1988) considered it as ecofeminist movement, whereas for Ramchandra Guha (Guha, 1989) it is rural peasant movement, it also counts as religious or Gandhian movement (Saini, 2011). The inspiration this movement created and the empowerment achieved by women through Chipko movement is valuable. In short the

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<sup>32</sup>Minor Forest Produce include all products obtainable from the forests other than wood and thus comprise products of vegetable and animal origin (Ministry of Panchayati Raj, 2011).

Chipko movement inspired the upcoming environmental protection movements in the world (Chakraborty, 2012; Yadav, (n.d); Rawat, 2004).

### **I.2.8.3. Appiko movement (1983)**

Appiko<sup>33</sup> movement is important environment conservation movement in Karnataka, to protect Western Ghats forest. Appikko movement was initiated by Panduranga Hegde. In September 1983, men, women and children of Salkani (a village in Western Ghats) "hugged the trees" in Kalase forest (Ghanashyam, 2008; Srinivasa Raju, 2005). This movement was against government policy to open forest for industrial development. The members of Mahila Mandal include Adivasi women joined for protection of rainforest by writing down to the government for halting of woodcutting. Women provided the required fund for the movement by saving one handful grain every day. The movement has used multiplicity of techniques for raise awareness. The village women conducted awareness programmes through foot marches, slideshows, folk dance, street plays, and dramas (Karan, 1994).The Appiko activists undertook ecological tasks include educate the people on method to improve the minor forests in the village and involved people in planting indigenous species of trees (Hegde, 1984).Thus with the strong protest from people, Government forced to halt industrial policy on Western Ghats which resulted in destruction of forest (Mondal, 2015 ;Klassen, 2013).

### **I.2.8.4. Silent Valley movement (1976)**

Silent Valley is one of the important biodiversity hotspot in Southern end of Western Ghats in Kerala. The Silent Valley Movement was against the decision of Kerala Government to construct a dam for hydroelectric power project in the Silent Valley forest (Ajayan, 2009; Rohit, 2012; Dattatri, 2011). The Malayalam poet and environmentalist, Sugatha Kumari was the prominent leader in this movement. The NGO, Kerala Shastra Shitya Parishad, voiced against the hydro electric project of Kerala State as it will harm the virgin forest of Silent Valley, which is the home for hundred of rare species reference. Prakriti Samrakshana Samithi, an association of writers, artists, academicians, scientists and expert from various fields actively participated in Save Silent Valley Movement (Rohit, 2012). Despite the offer of employment and development in the area, people, especially women opposed the

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<sup>33</sup>Appiko is the local term for hugging in Kannad language (Gautham & Rajan, 2014).

hydro electricity project. As a result the project was cancelled by personal interventions of the then Prime Minister Indira Gandhi in 1980 and Silent Valley was declared as a National Park in 1984 (Chengappa, 2009). The strong influence of Save Silent Valley Movement is still visible through the continuing efforts and awareness of people on environment protection in this area.

#### **I.2.8.5. Narmada Bachao Andolan (1985)**

India's Narmada Bachao Andolan (NBA) is an environment movement against the building of a number of dams along the Narmada River funded by World Bank. The NBA spread to three states of Gujarat, Maharashtra, and Madhya Pradesh as the construction of Sardar Sarovar Dam affect the environment and settlement of people of these areas. NBA, which led by the Medha Patkar, Baba Amte, and Arundhati Roy had turned into the International protest, gaining support from NGO'S all around the globe. Protesters agitated against the issue through the mass media, jal satyagraha, hunger strikes, massive marches, rallies and with the on screen of several documentary films (James, 2014). They employed Gandhian methods for protest (Hardiman, 2003). Women played active role in the campaign (Narula, 2008). The NBA struggle in Madhya Pradesh was led by the Narmada Shakti Dal, a separate womens' organization within NBA, comprised of female villagers (Narula, 2008). With strong protest from NBA World Bank withdraw project in 1993 (Roy, 1999; Nakhoda, 2010; Narula, 2008). But the case continued in Supreme Court. Even though with the verdict of Supreme Court to raise the height of dam which become the hurdle in the way of NBA to fulfil its aim, the strong struggle for the rehabilitation of victims and other environmental protection effort of NBA is continuing and inspiring other environment protection and anti- dam movements in India as well as world (Parsai, 2014).

#### **I.2.8.6. Navdanya movement (1984)**

Navdanya is India's largest organic movement. Navdanya began in 1984 as a program of the Research Foundation for science, Technology and Ecology (RFSTE), a participatory research initiative to provide direction and support to environmental

activism. "Navdanya" means "nine crops" that represent India's collective source of food security (Preston –Pile, 2007). The main aim of Navdanya is to save seeds from biopiracy<sup>34</sup> and with this intention, setup 111 Community seed banks<sup>35</sup> in 17 states in India. They are strongly campaigning against Genetically Modified Seeds and actively participating in biodiversity conservation (Shiva, Barker & Lokhart, 2011). Navdanya's conservation farm has protected 12 genera of cereals and millets, 16 genera of legumes and plants, 50 genera of vegetables, 7 genera of oil yielding plants, 13 genera of spices, 20 genera of aromatic plants, 54 genera of fruit and flower yielding plants and 250 genera of ornamental, timber and medicinal plants(Administrator,2009). Mostly the members of Navdanya Movement are women farmers from various parts of country (Navdanya international, 2012).

The Chilka Bachao Andolan in Odisha, Save Ganga Movement, Save Taj Campaign, Mitti Bachao Abhiyan<sup>36</sup>, Bedthi Campaign<sup>37</sup>, Kaiga Campaign<sup>38</sup>, and Save Western Ghat March 1998 are important environment protection movements left its mark in India<sup>39</sup>. Thus the environment protection movements are continuing with new environment issues.

Studies of, Vandana Shiva, (1988), Amita Baviskar (1995) emphasises that environmental movements in India<sup>40</sup> reflects the trend of most participants are

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<sup>34</sup>Biopiracy is defined as “the illegal appropriation of life - micro-organisms, plants, and animals (including humans) - and the traditional cultural knowledge that accompanies it” (Shiva, 1997).

<sup>35</sup> Community seed banks store and manage seeds to provide community members the seeds to use for cultivation. Seeds are obtained from the farmers in the community and are selected and stored depending on the agreed storage system. “The purposes of a community seed bank is to serve as an emergency seed supply when farmers experience a shortage of seeds, due to failure or destruction of crops as a result of floods, droughts, pests and diseases” (FAO, 2014).

<sup>36</sup>Mitti Bachao Abhiyan (Save Soil Movement) was launched in 1977 against the waterlogging and salinity caused by the Tawa dam in Madhya Pradesh (Rathore, 2012).

<sup>37</sup>A campaign against hydroelectric project in Karnataka.

<sup>38</sup>A campaign against Nuclear plant in Karnataka.

<sup>39</sup>The analysis of environment protection movements has its differences in Northern and Southern hemisphere. Agarwal & Narain in essay of politics of the environment (1984) opined that” environmental problem of west concentrates on the issues quality of life- pollution, disposal of waste, clean air, and pretty trees where as in the Third World, the major environmental problems are those which arise out of the misuse of the natural resource base: the soils, forests and water resources which is purely green in nature. The working class is the social base of third world environmentalism, but middle class is the base in western environmentalism”. The collaboration between North and South environmental principles only can solve the world environment problem.

<sup>40</sup>Singh & Raj (2012) held the view that environment protest in India is not purely green or ecological in character, but include red because they are also revolves around non ecological matters as it related to livelihood and survival as well as poor, and powerless and marginalised society. They form the social base of environment movement in India. Guha & Gadgill (1995) while analysing the environmentalism in India, criticises as “environment movement in India also stressed the reality as it is now handled by middle as well as upper class”. The poor rural population and tribals is the victim of displacement in

women, Adivasis, and poor people, which is proved by the analysis of environmental protection movement as Bishnoi movement, Chipko movement, Save Silent valley movement and Narmada Bachao Andolan which reflect the active participation of women Adivasis and tribes in environment protection movements.

### **I.3. Ecofeminism – Origin, and development**

The relation between human and nature led to the emergence of many theories as theory of Deep Ecology, Ecotheology and Ecofeminism. The intimate relation between women and nature paved the way to the emergence of theory of ecofeminism. Women and environment are closely bounded. The assertion of the relation between women and earth are highlighted by the naming of Earth as Mother Earth, and Earth Goddess (Yalan, 2007). Ecofeminism emerged in West as a product of peace, feminist and ecology movements of late 1970's and early 1980s (Rao, 2012). The word ecofeminism is first used by Francois d'Eaubonne in her book *Le Feminisme ou la Mort* (feminism or death?) published in 1974. For d'Eaubonne the term ecofeminism<sup>41</sup> was meant to describe 'how the human race could be saved by women initiating an ecological revolution, as a way to counter the oppression of women that is one and the same as the oppression and destruction of nature' (Tollefsen, 2011).

From the origin itself ecofeminism has included political activism as well as theoretical works in philosophy, literature and language and science and technology. It also spread to variety of cultural work such as poetry, art, essays or novels (Alonso, 2013). Ecofeminism developed and popularised by various thinkers like Karren J. Warren, Val Plumwood, Ynestra King, Ariel Salleh, Susan Griffin, Carolyn

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the name of development as well as have little say in the process of environmental decision making. This is stressed by Amita Baviskar (Baviskar, 1995) by highlight the danger of middle class intelligentsia assigns them to speak on behalf of the Adivasis and tribals affects by environmentally challenging development.

<sup>41</sup>Carolyn Merchant highlight two different events that contributed to the spread of the term as the first one was the conference on "Women and Life on Earth: Ecofeminism in the 1980s," organized in Amherst (Massachusetts) in 1980 by Ynestra King, Celeste Wesson, Grace Paley, Anna Gyorgy, Christina Rawley, Nancy Jack Todd, and Deborah Gaventa and the second was the Womens' Pentagon Action to protest against nuclear weapons and weapon development in general (as cited in Alonso, 2013).



Merchant and Vandana Shiva<sup>42</sup>. The important works through which ecofeminism was popularised are *Women and Nature* (Susan Griffin, 1978), *Gyn/Ecology* (Mary Daly, 1978), *The Death of Nature* (Carolyn Merchant, 1980) *Ecofeminism* (Mies & Shiva 1993), *Feminism and the Mastery of Nature* (Val Plumwood 1993) *Ecofeminist Philosophy: A Western Perspective on What It Is and Why It Matters* (Karen J. Warren 2000). According to Karen J. Warren (1993) ecofeminism is a field bridging ecological ethics<sup>43</sup> and feminism that seeks to explore the conceptual connections between environmental degradation and sexist oppression.

Ecofeminism derive from philosophy of feminism grounded in women's affinity with the forces of nature, as opposed to men's urge to control and manipulate nature (UNRISD, 1994). The early ecofeminism which emphasis on pre patriarchal culture in the Mediterranean and old European world ,which gave importance to fertile Goddesses and other nature symbols as feminine and thus reassert the woman nature relation. With the replacement of organic character with mechanistic character, as a result of Enlightenment and Industrial Revolution, which breeds the Patriarchy, result in domination of male over female and nature. Later Earth Goddess was replaced by Sky God which was symbol of patriarchy especially in the middle ages (Pratibha, 2015). Ecofeminism as an academic discourse did not develop until the mid to late 1980s (Salleh 1984, Plumwood 1986 & Warren, 1987).The expansion of ecofeminism happened in 1980s. During 1970-2000 period ecofeminist activists

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<sup>42</sup>The important works of Karen J. Warren in the field of ecofeminism are *Ecofeminist Philosophy: A Western Perspective on What It Is and Why It Matters* (2000), *Ecological Feminist Philosophies* (1996), *Women, Culture, Nature* (1997). The ecofeminist works of Val Plumwood are *Feminism and the Mastery of Nature* (1993), *Environmental Culture: The Crisis of Ecological Reason* (2001). The contribution of Yendra King on ecofeminism are *Towards Ecological Feminism and a Feminist Ecology* (1993), *Engendering a Peaceful Planet: Ecology, Economy, and Ecofeminism in Contemporary Context* (1995). The ecofeminist works of Ariel Salleh are *Ecofeminism as Politics: Nature, Marx and Postmodern* (1997), *Ecosocialism/Ecofeminism, Capitalism Nature Socialism* (1991), and *Essentialism - and Ecofeminism* (1991). The important works of Susan Griffin are *Women and Nature* (1978), *Ecofeminism and Meaning* (1997). The Ecofeminist Works of Carolyn Merchant are, *The Death of Nature* (1980), *Earth care : Women and Environment* (1992). The ecofeminist works of Vandana Shiva are *Earth Democracy : Justice, Sustainability and Peace* (2005), *Staying Alive: Women, Ecology and Survival in India* (1988), *Ecofeminism* (1993), and *Biopiracy: The Plunder of Nature & Knowledge* (1997).

<sup>43</sup> Ecological ethics is the part of environmental philosophy. It deals with rules and norms of human behaviour towards the natural (biotic and abiotic) environment, as well as the social environment (Gola, 2013). The environmental ethics is against putting human as centre all species of planet. The theory of ecofeminism combines environmental ethics with feminism as it asserts that western patriarchal binaries place non human and women in same category and want to deconstruct the binaries to overcome sexism's oppression and environmental degradation.

engaged in strong protests, boycotts and campaigns to bring attention to the inter connection of justice issues related to women and environment as a whole.

Ecofeminism covers many concepts. Various ecofeminist writers emphasises different issues under the term ecofeminism, Ynestra King considered ecofeminism as political theory and practice (King, 1983). Starhawk and Charlene Spretnak give a central place to earth-centred spirituality and goddess reverences to the concept of ecofeminism (King 1983; Spretnak 1990; Starhawk 1990). Animal rights feminists emphasize the oppression of animals cover under ecofeminism (Collard & Contrucci 1988; Adams 1990; Gaard 1993). According to Greta Gaard (1997) ecofeminist theory has exploring the connections among many issues: environmental degradation, economics, electoral politics<sup>44</sup>, animal liberation, reproductive politics, biotechnology<sup>45</sup>, spirituality, holistic health practices, sustainable agriculture, and racism<sup>46</sup>.

The theory of ecofeminism upholds that the oppression of women and the domination of nature are interconnected phenomenon. The conceptual binaries and ideological hierarchies as higher-ranking categories and lower-ranking categories (e.g. man over woman, culture over nature, white over black heterosexism over queer<sup>47</sup>) are the tools used to reaffirm oppression and exploitation (Fed, 2014). According to Plumwood (1993), “the opposition between reason and nature, where reason is seen as masculine and nature as feminine, lurks behind all dualisms”. They also demand a dignified position for women and environmental justice. Ecofeminism concerns with the issues like classism, racism, market exploitation, which in turn result in environmental degradation and exploitation of unprivileged class. Issues of pollution, deforestation, toxic waste dumps, agricultural development and sustainability, animal rights and

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<sup>44</sup>Example is the political party, Ecologists-Alternatives (EA)-Federation of Ecological and Alternative Organisations in Greece, which prioritized ecological concerns and gender equality. Most of the women voted them and become the leaders as this party promotes political ecology agenda for social change with gender equality.

<sup>45</sup>Ecofeminist argues that the biotechnological methods, in both ways of decreasing and increasing the fertility, via the selection and election of genes, are not innocent in treating women. Ecofeminists oppose to the control of women in their pregnancy, and after the birth through the biotechnological innovation which result in the very interference of the women bodies (Yilmaz, 2010).

<sup>46</sup>African-American ecofeminists, identify with racism as the first and most dominant oppression in their experience, while sexism is secondary (Oster, 2012).

<sup>47</sup>Gretta Gaard (1997) rewrite Val Plumwood’s dualism by including heterosexual/queer, reason/erotic and financially empowered/impoverished. She strongly stands for the inclusion of queer theory in ecofeminism so that it strength both and criticize the Western Patriarchy notion of consider queer as anti-natural. Thus the relation of queer theory to ecofeminism is stated by Gaard.

nuclear weapon all come under discussions within the umbrella term of eco feminism, along with classism, racism, sexism, specisim<sup>48</sup> (Warren, 1996).

The ecofeminist movement emerged in the form of activism in different areas of the world such as women active involvement in the demonstrations against the Three Mile Island accident (against nuclear reactor in U.S.A), and the Love Canal disaster(dumping hazardous waste) and Chipko movement, as a way of protesting against massive deforestation (Gates, 1998 as cited in Alonso, 2013). According to Warren, (1994) all forms of domination are interconnected, such as women and nature, dominations of people of colour, ethnic minorities, children and animals which always labelled as the other, are need to analyze in order to understand how all the forms of domination are interconnected and interrelated. This way, ecological feminism/ecofeminism functions as an umbrella term<sup>49</sup> that covers not only the domination of nature and women but all the rest of oppressive relations that still exist (Alonso, 2013). Thus ecofeminism has been influenced by academic and political movements, postcolonial movements, peace movements and science and technology in the due course, even if ecofeminism started as an intersection between ecology and feminism (Cuomo, 1998 as cited in Alonso, 2013).

According to Cullinan (2008), “traditional Western system, from politics and education to economics are ‘premised on the belief that humans are separate from and superior to natural world which is part of natural environment’”. The whole reason for overexploitation of environment is based on these patriarchal ideas. Nature is often feminized and sexualized as the “virgin forest,” “the rape of the earth,” or “penetrating” the wilderness (Griffin 1978; Merchant 1980). Thus for ecofeminists degradation of women and environment are interrelated as women and nature are very much related and must be deconstructed.

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<sup>48</sup>A branch variously called “vegetarian ecofeminism or animal right.

<sup>49</sup>Warrens highlights three terms to describe the core of ecofeminism: feminist, ecological and multicultural. According to Warren, Ecological feminism (Ecofeminism) is feminist as its aim is to eliminate male-gender bias to abolish patriarchy and propose an alternative and non-oppressive framework of thought. As the main aim of Ecological feminism is to value and to preserve ecosystems, it is ecological according to Warren, Ecological feminism(Ecofeminism) can be described as multicultural because it analyzes the interconnections that exist among all forms of domination such as racism, classism, imperialism, colonialism or sexism (Warren, 1994). Chris Cuomo(1998) believes ecofeminism is multicultural as it is placed “at the crossroads of feminist, anti-racist, and environmentalist movements, as well as critiques of capitalism, heterosexism, homophobia, and other forms of oppression based on the dualistic construction and maintenance of inferior, devalued, or pathologized/naturalized Others” ( as cited in Alenso, 2013).

Men and women are the victims of environment degradation. Both women and men are participating in environment protection movements. Greta Gaard and Patrick Murphy deny the concept that “ecofeminism is the province of women alone” (Gaard & Murphy, 1998.) According critical approach, ecofeminism could no longer be defined as a community of women. Rather, ecofeminism can be defined as the community of people who participates in critical ecofeminist analyses of the global environmental situation (Mies & Shiva, 1993; Merchant, 1980; 1990; 1996). Sunderlal Bahuguna, Baba Amte and Subash Palekar’s, contribution in environment protection efforts is valuable, but the studies proves that women actively participates in environment protection than men as women are directly affected and influenced by nature than men ( Rao, 2012). At the time of natural disaster and there after women are the prime victim of the exploitation (Raymond et al., 1994). It reaffirm that women including girls are vulnerable to exploitation and even sexual exploitation following the natural disasters. The studies (Fothergill, 2004; Fisher, 2005) on after effects of Indian Ocean Tsunami in 2004 reveal the abuse of women and girls after the disaster even in the rehabilitation camps. As (Fothergill, 2004) states that during and post natural disasters times mothering and caretaking is also become much more difficult for women who care for disabled family members of disabled themselves. In most of the societies every day responsibilities of parenting and caring for dependants are the duties of women (Enarson & Scanlon, 1999).In the time of disaster and evacuation the responsibilities of women are increasing. At time of disasters mothering become difficult as condition are unsafe and small children need more care during and after disaster. The consequences of disaster as degradation of water quality, water scarcity, food, shelter, sanitation problem adversely affect health of women and children again increase the responsibility of mothers to shelter children safe (Halvorson, 2004). Thus women are more affected by the disaster which in turn makes women conscious of the need for environment protection effort by them and for the better existence of nature. The vulnerable condition of women as per the patriarchal role is depicted by United Nations Economic and Social Council<sup>50</sup> (2005).

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<sup>50</sup>“Lack of energy for households’ needs and small scale enterprises limits womens’ ability to take care of their families and themselves. Without access to convenient, affordable fuels for cooking and heating, women have to spend large amounts of time and physical energy obtaining traditional fuels (such as wood, charcoal, dung) and agricultural wastes to hot water and cook meals. At the same time women in rural areas often have to grow and process their own food, and transport heavy loads without any motorized equipment. If they do not have running water or motorized pumps for their homes, women also have to spend time each day gathering water from taps or possibly

Ecofeminists like Warren (1996) and Birkeland (1993) bear the idea that anything harms the nature will harm women as they are equally linked very much than men. This strong connection compels women for prominent protectors of environment. As Hamiton (1990) observed women play primary role in environment protection activities because of the direct effect of environment problems on their lives.

The environment degradation and exploitation of women as ecofeminist issue is emphasised in India. According to Berg “for example, both deforestation and reforestation through the introduction of eucalyptus intended for commercial production are ecofeminist issues because the loss of indigenous forests and multiple species of trees has drastically affected rural India womens’ ability to maintain subsistence household” (Berg, 2009). Women as mothers are more conscious about environment protection and better environment for their children. As mothers these women have the obligation to feed, clothe, house and nurture their families and communities (Kaplan, 2001). Thus the ecofeminist studies emphasises the relation between women and nature.

According to Vandana Shiva (1988) Women are the caretakers of environment and western science and development victimized women and environment. The ecofeminists emphasise the fact that protection of ecology is a feminist issue. The connections between the oppression of women and the oppression of nature are highlighted in order to understand “why the environment is a feminist issue”, as well as “why feminist issues can be addressed in terms of environmental concerns” (Gaard, 1993). Ecofeminism also analyses how the problems of racism, class, colonization, heterosexism and other oppression interconnect women oppression and environmental degradation. As Ellen O’Loughlin (1993) explains, “because most women experience [oppression] in more than one way that is, through the dynamics of racism, classism, homosexism, and ageism, ecofeminism, in order to fight the oppression of women and

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polluted wells, rivers or spring. In low income homes, women often spend many hours a day near an open fire cooking meals or, in cold months, tending it for warts as well. As a result, they are exposed to harmful levels of gases, particles and dangerous compounds, such as carbon monoxide, benzene and formaldehyde. Indoor air pollution is responsible for more than 1.6 million deaths per year due to pneumonia, asthma, bronchitis, tuberculosis, and lung cancer and heart disease. It also causes low birth weight and cataracts. Poor women especially in rural areas of developing countries generally have a more difficult time compared to men, due to their traditional socio cultural roles cause more amount of air pollution and consequently make have contribution to climate change then men” (United Nations Economic and Social Council 2005)( Raymond ,etal.,1994).

nature, must look at more than just the ways in which sexism is related to naturism”. Women are the victim of environment degradation. In numerous cases of environmentally degraded countries proves that many women are raped to death and/or buried or burnt alive as they went out at night in search of food (Bag, 2004). Thus women are taking responsibility of environment protection to as it is relates to security of their life.

The whole arguments of ecofeminist reach to the point that women and environment are closely related and degradation of environment is same as degradation of women as well as there exist connections between environmental degradation and sexist oppression. It supports and respect womens’ effort to conserve environment. Ecofeminism is based on the idea that important knowledge about ecology and women must be deconstructed from the old understanding of male domination. Ecofeminist theories also draw a link between how the problem of development affects gender and environment (Schultz, et al., 2001). Vandana Shiva (1988) argues development, science technology, which is patriarchal and are problematic which affects womens’ right in environment. Women are more affected by degradation of land. The privatization of the forests and rivers and construction of dams make the lives of village women more difficult. Most ecofeminists point to colonization and subsequent subjugation of the “third world” people as the reason for change in values regarding nature and women (Shoba, 2013).With the project of development, the oldest forms of oppression, gender subordination and patriarchy have taken on new and more violent forms of oppression (Kaur, 2003).Thus women and children are mostly affected by the mal development.

A lot of studies (Ress, 1992; Akwa, 2009; Moser, 1991) assert that women are prominent actors and contributors to environmental rehabilitation and conservation. Women through their role as farmers and collectors of water and fire-woods have a close connection with their local environment. Thus women have served as agriculturists, water resource conservationists and traditional scientists (Akwa, 2009).The studies of UNISDR (2007) on Tsunami recovery services of Srilanka’s women, gender mainstreaming in Tsunami affected areas of India, post earthquake relief work in Maharashtra, and Indonesia, and construction of Hurricane resistant houses in Jamaica emphasised women active role in disaster management and

conservation of environment. In short the interconnection of women and nature and active participation of women in disaster management and reconstruction provide the strong base for ecofeminist theory. There is need to understand the various ways women have actively participated in environmental protection and management with a view to integrate them into environment management programme. Thus the argument that woman is more actively participating in environment protection find meaning.

### **I.3.1. Tenets of ecofeminism**

Ecofeminism hold an eco centrist position that all human must understand their interdependence in earth (Berg, 2009). Human considers himself as superior to nature and hold the strong belief that everything in nature for them to exploit with complete authority. This anthropocentrism<sup>51</sup> of people led to the degradation of nature in turn result in natural calamities and extinction of many species. Ecofeminist asserts that human are not superior to earth and human has not the right to dominate nature by overexploitation of natural resources.

Ecofeminism links environment domination and oppression with oppression of man over women by patriarchy. Karren J. Warren relates environmental degradation and sexist oppression to find out the conceptual connection between ecology and feminism. The whole idea of feminist oppression revolves around western patriarchy<sup>52</sup> (Therbon, 2004; Walby, 1990; Omvedt, 1990). The patriarchal binary places women/nature in same category against men/culture. In other words pollution of planet and oppression of women are caused by the same set of tradition (Mattes, 1990). Under ecofeminism, all forms of oppression illuminating that the oppression of nature and of women are related. This leads to a multi-layered analysis of environmental exploitation in the context of many kinds of discrimination (Mies &

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<sup>51</sup>Anthropocentrism argues that human beings are the central or most significant entities in the world. This philosophy regards humans as separate from and superior to nature and holds that human life has intrinsic value and other entities (including animals, plants, mineral resources, and so on) are resources that to be exploited for the benefit of humankind (Boslaugh, 2013).

<sup>52</sup>Therbon, 2004 & Walby, 1990, define "patriarchy as a system of social structure and practices in which men dominate, oppress and exploit women. The use of the term social structure is important as it clearly implies rejection both of biological determinism and the notion that every individual man is in a dominant position and every women is a subordinate one". It is a system developed and controlled by powerful men, in which women, children, other men, and nature itself are dominated (Christ, 2013). It is oppressive in social, political, economic, and cultural environments. Patriarchy is an authoritative system, which resulted from the Western European historical and sociological approaches to the development of social and family structures (Asante & Mazama, 2004).

Shiva, 1993). One needs to change the patriarchal nature of the system by withdrawing power and energy from patriarchy (Gaard 1993). So Ecofeminism wants to reconstruct and reconceptualise the patriarchal version of treatment of women and nature as inferior, and demand equal treatment of men/women and culture/nature.

Ecofeminism is inclusive. It includes issues of women in different background and experience to enable women to work together across race, class and national lines (Berg, 2009). One of the most important premises of ecofeminism is that all forms of domination are interconnected, and not only those of women and of nature, but also the unjustified dominations of people of colour, ethnic minorities, children and animals: that is, the groups traditionally labelled as the other (Warren, 2000) They represent the unrepresented i. e, women, nature, people of third world and nonhumans<sup>53</sup>. According ecofeminists, environment problem affect everyone, but more vulnerable is the voiceless. So it is important to include those unrepresented in environmental decision making.

Ecofeminism gives importance to local values. Ecofeminists supports the work of community activists and grassroots movements and changes advocated by such groups in environment protection along with global efforts (Berg, 2009). The local indigenous knowledge can contribute best solution for environmental problem and the integration of such knowledge with scientific research, policy-making, and planning can reduce the natural calamities in concerned regions (Hiwasaki et al., 2014). Ecofeminists more concentrates on the unrepresented section's preference for environmental decision making as they can know much about the environment according to the tropical differences and acquired indigenous knowledge. The local traditional knowledge acquired by women and indigenous people in the areas of agriculture, environmental resource management, and health is often different from that held by men in the same areas. By integrating this gender-specific knowledge with modern science and technology is benefiting for more sustainable development (IDRC, 1995). Thus ecofeminism provides more importance to participation of unrepresented in environmental decision making.

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<sup>53</sup>Women, nature, people of third world and nonhumans are at the mercy of the interests of dominant groups, as they have to suffer domination and exploitation of those who compete for the right to define the need of these unprivileged groups (Milton, 1993).



Ecofeminism challenges the status quo, personal and military violence. The existing industrial and agricultural production processes, are being challenged by the movement (Berg, 2009). They were against the methods which involve the routine excessive packaging and waste, pollution of environment and workplace, and the routine use of toxic substances (Ashworth, 1995). They are also critique of market expansion, technology and science which doesn't consider the need of environment protection and women. They are against violence and human right abuse. According to Ynestra King (1983): "Ecofeminism is about connectedness and wholeness of theory and practice (it sees) the devastation of the earth and her beings by the corporate warriors, and the threat of nuclear annihilation by the military warriors as feminist concerns. Ecofeminist practices creatively resist institutionalized authority and its tendencies toward violence, while envisioning more connected, fluid, and embodied modes of being" ( as cited in Berg, 2009). Thus they stress on the necessity of environment friendly development.

Bina Agarwal (1997) describes four main overlying precepts in ecofeminism. The first principle is that ecofeminists find out the commonalities between gender oppression and environmental degradation mainly caused by male Western dominance. Second principle states that men are more related to culture and that women are related to environment. Women are more related to nature as women and nature placed in inferior position in conceptual binaries. Thirdly, oppression of women and the oppression of nature have occurred simultaneously and thus women have a responsibility to cease male domination over both. Fourthly, ecofeminism seeks to combine feminism and ecological thought, as they both work towards egalitarian, non-hierarchical structures (as cited in Manion, 2002) Thus the whole theory of ecofeminism revolves around the ideas of women nature interconnection which based on the domination of nature and exploitation of women and wants to deconstruction of western patriarchal conceptual binaries.

### **I.3.2. Classification of ecofeminism**

Ecofeminist scholar Carolyn Merchant (1995) has classified ecofeminist theory into liberal, radical or socialist ecofeminism. There are also social/ cultural/ spiritual ecofeminism apart from this classification.

**Liberal ecofeminism:** As stated by Merchant, liberal ecofeminism views environmental problems as a result of the rapid exploitation of natural resources accompanied by the lack of regulation of pesticides and other environmental pollutants and proper representation of women is needed in environmental legislation formation. With equal educational opportunities, women can become scientists, natural resource conservators, lawyers, and so on, and can contribute in improvement of environment, conservation of natural resources and better quality of life. Liberal ecofeminists fail to address environment and relation of women of different class, culture, race and ethnicity and especially non-white women.

**Socialist ecofeminism:** It considers women as a class and colonization as well as capitalism is the reason for environmental and women degradation (Shiva, 1988). For Merchant socialist ecofeminism sees environmental problems as 'rooted in the rise of capitalist patriarchy and the ideology that the earth and nature can be exploited for human progress through technology' Nature is therefore both the necessary basis of human life and the result of historical and social forces. It is both a 'natural' and a social construct. The same is true for gender. It is created both by biology and social practices. Women's roles in production, reproduction, and ecology can become the starting point for a socialist ecofeminist analysis (Merchant, 1992).

In socialist ecofeminism, nature and human nature are viewed as being historically and socially constructed, therefore connections and interactions between humans, nature, men and women "must be grounded in an understanding of *power* not only in the personal but also in the political sphere" (Merchant, 1990). The prescriptions by socialist ecofeminism are considered unrealistic in the background that the changes indicated by socialist-feminists seem too challenging for ordinary citizens in contemporary world and therefore most people do not want to radically change their lifestyles, as suggested by socialist-feminists. Socialist-feminists respond that through wholesale changes might seem difficult, everyone can do something, even if it seems small (Tong, 1998).

**Social ecofeminism:** According to Plumwood (1992), Social Ecofeminism rooted in history going back to the time of the Greeks to the inferiorization of both women and nature. It concentrates on the fact that the historical socialisation of women and nature as subjugated (as cited in Twine, 2001). Social ecofeminism advocates the liberation of women through overturning economic and social hierarchies that turn all

aspects of life into a market society that today even 'invades the womb' (Merchant, 1992) Although cultural feminism has developed more deeply into the woman-nature connection, social and socialist ecofeminism have the potential for a more thorough critique of domination and for a liberating social justice (Merchant, 1992). Thus Social and Socialist ecofeminist see natural and human world as socially constructed. Ecological feminism is a branch of social ecofeminism that allows more space for diversity of race, gender and class within its discourse (Manion, 2002). According to Tong "by de emphasizing the connections between women and the earth, social ecofeminists subsequently dilute the initial power of ecofeminism as a movement to reclaim the earth as an extension of the biology of women. Traditionally-feminine-characteristics do have value separate from traditionally-masculine-characteristics, which should used in society to make the world a more peaceful, nurturing place instead of being viewed as limiting" (Tong, 1998).

**Cultural/ radical ecofeminism:** Cultural/Radical ecofeminist 'naturalise' woman's role with nature (Twine, 2001). They maintain that because of historical constructs that place men in a position of authority over women and the environment, women, particularly in the south, (Mies, et al., 1993) As Warren (2001) states that "cultural ecofeminism reclaims women-nature connections as liberating and empowering expressions of womens' capabilities to care for nature". The cultural/radical ecofeminists are more closely engaged with environmental issues (Twine, 2001). They ecofeminists believe that women have a biological and spiritual link with the non-human world as a result women are 'closer to nature' than men.

Radical ecofeminists believe that womens' oppression is rooted in womens' reproductive roles and the sex/gender system. Radical ecofeminist wants to eradicate the patriarchal dualism and this can be done through embracing that which has been devalued (Berman, 1993). Ecofeminists with a radical bent analyzed environmental problems from within their critique of patriarchy and offered alternatives that could liberate both women and nature (Merchant, 1995). The radical ecofeminist emphasise the relation between environmental degradation and subjugation of women which emerged with the Enlightenment and Industrial Revolution (Merchant 1992). Criticisms of cultural /radical ecofeminism are based on the notion that this particular

framework reinforces sex-role stereotyping by making “essentialist<sup>54</sup>, universalist and historical” claims about women and nature thus undermine notion that men can also develop ethic of caring of nature (Kaurh,2012).The homogenisation of women through cultural ecofeminism irrespective of women of class, race, caste, age and ethnicity creates a vague understanding of problems are widely criticised by many include Bina Agarwal. Merchant seems critical of cultural ecofeminism, who argues that cultural ecofeminism adopts the very dichotomy of men and women and fails to analyze capitalism (Morita, 2007). According to Tong,”Natural/cultural/ radical ecofeminism consider women as uniquely relating to nature and to each other in ways that men cannot. This limits women to their bodies and relegates the possibilities for womanhood to be necessarily caring and compassionate without freeing women from the ‘negative cultural baggage’ associated with this stereotype” (Tong, 1998).

**Spiritual ecofeminism:** This variant of ecofeminism emphasise the role of women as life givers and consider them as engendered to closer connections with the earth (Sturgeon, 1997, as cited in Manion, 2002). According to Starhawk—a Spiritual Ecofeminist—the three most important concepts of earth-based spiritualities are the immanence of the Goddess in the living world; interconnection of mind, body, and nature; and a compassionate lifestyle (Tong, 1998). Spiritual ecofeminism emphasise the reproductive forces of women and their bodies (Yılmaz, 2010).Spiritual-ecofeminists have been criticized for trying to replace politics with religion and subsequently engaging in spiritual activity instead of “serious” thought about how to improve the state of the world (Tong, 1998).

Barry (1999) has categorised ecofeminism into materialist ecofeminism, essentialist ecofeminism, and resistance ecofeminism. According to Barry “as essentialist ecofeminism essentialize the female principle and “is to reverse the gendered dualism”. This idea is close to that of cultural ecofeminism of Merchant. Resistance ecofeminism stands between essentialist ecofeminism and materialist ecofeminism. This can be regarded as standing between cultural ecofeminism and socialist ecofeminism in Merchant’s classification, as its interest is mainly in practical political issues and the Third World. Materialist ecofeminism resemble to social and socialist ecofeminism. Materialist ecofeminism considers “women and nature both suffer at the

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<sup>54</sup>Essentialism usually refers to the assumption that a subject (for example, a "woman") is constituted by presocial, innate, unchanging qualities (Carlassare, 1994).

hands of patriarchy and capitalism” (Barry, 1999). Thus in short different school of ecofeminism strongly based on the core principle of woman nature relation based on patriarchy.

### **I. 3.3 Ecofeminism in India**

The history of ecofeminism in India traces back to Bishnoi movement and improved through Chipko movement, Silent Valley movement and Narmada Bachao Andolan. The study on various environmental movements suggests that the most participants in these movements are women as environmental degradation itself is the very question of lives of women (Shiva, 1988). The important women who inspires and leading environmental protection movements in India are Vandana Shiva, Medha Patkar, Arundhati Roy, Daya Bhai, C.K. Janu, Sugatha Kumari, Sunita Narain, and Sara Joseph (Rao, 2012; Specter, 2014; Kerr, 2011; Kaur, 2012; Hassan, 2014; Prasad, 2007; Steur, 2011; Sheoran, 2014; UNEP, 2007; Bhattacharjee, 2013; Rohit, 2012; Joy, 2005; Sebastian, 2014; Krishna, 2014; & Praseetha, 2015).

One of the ecofeminist in India is Vandana Shiva, who is radical/cultural ecofeminist<sup>55</sup> (Lorentzen & Eaton, 2002), whose eco-feminist thought is generally more concerned with the Hindu tradition (Tollefsen, 2011). Vandana Shiva invokes notion about women, spirituality and nature by emphasising that “women in India are an intimate part of nature, both in imagination and in practice. At one level, nature is symbolized as the embodiment of the feminine principle, and at another, she is nurtured by the feminine to produce life and provide sustenance” (Shiva, 1988).

In her book, ‘Staying Alive; Women, Ecology and Survival in India’, she put forth two arguments. First is notion of “the feminine principle” (prakriti, as it is the source of life), which has strong connections to spiritual ecofeminism and ideas from hindu mythology. Secondly, the political, socialist ecofeminism in her argument which reflect strong critique of masculine hegemony and worldview along with a critique of the west for bringing mal-development and capitalism through colonialism and globalisation to east (Tollefsen ,2011). Vandana Shiva (1988) argues development, science technology, which is patriarchal affects womens’ right in environment. Women are more affected by degradation of land. The privatisation of the forests and

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<sup>55</sup>Some Scholars like Tøllefsen, put Vandana Shiva in the category of socialist, materialist ecofeminism, particularly the anti-capitalist and postcolonial writing by Shiva (Godfrey, 2005).

rivers and construction of dams make the lives of village women more difficult. Vandana Shiva strongly fights against Genetically Modified (GM) seeds and founded Navdanya Movement with the aim of save seeds from biopiracy.

Another ecofeminist in India is Bina Agarwal. She stands for Feminist Environmentalism. She criticises Vandana Shiva for considering women as homogenous group. She also argues that Shiva is placing women and environmental relation to Hindu mythology of Shakti and Prakriti<sup>56</sup>. Also she argues that the womens' position in environment varies according to caste, class, race and religion. She argues that rural poor are actively participating in environment protection than rich urban women as they are mostly vulnerable to environment degradation. Thus womens' context determine their participation in environment protection and it is socially and historically variable (Agarwal, 2000).

The study on the participation on Community Forestry protection method in India and Nepal by women, Bina Agarwal (Agarwal, 2000) stress on the fact that simple representation will not uphold the right of women in environment protection, but the representation in Executive decision making bodies can better protect womens' right. She argues that the womens' right in property make them more compatible for better protection of environment. Thus Vandana Shiva and Bina Agarwal reassert the close connection between environment and women in different ways. In short the core ideas of ecofeminism can be summed as by Karen Warren (1987) as the four minimal claims of ecofeminism: there are important connections between the oppression of women and the oppression of nature; understanding the nature of these connections is necessary to any adequate understanding of the oppression of women and the oppression of nature; feminist theory and practice must include an ecological perspective; and Solutions to ecological problems must include a feminist perspective.

As the living organism include human cannot survive without proper protection of environment, environmental protection efforts and methods are initiating different

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<sup>56</sup> Shiva propagates the concept of Shakti and Prakrithi to assert the power of feminine principle."The tension between the opposites from which motion and movement arises is depicted as the first appearance of dynamic energy (Shakti). All existence arises from this primordial energy which is the substance of everything, pervading everything. The manifestation of this power, this energy, is called nature (Prakriti). Nature, both animate and inanimate, is thus an expression of Shakti, the feminine and creative principle of the cosmos; in conjunction with the masculine principle (Purusha), Prakriti creates the world. Without Shakti, Shiva, the symbol for the force of creation and destruction, is as powerless as a corpse "(Shiva, 1988).

corners of the world. The emphasise on the importance of the relations between the human activities and environment, led to the emergence of several theories, in which the importance of theory of ecofeminism is growing, which is based on the core principle of woman nature, marginalised other's relation based on patriarchy. The significance of ecofeminism is on the rising as Ecofeminism offers a way of thinking and organizing ourselves by encouraging interconnectedness with our environment and addressing the subjugation of women and marginalized people (Schmonskey, 2012).

## **Chapter II**

### **Womens' Environment Protection Methods and Movements in Kerala**

#### **II.1. Introduction**

Environment is the source of life system. The protection of environment is needed for the existence of lives on earth (UNESCO & ICSU, 1999). The natural environment of Kerala consists of varieties of flora and fauna. Environmental protection efforts are ongoing from various sections of societies of Kerala including Governmental Organisations, Non Governmental Organisations, media, religious groups and political parties. In all these efforts women are active participates than men as women are directly affected and influenced by nature than men (Rao, 2012). Women are prominent actors and contributors to environmental rehabilitation and conservation by contributing as agriculturists, water resource conservationists and traditional scientists (Akwa, 2009). The intimate relation between women and nature paved the way to the emergence of theory of ecofeminism. It is a field bridging ecological ethics and feminism that seeks to explore the conceptual connections between environmental degradation and sexist oppression. The environmental protection efforts and

movements of woman in Kerala from the ecofeminist perspective have been discussed in this chapter.

## **II.2. Kerala: General profile**

Kerala is a small state situated in the south west part of India, which represents 1.18% of total area of India with an area of 38863 sq. Km (MSME, 2015). According to the Census of India (2011), Kerala has the population of 33406061 in which female constitute 17378649 and male constitute 16027412 of the total population. It has the sex ratio of 1084 female per 1000 male. It has also a literacy rate of 94% (Government of India, 2011), which is the highest among other Indian states. Female literacy rate in Kerala is 92.07% while male literacy rate is 96.11% and has the life expectancy of 77 years. The state has the highest Human Development Index; 0.790 in the country according to the Human Development Report, (2011). These indicators also helped Kerala to become a model.

The Census of India (2011) states that 54.73% of Kerala's residents are Hindus, 26.56% are Muslims 18.38% are Christians, and the remaining 0.32% follows other religion or no religion. Kerala has a composite and cosmopolitan culture with the hallmark of "Unity in Diversity" which is evident in all fields of cultural expressions such as art and architecture, religion and philosophy, and language and literature (Menon, 2008). Kerala has made its contributions in the field of painting, architecture music, theatre, sculpture, and handicrafts. Kerala is global tourist destination with the brand of God's Own Country, which promotes the agenda of promotion of ecologically sustained tourism, focusing on the local culture, wilderness adventures, volunteering enterprises, and personal growth of the local population (Joy, 2014). Tourism in Kerala is an effective instrument for generating employment, earning foreign exchange, enhancing environment, preserving cultural edifices and thereby facilitating the overall development of the locale (Resmi, 2014.) The important sectors of growth and investment in Kerala are IT & Electronics, Health Care Services, Auyurvedic Medicines, Tourism, Retailing, Plantations, Education & Knowledge Sector, and Infrastructure (CII Kerala State Council, 2015). They contribute to economic growth of Kerala.



The state came into existence on 1, November, 1956 on linguistic basis under the State Re-organisation Act, by the reorganisation of former State of Travancore Cochin (Vimala, 2002). Most Malayalam speaking areas were brought together and added to Travancore Cochin. Later the Malabar and the Kasargod taluk of South Karnataka were added and Kanyakurnari was released and attached to Tarnilnadu (Vimala, 2002). For the administrative purpose state is divided into 14 Districts (James, 1991). Kerala is divided into three geographical regions as (1) high land (2) mid land and (3) low land<sup>57</sup> (MSME, 2015). Kerala has diverse geographical features with the Arabian Sea to the west, the Western Ghats in the east and with forty-four rivers. It also enriched with tall mountains, deep valleys, beaches, backwaters, paddy fields, coconut groves, plantation crops, spice gardens to tropical rain forests and equable climate throughout the year (Kerala State Industrial Development Corporation, 2012; IISAC, 2010). Kerala is rich in biodiversity as the ecosystem consist of varieties of rare animal and plant species<sup>58</sup> which ensures food, fuel, shelter, medicines and other resources which are vital for survival of ecosystem of Kerala (IISAC, 2010). The biodiversity of the Western Ghats is the main component ecosystem of Kerala (Department of Tourism Kerala, 2013). About 40% of its ranges lie in Kerala. The 41 rivers among 44 rivers of Kerala originate from the Western Ghats. Kerala has the highest point (Anamudi in Idukki District) in the Western Ghats, which is also the highest south of the Himalayas in India. The Western Ghats in Kerala is enriched with flora fauna and varieties of rare species as well as it regulate rain fall in Kerala (Department of Tourism Kerala, 2013). Thus the state of Kerala has a unique natural environment.

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<sup>57</sup>The highlands consist of mountain ranges in the eastern parts of the State, which form a natural wall with an average height of 1 km, separating Kerala from the adjoining States and the main occupation of people in the area are plantation crops such as tea, coffee, cardamom. The lowland region is area along the coast with a maximum width of about 25 km from the shore near Alleppey. This area has level topography and is characterised by marine land forms, beach ridges, and beaches with swamps and lagoons. In between the lowlands and highlands constitute the midland region. The soil in this zone is lateritic or its varieties and suitable for agricultural products and a variety of crops including paddy, tapioca, banana, pepper, ginger, and arecanut cultivation (James, 1991).

<sup>58</sup>The ecosystem of Kerala is a natural habitat for number of animal, bird and plant species. The indigenous flora of state consist of 14435 plant species including 4575 species of angiosperms, 329 pteridophytes, 226 bryophytes, 428 lichens and 886 algae. The indigenous fauna consist of 8452 taxa of animal species, constituting more than 25% of Indian birds. Insect fauna is the most diverse with 6000 species, mammals 145 species, reptiles 176 species, amphibians 105 species and inland fishes 282 species. Kerala is characterised by high endemism. The highest endemic is founded among the amphibians (78%) followed by reptiles (62%), fish (53%) mammals (12%), and birds (4%) (IISAC, 2010).

### II.3. Environmental degradation in Kerala

The biodiversity of Kerala is challenged by the outgrowing trouble of environmental degradation (Krishnakumar, Padmalal & Shoba, 2005; Ullas & Mahvish, 2012). According to the Ministry of Environment and Forest Envis Centre Report (2015), the main threats to the biodiversity in Kerala are encroachment to forest land, cattle grazing, poaching, illegal and unsustainable collection of non timber forest produce, mining, mass tourism and pilgrimage, illicit felling of trees, forest fire and invasive species<sup>59</sup>.

The other important causes of environmental degradation in Kerala include urbanisation, industrialisation and unscientific agricultural practices (Krishnakumar, 2005; Ullas & Mahvish, 2012). The growing urbanization creates the problem of waste disposal, destruction of urban and rural landscape and loss of sand from river and paddy lands because of rapid constructions (Department of Environment Government of Kerala, 2009). Population pressure, unemployment and state policies resulting internal migration which in turn contributing to rapid deforestation<sup>60</sup>. The introduction of plantation crops in highlands by replacing the natural vegetation<sup>61</sup> and unplanned agricultural practices including use of pesticides resulted in soil erosion, loss of quality of soil flood, draught, landslides and sedimentation in rivers<sup>62</sup>. Compulsion of population growth in Kerala resulted in conversion of paddy land, sand mining, quarrying which hamper the ecosystem (Ullas & Mahvish, 2012; Department of Environment, Government of Kerala, 2009). The conversion of wetland includes paddy land seriously affecting the ecological stability of state, food security and climatic pattern of Kerala (Department of Environment, Government of Kerala, 2007). The industrialisation has its negative impact on environment of Kerala especially the coastal zones. Periyar and Chaliyar rivers are suffering by the dumping of waste and contamination of water from the industries on the bank. Thus with the

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<sup>59</sup>Invasive species are species that are not indigenous. These are non indigenous or non-native plants and animals that adversely affect the habitats and bio regions they invade economically, environmentally and ecologically. Examples of plant invasion in Kerala include Water hyacinth (*Eichornia crassipes*) and Lantana (*Lantana camara*) (Ministry of Environment and Forest, 2015).

<sup>60</sup>Example is the rapid deterioration of Silent Valley evergreen Forest.

<sup>61</sup>The tea and coffee plantation of Munnar, and Waynadu are examples.

<sup>62</sup>The deterioration of quality of water in rivers like Pampa, Nila, and Chaliyar proves this.

industrialisation the pollution rate of Kerala increased (air, water and noise), which results in environmental degradation (Sreekala, 2000).

Even the Western Ghats of Kerala, one of the biodiversity hotspot<sup>63</sup> is severely hit by environmental degradation (Nair, 2015). The state is confronted with deforestation, vanishing sacred groves<sup>64</sup>, quarrying and mining. It also face the issue of change in weather, extreme heat, soil erosion, dumping of waste, pollution of backwaters<sup>65</sup>, destruction of mangroves, conversion of paddy lands and loss of biodiversity along with bio piracy<sup>66</sup>, loss of coastal ecosystem and species invasion, i.e non-indegenous plants and species affecting native habitat (Indira, 2011; Kerala State Environmental Policy, 2009).

The loopholes in environmental protection laws by government of Kerala such as the River Bank Protection and Regulation of Sand-Mining Act, 2001, Coastal Regulation Zone (CRZ) Notification, 1991, Forest Act of 1986, also result in fastening the process of environmental degradation by allowing sand mining and forest resources exploitation to companies and industries (Staff Reporter, 2005; Sridhar, n.d; Joy, 2005). The problem of environmental degradation in Kerala resulted in contagious diseases,<sup>67</sup> life-style diseases<sup>68</sup>, diseases affecting the growth of child, especially related to mental growth and learning disabilities, and cancers which reflect the deteriorating health conditions of the people (Department of Environment

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<sup>63</sup>Norman Myres introduced a concept called hotspots to identify the most major criteria for designating an area as hotspot. This includes richness in endemic species, and impact by human activities. Endemic species are those restricted to certain localised areas of the earth (Ministry of Environment and Forest, 2015).

<sup>64</sup>Sacred Groves are forest fragments of different sizes, which are communally protected, and which usually have a significant religious connotation for the protecting community. Hunting and logging are usually strictly prohibited within these areas (Gadgil & Vartak, 1975).

<sup>65</sup>The Kerala Backwaters are a network of interconnected canals, rivers, lakes and inlets, formed by more than 900 km of waterways. In the midst of this landscape there are a number of towns and cities, which serve as the starting and end points of backwater cruises (Pick, 2007).

<sup>66</sup>Many medicinal plants, flowers, herbs, branches of rare trees have been stolen from the forests of Kerala-Tamil Nadu border. It is estimated that about 200 rare plants are taken away from the Western Ghats alone. Drosera, an insectivore's plant is secretly pirated to Germany. The flowers of Areocolon, a type of grass and branches of Rodentron are reported to be taken away from the Western Ghats (Joy, 2005).

<sup>67</sup>Contagious Diseases is infectious disease, communicable by contact with one who has it, with a bodily discharge of such a patient, or with an object touched by such a patient or by bodily discharges (Merriam Webster, 2015).

<sup>68</sup>Lifestyle diseases are those diseases which results from daily habits of people and are a result of an inappropriate relationship of people with their environment. The main factors contributing to lifestyle diseases include bad food habits, physical inactivity, wrong body posture, and disturbed biological clock (Sharma & Majumdar, 2009).

Government of Kerala, 2009). Thus the problem of environmental degradation is affecting seriously and paved the way for emergence of Environmental refugees in Kerala (Indira, 2011).

#### **II.4. Environmental refugees in Kerala**

The Environmental refugees are persons who no longer gain a secure livelihood in their traditional homelands because of what are primarily environmental factors of unusual scope (Myers & Kent, 1995). The concept of Environmental Refugees are evident in Kerala (Joy, 2005; Indira, 2011). The environmental pollution caused by 247 chemical factories in Eloor, created Environmental Refugees in Cochin where people has to left the place with air, water pollution (Joy, 2005). The rising of Arabian sea level along with the increase in surface temperature due to global warming causing sea erosion and results in environmental refugees in Kerala (Pereria, 2015). The irresponsible government policies also fasten the environmental refugee problem as in the case of Chellipadam village in a Kochi suburb where 53 families had to left place because of dumping of garbage and inaction of government on matter in 2007 (Chowdhury, n.d). The construction of dams and hydroelectric power projects also generated environmental refugees in Kerala (Joy, 2005; Indira, 2011). The construction of Idukki dam in Periyar River caused displacement of tribal population and made them as environmental refugees (Devi, 2015). Thus Kerala is affected by environmental refugees.

The compulsion of population growth along with non-eco friendly planned industrialisation and reckless exploitation of natural resources in turn results in the miserable life (IT Department, 2005; Erickson, 2013; Indira, 2011). For a better life with abundant environmental resource impel people for adoption of methods for environment protection. Thus environment protection becomes the prime concern for state of Kerala.

#### **II.5. Environmental protection efforts by various agencies in Kerala**

There are various environmental protection efforts on behalf of various agencies in Kerala which is describing below.

##### **II.5.1. Environmental protection efforts by Government of Kerala**

Constitution of India directs state governments to protect environment. Article 48-A states that “State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country”. Accordingly by identifying the significance of environment and its protection Kerala government initiated various policies and programmes for the preservation of environment through various departments such as Department of Environment, Science and Technology, Health and Family Welfare, Forests and Wildlife, Factories and Boilers, Industries, Mining and Geology and Groundwater (Kerala State Environment Report, 2009). It has set up a Directorate of Environment and Climate Change to combat climate change and also Centre for Earth Science Studies, Centre for Water Resource Development and Management, Kerala Forest Research Institute, National Transportation Planning and Research Centre are set up to working on the various aspect of climate change (Department of environment and Climate Change, n.d). It also undertook several programs including the Kerala Total Sanitation and Health Mission (1999), Clean Kerala Mission (2003), Suchitwa (Sanitation) Mission (2003) and Panchayat Level Resource Mapping Programme for better use of natural resources and clean and healthy environment (Kerala State Environment Report, 2007).

At state level Kerala enacted laws for the effective protection of environment, like Hazardous Waste Management Rules 2008, Bio-Medical Waste (Management and Handling) Rules 1998, Municipal Solid Waste (Management and Handling) Rule 2000, Noise Pollution Control Rules 2000, Kerala Conservation of Paddy and Wetland Act 2008, and Coastal Regulation Zone Amendments 2010 Kerala (Department of Environment Government of Kerala, 2009). Kerala Minor Mineral Concession Rules, 2015 is latest in series of environmental law. Kerala government constituted State Pollution Control Board (KSPCB), which made Kerala one of the first states to form Pollution Control Board. State Committee on Science Technology and Environment (STEC), is constituted in order to strengthen Research and development efforts needed in the area of environmental issues. Government constituted Environmental Protection Programme Planning Committee (EPPPC) and Environment Protection Task Force (EPTF) for improve the implementation of environmental protection regulation and management measures (Department of

Environment Government of Kerala, 2009). For promotion of ecotourism Kerala government adopted Zero Waste Kovalam Project for making the beach in Trivandrum waste free and introduced Eco certification for hotels, restaurants, and tourism related establishments with an aim to promote ecotourism and keep the environment protected (Ministry of Tourism, 2005). Thus the government of Kerala took initiative to satisfy the mission of environment protection.

### **II.5.2. Environmental protection efforts by NGOs in Kerala**

Environmental NGOs are actively engaged in environment protection activities by promoting environment education, training and capacity building among the people, thus playing a crucial role in environmental protection, conservation and development (Vadaon, 2011). Kerala has more than 63 NGOs to deal with the various environmental problems (WWFN, 1994). They not only engaged in creating environmental awareness among various sections of society but also challenges environmentally harmful development models and provide alternatives<sup>69</sup> (Joy, 2005). Their fields include land use policies, soil conservation, forestation, coastal protection, conservation of energy sources, awareness campaign, creation of scientific temper and scientific attitude, and training on eco friendly development (Joy, 2005).

One of the important NGOs that deals with matters of environment protection is Kerala Shashtra Sahitya Parishad (KSSP), established in 1962 as a scientific forum. According to Parayil & Shrum (1996), the KSSP is involved in environmental conservation, literacy promotion, healthcare, and science curriculum development in education. It is actively involved in criticising and providing alternative policy development to the government on forestry, and environment protection methods. It has specialised centres focusing on environment, rural technology, and science education located in different parts of the state like the Environment Centre in Thrissur and the Science Centre in Kozhikode (Parayil & Shrum, 1996). They are involved in the field of eco-development, awareness creation about water and energy conservation and encouraging the use of non-conventional energy sources such as smokeless chulhas (Sharma & Sharma, 2005).

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<sup>69</sup>Example is Kerala Shashtra Sahitya Parishad's innovation of smokeless Chullas to prevent environmental pollution.

They also partake on special environment issues on women, empower women to environment protection, and introduce women friendly, eco friendly products, and eco friendly farming (KSSP, 2015). Through the publications of research journals, books, magazine and even through street plays and dramas it invokes the environment awareness of people. KSSP's involvement in Silent Valley Struggle through street plays, jathas, dramas and pamphlet played an important role in the success of the movement (Rohit, 2012; Shinn, Spappen & Krishna, 2013). The environment protection efforts of KSSP were recognised internationally as UNEP included it in 'Global 500 Roll of Honour' in 1990 (Vallabhan, 2010).

'Thanal<sup>70</sup>' is an ENGO actively taking part in environment protection, which was founded in 1986 based in Trivandrum. The area of activities of Thanal involves the issues of public interest, especially related to environment, agriculture and livelihood generation which considers environmental health and environmental justice as prime concern (Nagrajan, 2010). This NGO has extended efforts of solving environment problems with the collaboration of local people, students and government institutions (Sridhar & Shibu, 2004). Its active campaign against Paddy wetland conservation, against waste dumping, save rice campaign and anti- Endosulfan campaign and campaign for organic farming increased the people's awareness on environment conservation in Kerala (Anishida, 2012; Thanal, n.d).

The society for the Conservation of Nature (Prakriti Samrakshana Samithi) established in 1980 by Sugathakumari is another society working on environment protection. Its mission is to make people aware of the interdependence with nature, to collect and propagate information on environmental protection, to uphold specific local issues and function and channelize people's participation in conservation activities includes eco development camps and social forestry campaign (WWF India, 1999). The Prakriti Samrakshana Samithi contributed in taking up issue of development v/s environment in Silent Valley to mainstream of Kerala society (Rohit, 2012).

Kuttanad Vikasana Samithi (KVS) is an ENGO and a development agency for promoting Self Help initiatives and environmental conservation in Kerala. The environmental protection programmes of KVS includes, organic farming, water

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<sup>70</sup> Thanal in malayalam means shade.

resource management and rainwater harvesting, biogas promotion, housing and sanitation, people's movements for wetland conservation and community health promotion (Kuttanadu Vikasana Samithy, 2010).

Another important environmental NGO is the Society for Environmental Education in Kerala (SEEK) established in 1979, which got the credit of first started agitation against Silent Valley project (Joy, 2005). SEEK aimed to educate mass especially students, women for the need and methods for protecting environment through classes, discussion and field studies. It is popularising different environmental programmes and issues of the local area through 'Soochimukhi', Malayalam, monthly magazine. It co-operate with other organizations in protecting Silent Valley, Pookote Lake and Eravikulam National Park from pollution (Joy, 2005).

Society for the Protection of Environment of Kerala (SPEK), established in Calicut in 1979 is an ENGO to create environment awareness and public opinion on the protection of environment (Joy, 2005; Vallabhan, 2010).The method employed by SPEK for generating environmental awareness include organising video shows, workshops, technical conferences and in-service course. It also conducting applied research on matters of environment hazardous activities and thus act as a scientific team (WWF India, 1999).

Mitranikethan, established in 1956, OISCA - South India Chapter Calicut founded in 1961, Thekkady Wild Life Society, Plant @ Earth founded in 1955, Cochin Environmental Protection Agency (CEPA) was formed in June 1981, Indian National Trust for Arts and Cultural Heritage (INTACH) founded in 1984 and Association for Welfare Action in Kerala Environment (AWAKE), are other environmental NGOs who actively participating in spreading of environment education (Joy, 2005).Thus Kerala have ENGOs participating in environmental protection.

### **II.5.3. Environmental protection efforts through media**

Media acquires a pivotal position in creating and inspiring people about environment awareness and preservation (Yadav & Rani, 2011). According to Sypsas & Mallidis (2013), Sharma (2012), "as far as the environmental issues are concerned, media either as a risk communicator or as a promoter of data, information and good practices of any kind should smooth the progress of people to become more environmentally



responsible and cultivate an environmental awareness". Many people do not pay attention to environmental problems because they do not understand how the problem would affect them or their lifestyle (Quick, 2005). Media have a strong ability to draw 'pictures in audiences' heads with regard to environmental issues (Moon & Shin, 2010). An environmentally literate person knows about what the factors affect environment negatively and the methods and solution to improve environment.

Environmental problems of land conversion, water conservation, and public oriented environmental campaigns find place in Malayalam media (Srikumar & Raj, 2011). The role of media for propagating environment literacy and environment awareness in Kerala is visible by the involvement of media in issues of Endosulfan in Kasargod, Vilappilsala, Laloree garbage dumping problem, and Silent Valley Hydro Electric Power Project (Reader's Editor, 2011).

Malaya Manorama, one of the newspapers in Malayalam, coordinates students in schools for their environmental conservation activities and honours those students engage with environment protection (Joseph & Shajjan, 2015). In 2005, the first social innovation project of the media was launched, it was called "Palathulli" (many drops) -water drops project for the conservation and storage of rainwater for various purposes, which later extended to 1000s of schools of Kerala (Joseph & Shajjan, 2015). After this success a project named Nallapadam<sup>71</sup> was initiated in 2011, through which newspaper promoted the environment activities of students of schools along with awards for best performing schools in each District (Amritha Vidyalayam, 2015; Joseph & Shajjan, 2015). The model programmes of the project include: water and environment protection activities, organic farming, health awareness, and palliative care (Malayala Manorama, 2012). Malayala Manorama's Nalla Paadam programme has won the WAN-IFRA award, by World Association of Newspapers and News Publishers in 2015 (Correspondent, 2015).

Mathrubhumi, one of the leading newspapers in Kerala is at forefront of environment protection programme through SEED (Student Empowerment for Environmental Development) which initiated in 2009 for creating environmental awareness among students in most of schools (Amritha Vidyalayams, 2015). The project has linkages with the teachers of the schools, students, parents and various

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<sup>71</sup> Nallapadam in Malayalam indicates 'good lesson'.

government, private and public sector undertakings (Mathrubhumi, 2013). Mathrubhumi newspaper is the first one to publish farm feature in Malayalam, Karshika Rangam (which means agriculture sector), which concerned with water conservation, health and sanitation along with agricultural activities (Thomas, 2010).

Mathrubhumi demonstrated their green responsibility in Silent Valley Struggle and Anti- Coca Cola agitation by refusing to run advertisements for Coca-Cola and the company's other brand names like Mirinda, 7 Up, Sprite, Fanta, Kinley Soda, Thums Up despite of financial loss (Cockburn, 2005). Every news paper in Malayalam, Mathrubhumi, Malayala Manorama, Kerala Kaumudi, Deshabhimani and Kerala Times have its own agricultural magazines and environment awareness pages through which they are spreading environmental consciousness (Pillai,1993). Thus newspapers in Kerala play an important role in spreading environmental awareness and responsibilities.

The Environmental NGOs through their periodicals involved in disseminating environmental awareness such as Kerala Shastra Shahitya Parishad's publication of Eureka, and Shastra Keralam in this regard (Menon, 2012). Ore Oru Bhoomi (only one plant) by Society for the Protection of Environment of Kerala (SPEK), Soochemukhi by Society for Environmental Education in Kerala (SEEK), Jaya Keralam, Save Earth, are examples of environmental magazines publishing by ENGOs in Kerala (Vallabhan, 2010).

Electronic media, especially private T.V channels along with All India Radio, Doordarshan are deals with environment awareness campaign in India and Kerala (Joy, 2005; Ghatak, 2010). Mannum Manushyanum,<sup>72</sup> environmental programme telecast by Jai Hind T.V, Malayala Mnorama Channel telecast 'Nalla Padam', and 'Nattu Pacha'<sup>73</sup> while Mathrubhumi airing 'Seed Project' are environmental awareness programmes (Correspondent, 2015; Jai Hind T.V, 2015). Asianet News Channel has a environmental awareness programme named 'Nalla Mannu'<sup>74</sup> which includes research and presentation on environment protection methods, various opinion and agricultural knowledge, and success stories of people in environment protection

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<sup>72</sup>Mannum Manushyanum in malayalam refers to 'Soil and human'.

<sup>73</sup>Nattu Pacha refers to 'local greenery' in malayalam.

<sup>74</sup>Nalla Mannu in Malayalam refers to 'good soil'.

(Asianet News, 2015; Correspondent, 2015). Krishi Darsan by Doordashan Kerala, Bhoomi Malayalam by Surya T.V channel, Haritha Bharatham in Amritha T.V are popular agricultural as well as environment protection programmes in Malayalam electronic media (Kissan Kerala, 2008; Amritha T.V, 2011). The Kerala affiliate of Doordarshan Kendra's role in eco-reporting is visible through 'Green Kerala Express' the first and unique social reality show in Indian television under the initiative of the Ministry of Local Self Government and Suchitwa Mission, which aims to find the greenest village in Kerala (Sreekumar & Raj, 2011).

Contemporary mass media have moved towards new forms of communication technologies and instruments (Internet and mobile technologies, computers and mobile devices) through which the awareness of public affairs has extremely increased (Norris, 2001). New social media playing a role in circulation of environment protection programmes (United Sprits, 2013). The environmental NGOs and environmentally aware people through internet, especially via email, YouTube, and face book propagating environment ideas, issues of environment degradation if took place, and assembling of people against serious environment problem in Kerala (Nandakumar, 2008; Harithasree, 2014; Kalorth, 2014). Thus media through its environmental awareness programmes participates in environmental protection programmes in Kerala.

#### **II.5.4. Environmental protection efforts by religious institution in Kerala**

Religion has its influence on environment as well as every social economic issue (Nanda, 2004). Various religious sects in Kerala includes Hindu, Muslim and Christian participates in environment protection efforts (The Forum on Religion and Ecology at Yale, n.d; Pereria, 2005; Fountain, Bush & Feener, 2015; Musthafa & Shibli, 2012). In Kerala the Solidarity Youth Movement, the youth wing of Jamaat –e-Islami actively took the matter of people's displacement due to development and propagates environmental protection programmes (Fountain, Bush & Feener, 2015). Hindu religious people in Kerala have their own sacred groves with deities to worship (Chandrashekara & Shankar, 1998). According to S.M. Nair,(n.d) in Kerala there are hundreds of small jungles dedicated to snakes ( *Sarpakavu*, *Sarpa* meaning snake, *kavu* meaning jungle) as well as there are also Ayyappan *kavus* dedicated to Lord Ayyappa. The sacred grove protection in name of religious reason benefit

environment as it is the place of rich flora and fauna (Centre for Environment and Development, 2013).

The Joint Ecological Commission (JEC), an inter-denominational network of Christian churches in Kerala, through Eco-Church fellowship, promotes eco-friendly lifestyles, and participates in the global spiritual-environmental movements (The Forum on Religion and Ecology at Yale, n.d). The JEC promote awareness on water pollution and various kinds of environmental problems at both local and global levels and it participates in conservation projects with secular environmental groups (The Forum on Religion and Ecology at Yale, n.d). The blessing of lake called Pullichira in Kollam District as part of annual festival of Immaculate Conception Church, has religious dimension of consider the water resource precious and holy and the environmental side by emphasise the need to protect the lake clean (Pereira, 2005). Catholic Church in Kerala included wilful damage to the environment among the sins to be confessed as it hurts human beings and society (Special Correspondents, 2012). The Catholic Church adopted an environmental policy of “Towards Green Meadows”<sup>75</sup> for environmental protection by relating religion to ecosystem (Akkara, 2012). The People’s Service Society under Catholic Church engages and promotes organic farming includes fruits and vegetables (KSSF, 2010; Kerala Social Service Forum, 2015). Thus religious groups in Kerala by understanding the fact that damage on earth is damage to humans, actively participating in environment protection and spreading environment awareness.

#### **II.5.5. Environmental protection efforts of political parties in Kerala**

Political Parties in Kerala plays a prominent role in spreading environment awareness messages and give the inputs for making environment friendly policies programmes (Christy, 2015; Vallabhan, 2010). Important political party Communist Party of India Marxist (CPI (M) and its youth wing the Democratic Youth Federation of India, (DYFI), participate in environment awareness programmes and take up issues of environmental degradation at the forefront like bringing up the issue of Endosulfan

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<sup>75</sup>Towards Green Meadows" policy is an effort to involve the church in wide-ranging conservation activities. The policy listed several measures for church-run institutions to follow including the promotion of eco-spirituality, nature resource conservation and waste management (Akkara, 2012).

into the notice of Supreme court, which resulted in banning the production in 2011 (Tripathi, 2013).

As per the report of, The Hindu, 2015 in order to attain self sufficiency in organic vegetable cultivation, CPI (M) initiated organic farming with the help of technical committee comprising agricultural experts and spreading awareness on the need for organic farming and are organising organic vegetable stall all over the Kerala with a view to popularise non contaminated vegetables (Staff Reporter, 2015; Kriss, 2015). It also took comprehensive garbage management for a pollution free environment in Kerala by initiating model of waste management in which waste disposal at source is done, which is opposed to centralised waste disposal and favoured a decentralised process. This waste management favoured organic waste handling at the household level, non-organic waste handling at local self-government level (Philip, 2014).

The Indian National Congress party also initiated organic farming and proposing for waste management methods in Kerala (Vallabhan, 2010; Ajayan, 2008). Bharatiya Janata Party by understanding the importance of environment protection took up the cleaning of Karamana, Killi rivers and Parvathy Puthanar canal in Kerala under the campaign titled 'Clean the City, Cleanse the Rivers', (PTI, 2014). The Indian Union Muslim League (IUML) is paying special attention to ensure that their members do not involve in activities that affect the environment adversely. They provided strict warning to the people involving in environmentally hazardous activities and sand miners (Christy, 2013; Musthafa & Shibli, 2012). Thus political parties and youth wings, by campaigning on environment protection and involving in all crucial environmental problems, promote and provide leadership for creation of better condition of life.

## **II.6. Women participation in environmental protection movements and methods in Kerala**

Women participation in environment protection is crucial as it leads to help societies develop the sense of responsibility needed to maintain a good balance between humans and the earth's resources (U.N.O, 2002). Environmental degradation particularly affects the most vulnerable, mainly women and children who constitute the majority of the world's poor (OSCE, 2009), because of this women play decisive

roles in managing and preserving biodiversity, water, land and natural resources (Akwa, 2009). Organisation for Security and Co operation in Europe (OSCE) observes the differences in roles of women and men in society and there by the difference of women nature and men nature relation<sup>76</sup>. This women nature relation is reflected in the of core ideas of Ecofeminism from Karen Warren (1987) as there are important connections between the oppression of women and the oppression of nature; understanding the nature of these connections is necessary to any adequate understanding of the oppression of women and the oppression of nature. Women are more related to nature than men, and the environmental degradation as well as the time of natural disaster and there after women , children and unprivileged sections are the prime victim of the exploitation along with the relation between oppression of women and the oppression of nature demands solutions to ecological problems from feminist perspective (Warren, 1987; Rao, 2012; OSCE, 2009; Raymond et al., 1994).As the participation of women in environmental protection is crucial, which is justified by ecofeminist theory, the women participation in environmental protection and movements in Kerala can also be analysed from ecofeminist perspective.

Status of women in Kerala is high in comparison to that of women in most other parts of India (Franke & Chasin, 1994). Kerala is the only Indian state in which there are more females than males. Women constitute 51 percent of Kerala's population and have higher literacy rate (Government of India, 2011; Beena, 2014). The women in Kerala marry later and live longer and female children survive more than do males, than the average all-India situation (Beena, 2014). At college level as well women enrolment is higher than the men (Franke & Chasin, 1994). They also actively

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<sup>76</sup>“Although at first glance, the relationship between human society and the physical environment seems to be gender neutral, affecting both women and men in a similar way, upon closer examination one realises that the relationship is not neutral. The differentiated socio-cultural construction of men and womens’ roles means that the linkages between people and the physical environment impact differently on both sexes. As men and women have different roles in the family, community and work-force, they are likely to have different personal attitudes, priorities and power over resources when it comes to environmental protection. Men and women also interact differently with the environment, which provides them with different opportunities to protect it. All this requires that strategies for promoting environmental protection at the country, local and community level approach men and women differently For example, in most households women are responsible for water and waste management. However, due to their often restricted access to public positions and political participation, decisions about water and waste management systems in the community are often taken by men who not necessarily take into account the views and needs of the female household managers” (OSCE,2009).

participate in socio economic political and environmental activities (Minimol & Makesh, 2012; Muraleedharan, 2000). The Silent Valley Movement (1976), struggle against Coca Cola at Plachimada (2000), Anti- Endosulfan Movement are examples where women were actively participated (Karthika, 2008; Nair, 2009; PAN, 2007). Kerala had a legacy of women participation in environment protection with leaders such as (late) Mayilamma, Sugathakumari, C.K. Janu and Sara Joseph (Raman, 2010; Sebastian, 2014; Rohit, 2012). There are also Kerala environmentalist working outside Kerala like Priya pillai<sup>77</sup> and Daya Bahi<sup>78</sup>, who gained attention with their environmental involvement (Ghose, 2015). Women in Kerala involves in environmental protection through Governmental and NGOs.

### **II.6.1. Women participation in environmental protection through Governmental and Non Governmental Organisations**

Women in Kerala are actively participating in environment protection through Governmental as well as NGOs in Kerala (Joy, 2005). Decentralisation provides opportunity for women to participate in governmental decision making through local self government particularly at village level decentralised planning through Gram Sabah where active participation in government's environment programmes and strong opposition to the crucial environmental problems as sand mining, quarrying problems is possible (Western Ghats Ecology Expert Panel, 2011). Women through government departments such as Agriculture, Animal Husbandry, Forestry, Fisheries, Local Bodies, Finance, Revenue, Industries, Tribal, Khadi and Village Industries, Financial Institutions, State Corporations institutions such as Kerala Agriculture University, Commodity Boards for Spices, Coffee, Tea, Coconut and Rubber; MILMA and other milk marketing societies, Farmers' Organisations and Societies, Self Help Groups, and Organic Farming Associations, involved in environment protection and animal husbandry in Kerala (Western Ghats Ecology Expert Panel, 2011).

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<sup>77</sup>Priya Pillai is a Keralite, who is working with Green peace, recently faced the ban on going U.K from Central Government in 2015.

<sup>78</sup>Daya Bhai (Sr.Mercy Mathew) is a social as well as environmental activist working for the upliftment of tribal people in Madhya Pradesh. Her hard work created the draught prone tribal village to a land with plenty of water and paddy field with complete greenery.

Women in Kerala participate in environmental protection through Environmental NGOs (Joy, 2005). The women wing of Kerala Shastra Sahitya Parishad along with women forum and Parishad School (for women) involves in environmental conservation efforts in Kerala. Through Vanitha Kala Jatha, seminars, classes women organised themselves for environment protection, by their interest in environmental preservation (Mohankumar, 2010). Integrated Rural Technological Centre (IRTC), one of the wings of KSSP, conducted study on impact of conversion of Pokkali paddy<sup>79</sup> field in Vypin Island, resulted in strong protest against the conversion of paddy field to modern aqua culture. KSSP is also providing training for employment and income generating activities like production of soap, rabbit rearing, and mushroom cultivation as self employment avenues for women, where women are participating (Mohankumar, 2010). Women wing of KSSP propagated 'smokeless chullah', biogas plants, eco friendly products like earthen pots, hot box<sup>80</sup>, as an endeavour to create a pollution free and healthy environment (Sharma & Sharma, 2005). Thus through the environment NGO, KSSP, women are continuing their involvement in environmentally sensitive issues.

Through the environmental NGO, 'Thanal', women actively campaigning for protection of rice varieties all over India (Anishida, 2012). It began with the Kumbalangi Declaration<sup>81</sup> of Save Our Rice (Thanal, .n.d). The main partner in this campaign was Self Employed Womens' Association-Kerala (SEWA). Women took part against waste dumping and anti- Endosulfan campaign of Thanal and running organic bazaar for unique varieties of rice of Kerala under its direction (Anishida, 2012; Thanal, n.d).

Young Womens' Christian Association (YWCA) is concerned about the degradation of quality of life and environment, global warming, black carbon deposits, air pollution and climate change issues that have implications on existence and survival of humanity in general and women in specific. They conducted classes on awareness of environmental protection among women (George, 2010). BGM Social Service Centre is another NGO, based on Trivandrum where women are take part in

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<sup>79</sup>Pokkali is a unique rice variety in Kerala with a unique practice of cultivation as alternate rice-and-prawn culture.

<sup>80</sup> It is a container which keeps food always hot.

<sup>81</sup>Kumbalangi declaration is a declaration protect our rice variety as a part of 'save our rice campaign', held at a place called Kumbalangi in Cochin.



environment conservation through activities such as environmental club for spreading environmental programme include planting trees, anti-plastic campaign, rainwater harvesting, and water well construction (Servicio Civil International, 2005 ). Other environmental NGOs like, SEEK, SPEAK, Paristhithi Samrakshana Samithi, also by understanding the prominence of women nature relation, come up with wide platform for their active participation in environment protection and spreading environment awareness (Rohit, 2012; Joy, 2005). Thus women in Kerala participates in environmental protection through Governmental and NGOs.

### **II.6.2. Women involvement in anti –Coca Cola struggle in Plachimada**

Plachimada anti- Coca Cola struggle is one of the world attracted struggle of people for the right of water against multinational company (Nair, 2015). Plachimada is a small village in Perumatty Panchayat in Palakkad District, which is confronted with acute water shortage (Mathew, 2004). On 8 October 1999, Hindustan Coca Cola Beverages Private Limited (HCBPL) applied to Perumatty Panchayat for permission for setting up a bottling plant in Plachimada<sup>82</sup>. On 27 January 2000, the Panchayat granted licence to Coca-Cola, for setting up and running the factory (Mathew, 2004). The location of the plant was within the area of good paddy cultivation, which needed ground water for cultivation. The company chose this area, as per the explanation given by the KSSP, was that Coca-Cola wanted to use water from the irrigation dams nearby (Neelakandan, 2005). The exploitation of groundwater through bore wells resulted in scarcity of water source for people's daily use. As The Guardian (2003) observed,

“Sludge from this plant was being used as manure in the nearby farming fields by misleading farmers it as fertilizers, contained certain heavy metals such as lead, cadmium and chromium. Quantity and quality of the well water decreased as the water turned brackish and milky white and no longer fit for drinking, cooking and bathing. The chemicals from the plant's wastewater were vitiated the ground water. Routine agriculture was already adversely affected hundred acres of adjacent paddy lands due to the water scarcity. People who are forced to depend upon the brackish

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<sup>82</sup> Some scholars like Ravi Raman (2010) argue that it was by environmental racism that the factory placed in the midst of Adivasi dalit colonies.

water complain of a variety of illness. Skin diseases and stomach disorder were frequently reported. The people near the plant also suffered from air pollution”.

These problem of environment pollution impelled people for agitation which began in 2002 as a blockade before the factory by Adivasi women. People formed Coca-Cola Virudha Janakeeya Samara Samithy<sup>83</sup> against plant, Manushi, a womens’ welfare cooperative, People’s Union of Civil Liberties (PUCL), KSSP, and the Ayyan Kalipada, a pro naxalite group were strong supporters of the agitation and later joined by political party (Nair, 2009). Navdanya movement under leadership of Vandana Shiva supported this anti Coca- Cola movement (Decosas, 2010). The agitation gain attention with its Gandhian method of satyagraha and nonviolence include rallies, marches, meeting, hunger strike in spite of lathi charges of police (Fillipchuk, 2007; Harris, 2005). It also got worldwide attention with International Water conference<sup>84</sup> held at Plachimada in 2004 and got support from international community (Nair, 2009). After the refusal of Perumatty panchayath on the renewal of permit for company along with the high court’s decision to limit company’s intake of water up to 5 lakhs, company caught into trouble. But the High court’s decision against perumatty panchayat’s right to cancellation of the renewal of permit of company, the case went to Supreme Court. The Plachimada Coca-Cola Victims Relief and Compensation Claims Special Tribunal Bill, 2011 based on the principle of polluter pays, proposed by Left Democratic Front (LDF) Government was passed without any discussion on Feb 24th, 2011 by the 12th Assembly, which was sent for the approval by the President of India is criticised by the Union Home Ministry in 2015 and terming it unconstitutional by stating that “The State legislature does not appear to possess the necessary legislative competence to enact a law for constituting a tribunal to adjudicate the matters arising out of the violations of the law executed by Parliament under Article 253 of the Constitution, subject matter of which does not fall under the subject matter specified in list-2 or list-3 of the seventh schedule” (Shree, 2000; Shaji, 2015; PTI, 2015).

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<sup>83</sup>Anti Coca Cola People’s struggle movement.

<sup>84</sup> This conference was attended by environmentalists, Vandana Siva Jose Bové, Maude Barlow as well as members of the European Parliament and activists from all over the world. This conference also participated by every Indian political parties (Shiva, 2004).

In Plachimada pregnant women, old age women and Adivasis (as the plant is nearby Adivasi settlement) were mostly suffered by shortage as well as with contaminated water and moreover, these women had to walk ten miles a day to collect drinking water. These conditions compel women to come in the forefront of anti-CocaCola struggle (Karthika, 2008). They demanded for clean drinking water and a solid livelihood for their families. They felt the need to persuade Coca Cola to quit Plachimada (Karthika, 2008). Adivasi women were the key critics of the company as they provided the leadership for anti-Coca Cola struggle (Bijoy, 2004). Along with C.K Janu, an Adivasi leader, women from various parts of Kerala participated in the struggle. The women, dalits and Adivasis were presented at the struggle venue through out the day with a spirit of volunteerism to environment protection, despite physical threats from police thus became the backbone of the struggle (Bijoy, 2004). The leader of the movement was Mayilamma, a 65-year-old dalit woman who inspired women to participate in struggle by stated that “When you drink Coke, you drink the blood of people.” As Vandana Shiva (2006) states women in a small Indian hamlet in Kerala succeeded in shutting down a Coca-Cola plant. The presence of ecofeminist leaders like Medha Patkar and Vandana Shiva gave it lot of coverage.

As Nair (2009) states, “the participation of women in large number in Plachimada (as in Chipko) has been influenced by the impact of recent economic changes in intensifying their traditional dependence on the natural environment”. The women, dalit and Adivasi participation in this struggle reinforce the theory that deprived sections and women are always severely affected by environmental degradation as they are very much related with nature. The active struggle of women specially Adivasi and dalit womens’ right to safe water proves the ecofeminist emphasis on womens’ affinity with nature as well as proves that women are more affected than men by environmental degradation as they have face burden of collection of water as well as performance of duties prescribed by patriarchal society of Kerala.

### **II.6.3. Women and anti- Endosulfan movement**

The Kasargode District of Kerala gain worldwide attention with the tragedy of aerial spraying Endosulfan, a chemical pesticide in cashew plantations by the Plantation Corporation of Kerala for twenty years, which started in 1978 (Irshad & Joseph, 2015). According to Rajendran (2011), “When Rachel Carson’s Silent Spring was

published in 1962; many did not believe her revelations on the effect of the dumping of chemicals. Decades later, her findings are similar the happenings in the highly literate state of Kerala. Poor scientific research, ignorance, and a mindless administration dumping poisonous pesticides have all collectively caused irreparable damages to the environment, and generated economic gains. Developing countries are becoming the dumping yard for pesticides that have been banned in developed countries". From the mid of 1990's, the community living near plantations had been complaining against the spraying of Endosulfan (Government of Kerala, 2011). The congenital anomalies<sup>85</sup> and death of domestic animals and mass death of birds, bees, fishes and frogs treated as the signals of warning on the impact of the chemical spraying of Endosulfan (Adithya, 2009). The aerial spray resulted in environmental as well as health destruction of people in that area. Children were found to be the worst affected with, mental retardation, physical deformities, cerebral palsy, epilepsy, and hydrocephalus. Men and women in the area were also affected with various chronic disease which is difficult to treat (Saini, 2014; Thampi, 2014).

Women participation in anti-Endosulfan movement is initiated by Leelakumari, who firstly started the struggle against Endosulfan with the support from NGOs of Thanal and SEEK, in turn resulted in the ban of Endosulfan in Kerala in 2005 by the official notification in gazette by Central Ministry of Kerala (Zacaria, 2015 ). A study done by Jaysree (2015) depicts the vulnerability faced by women in the area. Women are suffering from gynaecological issues include menstrual problems, continuous abortions, intra uterine death (IUD)/ still birth, neonatal/ child death, genito-urinary problems, which causes them psychological as well as social stigma. Women are suffering with serious gynaecological problems as Endosulfan affects pregnant women which in turn caused miscarriage or transferring of chemical to the foetus. The chemical passes to babies through breast milk which has serious consequences on baby's physical and mental growth, which resulted in psychological trauma of the women.

They are suffered by social stigma in the manner that the mothers of girl child are concerned with the problem hesitance of people to marry from this area. Womens'

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<sup>85</sup>Congenital anomalies are also known as birth defects, congenital disorders or congenital malformations. Congenital anomalies can be defined as structural or functional anomalies (e.g. metabolic disorders) that can be identified prenatally, at birth or later in life (WHO, 2015).

confinement to family and family roles makes her more isolated socially as taking care of the patients in the household denies women, especially mothers, the opportunities for social interaction, especially considering that the patients require constant attention. It was reported that there are families with women deserted or divorced by husbands leaving disabled children with them. Women play major role in taking care of the disabled and diseased children in the family along with their household works which are double burden for them. Thus mostly women and children are affected by Endosulfan and facing alienation from social mainstream and psychological trauma, which compel women for active participation in anti-Endosulfan struggle. Thus all these problem constitute ecofeminist aspects to the Anti Endosulfan Movement.

Women in Accredited Social Health Activist (ASHA) workers and health workers are helping the victims by providing medicine and health care benefits. A child named Shruti was born with multiple deformities due to Endosulfan exposure in Kasargod ,who now as women, is a community activist and an anti pesticide campaigner. She is the living example of womenfolk who suffered with Endosulfan spraying (PAN, 2007). Women were active participants in Endosulfan Protest Action Committee, Kasargod (Endosulfan Virudha Samara Samithi) (Harikrishnan, 2015). Through poems, dramas, writings they are propagating anti- Endosulfan sentiments along with the need to care the victims. Thus the close analysis of anti-Endosulfan movement<sup>86</sup> with the participation of women, and children who are suffering from and more exposed to vulnerabilities to the arial spray of Endosulfan, attach to basic tenant of ecofeminism.

#### **II.6.4. Women participation in Save Silent Valley movement**

As Agarwal, Narain, & Srabani (1999) observes “People’s struggle against big dams has been one of the most prominent phenomena on the socio cultural and political canvas of the country during the past two decades. Anti-dam struggles have managed

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<sup>86</sup>The awareness programme on this tragedy is ongoing. Several media enquiry and case studies are also available on the issue. Exhibitions of photographs and paintings are also been organized by environment groups as well as Mathrubhumi Publishing for generating awareness on the issue. The first film “living dead” documented the victims in 2001 and there were nearly 10 documentaries which analyzed different aspects of the issue made and released on the topic. The Kerala State human rights Commission and Kerala State Legislative Committee on environment had sittings and in depth enquiry into the issue. Scheduled communities like 21 Koraga’s and other scheduled communities are worst affected, as they were more dependent on biodiversity, which increased their exposure to Endosulfan (KSCSTE, 2011).

to create an atmosphere that is more receptive to issues like displacement and environmental impacts.” In response to the large corporate projects that threaten to affect the basic human rights to water, land and dislocating people from their ecological system, the environmental movements have emerged in Kerala (Raman, 2012). One of anti-dam movement, which paved for the new beginning of ecological awareness and environmentalism in Kerala is Silent Valley<sup>87</sup> Movement (Rohit, 2012). Silent Valley forest, which situated in Palghat District of Kerala, is enriched with rare species and flora fauna, where, several specimens that have become extinct elsewhere are found. The Zoological Survey of India has identified several rare and endangered faunal species including butterflies, birds, fish, amphibians, reptiles and mammals in the silent valley (Swaminathan, 2014). Many insects and birds like the black orange flycatcher, the white browed bulbul, the hill myna and hornbills along with three endangered mammals: the lion tailed macaque; the tiger and the Nilgiri tahr are also found here. The lion tailed macaque is one of the most endangered mammals in the world (Agarwal, Chopra & Sharma, 1982). The categorisation of Silent Valley as important biodiversity hotspot in Southern end of Western Ghats in Kerala attracted the environmentalists, with regard to the environment versus development debate (Rohit, 2012).

With a view to hydroelectric power project in the Silent Valley forest, Government of Kerala's decided to build a dam across the Kunthipuzha in 1973, which confronted with protest from environmentalist, artists, scientists, academicians, NGOs such as KSSP, SEEK, Save Silent Valley Committee in Bombay, and especially from Prakrithi Samrakshana Samiti, an association of writers, and women. The Save Silent Valley Movement becomes active in 1976 (Ibid).

Women actively participated in Save Silent Valley Movement. Sugathakumari through her poems motivated people to the primacy of environmental conservation. Through poems Sugathakumari asserted women affinity with nature by observing nature as 'Mother' and remind about protection of nature from destruction as our primary duty as children (Ibid). Her poem "Marathinu Stuti"(Hymn to the Tree), which revolves on the discourse on forest destruction, become the official song of

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<sup>87</sup>The name Silent Valley is asserted by the lack of crickets in the forest. The Silent Valley is associated with the mythological character of Draupadi who was also known as Sairandhri. The river Kunthipuzha, is named after Kunthi Devi, the mother of the Pandavas. It is believed that the Pandavas together with their consort spent a considerable part of their vanavasa or life in the forest here (Nair, Thampi & Babu, 1999).

Prakrithi Samrakshana samithi. According to Rohit (2012), "the disturbing image of the majestic tree wearing on its "broad chest, the stains caused by our axe" was able to elicit massive emotional identification with the ideals of the anti Silent Valley Hydroelectric Power movement". Even though the project offered job opportunities and electrification, people; especially women protested and prioritised the conservation of silent valley forest. Despite of Silent Valley forest is not occupied by any people<sup>88</sup>, in the outskirts of reserve forest lives the indigenous tribes, who were concerned with loss of collection of forest produces and destruction of biodiversity with the materialisation of hydro eclectic power project, which compel them to join the protests (Bhanoo, 2015). The involvement of women and tribal population in Save Silent Valley Movement along with victory of the cause of endangered species proved the fact that the bio-sphere and marginalised has the same right to live on earth (Sasikala, 2014), which in turn assert the fact of marginalised people's and non human being connection and right in nature, and the tenant that non eco friendly development inversely affect the marginalised which all resemble the basic tenant of ecofeminism. Thus it rewrite the illusion of big dams are the symbol of development and Silent Valley project came to halt by initiative of Indira Gandhi, in 1983, which marked the success of environment over development thus reinforce the basic right of marginalised and bio sphere.

## **II.7. Environmental protection methods by women in Kerala**

The women in Kerala have adopted various methods and sources for environmental protection. These method and avenues adopted and explored for environmental protection includes methods in water conservation, methods of waste management, struggles against quarrying and mining, participation in agriculture, forest protection efforts, and environmental protection efforts through self help groups and neighbourhood groups.

### **II.7.1. Women efforts in environmental protection through water conservation**

Rivers are the nervous system of Kerala state as it is enriched with 44 rivers, lakes and wetland ecosystem (Kerala State Environment Report, 2007). The degradation of

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<sup>88</sup>The Save Silent Valley Movement is for protection of biodiversity from ecological sense .It did not included problem of displacement of settlement , as there were no communities living in the forests, unlike many other dam construction projects (Sarabhai, Jain, & Raghunathan, 2002). The movement created public awareness that the development which harms the environment will adversely affect the social and economic life of the future generations.

river and water systems in Kerala compel women to take active steps for its protection as women are mostly affected by water crisis which is states by Haseena & Ajims (2014) as “We find women the single most affected or prey to bonded victimisation as a result of the imposed responsibilities on the women across culture and continents. In the case of household management, it has been imposed from above as the sole burden of the women in Kerala also. Women discharge a lot of unpaid and unattended duties in her effort to make the household management the best. It becomes a herculean task when the resources mobilisation also becomes the responsibility of women. When there is no water in the villages, no crops grown, no cattle can be feed. The women folk, who are primarily engaged with agriculture and related activities as their earning, is excluded from economic activities and they are not able to earn. And when the water becomes paid and commercialised it become a precious commodity the rural woman dream”, which substantiate that the water crisis is crucial for women in Kerala.

In order save every drop of water, women participated in Jalanidhi project<sup>89</sup> (which began in 2001) in Calicut Districti (ABC Environ Solutions Pvt Ltd, 2011). Those who voice against this project to protect water, women together replied them in the streets vocally challenging those who were opposing the scheme by stated that they were the ones suffering because of lack of water and would fight anybody opposing the implementation. Jalanidhi had changed the way of life for many women as an elderly lady whose house got a water tap due to Jalanidhi said, “I used to spend more than three/four hours a day getting water for cooking and drinking. I had to use the water multiple times – first wash the rice and pulses then use the same water to wash fish or vegetables. Now I have more time to spend with the family. I am thinking of joining Kudumbasree (a self help group program)” (London Business School, 2008). It overall changed womens’ role in society by getting enough water as women are the most affected both directly and indirectly, during water shortages (Udayabhanu, 2005).

Through project, women also become leaders to represent their needs by included in decision making activities (London Business School, 2008). Later women are in the

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<sup>89</sup>It is a project to improve the quality of rural water supply and environmental sanitation service delivery to achieve sustainability of investment by Kerala government aided by World Bank (ABC Environ Solutions Pvt Ltd, 2011).



forefront for implementation of this project in other Districts of Kerala (ABC Environ Solutions Pvt Ltd, 2011). Women involved in finding out new sources of water like wells. Women in Malappuram District wrote a success story of digging 100 wells in their area to end shortage of water, earlier which job is secluded for men only (Dna, 2015). Thus women declared their strong will to save water.

Womens' role in protection of Chalakudy river from the gelatin<sup>90</sup> manufacturing company, Nitta Gelatin, which began operation in 1979 is important (Binoy, 2014). The company's gelatine division located at Kathikudam in Thrissur District, on the Shore of Chalakudy River. The company used million litres of water from the river as well as it dumped the toxic waste water from the plant to the river. Sara Joseph, poet and environmentalist headed the agitation and organised women against this pollution. The women leaders, who were in the forefront of protest against Nitta Gelatin India Ltd (NGIL), were Girija Lohidakshan, Mini Vijayan, Shirley Paul, and Ayshabi Ramesh, who had to suffer brutal lathi charge from police (FFC, 2013).

According to the Fact Finding Commission (FFC) report 2013, the police brutality went to the extent that all property and houses were destroyed and threatened to rape the women. But women continued the protest and hunger strike by emphasising that struggle of the local communities was merely for the right to live and breathe fresh air as the company caused them air pollution, water pollution, health problems, loss of agriculture and fishing. Women members of Chalakudi Puzha Samrakshana Samithi<sup>91</sup> participated in the struggle to protect river which is an immediate necessity for conservation of water (Binoy, 2014). Many of the NGIL members were working class and lower caste women from Kathikudam and its surroundings, who claimed that they were fighting for the right to life as well as for their families and the environment. They collected signatures against company by travelling miles (Ibid). Thus for protection of their right to clear air and water women in Kathikudam participated in struggle against NGIL.

The Adivasi women strong protest against destruction of river is visible by the incident, where Adivasi women in Attappady in Palakkad District physically

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<sup>90</sup>The raw materials used in the production process of Gelatin are primarily crushed bones, hydrochloric acid, hydrated lime and water (FFC, 2013).

<sup>91</sup>Chalakkudy River Protection Association

obstructed the bulldozers against diversion of Bhavani River. They had to suffer jailing and torture for several days (Anitha, 2011). For the protection of Muriyad Lake women in Thrissur united. In the eight panchayats surrounding the Muriyad Lake in Thrissur District, women in spite of political differences took the initiative of protect the lake that was reclaimed by illegal mining and land encroachers (Ibid). The words of the lone women fighter who stands for the rights of the river to flow at Neyyattinkara which is under the exploitation of the sand miners as” I am not afraid. Let them abuse, throw stones, come and pull my house down. I am not afraid of death” (Anitha, 2011), reflect womens’ strong stand for the protection of natural right to live and protection of environment.

Woman through MGNREGA<sup>92</sup>, and Kudumbasree protect river bank and cleans vestiges in the lakes (Ministry of Rural Development, 2014). They participate in protection of rivers like Chaliyar Nila and Kadalundi Puzha. Womens’ works on water conservation and irrigation programmes increased the groundwater holding of the land and in turn results in boosting agriculture, especially paddy cultivation. More than one metre increase of water table is reported in these areas as result of protection of these rivers in Kerala (Varkey, 2010). Women considered wetland and mangroves<sup>93</sup> are essential for balancing ecological system, and its preservation is visible through the examples of activities of Narayani and Mariamma with regard to protection of mangroves. Narayani who lives in Cheballikkundu, in the coastal wetlands of North Kerala, tries to preserve the island and migratory birds, in spite of threatens from real estate developers. In spite of the challenges, Mariamma of Kumarakom, is working to protect and replant mangroves in the Vembanad Lake (Devika, 2009). Mariamma proposed for alternative to concrete compound wall with mangroves as it is environment friendly to protect soil erosion in coastal area, thus spreading the concept of environment friendly lifestyle (ATREE, 2008).

The Theera Desa Mahila Vedi protested against environmental degradation and fisheries problem including male domination in marketing of fish, right to catch fish

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<sup>92</sup> Mahatma Gandhi National Rural Employment Guarantee Act.

<sup>93</sup>The term mangroves refer to an ecological group of halophytic plant species which is known as the salt tolerant forest ecosystem and provides a wide range of ecological and economic products and services and supports a variety of other coastal and marine ecosystems (Gujrath Ecology Commission, 2014).

and all gender discrimination in the coastal area of Kerala, especially in Trivandrum, Alappuzha, Kollam and Calicut (John, 2012). It actively took part in the Adivasi land struggle led by C.K. Janu, environmental protection struggles by different environment groups, and Anti Coca-Cola struggle in Plachimada (Ibid), through which they tried to connect the environment protection groups together for their basic right. Women involved in sea turtle protection by nursing the newborn sea turtle and mother turtles in Kolavipalam Calicut (Kutty & Shankar, 2005) prove women concern for non human's right. Thus women in Kerala by understanding the significance of water resources management and coastal protection actively partaking in environmental conservation by highlighting the fact that women and environment are closely related as well as emphasising on importance of right of marginalised, and non-humans for better right to life .

### **II.7.2. Women efforts in waste managements**

With population growth, Kerala is facing the problem of disposal of solid, organic as well as inorganic waste without harming environment (Koshi, 2010). Kerala women are in forefront of waste management programmes (Anitha, 2011; Dhanalakshmi, 2014). Through Coca-Cola struggle women also fought against the toxic waste dumping by the factory in nearby area of Plachimada, along with the struggle for non contaminated water (Realmagic, 2015). Women in Trivandrum protested against the waste dumping in the plant nearby their village with blockading the road through which 20 lorries of untreated waste from Trivandrum city was being taken to the waste treatment plant (Anitha, 2011). Women under the leadership of Panchayat president resisted with fast unto death in Trivandrum, because it is the question of their right to live in a clean and healthy environment as environmental degradation has mostly affecting women. The strong resistance of women on solid waste treatment plants in Vilappilsala in Trivandrum and Kannur, where the waste of a city and waste from a pig farm was dumped in their small village, depicted in the words of a protester women as “Why should we take your waste? Why are our waters and health being sacrificed so that you can be neat and clean?”(Ibid).

In Laloor in Thrissur District, women under the leadership of Laloor Malineekarana Virudha Samara Samithy<sup>94</sup> activist K.K. Omana, and other social activists K Venu and Parvathy Pavanan succeeded in termination of waste treatment plant. They got agitators, include women from Vilappilsala, Thottilppalam, Njelianparambu, Vadavathoorr, Kureepuzha, Chakkumkandam and Pettippalam to express solidarity with the residents of Laloor, as they are also be afflicted with same problem (The Correspondent, 2012). Thus the strong resistance of women succeeded in halting of waste treatment plant in Vilappilsala, Laloor and other parts of Kerala.

Women through Kudumbasree doing door to door waste collection, which is considered as an informal solid waste management system based on collection of waste (Dhanalakshmi, 2014). They are using segregated waste in composting the biodegradable waste thus saving the energy needs of people. They ensure ecological equilibrium by preventing spreading waste in soil, water and air. Kudumbasree waste workers thus through collection and disposal of waste ensures a healthier and cleaner living surroundings for the public (Danalakshmi, 2014). In every District of Kerala the presence of Kudumbasree units of women, by involvement in solid waste management ensure clean environment free from hurdles of waste disposal (Beena, 2014). Thus women with proper understanding of the value of clean environment for human and non humans actively involves in solid waste disposal in Kerala.

### **II.7.3. Women struggle against quarrying and mining**

Kerala is facing a consequential issue of illegal sand mining and quarrying which has changed the cartography of the state, which grew to the extent that Maoist attack against quarrying happened in Kannur District of Kerala (Deb, 2015; Shreeba, 2013). Women with a spirit of protecting biodiversity, involves in struggle against exploitation of natural resources and habitat by unauthorised quarrying and mining (Special Correspondent, 2014). The women in Alapad in Kollam District protested against Indian Rare Earths Company from mining sand from their coastal homes in spite of police lathi charge and branding them as lawbreakers. In Vettikulangara also women strongly strikes against quarrying mafia (Anitha, 2011), which all found success. In Pallichal, under Mookunnimala Protection Forum Blockade, rallies and Satyagraha held with the participation of famous environmentalists including Medha

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<sup>94</sup>Association of Anti waste campaigners in Laloor.

Patkar and Sugathakumari against quarrying companies. Sugathakumari identified innumerable unauthorised quarrying in state and become the crucial critics of state policy of authorization by government for quarrying and mining (Kairali T.V, 2014). Thus every District of Kerala faces the same problem of quarrying and mining and women and children are the main protesters against quarrying companies.

Women like Jazeera from Kannur District in Kerala, by understanding the importance of preservation of sand beds of coastal area started protest in Kerala along with her children against mining of coastal sand bed, and struggle went to the extent that it reached to Delhi (Reyaz, 2013; Philip, 2013). She is one among women who lost her house and property due to sand mining. The strong determination to save environment for future generation can be visible from her words as “I am doing this for my children; if we don’t stop now, there will be nothing left of the beaches. Our houses will submerge into the sea...” (Ramchandran, 2014). The children with her also properly understood the value of environment protection through their mother’s struggle and learned a practical lesson of environment protection<sup>95</sup>. All these environment protection efforts by women in Kerala is pointing to the fact that in the name of development and industrialisation, the reckless authorisation by government authorities for exploitation of natural resources to industries most adversely affecting lives of women children and other marginalised sections, as which is emphasised by ecofeminist like Vandana Shiva (1988).

#### **II.7.4. Women participation in agriculture**

The term farmer is used biased along the lines of gender in the manner that women engaged in agriculture have not been acknowledged as farmers, as the agricultural work performed by women is seen as an extension of their household work (Anand & Maskara 2014). In Kerala the case is the same but women actively involved in agricultural activities. In Tirunelli, in Wayanad District of Kerala, through Lavanya, self help group women started paddy cultivation for food security, where as earlier

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<sup>95</sup>The words of Jazeer’s daughter prove their understanding of environment cause. According to Anitha (2013 “She spoke with clarity and commitment to prove the fact that if more sand is removed it would mean loss of land and danger to houses. My mother does not speak for herself or for us. She speaks for the seashore and the sea which she says has given so much support to so many that we should not kill that. It is this clear vision of hers and the love she showers on us in spite of all the hardships and uncertainties that make us want to be with her” (Anitha,2013).

they had to depend on other landowners for labour and food production. The success and confidence of women, especially women of tribes involved in collective paddy cultivation in Tirunelli depicted in the words of Usha, as “While eating at home, I proudly remind my husband of the fact that the rice we are eating is the fruit of my efforts” (Anand & Maskara 2014).

In Malappuram District, women's group named Krishi Sahayi (agriculture helpers) is helping farmer's groups for undertaking mechanised paddy cultivation in cost effective way (Prabumj, n.d). Women community in Eriyamkudy in Thrissur fought for the right to plant paddy and retain the water cycle in the wetlands and which in turn resulted in ban the land developers and real estate lobby from administration in the area (Anitha, 2011). Through Kudumbasree and Neighbourhood Group women converted barren land to farming land in Kerala (Anand & Maskara 2014). Through Kerala Educational Development and Employment Society (KEDES), women developed skill in horticulture and floriculture which result in increase of family income as well as food security. The formation of Food Security Army to ensure food security by members of Kudumbasree in Thrissur is a sound leap towards self sufficiency in food by a consumer state like Kerala (Kuruganti, 2015). The confidence and stubbornness of women in their attitude towards agriculture can be visible in the words of Celina Varghese of Kodakara, “The training (for food security army or Green Army) has made us believe that nothing is impossible. We knew nothing about farm mechanisation and service of machinery. We doubted whether women could handle farm machinery. The doubts have been dispelled”, she is the few among the self confident women after joining for environment cause (Special Correspondent, 2014).

The indigenous knowledge of women in farming, and the preconceived notion of men as women cannot contribute much to agriculture led to the ignorance of women as farmers but the successful stories of woman farmers especially through self help groups in Kerala depict their active involvement in agriculture (Anand & Maskara 2014). Women in Kerala at pivotal of spreading Terrace farming or kitchen garden culture, specially organic vegetables and fruits (Regunath, 2013, Kissan Kerala, 2013, Rebecca, 2011& Kissan Kerala, 2010). The stories of Women like Mini Raj, Anitha, Anne George, Asha, Nargeese, and Tresya on cultivating organic fruits and

vegetables spices, and active efforts of spreading organic farming i.e farming without harming ecosystem, are attracted more women to that field. They are also members of Organic Farm Association of India (Kerala.dox, 2010).

Women through self help groups, run organic bazaar and marketing the products of organic farms mainly in all Districti centres of Kerala. The contaminated food which cause half of the income in the way to treatment for disease, compel people to initiate to produce whatever they want within their compound include terrace (Kerala State, 2008; Kerala.dox, 2010). As with the assigned burden of cooking and taking care of family members on women by society, they are more conscious of the health of family especially, of children, and thus women are in the forefront of kitchen gardening as they are taking care of the health of family (Lijinu, et al.,2011).The Malayalam film, ‘How Old Are You’<sup>96</sup> had its impact on women who worried about the contaminated food that they every day preparing for family and many women followed the heroine, Nirupama, who is a strong ecofeminist character, which resulted in a growing obsession with kitchen garden and terrace farming in Kerala by women (Nicy, 2014; Prakash, 2014; Nair, 2014). Many women farmers come forward for terrace cultivation with the influence of the film and the heroine in this film, Manju Warrior becomes the brand ambassador of Kerala Government Kudumbasree organic farming (Nicy, 2014).

The terrace farming is mostly practised in Kochi, Trivandrum and Calicut, which are the main metropolitan cities of Kerala, where women have to completely depend on markets for vegetables (George, 2012; Kerala.dox, 2010). There is also women agro entrepreneurs in Kerala, Sherin Ashref is one among them who left her footprint in agro based industry, named Hafi Biotech, which is a unique Agro-biotech company, which produce, tissue culture plants, vegetables and flowers as well as herbal plants, which has market beyond India (Neendur, 2013). Thus women in Kerala by understanding the need of food security and reduce the effect of contamination on their health and moulding a better healthy generation without consuming contaminated food, through agricultural conservation, organic farming and kitchen gardens contribute to environment protection.

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<sup>96</sup>This Malayalam film is directed, by Rossahan Andrews in 2014,which is a feminist film, which depict the patriarchy in Kerala society along with a womens’ quest for independence through organic farming.

### II.7.5. Women in forest protection

Women in Kerala are in forefront of protection of forest and sacred grove<sup>97</sup> (Chandrashekara, 2010). Sacred groves form important conservation area of bio diversity in Kerala. 364 important sacred groves are identified in Kerala with 722 species (Anupama, 2012). Women participate in the conservation and day-to-day management of sacred groves in order to makes it as ever green forest to preserve rare species of flora and fauna in Kerala (Chandrashekara, 2010).

Women and forest are related directly as they depends forest for non timber forest produce like fuel, fodder and food items for daily use as well as a source of income (Maksimowski, 2011). In Periyar Tiger Reserve Forest, women form a patrolling group, Vasantha Sena,<sup>98</sup> consists of mostly tribal members for the protection of forest and its animals from poachers. They have made the area poacher free with the activities of Vasantha Sena (Infochange, 2015). In recognition of their services, they were awarded the Amrit Devi Bishnoi Award, the highest award in India for wildlife protection for 2006 (Ministry of Environment and Forest, 2007). The effective role of Vasantha Sena, to convince and spread of environment awareness is reflected by Gracy, chairperson of Vasantha Sena as told reporters, that “it was difficult at first to convince men not to cut trees. The men folk slowly understood that without trees, forests would vanish and in time, they too” (PTI, 2007).

As per the study of Shaiyra Devi (2015), on Vasantha Sena, women are entered to informal patrols because of the inadequacy they feel on environmental protection efforts by men and the ways they are generally excluded from decision-making processes in Joint Forest Management, because of social barriers such as men’s lack of respect for womens’ opinions during meetings, men’s drinking during meetings, and the expectation of womens’ modesty inhibiting their free speech. The patrol offers a safer form of conservation participation does not necessitate the presence of men.

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<sup>97</sup>Sacred Groves / Forests comprise of patches of forests or natural vegetation it starts from a few trees to forests of several acres ,which are dedicated to local folk deities (Example – Ayyanar and Amman) or tree spirits (Vana devatas). These spaces are protected by local communities because of their religious beliefs and traditional rituals that run through several generations (Chandrashekara, 2010).

<sup>98</sup>Vasantha Sena', comprising about 82 women, take turns to protect trees and animals in the problem prone areas of the PTR, which is enriched with to as many as 63 species of mammals, 323 species of birds, 44 species of reptiles, 28 species of amphibians, 38 species of fishes and 160 species of butterflies and 1986 species of flowering plants (Infochange, 2015).



Through MGNREGA women are involved in afforestation programmes throughout Kerala by planting tree on deforested area as well as planting mangroves on shores (Azeez, 2014). Women also actively participates in Joint Forest Management (JFM)<sup>99</sup> in Kerala along with Adivasis and tribal groups (Balooni & Inoue, 2009; Chandrasekar, n.d.). Most of the members of Vana Samrakshana Samithi, a wing in JFM are women (Chandrasekar, n.d.). Kerala provides representation for women in JFM Executive Committee along with representation to SC/ST marginal and landless people forest dependant community (Murali, Rao & Ravindranath, 2003). Wayanadu as part of JFM, Ooru Kuttam, a form of Gram Sabha among Adivasis is constituted which has representation of women in turn which helps in women efforts to environment participation by taking adequate decisions (Chemmencheri, 2013). But compared to the efforts of women in environment protection, women are not properly consulted or represented in decision making bodies of community forestry, as argued by Agarwal (2001). The Adivasi women and tribal women group protect environment through conservation of sacred plants, medicinal plants, trees, and making eco friendly daily use goods (MSSRF, 2009; Shylajan & Mythili, 2007). Thus women who are more attached to forest by their dependence on non timber forest products collection aware on the primacy of forest protection actively participate in forest and sacred grove protection in Kerala.

#### **II.7.6. Women environment protection effort through Self Help Groups**

The empowerment through Kudumbasree<sup>100</sup> and self help group, Neighbourhood Groups (NHG) in Kerala made women less dependable on men for livelihood (Thomas, 2014; John, 2009; Anand, 2002). Through Kudumbasree and NHG women are take part in agriculture, food production, production of eco friendly daily use goods and spreading environment awareness among society (Naha, 2008; Anand,

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<sup>99</sup>According to Government of India “Joint Forest Management (JFM) is a concept of developing partnerships between fringe forest user groups and the Forest Department (FD) on the basis of mutual trust and jointly defined roles and responsibilities with regard to forest protection and development. In JFM, the user (local communities) and the owner (Government) manage the resource and share the cost equal” (Ministry of Environment and Forest Government of India, n.d.). Though the Government of India initiated JFM in 1990, but only in 1998 it started in Kerala as Participatory Forest Management.

<sup>100</sup>Kudumbasree means prosperity of the family in Malayalam. Kudumbashree is a multi-faceted women based participatory poverty eradication programme jointly initiated by Government of Kerala and NABARD. It is implemented by community based organizations (CBOs) of poor women in co-operation with Local Self Government Institutions (Mahima & Lavanya, 2013).

2002). The success stories of collective farming in Tirunelli, Wayanadu, the success story of Kairali self help group in organic cultivation in Wayanadu, the organic rice cultivation in Thennala in Malappuram District, paddy cultivation in Kuttanad by women are not only adding income to their family and economic self sufficiency, but addition to food security to people of Kerala by making available healthy non contaminated food (Anand & Maskara 2014; Times of India, 2015).

The report of The Hindu (2008), depict the success story of Kudumbasree in Malappuram District which, was the backward District with highest population and less educated people, and highest infant mortality rate, in Kerala (Basheer, 2015). But with activities of Kudumbasree the total change from this backwardness happened which gave way to empowerment of women, who now able to export their products especially, flowers vegetable, curry powder, and organic rice, fruits and thus ensure food security abroad through international air port situated in Karipur, Malappuram District (Naha, 2008). Women also empowered enough to start acres of lease land farming, which earlier were the monopoly of men. The milk units, coconut oil unit, snacks unit, hotels, which held successfully in the District provides sources of healthy and non contaminated food supply (Correspondent, 2015).

In Idukki District, women in Kudumbasree are more concentrates on cultivation of tapioca, vegetables and ginger are while in Kannur Kudumbasree members engage in doing paddy, banana and vegetable cultivation, mushroom production and goat rearing and soil waste management. Women through Kudumbasree units ensure health of future generation by production of Nutrimix, baby food, ensures that their babies taking non contaminated food (Siji, 2014; Prabhakar, 2012). In Kottayam District Kudumbasree groups entered into the business of ornamental fish culture, production of 'Amrutham' food mix for Anganwadis, responsible tourism, organic vegetable cultivation while in Alapuzha District their work concentrated on the production of Kuttanadan Kuthari (rice), pickles, honey, wine, soap making, rice powder, medicinal Njavara rice, tamarind, mushroom cultivation, and purified coconut oil (Jacob, 2008; Siji, 2014).

In Wayanadu the Kudumbasree units are concentrating on dairy farming, organic vegetable cultivation, preparation of Bamboo shoots pickles and bamboo rice products. In Kasargod District along with cultivation in lease land women in Kudumbasree units are also engaged in goat/cow rearing, plantain cultivation, poultry,

paddy cultivation, and vegetable growing nursery (Siji, 2014; Prabhakar, 2012). Thus Kudumbasree units in every District of Kerala adds to food security and agriculture development.

Kudumbasree units in all over Kerala, especially in metropolitan cities held the responsibilities of Clean Kerala by collecting and processing solid wastes and make assurance of clean and clear environment (Dhanalakshmi, 2014; Suchithra, 2012). In the field of water conservation, coastland and fisheries conservation and in river protection especially in Trivandrum, Calicut, Kollam, Kudumbasree's contribution are important (Staff Reporter, 2013; Staff Reporter, 2014). Through MGNREGA and schemes of Local self Government women through Kudumbasree units engages in protection of plants, wildlife, and greenery for better environment. In Calicut District, on June 5, the world Environment Day Kudumbasree initiated an environment protection collective named 'Mannolam' (up to soil), as a part of Social Forestry<sup>101</sup>. It meant to protect already planted saplings, plant new saplings, and spread environment awareness (Staff Reporter, 2015).

Women through Kudumbasree are in the forefront of Responsible Tourism<sup>102</sup> (RT) in Kerala. Department of tourism decided to appointment a Kudumbashree consultant for effective implementation of RT in Kumarakom destination (Department of Tourism Kerala, 2013). Later it applied to tourist destination of Wayanadu, Thekkady, and Kumali in Kerala. The Kudumbasree Consultant conducted a demand analysis survey in hotel industry and prepared an agricultural calendar for the supply of vegetables to the hotels and resorts without any break. Each Kudumbashree units formed an activity group containing five members each for each vegetable crop. In such a way 180 groups (900 women) started vegetable cultivation in Kumarakom, Waynadu, Thekkady, Kovalam and Kumali (Nissar, 2014).

Department of Tourism developed different micro enterprises, souvenir units, art and cultural groups in the destination, where Kudumbasree members play crucial role.

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<sup>101</sup> It implies growing trees on private, community or government non-forest lands, for fulfil the local community's basic needs of fuel wood, small wood and fodder. It was first articulated by National Commission on Agriculture, in 1976(Singh, 1999).

<sup>102</sup> Responsible Tourism (RT) is mainly conceived with three kinds of responsibilities which are termed as the 'triple bottom-line' economic responsibility, social responsibility and environmental responsibility. Though the concept of responsible tourism was there right from 1996, it was after the Cape Town Declaration of 2002 its aims, and factors evolved. RT encompasses all forms of tourism and seeks to minimize negative economic, environment and social impacts. It generates greater economic benefits to local people and enhances the wellbeing of local communities (Nissar, 2014).

They are providing, vegetables, rice, fish and fruits, flowers for the particular tourist destination. They opened a local procurement supply unit named Samrudhi for the indigenous food supply in tourist area (Nissar & Munawar, 2014). Kudumbasree members in main tourist destination took responsibility of keeping environment garbage free and especially plastic free by their environment awareness programmes (Nissar, 2014). Thus Kudumbasree units in Kerala whose members are mostly poor and Adivasi women, got not only opportunity for socio, political economic empowerment and economic self reliance, but also for creating and protecting a better environment and biodiversity, and spread of environment awareness. Thus through water conservation, methods of waste management, struggles against quarrying and mining, participation in agriculture, forest protection efforts, and environmental protection efforts through self help groups and neighbourhood groups and active participation in environmental protection movement.

## **II.8. Development of ecofeminism through literature and women involvement in issues of marginalised sections in Kerala**

The ecofeminist ideology reached Kerala through literature very lately (Sebastian, 2014). There are prominent contributors to ecofeminist literature in Malayalam such as Sugatakumari, Sara Joseph, Anita Nair, Arunthathi Roy, Madavi Kutty, P.Valsala and K.R. Meera (Sebastian, 2014). Throughout their writings, it is reflected the intensity of women feeling on environment and inspiration for women to protect environment which in turn points to the idea that women are mostly affected by environmental degradation and they have positive relation with nature (Kerala, 2015; Joseph, 1999; Sebastian, 2014). Sugathakumari, the leader of Prakrithi Samrakshana Samithi influenced the Anti-Silent Valley Hydroelectric Project agitation through inspirational poem like Marathinu Stuthi. Poems of Sugathakumari such as *Pacha* (Greenary), *Pathirappookal* (Flowers of Midnight), *Raathrimazha* (Night Rain), *Swapnabhoomi Kurinjippookkal* (Kurinji Flowers) *Thulaavarshappacha* (The Monsoon Green) depict the innate relation of nature with women and quest for prosperous environment (Kerala Shitya Academy, 2014). Sugathakumari through her poems hold the woman and nature relation and fights against the oppressions upon them in order to end to the abuse of all- races, children, animals, plants, rocks, water and air (Suja, 2015).

Kamala Das's writings are predominated with the feminine issues includes the dominating attitude of society towards women, which based on patriarchy. She is considered as ecofeminist pioneer of Kerala literature (Sebastian, 2014). The works named Amavasi, Manomi, Vandikkalakkal, "Chekkerunna Pakshikal, Manasi are some examples having ecofeminist point of view (Sebastian, 2014).

Arundhati Roy, in book *The God of Small Things*, narrates the ecofeminist analysis of the story of brother and sister in Aymanam, a place in Kottayam District, Kerala (Chae, 2015). The story depicts the author's concern on environment protection along with the problematic position of women in society and the domination of man and patriarchy (Chae, 2015; Al Quader & Islam, 2011).

Sara Joseph, environmentalist as well as ecofeminist writer through her books inspires the people of Kerala. Her important Ecofeminist works are *Aalahayude Penmakkal* (Daughters of God- the father), *Maattathi and Othappu*, *the Scent of the Other Side*, *Gift in Green* and *The Vigil* represent the ecofeminist perspective of life (Krishna & Jha, 2014).

In Malayalam literature, P.Valsala through her ecofeminist writings vigorously argues for women, Adivasi and environment rights. Valsala tries to incorporate importance of tree, water, soil and biodiversity and environmental sustainability through ecofeminist characters in her stories (Sebastian, 2014). Ros Mary's *Sky*, *Nellu* (rice), *Kooman Kolli*, *Agnayam*, and *Arum Marikkunilla* ( nobody dies) are important writings of Valsala, where the characters are mostly adivais, who fought for right to live and against exploitation by so called state and upper castes (Sebastian, 2014). Thus by associating environment degradation and exploitation to that of women and Adivasis, Valsala's stories propagates ecofeminism.

The ecofeminist writings and studies are popularised in Kerala through the publications by P.E. Usha, 'Sthreevadavum Paristhithiyum' (Feminism and Environment), S. Santhi, Asha Kampurathu, S.Anitha and S.Usha who jointly published a journal of ecofeminism named *Neeradam*. The chapter 'Paristhika Streevadam' (Ecofeminism), by S.Saradakutty in the second volume on Feminism, published by Kerala Language Institute, is an introductory study on the topic. The poets, V.M. Girija, Prameela Devi and Kanimol have made contributions in the field of ecofeminism in Kerala. Sushama and Geetha Hiranyan, Ashitha, Priya A.S, Sithara S., Dhanya Raj and V. Shyma, are the writers who write on ecofeminism. P.

Chandramati is another significant contributor to the ecofeminist literature. Thus in Kerala, even though ecofeminism as a theoretical analysis yet to develop in full, its beginning marked its foot prints with literature.

Ecofeminism comprise of complex ideas. Women in Kerala are making significant contribution in these fields from an ecofeminist perspective as ecofeminism is multicultural by linking all forms of oppression together. In Kerala sexual minorities are suppressed and alienated from the main stream society, but many people including women fought for the right of sexual minorities (Doolnews, 2011; Asianet News, 2015).Deepa Vasudevan<sup>103</sup>, a founding member of Sahayatrika, (co- passanger) an organisation for lesbians in Kerala work for the mitigation of injustice to LGBT<sup>104</sup> groups in Kerala (Preetha, 2009). There is another women leader M.K Rajasree, co-ordinator of Human Rights Law Network in Alappuzha who has worked as a counsellor for sexual minorities. Many women actively participated in the Fifth Pride March of LGBT in Kerala and rendering support to them ( John,2014).In Kerala All-India Democratic Womens' Association, the CPI (M)'s womens' wing, have supported the demand for decriminalising homosexuality (Basheer, 2008).Thus women in Kerala involves and provides support for LGBT groups.

Adivasis dalits are suffering from exploitation in Kerala and mainly victims of environmental degradation (Devi, 2015; Sainath & Mukerjee, 2015; Raman, 2012).They, especially Adivasi women are suffered from exploitation of upper caste and class groups. They are denying education facilities, right to life and property and suffering with bonded labour (Sreerekha, 2010; Bindhu, 2011). Under the leadership of C.K. Janu, the Adivasi and tribal women are fighting for their basic rights (Steur, 2009). The Anti-Coca Cola struggle under the leadership of dalit leader, Mayilamma was mainly for the right of people (majority of tribal are living that area) to live in a pollution free environment with contamination free water sources (Outlook, 2005).The Adivasi women actively participates in agriculture and natural resource conservation and wants to be independents depicted in the effortsin Edamalakudi,a place in Idukki Districti in Kerala, where Adivasi women alone brought electricity through solar power to their villages (Sainath & Mukerjee,2015).Through

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<sup>103</sup> Her words prove the dignity LGBT feel in spite of the discrimination from society by working under the organisation, as "I felt very happy and proud. It is a great victory for sexual minorities.The fact that we can have consensual sex with a person of the same sex and not be looked upon as doing a criminal act is a huge plus" (Preetha, 2009).

<sup>104</sup>LGBT stands for Lesbian, Gay, Bisexual, and Transgender.

Kudumbasree and Neighbourhood Groups women from deprived communities are empowered and become self sufficient and thus women in Kerala along with Adivasi and tribal population fights for their rights (Sainath & Mukerjee, 2015).

Women in Kerala fights for the rights of women and children as labourers as they are more exploited in working place (Staff Reporter, 2010; Kumar, 2010). The strike of Sales Girls demanding the right to sit which was started by Penkoottu, an organisation for women in Kozhikode as they are denied the right to sit in shop while on duty and lower payment, which resulted in changing labour law by government in Kerala in 2015 (The Hindu, 2014). Children are employed in hotels, construction sites, hazardous stone quarries, crushes mining work sites and plantation sectors. They often subjected to exploitation and trafficking (Equations, 2008). Contribution of Sunitha Krishnan<sup>105</sup> in the field of rehabilitation of women and children from human trafficking and child labour through the organisation Prajwala is important (Sharma, 2013). The State Women Commission is in the forefront of rescuing children from human trafficking and sexual exploitation and Sugathakumari and Sara Joseph provides input regard to the protection of women and children through the organisations like Abhya and Manushi respectively (Admin, 2013; Special Correspondent, 2014; Menon, 2003; Anima, 2013).

The women workers struggle in Munnar against Kannan Devan plantation in late September 2015 is example of womens' struggle against the continuing economic exploitation and patriarchy exist in Kerala society. The women workers received only low wages compared to men workers and live under miserable conditions. Denying the partisan attitude of trade unions women started struggle as it is matter of their survival. Even though women constitute majority of trade union members they are not get proper representation in decision making body of trade unions (Devika, 2015; Lal, 2015).

According to Devika (2015) "the Munnar struggle thus falls like a thunderous slap on the cheek on Kerala's highly patriarchal history of trade unionism. It also brings to light one of Kerala's most deprived development minorities, the plantation workers,

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<sup>105</sup> Krishnan works in the areas of anti-human trafficking, psychiatric rehabilitation and social policy. She has worked relentlessly to bring about a change in the attitude of India's government for victim-friendly policies as well as awareness regarding sex trafficking, through political, legal and media advocacy. Her organization, Prajwala, has an international reputation and Krishnan is regularly consulted, in addition to the Indian authorities, by the United Nations and the US government (Prajwala, n.d).

who have been neglected mainly because they are of Tamil-origin, mostly lower-caste and to a certain extent, spatially confined.” The socialist ecofeminist analysis of women involvement in the Munnar struggle is possible in the context. The social ecofeminists see nature as a resource and stands for reasonable use of nature so that they believe that a more sustainable relationship with it is possible. Socialist ecofeminism propagate liberation of both women and nature from the constraints of patriarchy, but its goal is to encourage a social revolution that would liberate women, nature and also working-class people (Merchant, 1990). The plantation owners in Munnar are exploiting the women by compelling to overwork and thus in turn over exploiting and held in possession the natural resources only with the profit motive<sup>106</sup> (Reporter, 2015). The women plantation workers in Munnar stand for ending the capitalist patriarchal exploitation and opt for sustainability of life which fulfil their basic needs and ensure right to life thus for a just society by proper utilization of their labour forces without exploitation. Thus the socialist ecofeminist variant of women involvement is visible in the context.

Women in Kerala partaking in the issues of marginalised and deprived sections along with environment issues, which form a strong basis for the theory of ecofeminism, proposed for end patriarchal dualism in any form. In order to test whether ecofeminism is working in Kerala and find out environmental awareness among women in Kerala a field survey had done.

## **II.9. Methodology**

For identify with how ecofeminism is working in Kerala, the methods adopted by women in Kerala on environmental protection, the challenges facing by them and the suggestion on behalf of women to improve environmental protection participation, a survey is conducted using questionnaire for the present study. The method adopted is sample survey with technique of stratified random sampling. Total population of Kerala as per Census 2011 is 3, 34, 06,061 with 1, 60, 27,412 males and 1, 73, 78,649 females. 150 women were selected as population for the study, which was again divided into 6 strata, as working women, housewives, students, rural women, adivasi

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<sup>106</sup>Gomathi, one of the leaders of Pempilai Orumai (Union of Women), who are fighting against Tata Company in Kannan Devan Hills of Munnar explains through media the exploitation and suffering under plantation corporation. She stress on the fact that even for firewood from the estate the company are charging price from their wages. The water, sanitation facilities, basic facilities provides in the ‘layam’(small hut ) is not sufficient and hygienic and adversely affecting women and children. She adds the women in the family had to bear the responsibility of children and old age people and suffers from lack of better health facilities. Thus company is exploiting them in every sense (Reporter, 2015).



women and urban women in order to represent various sections of women population in Kerala evenly. The total area of Kerala is divided into three zones<sup>107</sup>, viz. Southern Kerala, Central Kerala and Northern Kerala, and from each zone 25 women from 6 categories were selected using lottery method.

The questionnaire for survey consists of both open-ended as well as close-ended questions. It includes 22 questions on general awareness of women on environment, various tenants of ecofeminism, methods employed by women in Kerala on environment protections, challenges they faced and suggestions on behalf of improve women participation in environment protection. The analysis and graphical representation of questionnaire along with findings and conclusion are given below:

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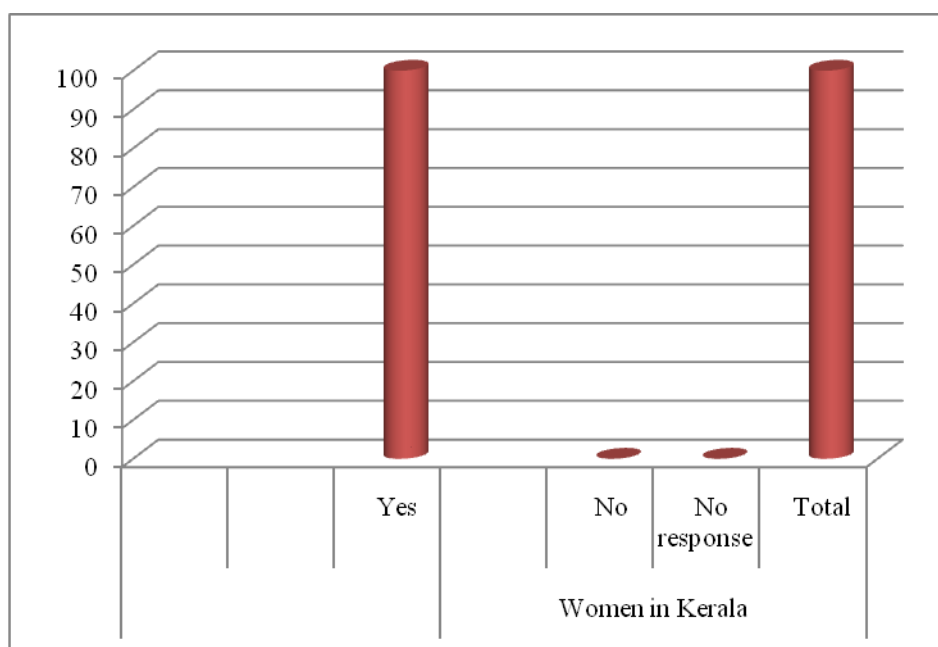
<sup>107</sup>The state of Kerala is divided into 14 revenue Districts, The southern zone of Kerala consists of Districts of Trivandrum, Kollam, Alappuzha, Pattanamthitta, Kottayam and Idukki. The Central Kerala consist of Ernakulam, Trissur, Palaghat and Northern zone consist of Malappuram, Kozhikode, Waynadu, Kannur and Kasargod.

## II.10. Analysis and graphical representation of data

**Table 2.1**

### Awareness of environment and its related issues

| Category        | Heads       | Figure in percentage |
|-----------------|-------------|----------------------|
| Women in Kerala | Yes         | 100                  |
|                 | No          | 0                    |
|                 | No response | 0                    |
|                 | Total       | 100                  |



**Figure 2. 1: Awareness of environment and its related issues**

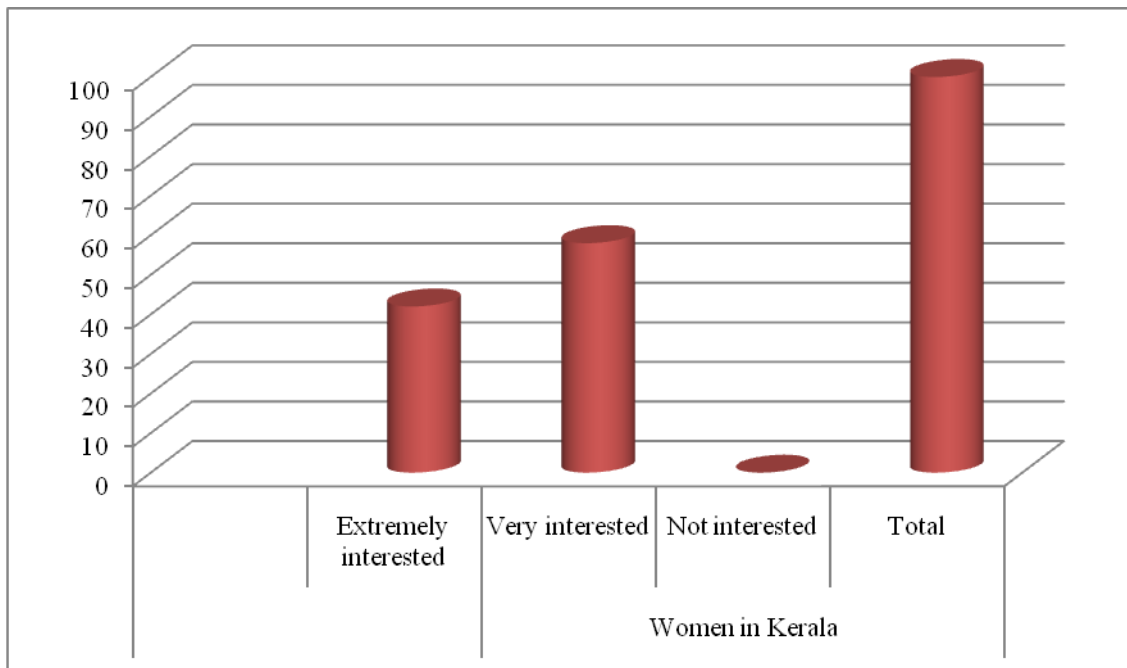
Table 2.1 and figure 2.1 shows that 100% of women in Kerala under study are aware of environment and issues related to it. During the interaction with the women on

awareness of environment and its related issues it is understood that daily interaction of women with nature and difficulties they face due to environmental degradation, knowledge about the environmental protection campaign through mass media and activities of NGOs political as well as religious institutions create environmental awareness among women in Kerala.

**Table 2. 2**

**Interest in issues of environment**

| Category        | Heads                | Figures in percentage |
|-----------------|----------------------|-----------------------|
| Women in Kerala | Extremely interested | 42                    |
|                 | Very interested      | 58                    |
|                 | Not interested       | 0                     |
|                 | Total                | 100                   |



**Figure 2. 2: Interest in issues of environment**

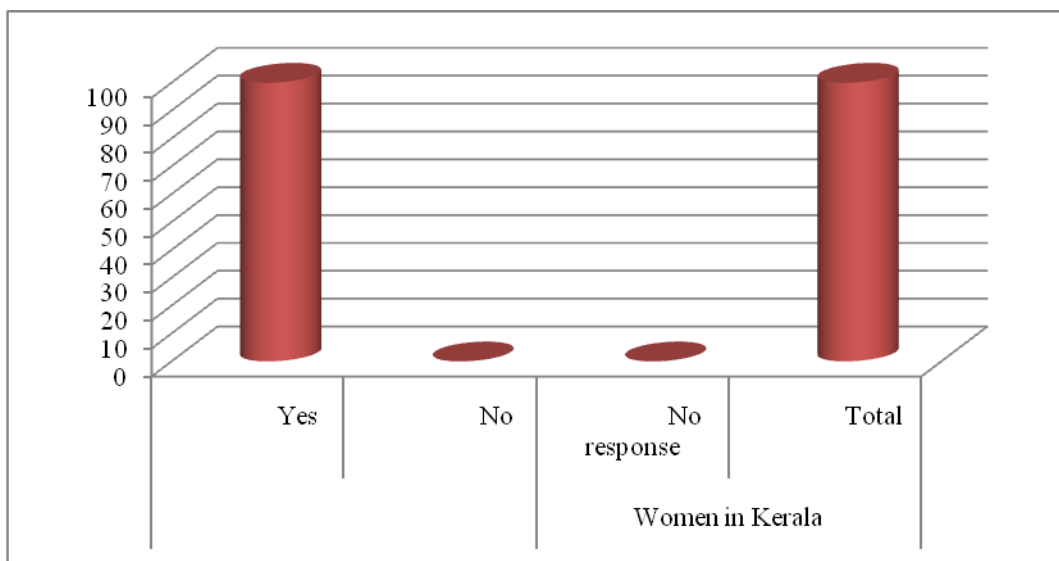
In related to the enquiries about the interest in environmental protection about 42% women agreed that they are extremely interested in environmental protection and 58% stated they are very interested in it which is depicted in table and figure 2.2. Activities of NGOs and other institutions, the incidents on the impact of environmental

degradation in different parts of India as well as world, the environmental education gained by them and the daily experience of climate change which all are seems to be the reason which compel women in Kerala to take part in environmental protection activities for the preservation of existing biodiversity in the context of threat of environmental degradation in Kerala.

**Table 2.3**

**Awareness of environmental degradation**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 100                   |
|                 | No          | 0                     |
|                 | No response | 0                     |
|                 | Total       | 100                   |



**Figure 2.3: Awareness of environmental degradation**

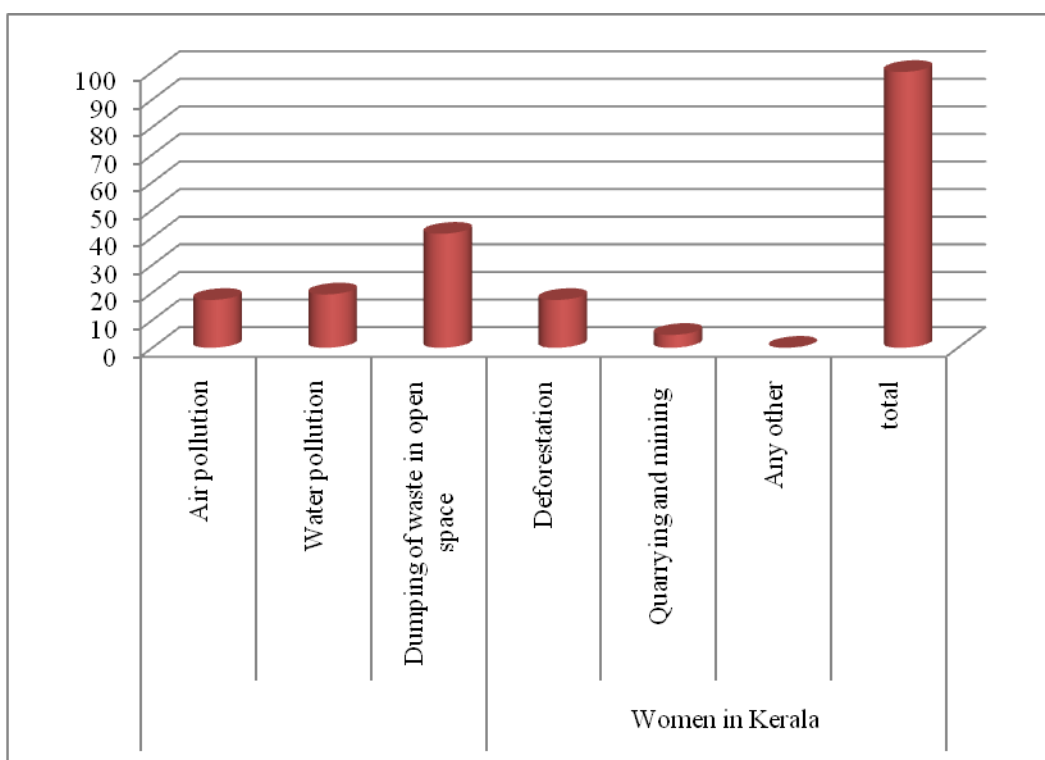
The analysis of the issue on the awareness of environmental degradation proves that women in Kerala are aware of environmental degradation as 100% of women said they are aware of environmental degradation which is also mentioned in figure and table 2.3. They are aware of environmental degradation because of the experience of environmental problems like climate change, air pollution, water pollution, waste dumping, and deforestation upon their daily life. In Kerala women are concerned with

the problem of conversion of paddy land for construction, un even digging of sand bed, quarrying, which results in losing of their cultivable land, losing of water resources and even losing of their own houses compel them to take action against environmental degradation. The presence environmental refugees in Kerala due to environmental degradation also make them aware of environmental protection which all understood during interaction.

**Table 2.4**

**Environmental problems facing by women in Kerala**

| Category        | Heads                          | Figures in percent |
|-----------------|--------------------------------|--------------------|
| Women in Kerala | Air pollution                  | 17.34              |
|                 | Water pollution                | 19.34              |
|                 | Dumping of waste in open space | 41.33              |
|                 | Deforestation                  | 17.33              |
|                 | Quarrying and mining           | 4.66               |
|                 | Any other                      | 0                  |
|                 | total                          | 100                |



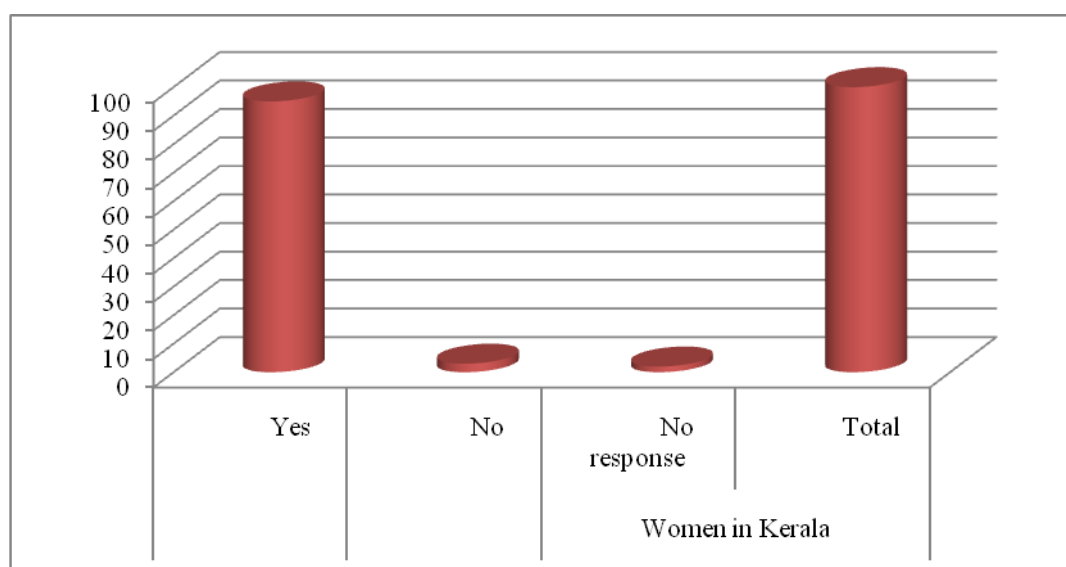
**Figure 2.4: Environmental problems facing by women in Kerala**

17.34% women in Kerala feel air pollution is the highest problem, while 19.34% think water pollution is the main problem and 17.33% think deforestation is the important environmental problem confronting by them. 4.66% of women in Kerala feel issue of quarrying and mining is serious environmental threat, while 41.33% of women considers dumping of waste in open space is highest form of environmental degradation in Kerala which understood during interaction and depicted in table and figure 2.4. The problem of air pollution results in serious respiratory diseases among women especially pregnant women and child. The grave consequences of water pollution are mostly affecting women, and children. The degradation of forests results in serious climatic change, uneven rain fall, increasing heat are experiencing by women in Kerala. The dumping of waste as well as unscientific treatment of waste is the serious problem considered by women in Kerala for which struggles are going on. They responded in this way that all the mentioned problems have direct influence on the lives of women in Kerala.

**Table 2.5**

**Climate change and environmental degradation**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 95                    |
|                 | No          | 3                     |
|                 | No response | 2                     |
|                 | Total       | 100                   |



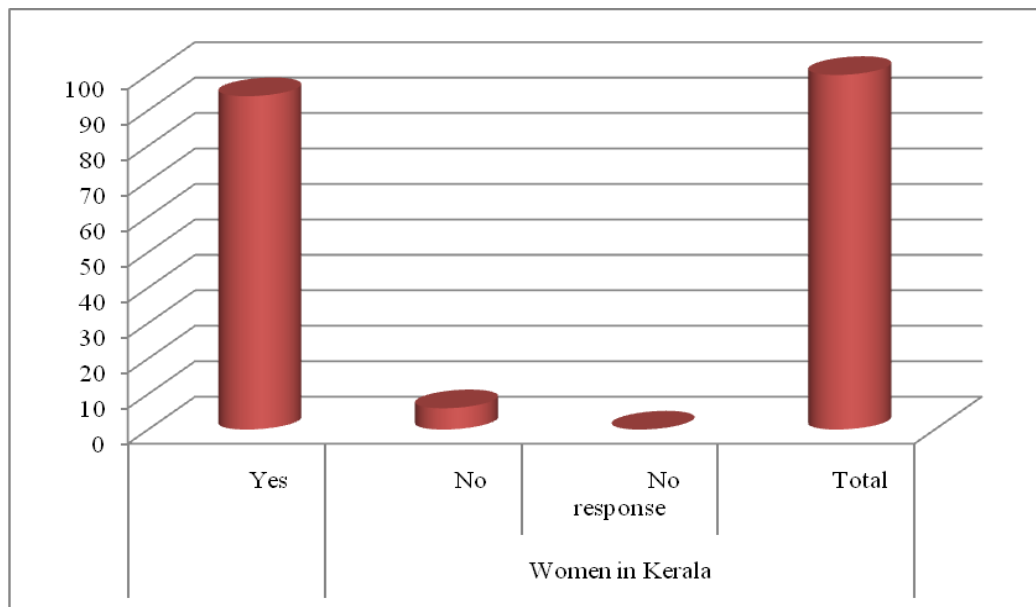
**Figure 2.5: Climate change and environmental degradation**

To the discussion on the issue of relation of climate change and environmental degradation 95% of women in Kerala think climate change is the result of environmental degradation as they are experiencing increase in heat, water scarcity, draught, sun burn, less rain fall, increase in health problems and loss of biodiversity in their daily live. The climate change due to environmental degradation adversely affects the women initiatives of cultivations thus in turn their livelihood also. They are also facing coastal erosion which is the result of sand bed mining in turn results in loss of biodiversity in the coastal areas. All these are result of climate change according to the women surveyed which is reflected in figure and table 2.5.

**Table 2.6**

**Experience of effect of climate change in daily life**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 94                    |
|                 | No          | 6                     |
|                 | No response | 0                     |
|                 | Total       | 100                   |



**Figure 2.6: Experience of effect of climate change in daily life**

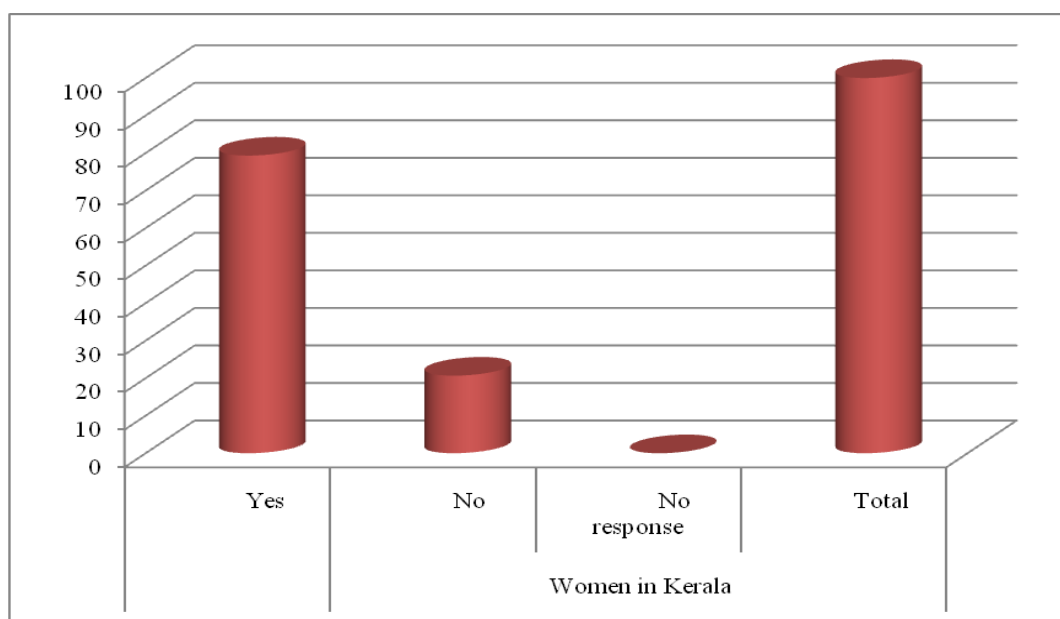
94% women in Kerala surveyed feel effect of climate change in their daily life. The daily experience of climate change by them includes increase in level of humidity, seasonal diseases, life style diseases, high tide in the coastal areas, which causing lost of houses and property, water scarcity for drinking as well as agricultural activities,

and uneven rain fall which disrupts cultivations and flood. Many people in the coastal area in Kerala also become environmental refugees which is the consequence of climate change. All these compel them to take part in environmental protection efforts to escape from the ill effect of climate change. 6% of women didn't feel any effect of climate change in their daily life which all included in figure and table 2.6.

**Table 2.7**

**Taking part in any environmental activity**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 79.33                 |
|                 | No          | 20.67                 |
|                 | No response | 00.0                  |
|                 | Total       | 100                   |



**Figure 2.7: Taking part in any environmental activity**

As the response to interaction on taking part in environmental activity by women in Kerala 79.33% of women in Kerala states that they are taking part environmental protection activities to prevent the effects of environmental degradation on their daily life. The environmental protection activities of women in Kerala includes initiatives through agriculture, animal husbandry, forest protection, water conservation, proper dumping of waste participation in environmental protection movements and imparting environmental education to the next generations. 20.67% of women say they are not

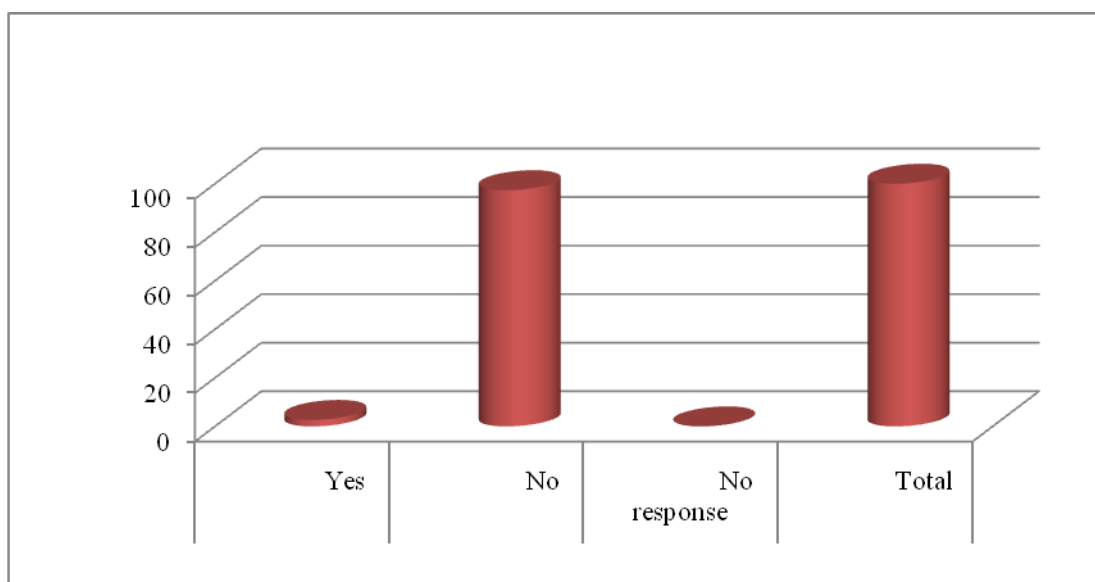


taking part in environmental protection activities which is a matter of concern as they are not getting enough time for the preservation activities. The majority of women participate in environmental protection is a positive indicator of Kerala womens' environmental awareness which is mentioned in figure and table 2.7.

**Table 2.8**

**Membership in any organisation working on environmental issues**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 2.67                  |
|                 | No          | 97.33                 |
|                 | No response | 0.00                  |
|                 | Total       | 100                   |



**Figure 2.8: Membership in any organisation working on environmental issues**

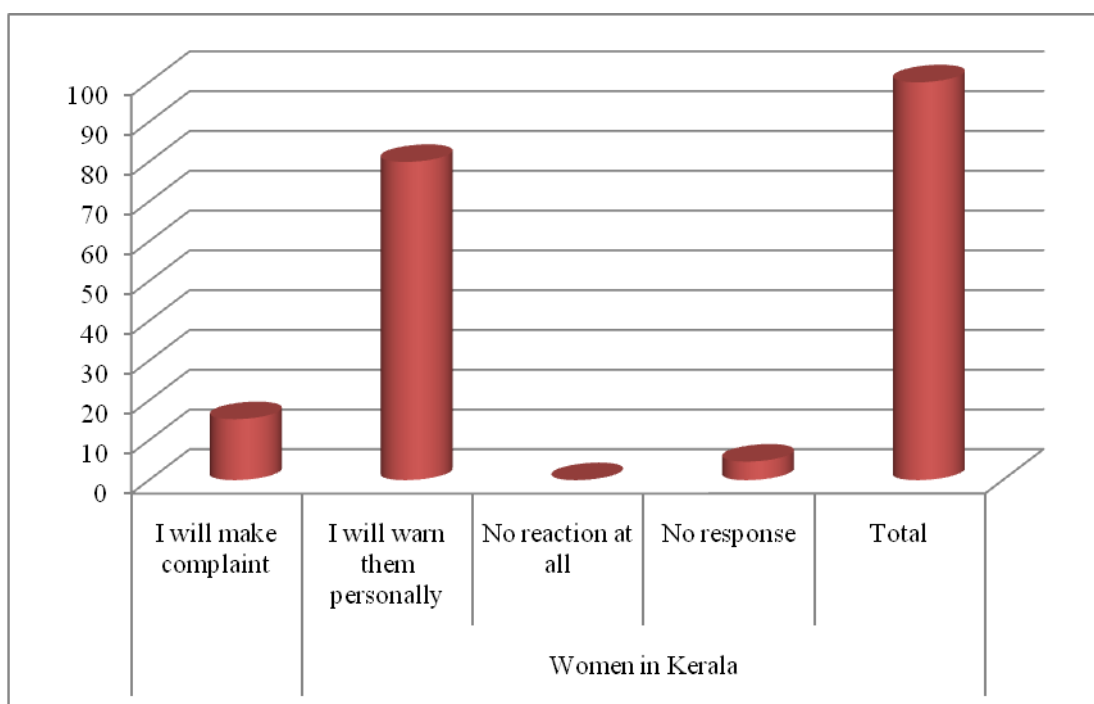
2.67% of women surveyed are members of organization working on environmental issues such as Vanamithra, Greenpeace, Delhi University Cell of Sustainable Management & National Service Scheme while 97.33% of women in Kerala are take part in environmental protection activities without becoming members of any organisation on environmental matters. This is because many of them even not getting proper time in the participation of environmental protection activities and awareness creation classes organised by the NGOs, which proves the existence of double burden of household works on women in Kerala. Even though without becoming members of

any organization working on environmental protection they are circulating the ideas on environmental protection methods through Kudumbasree as well as Neighbourhood groups and social medias which understood during interaction and same is depicted in figure and table 2.8.

**Table 2.9**

**Reaction against damaging environment**

| Category        | Heads                       | Figures in percentage |
|-----------------|-----------------------------|-----------------------|
| Women in Kerala | I will make complaint       | 15.33                 |
|                 | I will warn them personally | 80                    |
|                 | No reaction at all          | 0                     |
|                 | No response                 | 4.67                  |
|                 | Total                       | 100                   |



**Figure 2.9: Reaction against damaging environment**

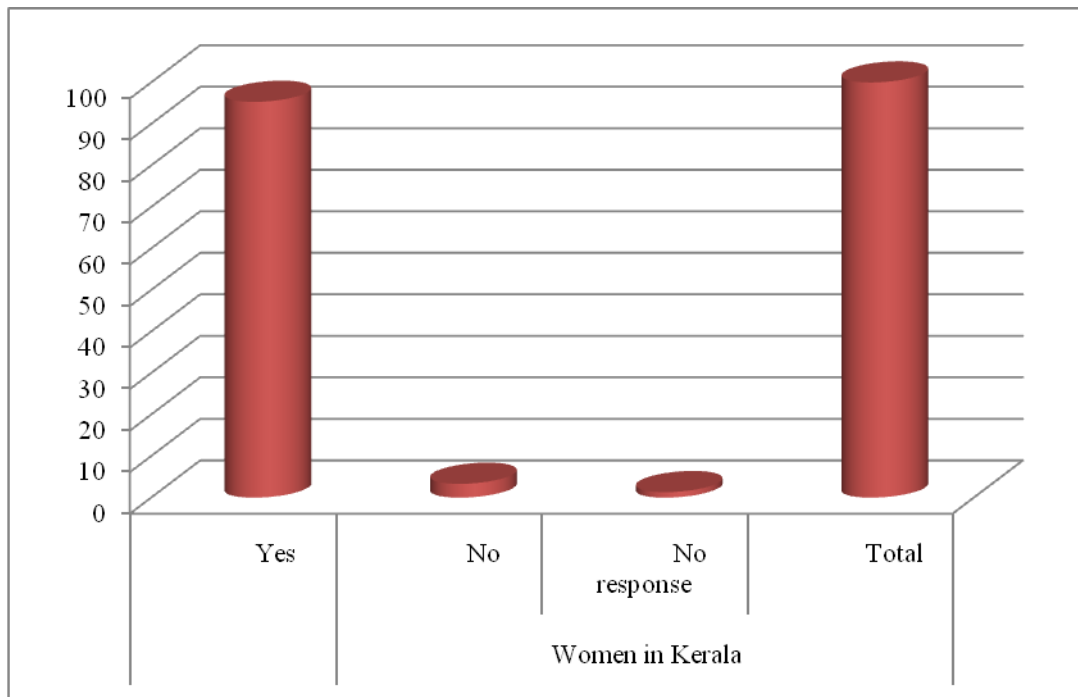
In response to the issue on reaction against damaging environment 15.33% of women opted for complaint against those who damage environment to concerned authority to make them vigilant over the issue of environmental degradation while 80% of women favoured to warn that damage environment personally which is mentioned in figure and table 2.9. Majority of women believes that taking personal responsibility to

spread environmental education through warning those who damage environment is best method of communicating the effects of environmental degradation. More than that many of them think authorities are not paying enough attention on environmental matters so it is better to take responsibility with them which all understood during interaction.

**Table 2.10**

**Women contribution in environmental protection**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 95.34                 |
|                 | No          | 3.33                  |
|                 | No response | 1.33                  |
|                 | Total       | 100                   |



**Figure 2.10: Women contribution in environmental protection**

Among women surveyed 95.34% stated that they can contribute to environmental protection as women. Their daily interaction with nature than men made them capable of active participation on environmental protection methods. The household works assigned to women in all category such as Adivasi women, working women, rural women, students, urban women and housewives made them more attach to nature through collection of natural resources, water conservation, and waste disposal and keeping better surroundings for their family and children. By taking consideration of

all this women in Kerala is taking care of better ways for environmental conservation which is understood during interaction with women. 3.33% of women donot feel they can contribute in environmental protection as they donot get enough time for environmental conservation while 1.33% didn't responded to the question. Thus majority of women in Kerala feel as women they can contribute to environmental protection methods which are mentioned in figure and table 2.10.

### 2.11. Methods of contribution in environmental protection

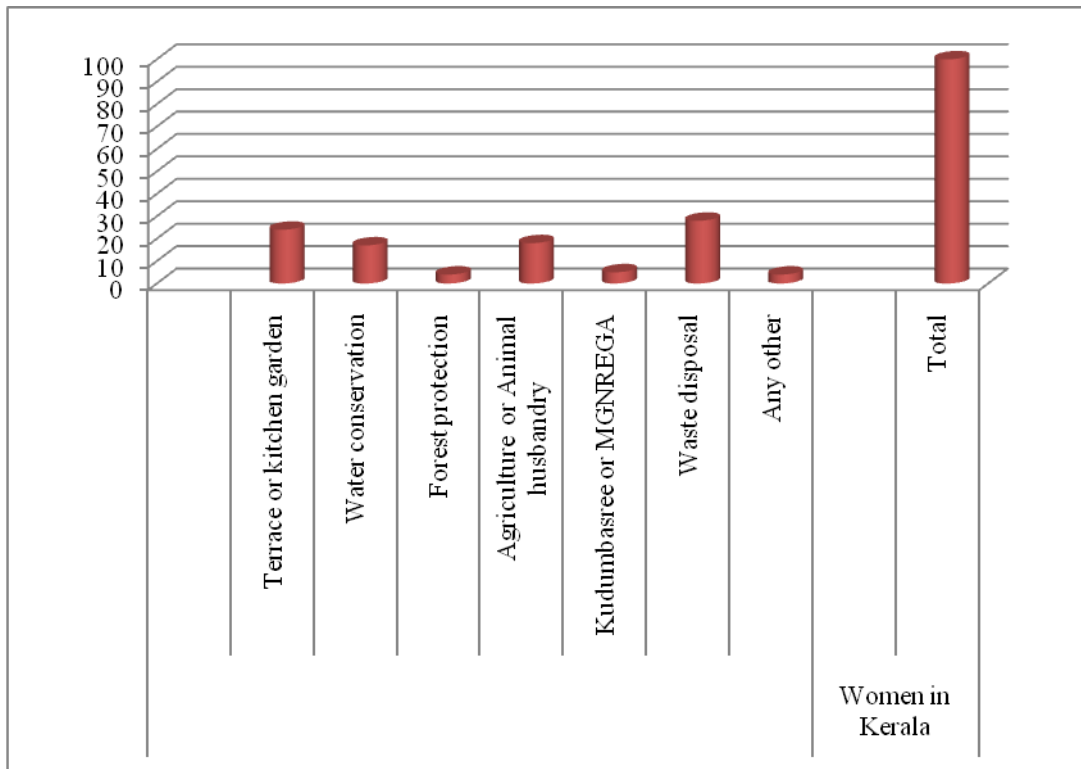
100% women responded to the query on various methods in contribution in environmental protection. Women in Kerala contributes to environmental protection through various methods such as agriculture, animal husbandry, cleaning of environment, waste disposal, conservation of water sources and rain water harvesting, forest protection, organic farming, planting of trees, participation in environmental awareness programmes, through works of Kudumbasree, Self Help Groups, MGNREGA, construction of compost and bio gas plants, controlled use of energy resources, and by making alternatives to plastic bags and goods. Through production of non contaminated organic food and clean surrounding and proper disposal of waste they think they can ensure better healthy generations. Through the organised collective works through Kudumbasree, Self Help Groups, MGNREGA women think they are getting enough broad space for discussing and planning about environmental conservation method.

**Table 2.12**

#### **Initiatives for environmental protection**

| Category        | Heads                           | Figures in percentage |
|-----------------|---------------------------------|-----------------------|
| Women<br>Kerala | Terrace or kitchen garden       | 24                    |
|                 | Water conservation              | 17                    |
|                 | Forest protection               | 4                     |
|                 | Agriculture or Animal husbandry | 18                    |
|                 | Kudumbasree or MGNREGA          | 5                     |
|                 | Waste disposal                  | 28                    |
|                 | Any other                       | 4                     |
|                 | Total                           | 100                   |

With regard to the initiatives on environmental protection by women in Kerala 24% of them contribute to environmental protection through terrace or kitchen garden. Through this they are not only fighting against non contaminated food but also ensuring food self sufficiency. While 17% engaged in water conservation as pollution of water has its impact on women and children than any other sections of society as they had to travel long for fetching drinking water and 4% of women in Kerala took initiatives of forest protection as deforestation has its impact on total climate change in Kerala.18% of women surveyed protect environment through activities of agriculture and animal husbandry for healthy food supply in the economy.5% extended environmental protection activities through works of Kudumbasree or MGNREGA which provide them broad space for discussion and implementation of environmental protection methods and 4% expect that they can contribute scientific and technical assistance to environmental protection efforts through environmental research. 28% of women in Kerala took initiative of waste disposal as important method of environmental conservation as they are facing the serious health problems by unscientific treatment of waste especially in town and metropolitan cities, for which struggles are going on. Thus women in Kerala by understanding the importance of clean environment and balanced ecosystem took various initiatives for environmental preservation which is depicted in figure and table 2.12.



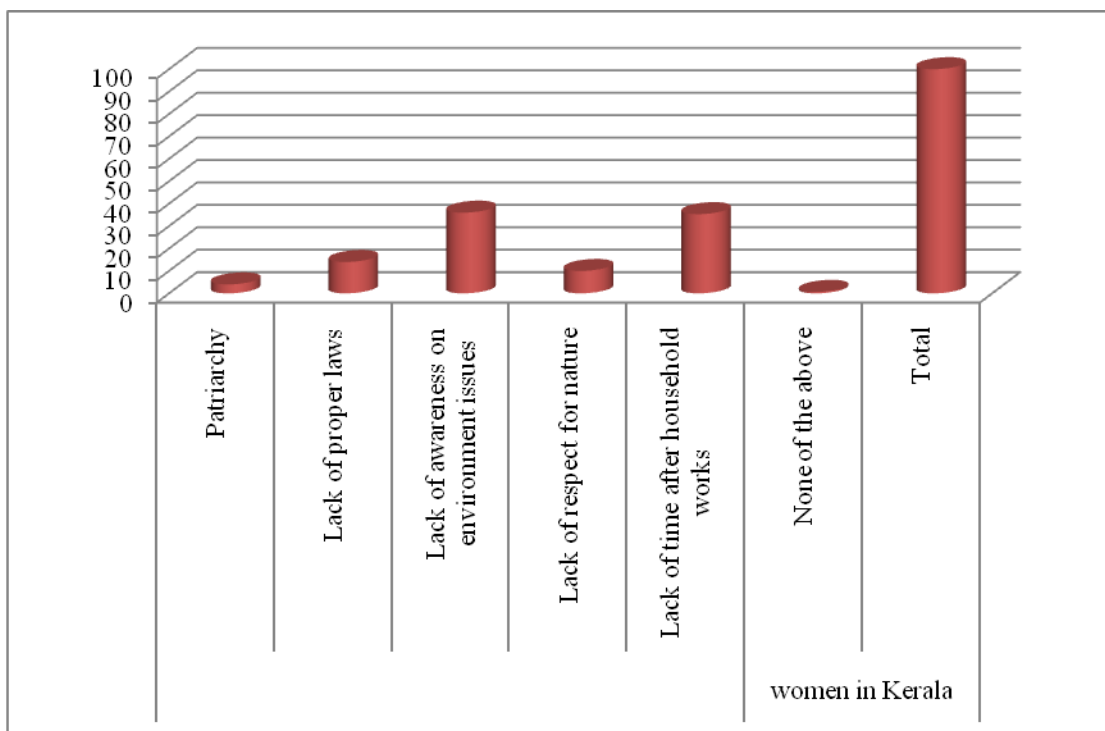
**Figure 2.12: Initiatives for environmental protection**

**Table 2.13**

**Challenges in environmental protection**

| Category        | Heads                                   | Figures in percentage |
|-----------------|---|-----------------------|
| women in Kerala | Patriarchy                              | 4                     |
|                 | Lack of proper laws                     | 14                    |
|                 | Lack of awareness on environment issues | 36                    |
|                 | Lack of respect for nature              | 10                    |
|                 | Lack of time after household works      | 35.34                 |
|                 | None of the above                       | 0.66                  |
|                 | Total                                   | 100                   |

With regard to the issue on the challenges facing by women in environmental protection, 14% of women stated lack of proper law for protection of environment is a challenge. The improper laws and loop holes in existing laws especially with regard to conversion paddy lands as construction sites are not working which causes serious environmental impacts, while 36% think lack of awareness on environmental issues as challenges before them. The improper access to environmental education and awareness creation programmes especially in the interior places of Kerala many think as obstacle in proper environmental preservation. 4% of women stated patriarchal domination on women and nature as obstacle as they are not getting proper time or avenues for participation in environmental protection and conservation of existing resources. 10% feel lack of respect for nature by reckless exploitation of its resources as challenges as people think nature and its resources are to be completely dominated by themselves, and 35.34% stated lack of time after household works as important challenges facing by women in environmental protection as the household duties assigned upon them by the patriarchal society of Kerala and the double burden on working women prevent them from engaging environmental conservation individually as well as collectively along with participation in activities of movements for protection of environment by institutions, which all asserts the patriarchal set up in Kerala is biggest question before women in environmental issues which understood during interaction and depicted in figure and table 2.13.

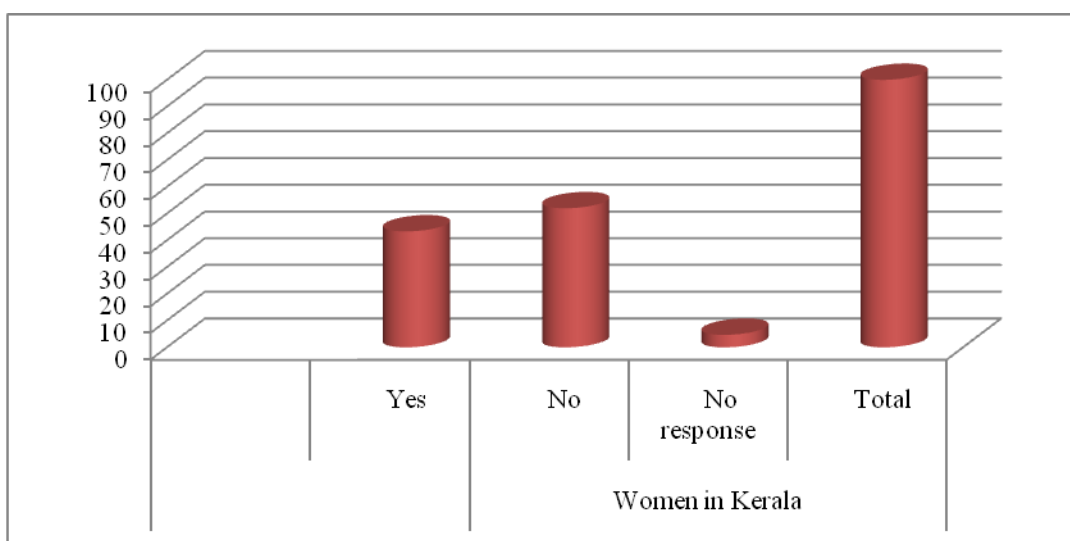


**Figure 2.13: Challenges in environmental protection**

**Table 2.14**

**Socio, economic family support for environmental protection efforts**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 43.34                 |
|                 | No          | 52                    |
|                 | No response | 4.66                  |
|                 | Total       | 100                   |



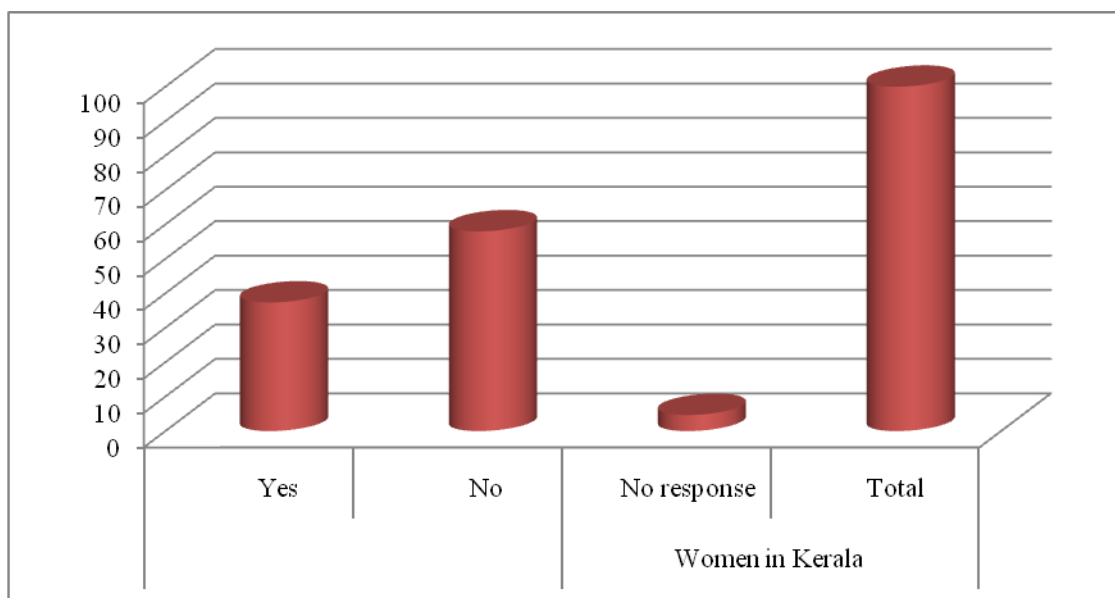
**Figure 2.14: Socio, economic family support for environmental protection efforts** 43.34% of women in Kerala feel they are getting enough socioeconomic and family support for environmental protection efforts as in the urban area and educated people are more access to modern technology in agriculture and water conservation and they are also getting help from NGO working on environmental conservation. 52% of them think they are not getting enough support from family, society, and economic institution for environmental preservation efforts. Majority of women in Kerala are not getting enough access to modern technology in agricultural practices and aid from financial institutions and agricultural offices like subsidized aid which is depicted in figure and table 2.14. The duties assigned by society and family on women as caretakers of family and children prevent them from involvement in environmental conservation activities according to women surveyed.

**Table 2.15**

**Awareness of ecofeminism**



| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 37.34                 |
|                 | No          | 58.00                 |
|                 | No response | 4.66                  |
|                 | Total       | 100                   |



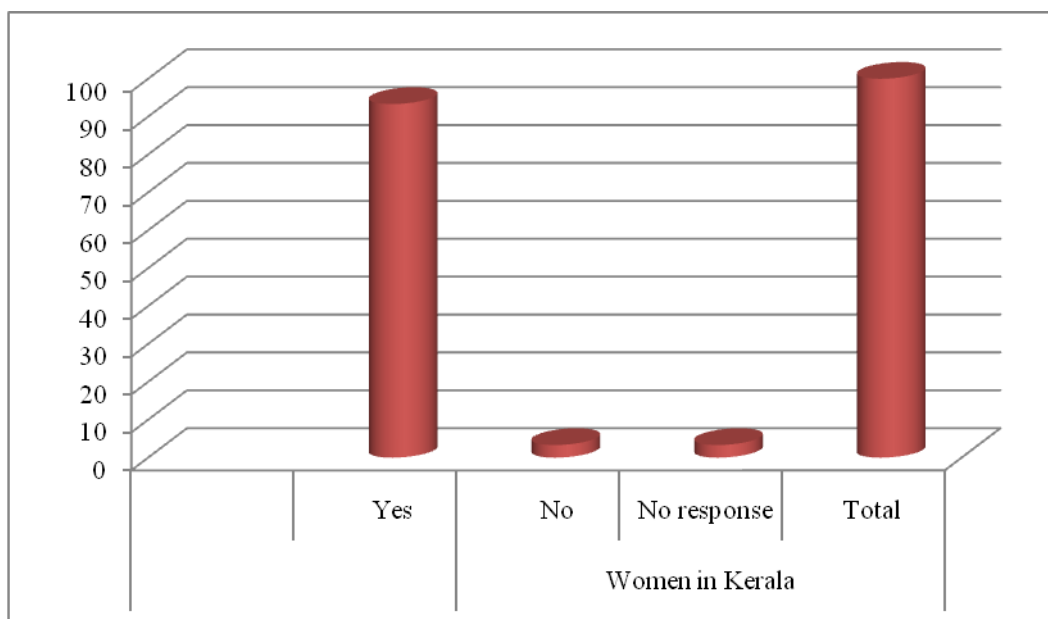
**Figure 2.15: Awareness of ecofeminism**

58% of women surveyed are not aware the term ecofeminism as it not popular in Kerala which is mentioned in figure and table 2.15. 4.66% didnt response to the question as they didn't understand the term and 37.34% of women in Kerala are aware of the concept of ecofeminism through environmental awareness classes by NGOs or through Malayalam literature where the term is getting proper attention.

**Table 2.16**

**Close relationship between women and nature**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 93.34                 |
|                 | No          | 3.33                  |
|                 | No response | 3.33                  |
|                 | Total       | 100                   |



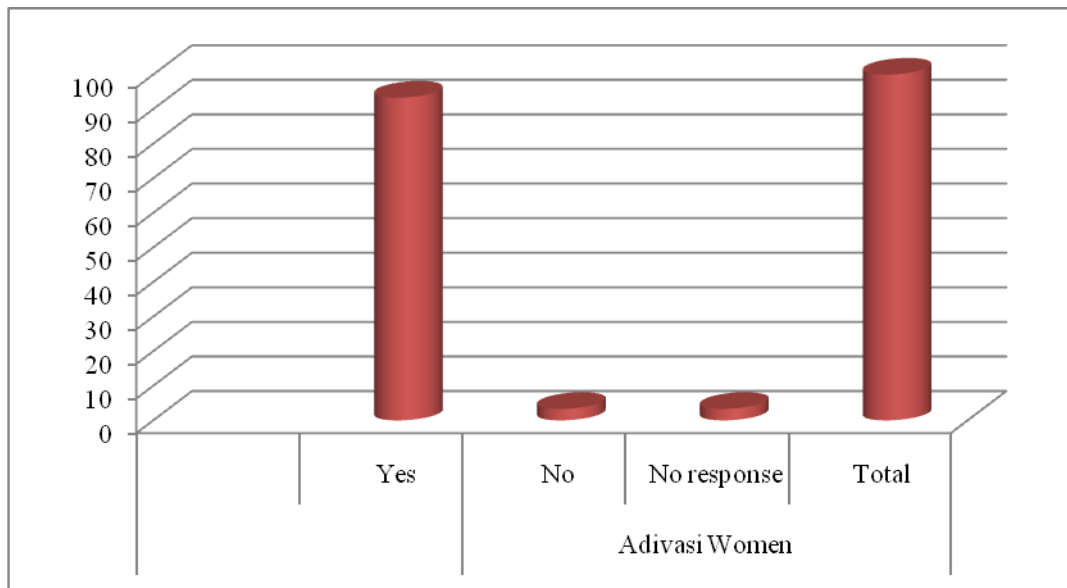
**Figure 2.16: Close relationship between women and nature**

To the query on close relationship between women and nature 93.34% of women responded positively as their answer is yes which is depicted in table and figure 2.16. The day to day interaction of women with nature especially through the collection of natural resources, they are more aware of the need and scarcity and changes in these fields. The close observation of changing pattern of weather and the agricultural and water conservation practices by women make them closer with nature. 33% of women didnot feel their close relationship with nature as they are not observing the surrounding seriously as well as the question seems complicated to them. Thus majority of women in Kerala believe in the close relation with nature because of their daily interaction with nature than any other sections of society.

**Table 2.17**

**Effectiveness of women participation in environmental protection than men**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 93.34                 |
|                 | No          | 3.33                  |
|                 | No response | 3.33                  |
|                 | Total       | 100                   |



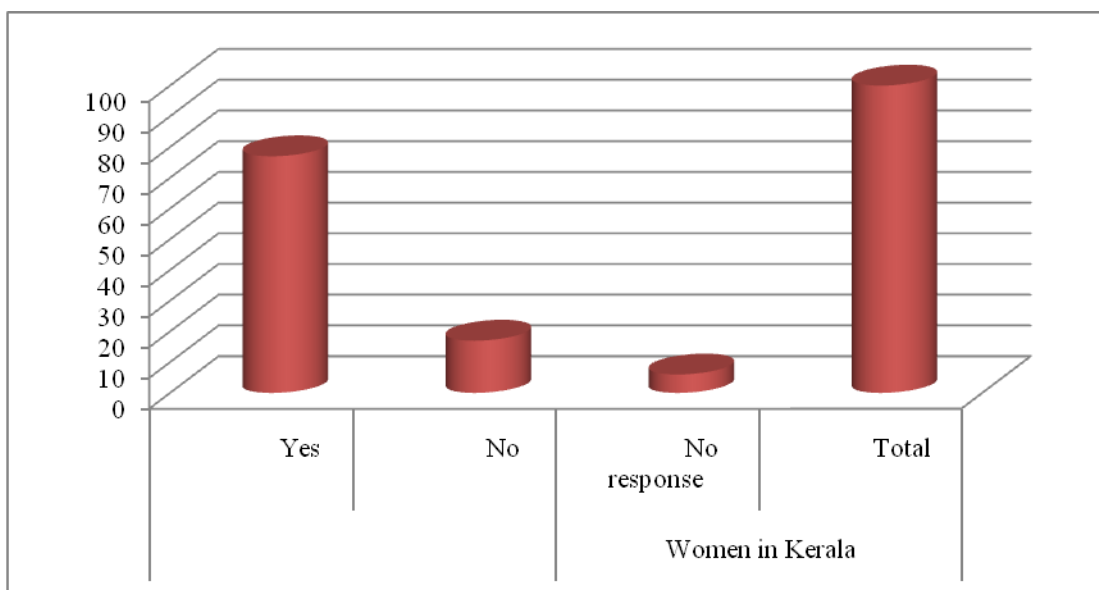
**Figure 2.17: Effectiveness of women participation in environment protection than men**

93.34% of women surveyed stated that women participation in environmental protection methods and movements are effective than men which is depicted in figure and table 2.17. The very close relation of nature and themselves make them more aware of environmental degradation and environmental protection activities. The practical knowledge of women especially old age women and Adivasi women on the medicinal plants, water conservation methods and agricultural practices made them experts in the fields while considering the environmental conservation. The after effects of environmental degradation especially water scarcity compel them for preservation of natural sources to reduce double burden upon themselves which all are understood during survey. 3.33% responded with the answer ‘No’ as they observed men are also taking part in environmental protection activities and 3.33% did not respond to the question.

**Table 2.18**

**Effects of environmental degradation on women, children, dalits and Adivasis**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 77                    |
|                 | No          | 17                    |
|                 | No response | 6                     |
|                 | Total       | 100                   |



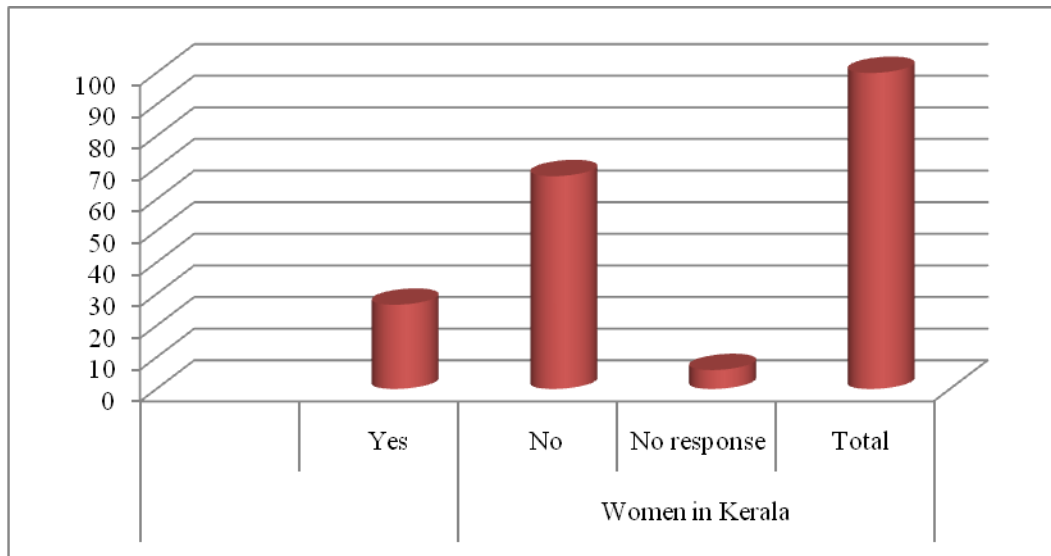
**Figure 2.18: Effects of environmental degradation on women, children, dalits and adivasis**

To the issue on effects of environmental degradation on women, children, dalits & Adivasis 77% of women in Kerala think environmental degradation is affecting women, children, dalits and Adivasis. The problem of water scarcity experiencing by many women in Kerala compel them to say this as women including pregnant, old age, and ill women has to walk long to fetch water which in turn affects their role in society. Many girls have lost school days by searching the avenues for water along with mothers, which all result of environmental degradation. Many Adivasi women and children are suffering from malnutrition and related disease due to loss of forest foods and medicinal plants and other natural sources of food collection. The side effects of deforestation and coastal erosion compel them to migrate to other places are refugees, which has grave consequences on the social economic and family security to women, children and adivasis according to women surveyed. 17% said ‘No’ as they sated environmental degradation affects everyone alike and 6% didnt respond to the question which all mentioned in figure and table 2.18.

**Table 2.19**  
**Attending environmental issues concerning women**

| Category        | Heads       | Figures in Percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 26.66                 |
|                 | No          | 67.34                 |
|                 | No response | 6                     |

|  |       |     |
|--|-------|-----|
|  | Total | 100 |
|--|-------|-----|



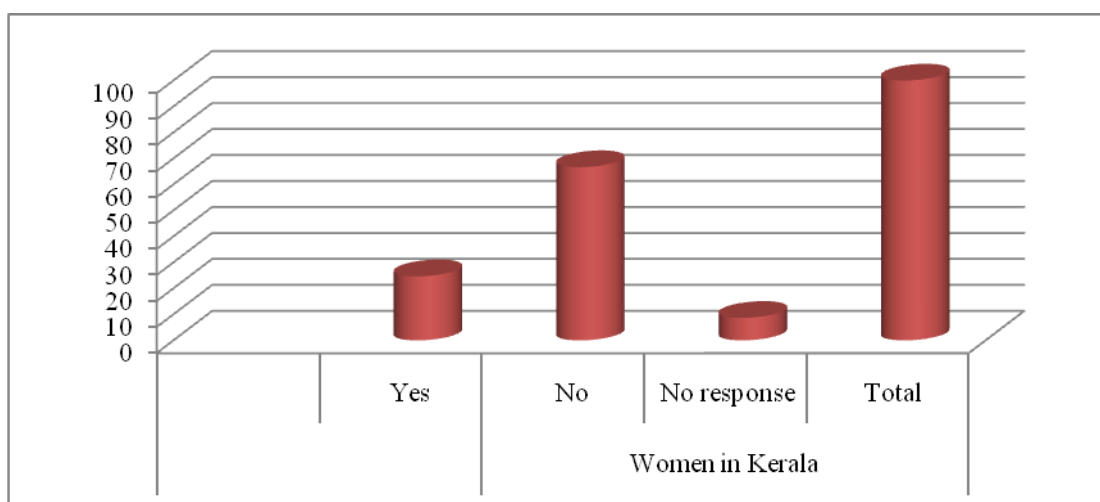
**Figure 2.19: Attending environmental issues concerning women**

26.66% of women surveyed think environmental issues concerning women are properly addressed as little of them getting economic aid and helps from various institution regarding environmental protection and 6% didnt response to the question. 67.34% of the women in Kerala didnt feel the environmental issues concerning women are properly addressed which all understood during interaction with women and the same is depicted in figure and table 2.19. The environmental problem which has direct impact on the lives of women, children, old age women, ill women and pregnant women is yet to be solved especially in the cities and urban areas of Kerala. The issues of deforestation which has impact on lives of Adivasis are not solved by concerned authorities. The unscientific treatment of waste, and no proper facilities for disposal of waste, which has impact on the people especially women is not properly addressed in Kerala for which struggles are going on. The direct effect of pollution on the women especially pregnant women is not in consideration of concerned authorities according to the women surveyed. Thus majority of women in Kerala think environmental issues concerning them are not properly addressed.

**Table 2.20**

**Women representation in environmental decision making**

| Category        | Heads       | Figures in Percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 24.67                 |
|                 | No          | 66.66                 |
|                 | No response | 8.67                  |
|                 | Total       | 100                   |



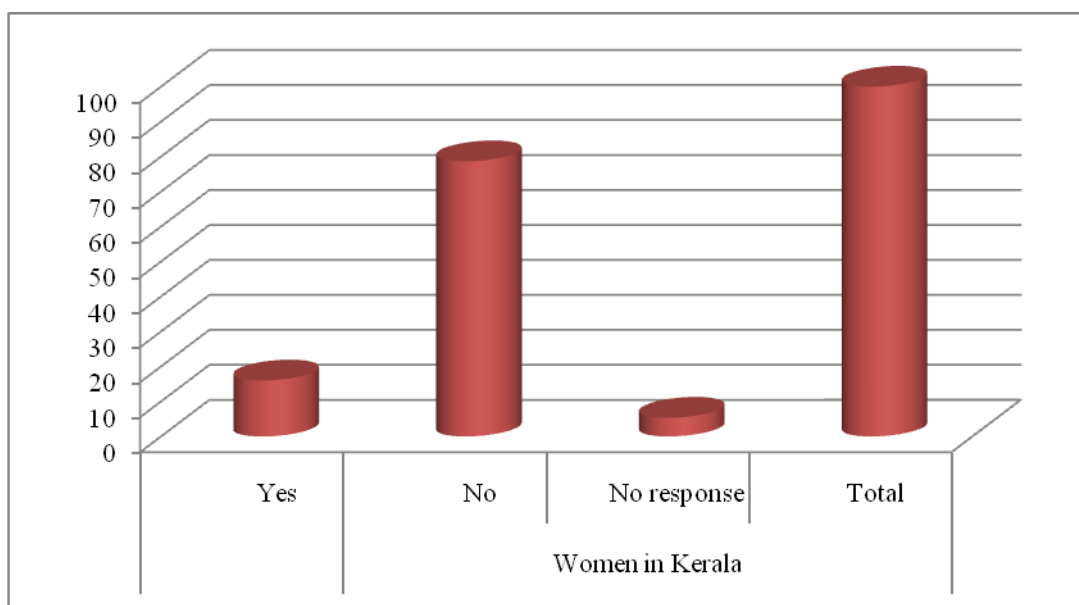
**Figure 2.20: Women representation in environmental decision making**

As response to the problem on Women representation in environmental decision making 24.67% of women surveyed think they are getting enough representation in environmental decision making bodies especially becoming the members of Environmental NGOs. 8.67% didnot respond to the question while 66.66% of the women think they are not getting enough representation in environmental decision making which mentioned in figure and table 2.20. They think that majority of the core decision making body members are not women, which has negative impact on them. The issues concerning basic needs and environmental issues of women are not properly represented in the bodies including the government institutions, executive bodies and research institutions in Kerala, which result in improper decision making without considering the needs of various marginalised section of society according to the women surveyed in Kerala.

**Table 2.21**

**Development activities and environment in Kerala**

| Category        | Heads       | Figures in percentage |
|-----------------|-------------|-----------------------|
| Women in Kerala | Yes         | 16.00                 |
|                 | No          | 78.66                 |
|                 | No response | 5.34                  |
|                 | Total       | 100                   |



**Figure 2.21: Development activities and environment in Kerala**

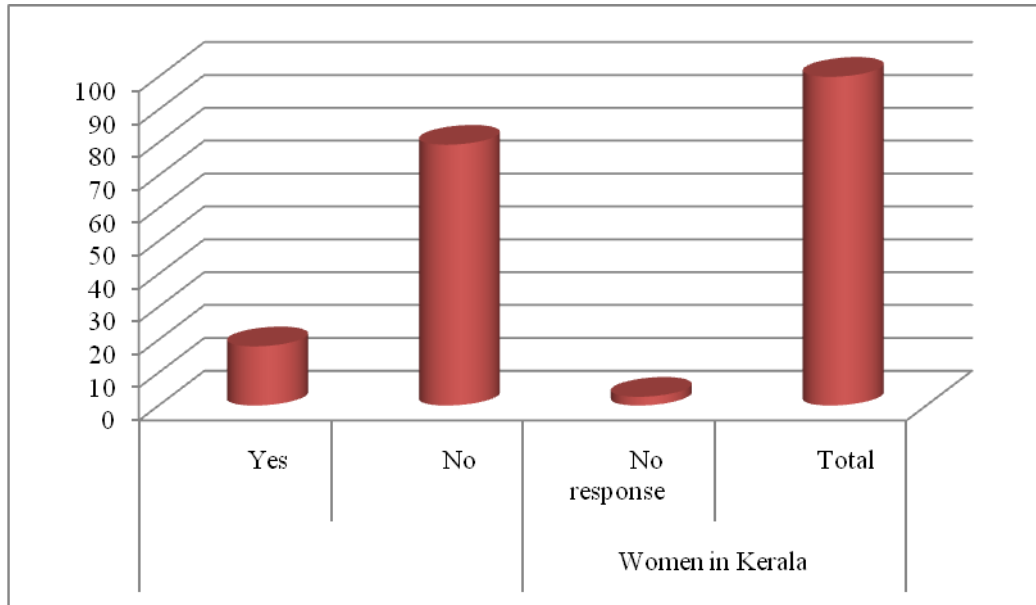
Regarding the query on whether the development in Kerala are ecofriendly 16% of women surveyed feel developmental activities in Kerala are ecofriendly as they are not concerned with the side effects of uneven developments and 5.34% even did not response to the question while 78.66% of women in Kerala feel developments in Kerala is not ecofriendly which is mentioned in figure and table 2.21. The experiences of women in Kerala in the coastal areas, Adivasi settlements and metropolitan cities feel in the way as they are suffering from the effects of uneven development in Kerala, in the name of industrialisation, urbanization and tourism industries. Many women think the development in Kerala is only upward considering the advantage of upper class and not downward without considering environment and disadvantaged people. Majority of them feel non ecofriendly development in Kerala hampering their ecosystem like unplanned construction of roads, hydroelectric power projects, factories, super markets in their concerned area by reckless exploitation of natural resources which resulted in environmental degradation which all understood during interaction with women in Kerala.

**Table 2.22**

**Governance response to environmental problems**

| Category | Heads | Figures in percentage |
|----------|-------|-----------------------|
|          | Yes   | 18.00                 |
|          | No    | 79.34                 |

|                 |             |      |
|-----------------|-------------|------|
| Women in Kerala | No response | 2.66 |
|                 | Total       | 100  |



**Figure 2.22: Governance response to environmental problems**

To the query on Governance response to environmental problems only 18% of women in Kerala think government and local self government are properly attending the environmental problem as they are getting nominal economic support for environmental conservation efforts. 2.66% didnot response to the question, while 79.34% women think state government and local government in their concerned area are not properly addressing environmental problem especially in bio diversity hot spot areas which is mentioned in figure and table 2.22 and understood during interaction. They are responded this way as there are loopholes in the existing environmental protection laws especially regarding paddy lands and coastal areas, mining and forest protection, which is yet to be completely solved by authorities. There is no strict punishment against those who damage environment. Many women surveyed opined that this is because of the vested interests of officers and politicians who own many of the areas of coast, quarry, forest and paddy lands. The local governments are not considering the basic needs of the people especially women and marginalised sections according to the women surveyed. Thus majority of women says governance response to environmental issues is negative and the developmental priority before them those without considering ecosystem of Kerala.

**Table 2.23**



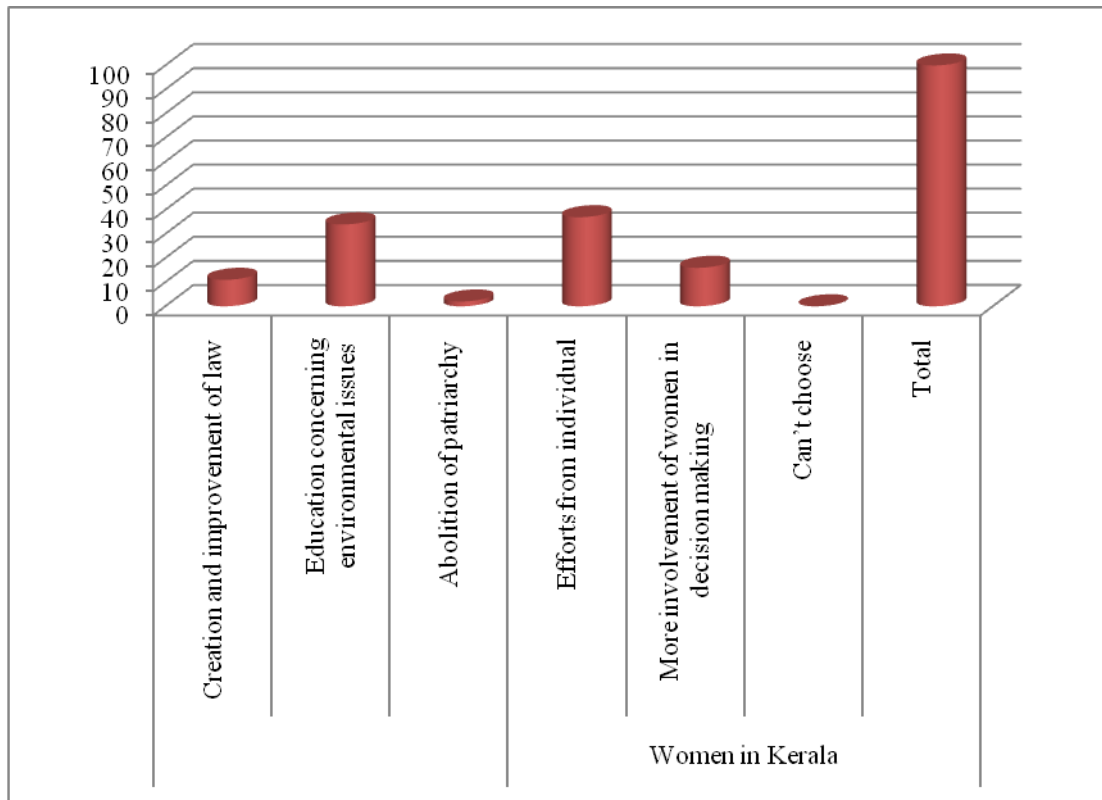
### Solutions to environmental problems

| Category        | Heads  | Figures in percentage |
|-----------------|--|-----------------------|
| Women in Kerala | Creation and improvement of law              | 11                    |
|                 | Education concerning environmental issues    | 34                    |
|                 | Abolition of patriarchy                      | 2                     |
|                 | Efforts from individual                      | 37                    |
|                 | More involvement of women in decision making | 16                    |
|                 | Can't choose                                 | 0                     |
|                 | Total  | 100                   |

To the ways to solve environmental problems, 11% of women in Kerala surveyed think creation and improvement of existing laws in Kerala is necessary to solve environmental problem as the lack of proper laws and loop holes in the existing law and proper revision of existing laws accordingly with demands of time is a serious problem according to women in Kerala. While 34% feel education concerning environmental issues and 25% of women think abolition of patriarchy is important to solve environmental problems which all are mentioned in figure and table 2.23. The lack of educational avenues and opportunity regarding environmental issues, the lack of time for attending environmental awareness programmes and activities through organisations especially because of the burden assigned upon them by patriarchal society is a serious problem considered by women in Kerala. 16% of women demanded more involvement of women in decision making bodies to represent their issues and demands with regard to environmental matters because majority of executive bodies are hold by men, who are not paying proper attention to the demands of women and marginalised. 37% of them considered efforts from individual itself are the best way to solve environmental problem.

Through the awareness creation campaigns, the individual efforts of environmental protection methods, participation in activities of Environmental NGOs, warning and provide example to those who damage environment, propagation of environmental awareness in the working places and social religious and political institutions, and use of scientific research for better conservation of environment, women in Kerala think all these individual efforts are better than any other imposed measures for conservation the environment. Thus the women in Kerala feel self awareness on the need of environmental protection along with education concerning environmental

issues along with other initiatives will help to solve environmental problem and will generate environmental awareness among people in Kerala which all understood by the interaction with women.



**Figure 2.23: Solutions to environmental problems**

#### **2.24. Suggestions for improvement of womens' participation in environmental protection**

For the query on Suggestions for improvement of womens' participation in environment protection every women responded differently. The main suggestion is towards womens' cooperation in environment efforts. Through joint efforts they believe that they can improve environment participation. They demand for proper support and assistance from government bodies. Many women stands for increase food security by produce enough vegetables and dairy products thus materialise self sufficiency. Most of them favoured towards conducting environment awareness programmes for improve environment participation on behalf of women. Better coordination and financial support for Kudumbasree units, MGNREGA and Self Help

Groups in environmental matter is suggested. More family, government support for environment protection efforts of women is demanding.

They are in favour of moral support of women who are actively participating in environment protection efforts. Women by recognising their role as mother and professionals, confident enough of generating environment awareness support for family, children and in various professions they represent thus are willing to propagate environment protection ideas in concerned fields. They are confident enough on construction of small waste and plastic recycle plants, and production of alternatives to plastics like jute and paper bags, gas plant and vermin composts, which in turn benefit their kitchen garden and organic farming thus support food self sufficiency of the state. For all their as such environment protection efforts, they are suggesting for creation of favourable condition from socio, cultural and governmental institutional sphere.

Women in Kerala is demanding proper representation in environmental decision making and proper attendance of environment problem related to women especially water crisis and pollution. They demand ensure of women representation in decision making bodies especially concerning environment, development discussions, environment projects and government policies and curriculum designing. Many of them feel environment organisation exclusively for women can improve their participation in environment protection. They are also in favour of proper law and implementation of policies for women, children, dalits, Adivasis as they are mostly affected by environmental degradation. The self awareness on the relation between women and nature is empowering and leading to environment protection according to many. They have suggested for the expert classes in this regard for directing more women in this field. Women in Kerala also argue for changing the attitude of men towards women which will reduce the double burden of their family duty and thus they can solve the problem of the lack of time in environment protection efforts. They are also in favour of using new social media to spread the debate and discussions as well as innovations on environment protection methods so that as groups they can improve their ideas on environment protection. Proper law is suggested in field of protecting mangroves and sacred groves ,which is rich source of natural resources, paddy fields and cultivable land so that they can put their endeavour in the area for improving agriculture self sufficiency.

They have suggested laws on prevention of dangerous pesticides to improve quality of soil and prevent contaminated food. Many women are for better marketing facilities for their products so that they are able to extent their programmes of environment protection. Science and technologies and innovations must open to women so that they can improve their out puts is suggested by many respondents. Women students demand inclusion of environment subjects in curriculum to improve the degree of awareness on environmental issues among students. They are in favour of combining knowledge of old generation and indigenious people with new technology that they can utilise their experience in the field of environment protection. Thus every woman suggested for creation of favourable socio, economic, cultural political institutional and governmental sphere so that they can actively participate in environment protection methods and movements confidently.

#### **II.11. Findings of the study**

From the survey done among six strata of women in Kerala, using questionnaire, findings and conclusions are derived which are given below:

1. The analysis of the response to questionnaire lead to conclusion that women in Kerala are well aware of need of environment protection. They are aware of environment issues and very interested in environment protection. 100% of women are aware of environmental degradation and issues of environment protection so that 58% of them are very interested in environment protection. 95% of women think climate change is the result of environment degradation and 94% can feel effect of climate change in daily life. As they are facing the problem of air pollution, water pollution, deforestation, quarrying and mining and dumping of waste in open space, (which is problem for majority of women in Kerala, according to the survey) they are conscious of need for environment protection. By understanding the need of environment protection 79% of them are taking part in environment activities. Women are concern very much with those who damage environment as 80% they are taking responsibility to warn those who damage environment personally. Thus the general understanding women in Kerala on environment and its issues along with problem of environment degradation is high according to the survey.

2. The responses to the questions regarding the tenants of ecofeminism<sup>108</sup> also seem positive. 95.34% women think they can contribute to environmental protection. 100% of women responded to the question of the way of their contribution as women to environment protection in different ways like efforts through agriculture, animal husbandry, cleaning of environment, waste disposal measures, conservation of water sources and rain water harvesting, forest protection, organic farming, planting of trees, participating in awareness programmes, by involvement in the programmes of Kudumbasree, MGNREGA, Self Help Groups, construction of compost and biogas plants controlled use of energy and resources and by production and using alternative to plastic bags and goods. Thus even though only 2.67% are members of any environmental organisations they are actively participating in environment protection through different means, which proves that without become members of any organization, they can contribute in environment protection. 35.33% women feel the lack of time after household work as biggest problem in their way on environment protection, which reasserts the oppression of women through patriarchy in turn; result in restraining women from environment protection. This proves oppression of environment and women are interrelated and reassert the double burden on women in patriarchal society in Kerala. 52% women say they are not getting enough socio economic and family support for environment protection activities. Among women in Kerala 93.34% feel women and environment are closely related and exploitation of women and exploitation of nature are interrelated. 76% see women participation in environment protection is better than men's share. Most of women feel children, Adivasis and dalits are severely affected by environmental degradation as 77% responded so. 67.34% think environments issues concerning them are not properly addressed along with 66.66% think they are not getting enough representation in decision making bodies especially in environment matters. Thus even though only 33.34% of women in Kerala are aware of the term ecofeminism, the analysis of the questions pertaining to the tenets of ecofeminism proves that majority of them are supporting it which proves working of the theory of ecofeminism in Kerala.

3. The challenges facing by them as per the analysis of questionnaire are the lack of proper attendance of environmental problems by the local self government as 79.34%

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<sup>108</sup> Questions in questionnaire 9, 11,12,13,14,15,16,17, and 18 reflect the tenets of ecofeminism.

support in this regard. 78.66% feels that the development in Kerala are not eco friendly, which in turn is a hurdle in the way of creation of favourable conditions for environment protection efforts. The lack of proper representation of women in decision making and no proper attendance of environment issues concerning women by institutions is the biggest hurdle they feel in the way of environment protection efforts. Majority of women express the problem of lack of time after household work reduces their active participation in environment protection. Lack of awareness on environmental issues among themselves is also a challenge they think. Lack of strict and proper laws and lack of respect for nature along with the problem of patriarchy is also expressed by women in the survey as the hurdles in the effective and active participation in environment protection efforts by themselves.

4. 100% of women under survey contributed for the suggestions for improving environment protection as well as measures to solve environmental problems. 37% of them think efforts from individuals are necessary to solve the environment problem. 34% stands for education and awareness creation concerning environment issues can improve the efforts to solve environmental problems. Many of them feel more involvement of women in decision making and improvement and creation of laws can solve environment problem. Small percent stands for wipe out Patriarchy for solving environmental problems. The main suggestion is towards women's cooperative efforts in environmental protection efforts. With the joint efforts from women on environment issues they believe that they can improve environment participation. Most of them favoured towards environment awareness programmes for improve environment participation on behalf of women. Better coordination and financial support for Kudumbasree units, MGNREGA and Self Help Groups in environment matter is suggested. They demand for proper support and assistance from government bodies. Many women stand for increase food security by produce enough vegetables and dairy products thus materialise self sufficiency. More family, government support for environment protection efforts of women is demanding. They are in favour of moral support of women who are actively participating in environment protection efforts. They are confident enough on construction of small waste and plastic recycle plants, and production of alternatives to plastics like jute and paper bags, gas plant and vermin composts, which in turn benefit their kitchen garden and organic farming thus support food self sufficiency of the state. For all their

environment protection efforts, they are suggesting for creation of favourable condition from socio, cultural and governmental institutional sphere. Women recognising their role as mother and professionals, confident enough of generating environment awareness support for family, children and in various professions they represent thus to propagate environment protection ideas in concerned fields.

They demanded assurance of women representation in decision making bodies especially concerning environment, development discussions, environment projects and government policies and curriculum designing. Women in Kerala demanded for proper representation in environment decision making and proper attendance of environment problem related to women especially water crisis and pollution. Many of them feel environment organisation exclusively for women can improve their participation in environment protection.

They are also in favour of proper law and implementation of policies for women, children, dalits, Adivasis as they are mostly affected by environmental degradation. The self awareness on the relation between women and nature is empowering and leading to environment protection according to many. They suggested for the expert classes in this regard for directing more women in environmental protection efforts. Women in Kerala also argue for changing the attitude of men towards women which will reduce the double burden of their family duty and thus they can solve the problem of the lack of time for environment protection. They are also in favour of using new social media to spread the debate and discussions as well as innovations on environment protection methods so that as groups they can improve their power on environment protection. They suggested laws on prevention of dangerous pesticides to improve quality of soil and prevent contaminated food. Proper law is suggested in field of protecting mangroves and sacred groves ,which is rich source of natural resources, paddy fields and cultivable land so that they can put their endeavour in the area for improving agriculture self sufficiency. Many women are for better marketing facilities for their products so that they are able to extent their programmes of environment protection. Science and technologies and innovations must open to women so that they can improve their out puts is suggested by many. Women students are demanding for include more environment subjects in curriculum to improve the degree of awareness on environmental issues among students. They are in favour of combining knowledge of old generation and indigenous people with new technology

that they can utilise their experience in the field of environment protection. Thus every woman suggested for creation of favourable socio, economic, cultural political institutional and governmental sphere so that they can actively participate in environment protection methods and movements confidently.

Thus for the questions regarding general awareness on environment issues, tenants of ecofeminism, the challenges facing by women in environment protections, various methods employed by them in environment protection and the suggestions for improving women participation in environment protection, the women surveyed responded very well which helped to reach analysis and findings of the study, which proves that ecofeminism in its varied forms like liberal, radical and social/socialist forms exist in Kerala<sup>109</sup>. These are the major findings of the survey on women participation in environment protection efforts in Kerala.

The analysis of the questionnaire, on women participation in environmental protection and movements in Kerala, which comprising 22 questions among women in Kerala from 6 strata of society leads to important conclusions. The women in Kerala are very interested in environment protection. Despite of the hurdles facing in patriarchal society of Kerala, they are actively participating in environmental protection. Even though only less than majority of women are aware of the term ecofeminism, they are unanimously agree with the ecofeminist tenants which conclude oppression of women and oppression of nature by male dominated society are two sides of a same coin is working in Kerala. Better assistance and cooperation from government and decision making bodies along with family, society and financial

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<sup>109</sup>The assertion of women in Kerala that women and nature are intimately related and the environment degradation is mostly affect women ,children, dalits, and Adivasis along with the notion that women environment protection is more effective than men and exploitation of women and exploitation of nature are interrelated support the existence of radical/cultural ecofeminism in Kerala. The demand for proper and equal representation of women in environment decision making bodies as well as creation and implementation of proper law and policies on environment matters especially for women, children, dalits, and Adivasis as they are mostly affected by environmental degradation, reflect the liberal mode of ecofeminist presence in Kerala. The demand for socio economic support for environment protection efforts on behalf of women along with demand for better coordination and financial support to become self reliant in the field of production, is in accordance with the social/socialist ecofeminism. The Kerala womens' argument in favour of changing the patriarchial attitude of men towards women which will reduce the double burden of their role in family, which in turn help them to solve the problem of the lack of time for environment protection along with better avenue creation for self sufficiency and state support and laws to prevent monopolies from capitalist institution and demand for better and proper utilization of science and technologies in favour of women and marginalised section's demand, altogether support the presence of socialist/social ecofeminism in Kerala.



institutions and proper attendance of environment issues related to women will improve their active participation in environment protection as well as the empowerment of women in Kerala. If the suggestions provided by women in Kerala on the methods of improvement of their participation in environment protection will met adequately, their environment protection efforts and movements can increase to the extent of making it as model for other societies of the world.

In short by the analysis of the survey result on women participation of environmental protection in Kerala and the data taken from secondary sources together proves that women are actively participates in environmental protection methods in Kerala and there exist ecofeminism in its various forms. Thus women in Kerala actively participates not only in environmental protection, but issues relates to marginalised sections such as women child right, LGBT rights, labour rights and Adivasi ditilt issues by understanding the fact that all forms of exploitation are interrelated and exploitation of women nature and marginalised sections are asserted by patriarchal society in Kerala, which all constitute core of ecofeminist theory.

## **Chapter III**

### **Womens' Participation in Environment Protection Movement: A Case Study of the Kairali Village in Wayanad District of Kerala**

#### **III.1. Introduction**

Women play a key role in environmental protection. According to Dankelman and Davidson (1998) “women play a major role in managing their natural surroundings and adopt several mechanisms to deal with the kinds of environmental crisis they

face”, which assert that women are prominent actors and contributors to environmental protection and conservation. Women through their role as farmers and collectors of water and fire-woods have a close connection with their local environment (Akwa, 2008). Women actively participate in environmental protection as they are directly affected and influenced by nature (UNDP, 1994). Studies of Vandana Shiva (1988), Amita Baviskar (1995) emphasises that environmental movements in India reflect the active participation of women particularly Adivasis.

### **III.2. Adivasis in India**

Adivasis are the earliest inhabitants of country as the term Adivasi materialise the meaning early inhabitants. The term Adivasi is commonly translated as ‘indigenous people’ or ‘original inhabitants’, and literally means ‘Adi or earliest time’, and ‘vasi or resident of’ (Das & Mehtha, n.d). Tribals are often referred as adivasi, *vanyajati*, *vanvasi*, *pahari*, *adimjati* and *anusuchit jan jati* (Basu, 2000). According to Majumdar (1958), “a tribe is a collection of families or groups of families bearing a common name, members of which occupy the same territory, speak the same language, and observe certain taboos regarding marriage, profession or occupation and have developed a well-assessed system of reciprocity and mutuality of obligation”. According to Government of India (1999), “the word tribe can be generally understood to mean a group of families bound together by kinship, usually descending from a mythical or legendary ancestor, living in a common region, speaking a common dialect and having a common historical past”.

According to the United Nations there are over 300 million indigenous peoples in the world and 70 million of them live in India. The indigenous population of India represents more than 8.6% percent of the total Indian population (Gilbert, 2005; Government of India, 2011). These tribal groups inhabit various ecological and geo-climatic conditions (hilly, forest, and desert) in different concentration throughout the country with different cultural and socioeconomic backgrounds (Basu, 2000). The Adivasi population spread throughout India from north to south and east to west. According to Nandini Sundar (2006) “they occupy a belt stretching from Bhil region of Western India through the Gond District of Central India to Jarkhand and Bengal, Where the Mundas, Oraon and Santals predominate. There are also pockets of tribal community in South like Chenchuas, Todas and Kurumbas and very small endangered

communities in Andam like Jarawas, Onge and Sentinilese. North East India contain another major portion of tribal population include the Naga subtribes, Khasis, Garos, Mizos, Kukkis, and Boados”.

According to Basu (2000) “The scheduled tribes differ considerably from one another in race, language, culture and beliefs. Notwithstanding so much diversity, there are certain broad similarities between the mutually divergent tribal groups. Striking similarities are noticed in their modes of living, each tribe lives in a definite area, has common dialect, cultural homogeneity and unifying social organisation”. Based on the manner in which the tribals primarily and distinctly make their living, the Indian tribals can be classified into seven groups such as Food Gatherers and Hunters, Shifting (Jhum) Cultivators, Settled Agriculturists, Artisans, The Pastoralists and Cattle Herders, The Pastoralists and Cattle Herders and Wage Labourers (Basu, 2000) The constitution of India ensure the rights to Adivasi<sup>110</sup> by placing them as Scheduled Tribes, as well as supporting them with Articles 15(4), 16(4), 46 , 244 , 275, 330, 332,334, 335,342, 339, Fifth and Sixth Schedule of the constitution<sup>111</sup>.

### **III.3. Problems faced by Adivasis in India**

The struggle of Adivasis for preservation of natural right to life is continuing as they are always excluded from mainstream of society (Saxena, 2011). The Adivasis have been pressing the political and legal agenda for the recognition of their right to self-determination, side by side with the recognition of customary land tenure systems, and the restoration of traditional lands belongs to them in India (Gilbert, 2005). In the name of development the socio economic cultural rights of Adivasis are violated and monopolised by Multi National Corporations (MNCs) which led them an active participation in environment protection (Colchester, 1994). Narmada Bachao Andolan, anti- Coca Cola struggle in Plachimada, Muthanga Struggle in northern Kerala, the

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<sup>110</sup>India rejects the recognition of *Adivasis* as indigenous peoples at an international level with the argument that the notion of indigenous peoples does not apply to the tribal groups of the country as the whole population of the country is indigenous. Indian representatives to the UN Working Group on Indigenous Populations have highlighted that ‘Scheduled Tribes ‘of India are not indigenous peoples. At the UN level, however, *Adivasi* representatives are usually recognised as indigenous representatives by the ECOSOC (Gilbert, 2005).

<sup>111</sup> Details will be on Appendix I

struggle against aluminium plants such as Utkal Alumina in Kashipur in Odisha and Vedanta in Lanjigarh in Odisha, reflect their concern over right to life (Colchester, 1994).

In the pretext of wildlife and environment protection indigenous peoples are expelling from their land especially through the establishment of 'protected areas' within tribal areas in India (Colchester, 1994). As Gilbert observes 2005,"the establishment of protected areas, such as national parks or sanctuaries, often disrespects tribal relations with land, forest, and water, and often is aimed at expelling tribal communities. A critical sentiment shared by nearly all who identify themselves as indigenous is a historical sense of having endured illegitimate, meaningless, and dishonourable suffering." The deprivation of the land of Adivasis, destruction of the forests, displacement in the name of development, denial of language identity and culture, destruction of their socio economic and political system are the issues confronting by them which in turn compel Adivasi to violent revolution and insurgencies, according to human right activists Gladson Dungdung (2010). Apart from these problems, the issues of poverty, mal nutrition, high rate of infant mortality, illiteracy, growing number of unwedded mothers, health problems, poor socio economic development pull them back from main stream society (Basu, 2000; Baviskar, 1995; Manikandan, 2014). Thus the Adivasis are deprived of basic rights, which compel the discourse on Adivasis to gain momentum in contemporary academic debates.

Adivasis are dominated by state technologies of power, which reflects Michel Foucault's concept of governmentality<sup>112</sup> is states by Chattopadhyaya (2012) as, "the forestry policies reinforced the subjugation of the Adivasis, on this account, government can be seen to refer more to systematised, regulated and reflected modes of power (a technology) that go beyond the spontaneous exercise of power over others. In the same way, disciplinary and sovereign power is reinterpreted, not as opposite forms of power, but as different technologies of government. In short, disciplinarity as internalised control was rarely achieved and consequently direct surveillance and the threat of physical force were applied to regulate and transform

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<sup>112</sup> Governmentality is a concept first developed by the French philosopher Michel Foucault, It can be understood as the way governments try to produce the citizen best suited to fulfil those governments' policies and the organized practices (mentalities, rationalities, and techniques) through which subjects are governed (Mayhew,2004).

the self-sufficient Adivasis into docile state servants<sup>113</sup>”. The suppression and penetration of state, market on Adivasis life and right led to the uprising struggles on behalf of them (Upadhyaya, 1996). Amitha Baviskar<sup>114</sup> and Nandini Sundar<sup>115</sup> criticises state’s domination over Adivasi’s basic rights in forests in the name of forest management and Forest Right Act. According to Baviskar (2001), “new and accelerated modes of extraction which seek to control nature through river valley projects or forestry schemes are justified in terms of causes such as the ‘national interest’ and ‘biodiversity conservation’. These causes are so transcendental that only the omniscient state claims the authority to safeguard them.” Thus Adivasis had to suffer and struggle under the domination of state.

Even in the era of globalisation and liberalisation the so called ‘uncivilised, aboriginal’ tribes are suffering in the manner that the Adivasis whose rights over access to natural resources, livelihood opportunities, right to education and health, protection from atrocities and human rights abuses and the right to uphold their traditional and customary practices, are under serious threat due to the changes in laws and policies in India (Shiva, 2011; Mandal, 2014; Nithya, 2014; Tirkey, 2014). With the new economic treaties and trade agreements, the traditional monopoly of hunting and gathering rights of Adivasis has been under question. The opening up Adivasi territory to industrial extraction of natural resources, big dams, mines, pipelines, roads, energy developments and military intrusions threaten native lands (Ezhilarasu, 2014). Thus the imposed position of Adivasis as least advantage bearers of fruits of power structures, socio economic advancement along with the

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<sup>113</sup> Consider Adivasis as ready to accept control or submissiveness.

<sup>114</sup>Amitha Baviskar (2012) explain the tragedies of tribal people in North East India where Armed Force Special Protection Act is in force “as forests and forest users are entirely at the mercy of corrupt and criminalized armed forces, both state and non-state in these area. In areas of north-eastern India with the increasing pressure to undertake development projects, especially the construction of dams to meet the power needs of the Indian economy, the lives of Adivasis under threat. At present, more than 160 large dams are planned in this region. The infrastructural expansion such as roads and the influx of migrant workers into the region for development is likely to place additional pressure on forest resources and those who depend on them”.

<sup>115</sup>Nandini Sundar explains (2012) how tribal population is attaching to naxalites. The forest is integral to the origins of Naxalism, as the exploitation faced by tribal who live in forests has led to widespread support for Maoist guerrillas by the Adivasis. Along with the lack of tenure rights and harassment by forest guards for minor violations paved the way for Naxal involvement. The Naxalites with their protection against everyday harassment and eviction, and redistribution of land to compensate for the absence of land reform involved in tribal Adivasis problems.

victimisation of development for the sake of “common good”<sup>116</sup> and open up to globalisation without protection is the grave cause of alienation of Adivasis from mainstream socio economic and political rights, which mostly results in violent struggle and insurgencies from tribal people in India (Veerbhadranaika, et al., 2012; White & Prakash, 2015).<sup>117</sup>

### **III. 4. Adivasis in Kerala**

Scheduled Tribes or Adivasis constitute 1.45% of Kerala population according to Census of India 2011<sup>118</sup>. The highest number of ST is recorded in Wayanad District 37.36 % and lowest in Alappuzha District 0.71% of total Adivasi population in Kerala. The proportion during the last census was 1.14%. An increase of 0.36% ST population in proportion to the last census is visible in Kerala<sup>119</sup>. According to the Human Development Report (HDR) by Planning Commission of Kerala in 2005, more than 50% of total population of STs concentrated in Wayanad District and Idukki in the form as 37.36% in Wayanad District and 14% in Idukki (Swamy, 2011). The important tribal communities in Kerala<sup>120</sup> are Paniyas (92,787), Kurichiyasns (35,909), Malayarayans (29,399), Irulas (26,525), Kurumar (21,375), Kttunaikkan (19,995), Adiyans (11,221), Malavedan (4,728), Eravallans (4,418), Kurumba (2,251), Malaipandarams (1,662), Koraga (1,644) , Wayanad an Kadar (673), and Cholanaikkan (409) (Kerala Scheduled Tribe Development Department, 2013). There are certain communities among Adivasis as Kurumas in Kasargode, Kurumbar of Attapady, the Kadar of Parambikulam and Sholayar and Cholanaikkans of Wayanad and Nilambur are under the threat of extinction (Swamy, 2010).

### **III.5. Problems faced by Adivasis in Kerala**

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<sup>116</sup>Common good here use in the sense that Adivasis and marginalized are exclude from the strata of common i.e. for the sake of upper class and upper caste and men.

<sup>117</sup>The example is the struggle in Muthanga Forest in Kerala.

<sup>118</sup>The District-wise population of tribe folk in Kerala is given in Appendix II

<sup>119</sup>This decadal growth is with clubbing of communities like Malavettuvan, Ten Kurumban(Jenu Kurumban), Thachanadan (Thachanadan Moopan), Cholanaikkan, Mavilan, Karimpalan, Vettakuruman and Mala Panickar Palliyan and Palliyar (Kerala Scheduled Tribe Development Department, 2013).

<sup>120</sup>There are five Primitive Tribal Groups (PTGs) in the state viz; Kattunaikkans, Cholanaikkan, Kurumbas, Kadars and Koragas (Swamy, 2011).

In Kerala Scheduled Tribe community is in the most vulnerable position among backward communities<sup>121</sup>. In postcolonial Kerala Adivasis are suffering from poverty, malnutrition, illiteracy, socio-economic and sexual exploitation by settlers and the depletion of their traditional resource base by dispossession of their land by settlers (Vaidyar, 1997). According to V.J. Varghese (2015) “the Adivasis of Malabar/Wayanad District in Northern Kerala with the migration of Syrian Christian settlers into the highlands and forests of Malabar from the 1920s become landless. The diverse groups of Adivasis were not only alienated from their land but also were integrated into new agricultural labour markets within the region of Malabar. Thus resulted in proletarianisation of Adivasis and put them into the category of receivers of welfare and subject of governmentality”. The alienation of rights over land, the low levels of education, growing number of unwedded mothers, high infant mortality rate, poverty, forced birth control programmes<sup>122</sup>, improper implementation of provisions of tribal protection policies, and low economic conditions make their position further vulnerable (Baiju, 2011; Chandrika & Nandakumar, 2014; Nithya, 2014). On the index of deprivation based on four basic necessities for well being, such as housing quality, access to drinking water, good sanitation and electricity for lighting, registering indices greater than that of the state average (57.9), the Wayanad District has the highest index of deprivation (66) followed by Idukki (65.3), Kannur (61.3) and Thiruvananthapuram (60.1) (Baiju, 2011). The vote bank politics of political parties or governments is a hurdle to materialise the problem solving path of Adivasis especially land to landless (Kumar, 2014). The local bodies including Grama Sabha

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<sup>121</sup>The State Planning Board, Government of Kerala, has identified 17 alarming issues in the tribal community. They are : (i) Extreme levels of poverty, deprivation and vulnerability; (ii) High levels of exclusion both developmental and social; (iii) Extremely low levels of empowerment (political, social and economic); (iv) Rapid marginalization due to unfair, unequal and exploitative relations of production and exchange between tribal communities and others; (v) Low level of access to entitlements; (vi) Practically zero participation in development matters with no autonomy in any form of decision making; (vii) Abnormally huge encroachment of developmental resources and benefits meant for tribal people by middlemen; (viii) Poor human development with low levels of literacy and access to health care; (ix) Rapid alienation of assets like land; (x) Alarming depletion of social capital especially traditional forms of organization and leadership; (xi) Quick deterioration of traditional knowledge systems and cultural attainments; (xii) Fast increasing tendency to use tribal people in criminal activities such as illicit distillation, cultivation of narcotic plants, stealing of forest wealth, etc.; (xiii) High levels of exploitation of women by outsiders; (xiv) Weak delivery system of public services; (xv) Dependency-inducing developmental programmes relying on distribution of benefits rather than building up capabilities; (xvi) Implementation of ad hoc and stereotyped developmental programmes in the absence of proper planning; (xvii) Very weak monitoring systems Chathukulam , Reddy & Rao, 2012).

<sup>122</sup> Large proportions of population in different tribes in Kerala were subjected to sterilization and vasectomies (Azharuddin, 2014).

is unable to take back the land from the settlers who had grabbed tribal lands and profited from them (Devika, 2013). The struggles are continuing on the part of Adivasis for the protection of their basic rights (Aneesh, 2014). The struggle for land in Muthanga, Wayanad District in 2003 and Chengara struggle from 2007 in Pathanamthitta District, Aralam in Kannur District reached to the extent of 'Standing Protest' in 2014, which demand Kerala government to fulfil promise of land to landless, that arised from the Muthanga struggle (Sreerekha, 2010: 2012; Kjosavik, 2006; Khan, 2014). The Adivasi Gothra Maha Sabha, which is an umbrella organisation of various Adivasis groups in Kerala has been continuing its struggle for the rights of Adivasis (Nithya, 2014; Sreerekha, 2010).

Adivasis and other marginalised groups in Kerala are out of purview of Kerala Model of Development. Devika (2013) identifies the process in which marginalised groups remains invisible to the dominant development discourse as the abjects<sup>123</sup> of development. Kumud Sharma (1994) argues that "economy and ecology are not opposed but converge in the survival economies of the third world poor, however, in the context of market oriented development they have been rendered contradictory. Poverty, malnutrition, illiteracy, socio-economic and sexual exploitation by the non-tribals, depletion of the traditional resource base and state restriction on its use characterise the social reality of the tribal of post-colonial Kerala. On most indicators of well-beings, the tribals fall far below the Kerala average."

### **III.6. Wayanad District: General profile**

Wayanad is a District of the northern part of Kerala, which comprises of tribal and non tribal population. It is located at the distance of 76 km from the sea shore of Calicut. The name Wayanad is believed to have derived from the word Vayal- Nadu - The land of paddy fields (Varghese, 2010). Wayanad District was formed as parts taken from Kozhikode and Kannur Districts and came into existence on 1 st November, 1980 as the 12th District of Kerala. It has boundary on the east Nilgiris and Mysore District of Tamilnadu and Karnataka respectively, on the north Coorg

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<sup>123</sup>By 'abjection', Devika refers the social process by which the normal, the possible, the dominant, the sensible, and the mainstream are produced and supported by the creation of a domain of abnormality, impossibility, subservience, and marginality (Devika, 2013).



District of Karnataka, on the south Malappuram and on the west Kozhikode and Kannur Districts (Bhaskaran, 2012).

Agriculture is the main occupation of the people in Wayanad District. The major crops cultivated in the Wayanad District are Coffee, Tea, Pepper, Ginger, Cardamom, Paddy, banana and Coconut (Ibid). Wayanad District, which is in Western Ghats also place of attraction for tourists. It is one of Kerala's prime locations promoted in both India and Europe for visits, where tourism sector is divided into segments of adventure tourism, recreational tourism, pilgrim tourism, historical tourism and wildlife tourism (Engelen, 2011). Wayanad District is one of the tourist spot, where Kerala government introduced the programme of ecotourism and responsible (Nissar, 2014).

This District has a varying topography which includes hilly areas, valleys and large part of the Wayanad District is covered with forest with rich flora and fauna and endangered species, under threat of exploitation (MSME, 2011).Wayanad District falls under the humid tropical climatic region. It is relatively colder than many other places in the region as it stands 3000 to 4000 feet above sea level with annual temperature ranging from 12 to 35 degrees celcius.The natural vegetation of the region is classified as Medium Elevation Wet Evergreen Tropical Forest which is characterised by tall trees with dense undergrowth with variety of species includes birds, reptiles, amphibians and arthropods (Yousafi, n.d).

Wayanad District comprises of 5.5% of the total land area of Kerala, and also one of the most biodiverse regions in the state. It is enriched with three types of soil (laterite, loamy and black) (Abraham, 2007). One of the highest rainfall areas of Kerala, Lakkidi, is in this District. It has only one east flowing river in Kerala, Kabani, along with, fresh water lake, 'Pookode'. The District's forest area constitutes 37 percent of its total area. The important Wildlife sanctuaries like Muthanga and Tholpetty are situated in this District (Kumar, 2014).

It has the population of 8, 16,558, according to Census of India 2011. Wayanad district is the least populated District and it ranks first in Scheduled Tribe population (18.5 per cent of its population) among the districts of Kerala with literacy rate of 89.03%, least in the state. Wayanad District has the population density of 383 people per sq. Km, which is one of the lowest in the state, whose average is 859. The number

of male 401,314 and female is 415,244. The sex ratio is 1035 female for every 1000 male. The district has a mixed population of Hindus, Christians and Muslims and Jains (Public Affairs Centre, 2011). For administrative purpose Wayanad district is divided into three taluks, namely Sulthan Bathery, Mananthavady, and Vythiri. There are 25 Grama Panchayats in Wayanad district, with only one Municipality (Kalpetta). Kalpetta is the headquarters of the Wayanad district administration (Bhaskaran, 2012). The population of Wayanad district consist of tribal and non tribal people who migrated from other parts of Kerala or other parts of India, includes Nair, Ezhava, Namboothiri, Christian, Jains and Chettyas and major tribal communities found in the District are Paniyan ,Mullu Kuruman, Kurichiyan, Kattunaickkan, Adiyar and Urali Kuruman (Public Affairs Centre, 2011; Varghese, 2010).

### **III.6.1. Adivasis in Wayanad District**

According to Census of 2011, Scheduled Tribes constitute 1.45% of Kerala population. The total population of Scheduled Tribes are 484939 in which female constitute 246636 and male constitute 238203. The Adivasis in Wayanad district consist of Urali Kurumans<sup>124</sup>, Mullu Kurumans<sup>125</sup>, Paniyas<sup>126</sup>, Kurichyas<sup>127</sup>, Kattunaikkas<sup>128</sup> and Adiyas<sup>129</sup>. Apart from the above mentioned groups there are also smaller groups like Kadar, Kalanadi, Karimpalan, Kunduvadiyar, Thechanandom, Pathiyar and Mada (Varghese, 2010). Adivasis have their own ethnic tradition and cultural practices, which are physically distinguishable with darker skin and strong physique. They live in houses made of thatched roof, mud, bamboo and brick houses and they are using ecofriendly products from bamboos and mud as attached more to nature (Kerala Tourism, 2013). As Varghese (2010) points out there are common features of tribes in Wayanad District as no script for their languages, preference of community living, worshipping of forest Gods, acceptance of the leadership of the

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<sup>124</sup>They are found in southern Wayanad District and Vythiri taluk. Uralikurumars have special skills to make items from bamboo and cane (Varghese, 2010).

<sup>125</sup>Mullakurumars are considered as the followers of the royal family of Vedar, Mullakurumar have better education than others and some of them have government jobs as well. They have some land of their own. They are experts in hunting (ibid).

<sup>126</sup> Paniyas outnumber the other tribes found in Wayanad. They, have some similarity to the Negroes. At Present majority of Paniyas are casual agricultural labourers (ibid).

<sup>127</sup>Kurichiyars are considered superiors to other tribes and untouchability is prevailing among them. They have the legacy of war against British under King Kerala Varma Pazhassi Raja (ibid).

<sup>128</sup>Kattunaikkars are main collectors of Minor Forest Products and likely to live in forests (Varghese, 2010).

<sup>129</sup>Adiyas live in Wayanad District and Kudugu. They are divided into many clans. This tribal sect speaks a mixture of Kannada and Malayalam (ibid).

traditional leaders, special rituals at times of marriage, death, and reaching puberty age of girls, which are considered as community events, having their own traditional art forms, folk dances. During harvest seasons they perform festivals and rituals, and by tradition and culture they are fond of nature.

In Wayanad district the Adivasis are suffering from lack of health and educational facilities, malnutrition, bonded labourers, poverty, alcoholism, atrocities against children and women along with the problem of sickle cell anaemia<sup>130</sup>, especially among the Paniyans and the Kattunaikkans (Chandrika & NandaKumar, 2014). Tribal women in Wayanad district are victims of sexual exploitation and physical harassment, which is visible by the example of phenomenon of unwed mothers, is Thirunelli of Wayanad district. A rough estimation shows that there are more than 500 unwed tribal mothers in this area alone<sup>131</sup> (Chathukulam, Reddy & Rao, 2012). The problem of land alienation is severe in Wayanad district. The highest number of landless tribes is found in Wayanad district with 60.32% of the total followed by Palakkad with 24.44% (Kerala State Planning Board, 2005). One of the main problems faced by Adivasis in Wayanad District is environmental degradation.

### **III.6.2. Environmental problems faced by Adivasis in Wayanad District**

The problem of environmental degradation is affecting Adivasis in Wayanad district. The main problem faced by them is deforestation since forest and tribal life are closely related (Swamy, 2011). The forests in Wayanad district are the hub of a unique diversity of endangered flora and fauna. The region is recognised as globally most significant conservation area for a number of threatened species and animals, thus is significant (Muster & Muster, 2012). The non-timber forest produce provided them food security as they consume plants, vegetables and fruits. Adivasis in Wayanad district are using herbals for medicinal preparation but with the destruction of the flora and fauna as a result of deforestation and alienation of Adivasi land and cultivation of cash crops by migrants resulted in losing of non timber forest products

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<sup>130</sup>Sickle cell anaemia is an genetic blood disorder, with over dominance, characterized by red blood cells that assume an abnormal, rigid, sickle shape (Chathukulam , Reddy & Rao, 2012).

<sup>131</sup>C.K Janu, leader of the tribal coordination committee, says “the settlers have taken over our lands, turned our men folk into drunkards and desecrated tribal women. We have to declare self rule for our self protection to prevent more fatherless children from being born. An Adivasi colony is not a brothel for outsiders to come and go” (ibid).

which in turn affects their survival and medicinal practices. Adivasis are also the worst victims of tuberculosis, scabies, worm infection, malnutrition as a result of losing of food resources by forest destruction (Swamy, 2011).

Another problem faced by Adivasis in Wayanad district is water scarcity. According to a Baseline Survey of Minority Concentration Districts of India (2008) in Wayanad District tribal households do not have access to proper drinking water. The exploitation of water resources and changing climate causes the problem of water scarcity in the region. They are also suffering from disease like diarrhia, allergy due to contaminated water (Varghese, 2010). Most of them are depending on public tap for water collection, which is very far from their place. Women are suffered mostly from water crisis as women and children had to walk kilometres to collect water. Many of them are taking water from 'Kani' (small pond), where the bathing of domestic animals and washing dresses are also done, which in turn result in serious health problems (Ibid). They are also facing the problems of soil erosion caused by heavy rainfall and landslides, and use of chemicals for agriculture which in turn affect their cultivation pattern (Paimpillil, 2011). The environmental degradation which affecting the lives of Adivasis in Wayanad District compel them to engage in environmental protection efforts, especially by women as they have a special relationship with the nature, and they are found to be the greatest victims of environmental problems such as deforestation, water crisis and soil erosion, and drought (Chandrika & NandanKumar, 2014; Fernades & Geetha, 1987; Hassena, 2006).

### **III.6.3. Adivasi Womens' environmental protection efforts in Kerala and Wayanad District**

Tribal women play an important role in environmental protection in Kerala (Nair, 2009; Bijoy, 2004; Anitha, 2011). The Adivasi and dalit women actively participated in anti- Coca Cola struggle in Palakkad District, as they were the key critics of Coca Cola Company's exploitation of groundwater and environmental pollution (Bijoy, 2004; Karthika, 2008). Adivasi women strongly protested against the destruction of river basin and diversion of Bhavani River, in Palakkad district (Anitha, 2011). In Save Silent Valley movement also Adivasi women participated in the struggle as on the outskirts of reserve forest lives the indigenous tribal, who were concerned with loss of collection of forest produces and destruction of biodiversity with the

materialisation of hydroelectric power project (Bhanoo, 2015). They also participated in environmental protection through MGNREGA, Kudumbasree and SHGs activities of plant protection, tree planting and vegetable as well as paddy cultivation (Anand & Maskara 2014).

Adivasi women are in the forefront of conservation and day-to-day management of sacred groves in Kerala as they understand it is necessary for the maintenance of balance of ecosystem (Chandrashekhara, 2010). They actively participate in the protection of forest through the means of protecting existing trees from destruction and patrolling in groups like Vasantha Sena in Periyar Tiger Reserve Forest. This group consists of mostly tribal members for the protection of forest and its animals from poachers which made the forest poacher free (Infochange, 2015). Adivasi women are involved in working of Vana Samrakshana Samithi, a wing of Joint Forest Management (JFM) (Balooni & Inoue, 2009; Chandrasekar, n.d). Kerala provides representation for women in JFM Executive Committee along with representation to SC/ST marginal and landless people forest dependant community (Murali, Rao & Ravindranath, 2003). The Adivasi women groups protect environment through conservation of sacred plants, medicinal plants, trees, and through making eco friendly daily use goods (MSSRF, 2009; Shylajan & Mythili, 2007). Thus Adivasi women who are more attached to forest by their dependence on non timber forest products participate in forest and sacred grove protection in Kerala.

The tribal women in Wayanad district through Kudumbasree and agriculture activities participate in environment protection, which in turn contributing to food security. The success of Lavanya, a self help group in Thirunelli where women started paddy cultivation for food security, where they earlier had to depend on other landowners for labour and food production, proves the willingness of women to protect environment (Anand & Maskara, 2014) “it is the tribal community in general and women in particular who have preserved forests and other natural resources by keeping a balance between human needs and environmental preservation” (Haseena, 2006). Other reason behind this participation is to reduce the migration of tribal men to other regions which increases the workload on women, affects the economic status of the family, deteriorating the life status and exploitation from various sections of society (Ibid).

Adivasi women group protect environment through conservation of sacred plants, medicinal plants, trees, making eco friendly goods and active participation in Community Forestry (Vincent, 2001; Shylajan & Mythili, 2007). In Wayanad District as part of JFM, Ooru Kuttam, a form of Gram Sabha among Adivasis has been constituted with representation of women which in turn helps their efforts to environment participation by taking part in decision making (Chemmencheri, 2013). Thus by understanding the grave danger of environment degradation<sup>132</sup> they are more conscious on environment protection methods.

Adivasi women in Wayanad District took part in the Muthanga struggle for ‘right over birth land’, (Bijoy & Raviraman 2003). The struggle began in 2001, with the leadership of C.K.Janu under the Adivasi Ekopana Samiti (AES) as agitation in front of the Secretariat in Thiruvananthapuram, with making huts in protest against the denial of productive land to the Adivasis which was promised by government (Devika, 2013). The denial of promise by government on land to Adivasis along with the death of 32 Adivasis by starvation in Wayanad District resulted in capturing of the Muthanga Wildlife Sanctuary, which was suppressed by the government with considerable violence inflicted on leaders and activists alike, and by the police (Bijoy & Raviraman 2003). The women participated in Muthanga Struggle<sup>133</sup> because; tribals by collecting Minor Forest Products and medicinal plants are deriving their sources of livelihood from forests. They are more attached to forest to the extent that they treat forests as mother (Bhaskaran, 2002). Another example of tribal women effort to empowerment and environment protection reflect in Paniya women efforts to environment protection in Kairali village, Wayanad District which is taken as area of case study in the present study.

### **III.7. Paniyas**

The Adivasis in Wayanad District consist of Urali Kurumans, Mullu Kurumans, Paniyas, Kurichiyas, Kattunaikkas and Adiyas and there are also smaller groups like Kadar, Kalanadi, Karimpalan, Kunduvadiyar, Thechanandom, Pathiyar and Mada

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<sup>132</sup>Their burden will double as they had to spent more energy for collect water, fuel and food which in turn result in malnutrition, reduction in literacy rate of girl child, ended up in poverty and exploitation as a result of environment degradation.

<sup>133</sup> Even the environmentalist and civil society also talk against Adivasis rights as that they don't understand the real relationship between the forests, the animals and the Adivasis (Vincent, 2001). In Muthanga Struggle the non-Adivasis who were expected to support the struggle for land did not actually do so, the Prakruthi Samrakshana Samithi, the ecologists of Kalpetta has served legal notice to C.K. Janu and others for encroaching on forest land (Bindu, 2011). Thus the mainstream society and environmentalist forgot the nature and Adivasi relation.

(Varghese, 2010). Paniyas occupy an indomitable place among the STs in Kerala as they are largest tribal community in the State, Paniyas constitute 45.12% of total Adivasi population in Wayanad District<sup>134</sup> (Kumar, 2014; Chandrika, & Nandakumar, 2014). The anthropological root of Paniya<sup>135</sup> is that they are the agricultural labourers classified as 'Aborigines-Predial, slaves' (Nair, 1911). The meaning of the term 'Paniya' indicates that they earn their livelihood from labour as the term 'Pani' in Malayalam means 'labour'. Thus the word 'Paniya' literally means 'labourer' or worker (Nair, 1981). They are 'dark skinned tribe, short in stature, with broad noses and curly or wavy hair', who speak Malayalam mixed with Tamil or Kannada word (Ibid). According to their dwelling pattern, the Paniyas have two-sub division, Paniyas of the plain land having contact with own tribal people and others are those living in interior forests. These groups are mainly found in Nilambur forests of Malappuram district (Ibid).

Traditionally Paniyas were food-gatherers from forests. They eat rice, wheat or ragi, tapioca, vegetables, animal flesh, fish, crabs and some varieties of roots and tubes. Besides drinking tea or coffee, they are addicted to drinking toddy and some varieties of illicit alcoholic beverages (Ibid). Paniyas are primarily agricultural labourers and the wage rate is very low as compared to that of other areas in Kerala, resulting in poverty (Antony, 1995). Paniyas give very little importance to education, as they believe that the educated children are reluctant to take up their traditional occupations. It is found that the problem of illiteracy is acute among the Paniya community. The literacy rate of Paniyas is thirty five percentages. This low literacy is considered to be the root cause of their socio-economic backwardness (Varghese, 2010). Their settlement comprises of rows of small huts constructed with bamboo with thatched roofs. Monogamy is common practice among them. The Paniya tribes have a lot of religious practices. They worship banyan tree and Bhagavathi with great reverence. They also believe in spirits (Krishnan, 2014).

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<sup>134</sup>Kurichya (16.49), Adiya (7.31), Mullu Kuruma (13.70), Kattunaikka (11.13), Vettakuruma (4.23), Thachanadan mooppan (1.07), Wayanad District Kadar (0.44), Mala Arayar (0.11), Ulladar (0.06), and Karimpalan (0.10) (Chandrika, &Nandakumar, 2014).

<sup>135</sup>Three theories throw light on the historical origin of the Paniyars Community, of which the first claims that they are the "original type of the population of India now modified to a varying extent by the admixture of Aryan, Scythian and Monogoloid elements" (Nair, 1911). The second theory holds that the Paniyars "are the descendants of the Negroes brought from Zanzibar by Moors trading with the Malabar Coast". The third theory states that there was a "submerged continent of Lemuria extending from Madagascar to the Malay Archipelago linking India with Africa on the one side and with Australia on the other", and hence Paniyas of Southern India have got a historical resemblance with the aborigines and Negroes of Australia and Africa respectively (Kumar, 2014).

The social structure of the tribal society in Kerala centres on family system (Varghese, 2010). Among the Paniyas there exists the institution of headman known as 'Chemmi' who is obeyed and respected by all the members of the community. The office of the headman operates through a hereditary principle (Ibid). Traditionally, there was male domination in the Paniya families, later some radical changes have taken place in the traditional headship of the family. This is because; family heads often leave their parent village seasonally and migrate to the place of their work due to paucity of agricultural land. In their absence, for a major part of the year, female members work as head of the family (Ibid). In most of the tribal communities in Wayanad District, Paniya in particular, the women enjoy equal social status with their men folk (Ibid). The women are the cornerstone of the social structure of the Paniya tribal societies in Wayanad district, who shoulder the responsibilities of feeding, raising the family and maintaining social relations (Ibid). The Paniya women by understanding the consequences of environmental degradation, actively participates in environmental protection movement, especially in the Kairali settlement, which is an Adivasi village situated at Mukki Peedika in Vythiri taluk of Wayanad district (Chandrika & Nandakumar, 2014).

### **III.8. Women participation in environment protection in Kairali village: Case Study**

Kairali is an Adivasi village situated at Mukki Peedika in Muppainad gram panchayat of Vythiri taluk in Wayanad district, where the settlers are Paniya Adivasi group. There are only 60 families in the settlement area. This area is forest land assigned to Adivasi families in 2008 under the Forest Rights Act 2006. The land was taken over by the Paniyas, as part of the Adivasi land struggle movement (Chandrika & Nandakumar, 2014). The people in this area suffered from bonded labour, nominal wages, consumption of liquors, malnutrition, poverty, illiteracy, and remoteness (Ibid). Through case study an attempt has been made to understand the environmental protection efforts and movements initiated by Paniya women, challenges faced by them and the success they achieved through environmental protection efforts.

#### **III.8.1. Methodology**



The present study is descriptive in nature and is based on the fieldwork conducted among the Paniya women of Kairali village in Wayanad district of Kerala. The district is divided into three taluks, namely Sulthan Bathery, Mananthavady, and Vythiri. The Paniyas are distributed, in all the three taluks of district. Of the three taluks, Vythiri taluk consist of 18 villages, in which, Muppainad village consist of Kairali settlement (usually called as Kairali village) is selected for the study. The method is used for study is case study method with Schedule and interview for find out Adivasi women environment awareness and protection method in the village. The study followed the simple random sampling technique. The total family settlement is 60 and 15 women is selected for study, which constitute 25% of population under study. The sampling technique is simple random sampling using lottery method. Both primary and secondary data used for data collection. Primary data collected by schedule include 22 questions and interview followed. Secondary data used for the background of study which include articles and reports.

### **III.8.2. Analysis of data**

For reaching a conclusion on importance Adivasi women environment awareness and protection method the analysis of response to questions of schedules and interview is given below in two parts, part I deals with analysis of interview and part II deals with Schedule.

### **III.9. Part I: Analysis of interview**

For complete result of case study 15 women interviewed, which constitute 25% population under study. The women are selected using simple random sampling through lottery method.

#### **III.9.1. Important environment protection methods employed by Paniya women in Kairali village:**

The Adivasi women involve in active participation of protecting existing greenery which they considered as as important gift of nature. The words of Santha contain this spirit as “environment is the basis of our life supporting system, if we cut one tree has to plant one for future generation.” Many of them like Janaki, Manju, and Sreeja, with

their contribution through kitchen garden, goat rearing, cow, chicken rearing as well as mushroom cultivation in Polyhouses participating in environment protection. They cultivate vegetables in fields. Vellachi is succeeded in maintaining their kitchen garden as she says “we are cultivating whatever we want and we are not eating any contaminated food, which is the secret of our strength”. They are also conscious of protecting their house as well as surrounding very neat and clean as they are aware of danger of plastics and garbage on their health, thus contribute to environment protection.

### **III.9.2. Environment protection activities by Paniya women in Kairali village:**

Adivasi women in Kairali village feel their environment protection is success with the help of M.S.Swaminathan Research Foundation (MSSRF)<sup>136</sup>, which is situated in Meppadi in Wayanad district, which adopted Kairali village as their part of mission for women empowerment and environment protection. As Manju and Sreeja stated that as only with their guidance and technical assistance they succeeded in Poly house vegetable cultivation and mushroom cultivation. As Sreeja observe “the technical support provided by them is invaluable as now I am able to manage mushroom farm by myself and support family with my income, earlier I was in a distress mood and didn’t know how to maintain cultivation”. They provide high yielding varieties of vegetables, seeds, fruit plants along with technical support needed for its cultivation protection. Their classes benefited Paniya women in the fields of methods of animal husbandry, construction of biogas plants, modern technique of poly house cultivation, which rewrites the notion of society that only educated mainstream, can use modern technology, and the technique of using their own medicinal secrets for treatment among the community. Choppa, Mini, Janaki are satisfied with the technical support and awareness class provided by M.S.Swaminathan Foundation. Thus their hard work along with technical support results in success of environment protection methods of Paniya women in Kairali village.

### **III.9.3. Previous condition of the area:**

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<sup>136</sup>The M. S. Swaminathan Research Foundation (MSSRF) is a non-profit research organization established in 1988. Its aim is to develop pro-nature, pro-poor, pro-women and sustainable on-farm and non-farm livelihoods with appropriate eco-technology and empowerment of the community with knowledge. Through The Community Agro-biodiversity Centre (CABC) established by MSSRF, the agricultural improvement activities are going in Kairali village (Chandrika & Nandakumar, 2014).

Earlier they were suffered with the lack of proper housing and sanitation facilities, lack of transportation facilities, water scarcity, malnutrition, poverty, health problems include sickle cell anaemia, alcoholism, lack of education facilities especially primary schools, beating of wives, vote bank politics, animal attack on yields, less women participation in decision making bodies, and lack of aid from government institution (Chandrika & Nandakumar, 2014). Still some of the problems persist but their conditions improved according the 15 women interviewed.

With MSSRF activities women in the Kairali village are empowered. Now most of them are participating in Oorukuttam and demanding proper decision affecting their issues. The alcoholism among men and women decreased. The problem of malnutrition is decreased as many of them become self sufficient in food production. The main cultivation of products include cultivated and wild tubers and legumes, leafy vegetables, Mushroom, varieties of yams, cassava, sweet potato, tomato, cabbage, beans, chicken, and milk, which in turn reduced the malnutrition and anaemic problems of people of Kairali village. The unstructured herbs gardens helped Paniyas to improve their traditional health. The socio political environmental awareness of women also increased than before. Thus the words of Sreeja (20) proves the willingness and empowerment of women as “I had to passed through distress and quit my studies for family caring which made me depressed, now as a women I feel happy as i am an entrepreneur, who earn from mushroom cultivation of more than 600 kg from sixth months, thus support my family and I am now empowered enough”. The income of family increased thus economic empowerment and status of women become far better. Thus women through their environment protection activities feel empowered in midst of scarcity of many other basic needs.

#### **III.9.4. Problems faced in the way of environmental protection activities of Paniya women in Kairali village:**

The Adivasi women in Kairali village are continuing their efforts of environment protection, but their main concern is that earlier there were enough water sources for manage their cultivation and household demands, but now they are suffering from lack of water availability which in turn affected their day to day life. As Radha, and Santha expressed their concerns as “First you bring us water then talk about development”. The poly house farming of Manju, who succeeded in cultivating salad cucumber of 2000kg within three months, now hesitated to continue farming with the

scarcity of water. The 15 women interviewed in one voice said they wanted to extent their farming but the scarcity of water is biggest obstacle in front of them. The increasing deforestation, the increase attack of wild animals on their yield which was the concern of Santha, is a major problem facing by Paniya settlement altogether in the area.

According to all women interviewed, they are not getting enough socio economic assistance from local government and state government. Santha says, “It is said that there is assistance from government to you in all fields including special programmes and projects, but when we go for that only money and time is losing.” Anitha complains that “we are less educated and everybody is taking advantage of that, as we didn’t come to know about special provisions or job opportunity. The health facilities available to us rarely reach to us. We are not getting any help from government for any environment protection activities”. Janaki finds the alienation of land by immigrants is a threat to them as the earlier paddy fields are disappearing which was taken over by cash crops, especially tea estate where they are now working mainly. The Forest Right Act<sup>137</sup> was also criticised by women. Santha, Janaki, Choppa, and Vellachi say that “earlier there was no restriction for us to collection of forest products and firewoods, but now for even taking firewood in front of us we have to get permission of forest department, which is a negation of our original rights, so we are not going for collection of forest products.”The lack of educational facilities and proper road connectivity and infrastructure facilities adversely affect their willingness for come in forefront for environment protection activities. The vote bank politics are a curse according to Bindhu. Anitha says that” as they assuring whatever we want at time of the election but after election they will come in next election only”, Santha adds that “We have our own minister for welfare<sup>138</sup> but the conditions are worse than before.” Thus the lack of assistance from government on environment protection as well as welfare of the community, lack of water facilities, problem of connectivity for marketing of products<sup>139</sup> and restriction on forest product collection, they think as obstacles in their environment protection efforts.

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<sup>137</sup>The Forest Right Act seeks to recognize and vest the forest rights and occupation in forest land in forest dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded (Ministry of Tribal Affairs, 2012).

<sup>138</sup>P.K.Jayalakshmi is the Minister for Welfare of Scheduled Tribes, Youth Affairs. She is the first person from the tribal community who became minister in the history of Kerala. She is from Kurichiya tribe in Wayanad district.

<sup>139</sup>They usually circulates their products among the village and remaining products is sell at the outlet in Wayanad District Institute of Medical Science in Meppadi in Wayanad district.

### **III.9.5. Suggestions to improve environment protection efforts and empowerment by Paniya women:**

Every women surveyed demand for better transport facilities, for people of Kairali village. The availability of irrigation and drinking water will improve their environment activities according to the whole women interviewed in Kairali village, as the search of water source and fetching of water from far away is a problem concerning women in every society, which is an ecofeminist issue. They demand non intervention of outsiders in their socio cultural set up in name of rehabilitation and development. This is clearly voiced by Sreeja, who is the representative of young generations. They are demanding the allotted policies and programmes, facilities and rights from government. They are also demanding more access to modern agricultural technique to all women in village without any discrimination, as now the modern technique include poly house farming are restricted to certain people in the Kairali village area. They are demanding better house facilities which are ecofriendly to save their children from insecurity. The women in Kairali village are well aware of strength of unity among women in environment protection movement as everybody stands for cooperative efforts from all women in environment protection methods include agriculture, forest protection, animal husbandry, waste disposal, water conservation, modern technique of agriculture and demand for proper representation of women in environment decision making. Thus they think that from family, society, government and cooperation among themselves, they can be more empowered and better contributors in environmental protection efforts.

### **III.10. Part II: Analysis of schedule**

For completion of case study, along with interview, schedule is also used. The Schedule<sup>140</sup> consists of 22 questions with 21 close ended and 1 open ended questions. Survey conducted among 15 women from 60 families, which constitute 25% of population under study, who is selected randomly using lottery method. The questions in Schedule are analysing below.

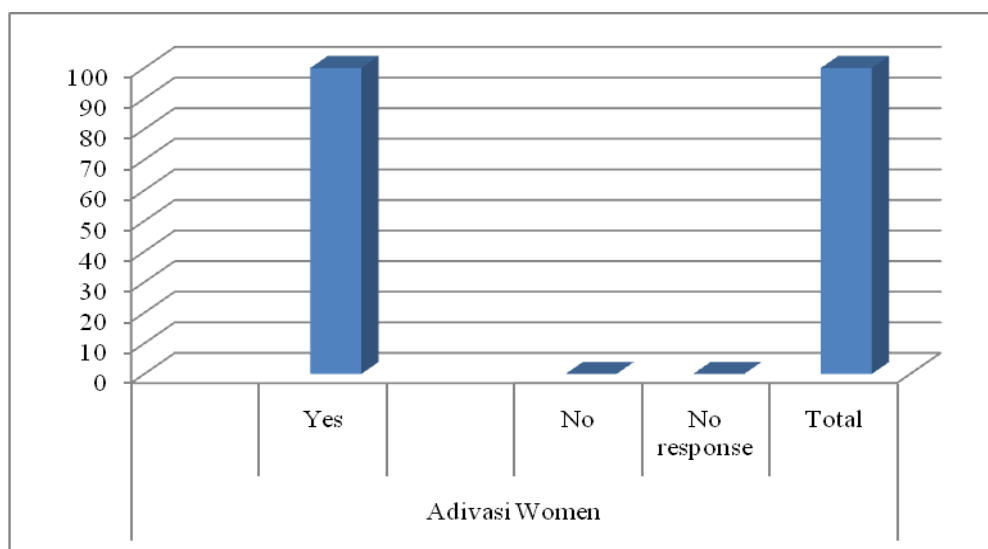
#### **Table 3.1**

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<sup>140</sup> Schedule is added in Appendix III

### Awareness of environment and its related issues

| Category      | Heads       | Figure in percentage |
|---------------|-------------|----------------------|
| Adivasi Women | Yes         | 100                  |
|               | No          | 0                    |
|               | No response | 0                    |
|               | Total       | 100                  |



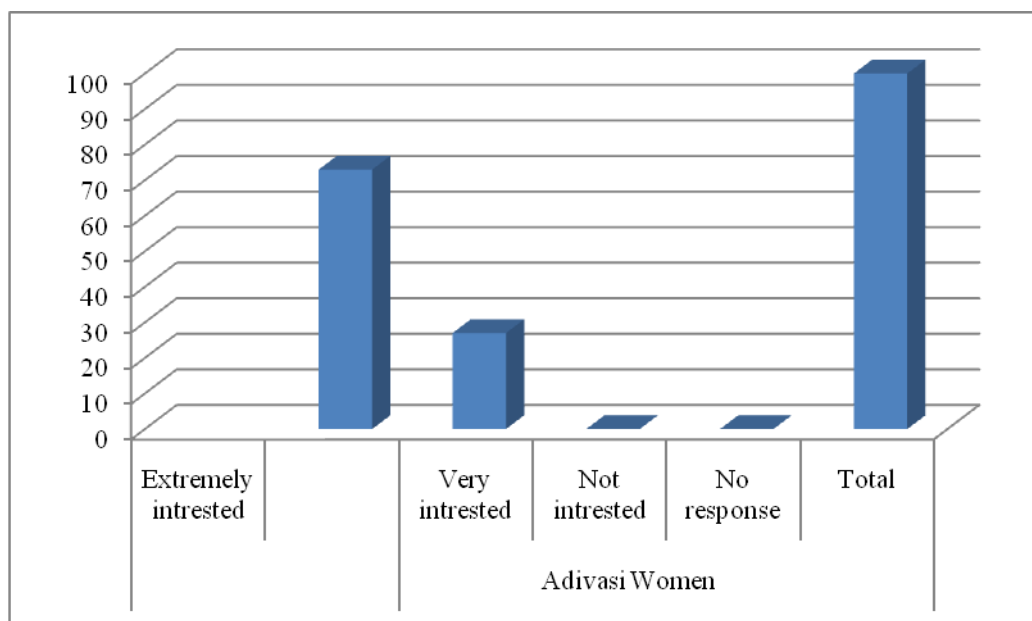
**Figure 3.1: Awareness of environment and its related issues**

In response to the issue on awareness of environment and its related issues 100% women said 'Yes' which is explained in figure and table 3.1. They are aware of need of environmental protection because they are facing the consequences of environmental degradation in their daily life. With the experience of change in weather, the water scarcity, and decrease in the yield on cultivation along with the works and awareness creation campaign by MSSRF and medias, they are aware of the issues of environment. Thus the table and figure indicate that woman in Kairali village is aware of environment and its related issue.

**Table 3.2 Interest in issues of environment**

| Category      | Heads                | Figures in percentage |
|---------------|----------------------|-----------------------|
| Adivasi Women | Extremely interested | 73                    |
|               | Very interested      | 27                    |
|               | Not interested       | 0                     |

|  |             |     |
|--|-------------|-----|
|  | No response | 0   |
|  | Total       | 100 |



**Figure 3.2 : Interest in issues of environment**

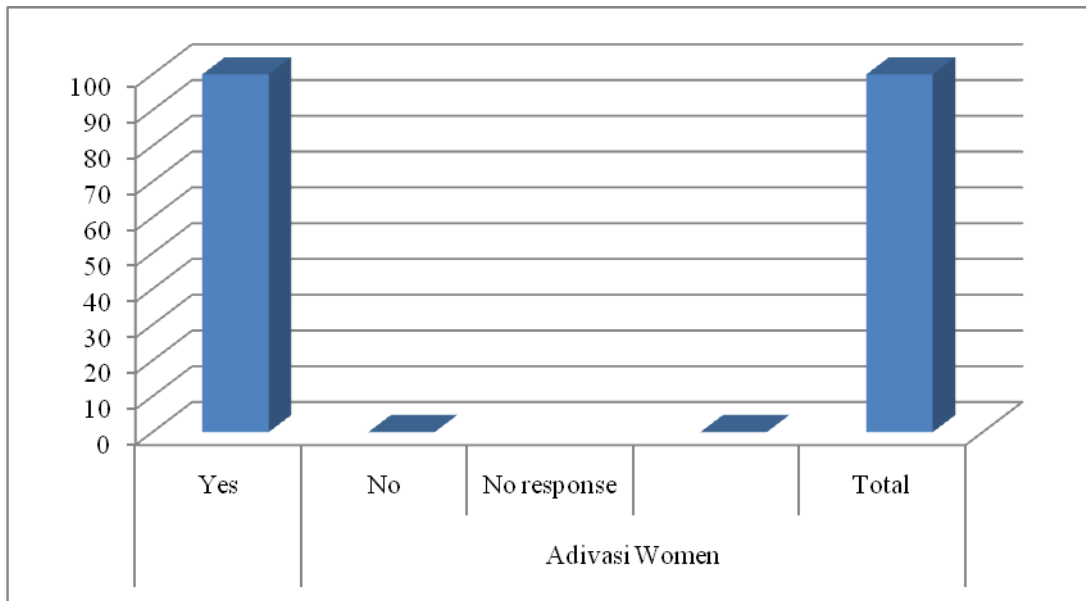
In the table 3.2 on interest in issues of environment 73% of Adivasi women in Kairali village are extremely interested in issues of environment and 27% are very interested in environment matters. Majority of Adivasi women are extremely interested as they are aware of the difficulties of environmental degradation on daily life and need for protection of environment. For this awareness creation and interest generation, MSSRF plays a major role along with their technical support for Adivasi women in the area. More than that the knowledge on the after effects of environmental degradation in other areas compel them to take part in environmental protection activities. This is a positive indicator of participation in environment protection efforts

**Table 3.3**

**Awareness of environmental degradation**

| Category      | Heads       | Figures in percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 100                   |
|               | No          | 0                     |
|               | No response | 0                     |

|  |       |     |
|--|-------|-----|
|  | Total | 100 |
|--|-------|-----|



**Figure 3. 3: Awareness of environmental degradation**

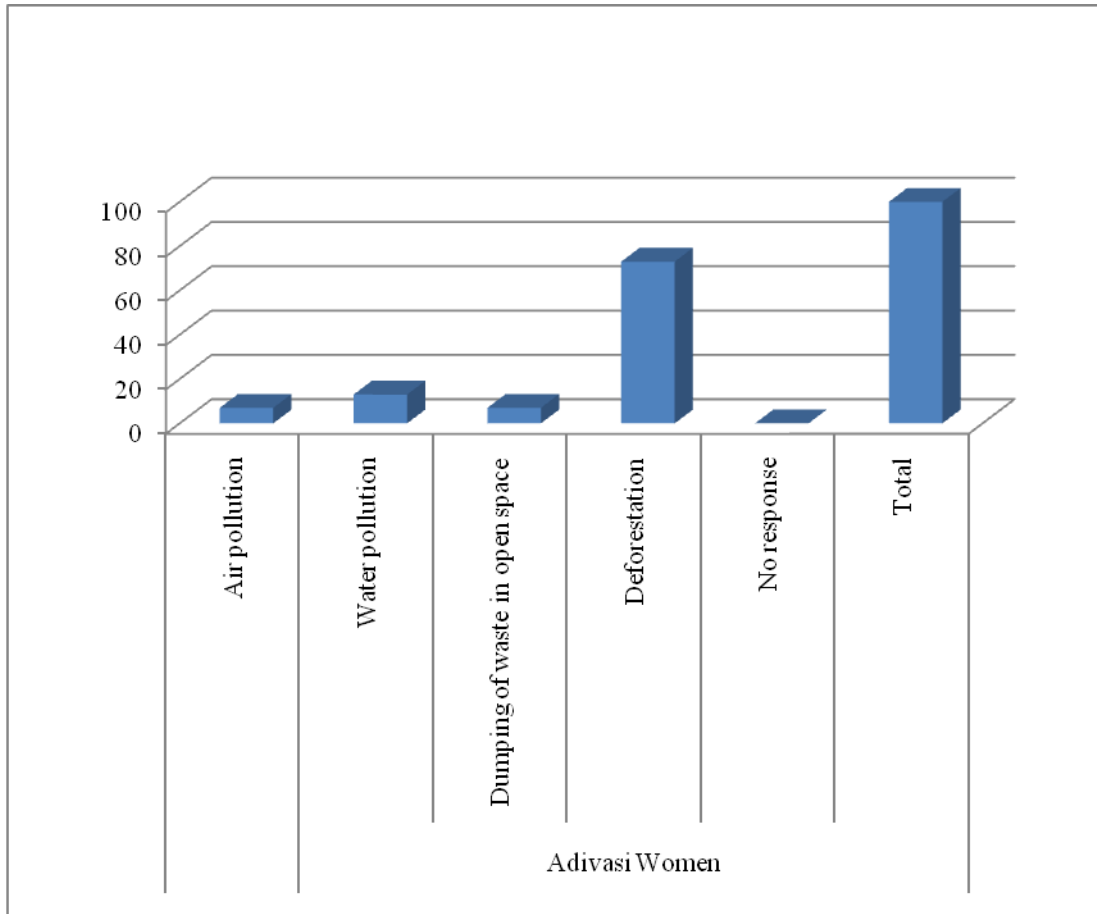
With regard to the issue on the awareness of environmental degradation 100% yes on behalf of Adivasi women indicates that women in Kairali village are aware of environment degradation during interaction. They are sufferings from climate change, deforestation, water scarcity which all compel them to say in this manner. The destruction of yields due to uneven rain fall, the reduction in Minor Forest Products due to deforestation they think as a result of environmental degradation which all has grave consequence in their life. Thus the figure and table 3.3 prove that women are aware of environmental degradation.

**Table 3.4**

**Environmental problems facing by Adivasi women in Kairali village**

| Category      | Heads                          | Figures in percentage |
|---------------|--------------------------------|-----------------------|
| Adivasi Women | Air pollution                  | 7                     |
|               | Water pollution                | 13                    |
|               | Dumping of waste in open space | 7                     |
|               | Deforestation                  | 73                    |
|               | No response                    | 0                     |
|               | Total                          | 100                   |





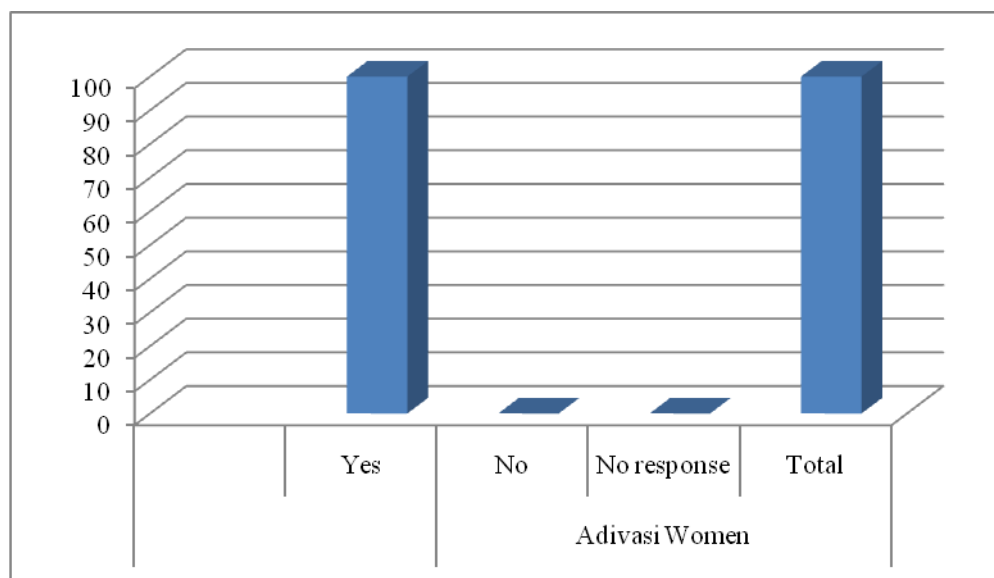
**Figure 3.4: Environmental problems facing by Adivasi women in Kairali village**

The Adivasi women in Kairali village facing environmental degradation in different way as they responds differently like 73% considers issue of deforestation, 13% feel water pollution, 7% see air pollution and 7% dumping of waste in open space as environment problem which mostly affecting them. Nobody see quarrying and mining as problem in the area as there is no quarry working nearby. The majority of Adivasi women think deforestation as serious problem facing by them because of the scarcity of Minor Forest Products which is the result of over exploitation of forest products by outsiders. They also think deforestation is badly affecting the sources of water in their area, which inversely affects their cultivation as well as drinking water availability. The uneven rain fall and increasing heat are also because of deforestation according to the women in Kairali village. Thus the figure and table 3.4 explain various problems faced by Paniya women in Kairali village.

**Table 3.5**

**Climate change and environmental degradation**

| Category      | Heads       | Figures in Percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 100                   |
|               | No          | 0                     |
|               | No response | 0                     |
|               | Total       | 100                   |



**Figure 3.5: Climate change and environmental degradation**

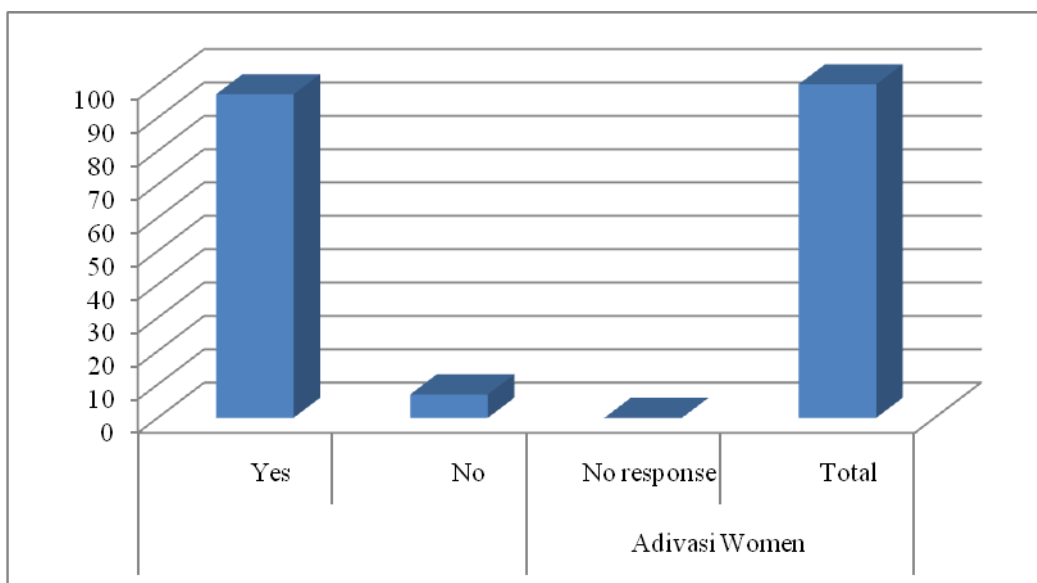
In response to the issue on climate change and environmental degradation 100% Adivasi women in Kairali village think climate change is the result of environmental degradation. The daily experience of women, especially the old women while compare the earlier weather condition and present one strongly hold that climatic change like extreme heat, uneven rainfall, increasing diseases, and destruction of medicinal plants they think as due to environmental degradation, especially by degradation of the nearby forest. Thus the figure and table 3.5 explain Paniya womens' concern on climate change and environmental degradation.

**Table 3.6**

**Experience of effect of climate change in daily life**

| Category | Heads | Figures in percentage |
|----------|-------|-----------------------|
|          | Yes   | 97                    |
|          | No    | 3                     |

|               |             |     |
|---------------|-------------|-----|
| Adivasi Women | No response | 0   |
|               | Total       | 100 |



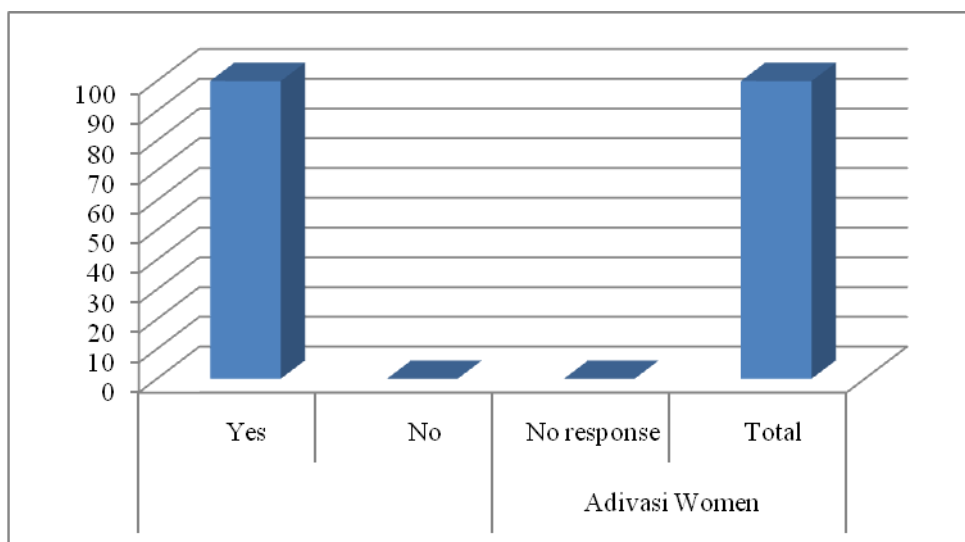
**Figure 3.6: Experience of effect of climate change in daily life**

97% of Adivasi women experience of climate change in daily life as they are experiencing increasing heat, less rainfall, and increasing disease according to the discussion during survey. They also experience the loss of medicinal plants and rare species of plants due to climate change. They think the water level is also decreasing due to the uneven rain fall in the area. Due to this the agriculture practices are seriously disturbed which has effects on their daily life. Only 3% didn't feel any effect of climate change in their daily life as they didn't think about it. Thus the table 3.6 and figure 3.6 explain Paniya womens' experience of effect of climate change in daily life.

**Table 3.7**

**Taking part in any environmental activity**

| Category      | Heads       | Figures in percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 100                   |
|               | No          | 0                     |
|               | No response | 0                     |
|               | Total       | 100                   |



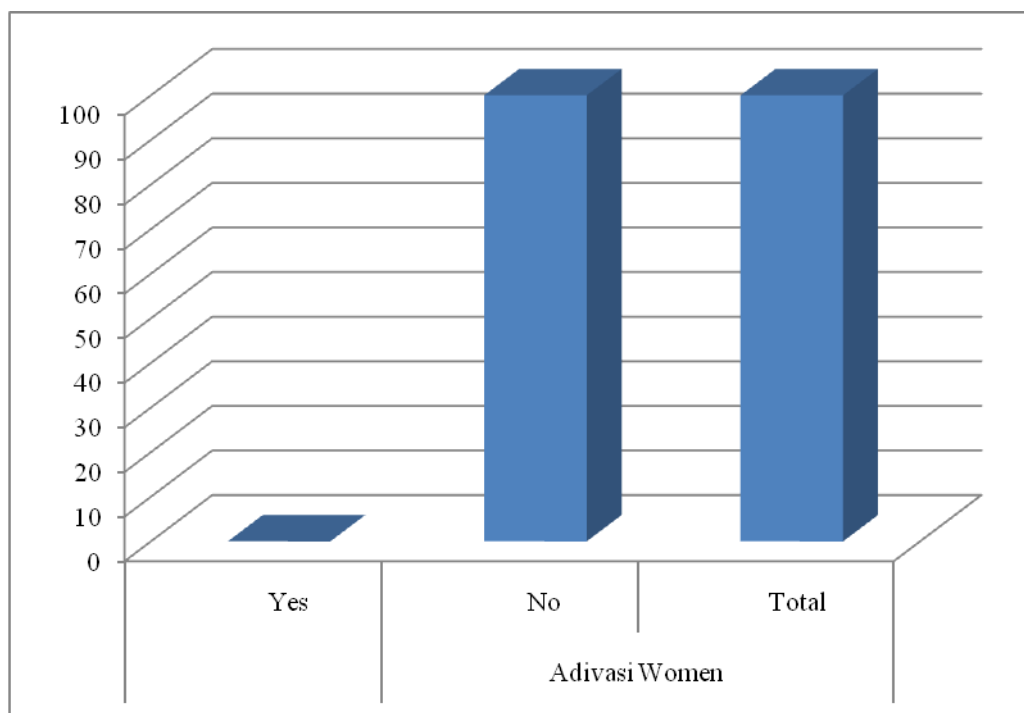
**Figure 3.7: Taking part in any environmental activity**

In response to enquiry on womens' participation in environmental activity 100% Paniya women said yes as they are participating in environment activities through kitchen garden preservation, cultivation, cleaning surroundings, and forest protection. This is mainly due to the support by MSSRF. They are participating in environmental protection as they feel it is necessary to preserve the existing natural resources to ensure a secure life for themselves and future generation. The Paniya women in Kairali village also think the environmental preservation through agriculture and Minor forest Produce through forest protection will make them economically self sufficient and there by social equality, which all explained by figure and table 3.7.

**Table 3.8**

**Membership in organisation working on environmental issues**

| Category      | Heads | Figure in percentage |
|---------------|-------|----------------------|
| Adivasi Women | Yes   | 0                    |
|               | No    | 100                  |
|               | Total | 100                  |



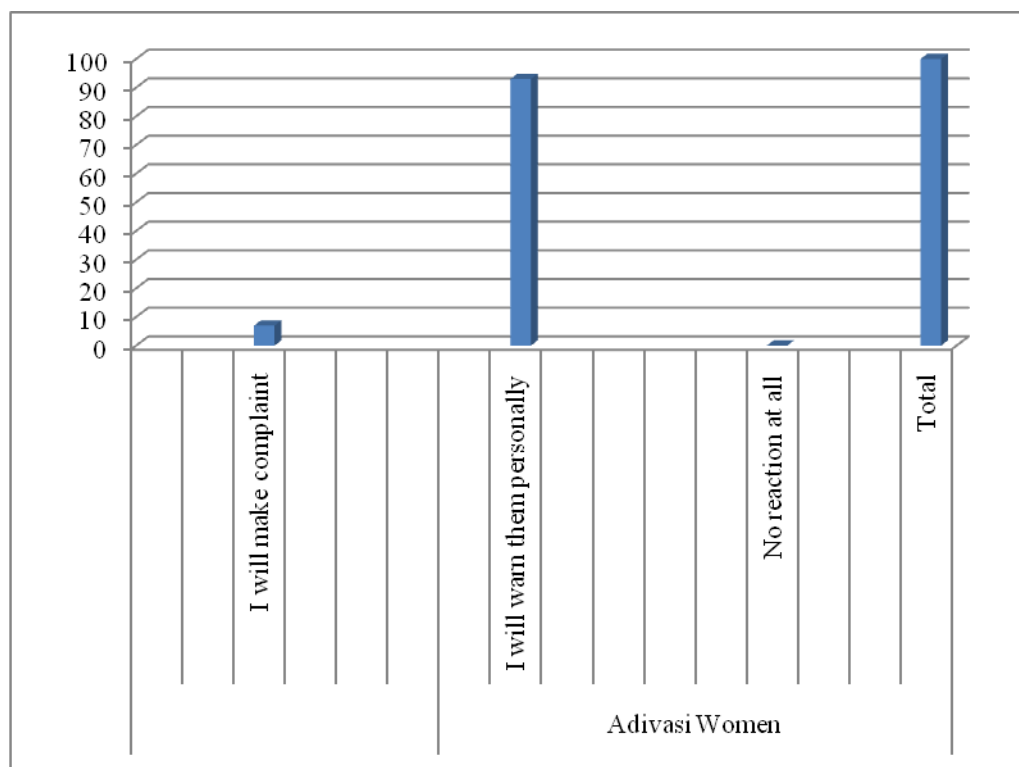
**Figure 3.8: Membership in organisation working on environmental issues**

By analysing the participation of Paiya women in Environmental organizations, it is visible that no Adivasi women in Kairali village is member of any organisation working on environmental issues as everybody's response 100% is No in the figure and table 3.8. The reason is that they are not aware of any environmental organization working on environmental protection in the nearby area or Wayanad District. The only organization which provides support for them is MSSRF. Still without membership in any organizations they are actively participating in environmental protection.

**Table 3.9**

**Reaction against damaging environment**

| Category      | Heads                       | Figures in percentage |
|---------------|-----------------------------|-----------------------|
| Adivasi Women | I will make complaint       | 7                     |
|               | I will warn them personally | 93                    |
|               | No reaction at all          | 0                     |
|               | Total                       | 100                   |



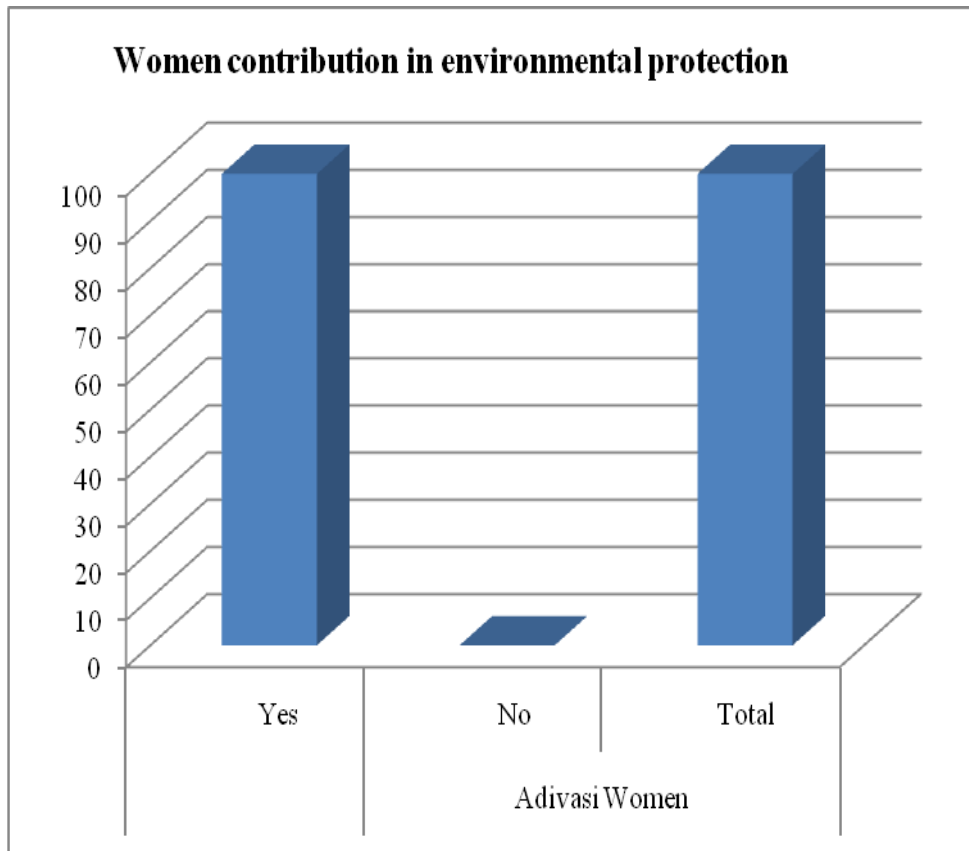
**Figure 3.9 : Reaction against damaging environment**

Table and figure 3.9 explain 93% of Adivasi women feel it is better to warn those who damage environment personally thus it is more communicative and possible to generate environmental awareness among others. Majority of them feel authorities are not paying proper attention in this regard, so they are taking responsibility with them. 7% feel it is better make a complaint against damaging environment to make the authority to be vigilant on this issue.

**Table 3.10**

**Women contribution in environmental protection**

| Category      | Heads | Figures in percentage |
|---------------|-------|-----------------------|
| Adivasi Women | Yes   | 7                     |
|               | No    | 93                    |
|               | Total | 100                   |
|               |       |                       |



( Figure 3.10: Women contribution in environmental protection)

In response to the issue that as women can they contribute to environmental protection 100% says yes. Their daily interaction with environment and close observation on climatic change and weather irregularities made them experts in agricultural practices and soil preservation in the area. The daily home work compel them to preserve natural resources especially water sources and clean and healthy environment for themselves as well as future generations which all made them to states that as women they can contribute to solving environmental issues in better ways which is depicted in table and figure 3.10.

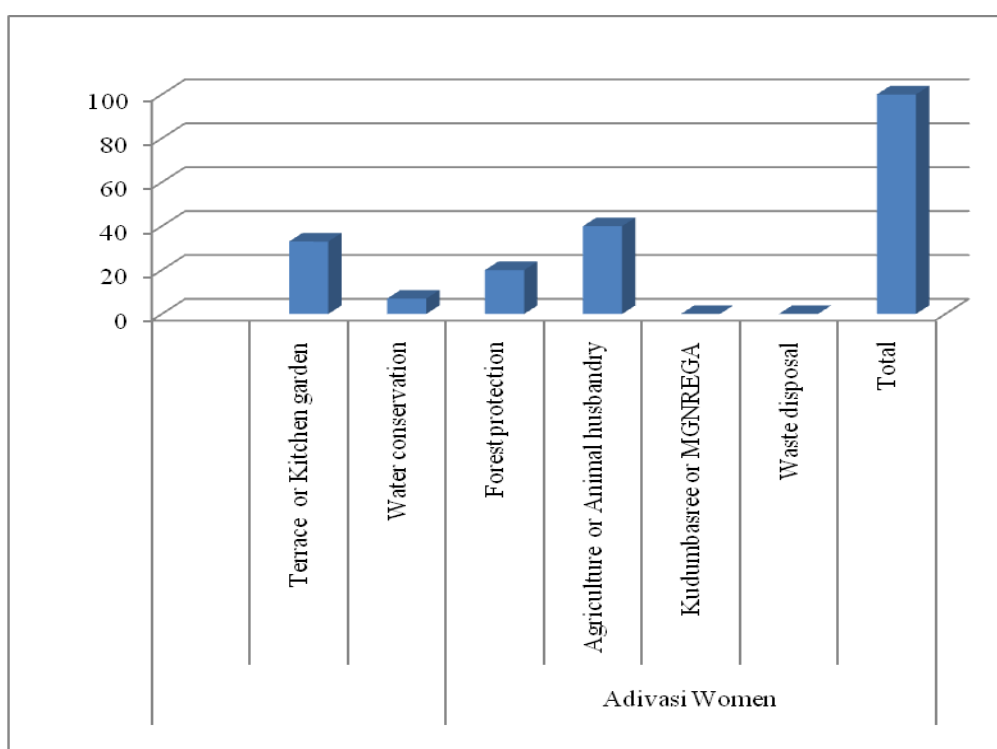
### 3.11. Methods of contribution in environmental protection:

100% women responded to this sub question. The responses indicate that women in Kairali village participate in environment protection by preserving the existing greenery and forests, maintaining kitchen garden and participating in agriculture as well as animal husbandry. Many of them try to save water and water resources along

with cleaning of surrounding and disposal of wastes as a method of environment protection. They feel preservation of forest and production of non contaminated food and conservation of water sources are essential for their survival.

**Table 3.12**  
**Initiatives for environmental protection**

| Category      | Heads                           | Figures in percentage |
|---------------|---------------------------------|-----------------------|
| Adivasi Women | Terrace or kitchen garden       | 33                    |
|               | Water conservation              | 7                     |
|               | Forest protection               | 20                    |
|               | Agriculture or Animal husbandry | 40                    |
|               | Kudumbasree or MGNREGA          | 0                     |
|               | Waste disposal                  | 0                     |
|               | Total                           | 100                   |



**Figure 3.12: Initiatives for environmental protection**

Every women in Kairali village has different method of environment protection as 40% women do environment protection through agriculture and animal husbandry, 33% see kitchen garden as their environment protection initiative, 20% involves in forest protection, 7% which depicted in table and figure 3.12 show their initiative in water conservation which all efforts they feel necessary to

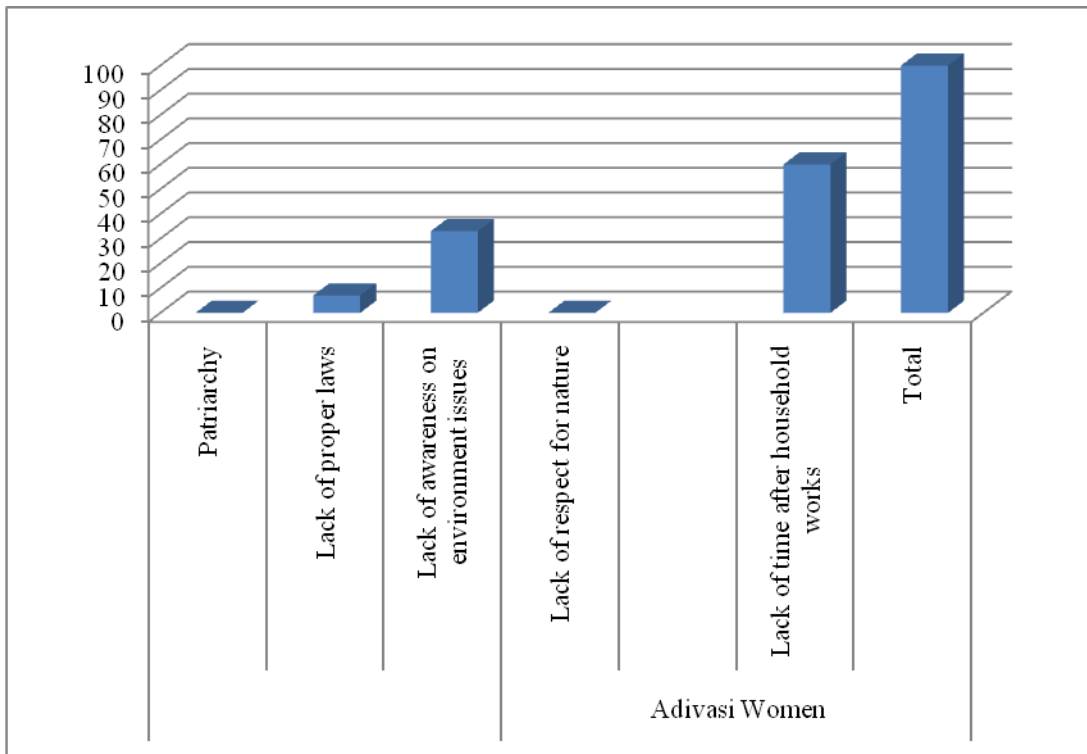


maintain the balance of ecosystem. Majority feel through production of non contaminated food by agriculture and animal husbandry ensure not only healthy generations but also economic self sufficiency. Along with this initiative the preservation of forest and water conservation is done by Adivasi women in order to balancing the eco system which all understood during survey and interaction.

**Table 3.13**

**Challenges in environmental protection**

| Category      | Heads                                   | Figures in percentage |
|---------------|---|-----------------------|
|               | Patriarchy                              | 0                     |
| Adivasi Women | Lack of proper laws                     | 7                     |
|               | Lack of awareness on environment issues | 33                    |
|               | Lack of respect for nature              | 0                     |
|               | Lack of time after household works      | 60                    |
|               | Total                                   | 100                   |



**Figure 3.13: Challenges in environmental protection**

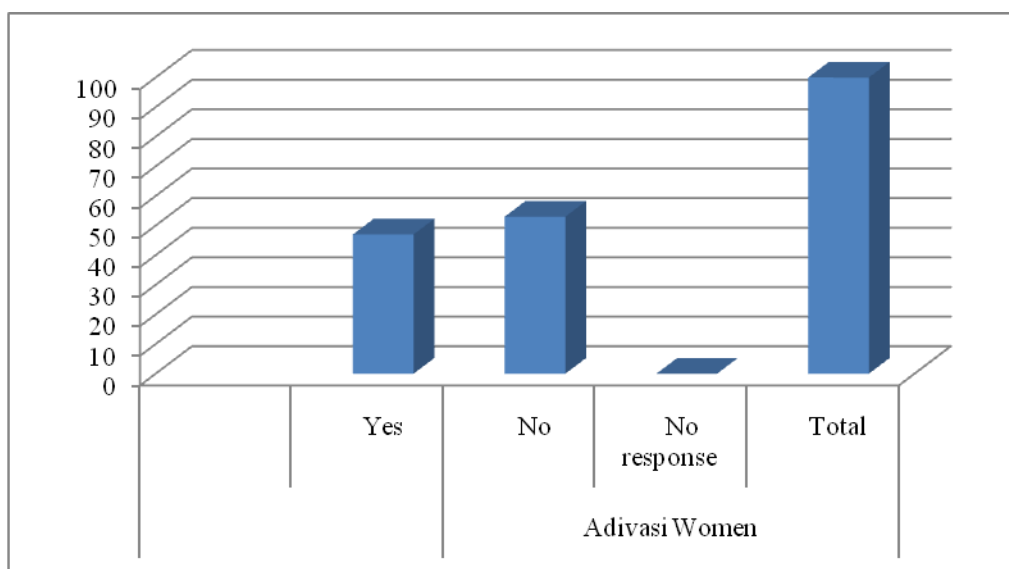
On the discussion on challenges in environmental protection by Paniya women in Kairali village, their response was different. 60% see lack of time after household work for environment protection as challenge before them. 33% considers lack of awareness on environment protection methods on part of other individual as a

challenge. 7% see lack of strict and proper law is a obstacle in environment protection efforts all which are depicted in figure and table 3.13. The majority of them feel the burden of household management assigned only upon them as serious challenge to materialise effective environmental protection efforts. After finishing home care they are not able to engage much in environmental protection activities. The economic compulsion pushes them for do works in nearby plantations, which also pull them from more involvement in environmental protection. The hesitation on part of many women to come forward for environmental protection from household burden is another challenge. Little part of them feels lack of proper environmental protection laws to prevent intrusion to forest is another challenge they feel.

**Table 3.14**

**Socio, economic family support for environmental protection efforts**

| Category      | Heads       | Figures in percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 47                    |
|               | No          | 53                    |
|               | No response | 0                     |
|               | Total       | 100                   |



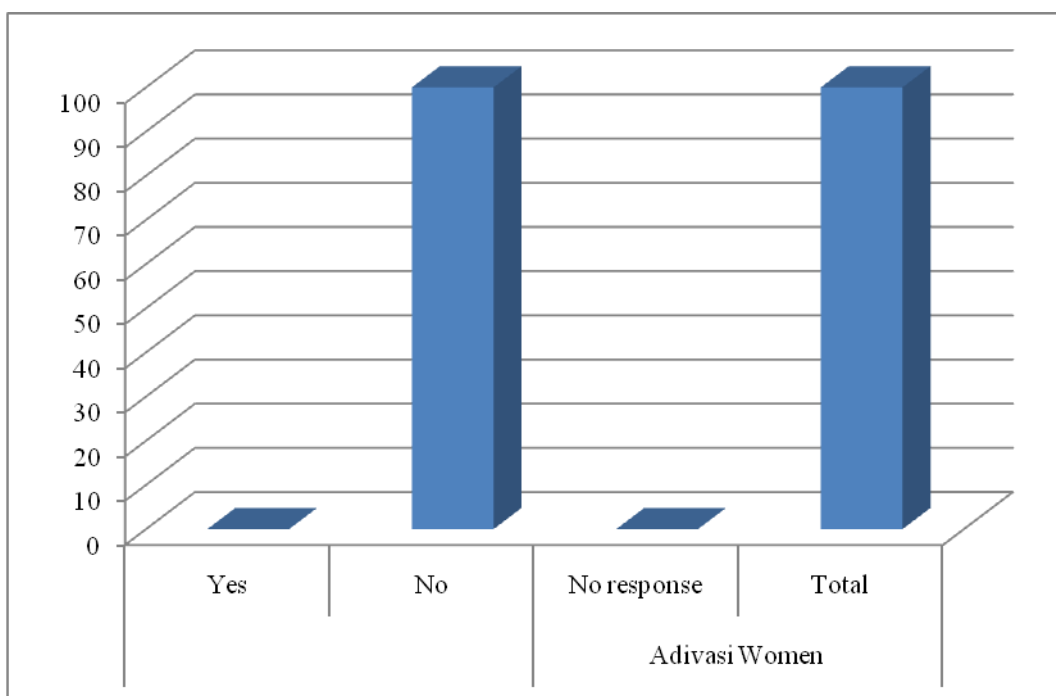
**Figure 3.14: Socio, economic family support for environmental protection efforts**

53% of women in response to issue of availability of socio economic and family support for environmental protection say No and 47% says Yes. Majority of women think they are not getting enough support from society, economic sphere and family because of double burdens assigned upon them which affects their environmental protection efforts. The household works and field works in plantations reduce their preference on environmental protection activities. The lack of or little financial support panchayat, agricultural offices they feel as challenge. They are not properly consulting by financial social institutions on their preferences and basic needs. All these compel them to think as there is lack of socio economic and familial support for environmental protection which is depicted in figure and table 3.14.

**Table 3.15**

**Awareness of ecofeminism**

| <b>Category</b> | <b>Heads</b> | <b>Figures in percentage</b> |
|-----------------|--------------|------------------------------|
| Adivasi Women   | Yes          | 0                            |
|                 | No           | 100                          |
|                 | No response  | 0                            |
|                 | Total        | 100                          |



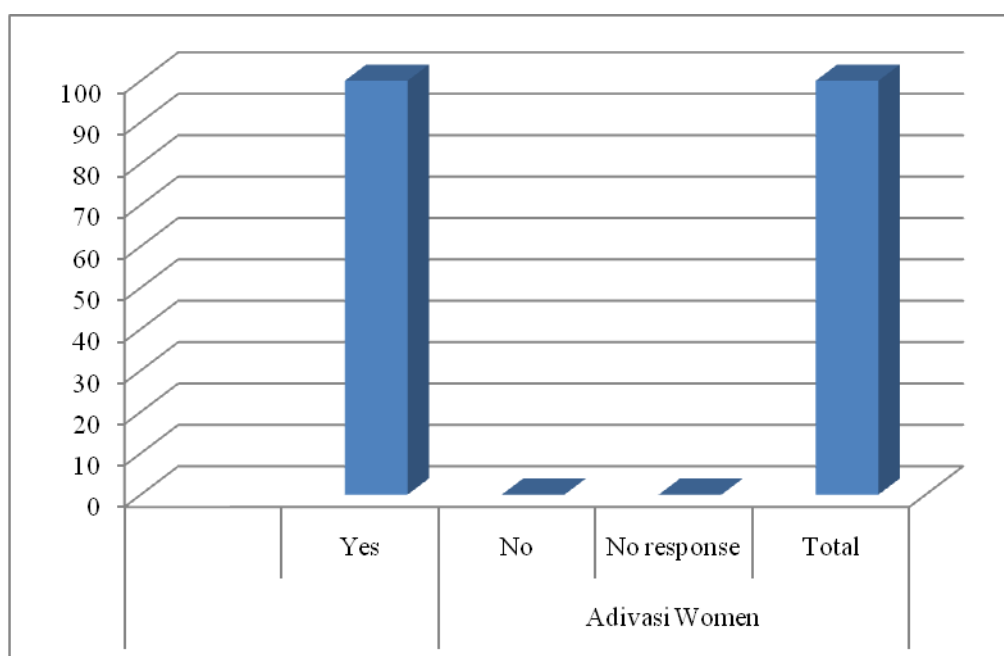
**Figure 3.15: Awareness of ecofeminism**

100% women during interaction responded as they are not aware of the term ecofeminism. The term ecofeminism is not popular among them which is indicated in table and figure 3.15.

**Table 3.16**

**Close relationship between women and nature**

| Category      | Heads       | Figures in percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 100                   |
|               | No          | 0                     |
|               | No response | 0                     |
|               | Total       | 100                   |



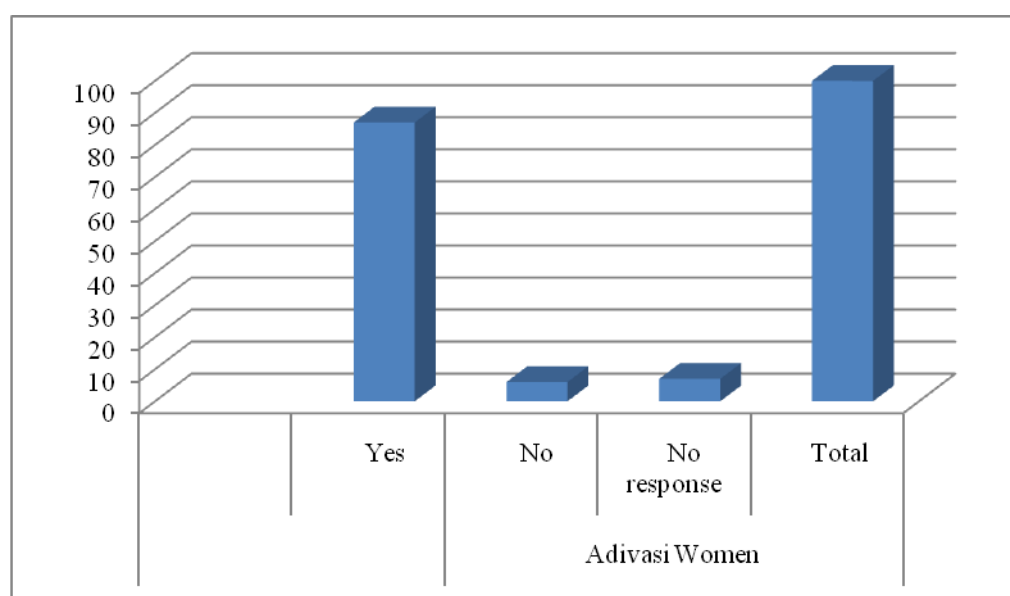
**Figure 3.16: Close relationship between women and nature**

100% of women in Kairali village think women and environment are closely related as well as exploitation of women and exploitation of nature are two sides of same coin because of their daily life experience with nature and performance of role assigned as housekeepers, caring of animals, children and old-age tend them to more attach to nature. The over exploitation of natural resources and environmental degradation doubles their burden of duties as they have to travel long for fetching water which consume most of their time. These are due to environmental degradation they think which results in exploitation of women and nature together. So they think women and nature are interlinked which is depicted in table and figure 3.16.

**Table 3.17**

**Effectiveness of women participation in environmental protection than men**

| Category      | Heads       | Figures in percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 87                    |
|               | No          | 6                     |
|               | No response | 7                     |
|               | Total       | 100                   |



**Figure 3.17: Effectiveness of women participation in environmental protection than men**

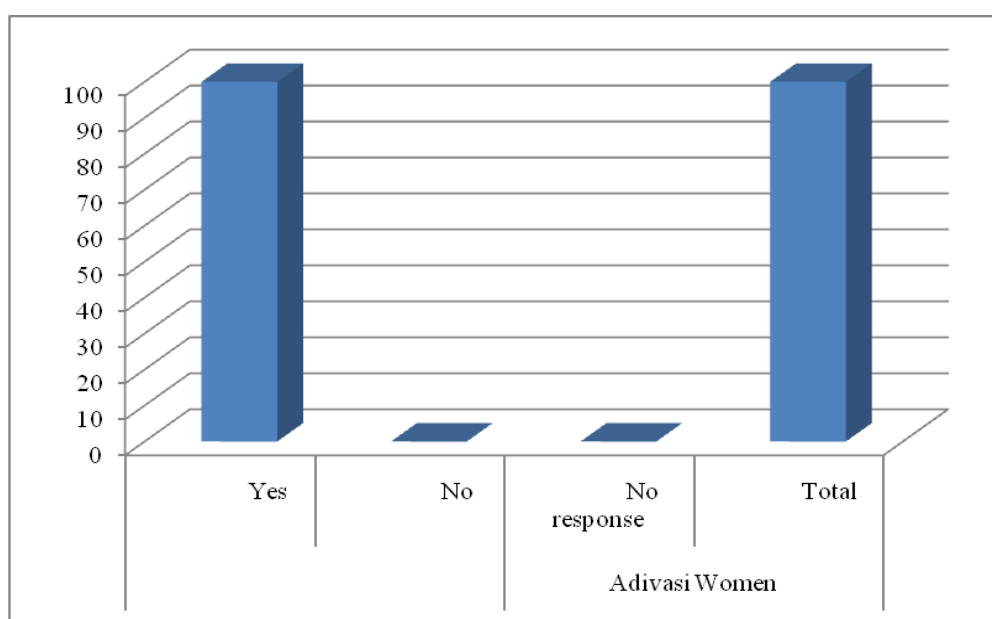
With regard issue of effectiveness of women Participation in environment protection than men 87% women feel women participation is more effective than men while 6% says 'No' and 7% of women didnt respond to the issue which is mentioned in figure and table 3.17. Their day to day interaction with nature than men make women to respond in the way that they can contribute more effectively to environmental protection. While doing agricultural activities women in the area prefer organic farming than men as they think this food production is for their family as well as their children. In this area women demands conservation of existing water resources than digging of wells to expanded irrigation and construction works. These Adivasi women thinks their house and surroundings must be neat and clean in order to save themselves and family from diseases which all done by women alone in the area. Their inherited knowledge on medicinal plants and agricultural conservation is better

than that of men as they think. Thus they feel they can contribute in environmental protection and their environmental protections efforts are effective than men.

**Table 3.18**

**Effects of environmental degradation on women, children, dalits and Adivasis**

| Category      | Heads       | Figures in percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 100                   |
|               | No          | 0                     |
|               | No response | 0                     |
|               | Total       | 100                   |



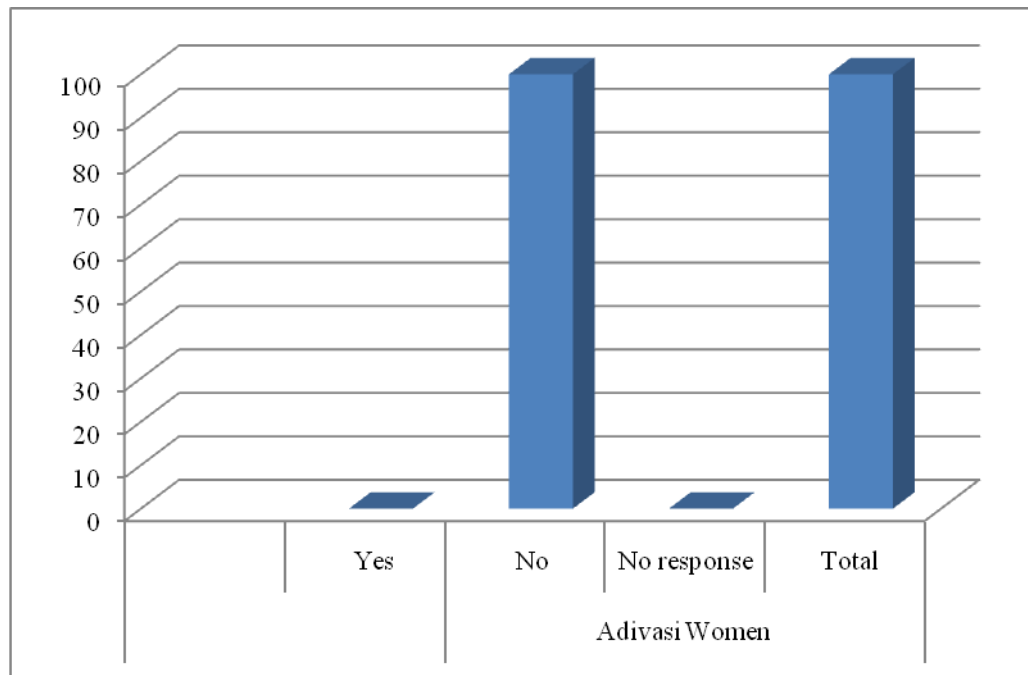
**Figure 3.18: Effects of environmental degradation on women, children, dalits and Adivasis**

100% response is 'Yes' to the enquiry on the issue of impact of environmental degradation on women, children, dalits; and Adivasis. The Adivasi women in Kairali village think with water scarcity, deforestation they and children especially girls had to struggle a lot to collect firewood and fetching of water from far away for household purposes. The income gained from collection and selling of Minor Forest Products by women is losing by deforestation adversely affects livelihood of Adivasi women in the village. The issue of malnutrition due to the lost of plants and forest resources is affecting more on women and children in Kairali village. By all these women in Kairali village feel women, children, dalits; Adivasis are mostly affected by environmental degradation than any other sections of society which is mentioned in figure and table of 3.18.

**Table 3.19**

**Attending environmental issues concerning women**

| Category      | Heads       | Figures in Percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 0                     |
|               | No          | 100                   |
|               | No response | 0                     |
|               | Total       | 100                   |



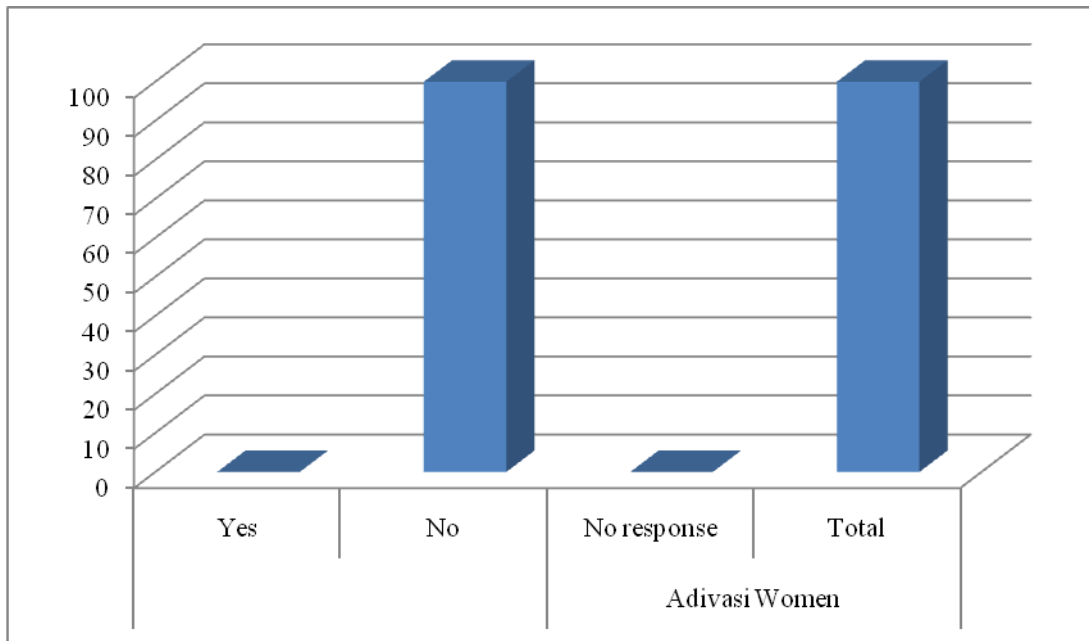
**Figure 3.19: Attending environmental issues concerning women**

In response to the issue of proper attendance of environmental issues concerning women 100% womens' answer is 'No' which is depicted in figure and table of 3.19. All women surveyed feel environment issues concerning women are not properly addressed by governing authority while taking decisions. The demand of Adivasi women in Kairali village regarding water supply, transportation facilities and action against deforestation which all affects women and children in the area is yet to be considered compel them to think this way.

**Table 3.20**

**Women representation in environmental decision making**

| Category      | Heads       | Figures in percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 0                     |
|               | No          | 100                   |
|               | No response | 0                     |
|               | Total       | 100                   |



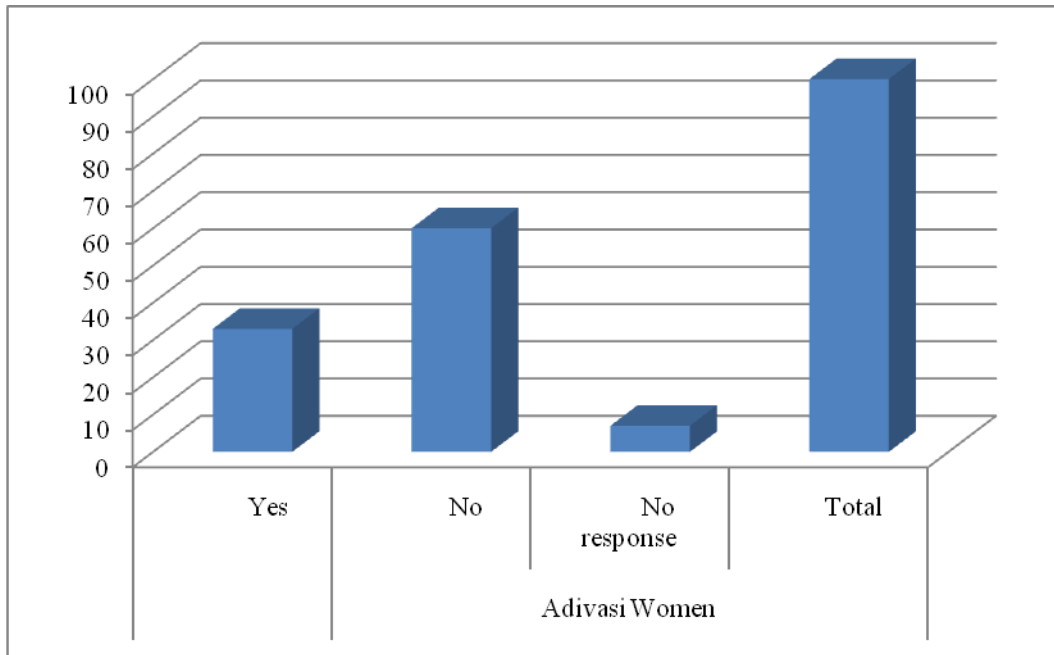
**Figure 3.20: Women representation in environmental decision making**

Considering the issue of women representation in environmental decision making, 100% women responds as 'No' which is in table and figure 3.20. Women are thinking they are not properly represented in environmental decision making especially in the local governments. Their demand for basic needs of conservation of water sources, transport facilities, proper school for their children are yet to be materialised which compel them to believe that their issues are not properly attending. They think most of the governing body members are male so problem regarding women and environment are not properly attending regarding Kairali village.



**Table 3.21**  
**Development activities and environment in Kerala**

| Category      | Heads       | Figures in percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 33                    |
|               | No          | 60                    |
|               | No response | 7                     |
|               | Total       | 100                   |



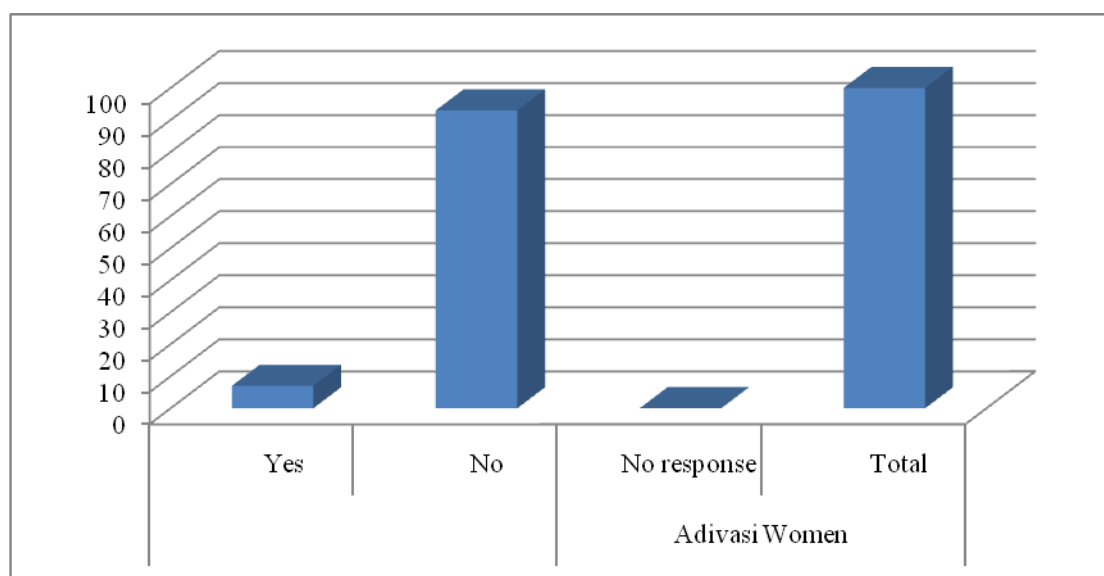
**Figure 3.21: Development activities and environment in Kerala**

60% women feel development in Kerala is not ecofriendly during the interaction which is depicted in table and figure 3.21. The tourist resorts, the construction of farm houses and private roads in the Vythiri taluk, where Kairali village is situated is criticised by the Adivasi women in Kairali village as not ecofriendly, which resulted in climatic change and over exploitation of resources in their area. The destruction of natural spring, attachment of paddy lands along with deforestation for developmental activities they think adversely affects the climate of Kairali village. 33% feel development in Kerala is ecofriendly and 7% women didnt respond to this issue.

**Table 3.22**

**Governance response to environmental problems**

| Category      | Heads       | Figures in percentage |
|---------------|-------------|-----------------------|
| Adivasi Women | Yes         | 7                     |
|               | No          | 93                    |
|               | No response | 0                     |
|               | Total       | 100                   |



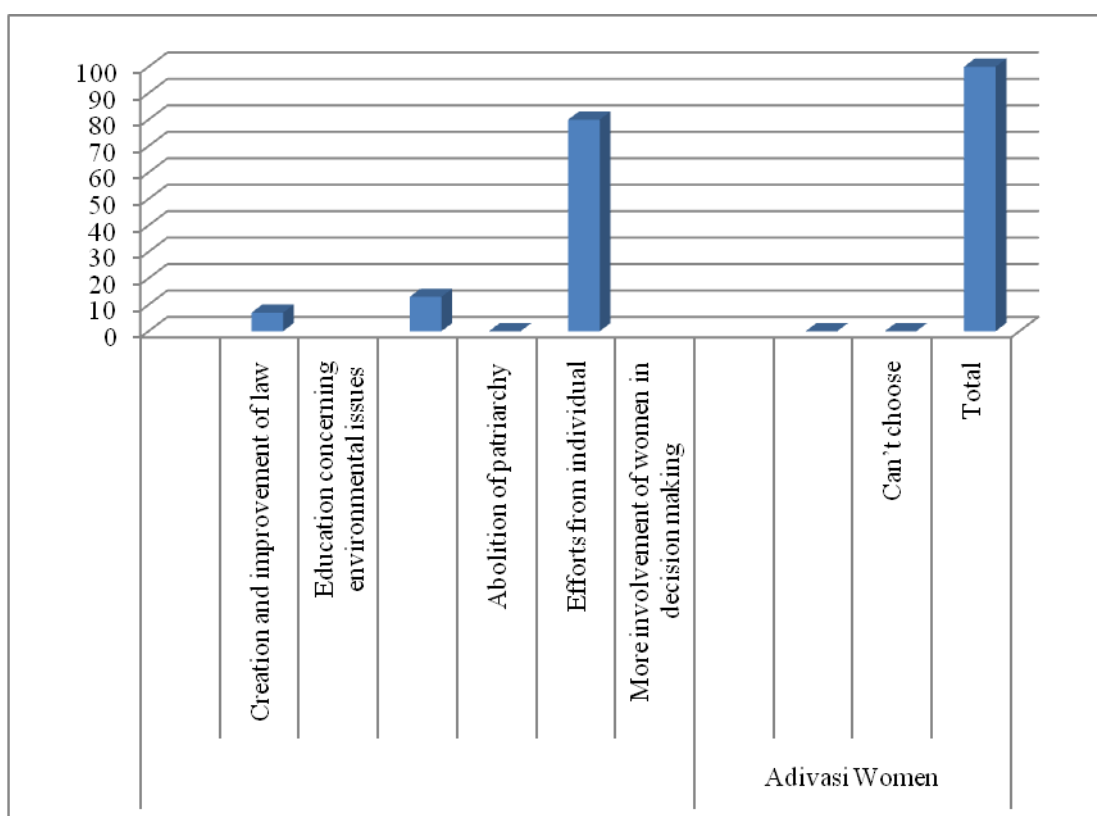
**Figure 3. 22: Governance response to environmental problems**

With regard to the concerned issue of governance response to the environmental problem during interaction 93% Adivasi women feel government or Local Self Governments are not properly attending environmental problems as their demand for water supply, infrastructure, protection of existing forest, financial support for agriculture is not properly attending. They think government gives preferences to developmental activities than environmental issues. The lack of proper implementation of strict laws against tree dwellers in the area, women feel as important problem. Thus figure and table 3.22 explain environmental problems are not properly attending by government.

**Table 3.23**

**Solutions to environmental problems**

| Category      | Heads  | Figures in percentage           |
|---------------|--|---------------------------------|
|               |  | Creation and improvement of law |
| Adivasi Women | Education concerning environmental issues    | 13                              |
|               | Abolition of patriarchy                      | 0                               |
|               | Efforts from individual                      | 80                              |
|               | More involvement of women in decision making | 0                               |
|               | Can't choose                                 | 0                               |
|               | Total  | 100                             |



**Figure 3.23: Solutions to environmental problems**

For the enquiry on the issue of solutions to environmental problem during interaction women in Kairali village responded differently which is explained in figure and table 3.23. 80% of women think efforts from individual side is most important for solve environmental problem.13% feel education concerning environmental issues is

needed for solving environmental issues whereas 7% in favour of creation and improvement of existing law is important for solving environmental problems. Thus majority of women feel direct individual involvement without waiting for others to take measures to protect environment is the effective way to save ecosystem. They think by taking initiatives through agricultural and animal husbandry, kitchen garden, water preservation, proper treatment of waste, keeping surrounding neat and clean and forest protection they can contribute to environmental preservation which is reflected in their environmental protection efforts as well. They also think education concerning the need and importance of environmental protection as well as methods of environmental protection will solve environmental issues. Some of them think proper implementation of laws and creation of adequate laws while taking consideration of the demand and need of the community can solve many environmental problems in Kerala especially in Kairali village.

### **3.24. Suggestions for improvement of womens' participation in environmental protection:**

The main suggestion by Paniya women is the need for women cooperation in environment efforts in the area. With the joint efforts from women on environment issues they feel they can improve environment participation. They demand for proper support and assistance from government bodies and families and society. Many women stand for increase food security by produce enough vegetables and dairy products thus demands self sufficiency. Most of them stand for environment awareness programmes for better environment participation on the part of women.

### **III.11. Findings of the Case Study**

From the case study done on Panay advasi womens' environmental protection efforts in Kairali village, using schedule and interview, findings and conclusions are derived which are given below.

1. The analysis of schedule and interview lead to conclusion that women in Kairali village are well aware of need of environment protection. They are aware of environment issues and very interested in environment protection through preserving the existing greenery and through forest protection as well as agriculture and kitchen

gardens. This proves their enthusiasm for self reliance in food security as well as creation of healthy environment for future generation.

2. Being women each woman in Kairali village is confident enough of contributing environment protection with their own share. They are agreeing that women and environment are closely related and exploitation of women and nature are interrelated closely. But they feel certain factors as obstacles in the way as lack of time after household work, which reassert the oppression of women and existence of patriarchy in the society which in turn restraining women from environment protection that proves oppression of environment and women are interrelated. This is a basic principle of ecofeminism. The unwritten law of society that women are sole responsible for household management once again proved here. The assertion of women in Kairali village that they are not getting enough socio economic familial support for environment protection effort along with response to questions on tenants of ecofeminism<sup>141</sup> unanimously prove their awareness of importance of women nature relation. Their argument that women environment protection effort are more effective than men along with the awareness that women children, dalit Adivasis are every time victim of oppression and environment degradation proves that they are supporting the basic tenants of ecofeminism even though they are not aware of the term ecofeminism.

The unanimous agreement on the fact that environment issues regarding women are not addressed and they not getting enough representation in environment decision making and lack of support from government bodies reassure the patriarchy of society from socio economic political sphere, which avoids women interest. Thus even though they are not aware of the word ecofeminism, the analysis of answers proves the fact that they are completely agree with the tenants of ecofeminism.

3. They feel efforts on the part of individual along with awareness creation on environment issues with proper implementation of law can solve environmental problems and able to create healthy environment for prosperous life with social security. The main suggestion provided by women in Kairali village for improvement of women participation in environment protection is towards womens' cooperation in environment efforts in the area. With the joint efforts from women on environment

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<sup>141</sup> Questions in schedule 9, 11,12,13,14,15,16,17, and 18 reflect the tenets of ecofeminism.

issues they feel they can improve environment protection efforts. They demand for proper support and assistance from government bodies. Many women stand for increase food security by produce enough vegetables and dairy products thus materialise the idea of self sufficiency. Most of them stand for environment awareness programmes for better environment participation on behalf of women. All this proves their willingness for active participation in environment protection.

4. The condition of people especially women in Kairali village improved a lot now than 1990s when the settlement started from occupation of land under the leadership of Communist Party of India (M). The alcoholism among women and men decreased, with the food self sufficiency in the area as a result of efforts of women, the problem of mal nutrition, poverty and anaemia is under control now. The economic standard of family increased now. The feel of empowerment and confidence among women also seems positive. But the lacks of proper roads, water scarcity, less educational facilities in the area remain the same.

5. M.S.Swaminathan Research Foundation adopted the Kairali settlement with a view of women empowerment and environment conservation as well as agriculture development. They are leading the Paniya women by working as NGO in the area. The technical assistance, supply of high yielding seeds, horticulture, and sensitization and health camps remained as guidelines for women in the area. The main credit of socio economic improvement of women in Kairali village goes to this foundation.

6. The general notion that only “educated, civilised, mainstream<sup>142</sup>” people can use modern technologies as well as Adivasis are illiterate and not capable of taking decision is proved incorrect with the study in the area. The modern technology include poly house farming is handling very successfully by the women in the area. Most of the women in the area are educated till high school, the lack of educational facility and remoteness compel them to stop their studies. Their strong stand for non interference in their traditions and culture in the name of development by the outsiders is a warning for mainstream society.

7. The women in Kairali village are facing obstacles in the way of their active participation in environment protection. The lack of assistance from government

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<sup>142</sup> See the book ‘ Asking the Earth The Spread of Unsustainable Development Within’ by Pereira & Jeremy Seabrook (1990).

including the local government is a main obstacle according to the women in Kairali village. Their complaint is that they are not getting enough representation in decision making bodies and even the so called special provisions allotted for them remain out of reach many times, which depict the insecurity feel in them. They are totally against the vote bank politics in the area. The problems of proper paths and transportation facilities prevent them from even send their kids to school. The scarcity of water is the main problem in the area. Those who want to extent and improve their cultivation with modern technology now face the crisis of no availability of water for irrigation and drinking.

The lack of proper houses also made their life miserable in the changing whether, but they keep their little huts and surroundings very neat and tidy with ecofriendly products and by living in ecofriendly houses. The increasing attack of wild animals on cultivation is a serious problem facing by them which is a result of intervention from outsiders in the forest and settlement. The women are critical of the forest protection Acts by the government, as now they are denied even collection of fire wood and Non Profit Forest Products from forest, which is an important theme of discourse in ecofeminism issue. Thus with the socio economic problems also they are actively participates in environmental protection efforts with one request only “Please don’t exploit us, provide us the basic amenities and rights which enjoyed by you as well, as we are also humans” (words of Santha).

The Paniya Adivasi settlement of Kairali village in Wayanad district is the replica of Adivasi settlements in Kerala, which is the area of case study. The analysis of schedule and interview as a part of the case study on Paniya womens’ environmental protection methods in Kairali village lead to important conclusions. The women in Kairali village are very interested in environment protection, as they are actively participates and succeeded in environmental protection efforts and they are unanimously agree with the ecofeminist tenants which conclude that oppression of women and oppression of nature by male dominated society are two sides of a same coin. If we provide basic amenities like safe drinking water and irrigation facilities, safe ecofriendly house, better transportation and educational facilities, their involvements in environmental protection will increase. Better assistance and cooperation from government and decision making bodies without impairing their socio cultural traditional independence will encourages their active participation in

environment protection. The more financial, marketing facilities for the products of women will benefit economic condition of household as well as food security of society. If the government laws are for the protection of the rights of Adivasis, the laws without the consideration of basic demands of them and impairing the rights of Adivasis over forests must be revised to protect Adivasi basic rights instead to support the rights of snatchers of land from Adivasis. If the so called educated main stream society's preconceived notion on Adivasis as "uncivilized uncultured aboriginals" must completely wiped out and provide them modern technologies and amenities and assurance of their deserved rights, the Paniya Adivasi women in Kairali village will write further success stories in the area, which can be used as a modal for women environment protection efforts.



## Chapter IV

### Conclusion of the Study

Humans and other life systems depend on earth for their existence. The reckless exploitation of natural resources results in environmental degradation which makes life miserable and in turn compels people to take efforts for protection of the environment for their very existence from international, national, state as well as institutional levels. The need for protection of the environment and mitigation of environmental degradation results in an emphasis on the significance of the correlation between human activities and the environment, through theories of natural selection, social ecology, tragedy of the commons, deep ecology, animal rights, ecofeminism, eco-socialism, bio-regionalism, eco-psychology, and eco-theology. Ecofeminism is a field bridging ecological ethics and feminism that seeks to explore the conceptual connections between environmental degradation and sexist oppression according to Karen J. Warren. Even though ecofeminism at the beginning deals with women-environment relations to deconstruct the notion of patriarchal domination over women and nature, it included the exploration of the connections among many issues: environmental degradation, economics, electoral politics, animal liberation, reproductive politics, biotechnology, spirituality, holistic health practices, sustainable agriculture, and racism, homophobia and queer and problems of marginalised according to Greta Gaard (1997).

Even though men and women are the victims of environmental degradation, empirical studies prove that at the time of natural disaster and thereafter women and children are the prime victims of the exploitation. It proves that anything that harms nature will harm women as they are equally linked very much more than men. This strong connection compels women to become prominent protectors of the environment and contributors to environmental rehabilitation and conservation. The whole arguments of ecofeminists reach to the point that women and the environment are closely related and degradation of the environment is a direct result in the degradation of women as well as other marginalised sections as there exist connections between environmental degradation and sexist oppression. It supports and respects women's effort to conserve the environment. Ecofeminism is based on the idea that important knowledge about ecology and women must be deconstructed from the old understanding of male

domination. Even though variants of ecofeminism exist all arguments reach to the point to the important connections between the oppression of women and marginalised sections and the oppression of nature as ecofeminism is feminist, ecological and multicultural in character according to Karren. J. Warren (1993). The study done was based on the theoretical perspective of ecofeminism.

In India the analysis of important environmental protection movements such as Khejri movement, Chipko movement, Appiko movement, Silent Valley movement, Narmada Bachao Movement, and Navdanya Movement reflect the underlying pattern that most of the active participants in these movements are women, adivasis and other marginalised sections as the environment degradation and issues of environment protection in these areas are directly affect the very survival of them, which is the argued by ecofeminist. India has a number of women environmentalist and ecofeminists like Vandana Shiva, Medha Patkar, Arundhati Roy, Daya Bhai, C.K. Janu, Sugatha Kumari, Sunita Narain, and Sara Joseph. The radical/cultural and socialist ecofeminist like Vandana Shiva analyse the degradation of women and nature from capitalist, maldevelopment and patriarchal sphere with a third world womens' perspective. The Feminist Environmentalist, Bina Agarwal also analyse the women nature relation from a varying caste, class, race and religious background. Thus the presence of theory of ecofeminism and proponents of ecofeminism is visible in India.

This study was concentrated on environment protection movements and methods of women in Kerala within an ecofeminist framework. It had focused on the study of environment protection movements and methods of women in Kerala, with special reference to Kairali village in Wayanad District. It aimed at explore women participation in environment protection in Kerala the challenges facing by them and their perception on improvement of environment protection participation, all from ecofeminist perspective.

The study reached to the conclusions that people of Kerala are participating in environmental protection through environment protection movements, Government and NGOs, media, religious institutions, and political parties as the problem of environmental degradation goes to the extent of emergence of environmental refugees

in Kerala. The lion's share of environmental protection efforts and movements in Kerala are dominated by women and marginalised sections. Kerala has a legacy of women participation in environment protection and issues of marginalised others with leaders as (late) Mayilamma, Sugathakumari, C.K. Janu, Sara Joseph, Deepa Vasudevan and Jaysree. There are also Keralites environmentalist and social workers stands for marginalised sections rights working outside Kerala like Priya pillai, Sunitha Krishnan and Daya Bahi. Women in Kerala not only through Governmental and NGOs, but also through different ways of environment protection movements and methods which may be locally applicable, are participating in environmental protection. The women participation in anti-Coco Cola struggle, anti-Endosulfan Movement, Save Silent Valley Movement proves women and adivasis participated in the movement as these issues have direct impact on the lives of women, children and marginalised sections than any other sections of the society. The struggles are also against the patriarchal capitalist system in the concerned areas.

The women in Kerala and adivasi women in Kairali village of Wayanad district are aware of environmental issues and environmental degradation's impact on their life, actively participates in environmental protection through water conservation, struggle against quarrying and mining, forest protection, agriculture and animal husbandry, waste disposal, Kudumbasree as well as Neighbourhood Groups works. They are aware of the fact that climate change is the result of environmental degradation in the form of air pollution, water pollution, dumping of waste and deforestation. Thus the general awareness of women in Kerala especially adivasi women in Kairali village compel them to undertake environmental protection method.

The women assert that they can contribute individually as well as collectively to environmental protection which is more effective than that of men. They believe that women and nature are interrelated as well as oppression of women and nature is closely bound. Women in Kerala think that during environmental disasters and degradation women, dalits, adivasi and children are suffering and exploited. They believe that women are not getting enough socio, economic family support for environment protection efforts, environment issues concerning women are not properly addressed, and women are not getting proper representation in environment decision making. These all are supporting the existence of ecofeminism in Kerala,

even though marginal sections of them are aware of the term. The presence of ecofeminist literature in Kerala reflects the women, marginalised section's innate relation with nature. As Ecofeminism is multicultural, which deals with complex issues is proven in context of Kerala as the women involvement in rights of sexual minorities, womens' children's labour rights, animal rights and adivasi and tribal issues. The women in Kerala come to the forefront of the struggles in by understanding the peril of capitalist patriarchal development which results in the alienation of women, children, marginalised section's access to resources, income and employment, and which questions their right to life and existence.

Women in Kerala with the awareness of the fact that proper environment protection along with assurance of marginalised people's rights and destruction of patriarchal roots from society only can provide them better condition of rights to life actively participates in environmental conservation and social issues. All women engaged in and leading the environment protection movement in Kerala ardently allege that women, tribal and non- human, deprived sections of society and environment are closely associated as well as exploitation and deterioration of environment is directly and strongly has its impact on women and unprivileged, which is the prime credo of ecofeminism.

As part of environmental protection efforts, women in Kerala especially adivasi women in Kairali village are lacking support and assistance from society, family, government, financial institutions on matter of environmental conservation. The patriarchal set up in the society restrains them from involvement in environmental preservation as well as empowerment and self reliance. The development, especially in the area of adivasi settlement in Kairali village are not fully ecofriendly, which in turn affected the climate and ecosystem, availability of natural resources of the areas, affected womens' health and efforts of environmental protection. The lack of representation of women in environmental decision making bodies and institutions which in turn affect the attendance of environmental problems concerning women is considered as important challenge before them.

Better assistance and cooperation from government and decision making bodies along with support from family, society and financial institutions and proper

attendance of environment issues related to women they think will improve active participation in environment protection as well as the empowerment of women in Kerala. Women in Kerala is demanding for proper representation in environment decision making with regard to environment, development discussions, environment projects and government policies and curriculum designing. The environmental organisation specially for women, the environmental awareness classes along with proper attendance of environment problem related to women especially water crisis and pollution and proper law and implementation of policies for prevention of environmental degradation, and taking into consideration of women, children, dalits, adivasis's environmental issues are favoured by them. The destruction of patriarchal set up in Kerala society, use of new social media to spread the environmental debates, ideas and innovations among women engages in environmental protection, availability of modern methods of science and technology in environmental protection as well as agriculture by combine the traditional knowledge of marginalised sections and women is suggested for better conservation of environment.

Women in Kerala is contributing to environmental conservation by strongly holding that women environment, non humans and marginalised sections are closely interconnected and they can contribute more to environmental protection from within the patriarchal society of Kerala. According to Anitha (2011), "the women who have come to the forefront of the environmental struggles in Kerala do so because the present path to development with its inbuilt patriarchal approaches most often denies womens' access to resources, income and employment. The women who have got out of the victim mode say that the crisis is now related to impoverishment, food insecurity, financial and monetary disarray, environmental degradation and denial of access to life-sustaining resources. The women in the environmental grassroots movements of Kerala have been thrown into the face of struggle and opposition and have taken it not by choice or compulsion but because there is no choice at all".

In short it is to say that women in Kerala with the awareness of the fact that proper environment protection along with assurance of marginalised people's rights and destruction of patriarchal roots from society only can provide them better condition of rights to life actively participate in environmental conservation. All women engaged in and leading the environment protection movement in Kerala ardently allege that

women, tribal and non- human, deprived sections of society and environment are closely associated as well as exploitation and deterioration of environment is directly and strongly has its impact on women and unprivileged, which is the prime credo of ecofeminism. Thus the question of environmental protection becomes the question of the very existence of women, children and marginalised sections of Kerala society.

To conclude, the women in Kerala especially adivasi women in Kairali village with the awareness of need of environmental preservation, are actively participating in the environment protection movements and methods as well as issues and problems of marginalised sections who suffering under the patriarchal exploitation along with the exploitation of nature, despite of the challenges they facing in the efforts. Women in Kerala have been actively participating environmental conservation, by understanding the fact that the conservation of natural resources and promotion of environmental protection efforts are more important for women and marginalised sections, as women, marginalised sections and environment are directly related and affected by environmental degradation than men in Kerala. The ecofeminist theory in socialist, liberal, radical variants are existing in Kerala society. If the suggestions provided by women in Kerala on the methods of improvement of their participation in environment protection will met adequately, their environment protection efforts and movements become model for other societies.

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## APPENDIX I

### Constitutional Rights of Scheduled Tribes in India

#### (a) Directive Principles of State Policy

Article 46 "The State shall promote with special care the educational and economic interests of the weaker sections, of the people, and in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation".

#### (b) Social safeguards

(i) Article 17 "Untouchability" is abolished and its practice in any form is forbidden.

(ii) Article 23 Prohibits traffic in human beings and begar and other similar forms of forced labour and provides that any contravention of this provision shall be an offence punishable in accordance with law.

(iii) Article 24 provides that no child below the age of 14 years shall be employed to work in any factory or mine or engaged in any other hazardous employment.

(iv) Article 25(2) (b) provides that Hindu religious institutions of a public character shall be thrown open to all classes and sections of Hindus.

#### (c) Educational and cultural safeguards

(i) Article 15(4) empowers the State to make any special provision for the advancement of any socially and educationally backward classes of citizens or for SC and ST.

(ii) In Article 16(4) the term 'backward classes' is used as a generic term and comprises various categories of backward classes, viz., Scheduled Castes, Scheduled Tribes, Other Backward Classes, Denotified Communities (Vimukta Jatiyan) and Nomadic/Seminomadic communities.

(iii) Article 29 provides for protection of interests of minorities.

(iv) Article 330 provides for reservation of seats for SCs/STs in the Lok Sabha.

(v) Article 332 provides for reservation of seats for SCs/STs in the State Vidhan Sabhas (Legislative Assemblies).

(vi) Article 334 originally laid down that the provision relating to the reservation of seats for SCs/STs in the Lok Sabha and the State Vidhan Sabhas.

(vii) Article 350 provides for right to conserve distinct Language, Script or Culture and also instruction in Mother Tongue.

#### (d) Service safeguards

(i) Article 16(4) empowers the State to make "any provision for the reservation in appointments or posts in favour of any backward class of citizens which, in the opinion of the State, is not adequately represented in the services under the State".

(ii) Article 335 provides that: "The claims of the members of the Scheduled Castes and the Scheduled Tribes shall be taken into consideration, consistently with the maintenance of efficiency of administration, in the making of appointments to services and posts in connection with the affairs of the Union or of a State.

(iii) Article 320(4) provides that nothing in clause (3) shall require a Public Service Commission to be consulted as respects the manner in which any provision under Article 16(4) & 16(4)A may be made or the manner in which effect may be given to the provisions of Article 335.

**(e) Economic safeguards**

(i) Article 244:- Clause(1) Provisions of Fifth Schedule shall apply to the administration & control of the Scheduled Areas and Scheduled Tribes in any State other than the states of Assam, Meghalaya, Mizoram and Tripura which are covered under Sixth Schedule, under Clause (2) of this Article.

(ii) Article 275:- Grants in-Aid to specified States (STs&SAs) covered under Fifth and Sixth Schedules of the Constitution.

**(f) Political safeguards**

(i) Article 164(1) provides for Tribal Affairs Ministers in Bihar, Madhya Pradesh and Orissa.

(ii) Article 330 provides for reservation of seats for STs in Lok Sabha.

(iii) Article 337 provides for reservation of seats for STs in State Legislatures

(iv) Article 334 provides for 10 years period for reservation.

(v) Article 334 provides for 10 years period for reservation.

(v) Article 243 provides for reservation of seats in Panchayats.

(vi) Article 371 contains special provisions in respect of North East States and Sikkim.

**The Sixth Schedule** to the Constitution refers to the administration of Tribal Areas in the States of Assam, Meghalaya, Tripura and Mizoram by designating certain tribal areas as Autonomous Districts and Autonomous Regions and also by constituting District Councils and Regional Councils.

**73rd Amendment of the Constitution** have been extended to the Scheduled Areas through the Panchayats (Extension to the Scheduled Areas) Act, 1996.

(Source: Swarup, Mridushi (2011). 'Protection of Scheduled Tribes Under the Indian Constitution: Promise and Performance', *Social Science Research Network*, (1-31).

## APPENDIX II

### District wise population of Tribes in Kerala

| Sl.No | Name of the District | Percentage Distribution Among the District | Percentage of Total Populatoin |
|-------|----------------------|--|--------------------------------|
| 1     | Kasargode            | 8.33                                       | 2.52                           |
| 2     | Kannur               | 5.48                                       | 0.83                           |
| 3     | Wayanad              | 37.36                                      | 17.43                          |
| 4     | Kozhikode            | 1.63                                       | 0.21                           |
| 5     | Malappuram           | 3.36                                       | 0.34                           |
| 6     | Palakkad             | 10.89                                      | 1.52                           |
| 7     | Thrissur             | 1.33                                       | 0.16                           |
| 8     | Ernakulam            | 2.76                                       | 0.32                           |
| 9     | Idukki               | 14.00                                      | 4.51                           |
| 10    | Kottayam             | 5.04                                       | 0.94                           |
| 11    | Allappuzha           | 0.86                                       | 0.15                           |
| 12    | Pathanamthitta       | 1.80                                       | 0.53                           |
| 13    | Kollam               | 1.43                                       | 0.20                           |
| 14    | Thiruvananthapuram   | 5.74                                       | 0.65                           |
| 15    | Total                | 100  | 1.14                           |

(Source: Human Development Report 2005, State Planning Board, Govt. of Kerala)

### APPENDIX III

#### Questionnaire used for survey

(Respondents may kindly note that confidentiality will be maintained and in no way the identity/ personal information of the respondents will be revealed.)

Name:

Age:

Caste/ Community:

Education level:

Place of habitation:.....

Town .....

Village.....

1. Are you aware of environmental and its related issues?

- a. Yes [    ]                      b. No [    ]                      c. No response [    ]

2. What degree you are interested in issues of environment?

- a. Extremely interested [    ]    b. Very interested [    ]  
c. Not interested [    ]            d. No response [    ]

3. Are you aware of environmental degradation?

- a. Yes [    ]                      b. No [    ]                      c. No response [    ]

3. ( 1) If yes, which form you think you are affected by environment degradation?

- a. Air pollution [    ]                      b. Water pollution [    ]  
c. Dumping of waste in open space [    ]    d. Deforestation [    ]  
e. Quarrying and mining [    ]



f. Any other [ ] please specify.....

4. Do you think climate change is the result of environmental degradation?

- a. Yes [ ]                      b. No [ ]                      c. No response [ ]

5. Can you experience any effect of climate change in your daily life?

- a. Yes [ ]                      b. No [ ]                      c. No response [ ]

6. Have you ever taken part in any environmental activity?

- a. Yes [ ]                      b. No [ ]                      c. No response [ ]

7. Are you a member of any organisation working on environmental issues?

- a. Yes [ ]                      b. No [ ]                      c. No response [ ]

If yes, specify the name.....

8. What will be your reaction against those who damage environment?

- a. I will make complaint
- b. I will warn them personally
- c. No reaction at all
- d. No response

9. Do you think as woman, you can contribute in environmental protection?

- a. Yes [ ]                      b. No [ ]                      c. No response [ ]

9. (1) If yes, in which form you can contribute in environmental protection?

Please specify.....

10. What are your initiatives for environment protection?

- a. Terrace or kitchen garden
- b. water conservation
- c. Forest protection
- d. Agriculture and animal husbandry
- e. Through Kudumbasree or Neighbourhood groups or MGNREGA
- f. Waste disposal
- g . Any other forms, please Specify

11. What are the challenges you face in environment protection?

- a. Patriarchy
- b. Lack of proper laws
- c. Lack of awareness on environment issues
- d. Lack of respect for nature
- e. Lack of time after household works
- f. None of the above.
- g. If any other specifies?

12. Do you think women are getting enough socio, economic family support for environment protection efforts?

- a. Yes [    ]
- b. No [    ]
- c. No response [    ]

13. Are you aware of ecofeminism?

- a. Yes [    ]
- b. No [    ]
- c. No response [    ]

14. Do you agree on close relation of women and nature, and exploitation of women and nature are interrelated?

- a. Yes [    ]
- b. No [    ]
- c. No response [    ]

15. Do you think Women Participation in environment protection is more effective than men?

a. Yes [    ]                      b. No [    ]                      c. No response [    ]

16. Do you think women, children, dalits, adivasis are mostly affected by environmental degradation?

a. Yes [    ]                      b. No [    ]                      c. No response [    ]

17. Do you think environment issues concerning women are properly addressed?

a. Yes [    ]                      b. No [    ]                      c. No response [    ]

18. Do you think women are getting proper representation in environment decision making?

a. Yes [    ]                      b. No [    ]                      c. No response [    ]

19. Do you feel developments in Kerala are eco friendly?

a. Yes [    ]                      b. No [    ]                      c. No response [    ]

20. Do you think government or Local Self Governments are properly attending environmental problems?

a. Yes [    ]                      b. No [    ]                      c. No response [    ]

21. What do you think is most necessary to solve environmental problem?

- a. Creation and improvement of law
- b. Education concerning environmental issues
- c. Abolition of patriarchy
- d. Efforts from individual
- e. More involvement of women in Decision making.
- f. Can't choose
- g. No response

h. Any other (please specify).....

22. What is your suggestion for improvement of women participation in environment protection?