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ROLE OF PEOPLE IN GREEN BUILDING DEVELOPMENT IN WARDHA, VIDARBHA REGION, INDIA

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ABSTRACT:
Green building concept introduced by Indian Green Building Council is the one which uses less water, conserves natural resources, optimizes energy efficiency, generates less waste and provides healthier spaces for occupants, compared to a conventional building. Indian Green Building Council is increasing the concept of green building in the country simultaneously increasing activity related to that. A green building concept focuses on the inter relationship between the building and its surrounding so that the building does not have any negative impacts. It does this through focusing on design which leads to reduced energy and water consumption by the inhabitants, healthy indoor environment quality and use of smart materials (which don't consume huge energy). Green building is the groundwork of the maintainable structure growth. Construction industry with the high contributes with gross domestic product, has undeniable impacts on the economy. Although green buildings provide a wide range of benefits for the society, green building development suffers from different kinds of market barriers in developing countries including India. In order to meet green building development in Wardha in Vidarbha region, India. This practice expands and compliments the classical building design concern of economy, utility, durability and comfort. This study aims to investigate the level of developing green building in the current situation, to find important key players and to identify, and to eliminate the important obstacles to green building development.

Keywords :- Green building, Peoples, Construction, Development, Chandrapur.

INTRODUCTION :

"Indian country" generally refers to land within an Indian reservation or land in federal trust (land technically owned by the federal government but held in trust for a tribe or tribal member). Several examples of commercial and residential facilities that have incorporated green building and sustainable design can be found in Indian Country and this area has much potential for growth. There are approximately 350 existing hotels, motels, and resorts, as well as 300 casinos and bingo halls located on tribal lands in the U.S. (U.S. EPA, 2000).

In India, the Green Building Movement was adopted by the Confederation of Indian Industry (CII) in 2001.They formed the Indian Green Building Council (IGBC) which is actively involved in promoting the Green Building concept in India. Their vision is, ―To enable a sustainable built environment for all and facilitate India to be one of the global leaders in the sustainable built environment by 2025‖. The Green Building movement in India started gaining momentum since 2003,from just about 20,000 sq.ft in 2003 to 450 crores sq.ft green footprint in India today. A green building is one, which uses less water, optimises energy efficiency, conserves natural resources, generates less waste and provides healthier spaces for occupants, as compared to a conventional building. It is also known as a sustainable or _high performance' building. There are various systems in the form of design standard or practice code worldwide to enhance the use of green building design. Usually their

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performance is based on certain sustainability criteria which are combined to assess the design effect (Manna and Banerjee, 2019). These criteria, in general, focuses on sustainable sites, water efficiency, energy and atmosphere, material and resources, indoor environmental quality.Green building is also known as green construction or sustainable building. Refers to a structure and using process that is the environmentally responsible and resource-efficient throughout a building life cycle: from sitting to design, construction, operation, maintenance, renovation and demolition.

Recently, climate-change, energy crisis and increasing environmental pollution have made the sustainable development issue receive a great attention from the world (EPA, 2008). With growing concern of community about negative effect of human life on the environment, United Nation (1992) lunched the sustainable development document in Rio de Janerio in order to protect the environment (Parkin, 2000). Sustainable development tries to improve a quality of life for current people and future generation (Bossel, 1999). Many definitions of sustainable development are represented in the different contexts and scopes.

Sustainable development can be defined "as growing natural and industrial resources which meet the energy need of the present times without settling the ability of next generations for meeting their needs in the same manner" (Hill, 2003). In addition, the United Nations (1987) explains that "sustainable Word development is a collection of methods in order to relieve poverty, create the equitable standards of living, satisfy the basic needs of all peoples, and set up sustainable political practices all while taking the steps essential to avoid irreversible damages to be natural environment in the long-term". One of the enormous and most important industries known as the largest polluters on the environment is the construction industry (Horvath, 1999).

Green Development. Environmental Design. Green Buildings. Sustainable Development. High-Performance buildings. These terms refer to the same fundamental concept: improving the built environment while minimizing the impact on the natural environment.

Green Building: Green building is an important area where cities can implement sustainability objectives. Green buildings are designed to reduce negative impacts on the environment while increasing the occupant health, by addressing
these five categories:

- Sustainable site planning
- Safeguarding water and water efficiency
- Energy efficiency, renewable energy and lower greenhouse gas emissions
- Conservation and the reuse of materials and resources, and
- Improved health and indoor environmental quality

The environmental impact of buildings is often underestimate, while the perceived costs of green buildings are overestimated. Kats et al. (2003) comprehensively examined the costs and benefits of green buildings.

Governmental bodies can use lessons learned from pilot projects to determine what should become standard City practices. This helps address sustainability in urban and suburban environments, as municipalities may own and operate many properties. But perhaps equally importantly, building sustainability into City and State practices shows the governmental body "walks the walk" and does not just "talk the talk." This then gives the public sector organization more credibility when requiring or encouraging others to implement green development practices.

Many developers and property owners may feel there are higher costs or increased risks

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associated with green development practices. Financial incentives may help reduce the sense of risk and overcome market barriers associated with new practices. The need for incentives may dissipate over time, as costs for green features come down and confidence in green features goes up.

MATERIALS AND METHODS:

Study Area: Wardha city is in the Vidarbha region, India. Wardha is situated in Center of Vidarbha Region of Maharashtra state. Wardha gets its name from the Wardha River which flows at the north, west and south boundaries of the district. Founded in 1866, the town is now an important center for the cotton trade. It was an important part of the Gandhian era. It has various parks and playgrounds. The range of average temperature of Wardha city is 6.2 ^{0}C to 48.4 ^{0}C. The population of Wardha city is 1,06489 (2019). It is also a premier education place for the people of the region.

Methodology: The role of people in green building development, for the present investigation three sites were selected, these are Residential Areas, School/Colleges and Commercial building. The survey method was used in this investigation. For survey one questioner with 30 questions was prepared. Fifty sites each of Residential Areas, School/Colleges and Commercial building were selected. Survey was carried out by using questioner at respected sites.

Questioner for the survey report of Green building project (House/ School/ Commercial Building)

i. Have you installed Solar cell as power supply for the ventilation fan?
ii. Have you installed a solar heater for the domestic hot water?
iii. Have you installed water saving toilet with low flush?
iv. Have you installed rainwater-harvesting system in your Building?
v. Have you installed rainwater collection system for garden irrigation?
vi. Have you install fresh air ventilation.
vii. Have you Installed glass door and windows for natural lighting in your building?
viii. Do You Know benefit of Green building?
ix. Have you installed low energy lighting bulb in your building?
x. Do you have curbside recycling?
xi. Have you planted trees in your Courtyard?
xii. Have you done native landscaping for the trees in your garden?
xiii. Have you applied wood, natural stone, pre-ceramic tiles as flooring material?
xiv. Have you installed energy efficiency appliances (Ex. Freeze)?
xv. Have you Placed Light color tiles in your building?
xvi. Have you placed white color paint for roof, gate and outer wall?
xvii. A nature playing ground is available in your house.
xviii. Space for composting Container is Included in your garden Place?
xix. Have you any barrier to build or renovate green?
xx. Would you like to convert or renovate your building?

RESULT AND DISCUSSION:

People now days are more concerned about the environment, since they know the effect of pollution on environment and human's health. Green building development awareness in people depends on education, economic status and proper knowledge, which help to understand the basic concept of green building. The site wise data and its percentage of all 20 questions were completed and represented in table. Survey report shows that the windows for

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fresh air ventilation was placed in building and that has effect on temperature control and it also enhance mood, reduces stress. It was study, that the natural features like trees and light are beneficial for human health. It was observed that, 35% tree plantation were done in houses and Schools respectively. 55 % people knows the benefit of green building and rest 45 % needs the awareness about green building development. It was observed that only few people know and applied rainwater harvesting.

CONCLUSION:

The study has highlighted the concept, designs and management of green building in study area. The peoples of Wardha city are very much affected by heat and pollution caused by vehicular activity and cement construction like buildings and road. The finding reveals the uncertainty on people awareness towards the green building. It is noticed that, maximum people are ready and like to convert or renovate their building into green building. Awareness among peoples and students about green building development is necessary. If people are suggested and educated through different media about green building benefit for human being and environment, they will star adapting concept of green building.

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Table 1: Survey result of green building benefits from respective sites in percentages (%):

Question No.	Residential Area		Schools/College		Commercial Building	
	Yes	No	Yes	No	Yes	No
i.	65 %	40 %	55 %	35 %	40 %	65 %
ii.	55 %	35 %	40 %	65 %	65 %	40 %
iii.	35 %	55 %	35 %	55 %	65 %	40 %
iv.	55 %	35 %	35 %	55 %	10 %	85 %
v.	55 %	35 %	35 %	55 %	10 %	85 %
vi.	35 %	55 %	35 %	55 %	35 %	55 %
vii.	65 %	40 %	65 %	40 %	35 %	55 %
viii.	55 %	35 %	55 %	35 %	55 %	35 %
ix.	85 %	10 %	95 %	00 %	95 %	00 %
x.	35 %	55 %	35 %	55 %	35 %	55 %
xi.	55 %	35 %	10 %	85 %	35 %	55 %
xii.	55 %	35 %	65 %	40 %	35 %	55 %
xiii.	55 %	35 %	95 %	00 %	00 %	95 %
xiv.	35 %	55 %	35 %	55 %	00 %	95 %
xv.	65 %	40 %	65 %	65 %	65 %	65 %
xvi.	55 %	35 %	65 %	40 %	55 %	35 %
xvii.	10 %	85 %	00 %	95 %	00 %	95 %
xviii.	65 %	40 %	35 %	55 %	65 %	40 %
xix.	55 %	35 %	65 %	40 %	40 %	65 %
xx.	55 %	35 %	65 %	40 %	55 %	35 %

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