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TRANSFORMATION AND REGENERATION OF ABANDONED QUARRY IN PUNE (BHAMBURDAVANAVIHAR) INTO EDUCATIONAL AND RECREATIONAL ADVENTURE PARK

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ABSTRACT

A quarry is an area from which rocks such as basalt, marble, limestone and granite are extracted for industrial use, Once washed-out of their desired resources, quarries are frequently abandoned. The resulting gaping holes can fill with water and form dangerous quarry lakes while others are turned into unsightly landfills. Abandoned quarry is a land type that causes great demolition to ecological environment, destroying the city visualization and leads to waste of land resource. It is a very close problem about how to carry on the rational transformation to form the sustainable and functional use of this land.

Nowadays, in Pune the landscape areas, which we would like to see as cultural landscape in the future, are currently spoiled by a fast growth infrastructure and eventually the excavations for land development. However the landscape damage done by these things will never recover in the way it supposed to be.

Converting dead areas into water bodies, green spaces and recreation areas creates a significant community asset and can add life to the dead spaces by effective conversion. So far, remediation efforts have focused mainly on utilizing dead space as productive properties so as to example financial costs and risks. The use of environmental economics has proved beneficial in providing a clear answer in regard to the social value of neglected land redevelopment.

This research is based on two hypotheses –

1) *The density of the reuse of dead space requires new innovative approach*
2) *Creative use of dead space can contribute to the city and its people through several significant aspects , it should play a more important role in urban planning.*

Ecological restoration, constructing abundant ecological landscape and artificial landscape, which has a demonstrating function for the ecosystem restore and landscape design of abandoned quarries

KEY WORDS:- *Quarry, Re-Use, Society, Landscapes, Themeparks, Sustainable Development*

INTRODUCTION

Modern society is becoming more and more exhausted by the lifestyle, commercialized and dominated by constant determined to meet the needs of civilization. Spare time, simplifying the recovery of psychophysical balance, is an essential element of this lifestyle. This results in increased interest in various forms of recreation and the search for new recreational and relaxation space.

In recent years, an increased interest in using the opportunities offered by the dead surface, which can be used as sites for recreation and relaxation, can be observed. This is supported by the regulatory requirements for the protection of the environment and the growing needs and expectations of the society towards the regeneration of dead space.

Design for social impact in core, provides a methodology for examining domains of power through systematic questioning, structural and systems-based design thinking, and solutions-based design making. While design for social impact is a relatively new field in the formal sense, certainly all design has social impact.

Success in this field is not marked by the production of an object or the completion of a project, but through extensive observation, feedback and assessment over the long term. Feedback, in fact, is a critical requirement of design for social impact, in that it measures success not based on what the designer thinks has been accomplished, but by the user's experience and response. Social impact is measured both by the

1) Instant benefit— does the system function as planned
2) Organic changes --that occur when people engage in real time and space with those systems and power dynamics. It is in the long-term that we hope change will be visible, not in the moment that the design team completes the implementation of an idea.

AIMS &OBJECTIVE

The paper aims to create an immersive and attractive learning experience for the visitors through the visualization and the representation of the use of dry forest in landscape architecture's design language. It addresses sustainability not only through environmentally low-impact development of the quarry site but also through emphasizing cultural sustainability by integrating innovative and rich educational programs. As a future landmark destination, the project has the potential to bring multiple benefits to the Pune community where the site is located, including raising land value and strengthening public space networks and more importantly, creating a sense of

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belonging and honour. This document aims to provide guidance on an appropriate methodology for the planning of renovation, including the formation of new landscape features, such as slopes and faces, open amphitheatre, educational park and associated ecologies. The long-term sustainability of any reclamation scheme needs also to be ensured and this requires careful planning and design, appropriate after care and management, to ensure that the new landscape is safe and environmentally beneficial It is hoped that this guidance will provide a recognised approach which can be adopted as a standard for the planning, design and assessment of quarry reclamation proposals.

REVIEW OF LITERATURE

History says, as life gets increasingly busy, it becomes more difficult for people to spend time with their beloved. Thus, it is necessary to keep everyone entertained to ensure a relaxing time when a family break does become feasible. Entertainment provides a way to break away from everyday activity and enjoy a refreshing moment together. He/she wants a theme park where the environment would be established, all the five human senses would be excited for experience accumulation (Bakanauskas 2006) Modern society wants fantastic, more powerful experience, newer and stronger events Entertainment use of the wasting land is becoming a saleable product in the market. It brings geology, ecology and culture together and shows a community working in partnership with artists, designers, education providers and industry can jointly shape the design and sustainable after-use of the quarry landscape. Its quarries, naturally regenerated overtime ,have become places of special scientific interest; but here the quarry will become a place to learn and give back to the earth,

- **JA Edwards, JCL iCoit** found in their research that the tourism potential of industrial sites in general and more specifically of mining areas. Such tourism attractions could be included within the broader framework of heritage tourism.
- **Yang, Xiao** addresses in his paper that cultural sustainability comes by integrating innovative and rich educational programs at quarry and it create a honour to society
- **JasnaCizler** says that his paper is a result of the qualitative research based on observation of the phenomenon of the activation of former industrial buildings and establishing the relationship with theoretical concepts.
- Experience from some non-quarrying contexts has also provided valuable insights.

ABOUT VETAL HILL

Vetal Hill in **Pune** is not just the highest point in the city, with an elevation of 2600 ft, but also qualifies to be called the lungs of **Pune** . Most months of the year (November to June beginning) the *Vetal Hill* is rather dry, though it still attracts its fair share of daily walkers and birdwatchers.



Vetal Hill *(*or वेताळटेकडी as it's called in Marathi) is also rather large, with Pashan Road on one side and S B Road on the other, with the entire Kothrud on the way. On a clear day, especially morning, you can see almost the entire Pune from top and its quite a beautiful sight. It's also the perfect time to take pictures.

Vetal Hill is accessible from multiple points if we plan to climb, based on where we start from. We can climb up from Chhatarshringi, Kothrud (Paud Road) and also from the Pashan side. These climbs are no really marked and will have to ask around to find the right path if we intend to come up here.

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CURRENTSCENARIO





In present condition there is only one access point which was old route for trucks and dumpers for the quarry from where one can go down to the quarry area .Due to old blasting lots of deep counters were formed and now those are converted into small Ponds. These water bodies last long for 8 to 9 months after rainy season till summer. In last 30 years other than some aquatic plants near the pond and some small bushes there is no vegetation mainly due to lack of soil and hard Strata. All the peripheral cliffs are hard and compact and till date there is not a single case of landslide.

As you are aware that this quarry is admits the Reserve Forest of BhamburdaVanvihar surrounded by forest. To reach this location of quarry there are 4/5 access route from all the directions of the quarry. Daily in the morning session and evening session so many natures, health and adventure conscious people of various age groups visit and enjoy this location. Especially the kids and youth groups do come and spend much of the time sitting on the age of the quarry or going down the quarry near the pond, cycling inside the Rough routes of quarry, sitting in isolated corner of the quarry for meditation and yoga, rappelling and rock climbing on the cliffs of the quarry, playing soft music like Guitar, mouth organ etc .It is majorly observed that especially youth like to spend much of their time sitting and chit chatting near this quarry location.

Considering the current condition of the quarry following points like a natural contour, compact cliffs, existing small Ponds, the access road to the query and the pathways inside the quarry are the advantageous elements of design in terms of conversion of query into a properly planned theme and adventure park wherein we can have multiple interesting areas complimenting the total rehabilitation of the abandoned quarry. Moreover that considering the interest of the regular visitors who are nature, adventure, health and bird lovers and kind of activities and actions happening there on daily basis in and around the query respective areas will be carved out in the total

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planning of the quarry so that complete justice will be given to each and every one falling in the above category.

ACTIVITIES OBSERVED IN OR NEAR BY THE QUARRY

Small groups used to sit on the peripheral edge of the quarry and chit-chat and spend lots of time there.




- Bicycle riders used to come inside the quarry through the access road and used to ride inside the rough pathways of the quarry.




- Many adventure lovers frequently visit with all the required gears in small troops for Rock climbing and rippling activities on the compact cliffs of the quarry.




- Many nature lovers and photographers used to come near the pond to capture the nesting birds in the camera; they used to spend hours and hours to get the perfect pose.

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- Music lovers used to sit in isolation inside the quarry to play mouth organ, flute, guitar, being a serene and isolated place sitting here and performing is magical and effective.




- Many morning Walkers used to do yoga and other exercises inside the quarry, many of them like to meditate inside in peace.




- Parents come along with the kids to show the quarry from geological point of view along with rich flora and fauna in the surrounding forest




PROPOSED ACTIVITIES & AMINITIES FOR QUARRY TRANSFORMATION

- **Plantation and landscaping inside the quarry:**

Already quarry has access road and natural contouring with natural pond all these available existing elements can be converted into a proper landscape garden with complete planning where in proper attention and space allocation will be given to all the listed activities in the above all points from the observation list. In that proper isolation for the natural pond and

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birds will be given by providing screening of the plants. Due to this the barren land will breathe once again.

- **Adventure Park**

Along the contours a proper cycle track can be proposed which can cover major part of the quarry without disturbing the other activities one can access the entire park area, the compact cliffs of the quarry with good rock formation can be converted into climbing walls for rock climber and trekking lovers, even zip lines can be proposed from top to bottom of the quarry to add on the adventure and interest.

- **Knowledge Park**

As this quarry is surrounded with forest full of many birds, animals and plants species, in the proposed park inside the quarry a separate space will be allotted for this information along with geological information which can be displayed for the kids to get educate and update.

- **Open Gym**

Along the pathways inside the quarry proposed park open gym equipment's can be installed for fitness lovers.

- **Open amphitheatre**

Away from the pond location in the park area of the quarry open amphitheatre can be proposed for music lovers where they can sit in a solution to perform.



- **Existing pond**

The existing pond can be developed properly with proper screening of trees and privacy from other areas mentioned above will be maintained so that to increase the nesting of birds. Due to plantation and screening evaporation will reduce resulting in availability of the water body for the entire year.

RESEARCH METHODOLOGY

The present paper is based on secondary data, collected from survey and online information, several web sites .Researchers also interacted informally with no of people who are visitors at BhamburdaVanvihar

Sr.no.	Particulars	Details
1	Type of Data	Secondary data
2	Population	BhamburdaVanvihar
3	Sampling area	Public Sector
4	Nature of scours of Data	Quantitative
5	Sampling methodology	Survey
6	Sample Size	50 visitors
7	Period of study	2000-2018
8	Method of Data Collection	Questioning and discussion with regular visitors at quarry

LIMITATION OF STUDY

- The research is based on Secondary data,
- The survey is conducted considering the sample visitors

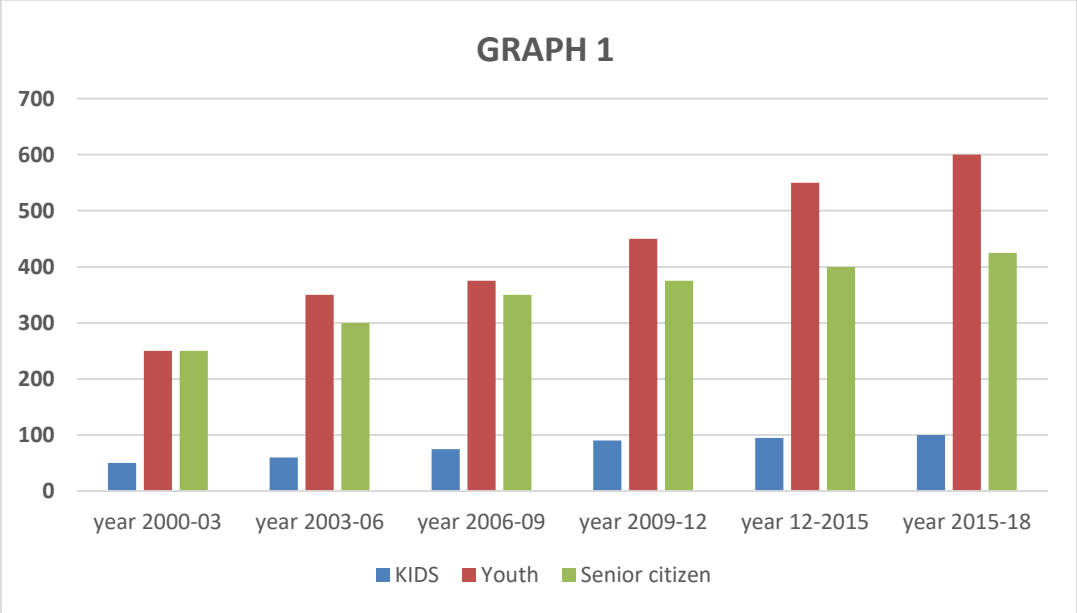
Due to the expansion of land resources use, the sites of non-re-cultivated resources extraction - quarries and other wasting lands are increasing in the landscape. Adaptation of such areas for re-use is becoming a problem of relevant economy: social, economic, environmental. Solution of this problem lies far beyond the current quarry re-cultivation tasks by its scope of issues and aspects of interest.

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DATA ANALYSIS

Table 1:- (Year wise visitors count at Vetal Hill)

Sr.no.	Visitors Choice	Each choice is Count in % out of 100
1	Educational Park	15
2	Theme Park	25
3	Adventure Park	35
4	Yoga & Meditational Park	20
5	Entertainment Park	25
6	Pond	25



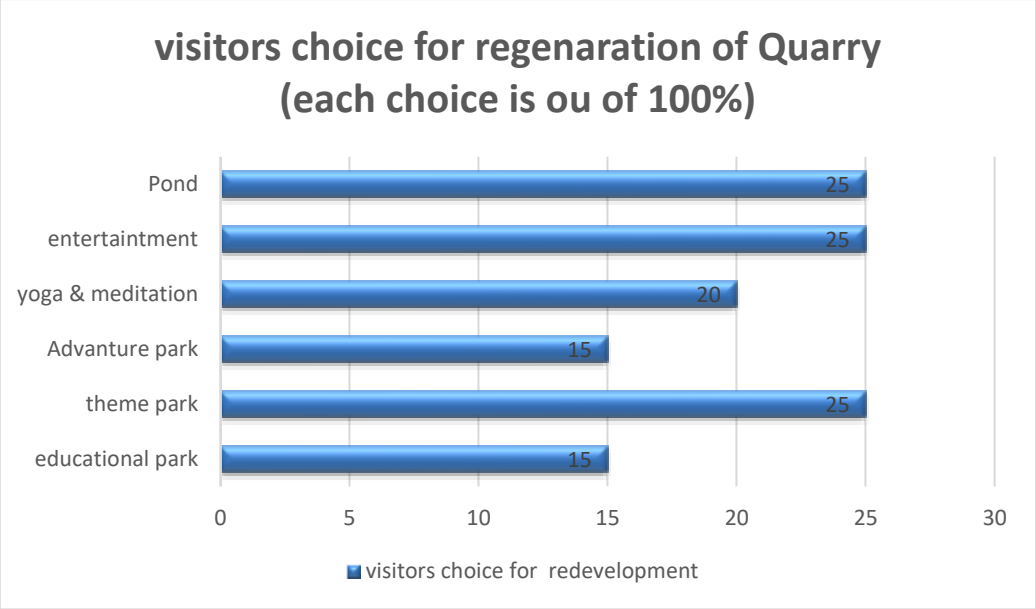
INTERPRETATION

Graph and Table no 1 have discovered that number of youth and kids visitors is increasing over the period of time .As per the review and feedback of the regular visitors it is experiential that During the Diwali vacation and summer vacation graph is showing unexpected growth.

Table 2 :- (Visitors choice for regeneration of Quarry area)

Year	Kids	Youth	Senior Citizen
2000-2003	50	250	200
2003-2006	60	350	250
2006-2009	75	375	300
2009-2012	90	450	375
2012-2015	95	550	400
2015-2018	100	600	425

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INTERPRETATION

Graph and Table no 2 shows the positive interest of the visitors towards the regeneration of the quarry. Considering the various choices, adventure park is most positive and prominent thought coming out through this survey. Then also for other choices listed in the table and graph there is positive feedback from the community from health, environment point of viewfallowing are the observation listed.

FINDINGS

- **Health and Environmental Benefits**

1. Parks and recreation facilities are the places that people go to get healthy and stay fit.
2. According to studies by the Centres for Disease Control and Prevention, creating, improving and promoting places to be physically active can improve individual and community health and result in a 25 percent increase of residents who exercise at least three times per week.
3. Many studies show significant correlations between participating in recreation and reductions in stress, lowered blood pressure, and perceived physical health.
4. Recreation spaces provide a place for children and families to connect together.
5. Along with an increase in physical activity, recreation offers the chance to socialize, an important benefit in itself.
6. Recreation activities can lead to increased confidence, improved creativity and better self-esteem,
7. Recreation allows some to rejuvenate, calm the mind, improve their outlook on life and increase positive affect.

- **Social Importance**

1. Theme parks are a tangible reflection of the quality of life in a community. They provide identity for citizens and are a major factor in the perception of quality of life in a given community. Parks and recreation services are often cited as one of the most important factors in surveys of how liveable communities are.
2. Recreation areas provide gathering places for families and social groups, as well as for individuals of all ages and economic status, regardless of their ability to pay for access.
3. Parks and recreation programs provide places for health and well-being that are accessible by persons of all ages and abilities, especially to those with disabilities.
4. Recreation is linked to improving quality of life.
5. Access to parks and recreation opportunities has been strongly linked to reductions in crime and to reduced juvenile delinquency.
6. Recreation programs and parks provide a sense of public pride and cohesion to every community.

This paper has led to socially accepted results identifying the examined quarries for reuses ranging from forestry and urban to functional or naturalistic. The proposed method might prove to be suitable to address the abandoned quarries reuse problem with a systemic and consultative approach, as it is able to correlate the many variables present in the social and spatial complexity of the Metropolitan Areas. The potential for making connections between discipline and different areas of interest creates new structures that contribute to the sustainable after-use of the quarry landscape and changing perceptions of our world.

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