



ISSN: 0976-3376

Available Online at <http://www.journalajst.com>

ASIAN JOURNAL OF
SCIENCE AND TECHNOLOGY

Asian Journal of Science and Technology
Vol. 08, Issue, 08, pp.5376-5382, August, 2017

RESEARCH ARTICLE

ENVIRONMENTAL SOCIAL WORK: AN ADJUNCT TO ENVIRONMENTAL SCIENCE AND TECHNOLOGY

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ARTICLE INFO

Article History:

Received 31st May, 2017
Received in revised form
29th June, 2017
Accepted 01st July 2017
Published online 31st August, 2017

Key words:

Environmental social work,
Interdisciplinary environmental teams.

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ABSTRACT

Environmental degradation threatens not just the quality, but the very existence of life on earth. The road to an environmentally sustainable future requires an interdisciplinary response that engages both the social and physical sciences (Schmitz *et al.*, 2012). In the article, the author begins by shedding light on the concepts and causes of environmental degradation, thus presenting the complexity of environmental issues and the need for an interdisciplinary approach. In the mission for protecting our environment, the field of Environmental social work is introduced as an adjunct to the field of Environmental Science and Technology. The prevalent strategies and prominent international and national efforts towards environment protection are described. The role of the social worker in Indian environmental practice is also analyzed based on a study conducted by the author and literature review. This article hopes to be useful to professionals in the field of environmental science and technology by conscientizing them about the role of social workers as collaborators in the interdisciplinary team.

INTRODUCTION

Environmental practice is a realm occupied by different professions in the physical and social sciences, like geologists, ecologists, microbiologists, zoologists, biologists, meteorologists, oceanographers etc. and environmental planners, lawyers, sociologist, social workers etc ("Environmental Science Careers", n.d.). Social work has long been a profession committed to the person-in-environment focus (Zapf, 2010). In the wake of current startling facts on environmental degradation, there has been a sharpening of this focus world over, with the ensuing practice termed as environmental social work; environmental social work assists humanity to create and sustain a biodiverse planetary ecosystem and does this by adapting existing social work methods to promote societal change (Ramsay and Boddy, 2017). The current article tries to describe the various concepts related to environment, environmental degradation and environmental protection, attempting to expose the interdisciplinary realm of environmental practice. It then goes on to describe international and national efforts in environmental protection, both in the fields social and physical sciences. The social workers role in environmental practice is also analysed in detail, stressing his/her role as part of an interdisciplinary team. This article is based on the results of UGC sponsored major research project, which attempted to

study twenty social work practice settings in India through case studies of about 24 organizations and interviews with over 100 social work practitioners (Joseph and Alexander, 2012).

Defining environment and environmental degradation

Environment, according to Douglas and Holland (1947), is the term used "to describe, in the aggregate, all the external forces, influences and conditions, which affect the life, nature, behaviour and the growth, development and maturity of living organisms". According to Singh (2006), "Environment is constituted by the interacting systems of physical, biological and cultural elements inter-related in various ways, individually as well as collectively. These elements may be explained as under:

- Physical elements such as are as space, landforms, water bodies, climate soils, rocks and minerals. They determine the variable character of the human habitat, its opportunities as well as limitations.
- Biological elements such as plants, animals, microorganisms and men constitute the biosphere.
- Cultural elements such as economic, social and political elements are essentially manmade features, which make cultural milieu."

In encompassing all sorts of external factors, like physical, biological and cultural, this definition is of much value to the social worker in the context of the "person-in-environment"

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practice paradigm. However, for the purpose of the current article, environment is defined to include mostly the physical and biological elements. Environmental Degradation refers to gradual or abrupt creation or fostering of conditions that make the environment unfit for living. The term is usually applied to human activity that affects the hygiene of the environment and availability of natural resources. Environmental Degradation assumes paramount importance in social work, not only because much of the effects of environmental degradation, like global warming, climate change, increased disasters, extinction of wild life, energy crisis, poverty, disease, death etc., call for the direct interventions of social workers; but also because, as the professional protectors of social justice, social workers are increasingly internalizing that environmental justice is inseparable from social justice (Capeheart and Milovanovic, 2007). Environmental Degradation is directly caused by Environmental Pollution, Resource Depletion and Destruction of Wild Life (Help Save Nature, n.d.a, n.d.b, Roy, 2014).

- a) Environmental Pollution: Pollution of Land, Water and Air by making it unfit for use and sustenance of healthy life. Pollution is primarily caused by elimination of anti-environmental substances (pollutants) into land water and air.
- b) Resource Depletion: Deforestation, Depletion of Coal, Mineral and other Non-renewable natural resources.
- c) Wild Life Destruction: Poaching wild animals and indiscriminate exploitation of plants for human use.

These in turn are the result of the following phenomenon, which becomes important avenues for social work intervention:

- a) Population Explosion: The resources currently being used by a growing population are fixed and scarce leading to resource depletion.
- b) Unplanned and unsustainable development: Urbanization, industrialization, agriculture, housing, power and other sectors in development adopt practices that harm the environment.
- c) Individualist and Consumerist Values and Culture which promotes competition and conflict rather than the common good of all living things.
- d) Lack of Commitment by Governments and People to protect environment

Environmental Protection refers to those measures taken by individuals, groups, communities and Governments to prevent the degradation of environment and protect the environment for the future. It also includes activities aimed at undoing the harm already done. It includes the following components:

- Prevention of pollution through specific bans and restrictions
- Controlling the quantity of pollutants by setting standards, where prevention is not fully possible
- Preservation of wild life and cultural monuments
- Conservation of water, energy and other natural resources
- Repletion of lost resources through afforestation, cleaning, treating, recycling, reusing, water shed management, reclaiming degraded land etc
- Discovering alternatives for non-renewable resources
- Promoting sustainable lifestyles.
- Arresting climate change

As suggested above, environment protection cannot be an isolated effort. It involves multiple stakeholders and multiple strategies. The stakeholders in environmental protection are: Strategies for Environmental Protection are: (1) United Nations Organization (UNO) and other International Organizations (World Bank, WTO etc); (2) National, State and Local Governments; (3) Voluntary Sector: Profit and Non-Profit; (4) Scientists, geologists, ecologists, environmentalists and other professionals who are directly related to the science, dynamics and sociology of ecology and who have a greater commitment to protect environment, and (5) Common Man. The common strategies for environment protection are listed below:

- Fostering Commitment at International, National and individual level
- Creation of Policies, Legislations, Regulations and Standards
- Strict implementation and overseeing of Legislations, Regulations and Standards
- Continuous Monitoring of State of Environment
- Creation of Databases of Environmental Resources
- Setting Up Decentralized System for Environmental Monitoring and Protection
- Networking and Cooperation with International and regional bodies, other sectors of Government and the Voluntary sector
- Environmental Awareness and Education

United Nations and environment protection

The United Nations Organization's United Nations Environmental Programme (UNEP) provides leadership to environment protection at the global level. UNEP's mission is to encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations. UNEP's work is broadly divided into 6 Priority Areas:

- Climate Change: Strengthening the ability of individuals, communities and nations to adapt to climate change, move towards low-carbon societies, improve understanding of climate science, and raise public awareness about the Earth's changing climate.
- Disaster and Conflicts: UNEP seeks to minimize environmental threats to human well-being from the environmental causes and consequences of conflicts and disasters.
- Ecosystems Management: Supporting balanced responses to natural resource management to meet future ecological and human needs.
- Environmental Governance: Promoting informed decision-making to enhance global and regional environmental cooperation.
- Harmful Substances: UNEP is a driving force behind the sound management of chemicals, including chemical safety, and provides nations with access to information on toxic chemicals
- Resource Efficiency: Fostering sustainable consumption and production by leading global efforts to ensure natural resources are produced, processed and consumed in a more sustainable way.

UNEP runs 3 major Campaigns: 1) The Billion Tree Campaign; 2) Climate Neutral Network; 3) Unite to Combat Climate Change. UNEP has declared the 5th of June as World Environmental Day and 2011 as the International Year of Forests. Another major initiative of the UNEP is the promotion of Green Economy. According to UNEP, green economy is one that results in “improved human well being and social equity, while significantly reducing environmental risks and ecological scarcities”. This initiative which was launched in 2008 can be thought of as one which is low carbon, resource efficient and socially inclusive. It involves 3 sets of activities: Producing a Green Economy Report, Providing Advisory Services and Research (UNEP, 2011).

The UNEP conventions and conferences are a rich source of knowledge to environmental social workers. The milestones in UNEP history are as follows:

- 1972 - UN Conference on the Human Environment recommends creation of UN environmental organisation
- 1972 - UNEP created by UN General Assembly
- 1973 - Convention on International Trade in Endangered Species (CITES)
- 1975 - Mediterranean Action Plan first UNEP-brokered Regional Seas agreement
- 1979 - Bonn Convention on Migratory Species
- 1985 - Vienna Convention for the Protection of the Ozone Layer
- 1987 - Montreal Protocol on Substances that Deplete the Ozone Layer
- 1988 - Intergovernmental Panel on Climate Change (IPCC)
- 1989 - Basel Convention on the Transboundary Movement of Hazardous Wastes
- 1992 - UN Conference on Environment and Development (Earth Summit) publishes Agenda 21, a blueprint for sustainable development
- 1992 - Convention on Biological Diversity
- 1995 - Global Programme of Action (GPA) launched to protect marine environment from land-based sources of pollution
- 1997 - Nairobi Declaration redefines and strengthens UNEP's role and mandate
- 1998 - Rotterdam Convention on Prior Informed Consent
- 2000 - Cartagena Protocol on Biosafety adopted to address issue of genetically modified organisms
- 2000 - Malmö Declaration - first Global Ministerial Forum on the Environment calls for strengthened international environmental governance
- 2000 - Millennium Declaration - environmental sustainability included as one of eight Millennium Development Goals
- 2001 - Stockholm Convention on Persistent Organic Pollutants (POPs)
- 2002 - World Summit on Sustainable Development
- 2004 - Bali Strategic Plan for Technology Support and Capacity Building
- 2005 - Millennium Ecosystem Assessment highlights the importance of ecosystems to human well-being, and the extent of ecosystem decline

- 2005 - World Summit outcome document highlights key role of environment in sustainable development

India and environment protection

Environmental Issues in India

The Summary Report of the State of India's Environment 2009 gives us the following information on India's Environmental Problems (MOEF, 2009):

- **Land:** Approximately 45% land in India is degraded. Water erosion, Water logging, Wind erosion and related problems, Soil acidity, alkalinity, salinity etc are the environmental problems associated with Land in India. The prime causes for these problems are Deforestation, Unsustainable agriculture practices, Mining operations, Excessive ground water extraction. Two-thirds of the total degraded land (i.e. 147 Mha.) can be quite easily regenerated. Forest Cover gradually improving
- **Air:** Increasing trend of RSPM (Respirable suspended particulate matter) and SPM (suspended particulate matter) levels. Most cities in India have crossed the limits set by the NAAQ (National Ambient Air Quality) Standards. Public Health damage costs in 50 cities (110m population) equaled Rs.15, 000 crores in 2004. Prime drivers of Air Pollution in India are Vehicular pollution, and Industrialization. SO₂ and NO₂ levels are decreasing due to measures taken.
- **Water:** Indian population is consuming only 75% utilizable water resource. 80% of water flows in four months of the monsoons and hence there is water scarcity at many places during the other months. Many basins are facing scarcity. The prime causes for these problems are increasing Domestic agricultural and Industrial Activities, Unsustainable consumption patterns, Inadequate sanitation leading to pollution of water resources, Industrial Activities, Unregulated extraction of ground water, Discharge of toxic and organic waste water, Inefficient Irrigation and farming practices, Overuse of chemical fertilizers and pesticides.
- **Biodiversity:** India is biodiversity rich, with 8% of the global biodiversity wealth. It was named as one of the 17 mega diverse countries with 45,500 plant and 91,000 animal species concentrated mostly upon 10% of our land area. However the current trends are towards deteriorating bio-diversity. Ten percent of wild flora and fauna are in threatened list and many on the verge of extinction. The prime causes for this are Anthropogenic habitat destruction, poaching and hunting, invasive species, over exploitation of wild bio-resources, pollution and climate change.

The key environmental issues in India are listed below:

1. **Climate Change:** India contributes only approximately 5% global Carbon Dioxide emissions @ 1.2T/capita/annum. Nevertheless over 700 million people likely to be affected by Climate Change.
2. **Food Security:** India has an under nourished population of approximately 231 million.

3. **Water Security:** Depletion Ground Water Resources, Loss during Water Storage and Transmission, Water wastage and Pollution
4. **Energy Security:** Though generation increased, over 600 million people have no access to electricity. High dependence on fossil fuels have significant environmental and climate implications;
5. **Urbanization:** Currently 28% of Indian's Population live in Urban areas and 20 to 40% of the urban population live in slums, with environmental and health implications

Government Initiatives for Environmental Protection

Ministry of Environment and Forests is the nodal agency in the administrative structure of the Central Government for the planning, promotion, co-ordination and overseeing the implementation of India's environmental and forestry policies and programmes.

The broad objectives of the Ministry are:

- Conservation and survey of flora, fauna, forests and wildlife
- Prevention and control of pollution
- Afforestation and regeneration of degraded areas
- Protection of the environment and
- Ensuring the welfare of animals

These objectives are well supported by a set of legislative and regulatory measures, aimed at the preservation, conservation and protection of the environment. India's Environmental Legislations include the following:

- The Environmental Protection Act
- The Water (Prevention and Control of Pollution) Act
- The Water Cess Act
- The Air (Prevention and Control of Pollution) Act
- The Indian Forest Act
- The Forest Conservation Act 1980
- Revised National Ambient Air Quality Standards 2009

Besides the legislative measures, a set of Environmental Policies also guide the Ministries work:

- National Conservation Strategy and Policy Statement on Environment and Development, 1992;
- National Forest Policy, 1988;
- Policy Statement on Abatement of Pollution, 1992;
- National Environment Policy, 2006

To implement the Legislations and Policies, the Ministry has a number of divisions including: Animal Welfare (AW), Clean Technology (CT), Climate Change Division (CCD), Desertification Cell, Conservation and Survey (CS), Control of Pollution (CP), Environment Education (EE), Environmental Impact Assessment (IA), Environmental Information (EI), Environmental Information System (ENVIS), ENVIS - A Gateway on Sustainable Development, National Natural Resource Management System (NNRMS) Programme, Database of Environmental Experts in India:2007, NGO Cell (NC), Environment Research (RE), Externally Aided Projects (EAP), North East Cell (NEC), Forest Conservation (FC),

Forest Policy (FP), Forest Protection (FPR), Forest Services (FS), Hazardous Substances Management (HSM), Integrated Finance (IF), International Cooperation and Sustainable Development (IC&SD), Climate Change(CC), Clean Development Mechanism(CDM), National Afforestation and Eco-Development Board (NAEB), National River Conservation Directorate (NRCD), Official Language (OL), Montreal Protocol and Ozone Cell (OC), Plan Coordination (PC), Policy and Law (PL), Project Elephant (PE), Project Tiger (PT), Research and Training (Forestry) (RT), Survey and Utilization (SU), Trade and Environment (T&E), Wildlife (WL). Some of the major initiatives of the Ministry include institution of a number of Fellowships and Awards, Compensatory Afforestation Fund Management and Planning Authority (CAMPA), National River Conservation Directorate (NRCD), National Ganga River Basin Authority (NGRBA), National Green Tribunal and Capacity Building for Industrial Pollution Management. The Ministry also serves as the nodal agency in the country for the United Nations Environment Programme (UNEP), South Asia Co-operative Environment Programme (SACEP), International Centre for Integrated Mountain Development (ICIMOD) and for the follow-up of the United Nations Conference on Environment and Development (UNCED). The Ministry is also entrusted with issues relating to multilateral bodies such as the Commission on Sustainable Development (CSD), Global Environment Facility (GEF) and of regional bodies like Economic and Social Council for Asia and Pacific (ESCAP) and South Asian Association for Regional Co-operation (SAARC) on matters pertaining to the environment. There is also a large computerised database – the Environment Education bank, which has a collection of more than 800 environment concepts, about 2500 environment related activities and 100s of case studies.

India has brought out the National Action Plan Climate Change (NAPCC) in 2008 and 8 Missions were launched as part of NAPCC: Solar Energy, Enhanced Energy Efficiency, Sustainable Habitat, Water, Sustaining the Himalayan Ecosystem, Green India, Sustainable Agriculture and Strategic knowledge for Climate Change. Although India does not have legally binding reduction commitments, a range of policies and programmes taken to respond to reducing emissions, inter-alia, include (MOEF, 2010):

1. Setting up of the Bureau of Energy Efficiency and encouraging energy conservation and introduction of energy efficiency labelling.
2. Promoting use of renewable energy
3. Power sector reforms and active renewable energy programme
4. Use of cleaner and lesser carbon intensive fuel for transport
5. Fuel switching to cleaner energy
6. Afforestation and conservation of forests
7. Promotion of clean coal technologies
8. Reduction of gas flaring
9. Encouraging Mass Rapid Transport systems
10. Environmental quality management for all sectors

Social workers role in environment protection

It is evident from the definition of concepts and the elaboration of international and national environmental interventions that

the environmental setting requires expertise and skills in a variety of fields. Scientists in different disciplines create innovative and appropriate environment-friendly technology; but these have to be taken to the masses and popularized among them, i.e. the technology should become interactive, flexible and people-friendly. Geologists, Biologist and Ecologists assess the impact of human activities on environment; but these have to be translated into the common man's language and imbibed into his consciousness. Legislators create policy and laws and the executive wing foresees its implementation; but the democratic community has to have their own mechanism to interpret, analyze and monitor the performance of the Government. Above all, every human being has the individual responsibility to preserve and protect the vitality and purity of the immediate and global environment in which he lives. After all it is the unsustainable life styles and consumerist culture of man that leads to indiscriminate exploitation of environment. That is, only when international, national and local efforts to protect environment are integrated with people at the grass root can we gain sustainable success.

The core of Environmental Social Work lies in the realization of this vital partnership of people in environmental protection. Hence, the social worker's expertise in working with communities is the key factor in environmental social work. The social workers major roles are concerned with mobilizing communities, conscientizing them about the environment, environmental degradation and environmental protection, and building their capacities to take sustainable action. The Community should be trained to imbibe nature friendly values and adopt sustainable life styles and technologies, and conduct environmental monitoring. They should be motivated and equipped to collectively demand for healthy living environments at the local, national and global levels; the social workers collaboration, networking and advocacy skills come into play here. Thus, the social worker's skills in community mobilization and empowerment can be effectively employed in the environment setting. Schmitz et al, 2012 were succinctly describes the interdisciplinary nature of environmental interventions and the role of the social worker:

"The road to an environmentally sustainable future requires an interdisciplinary response that engages both the social and physical sciences. Although the ecological environment is not divided into discreet packages, professional disciplines often attempt to understand it, not in its holistic complexity, but rather in bounded pieces. Consequently, contemporary educational and political systems have failed to respond to the environmental crisis (Orr, 2011)... Sustainability concerns the preservation of biodiversity as part of human survival, social sustainability and social and environmental justice. When entering into the field of environmental sustainability, social workers have the training and skills to bring together and facilitate the work of interdisciplinary teams."

There have been instances where individual social workers have stood for environment protection, like Medha Patkar and her role in Narmada Bachao Andolan. However, most social workers work as part of governmental or non-governmental organizations, projects or programmes. NGOs make significant contributions to environmental social work (Gemmill and Bamidele-Izu, n.d.). Betsill and Corell (2001)

highlight the paramount contribution of NGOs towards environmental protection:

"A growing body of evidence indicates that NGOs influence government decisions to develop domestic policies to protect natural resources and to negotiate international treaties, as well as how individuals perceive environmental problems.... NGOs participate in global environmental politics in a number of ways: they try to raise public awareness of environmental issues; they lobby state decision makers hoping to affect domestic and foreign policies related to the environment; they coordinate boycotts in efforts to alter corporate practices harmful to nature; they participate in international environmental negotiations; and they help monitor and implement international agreements."

An NGO whose work involves protection of environment is generally called ENGO, which is the abbreviation for environmental NGO. ENGO's can be international or national based on their area of work. Some of the specific activities of these ENGOs are stated below. This listing is based on broad review of literature and case study conducted by Joseph and Alexander (2012). The fifteen activities given below can be divided into three categories, based on the need for an interdisciplinary approach. The first three activities fall clearly within the skill domain of social workers as it involves conscientization, capacity building, community organization and social action strategies. The second category of activities (activity 4-8) may require support from interdisciplinary teams but also can be done independently with some external support. The remaining activities comprise the third category of activities which is primarily the domain of environmental scientists and professionals in the biological and physical sciences; as explained above, the social workers' partnership in this domain can result in greater participation of people in environmental protection and thus in more effective and efficient delivery of results.

1. Environmental education and training to different groups (teachers, students, general population, youth, women, children, environmental experts, policy makers, individuals and organizations working for environmental issues etc) through different methods (camps, publications- books, posters, journals, education packages, essay competitions, lectures, videos, lectures, dance, drama and puppetry field trips, literature and expeditions, exhibitions, symposia, websites, seminars, workshops etc).
2. Creation of community based environmental groups like nature/eco clubs, conservation networks, community-based environment protection groups etc.
3. Lobby with government to take measures to protect environment (wild life, forests, air, water and land etc), prevent development that destroys nature (like the Chipko movement and Narmada Bachao Andolan)
4. Provide consultations and make recommendations and suggestions to government on appropriate measures to protect environment conservation of biodiversity and eco-development; gives guidance on environmental laws, environmental impacts and management studies
5. Creation of environment data bases
6. Solid waste management through door to door meetings, awareness campaigns and collection of solid waste by generating employment, segregation of waste;

waste recycling management, preparation of low cost toilets.

7. Conservation of energy by promotion of smokeless chulhas, gohar gas plants and other renewable sources of energy.
8. Publications, designing text books and courses
9. Conduct surveys and research on environment: flora and fauna, wild life and endangered species, assessments of various human activities on environment (e.g. soil erosion, water logging, drainage and seepage around select dams), impact assessment; studies on the restoration of the ecological balance of freshwater lakes and ponds and marine habitats and preparation of maps; soil and water analysis;
10. Pollution monitoring and control
11. Regeneration of degraded resources such as land, livestock, water and vegetation: tree plantation, agro forestry and wasteland development, watershed management, water harvesting, use of non-conventional sources of energy, clean the ponds, lakes and reservoirs, construct low cost toilets, organic farming, biomass production etc.
12. Alternative development solutions programmes of economic efficiency, equity and social justice, resource conservation and self-reliance;
13. Wild life protection and rescue: feed and medicate all injured, abused and ownerless animals; promote adoption programmes for animals, sterilization of stray dogs; running mobile clinics.
14. Preservation of Indian cultural and natural heritage
15. Research and development: development of products and technology which will help meet the challenges of environmental degradation.

In the case of ENGOs which involve in research and development, even though social workers may not be directly involved, they can act as a bridge between scientists and the community, to create and popularize people friendly green technologies. Otherwise, for the most part, ENGOs and environmental social workers share common domains of work.

Conclusion

Environmental degradation threatens our very existence. It becomes worthwhile at this juncture to quote Abramovitz (2001):

Around the world, a growing share of the devastation triggered by 'natural' disasters stems from ecologically destructive practices and from putting ourselves in harm's way. Many ecosystems have been frayed to the point where they are no longer resilient and able to withstand natural disturbances, setting the stage for 'unnatural disasters' – those made more frequent or more severe due to human actions. By degrading forests, engineering rivers, filling in wetlands, and destabilizing the climate, we are unraveling the strands of a complex ecological safety net.

It is crucial to understand the interdisciplinary nature of environmental sustainability and make concerted efforts towards environmental protection. Environment degradation is not only physical but also a social and cultural phenomenon, involving people, their attitudes and behaviours. Professionals in the biological and physical sciences stand to benefit by

incorporating, in their interventions, the professional skills of social workers. As harbingers of social development, social workers dive in to affect the social determinants of the environmental crisis that we have come face to face with today. As experts in alliance creation, social workers labour towards bringing together different stakeholders for the cause. As engineers of social change, the social workers help people and communities to shed ecologically destructive practices and reverse the harm done to our planet. In the wake of the current environmental emergency, it is high time that professionals in the environmental domain come together to make meaningful and strategic partnerships that promote people's participation in environmental protection.

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