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AN ASSESSMENT OF AVAILABLE RESEARCH EXERTIONS ON SUSTAINABLE DEVELOPMENT

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Abstract:- An attempt has been made in this work to assemble available research exertions on Sustainable Development. This research provides categories which help in giving a comprehensive and quick review of available literature on the topic. This study is useful in many ways. On one side it provides a number of research exertions at one place and on the other it categorises different researches on the basis of their theme. It also explains the trend of researches. After reading this article one may be competent to get an idea about different dimensions of researches on Sustainable Development.

Keywords: Sustainable Development, Literature review, Categories of researches.

INTRODUCTION :-

This article discusses the research work done on sustainable development. Sustainable Development is an umbrella term, its applicability can be seen in different fields of study like environment, agriculture, resource, energy, performance of different projects, economic viability etc. For convenience, the assessment of available literature on Sustainable Development has been divided into different groups.

1-RESEARCHES IN SUSTAINABLE DEVELOPMENT OF ENVIRONMENT

Venu (1992) in his article highlights that after the world wars, both technological innovation and environmental degradation have increased manifold. Now technology must help in reducing the degradation and promotion of sustainable development. This constant call for innovation can retard the rate of resource depletion throughout the economy by reducing the inflows of material and energy, for example, through the optimum use of energy, re-use of waste materials, improvement in energy efficiency, redesigning the products etc. Better techniques of environmental improvement and hand and water management in agricultural systems could also mitigate decline in environmental quality. However, all such efforts depend on a clear understanding of the ecological impact of pollution and resource depletion.

Environmental practices may lead to commercial advantage if adopted proactively rather than in response to market demand for ethical or 'green' products. Future debate should focus on common ground between regulators and business, and on shared responsibility for excluding 'free-rider' companies not willing to adopt environmental practices (Forsyth, 1997). On the other hand, Clark (1995) has out rightly declined the compatibility between economic development and environmental protection. Clark (1995) disagrees with the insistence by economists that all natural resources be given a dollar value and capitalistic approach. Sustainable development weakens local autonomy and social welfare is a key component of environmental health. But such studies are few. The main idea of most of the researches is that there is a relationship between economic development and environmental protection which can be materialised if it is dealt with due care. One such study (Cater, 1995) has looked into the relationship between tourism development, socio-economic development and the environment and has found it to be circular and cumulative. Most tourism activity places additional pressures on the environmental resources upon which it is based, compromising the present and future interests of tourist and host population as well as of tourism organizations. Without adequate environmental protection, prospects for development will be undermined. There is an essential need to build on the positive links between the environment and tourism and to break the negative links. In today's world, development is exploiting the world's natural resource reserves at alarming rates. By many accounts, this exploitation is unsustainable (Worldwatch Institute, 2003).

In this context Nanjundappa (1999) recorded serious consequences of unsustainable environment use on human health, livelihood and security. This is same in both the rich and poor countries with differences across the class strata with poor at the receiving end of environment damage. To rectify such a situation Tewari (2000) favours stabilisation of population with emphasis on equitable distribution of resources. The rising population has serious implication on food and water security, healthcare, rural and urban service and sustainability of ecosystem.

In this process the role of the community is foremost. Communities must take responsibility for choosing where and how development should proceed. Each locality should evaluate its environmental resources and hazards, choose future losses that it is willing to bear, and ensure that development and other community actions and policies adhere to those goals (Mileti and Gottschlich, 2001). The importance of culture has also been emphasized in a study conducted in Bali by Mitchell (1994) where the traditional Balinese culture is important for harmony among people, between people and their environment, and between people and their God. The prospects in Bali therefore are good for balancing economic, environmental, and social considerations in development. Furthermore, traditional organization such as got on groyong (voluntary work groups), subaks (irrigation groups), banjars (neighbourhood organizations) and the desaadat (traditional villages), all based on cooperation and consensus building, provide a strong foundation on which to implement sustainable development ideas.

It is crucial that countries should make efforts in this direction. Though there are differences in the approach to sustainability with developed countries taking sustainability as a passion as they have already developed, the developing countries are more concerned with survival (Vackayil, 1996). But efforts have been started. There are signs that China may indeed move near the turning point of an Environmental Kuznets Curve (EKC) along with economic growth. Sustainability efforts are increasing along with more effective pollution control and the growth of the Eco-Demonstration Construction Program. More developed provinces tend to have more Eco-Communities and more developed eastern China contains the majority of China's Trial Eco-Provinces. Wealthier communities appear to be more effective in environmental protection when they decide to take the sustainability approach, since they are economically stronger (Lee, 2008).

India is also making efforts in this direction both at the government and non government levels. Vinodh (2011) carried out a case study in an Indian sprocket manufacturing organisation. The existing sprocket has been created by using Computer Aided Design (CAD). The environmental impact has been measured in terms of carbon footprint, energy consumption and air/water impacts. It has been found that the optimised sprocket design possesses minimal environmental impact. The result of the case study has indicated that CAD and Design Optimisation could lead to the development of sustainable design with minimal impact to the environment. Pophali and Dhodapkar (2011) present an overview of sustainability of implementation of Common Effluent Treatment Plant (CETP) in Southern India. The implementation of a CETP for the treatment of combined wastewater from small-scale tannery has proved to be a techno-economic option and has offered an environmentally and economically sustainable method of treatment. The implementation of CETP is a true example of a step towards sustainable development and suggests that this concept can be effectively used for the treatment of various industrial wastewaters emanating from small-scale clusters.

2-RESEARCHES IN SUSTAINABLE DEVELOPMENT OF ENERGY

Jha (1992) emphasized that for increased energy supply, minimum damaging impact on environment should be made a part of the strategy for sustainable development. Coal based power plants are highly polluting yet they are set up without caring for environment. In case of vehicle pollution also, the corrective measures are restricted mainly to the supply of lead-free petrol and installing catalytic crackers only. Even strict environmental safety standards are often watered down by the industrial lobby.

The shift towards renewable energies like solar energy can provide sustainable development. Brian et al. (2011) examined a terrace of 6 similar, passive solar dwellings with sunspaces and its effects on occupants' behaviours and their energy efficiency. It was found that the demand for average annual space for heating was less than expected. It is indicated that the potential benefits of passive solar gains in the form of renewable energy are more. The demand for heating space also varies, depending upon the behaviour of dwelling occupant. So, Brian et al. further studied 31 personal ecological footprints (PEF) in terms of environmental sustainability. They compared between residents of contemporary eco-homes and a range of traditional house types practising permaculturists. They found that the Personal Ecological Footprint of the average eco-home dweller was 1.6 times higher than that of the permaculturists. It is concluded that by improving education, more efficient way to reduce domestic energy demand can be achieved.

The analysis of Komatsu et al. (2011) indicates that households with Solar Home Systems (SHS) successfully reduce their consumption of kerosene and dependency on rechargeable batteries, with the cost reductions accounting for some 20–30% of monthly expenditures on Solar Home System. Moreover, most households with SHS can enjoy its benefits, including electric lighting, watching television, and the ease of mobile phone recharging at home. Further, the price reduction can make possible potential demand in more than 60% of households without SHS, while additional price reductions promote the purchase of even larger SHS packages. Their study concludes that even though the scale of single SHS is small, the micro-benefits for each household and the dissemination potential are substantial.

3-RESEARCHES IN SUSTAINABLE DEVELOPMENT OF AGRICULTURE

Shrivasatava (1994) holds that for sustainable agricultural development, efforts should be made to bring science and technology closer to the farmers through education, training and extension set-ups. Ecologically sound methods of arable farming, and increase in the water retaining capacity of agricultural regions, a reduction in soil erosion and fertility depletion, an increase in the human vegetable intake and a resulting reduction in resource of gobbling animal farming will all have to play a part in an ecological revolution in agricultural production throughout the world.

Pilgeram (2011) in his article analyzes the complex sustainability of sustainable agriculture. The author uses both interviews and participant observations method in eight farms of Pacific Northwest. His research finding reflects that farmers of this area are highly aware and respond to the class politics of sustainable agriculture. They also know about the class system that restricts their access to sustainable farming as an occupation. The labour of the farmer is often exploited in order to regulate prices. Farmers express a desire to make their goods more accessible and affordable. Even they want to market their foods to the upper middle class consumers. In this development, education and often-lucrative off-farm income provide help to the farmers. For justifying their exploitation, they use their own idealism. The study concludes that there is a negotiation established between farmers, social ideals and the actual practice of sustainable agriculture in a capitalist system.

In a regional study Angeles and Torbotton (2001) studied agriculture sustainability in Ladakh and suggested 'the burden of preserving sustainable agriculture should not be placed solely on the shoulders of Ladakhi women and “Third World” farmers but also on other global civil society forces, governments in both rich and poor countries, international agencies, and agro-industrial corporations, which must refrain from using their own power in order to keep the powerless from having a voice in matters that affect their lives. Personal and political change and organizing efforts of likeminded individuals around the world, who would bring this change and commitment to their workplace and communities, are the keys to the flourishing of counter development models that bring to light the diversity, instability and disunity of capitalist practices'.

The analysis of Marc et al. (2011) demonstrates that heterogeneous farming strategies and their synergies at community level should be carefully assessed. They conclude that integrated assessment and creation of an enabling environment can enhance space for sustainable community-based bio fuel production and use. It may provide insights into the opportunities and constraints for different types of smallholders, and promote the development of adequate policy mechanisms to prevent bio fuels from becoming a threat rather than an opportunity for smallholders.

4-RESEARCHES IN SUSTAINABLE DEVELOPMENT OF WOMEN

Agarwal (1988) in her article outlined that for the survival of poor women in the informal sector the role of organisations like Self Employed Women's Association (SEWA) and Working Women's Forum is essential. These organisations have provided credit and other support to poor women in their areas of operation. These are helping agencies for the survival of poor women and their family, and support their sustainable development.

In another article the author highlights that tribal and poor peasant women, through a mutual, creative and non-violent interaction with nature, have been significantly arranging their family livelihood. However, the provision of gender division to collect livelihood for family has given women an unequal access to productive resources, especially land, technology, control over social and political space and decision-making, employment and other income-earning opportunities etc which are dominated by men. Women are also deprived from basic means of self-reproduction, food and healthcare. The present scenario is not only of high socio-economic inequality but also of a growing destruction of nature, of people dependent most critically on nature (tribal, poor peasants, and especially women in these communities), and of the knowledge that such people possess about nature. This inequality in the access of resources provides a deep insight not only into the politics of organising women at the grassroots level but also their responses to poverty and patriarchy and demand for survival (Agarwal, 1989).

Both the pre-existing and the institutionally created gender inequalities are found to have reduced women's ability to cooperate voluntarily in local forest management, as well as their incentive to do so. In particular, the substantial gender-gap in economic endowments, gendered social norms and perceptions, the rules governing the institution, and the power of coercion underlying gender relations (at home and in the community) significantly constrain women's voluntary cooperation. Rather, these inequalities create tendencies among women toward noncooperation, or toward non-voluntary cooperation and non-voluntary non-cooperation (Agarwal, 2007).

Ho and Cheung (2011) based on a survey of 1076 Chinese migrant and native mothers living in three low-income communities in Hong Kong, China examined linkages between neighbourhood walk-ability which means that the workplace, day care centre, and community organization are within the resident's walking distance and social sustainability. Importantly, neighbourhood walk-ability facilitates some of the migrant mother's social sustainability and reduces the disadvantages of being a migrant woman. The results of study strengthen the need for redesigning facilities for the low-income community to improve their socioeconomic sustainability as walk-able distance to workplace, day care centre and community organizations reduce the cost of transportation.

5-RESEARCHES IN SUSTAINABLE DEVELOPMENT OF URBAN AREA

Salat and Nowacki (2011) from their study of Mediterranean cities such as Toledo, Firenze, and Santorini have found

that these cities long before the industrial revolution have conceived in symbiosis with their environment. They notably show that the form of these cities has been able to adapt to the passing of time and the appropriation by different civilisations, thus showing an incredible resilience. The study of Mediterranean cities provides lessons of sustainability for three reasons. First, they have lasted more than 2,000 years adapting and keeping marks of each period of their history. Second, they have carried meaning for their inhabitants as individuals and communities. All this, is a fundamental concept for social preoccupation of the cities and their sustainability.

Kyvelou, et al. (2011) present key perspectives of local public-private partnerships (PPPs) in Greece with respect to the effort of adapting urban governance towards sustainability. Their study concludes that PPPs appear to be a good practice offering local governments the opportunity to overcome a number of constraints and claim a more active role in local policies towards sustainability.

6-RESEARCHES OF SUSTAINABILITY OF PROJECTS

Batschari (2002) has studied the three Community projects in rural KwaZulu-Natal in South Africa in partnership with Development Education at the German Development Service (DED) and found HIV/AIDS is one of the biggest challenges to sustainable development, not only for the communities but also for all stakeholders involved in development work since the local persons who were trained by people of DED service died due to HIV/AIDS.

In another study Davies and Wismer (2007) have found that the government of Hainan has not yet been able to manage both social welfare and environmental and economic issues, demonstrating the difficulty of implementing sustainable forestry and of balancing with long term goals. The inclusion of Li communities in forestry-related decision making could reduce tensions between local communities and forestry management and also improve the sustainability of the government's forestry practices.

Kumar et al. (2011) are appreciative of several government and non-government agencies that have launched watershed-development projects to tackle the challenges of soil conservation, improving land productivity, and economic uplift of the rural poor for efficient use of natural resources. Participatory community-driven institutions of integrated watershed management are considered vital for the sustainability of natural resources.

7-RESEARCHES ON POLICIES FOR SUSTAINABLE DEVELOPMENT

Alva's (1995) analysis points to the worst environment and development problems in countries with the worst record for observing trade union rights. 40% of the world's poor live in Bangladesh, India and other South East Asian countries and another 20% lives in China. While poverty leads people to use scarce resources to a maximum level, wealthier people consume more resources which further eat into world resources. In the developing world one person in three lacks access to safe drinking water and sanitation. Organised trade unions are one of the most potent social forces to deal with these kinds of problems.

For reducing poverty and achieving efficient management of resources Mishra (1993) suggested that in a developing country, the resources for development are very limited and scarce and in order to use and conserve them properly communities need to be mobilised physically, psychologically, financially and materially. This will minimise the cost of the development projects. Community participation will encourage people to develop their own confidence instead of depending upon the government, and become self-reliant which is a key to development. To improve the efficiency and efficacy of sustainable development programmes, the hand-in-glove relationship between the people and development organisations may be beneficial for both. It helps in understanding the positive as well as negative attitudes of the community towards a particular set of activities and ultimately helps in accelerating the process of participation. A start can be made by helping and allowing the poor and dispossessed to organise themselves to fight for their rights.

On the other hand Valente (2011) observes that in the environment of competition, behaviour driven by self concern and inefficient skills accretion may act as hurdle in sustained growth. 'Implementing the utilitarian optimum is likely to induce sustainability via increased knowledge formation, but resource depletion may be faster or slower than under laissez-faire depending on the social discount rate. Heavy (modest) social discounting delays (anticipates) the achievement of net welfare gains for newborn agents and successors. The reason is that human capital accumulation magnifies the positive growth effects of policies that lower the rate of resource destruction, preserving the welfare of newborn agents'. If resource depletion policies continue, it will hamper the growth and limit the welfare to the preceding generation. In that circumstance the first loser will be the young generation.

Evans (2011) highlights that in the context of a series of economic crises that happened between 2007 and 2009, there seems to be a certain amount of overlap between debates. The issues of debates concern the economic crises and long term environmental problems such as climate change. One of the interesting points of overlap is a renewed interest in philosophy. The severity of problem now tries to shorten by optimistic commentators offering some hope. A return to self-denial practice provides a unique opportunity for the search of sustainable consumption but a note of caution is offered that the passage from the economic recession to sustainable consumption may not be as clear as might be hoped.

CONCLUSION

These are various researches on Sustainable Development. After reading these researches, an idea can be generate about dimensions that study sustainable development in different segments of development.

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