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**GENDER, ECOLOGY AND
DEVELOPMENT
IN KARNATAKA: SITUATION
AND TASKS AHEAD**

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Abstract

'Gender, Ecology and Development' is a fast emerging area of academic and policy importance, especially in the context of developing societies. Beginning with a discussion in the international context, this paper looks into the attention paid to gender concerns in development in their links with environmental issues. Conceptual framework for studying the inter-relationship is discussed to delineate the intricacies of women's interaction with nature against a patriarchal and traditional set-up. Karnataka's major advances in women's empowerment and development programmes is made by referring to both governmental and civil society organisations' efforts. Gaps and inadequacies in knowledge and approaches in understanding the issues and challenges ahead are identified and a few areas of policy concern have been identified.

1. Introduction

1.1. International and National Concerns about Women's Participation in Eco-Development

The upsurge of interest in addressing issues relating to degeneration of natural resources (NR) and the urgent efforts needed to conserve them, by the policy makers, academia and the civil society is the expression of an acknowledgement of the growing interdependence between people and the nature. It is also an indication of their taking a serious note of how such exploitation of NR as an economic good or commodity has created a crisis in environment². To be specific, the focus is on both the

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² Inspired by such a realisation, the ecologists have found the approach focused upon "processes", 'interactions' and 'relations', as the appropriate framework for understanding the NR, rather than prevailing upon 'stagnant physical entities'², as was the tradition in the past³.

study and understanding of the ecosystems (Odum 1971), in order to obtain a synthesised view of nature. It has also replaced the traditional, fragmented view of looking at the environment in its various parts. Thus, the recent thinking in Social Ecology strives to establish a link between human beings and their environment, believing that 'nearly all our present ecological problems arise from deep-seated social problems'.

This paper is based on the conviction that more than the natural catastrophes produced by ecological dislocations, it is the way in which they affect the diverse categories of human population in its ethnic, gender, economic and cultural dimensions that deserves serious attention today. It did not take long for social ecologists to recognise its importance. For example, its strong advocates, like Bookchin, began to attribute the present crisis in environment to the hierarchical organisation of power or hegemony and authoritarianism, rooted in the social system³. He declared that the 'destiny of the human world is dependent upon that in the non-human world' (Bookchin 1964). What has missed the attention of such strong advocates of social aspects of ecology is its gender dimension. Aspects of gender relations in a social organism transcend ethnic, class, regional and political boundaries in their links with the environment and in the context of its (environment) changing profiles. The last two decades have seen efforts by feminist scholars to link concerns of ecology with the principles of feminism and subaltern ideology. They have strongly held that women are both the victims of modern technological development and the scientific paradigm (from which such development derives its *raison d'être*), as well as the 'possible deliverers' from such a situation (Shiva 1988). This merging of environmentalism with feminism came to be labelled as eco-feminism. It came as a socio-political movement, with its proponents (eco-feminists) contending that women's oppression and the exploitation of nature by human beings are strongly

³ They believe that the practice of dominance of man by man leads to the domination of nature by him.

inter-linked. Beginning by exploring what they have called as the intersectional nature of relation between sexism, species-ism and racism, as attributes of inequality, the recent protagonists of this theory of eco-feminism have been arguing that patriarchy and capitalistic system are increasingly dependent upon the triple domination, into south versus north, women versus men, nature versus mankind, and so on. Thus, 'Femininity and Ecology, on the one hand, and Femininity and Ethnicity, on the other, are held as natural allies' and that gender, ecology and ethnicity share a lot of common ground to which the issue of class is also added as being central to this web.

1.2. Conceptual Framework for understanding Gender Issues in Ecology

Despite its relatively recent origin, gender and ecology as a multi-disciplinary, multi-dimensional subject of academic concern has originated out of certain theoretical approaches that address environmental issues. Nearly two decades after the terms 'development' and 'underdevelopment' were first voiced in 1949, the economic roles of women came to be, basically, perceived in the area of reproduction while their contribution to economy was overlooked. This was when the early feminist thinking began wondering about the massive contribution that women made to the GDP of any economy that went unnoticed. Women writers pointed this out in their pioneering works (Boserup 1970). The women's movement caught up on this debate of women's contribution to the economy that went unaccounted for and women left to the household domain as the private sphere of their lives and activities. The principal arguments in the context of sustainable development and its relation to environment reflect upon five main themes, viz.,

- Role of women in environmental changes
- Women as resource managers
- Women and population growth

- Effects of empowerment on sustainability and
- Rural/traditional location of gender/sustainability issues

The Earth Summit, 2002, held at Johannesburg, came to build on earlier declarations and emphasised upon sustainable development and multi-lateralism as a path forward. Both the UN Commission on Sustainable Development held in April 2001, and the 2002 Earth Summit, focused on how to ensure full participation of both women and men and the balanced reflection of their respective concerns throughout the project. With the World Bank declaring that women have an essential role in the mainstreaming of natural resources with a profound traditional and contemporary knowledge of the natural world around them"... (World Bank 1995), gender concerns in NRM were established. Increasingly, policy makers, academicians and activists have emphasised upon linkages between gender, class, race or ethnicity - all of which 'mediate human-environment interaction' (ibid).

1.3. Impact on Policies in India

It was in the 1980s, that gender issues in environment and natural resource management (NRM) came to receive wide attention in the policies and programmes of the government in India, as in many other developing countries. This made a drastic impact upon the design and management of environmental projects, which soon changed to adapt themselves to the demands of the policy makers. There was a concerted realisation that women were an essential component of any attempt to conserve nature and its resources, in managing which they have been playing an essential role. It was felt that any neglect of women's role and contribution in this sector would be detrimental to the project's success. To undermine their link with ecology and to believe in the gender neutrality of development projects – both would, therefore, be inviting marginalisation and exclusion of women in these projects (World Bank 1991).

Soon also was the realisation that their very role as conservers or day-to-day managers of environment tended to have a negative impact on women, who became victims of, and contributors to, the degradation of natural resources (ibid). Contrary to this view was the understanding that women were also the 'major local assets to be harnessed in the interests of better environmental management' (Davidson 1994).

As a result of the above, the new style of environmental projects distinguished between users of environment as 'males' or 'females', while reaching out to them in designing programmes. Now, in the latter part of the first decade of the 21st century, if we looked back, we can clearly see a profound change in the extent of making such external interventions, highly participatory, with an emphasis upon equity, sustainability and participation⁴.

India has also ratified various international conventions and human rights instruments committing to secure the equal rights for women. Key among them is the ratification of the Convention of Elimination of All Forms of Discrimination Against Women (CEDAW) in 1993. The National Policy for the Empowerment of Women 2001 has the goal of mainstreaming gender perspectives in the development process as catalysts, participants and recipients. It also envisaged a critical role for women in agriculture and allied sectors in view of their role as producers. Concerted efforts were planned to ensure that they benefit from training, extension and various programmes in proportion to their population. Women workers in agricultural sector were involved in programmes like training them in soil conservation, social forestry, dairy development and other allied occupations like horticulture and fishing.

Secondly, the concern on the issue of gender and ecology has also established itself in the country's economic and political policies.

⁴ For example, it is common to find users' committees comprising of at least fifty per cent of women members, women given equal opportunities while selecting their heads and other office bearers etc.

These have also echoed in the state and sub state policies and action-programmes. First, there has been a general consensus among the non-governmental organisations and community-based associations of farmers, thinkers, environmentalists and other experts that there is a need to conserve biological diversities, not only for ecological reasons per se, but also for their utilitarian value. Karnataka with its rich treasure of forests, hills and rivers in the Western Ghats and other parts, is rich in biological diversities in terms of plants, animals, micro-organisms and so on. Over the years, the importance of not only the biological wealth of natural resources but also, associated with it, the conservation of sustainable livelihood derived from them (NR) are emphasised.

1.4. Gaps and Inadequacies

It is more than 5 years since the holding of the last Summit (in 2002), which provided an opportunity to map out a more sustainable development path for the earth. More than anything else, it promoted gender specific aspects in natural resources management (NRM). As a result, increasingly, women have been brought to be a part of the decision-making processes, everywhere. There is no denying the fact that connection between women's issues and ecological question is an important social and political debate. Women's skills in resource and communication management are well-established. In both the North and the South, the key demands of the sustainability debate have been the need for an increased involvement of women in both socio-economic and political decision-making processes.

Nevertheless, there are many inadequacies in the above efforts at mainstreaming gender in environment. Some of them were brought to the limelight following the Earth Summit 2002, which resolved, as its common concern, mooting efforts to overcome these in the on-going projects. The summit had given a call for integrating three sectors, viz., energy, transport and information for decision-making. The event, held on the sidelines of the Commission for Sustainable Development, had

identified knowledge, and knowledge gaps, relating to gender aspects of environmental interventions, to provide concrete systems for action. The basic gaps in understanding this approach relate to the complexity of relationships between environmental objects and gender, and the lack of a thorough understanding of many inter-related issues.

Objections are raised against not integrating women's concerns in NRM in terms of specific programmes but are in the form of general calls for increasing women's participation. Issues like environmental refugees, a majority among whom are women, impact of nuclear disaster on women, increasingly dominant role played by women in managing the home and the homestead, in the absence of men (due to male migration) are examples of issues unattended to. Others include long distances to markets, water resources, social services, reduced employment and educational opportunities for girls etc. There is a fear that women are victims and not beneficiaries of the process of environmental development.

1.5. Links between Gender and Environment: the two-way Process

A major aspect of gender issues in biodiversity conservation is the issue of lack of control over and access to the NR by women. This issue is recognised and there are a number of environmental support groups, which have been fighting for the cause of women in the conservation of NR and in establishing people's rights over them - from a human rights' perspective. The NR getting the status of a global resource from being a local resource has only increased the exploitation of women as it has caused greater alienation for them. Losing of NR has been a blow to livelihoods dependent on them. But it has affected the gendered roles responsible for their maintenance or conservation and use. It has also led to commercialisation of the use of NR, leading to their fast depletion, degradation and finally disappearance. This has the potential threat of

eroding the livelihood base of many a household dependent upon such resources. It also poses the threat of disintegration of local/traditional knowledge system held by the peasant families, fishing communities, traditional healer and forest dwellers, which are, since ages, actually involved in the conservation of biodiversity, without any fanfare!

The second process (in the two-way links between gender and ecology) of the contribution of local/indigenous communities, historically, towards the maintenance and conservation of NR, in general (i.e., as applicable to or found in all states) is well established (Swaminathan 1995). By local communities is meant, their women-folk whose contribution to this task of conservation of NR is tremendously extensive. It is also certainly, by any standards, much more than that rendered by their male counterparts. However, prevailing gender biases towards women's work have consistently hampered the due recognition of women's work and contribution to NRM – in both rural and tribal societies. While this has been pointed out by studies elsewhere (Rodda 1991), exclusive studies in the Karnataka context are rare, or non-existent. Whatever exist are those by few activists and NGOs who have been fighting for women's rights to land, water, forest and other NR. This is recognised by the environmental movement (that is latently practised in the state⁵) that environmental degradation has had a much negative impact and women have been the terrible victims of this development.

Government Policies and Programmes

As noted earlier, the development thinking of the 80's and the 90's which went on to argue that environment and NR have to be protected and conserved, received further support when there was a shift in understanding gender issues at the government/planning level. Instead

⁵ like the protests against the Kaiga Plant in Uttara Kannada district in the late eighties and early nineties, protest by environmental groups against deforestation, fights for providing land rights to dalits and adivasis where they practice agriculture etc.

of the conventional Women in Development (WID) approach, which obviously had limitations in addressing women's subordinate position, the Gender and Development (GAD) approach was favoured. Although not emphatically enough, the government policies and programmes and those of the NGOs to a much more extent, came to emphasise the gendered nature of women's and men's environmental dependence, use and conservation. Women's knowledge of environment came to be recognised. The conceptual framework for women's empowerment and development in general was influenced by the new environmentalism. Policies for women's emancipation, empowerment and entitlement underwent this greening process. Women, environment and development became the buzz words even in the state's development context.

1.6. Three Types of Theoretical Analysis of the Links

Based on the above discussion, three types of framework to understand gender issues in ecology or environment emerge. One is the ***New Traditionalists' Approach***. Pre-colonial period in India (and elsewhere) is termed by environmental experts as one of relative ecological and social balance, characterised by an ethical commitment to conserve the environment. This cultural practice, or norm, is grounded in religion, so as to make it mandatory in practice. Examples here are: the maintenance of sacred groves dedicated to ancestors and supernatural objects and totem (like the snake, trees, birds, animals, mountains or rivers). These natural laws or conventions and mores are strictly enforced in the rural areas of the state where they are located. It is also common to find places dedicated to such religious objects in the agricultural fields, near ponds and village tanks and within the village itself. These go by enormous cultural variations and complexity, though.

The pre-colonial period is described as one where communal institutions had been set up to take care of the protection of NR and also their management. These prevailed stringently as norms rather

than as exceptions⁶. It is argued that, for the most part, these traditional groves and other forms of natural reserves of plants, trees and animals came to be destroyed in the course of time making way for modernisation under colonialism. The latter was also blamed for contributing to environmental degradation (predominantly) by resorting to or undertaking deforestation measures.

Besides these, such policies like the state taking over forests and community lands, violated the very ethics of community ownership of NR. This particularly affected the women, who had multiple responsibilities and roles, linked to such resources like water, land and forests. The state taking over the forests and communal land as its right, in fact, eroded the property rights of both the rich and the poor. The latter had an access to these as common property resources⁷. Thirdly, these measures also undermined traditional institutions meant for managing village resources.

Karnataka seems to have escaped much of such wrath of colonial rule when we turn our attention to the situation in the state and if viewed from a historical perspective. Even during the colonial period, much of the above impact was prevented from directly affecting the communities in the state, owing to rule by the local princely government⁸. The pro-people's policies of these rulers are popular and documented (Manor

⁶ Examples like those of the Naga Bana (snake groove), Kadali Bana (plantain grove) or cultural practices (made as theatrical acts and plays) like Nagamandala, Suggi Kunitha and Huthari (to celebrate the harvest festival) Nagara Panchami (festival of worshipping the snakes), commemorating timings of the day in the name of sacred animals like Godhuli (time when cattle return from grazing in the forest) in the societies of the western ghats, worship of Muniyappa and other such small cults in the villages of Old Mysore (Karanth 1998).

⁷ Like the Gundu Thopu in Karnataka meaning the common grazing field for the village's livestock that was free and accessible to all.

⁸ Of Janab Hyder Ali and Tipu Sultan and subsequently by the Arasus of the Yadukula dynasty.

1977). But even then, the access by the poor (and women) to NR suffered much due to the stringent caste/religious system. Forests and other forms of rich NR belonged to the dominant communities and were given to hegemonic control and use. Historically tribal and dalit women underwent physical and economic exploitation that has missed effective documentation in history. The situation in other parts of the now unified Karnataka, like the western ghat region⁹ was worse as they came directly under the colonial rule. Caste, class and gender were the hierarchies that were present and reproduced in the post colonial era too. This is somewhat missing in the works of traditionalists (Guha, Gadgil and others 1993).

The second is the ***Ecofeminist Approach***: Warren (1994) has described the terms 'ecological feminism' as one that captures a variety of multicultural perspective on the nature of the connections within social systems, of domination between those humans in subordinate positions. Women are particularly relevant here. Termed as ecofeminism, this line of thinking refers to a variety of what are called as women-nature connections, from historical, empirical, conceptual, religious, literary, political, ethical, epistemological, methodological and theoretical orientations on the links between women and the nature (earth). This theory was earlier propounded by Francoise d'Eaubonne in 1984 as a support to describe women's potential to bring about ecological revolution.

The third is the ***Reproductive Approach that was*** essentially put forth by Cecile Jackson (1995) to establish its utility in gender analysis in the social sciences. It argues that perspectives on nature and environment by women and men have to be viewed from the point of view of their context. For example, environment is differently perceived by rural women, urban women, tribal women, elite-urban women, NGOs

⁹ That were both parts of the Madras presidency on the one hand and the Bombay Karnatak area on the other.

and officials. According to Jackson, reproduction is the basis of gender analysis in such key sectors as NRM or ecology.

Women and men have multiple roles in all these, coupled with rights, responsibilities and expectations. Thus, reproduction as a concept is very useful to understand gender issues in environmental changes. The impact of changes in the NR on women's work and responsibility, access and control and decision-making in their management and maintenance - are suitable examples here. The concept is also useful to understand the links between societal processes of reproduction, setting up of norms and values, notions of accumulation, use and nurture of NR and the changing role of development interventions in this context. The concept of 'co-operative conflict', used by Jackson, was in fact developed upon the original concept that was propounded by Amartya Sen to capture this dynamics of perception of the value of work by women. It is also useful in understanding the power dynamics between men and women in a household as well as the weak bargaining power relationship. Thus the concept of sustainability is analogous to environmental reproduction.

These three types of understanding gender issues in the arena of NR explain women's important contribution in maintaining and conserving the biological diversities in nature. Although they suffer from the drawback of patenting women's role as eco-feminine, and are blind to the reinforcing of traditional stereotype of gender roles, they provide some background to our effort to delineate gender issues in NRM sector with reference to societies as complex as the one in Karnataka.

2.1. A Situational Analysis of Gender Division of Labour and NR Management in Karnataka: Critical Issues

Karnataka is a state of multiple cultural groups that reside in its different districts, blocks and rural areas - designated also as agro-climatic regions. These are not homogeneous entities. They present diverse sets of communities with their own needs and interests about NR. Such

differences across communities arise out of specific cultural traditions, various experiences gained over time and operation of locally relevant cultural contexts and climatic patterns. Thus, the environmental practices are a replica of tradition and continuity.

The second basic characteristic of the link between gender and environmentalism is the reflection of the needs and practices of use and conservation of NR as evidenced in the prevailing gender-based division of labour. Women and men have various responsibilities and rights in the use and ownership of NR in any society and Karnataka is no exception to this. They have different but culturally established patterns in the knowledge that they have about sustainable management of particular NR and ecological issues, zones and balance. As a result, the awareness and perceptions of women and men about environment differs significantly from each other. Their rights in the management and conservation of NR, likewise, would also differ quite substantially. Thirdly, the differences in women's and men's understanding of environmental issues would also vary contextually as pointed out by Kettel (1995), for example.

Types of bio-diversity and role of women

Broadly, two types of bio-diversity are recognised in literature: domesticated biodiversity that relates to agriculture and wild bio-diversity that relates to forest wealth.

Taking agriculture first, this type of bio-diversity (or use of nature) occurs at the level of the farmer and others in the rural areas, dependent on agriculture as their mainstay, or primary income-generating occupation. The farming households are consciously involved in the maintenance and conservation of the diverse food (mainly) crops. This often refers to, or includes, both, different types of crops, and varieties in each crop. Karnataka has widespread agronomic practices that define the above scenario in its diversity – cultural and agricultural.

The second type, i.e., forest wealth as NR is not domesticated by the farmer. It is a free good, existing in the wild. The user-community consumes the resource by harvesting the produce of a variety of kinds. The maintenance of this resource is controlled through socio-political mechanisms that are binding on all the residents of the area/region. It is here that people's culture comes into the focus and gains significance. With nearly 5 per cent of its total population residing as scheduled tribes in the state, it is expected that the wild bio-diversity brings them and their women into the focus of the present paper. Restrictive use or harvesting of forest resources is achieved through certain cultural and social taboos that control the type, time and amount of extraction. Each region within the state has variations to this effect.

With more than 55-66 per cent of work in agriculture (farm labour) being carried out by women that ensures food security to the household, women's roles in use and conservation of NR and ecology is very significant. But the critical issue is that less than 2 per cent of women own land titles. Women and men have specific contributions to agricultural production that are defined along gendered lines. Patriarchal norms are cut across by caste and class ones, on the one hand, and regional disparities, on the other. Women's gendered responsibilities for securing food, fuel and water impose far greater responsibilities upon them to care for the NR and conservation of the same. They often take on additional labour burden imposed on them when the resources needed to produce these goods become scarce for both internal and external reasons. As FAO (1997) has rightly documented, women in general tend to have a greater interest in preserving and conserving crop lands, forests and other NR to sustain them for perpetual use and maintenance.

The second critical issue is that women in the state account for 93 per cent of the total employment in dairy production. Thus, they are critical income-generators of the household. They engage in

a number of economic activities which are severely physically taxing. They constitute 51 per cent of total employment in Karnataka that is forest-based small scale enterprises like basket, broom and rope making, besides collection of Minor Forest Produce (MFP), fuel wood and fodder for domestic use as well as to the local market. While they engage in the latter activity, they end up carrying as much as 20-25 kilograms of wood per trip and walk long distances. They also cook for more than 3 hours a day burning wood, dung cakes and crop residues. According to an estimate, the smoke that they inhale is equivalent to 20 packs of cigarettes per day. As a result, bronchitis, lung cancer, respiratory disorders and eye irritations are common ailments that they suffer from.

Women's Knowledge Bank on NR

The third critical issue is, as documented by academics and NGOs working in the area of gender and NR, that women have a rich knowledge about NR due to their own responsibility to ensure food security to the household – both during normal times, and more so at crisis situations. Gendered division of roles in this sector compel them to take on work and responsibilities, to take care of seeds of diverse food crops in agriculture, and about other plants and trees in horticulture, livestock rearing and so on. Women's knowledge about water resources, medicinal plants and shrubs and herbs is also immense. The necessary growing and nutritional conditions of various types of crops is known to them. This traditional knowledge enables them to maintain diverse varieties of crops required for adapting to fluctuating conditions of environment and its vagaries. Areas of hybridisation, monoculture, cultivation practices, seed preservation and traditional calendar of activities – are some examples here.

Likewise, women living in forest societies of coastal and malnad areas, in particular, and in parts of maidan areas of Karnataka also have rich knowledge about diversity of ecosystems.

The fourth critical issue is that in recent years, both in Karnataka and other states, agricultural lands and forests have come under much threat of degradation caused by the increasing expansion of industrial and technological fields, which have also promoted or led to speedy urbanisation. These are enough to pose a threat to the availability of existing NR and have seriously affected women's responsibilities towards their use and maintenance. Post liberalisation era is described as having led to threats to ecosystems. Habitats are facing either closure or destruction. Bio-diversity is eroded and livelihoods benefiting from the same have been threatened. The best example is often quoted to be that of agriculture characterised by new terms of trade policies, introduction of commercialisation of a large scale, opening up of the economy and heightened commercialisation of farm and allied activities (Panini 1999). Agricultural policies have thus indirectly and inadvertently evaded women's welfare, claiming that they are expected to be concentrating upon promotion of cash crops and high yielding varieties of food and commercial crops, which has marginalised subsistence agriculture and at the expense of women as its main workers. Women's responsibility of providing food security to the household (especially when the latter are poor and women-headed ones) has been affected drastically. Thus, the core issue is that environmental degradation has increased women's work but decreased their ability to cater to their daily needs.

While the rural and urban poor women are affected in the above manner, their counterparts in the tribal pockets of the state have nothing less as their set of woes. Being dependent on forests for food, fuel, fodder, medicines, fibres and other important products, women and their dependent families have been affected equally. Many families are eroded in their livelihoods as women used to manage them with their innate knowledge of nature and local biodiversity that is far different from and richer than that of men's. Women were the primary users of forest resources like fuel wood and fodder that has gone scarce in the traditional regions, not to speak of their scarcity in villages and urban contexts.

2.2. Losing Ground or Gaining Access to NR? The Chain of Deprivation and Vulnerability

The above note suffices to highlight that women among the poor are the worst sufferers being seriously affected by environmental degradation. This is true of Karnataka also where the fuel wood crisis caused by environmental degradation, deforestation etc., has forced village women to travel for miles. These are resources for which, in a patriarchal society, women alone are responsible as per household division of labour between the sexes. As a result, women have also ended up wasting vast amounts of their time and physical energy, besides their valuable time that could have been devoted to some other remunerative work.

Secondly, in many villages in the State, even to this day, water (for cooking and other domestic use) has to be brought from quite a distance. This again is a heavily biased work in the household activity profile where women alone are responsible for domestic water supply.

Thirdly, fodder scarcity also affects women gravely, since the care of livestock is, again, something considered as 'women's responsibility'. Such burden on women tends to have an impact on the girl children in the household, who are discouraged to study and withdrawn from school to take care of younger siblings when the mother is away on the above works. Thus, women's work load leads to girl child drop-out from the school, deprivation of childhood and poor access to quality of life, like good and timely food, play and studies. Girls are burdened with household work as well as small amounts of outside work to relieve mothers to attend to their work in the wake of difficulties in accessing the now scarce natural resources.

Tribal Women

Tribal women live by depending upon the forest for meeting many of their survival needs and income. A major factor here is the use of non-commercial sources of energy (animal dung, crop waste and fuel wood)

which is needed to be efficiently used. This calls for promotion of non-conventional sources of energy. Biogas, solar energy and smokeless chulah (stove) and other rural applications have been promoted to suit the changing lifestyles of rural women.

With support from grassroots women's groups, NGOs and government action, the rights of women, particularly of tribal women, in using the forest for meeting many of their survival needs as well as for income have been attended to in the plans – both of the state and the centre. Protecting women's traditional usufruct rights and enabling their groups to collect and market minor forest produce has been ensured as a viable and cost-effective strategy for women's empowerment as well as for rejuvenating forests. The need to acknowledge and recognise women as managers, food gatherers, wage earners and producers is immense here.

2.3. Development Programmes in the Context of Gender and NR

Despite being labeled as a progressive state, Karnataka lacks in specific schemes for women linking them with NRM. The major effort of the state in ensuring equality between the sexes was by taking initiative to establish legal, institutional and other structures necessary for ensuring the same. However, all the legislative provisions brought about by the Centre, from time to time, came to be implemented with much care and rigour, by the successive governments in the state.

A major effort in recent times was the thrust given to integrate gender issues in the annual budget preparation by the union and State governments. The State government in Karnataka worked on a gender component in its budget of 2007-08 in response to a call from the Union government, for its budget in 2005-06. The state was chosen as a pilot state¹⁰ for introducing gender budgeting as a concept at state level. However, till recently, no exclusive schemes have been

¹⁰ There were 33 demands in 27 departments and 5 union territories towards this.

designed covering natural resources, ecology, environment etc., for women or anything budgeted exclusively for them. This marked the inclusion of the need for separate allocation in the budget to promote women's participation. Many departments like energy, irrigation, public works, etc., which had never taken up special programmes and had traditionally excluded themselves from addressing special needs of women, have to now come up with schemes that ultimately benefit women.

Within the framework of a democratic polity, laws, development policies, plans and programmes have aimed at women's advancement in different spheres. Thus, right from the Fifth Five Year Plan onwards (1974-78), there has been a marked shift in the approach to women's issues from welfare to development. Empowerment of women has been recognised as the central issue in determining the status of women. The National Commission for Women was set up by an Act of the Parliament in 1990 to safeguard the rights and legal entitlements of women. The 73rd and 74th Amendments to the Constitution of India have provided for reservation of seats in the local bodies of Panchayats and Municipalities for women.

Studies (Farrington 1996) have argued that decentralisation has challenged the basic distribution of rights and access to NR but it has not significantly increased the access of the rural poor towards them. Efforts to undertake conservation measures (like soil and water conservation measures, watershed development etc) have come to be mainly valued for wage labour from the rural poor by rural elites, for their opportunity to invest in property and dispense patronage by the latter. The decentralization programmes are also critiqued for creating a space of political negotiating and allowing for strategic local political mobilisation. Decentralised NRM programmes are not sufficiently aware of their political and ecological limitations, and have to be more strategic to resolving them.

2.4. Programmes specifically addressing women and environment

The Planning Commission, GoI, constituted a Working Group on watershed development and NRM in the year 2000, for the formation of the 10th Five-Year Plan (2002-07). One of its purposes was reviewing of the on-going schemes and programmes on watersheds etc. The scope for private sector investment in the development of problem soils, waste lands under common property resources and state property regimes thus came to be enhanced with this thrust. The perspective plan for women's empowerment also gave much importance to involve women's perspectives in the policies and programmes for environment, conservation and restoration. This was an acknowledgement of the impact of environmental factors on women's livelihoods. Women's participation was ensured in the conservation of the environment and control of environmental degradation.

Wage Employment for Conserving NR

However, much before attention was drawn towards the vulnerable status of women in rural areas, the government of Karnataka had undertaken measures to integrate women into the plans and programmes of conserving nature and its resources. Wage employment programmes introduced by the State and the Centre were implemented with zeal where the households gained much through women's enrollment in such works. Since the income from women's work tends to benefit the household in much larger measure than that of the men's, it was presumed that this would enable poverty reduction in the long run. Besides wage work, livelihood support through the distribution of livestock, creating opportunities for home-based work, skill enhancement through capacity-building and training exercises were also undertaken.

But the crucial step was to create space for women in project management. The first step in this direction has been successfully

achieved through the creation of women's self-help groups with the introduction of both state sponsored programme called Stree Shakthi Yojana and the Centrally-introduced scheme known as Swashakthi Yojana, thousands of women's groups have been formed in all the villages. The formation of women's SHGs encouraged savings and inter-lending activities that proved, in course of time, to be safety nets for poor and vulnerable families. As revealed by studies, women members valued the bonding effect much more than the loan that they could access now. Thus, in many cases, ethnic differences sank and class differences or poverty considerations gained more significance. Farm women are far from being organised to fight against exclusion in NRM practices. The farmers' movement in the state is poor in its gender-sensitive programmes.

But the efforts of the State government to provide environmentally safe and women-friendly technology-oriented programmes have picked up in the last few decades. These include prevention of drudgery for women in carrying out house work (cooking), access to safe drinking water, sanitation programmes, access to fuelwood /alternative sources of energy, provision of better avenues for fodder to livestock (than destroying forests for fodder and fuelwood) and so on.

Smokless Chulahs

Making provision for smokeless chulahs (ovens) that are environmental and gender friendly is a significant intervention in the above context. Called as the Astra ovens, these were introduced in the early nineties by identifying women as the beneficiaries. An improvement over these has been making better provision for kerosene used for cooking by a large majority of rural and urban households. The reforms made in the Public Distribution System has enabled the poor women to access these facilities in a far better way than before. Vigilance committees and neighbourhood committees have been set up to monitor the supply of these essential commodities to the households coming under the below poverty line category.

Drinking Water & Sanitation

Besides the above, efforts have been undertaken to include women in drinking water and sanitation committees under various programmes, and drinking water became a priority matter under the Panchayati Raj system (Decentralisation) introduced following the 72nd and the 73rd Constitutional amendments.

Representation in Committees

The protection of environment and making provision for basic amenities to the poor in the rural and urban areas with a gender focus have come to benefit from another addition to them, viz., the presence of women elected representatives. The women members of watershed and forest management committees, who form a large section of empowered women to take care of NRM issues¹¹, are expected to be more empowered with the presence of women in the local governing bodies at village, block and district levels.

¹¹ The progress made by Karnataka in recent years in several areas of NR should be noted. For example, it was one of the states with an increase in groundwater exploitation (85 %), besides the state of Andhra Pradesh, in the south. Therefore, a call was given for conservation of rainwater and groundwater recharging measures and regulations of groundwater resources. Secondly, the rain fed lands have undulating topography where huge proportion of rainfall runs-off into surface flows. This has been the case even in the low rainfall areas of northern Karnataka. Thirdly, Karnataka was one of the 20 states to undertake soil and water conservation measures in 45 catchment areas. Wasteland development fund was established with the help of NABARD during 1990s to work in 100 districts (selected on a priority) through a participatory approach. DPAP was launched to tackle special problems faced by areas constantly hit by drought conditions and to minimise adverse impact of drought on the production of crops, livestock and production of land, to promote the overall economic development and to improve the socio-economic conditions of the resource-poor and disadvantaged sections of the population. During the Tenth Plan 961 blocks of 180 districts in 16 states have been included under the programme, Karnataka being one of them. Desert development programme started in 1977-79 initially covering a few states has been extended to Karnataka also during 1995-96. Mitigation of adverse effects of desertification and climate changes on crops, human and livestock population is its main purpose covering 232 blocks in 40 districts in 7 states.

The Karnataka Tank Panchayat Act 2004 has envisaged that Tank Management Committees (TMCs) be formed for every irrigation tank in a rural area, with a command area of up to a maximum of 40 ha. It has been set up to form people's committees to manage the village tanks. Members are elected by the Tank Users' Panchayat with adequate representation of women from all castes and classes in them. At least, one-third of seats have been earmarked for women, with a facility to get re-elected. It is clearly enunciated that the TMC will constitute sub-committees from among its members and co-opting others among whom also substantial number should be women. The powers and functions of the committee would include protection and maintenance of the tank, regulating water supply, plan for maintenance, cropping pattern, levying and collection of water rates/charges, appointing staff and building the capacities of members through periodic training programmes. Similarly, every tank is expected to have a tank users' group where women should be in equal number as members. Its primary function would be to facilitate proper co-ordination, information flow, and decision-making.

3. Critical Analysis

3.1. Inadequacies

While the above programmes have taken care of general NRM issues, they were not equipped enough to handle the gender concerns. The issue of watershed management was addressed in a conference in 1991 where the importance of involving the local community in the watershed management was stressed as both crucial and necessary (Deshpande 2000). The conference held that the participation by beneficiaries in the programme is the most crucial aspect. It came to be stressed that integrated watershed management through conservation and regeneration of NR had to be taken up through 'effective local participation' (PLF 2005). Past experience had shown that the concerns of 'resource poor and the vulnerable groups' had to

be recognised through evolving proper techniques (ibid). Discussions about watershed development have largely focused attention on soil and water conservation methods and associated activities. However, studies pointed to the gap that prevailed in identifying the needy and deprived sections in these measures. The women figure prominently here as they are a major category representing those without any stakes in the outcome of the programme due to their resourceless state. Going by Sen's model of poverty defined as lack of entitlements, women are marginalised from the benefits of NRM activities due to their assetlessness.

Therefore, the recent frameworks for reducing vulnerability in watersheds (PLF 2005) have taken serious consideration of the specific gender dimensions and the stakes of women among the other vulnerable families on a priority basis. Vulnerability is held as a serious disadvantage and is more severe in its implications than poverty itself (Chambers 1995). Women are included among the poor and the landless in such interpretations.

Recommendations and guiding principles for the Tenth Plan have emphasised upon the following:

- Aiming at a shift in development paradigm with SHG culture, local initiatives, innate urge for development, gradual elimination of dependence upon government and the NGO etc.
- Watershed development to become a people's programme and enabled rural households to enhance their livelihoods.
- Recognition of rights of women and the landless in decision-making as important for motivating them to get involved actively. The women and landless can acquire benefits in the programme only when separate funding is provided for household production system by design. This alone would make gender and equity issues a reality.

- Out of the funds meant for land development as a component of NRM, at least 20 per cent should be allocated for production systems and livelihood security for women and landless (from BPL background) in addition to 17.5 per cent of total project cost for livelihood support.

3.2. Measuring Links between Gender and Ecology: Some Issues

(a) Economic Activities as an index for measurement

Studies delineating women's role in NRM have highlighted their role in the management of water, agriculture, livestock, fisheries and forest. Based on the findings of case studies in rural areas of the state, it has been established that women clearly outdo men in terms of their involvement in the use and management of all the studied sectors. Yet, they face categorical exclusion and denial of equal sharing of benefits from the NR.

In order to ensure sustainable use of these resources, it is recommended that policy makers, researchers, planners and development workers should have a better understanding of the relative and often shifting roles of men and women in the NRM, including division of labour, access to resources, decision-making and traditional knowledge and practices etc.

(b) Health

There are similarly links between women, ecology and health. Reproductive capacity of women and their traditional roles have been eroded due to manual labour, increasing mechanisms have altered women's roles. Feminist environmentalism argues for establishing a link between the two by emphasising that poor women are victims of environmental degradation in quite gender and class-ethnicity-specific ways. Thus, the question to be addressed is whether women are victims of development or actors in it ?

(c) Challenges of lack of data for measurement

Measuring NRM variables in its links with gender is realised to be a research challenge requiring data both baseline (before) and after an intervention. Women in the countryside are credited for being close and having a deep awareness of their dependence upon a clean and bountiful environment. It is argued that women's participation in environmental movements arises from their closer daily interactions with nature and their respect for community cohesion and solidarity. In the division of labour they are responsible to gather fuel wood, collect water, harvest the edible plants. Thus women are easily able to perceive and more quickly respond to the drying up of nature or disappearance of forests. From such notions the indicators for measuring their contribution and role in NRM issues has to emerge.

Invisibility of Women & Gender Stereotypes

The efforts of both the government and the civil society organisations¹² have attacked the invisibility of women in economic activities using the NR and their role in their management. For example, women's invisibility in agricultural operations was explored by them using participatory rural appraisal techniques, focused-group discussions and developing case studies. The interventions were through collection of information on their work and secondly by forming self-help groups. The studies showed that men continued to be the main agents in NRM, which concurred with gender stereotypes. Thus, men alone were considered as the breadwinners and women, as the nurturers, whose activities were limited to the private sphere. Field-level demonstrations using NRM techniques were useful in understanding the depth of women's knowledge of nature, submerged in gendered roles and responsibilities. They helped to recognise the role of women as being responsible for ensuring supply of water, food, fodder and firewood in poor rural households. Access to these items of daily use without drudgery and difficulty would ensure better quality of life for women. It would also

¹² An inventory of these would be prepared.

help in reduction of poverty and entitlement of women who should enter into effective decision-making processes for the optimum use and conservation of natural resources.

But gender stereotypes continued since men were seen as the 'natural partners' for the technical aspects of NRM, while women were seen as the 'natural partners' for group work which was often not even natural resource-related. As pointed out by Goetz, gender stereotypes influenced staffing where the technical staff 'natural scientists, agronomists, veterinary officers, social scientists and foresters' for example, tended to be males, while only gender specialists tended to be female. These came to mask women's involvement in NRM processes, thereby marginalising them. Women are often found involved in field based work (leading to work load) but lacked any say in the meetings to which they are not invited, or even if they were, they had little autonomy to air their views.

(e) Formation of Social Capital and Decentralisation as Approaches

The efforts by the state have enabled some participation for women in the management of their environment (social and natural) and to form social capital. It has succeeded in leading to an enhancement of their level of awareness, commitment and social accountability¹³. It is expected that concerted efforts to integrate women into users' committees, women's self-help groups and other community-based organizations through both state interventions and extensive civil society initiatives are going to evolve with an added emphasis now, under the decentralisation regime. Participation by women in the watershed development projects in north and central Karnataka, forest protection programmes of the west and

¹³ For example, the forest protection committees formed in the villages of the western ghats have enabled such empowerment to women – tribal and non-tribal.

the drinking water schemes in several parts have shown successful results in creating awareness as well as mooted women's participation, at least during the period of the project.

Gender Analysis

Since time and again macro policy has been dealing with the vulnerability of women, it is more compensatory rather than being cognizant of their rights and entitlements. What is needed urgently is disentangling issues of gender and sustainability. A clear cut understanding of the roles of women in development is the other need. The focus is on women rather than on gender relations and the tendency is to take the category of women as a homogeneous entity, whose constituents are performing unique gender roles. The thrust of studies should be upon the current economic globalisation and on the poor/rural habitats.

Another grey area is interpretation of gender roles and women's roles as being marked by a shift in position and changing political priority over the last few decades. Feminist studies are required to look at the entire gamut of issues and undertake, systematically, thematic studies. For example, feminist thinkers have been campaigning for impact studies to see the impact of efforts upon women, men, on the social organisation of production relations etc. They have been critically analysing the practices and opportunities for dominant modes of production and politics.

Women have been shaping social affairs and keeping community values together (reproductive and community roles of women). They even dared extreme conditions or vagaries of weather and prepared the hunters with their intimate knowledge of conditions of the forest. The ramifications of all these processes and efforts need to be tapped through participatory and micro research. Religion and medicine have earth-centered practices. Population, poverty and environmental degradation are also linked to gender dimensions. The other environmental problems that are worth noting stem from industrial practices in the developing countries.

It is believed that critical global problems derived from political and cultural arenas, associated with industrialisation, are linked with development, i.e., economic growth of countries. Hence, gender issues have become secondary and local in emphasis. Women have come to be treated as only victims of all this and have to be attended to. It is argued that political will and financial support are strongly needed to solve their problems. But the fact that women can be put on forum to design coping mechanisms and strategies, economising on use of NR, conservation and mitigation of negative effects - are not yet considered significant. Studies quoting best practices across situations/societies are the need of the hour.

4. Conclusions

On the whole, with prior planning and much advocacy, gender concerns in environmental degradation and use of natural resources can be identified and sustainable development introduced. Reduction in gender gaps should become the priority while addressing ecological issues in rural and urban contexts. A proper understanding of current practices and the existing gender relations (both at the household and societal/community levels) that shape/guide/determine them is the primary goal to arrive at a framework for further analysis and action. It is hypothesised that the rich and developed countries somehow would control environmental degradation, through trade offs between economic growth and environmental commitment. The newly industrialised countries tend to associate development with environmental degradation, when they intensify using environmentally unfriendly goods. They experience a competition to bridge several gaps in collaboration that acts negative on the environment. The third group comprises of the poor and the deprived countries which compete in their use of the environment for comparative advantages, where degradation of environment becomes only the worry of the rich.

India and Karnataka have to fit themselves up in this framework as they are fast developing economies influenced by technological and trade policies. After all, environmental outcome depends upon the manner in which economic growth is pursued and attained. Multi-disciplinary oriented environmental studies will have to undertake research and advocacy in environmental issues from a multi-dimensional but holistic perspective. Only this has the potentiality to provide valid and workable policy suggestions in understanding, analysing and mainstreaming gender in environment studies on a long-term basis. Studies are lacking to show the manner and types of ways in which specific action-oriented programmes have emerged from the Summit 2002. How far have women's programmes in health, economic justice, training, education and democratic governance adhered to? Has women's participation in public sphere been hit by environmental degradation? Have environmental changes affected or eroded women's rights and opportunities? These questions need to be addressed through micro research in different agro-climatic zones or regions and in specific socio-cultural contexts.

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