



CLIMATE CHANGE : PUBLIC CONSCIOUSNESS THROUGH EDUCATION

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ABSTRACT

The education for climatic change is outcome of environmental concourse which has taken up the fore seat in educational reforms throughout the globe. The proposed program of education of climatic change would need an attitudinal shift towards changing the parameters of growth and development , which should be based on principles of sustainable development . According to the Intergovernmental Panel on climate Change (2009) and Albert Arnold (Al) Gore Jr. Who received Nobel Peace Prize in the year 2007 "Resolving environmental issues do not so much involve the need for novel technologies and new legislations as an entire change of collective consciousness. this implies a major transformation in the order of the global society . Lack of and insufficient of education violence wars and conflicts leading to disruption of value systems, migration unequal access to goods and lack of governance are considered to be among the primary contributing factors for the degradation of the environment and the slow progress of international peace.

The degradation of environmental resources mirrors the totality of mental , physical , economical, cultural, aesthetic and social circumstances and factors which surround and affect the quality of people's 'lives' . Thus , all efforts towards spreading awareness regarding the climatic change should be taken in totality bringing about qualitative behavior change mentioned in present paper.

Such initiative may begin with introducing needful changes in Educational policies , programs and curricula which would further provide impetus for the identification of climate change education tools, materials and good practices. In addition to that the mobilization and engagement of networks and partnerships in support of climatic change education would be seriously needed to make it a national and global movement.

In nutshell a holistic societal participation will serve the purpose of minimizing climatic change in which education has to provide leadership for nurturing and propagating environmental friendly behavior among the present and future citizens of the country and the globe.

Key Words:- Climate Change Education, parameters of growth and development , Intergovernmental Panel, degradation of environmental resources, Educational Policies, Educational Programs, Holistic Societal participation,,

INTRODUCTION

The modern world is seriously thinking towards preservation of environmental resources consequently reducing the pace of climatic change. Over the course of the last few years , there is probably no other issue that has been received greater global attention than climate change (jape et al ,2009)

Scientifically evidence of climatic change has been accumulated for over two decades. Indisputable evidences exist that Earth's climate warmed by one degree last century, that the 20th century was the warmest in at least 1,000 years and that the main cause has



been an increase in green house gases, primarily Carbon Dioxide form 280 parts per million (PPM) in 1860 to 380 ppm in 2004. Burning of fossil fuels particularly coal and oil , has been the signal most instrumental factor in these climatic events.

The tremendous loss of habitat and biodiversity and the severe disruption to human societies will result in rapid climate change making it the most critical challenge not only for human beings but all living species too.

Some of the serious implications of climatic changes in the globe are so severe that there are strong views from different corners that the growth of modern world has actually led us towards dooms day. Advancements in things that require fossil fuels reduces the amount we have, and if burned , emits carbon dioxide into the air. Advancements in other exploitation techniques can also get rid of things such as forests, , acquirers, and other natural resources that we need. Technologies such as the invention of the vehicles, air conditioning and other advanced gadgets have caused air pollution. Carbon dioxide and other green house gases are released into the air, causing global warming. Industrialization has also accounted the phenomenon.

Under such alarming state of affairs urgent measures are needed so that such threats of modern world may be minimized . Looking to the role of education in shaping up the knowledge , skill and attitude of the future citizen could be the best way for providing education for climatic change.

Justifying Place of Education:-The age old agency called education is being seen as a remedy for inculcating such desirable change in the behavior of future citizens so that an effective citizenry may be matured who will demonstrate energy saving behavior for minimizing the effect of climatic change.

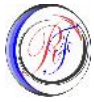
According to UNESCO (2009) , Education needs to take into consideration the following implications of climate change.

- All levels and forms of existing educational and teaching , learning programs need to be reviewed and re-oriented to address the causes and consequences of climate change.
- Climate change requires educators to include new content into education , training and public awareness programs.
- Creativity problem solving and social transformation skills need to be developed and nurtured.
- Positive participatory action and solution centered approaches to education and learning need to be developed.

The above dimensions identified by UNESCO are quite pertinent to develop environmentally ethical behavior among future generations. These dimensions could also serve as roadmap towards education for climatic change.

The first dimension has sound implication for curricular changes at all levels of education . Emanating from primary education which is considered to be the foundation days for the learners , the inclusion of contents related to climate changes must go up to higher levels of education. In the elementary stages it could be more focused to conceptual understanding whereas there may be shifting towards, understanding the disastrous catastrophe of climatic change in the higher stages of education.

In the second dimension of the perceived role of education, it requires a holistic approach towards transaction of such contents to the learners. This may be with the inclusion of new contents and further redesigning of new kind of teaching learning process; such type of learning process which may ensure environmental friendly behavioral change among the learners.



According to Papadimitriou (2004) , ‘ Educating students about issues of global climate change is a challenge for educators because the traditional didactic strategies are inappropriate and so new innovative instructional approaches and techniques should be created. Traditional ways of teaching which are largely based on the transmission ways of teaching , which are largely based on the transmission of knowledge, are inappropriate as they do not help pupils to use the knowledge learned to understand real issues form everyday life.

There is need to bridge the attitudinal gap between knowledge and skills so that the knowledge gained and skill developed under education setting should really be used in form of extending and showing environmental friendly behavior.

Overall it has been visualized under education for climatic change that it should enable the learner towards development of social transformation and participatory skill which may be brought towards preservation and at the same time dissemination of knowledge , skill and attitude related to environmental ethics. Such type of education of climatic change will also initiate to develop creative solutions of these problems by upcoming responsible members of the society.

The education for sustainable development (ESD) could also be one of the vital ways of educating the individuals towards climatic change. Under ESD students are taught to develop a sense of sustainable living which is not possible unless due provision is provided for education for sustainable change. ‘sustainable development education is an approach that not only delivers knowledge and understanding but also enables learners to act on this information to change their behavior . and high quality education must ensure that these aspects are brought to life , understood , acted upon and evidenced through their lives in the wider community . The 2005 UK Sustainable Development Strategy also notes that “Formal education has a crucial role to play in both raising awareness among young people of sustainable development , giving them the skills they need to put sustainable development into practice in later life. But also in forming good habits at an early age. Policy also suggests a role for school in delivering community wide behavior change . For example in 2006 Sustainable schools consultation highlighted Government aspiration that by 2020 all schools should be models of energy efficiency and renewable energy, showcasing wind, solar and bio fuel sources in their communication---

The Curricular Goals of Education for climatic Change:-

Although the efforts for environmental education has begun much before but it is not delivering the desired fruits, as studies conducted on secondary school students reveal that they are not too much clear about the climatic change. The secondary students is reported that climatic change in general UV Radiation bounced off the earth surface . Heat of thermal rays emitted form the sun , Increase of the incoming UV or general solar radiation by the ozone layer depletion . Studies conducted by Boyes et al ;Boyes & Stains street and Freneau et al also showed that secondary students do not consider CO₂ as a greenhouse gas and a segment of students also found who are not considering water vapor as a greenhouse gas.

Thus , the findings of the studies suggest that imply that all the onset of the education for climatic change, there is need to seriously design the expected behavioral changes with definite curricular goals which would further be supported with authentic teaching , learning procedure. The learning outcomes must be categorically specified into knowledge, skills and attitude dimensions so that the proper pathway for lesson designing may be cleared. Although the movement for environmental education has begun much before but the expected behavioral change is still a distant task. Further, the target behavioral change in context of climatic change has also not been paid adequate attention by the researchers

and the educationists. While the research evidence relating to changing the behavior of existing adult consumers continue to grow.. There has been little research relating to the role that educating children play in delivering behavior change in both the short and long term. Hoody (1995) identified a fundamental lack of impact evaluations of environmental education schemes, especially any exploring 'follow up or long term effects.'

In addition there has been little attempt to bridge the gap between the two bodies of literature (behavioral theory and educational theory) and education per se does not tend to feature in the theoretical literature on pro- environmental behavior change .

Therefore there is need to implement environmental education as a long term goal which should induce proper environmental behavioral change.

In context of climatic change also there is a particular set of behavior which is to be nurtured among the future citizens of the country. The identified behavioral change will serve as a parameter to adjudge the effectiveness of a particular environmental education program under goal of providing education for climatic change.

The Carbon Trust in UK has published a report 'the role of education and schools in shaping energy related consumer behavior' which suggests some criteria for estimating the efficacy of any effort for providing education for climatic change . The report suggests that analysis of any such program by reviewing the current state of knowledge relating to children's understanding of and attitudes to which these insures are currently being taught in schools . It goes on to explore the available evidence on the extent to which they can.

*** Deliver long term behavior change :- Does educating children about energy mean that they will be better energy consumers as adults?**

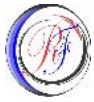
The above dimensions indicate a permanent behavioral change among the learners. It conveys that education for climatic change should not be taken as adjunct of the curriculum but there is need to focus permanent behavioral change while designing instructional procedure of transaction of such curricula. What are the different energy saving behaviors and how important it is to develop such kind of behavior? such question needs to be addressed by the teachers so that the learners may internalize the theme of education for climatic change. For such type of education the evaluating strategy would also need drastic change. The evaluation procedures should be focused on more qualitative terms instead of dependability on quantitative expression of the outcome.

*** Deliver short term behavioral change:- Does educating children about energy mean that children will modify their own energy related behavior?**

If a child is switching of f the light before leaving the classroom and how economically he is using the school and home water tap are some of the examples to judge if child has received education for positive change in behavior. Apart from it, there is need to focus on purchasing behavior of the learners , how effectively the child is favoring the decision of buying a compact fluorescent light (CFL) or any A rated electrical appliance are some of the behavioral traits to judge the behavioral change among the learners.

***Deliver household behavior change :- Does teaching children about energy result in them influencing the energy use of their parents and other household members?**

The next important level is how the child is percolating the behavioral change into the behavior of his immediate family . This aspect is more important in light of low educated or illiterate parents in rural set up. where awareness about hazards of climatic change is not known. In such families the child may include energy behavior of the whole family particularly among sibling and his parents. Even among the



educated families evidence may come in the form of advising in the family for changing the purchasing behavior and routine energy saving behavior of the siblings and the parents.

***Deliver community wide behavior change:- Can schools influence the energy saving behaviors of individuals within the communities in which they are situated?**

The last and rather most important level is that how students are working as a social agent. Since every person is educated with the objective that his abilities will be brought for the welfare of the society the highest goal of education for climatic change should be that the learner will work as a social agent for introducing social transformation. A transformation which will bring a larger awareness among the society members and the nation for conserving the natural energy resources.

In the report of national Energy Trust, U.K. (2005), some examples of behavioral changes have been quoted. Which could serve to be proper guidelines for formulation of curricula and determining the behavioral changes under education for climatic change.

Table -1 depicts the desired behavioral change among learners under education for climatic change. Starting from some minor behavioral changes which can be tackled up during the elementary classes complete and major behavioral changes have also been given which may be useful for targeting behavioral change at later stages.

Challenges in Education for Climatic Change :-

According to Matsuura (2010) “Climate Change education is about helping learners understand and address the impacts of global warming today. While at the same time encouraging the change in attitudes and behavior needed to put our world on a more sustainable path in the future. The definition highlights to focus sustainability in our educational endeavor a type of education which would develop respect and appreciation for natural resources and utilization of these resources under the parameters of sustainable development. In Indian setting there is need to highlight our age-old virtue of self contentment among the learners so that the growth and development should not be achieved at the cost of human life in future.

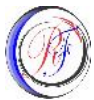
Definitively the task for education for climatic change is stupendous which should be met out with proper involvement of each stakeholders. The challenges for providing effective education for climatic change may be ---

- Effective integration of climatic change education into educational programs and school curricula

The first challenge would be related to restructuring the present educational program under the principles of education for climatic change. What would be the content according to different stages of education? And under what form (as a separate subject area or in interdisciplinary approach) education for climatic change would be provided will be the basic issue for its implementation. Apart from it the whole aspect related to the status of subject would also be paid adequate attention.

- **Support for Teacher training program on climate change education:-**

Any reform in education can not be brought in the absence of trained and dedicated teachers. There is need to infuse contents related to pedagogy of such important issues in the teacher education program. The prospective teachers should be able to design ideal teaching learning process while dealing such contents and be familiar with peculiarities related in teaching environment should form the base of teacher education program. An attitudinal change among the teachers would also require to take education for climatic change in the right spirit.



*** Enhance the exchange of experiences and good practices on climatic change education among ministries , teachers, practitioners and young people. :-**

Teaching about climatic change is such important issue that it can not be dealt in isolation. The effective practices developed by certain segment of teachers or practitioners should be mutually exchanged for the welfare of whole country and the globe . More attention or researchers and the theory builders needed in this area so that effective practices may be introduced and propagated.

The task of Environmental conservation cannot be left solely on education . A collaborative effort will ensure effective implementation of such programs. Community participation in form of resources mobilization and necessary tangible and intangible support will serve in a great deal to provide impetus for the movement of environmental conservation. There are many national and international agencies (Governmental and non-governmental organization, various scientific and environmental related organization and some renowned international bodies like UNESCO , WWF , World Heritage sites, biosphere reserve etc.) that are researching and working in this area. The findings of their research studies and the necessary data base would definitely provide qualitative inputs for efficacious delivery of educating for climatic change.

*** Provision for learning materials and good practices on climate change education and enhance their dissemination:-** The present age has been appropriately termed as information age. The pace of communication is unparalleled today. Such channels of communication should be used for the dissemination of good practices and learning materials related to education for climatic change . Awareness about global warming and climatic change is not a regional issue but this is then issue which has gained global prominence. Therefore, in dissemination of environmental conservation too global cooperation should be sought, it is happening but so far it is delimited towards financial liabilities. There is need to stretch this discourse towards enrichment of our classrooms. Learning materials and in all the dissemination of effective education for climatic change.

In the context of challenges discussed so far there is need to view education for climatic change in the global perspective . Emanating the movement from schools there is need to join hands in this movement so that the future citizens of the country may grow with keeping such behavior which is environmental friendly and aware of energy saving behaviors mechanism.

CONCLUSION

The education for climatic change is outcome of environmental concourse which has taken up the fore seat in educational reforms throughout the globe. The proposed program of education of climatic change would need an attitudinal shift towards changing the parameters of growth and development , which should be based on principles of sustainable development . According to the Intergovernmental Panel on climate Change (2009) and Albert Arnold (Al) Gore Jr. Who received Nobel Peace Prize in the year 2007 "Resolving environmental issues do not so much involve the need for novel technologies and new legislations as an entire change of collective consciousness. this implies a major transformation in the order of the global society . Lack of and insufficient of education violence wars and conflicts leading to disruption of value systems, migration unequal access to goods and lack of governance are considered to be among the primary contributing factors for the degradation of the environment and the slow progress of international peace.

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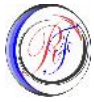
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