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Education for sustainable development in teacher education in India

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Angesichts wachsender weltweiter Herausforderungen wie Ressourcenknappheit, Klimawandel, Armut und damit verbundener Konflikte gewinnen die Konzepte Bildung für nachhaltige Entwicklung (BNE) und Globales Lernen zunehmend an Bedeutung. Dies zeigt sich nicht zuletzt im Weltaktionsprogramm „Bildung für nachhaltige Entwicklung“ (WAP), das danach strebt, auf der Grundlage der Ergebnisse der UN-Dekade Bildung für nachhaltige Entwicklung (2005–2014) die Umsetzung von BNE zu intensivieren.

Lehrerinnen und Lehrer sind einflussreiche Change Agents, die pädagogische Beiträge zur Förderung einer nachhaltigen Entwicklung leisten können. Ihre Kenntnisse und Kompetenzen sind für die Umstrukturierung von Bildungsprozessen und Bildungseinrichtungen im Sinne von Nachhaltigkeit unerlässlich. Daher ist die Lehrerbildung ein wesentlicher Faktor für die Förderung von BNE und Globalem Lernen, denn die Umsetzung dieser Ziele stellt hohe Anforderungen an die Lehrkräfte.

Allerdings sind die Bemühungen zur Vorbereitung der Lehrerinnen und Lehrer auf die Umsetzung von BNE und Globalem Lernen nicht ausreichend fortgeschritten. Es muss noch mehr getan werden, um BNE und Globales Lernen in die Inhalte und Lehr- und Lernmethoden der Lehrerbildung zu integrieren. Aus diesem Grund konzentriert sich das WAP-Handlungsfeld 3 auf das Capacity Building bei Lehrenden. Von großer Bedeutung ist, dass die Projekte zur Lehrerbildung für nachhaltige Entwicklung an unterschied-

lichen Hochschulen in etablierte Strukturen übergehen.

In dieser Ausgabe der ZEP werden die Verankerung von BNE und Globalem Lernen in der Lehrerbildung, Gelingensbedingungen für die erfolgreiche Integration und nicht zuletzt konkrete Projekte an unterschiedlichen Universitäten beleuchtet.

Marco Rieckmann und *Verena Holz* befassen sich in ihrem Beitrag mit dem Stand der Lehrerbildung für nachhaltige Entwicklung in Deutschland sowie den länderspezifischen schulischen Curricula und Verordnungen. Dabei wird deutlich, dass das Feld durch Lehrangebote und Projekte in einzelnen Fächern und Fachdidaktiken gekennzeichnet ist. Bisher gibt es kaum strukturelle Veränderungen in der Lehrerbildung sowie Fort- und -weiterbildung, und auch in den Schulstrukturen und curricularen Vorgaben besteht Entwicklungsbedarf, um dem BNE-Konzept Raum zu geben.

Björn Risch, *Karla Blöcher*, *Anne-Katrin Holfelder*, *Marie Schehl* und *Philip Weinberger* stellen das am Standort Landau der Universität Koblenz-Landau zum Wintersemester 2016/17 eingeführte Zertifikat „Bildung – Transformation – Nachhaltigkeit“ (BTN) vor. Sie zeigen damit auf, wie BNE in die Hochschulbildung implementiert werden kann.

Inken Carstensen-Egwuom und *Sibylle Machat* widmen ihren Beitrag dem Konzept des Lernbereiches „Globales Lernen“, der seit dem Sommersemester 2014 an der Europa-Universität Flensburg im Masterstudiengang Lehramt an Grundschulen institutionalisiert ist. Dabei wird verdeutlicht, wie der Lernbe-

reich entstanden ist und wie er in die Gesamtstruktur des Masterstudiengangs eingebunden ist. Zudem wird das inhaltliche Konzept vorgestellt und die organisatorischen und inhaltlichen Erfahrungen werden kritisch reflektiert.

Seit einigen Jahren wird an der Universität Kassel daran gearbeitet, BNE auch aus der Perspektive Globalen Lernens in die Lehrerbildung zu integrieren. *Eva-Maria Kohlmann* und *Bernd Overwien* stellen PRONET – PROfessionalisierung durch VerNETzung, ein Kasseler Projekt der „Qualitätsoffensive Lehrerbildung von Bund und Ländern“ und der „Länderinitiative zur Umsetzung des Orientierungsrahmens“ vor, das sich seit 2015 gezielt der Einbindung eines außerschulischen Lernortes zu globalen Entwicklungen in die Schulpraktischen Studien des Faches „Politik und Wirtschaft“ widmet.

Sudeshna Lahiri befasst sich in ihrem Beitrag mit BNE und Umweltbildung in der Lehrerbildung in Indien, wobei sie u.a. auf eine landesweite Reform der Studiengänge der Lehrerbildung im Kontext des National Curriculum Framework for Teacher Education eingeht.

Wie gewohnt erhalten Sie auch in dieser Ausgabe weiterführende Informationen zum Globalen Lernen und zur internationalen Bildungsforschung etwa in Form von Rezensionen und Veranstaltungshinweisen.

Eine anregende Lektüre wünschen

Bernd Overwien und Marco Rieckmann
Kassel und Vechta im September 2017

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WAXMANN

Sudeshna Lahiri

Education for Sustainable Development in Teacher Education in India

Zusammenfassung

Im Kontext des National Curriculum Framework for Teacher Education (NCTFE 2010) hat in Indien eine landesweite Reform der Studiengänge der Lehrerbildung stattgefunden. Ein besonderer Platz wurde der Pädagogik der Umweltstudien in den zweijährigen B.Ed.-Programmen eingeräumt. Zudem wurde Umwelt- und Bevölkerungsbildung als Wahlfachkurs eingeführt. Außerdem wird in der Pädagogik verschiedener Schulfächer berücksichtigt, wie eine Auseinandersetzung mit umweltbezogenen Fragen in unterschiedlichen Studienströmen stattfinden kann. Da die Umwelt keine politischen Grenzen hat, können die Fragen, die lokal sind, nicht isoliert betrachtet werden. Daher ist es notwendig, die Bildung über die Umwelt in der indischen Wissenschaft und Gesellschaft in den Blick zu nehmen, die traditionell ist und ihre eigenen indigenen Praktiken hat. Es ist erforderlich, globale Umweltbelange anzusprechen, und wie sie die lokale Gemeinschaft beeinflussen, sollte Teil des Curriculums sein – vor dem Hintergrund Indiens auf dem Weg zu einer nachhaltigen Entwicklung.

Schlüsselworte: *NCTFE 2010, Lehrerbildung, NCF 2005, Umweltbildung*

Abstract

There has been an overhauling of teacher education programmes across the nation, in India, post National Curriculum Framework for Teacher Education (NCTFE 2010). A special place has been given to the pedagogy of Environmental Studies in the two-year B.Ed. programmes. Moreover, Environmental and Population Education has been introduced as optional course. Consciously, it has been kept in consideration in pedagogies of different school subjects: how issues related to environment could be imbibed with different streams of studies. As environment does not have political boundaries, thus, the issues which are local may not be considered in isolation. Hence, it is necessary to trace the education about environment in Indian scientific community and society which is traditional and has its own indigenous practices. It is required to address the global environmental concerns and how they are affecting the local community should be part of the curriculum in the backdrop of India towards sustainable development.

Keywords: *NCTFE 2010, teacher education programme, NCF 2005, environmental education*

Introduction

The peninsular India has been lavishly granted with four seasons round the year. The nature has given the country lush greenery, beautiful dessert, Himalayan ranges with its arms stretched; coastal area with bays and delta region; and innumerable water bodies. A country with rich resources of flora and fauna still striving with the quest: do people know about their environment? How should people behave responsibly towards the environment? The fear is alarming as the modernization which the human beings are enjoying, at the cost of environmental degradation, has resulted in various environmental problems not only for the creatures on the earth but also for the humans themselves. Human impact is the main source of environmental problems, while humans are also the answer to solving these problems (Bradley, Waliczek & Zajicek, 1999). Needless to mention, environmental issues are best handled with the participation of all concerned citizens, at every strata of the society and education. At national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes (United Nations Environment Programme, 1993).

Thus, the research on environmental education finds its suitability to be conducted upon teacher education. The reasons may be many, but most importantly, teacher not only teach students, but also shape their knowledge, attitude and behavior by exerting a great influences through his/her own personality. They also write textbooks, help in curriculum development, and also guide locally in various issues. Thus, if they have the knowledge of environmental education, teachers may help their students to acquire environmental literacy as well as be environmental responsible citizens through inculcating attitude, interests, feelings, motivations, responsibilities and concern for the environment. Therefore, the National Council for Teacher Education (NCTE, 2005), statutory body responsible for the teacher education in India, clearly recognizes the crucial role of teachers and teacher educators in creating environmental consciousness amongst all sections of society. The NCTE also highlights the need for Environmental Education (EE) to be made compulsory and taught as an integral component of teacher education. Thus, the present article discusses Education for Sustainable Development in Teacher Education in India.

The questions addressed are: What is the stake of India and Indian academe to inculcate sustainable development? And how does environmental education find its place in teacher education in India?

EE in Teacher Education in Global and Local Perspective

The studies in advocacy of environmental education in teacher education institutions argue that teachers for K-12 schools to produce environmentally literate people, must first have the ability to green the curriculum (Jickling, 1997; McClaren, 1989; Lin, 2002; Ormond et al., 2014). Environmental education is inevitable in making people knowledgeable and aware of the environment and its problem as well as their own role in environmental conservation, preservation and management (Bhattacharjee, 2015). Moreover, Shobeiri, Omidvar and Prallahada (2006) opine that the key of successful environmental education is in the hand of classroom teachers and if teachers do not have knowledge, skills and commitment to implement the curriculum, it is unlikely that an environmentally literate student will be produced. For this to occur, special training should be rendered to prospective teachers. Ravindranath (2007) points out that it is necessary to recognize the need and importance of environmental education. Recently, several efforts have been made to reorient and reorganize school education and establish environmental education more formally. School textbooks, in all subjects and at all levels, have been revised to integrate environmental concepts. He elaborates that the effects of these curricular revisions will not be sustained unless they are coupled with appropriate changes in teacher education curricula. The concern arises are regarding the human beings and their relationship with environment. Do they have awareness about the environmental issues? How do they perceive the environmental risk? Which kind of hazard they consider more risky? And the pattern of behaviours they adapt to save and restore the environment? Hence, it is the pressing need of the day to include environmental education in the school curriculum from primary school level to higher education including teacher education programmes.

Researchers have conceptualized environmental education as: a process of recognizing values and clarifying concept in order to understand and appreciate the inter-relatedness among man, his culture and his bio-physical surroundings (Bhattacharjee, 2015). Many of the assumed forms taken up by environmental education are characterized by the programmes through the inclusion of diverse lenses on pedagogy, including those of experiential education, critical pedagogy, constructivism, and place-based education (Ormond et al., 2014). However, research realizes that the stakeholders involved in the development and implementation of the Sustainability Education in an Environment of Diversity (SEED) module are left feeling melancholy as discovered dark matter in difficulties with implementing a true community of practice for environmental learning hosted within the structure of a large and diverse teacher certification programme in Canada (Ormond et al, 2014). Moreover, research studies, from around the world, continue to inform that environmental education and sustainability programming are encountering significant obstacles in being integrated into teacher education (Beckford, 2008; Lin, 2002; Tilbury, 1992).

The research paints a sad picture of the scarcity of environmental education as a significant component in teacher education programmes (Ormond et al., 2014). In similar line, Pandya (2006) reports that preservice teachers are provided with very little opportunity to learn whole school approaches to EE that would take them outside the traditional school curriculum.

EE and Sustainable Development in Indian Diaspora

The quest is pertinent in the context where appropriate agencies under Government of India has framed policies and issued guidelines to make citizen aware of the environment. In 1976, the Constitution of India underwent the Forty-second (42) Amendment by incorporating Article 51A with the heading "Fundamental Duties". Thus, the Clause (g) of Article 51A refers the duty of every citizen to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures. Subsequently, Water Pollution Control Act came in the year 1981 and finally, the Environment Protection Act 1986 had been laid. The Indian constitution laid down the responsibility to protect and improve the natural environment and that was how a Department of Environment was established by the Government of India in 1980 and a Ministry formed in 1985. Moreover, India has adopted a new paradigm of thinking and experience of development post-Stockholm Conference of 1972 called Sustainable Development (SD), following which, India has become a part of 187 countries agreeing on carrying out an important commitment towards SD by signing the Rio Declaration during 1992 UN Conference on Environment and Development. However, the widespread practices for the promotion of environmental education in India have been unsuccessful through the years in many ways. In spite of going through several recommendations by agencies constituted by Government of India towards sustainable development, unfortunately, to date environmental education is linked with the 'Environmental Studies' that focuses on providing children with scientific facts and figures on global environmental problems (Siddiqui, Siddiqui & Khan, 2006). The education system, in India, has incorporated certain aspects of environment in the curriculum. The Indian Education Commission (1964–1966) recommends the study of environment in Grade III and IV at school level (NCERT, 1970). In 1984, the Centre for Environment Education has been established as a Centre of Excellence in recognition of the importance of environmental education in India, supported by the Government of India and at that time, it is the only organization to actively engage in environmental education. The urgency of environmental education is realized by various Education Commissions including National Policy of Education-1986 (Bhattacharjee, 2015). Consequently, National Policy on Education (NPE) 1986 (modified in 1992) has noted that there is a paramount need to create a consciousness of the environment and this aspect will be integrated in the entire educational process (Government of India, 1986). A transformation in environmental law in India began in 1985 when an Indian lawyer, M.C. Mehta, persuaded India's Supreme Court to rule that Article 21 of the Indian Constitution, which guarantees each citizen the "right to life," should necessarily include the "right to a healthy environment"¹. Afterwards, in 1991, the Supreme Court of In-

dia accepted that awareness of the environment should be through the medium of education and its problems relates to pollution should be taught as a compulsory subject. In 1991, Mehta obtained the original Supreme Court order, requiring mandatory environmental education to fulfil the fundamental duties of citizens to “protect and improve the natural environment,” as set out in India’s Constitution. This gives direction to the University Grants Commission that monitors under graduate and post graduate studies to take appropriate steps to prescribe a course on environment in Universities. The Supreme Court of India, further, adds that every State Government and every Education Board connected with education, up to the secondary school or Grade X or stage even intermediate colleges (Senior Secondary or Grade XII), to immediately take steps to enforce compulsory education on environment in a graded way. Subsequently, to make sure its implementation, the Supreme Court of India, in 2003, directs its States and other authorities to take steps to see that educational institutions, under their control, should implement respective steps taken by them. Non-compliance of the same by any of the institution should be treated as a disobedience calling for instituting disciplinary action against such institutions. The judgment may be cited as, “The Honorable Supreme Court in its Judgment delivered on December 18, 2003 in Writ Petition No 860 of 1991 has directed the NCERT to prepare a model syllabus for environmental education to be taught at different grades. The Supreme Court directs all the States and educational agencies in the country to introduce environment as a compulsory subject in all classes in schools up to the higher secondary level from the academic year 2004–05.² It directs the National Council for Educational Research and Training (NCERT) to frame a model syllabus for the schools keeping in view the 1991 judgment and submit it before the court on or before April 14, 2004, so as to enable them to consider the feasibility to introduce such syllabus uniformly throughout the country.” The Fourth International Conference, November 24, 2007 on EE, hosted by the Government of India and cosponsored by the UNESCO and UNEP, in Ahmedabad declared (Almeida, 2014), “Through education, human lifestyles can be achieved that support ecological integrity, economic and social justice, sustainable livelihoods and respect for all life. Through education we can learn to prevent and resolve conflicts, respect cultural diversity, create a caring society and live in peace”.

The research in the area of environmental education in teacher education programmes and institutions take a prominent field of studies, especially when the United Nations Educational, Scientific and Cultural Organization (UNESCO) identified, as early as in the 1990s, teacher education programmes and teacher educators as major players in the reorientation of education to address sustainability (UNESCO, 2005). The reason is momentous as explained by UNESCO (2005), for such an emphasis on teacher education programs, is that: “Institutions of teacher education fulfill vital roles in the global education community; they have the potential to bring changes within educational systems that will shape the knowledge and skills of future generations” (cf. Ormond et al., 2014). Furthermore, National Curriculum Framework for Teacher Education (2004), in India, recommends objectives and sensitivity to meet the challenges towards environment. For introducing environmental education for developing

awareness among trainee-teachers (Bhattacharjee, 2015), the National Curriculum Framework, 2005 (NCF 2005), India, designed by National Council of Educational Research and Training (NCERT) re-recommends the inclusion of environmental studies in curriculum. As per NCF 2005 at the primary stage, the child should be engaged in joyfully exploring the world around and harmonizing with it. The objectives, at this stage, are to nurture the curiosity of the child about the world (natural environment, artefacts and people). Moreover, science and social science should be integrated as environmental studies with health as an important component. At the upper primary stage, the child should be continuing to learn more about the environment and health. At the secondary stage, students should be engaged in activities and analyses on issues concerning the environment and health.

Society, Culture and Environment

When the question is raised: what is the stake of India and Indian academe to inculcate sustainable development, it is realized that Indian culture, society and education is pronouncedly interrelated. The scriptures suggested that the schools or Gurukul during ancient India were residential in nature with the Shishyas or students and the Guru or teacher living in proximity (Altekar, 1934). An interesting citation by Tiwari (2009) illustrates: how environmental science emerged from Vedas. The very word Paryavarana (meaning Environment) encircles us, and is all around in our surroundings. In the Atharvaveda, words equivalent to this sense (of surrounding and encircling) are used as Vritavrita, Abhivarah, Avritah, Parivrita. The Vedic view on environment is well-defined in one verse of the Atharvaveda where three coverings of surroundings are referred as: ‘Wisely utilize three elements variously which are varied, visible and full of qualities. These are water, air and plants or herbs. They exist in the world from the very beginning. They are called as Chandansi meaning coverings available everywhere.’ According to the indigenous theory established in the Upanishads, Tiwari explains that the universe consists of five basic elements viz, earth or land, water, light or luster, air, and ether. And thus, the nature has maintained a status of balance between and among these constituents or elements and living creatures. These meaning and versus from Vedas is in concurrence with the Environment (Protection) Act, 1986, defining the environment as follows: “Environment includes water, air and land and the inter-relationship which exists among and between water, air and land and human beings, other living creatures, plants, micro-organisms and property.” Further, the Upanishads explains the interdependence of these five great elements or Panch Maha Bhuta (Earth, Air, Space, Water and Fire) in relation to Brahman (or supreme reality) from which they arise as “From Brahman arises space, from space arises air, from air arises fire, from fire arises water, and from water arises earth” (Baranwal, 2011). In the dicta for prevention of pollution in Manusmruti (Bhattacharya, 2014), there is an environmental awareness and also, inculcation of environmental education as:

- Biodiversity means all living forms broadly ascribed as Chara (movable living world) and
- Achara (immovable: plant kingdom).
- Pollution refers to spoilage of the five gross elements by unethical activity.

- Contamination refers to any action against wholesomeness (Ssoucha)
- Storage organs of plants like tuberous roots and underground stems, leafy vegetables, beautiful flowers, tasteful fruits, timber yielding trees, crops etc. remained objects of allurements in that period. For saving the plants and their parts from injury, Manusmriti describes various punishments for the offenders.
- Importance is given for conserving and domesticating animals, biodiversity protection, and vegetarian food habit. According to Manu, agriculture causes injury to animals, especially the insects and germs in the soil.
- For biodiversity protection, he mentioned that fishes of all types should not be killed for food purpose; one hoofed animals, village pigs, solitary moving animals and unknown beasts should be protected; carnivorous birds, birds of village habitat, web footed birds, diving birds feeding on fishes, birds with striking beaks should not be killed for the purpose of eating.

How environment can be part of the human life and education had been greatly envisaged by Rabindra Nath Tagore in India, the first Nobel laureate. He envisioned an education that was deeply rooted in one's immediate surroundings but connected to the cultures of the wider world, predicated upon pleasurable learning and individualized to the personality of the child. He felt that a curriculum should revolve organically around nature with classes held in the open air under the trees to provide for a spontaneous appreciation of the fluidity of the plant and animal kingdoms, and seasonal changes.³ Thus, he founded "Visva-Bharati" Vishwa Vidyalaya (or University) under the realm of mother earth at Bolpur, India. Hence, sustainable development is the mode and way of life in Indian society since time immemorial.

Initiatives towards Environmental Education for Sustainable Development

The policy makers and educational reformers in Indian academe have been honest in their intention when it comes to incorporating sustainable development and EE in teacher education and school education. In 1937, the Nai Taleem or Basic Education has been proposed by Mahatma Gandhi in a movement to incorporate environment in education (Almeida, 2014). Later, The National Policy on Education (1986) emphasizes the need to create awareness of environmental concerns by integrating it in the educational process at all stages of education and for all sections of society. The last two decades have been crucial in deciding upon the curriculum and its framework. The National Curriculum Framework for School Education (2000) clearly mentions in its draft that all vocational education programmes and activities must stress the concept of sustainable development with a focus on fostering the awareness of the key environmental concerns and the rights of all to a decent standard of living. The National Council for Teacher Education (NCTE, 2005), India's top governing body for teacher education, clearly recognizes the crucial role of teachers and teacher educators in creating environmental consciousness amongst all sections of society (Almeida, 2014). While it recognizes the importance of EE in teacher education, it also

acknowledges the lack of work in the sector. The NCTE also highlighted the need for EE to be made compulsory and taught as an integral component of teacher education (National Council of Teacher Educators, 2005). Moreover, NCF (2005) believes that making children sensitive to the environment and the need for its protection is another important curricular concern. The emergence of new technological choices and living styles witnessed during the last century has led to environmental degradation and vast imbalances between the advantaged and the disadvantaged. It has become imperative now more than ever before to nurture and preserve the environment. Education can provide the necessary perspective on how human life can be reconciled with the crisis of the environment so that survival, growth and development remain possible. Moreover, science and social science may be integrated as environmental studies at primary school curriculum. At secondary classes, geography should be taught keeping in mind the need to inculcate in the child a critical appreciation for conservation and environmental concerns along with developmental issues. The craft should be taught with environment friendly raw materials and integrated with the school subjects. The NCF (2005) also recommends for school education as: the significant concerns are best realized by infusing the components of environmental education as part of different disciplines while ensuring that adequate time is earmarked for pertinent activities. This approach can be meaningfully employed in the treatment of content in physics, mathematics, chemistry, biology, geography, history, political science, health and physical education, art, music etc. Activities constructed for life situations become a meaningful means for the engagement of learners. Further, National Curriculum Framework for Teacher Education (NCFTE, 2009/10) amply suggests that the teachers need to reconceptualize citizenship education in terms of human rights and approaches of critical pedagogy, emphasize environment and its protection (NCTE, 2010). Also, the critical perspective of environmental education falls within the rights perspective that asserts the role of education in sustaining a democratic social order. There has been monitoring agencies and departments established by National Council for Educational Research and Training (NCERT). The Annual Report by NCERT (2013–14) informs that the Department of Education in Science and Mathematics is responsible to undertake research, development, training, evaluation and extension activities related to science, mathematics and environmental education especially for the upper primary, secondary and higher secondary stages. A significant area of the department's work has been the development of syllabi, textbooks and other instructional materials in environmental education. The Instructional Material Centre (IMC) of the department undertakes collection and dissemination of information on all aspects of environmental education and also holding Organisation of Jawaharlal Nehru National Exhibition for Environmental Education for Children. This Department under NCERT also undertakes the responsibility of Monitoring the Implementation of environmental education by all States/UTs in compliance with the Hon'ble Supreme Court's Order (NCERT, 2015). A very recent document, National Education Policy (NEP, 2016), recommends that the schools must help to inculcate key qualities and attitudes, like, regularity and punctuality, cleanliness, selfcontrol,

industriousness and a spirit of entrepreneurship, sense of duty, desire to serve, responsibility, creativity, sensitivity to greater equality, respect towards women, care for the elderly, a democratic temper and an obligation to preserve the environment (NUEPA, 2016). Moreover, sustainable development of a nation can be realized only if all sections of the society have equal opportunities. Further, NEP realizes that it is imperative, now, to work seriously to achieve the Sustainable Development Goals (SDGs) by 2030.

EE and Sustainable Development in Teacher Education Programmes

The National Council of Teacher Education (NCTE), India, gives recognition and accreditation to Diploma in Elementary Education (D.Ed. or D. El.Ed.); Bachelor of Education (B.Ed.) and Master of Education (M.Ed.). There has been an overhauling of teacher education programmes across the country. As a result, one-year teacher certification programmes have gone to assume two-years (and four semesters) programme for B.Ed. and M.Ed. While framing the guideline, NCTE outlines the possible outcomes of introducing D.Ed. programmes, such as, to impart principles of sustainable development to student teachers and foster positive attitudes and values towards environment. The specific objectives⁴ of the Pedagogy of Environmental studies for D.Ed. (two years programme) are to:

- help student-teachers understand the scope of Environmental Sciences and internalize different perspectives of curriculum organization.
- facilitate student-teachers to probe children's ideas in science and social science
- prepare student-teachers to plan for and carry out classroom transaction in the light of various theoretical viewpoints of learning.
- prepare student-teachers to assess children's learning using different pathways.

The expertise needed by the teacher educator or Master trainer should be Master's degree in science/social science with an understanding of environmental education. The units of the syllabus plans to introduce following concepts for trainee-teachers or pupil-teachers:

- Unit 1: Concept of Environment Studies
- Unit 2: Understanding Children's Ideas
- Unit 3: Classroom Transaction and Assessment
- Unit 4: Planning for Teaching

Similarly, NCFTE 2010 suggests three broad curricular areas: (A) Foundations of Education; (B) Curriculum and Pedagogy; and (C) School Internship, for initial teacher preparation in B.Ed. programmes. The contemporary studies, within the umbrella of Foundation of Education, give an importance to environmental rights; issues and concerns with sustainable development. The critical perspective of environmental education also falls within the rights perspective that asserts the role of education in sustaining a democratic social order. In order to implement NCTE Regulations, 2014, Higher Education Department, Government of West Bengal, India, has prepared a uniform curriculum⁵ for all the teacher education institutions, in the state, to be implemented for B.Ed. and M.Ed. The course

for Environmental Education in B.Ed. is framed under the name of Environmental & Population Education. The objectives of the course are to enable the teacher students to:

- understand the concept of population and environmental education,
- know the objectives and methods of teaching environmental and population,
- be aware of population and environmental education policies,
- help teachers students analyze the various issues related to population and environmental education.

The course essentially includes: concept of environmental education; sustainable development; issues related to environmental education. The Gazette Notification (2009) by NCTE illustrates its regulations-2009 for B.El.Ed. that should have Pedagogy of Environmental Studies.

Eco-Feminism and Teacher Education

Within the curriculum of Bachelor in Education (B.Ed.), the Eco-feminism has found its place in the course Environmental & Population Education. The term Ecofeminism may be coined by the French writer, Francoise d'Eaubonne, in 1974, but it has special relevance in Indian diaspora. The environmental protection for sustainable development has found that women in India have a momentous role in running legendary movements at society and environmental-friendly practices at household. Post-Independence, in 1947, environmental movements have emerged from the Himalayan regions of Uttar Pradesh to the tropical forests of Kerala and from Gujarat to Tripura in response to projects that threaten to dislocate people and to affect their basic human rights to land, water, and ecological stability of life-support systems. The role of women was immense in the success of movements, e.g., Chipko Andolan; Save the Bhagirathi and Stop Tehri project committee (Manu, 1984) in Uttar Pradesh; Save the Narmada Movement (Narmada Bachao Andolan) in Madhya Pradesh and Gujarat; youth organizations and tribal people in the Gandhamardan Hills whose survival is directly threatened by development of bauxite deposits; the opposition to the Baliapal and Bhogarai test range in Orissa, the Appiko Movement in the Western Ghats; groups opposing the Kaiga nuclear power plant in Karnataka; the campaign against the Silent Valley project; the Rural Women's Advancement Society (Gramin Mahila Shramik Unnayan Samiti), formed to reclaim waste land in Bankura district; and the opposition to the Gumti Dam in Tripura (Seema, 2014). Gender sensitiveness in environmental education is considered critical in Indian societies where women are still the main responsible for the private sphere (household and childcare). On one hand, being the main responsible for the household provides women with a distinguished knowledge about the environment, on the other hand, women in the societies continue to be far from the public sphere where key decisions regarding environmental problems are taken. The distinguished female knowledge and perspective about the environment should be useful to empower women themselves and to contribute to environmental policies in the public level (Nogueira Martins, 2016). From a feminist political ecology perspective, Dey, Resurreccion & Doneys (2014) argue that interacting with tradi-

tional culture, forest ecology and changing processes of centric resource governance, gender remains a salient variable in environmental issues. However, local contexts of gender dynamics help configuring local people's mode of participation in environmental struggles as well as being the consequence of those struggles. Hence, the very content and concept of eco-feminism to be included in teacher education programmes is relevant as, in India, women are still in disadvantage where 78 % of them have completed the secondary school against 80.4 % of men (World Bank, 2013).

Conclusion

It is estimated that 70 % of people live in rural India which is close to nature and sometimes amidst of nature. Indian society is traditionally bound and no education system could be thinkable without keeping in mind the immediate society. Thus, the education system in India blends its school and higher education curriculum with the traditional practices which are pro-environmental. However, the modern India, sometimes, in the state of confusion which does not know how development could be made without destruction. Hence, there are movements and agitations by the local citizens who coexist with the nature and their livelihood comes from the nature. It is interesting that Indian traditional practices, not only encourages pro-environmental behaviour in its daily life, but also sustainable development. With time and rapid development, environmental issues and concerns are erupting. No sooner than, India has realized the long fetched destruction, policies and recommendations are made to create environmental awareness and instil environmentally responsible behaviour among citizens. In this regard, education served as a vehicle and a top-down approach has been maintained. Introducing environmental education and studies in teacher education curricula is among one of those momentous initiatives. If a future teacher is aware, he/she will be able to inculcate responsible behaviour among the students. Thus, the curriculum has been consciously crafted to update trainee-teachers about the global environmental issues and make them act locally towards better tomorrow. As part of its efforts to create greater environmental awareness and inculcate responsible behaviour, India has kept up with global trends ushering numerous policy reforms that call for environmental education and education for sustainable development (Supreme Court of India, 2003; National Commission for Education Research and Technology, 2005; National Council for Teacher Education, 2009; National Council of Teacher Educators, 2005) aimed at overhauling the education sector to help create a strong environmentally sensitive citizenry (Almeida, 2015). The pedagogies of the different school subjects, as per NCF 2005 and NCFTE 2010, have been framed to keep the environmental concepts and issues in the curriculum. As gender plays the social construct in Indian society, it is felt necessary to recognize the contributions of women folks in different movements to stop environmental degradation. Moreover, the daily chores, beliefs and practices in society should not be left isolated. The practicum and activity based curriculum designed for teacher education programmes help to identify and promote the pro-environmental behaviour. However, environmental education for sustainable development, designed for different levels of academe, has long way to go. In this regard,

NEP 2016 admits that Goal 7 of the Millennium Development Goals, to ensure environmental sustainability, has to be addressed by 2030. In sum, the education about environment in teacher education programmes in India still has to go under litmus test, whether the school teachers who have undergone the new curriculum (post NCFTE 2010) are successful in instilling awareness about sustainable development among their students?

Notes

- 1 c.f. <http://www.ecology.edu/environmentaleducation.html>; accessed on July 20, 2017
- 2 c.f. <http://www.ecology.edu/environmentaleducation.html>; accessed on July 20, 2017
- 3 c.f. <http://infed.org/mobi/rabindranath-tagore-on-education/>
- 4 source: <http://www.ncte-india.org/DED.pdf>; accessed on July 20, 2017
- 5 source: wbhed.gov.in/readwrite/uploads/UCSTT.pdf; accessed on June 6, 2016

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