LANDSCAPE DESIGN STUDIO-3

DECEMBER ,2008

SEM-3

BIODIVERSITY PARK AT NDA HILLS ,PUNE

BIODIVERSITY PARK-AN URBAN OPEN SPACE

PUNE 'THE CULTURAL CAPITAL OF MAHARASHTRA'

- EARLIER FAMOUS AS POONA IS ONE OF THE MOST IMPORTANT CITIES OF WESTERN INDIA, APTLY CALLED THE 'QUEEN OF DECCAN'.
- THE CITY HAS MANY NICKNAMES LIKE 'PENSIONER'S PARADISE', 'THE OXFORD OF THE EAST', 'DETROIT OF INDIA'.
- IT IS FORTH GREENEST URBAN CITY IN THE COUNTRY.
- AROUND 40 PER CENT OF ITS AREA IS UNDER GREEN COVER. (REF: WWW.PUNE.NIC.IN)
- AVERAGE POPULATION OF PUNE WAS AROUND 0.03 MILLION IN 1747, DURING PESHWA TIMES.
- THE PROJECTED POPULATION OF PUNE IS 3.5 MILLION WITH AN ANNUAL GROWTH RATE OF 3.4%. (AS PER THE MINISTRY OF HOME AFFAIRS)

PEOPLE WORSHIP TREES AND PRESERVE IT

PEOPLE ASSOCIATED WITH NATURE IN DAILY LIFE

OPEN SPACES IN PUNE CITY :

- GARDENS
- INSTITUTES WITH CONSIDERABLE OPEN SPACES AND GREENERY.
- HILLTOPS AND SLOPES (TOTAL AREA : 950 HA)
- BIO-DIVERSITY PARKS (TOTAL AREA : 1200 HA)
- FOREST LANDS (TOTAL AREA : 2380 HA)
- RIVER FRONTS

PUNE CITY MAP

BDP -UNIT 2

CONSEQUIENCE OF URBANISATION AND GROWTH

- HUGE AREAS OF OPEN GREEN SPACES HAVE BEEN LOST WITHIN THE PAST FEW YEARS.
- ABUNDANT LOSS OF AGRICULTURAL LAND.
- UNAUTHORIZED URBAN SPRAWL
- INDUSTRIES, I.T, CALL CENTRES, AND OTHER NEW AVENUES OF INCOME
- GENERATION ATTRACT MIGRANT POPULATION.
- POLLUTION LEVELS HAVE INCREASED
- SPECULATION IN LAND AND OTHER RELATED PROBLEMS.

RAPID URBANISATION LEADS TO CHANGE OF LANDUSE AND INCREASE POLLUTION

EXISTING SITE VIEW FROM CHANDANI CHAUK

EXISTING SITE VIEW FROM PAUD ROAD

SITE LOCATION-GOOGLE MAP

SITE PLAN

SELECTION CRITERIA FOR THE BDP SITE:

- EXISTING OPEN PUBLIC SPACES ARE IN CORE ZONE OF CITY. LACK OF PUBLIC SPACES IN THE OUTSKIRTS OF CITY
- THE HUGE CHUNK OF LAND AWAY FROM CORE AREA NEAR VERY FAMOUS FOOD JUNCTION OF THE CITY "CHANDANI CHAUK".
- THE SQUARE AND AREA AROUND IS ALL CROWDED WITH HOTELS LIKE UP AND ABOVE, BANJARA HILLS, GARDEN COURT, KHANA PINA JINA ETC.
- THE HILL NEAR CHANDANI CHAUK IS A PART OF WESTERN GHAT, PART OF WHICH IS WORLD'S ONE OF THE BIODIVERSITY HOT SPOT.
- HUGE CHUNK OF LAND IN CITY'S JURISDICTION BOUNDARY, AS COMPARED TO ANY OTHER OPEN SPACES OR PARKS IN THE CITY.
- PEOPLE GATHER IN A HUGE NUMBER FOR YATRA ON TEMPLE ON

TRAIL FOR BIRDWATCHING

SPACE FOR YOGA

USER OF THE PARK

- THIS PARK WILL PROVIDE HUGE OPEN SPACE FOR PEOPLE RESIDING IN THE NEWLY EXPANDED CITY
- THIS WILL BECOME SPECIAL EDUCATIONAL CENTER FOR NATURE LOVERS AND RESEARCHERS
- TEMPLE ON HILL WILL PROVIDE THE CULTURE IDENTITY FOR URBAN OPEN SPACE

WHY BIODIVERSITY PARK IN PUNE :

CONSTRUCTIONAL DEVELOPMENT ON THE HILLS IN PUNE

- BIODIVERSITY IN PUNE IS CHARACTERIZED BY: HIGHER HABITAT DIVERSITY WITHIN A RELATIVELY SMALLER AREA.
- STEEP HABITAT GRADIENT - HABITATS CHANGE RAPIDLY WITHIN SHORT DISTANCE IN TOWNS AND CITIES. PUNE URBAN AREA HAS SEVEN HABITATS WITHIN A DISTANCE OF 25 KM FROM THE CENTRE OF THE CITY.
- THESE HABITATS ARE: BUILT-UP AREA, RIVERS AND LAKES, WELL WOODED COMPOUNDS, HILLTOPS AND HILL SLOPES' PARKS AND GARDENS, OPEN PLACES – GROUNDS AND SHOULDERS OF THE ROADS AND URBAN AGRICULTURE.
- RAPID CHANGES IN HABITAT AND LAND USE - NEW RESIDENTIAL COLONIES ARE GETTING BUILT ON THE AGRICULTURAL LAND OR GRASSLAND AND SCRUBLAND. OLD WADAS (MANSIONS) ARE RAPIDLY GETTING REPLACED WITH TALL RESIDENTIAL – CUM – COMMERCIAL COMPLEXES, WATER BODIES ARE RECLAIMED, FILLED TO CREATE LAND FOR CONSTRUCTION. NEW WATER POOLS COME UP IN CITY PARKS AND

SITE ANALYSIS

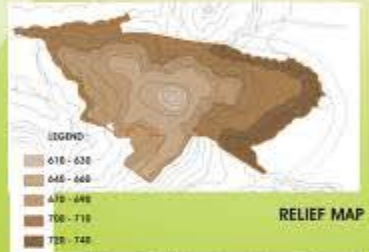
PANORAMIC VIEW SHOWING DEVELOPMENT BETWEEN THE HILLS

VEGETATION ON SITE

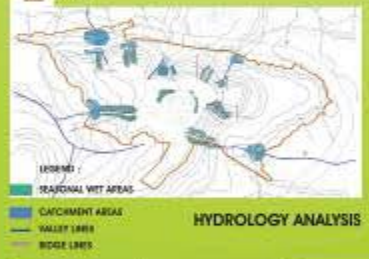
SLOPE ANALYSIS MAP

OBSERVATIONS AND

- STEEP SLOPES ALONG ROADS , RESULTED INTO ENCROACHMENTS AND ARE ERODED DUE TO INTERVENTION
- STEEP SLOPES ALONG ROADSIDE PROVIDE
- VISUAL PROTECTION FROM ROADS
- DISTRIBUTION OF SLOPE IS VARIABLE ON SITE ,PROVIDING TOPOGRAPHICAL DIVERSITY,WHICH CAN HELP IN INCREASE IN BIODIVERSITY ON SITE
- SITE IS SLOPING TOWARDS ROADS FOR WHICH DRAINAGE OF WATER SHOULD BE TAKEN INTO CONSIDERATION
- VANTAGE POINTS FOR VISITORS, GIVING PANORAMIC VIEW OF CITY
- PANORAMIC VIEW OF HILLS FROM THE PLATEAU FOR VISITORS
- ROAD PASSING THROUGH BDP AREA, DISTURBS NATURAL DETERMINANTS AND WILD LIFE



RELIEF MAP



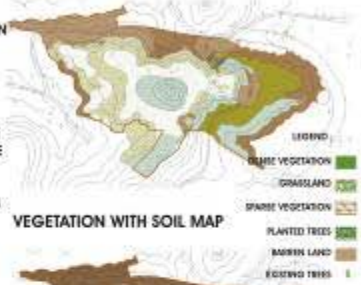
HYDROLOGY ANALYSIS

- SEASONAL STREAMS ON SITE WHICH COULD BE CONSERVE TO MAKE IT PERENNIAL
- MEASURES FOR EROSION CONTROL
- SEASONAL WET AREAS CAN BE CONVERTED INTO AQUATIC SYSTEM AND PROVIDE GOOD HABITAT FOR AV FAUNA
- NECESSITY FOR RETENTION POND

SYNTHESIS MAP

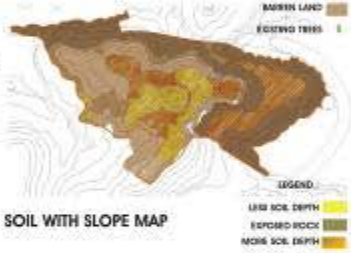
OBSERVATIONS AND

- ALL STOREY VEGETATION CAN BE SEEN ON SITE AT SOME AREAS , SHOWS POTENTIAL OF SITE FOR BIODIVERSITY
- PRESENCE OF OLD NATIVE TREES CAN BE USED FOR REFERENCING TO GENERATE ORIGINAL BD AGAIN ON SITE
- RESTORATION IS NEEDED
- REMNANT OF DRY DECIDUOUS FOREST SPECIES
- NEED TO PLANT MOIST DECIDUOUS PLANTATION

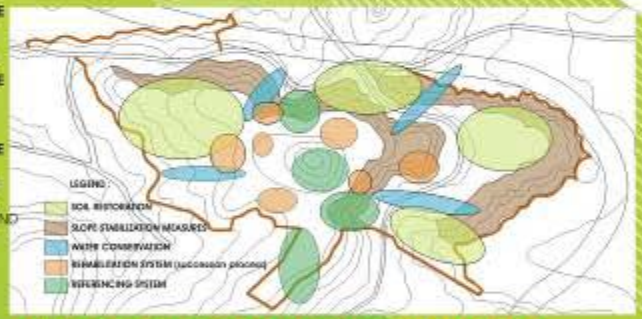


VEGETATION WITH SOIL MAP

- THIN SOIL COVER ON SITE DUE TO ROCKY OUTCROPS ,FOR WHICH MEASURES LIKE SOIL CONSERVATION, REGENERATION, EROSION CONTROL SHOULD BE TAKEN
- STONE BOULDERS ACTING AS HABITAT SPACES FOR BIRDS AND INSECTS



SOIL WITH SLOPE MAP



- EROSION OF VALLEY LINES DUE TO LESS VEGETATION COVER, WHICH CAN BE IMPROVED BY VEGATATION
- NECESSITY FOR RETENTION OF POND FOR FAUNA AND IRRIGATION

HYDROLOGY WITH VEGETATION MAP

ANALYSIS OF AVIFAUNA ON

AV FAUNA	HABITAT
DOVE - COLLAR	UNUSED CONSTRUCTIONS
PARADISE FLY CATCHER	SCRUB FOREST, GRASSLAND
BROWN HEADED BARBET(TAMBAT)	GRASSLAND , FRUITTREES NEAR FARMS
SUNAD - IORA	WOODLAND, GRASSLAND
EAGLE	GRASSLAND, OPEN PLATEAU
WOODPECKER	WOODLAND,DEAD WOOD

AVIFAUNA	HABITAT
MAGPIE ROBIN	ROCKY FACE, WOODLANDS
OWL	WOODLANDS
PARAKEETS	GRASSLAND, WOODLAND
SHRIKE	GRASSLAND, WOODLAND
PEACOCKS	SCRUB FOREST, GRASSLAND

MAP OF ECOLOGICALLY SENSITIVE AREA

ECOLOGICAL CONCERNS

- SLOPE STABILIZATION
- CONSERVATION OF INDICATOR SPECIES
- STREAM RESTORATION
- RESTORATION OF FOREST ECOSYSTEM

TRADITIONAL CONCERNS

- RESTORATION OF TRADITIONAL CULTURAL VALUES (YATRA, MELA)
- ETHNO BOTANICAL CONSERVATION
- ARRANGING CULTURAL FESTIVALS EG VANAMOHOTSAV, VASANT PANCHAMI ECT
- ASHOK VAN WHERE ALL SARACA INDICA TREES
- ARJUN VAN, KANCHAN VAN ,

SOCIAL CONCERNS

- THE NDA ROAD C
- AN BE TREATED AS THE INTERNAL ROAD IN THE BDP
- SPECIAL RULES AND POLICIES FOR TRAFFIC ON ROAD
- THE MOVEMENT CORRIDORS WILL BE ESTABLISHED ACROSS THE NDA ROAD THROUGH UNDERGROUND WAYS
- SPECIES GUIDELINES FOR STAKE HOLDERS(FARM HOUSES)

ECONOMICAL CONCERNS

- AGRO FORESTRY
- NON TIMBER FOREST PRODUCTION

ANALYSIS OF FAUNA ON SITE

MAMMALS	HABITAT
BARKING DEARS (INTRODUCED BY FOREST DEPARTMENT)	FORTS, GRASSLAND, METROPOLIS FUNCTIONAL
INDIAN BLACK NAPPED HARE	GRASSLAND (FIELDS)
WILD CATS	FOREST (DRY DECIDUOUS MIXED TEAK FOREST)
WILD BOAR	FOREST (DRY DECIDUOUS MIXED TEAK FOREST)
MONGOOSE	SCRUBLAND
WOLF	FOREST (DRY DECIDUOUS MIXED TEAK FOREST)
REPTILES	
LIZARDS	ROCK OUTCROPS
SNAKES	ROCK OUTCROPS
SALAMANDER	ROCK OUTCROPS

INSECTS	HABITAT
BUTTERFLIES	GRASSLAND, LANTANA CAMERA
CATERPILLAR (SERVANTS)	GRASSLAND
GRASS HOPPER (PRACTICAL)	GRASSLAND
TERM (FORESTS)	FOREST (DRY DECIDUOUS MIXED TEAK FOREST)

PROPOSAL FOR BIO DIVERSITY PARK

LANDSCAPE CONSERVATION APPROACH - REFLECT THE NATURAL PATTERNS AND PROCESSES THAT SUPPORTS DIVERSITY OF SPECIES, ECOSYSTEMS AND LANDSCAPE FOUND IN WESTERN GHAT.

LANDSCAPE PLANNING APPROACH

- PARK WILL BE ECOLOGICAL LANDMARK PROVIDES OPPORTUNITIES FOR ENVIRONMENTAL EDUCATION, ECO-TOURISM, OUTDOOR RECREATION, AND INTEGRATED LANDSCAPE MANAGEMENT.
- THIS SERVES AS A BENCH MARK FOR LONG TERM ENVIRONMENTAL MONITORING AND PROVIDES SCIENTIFIC BASIS FOR ADJUSTING LAND-USE PLANNING
- NATURE AS A COLLECTION OF OBJECTS- COMPOSITIONALISM, POPULATION AND COMMUNITY BIOLOGY NATURE AS A PROCESS- ENERGY TRANSFERS, ECOLOGICAL SUCCESSION
- APPLICATION OF INDIGENOUS VOCABULARY FOR LANDSCAPE LAND USE FOR THE SITE
- IDENTITY IN LOCALLY AND GLOBALLYTO THE PARK AS VRUNDAVA A PLACE FOR ALL SPECIES
- INDIRECT BENEFITS TO SOCIETY PROVIDING AIR QUALITY, CARBON SEQUESTRATION, WATER PURIFICATION, DISEASE CONTROL
- NON MATERIAL BENEFITS LIKE SPIRITUAL AND AESTHETICAL VALUE, KNOWLEDGE SYSTEM AND VALUE OF EDUCATION

METHODS OF WATER CONSERVATION

- CHECK DAMS
- PONDS OF SMALLER SIZE
- GULLY PLUGGING
- PERCOLATION TANK

METHODS OF RESTORATION

FELLING TREES IN MONOCULTURE PLANTING NATIVE TREES IN MOSAIC SHAPE

COMPOSTING BY ADDING COW URINE

BUNDING AND CONTOUR TERRACING

DUMPING DEAD AND DECAYING WOOD BY STRIPPING THE BARK OFF

REMOVING WEEDS (Lantana) TO REDUCE COMPETITION

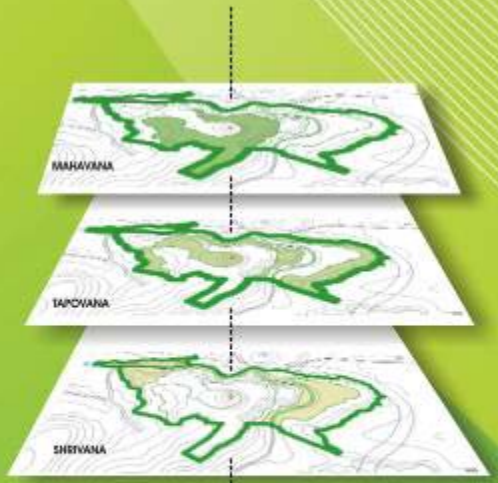
SLOPE STABILIZATION BY PLANTING NATIVE CLIMBERS

INSPIRATION

"EVERY PHYSICAL OBJECT SYMBOLIZES SOME ASPECT OF REALITY. AMONGST THESE, THE FOREST SYMBOLIZES THE DIVINE ATTRIBUTE OF 'TOTALITY', COMBINING ALL LIFE FORMS TOGETHER IN A SINGLE INTER-DEPENDENT WHOLE".

"FOREST, AT ONE LEVEL, MEANS THE WORLD. IT INCLUDES THE WHOLE CREATION. YOU ARE ALSO PART OF THAT FOREST. IT IS NOT THAT YOU ARE OUTSIDE THE FOREST. YOU CAN RE-ORDER IT, BUT YOU CANNOT BY-PASS IT."
(ref: as expressed in BHAGAVATGEETA)

PERSENCE OF DEITIES IN FOREST MAKING IT SPIRITUAL



LAYERS OF ZONING PLAN

PROPOSED ZONING PLAN

INDIAN TRADITION DESCRIBES THREE BASIC CATEGORIES OF FOREST

- MAHAVANA –
- THE GREAT NATURAL FOREST WHERE ALL SPECIES OF LIFE FIND SHELTER.
- TAPOVANA -
- WHERE YOU CAN CONTEMPLATE AS THE SAGES DID AND SEEK AFTER TRUTH.
- FROM THIS PROFOUNDLY NATURAL SETTING EMERGED THE VEDIC TEACHINGS OF THE UPANISHADS SUCH AS THE BRIHAD-ARANYAKA, WHICH MEANS 'THE TEACHING WHICH BEGAN IN THE FOREST.'
- SHRIVANA –
- A VILLAGE IN A FOREST

CHARACTERISTICS:

MAHAVANA :

- THE SELECTED AREA IS THE INNER MOST PART ON THE SITE, AWAY FROM ALL ACCESS ZONES LIKE ROADS, PRIVATE PROPERTIES ETC.
- IT IS SECURED BY TRANSITION ZONE FROM ALL THE SIDES
- THE AREA IS DIVERSE IN ITS TOPOGRAPHY AND ALSO IN FLORA AND FAUNA AND HENCE COULD BE FURTHER ENHANCED AS RICH BIODIVERSITY ZONE.
- THE TAIL END ON SOUTH SIDE OF IT CAN CONTINUE IN FURTHER BDP2 ZONE AND ACT AS MOVEMENT CORRIDOR FOR FAUNA.

TAPOVANA :

- HIGHEST PLATEAU ON THE SITE, A PERFECT PLACE FOR CONTEMPLATION
- PRESENCE OF LARGE BASALTIC ROCKS ON SITE CAN ACT AS SEATS FOR CONTEMPLATION
- PANORAMIC VIEW OF HILL IN FRONT FOR VISITORS
- IT HAS A TEMPLE AT THE TOP WHICH CAN BE ACCESSED BY PEOPLE
- IT COVERS THE CORE ZONE, PROTECTING IT FROM ACCESS ZONE
- IT HAS GOT SOME PLATEAUS AS VANTAGE POINTS WHERE WATCH TOWERS CAN BE GIVEN FOR RESEARCHERS OR STUDENTS.

SHRIVANA :

- AREA ALONG ROADS WHICH IS ALREADY INTERVENED BY PUBLIC
- AREA WITH GRADUAL SLOPE WHERE PUBLIC ACTIVITIES CAN BE PROMOTED
- DEGRADED AREAS WITH LESS OR NO VEGETATION ON SITE AGAIN CAN BE USED FOR PUBLIC ACTIVITIES.
- AREAS WITH EXISTING STAKE HOLDERS OR PRIVATE PROPERTIES WHICH CAN BE INCLUDED IN THE BDP AS A PART OF IT

PROPOSAL FOR BIO DIVERSITY PARK

LANDSCAPE PLANNING POLICIES :

SHRIVANA

- RECREATIONAL ZONE HAVING VARIOUS PUBLIC ACTIVITY NODES
- ENTRY FEE WITH TIME RESTRICTIONS.
- CHECK POST
- CLEANLINESS AND SAFETY ARE PRIMARY CONCERNS
- WELL LIT AREAS
- HIGH MAINTENANCE AREAS
- FOR TEMPORARY COMMERCIAL ACTIVITIES, THE LAND WILL BE GIVEN TO EXHIBITORS ON LEASE ON TEMPORARY BASIS
- ALL STRUCTURES IN BDP WILL BE OF TRADITIONAL INDIAN ARCHITECTURAL STYLE
- NDA ROAD WILL BE TREATED AS THE INTERNAL ROAD IN THE BDP
- IN FUTURE IF THERE IS SUCCESSFUL INCREASE IN FLORA AND FAUNA, TO

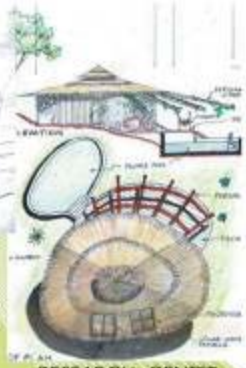
TAPOVANA

- SPACE FOR CONTEMPLATION
- PROMOTION FOR SPIRITUAL PRACTICES AND RESEARCH ACTIVITIES
- RESTRICTED ENTRY (NUMBER OF PEOPLE) WITH TIME FRAME
- MOBILE PHONE AND SOUND GENERATING APPLIANCE PROHIBITED
- MINIMUM SOLAR LIGHTING WITH PROPER SIGNAGE
- ALL CONSERVATION TECHNIQUES RECOMMENDED

MAHAVANA

- PUBLIC ACCESS PROHIBITED
- ELECTRICITY PROHIBITED
- AREA NEEDS SPECIAL ATTENTION FOR ITS DIVERSITY AND CONSERVATION LIKE SACRED GROOVE (DEVRAI)
- ENCOURAGE HABITAT GROWTH FOR LISTED FAUNA AND PERIODIC MONITORING SUCCESSION PROCESS
- NEED BUFFER FROM SOUND AND DUST
- SPECIAL PROTECTION POLICIES FOR LISTED SPECIES.

- BUILT AREAS SUCH AS INFORMATION CENTER, RESEARCH CENTER, MUSEUM CAN HAVE HUT LIKE STRUCTURES TO GET A FEEL OF VILLAGE IN FOREST
- CAN BE DESIGNED IN CLUSTERS TO ENHANCE THE



RESEARCH CENTER

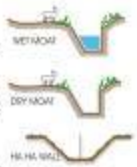
SECTION THROUGH TRAIL

TRAIL THROUGH SHRIVANA – LONGEST TRAIL COVERING MAXIMUM AREA OF SHRIVANA
PATH FOR ACTIVITIES LIKE WALKING AND CYCLING ETC.

MACHAN

FOR OBSERVATION OF FLORA AND FAUNA AROUND

BETWEEN TWO ZONES BARRIERS CAN BE PROVIDED TO SEPARATE THE CORE ZONE FROM OTHER ZONES FOR THE PROTECTION OF FLORA NAD FAUNA IN THE ZONE



BARRIERS FOR PROTECTION

THE PUBLIC SPACE HERE WILL ACT AS ECOLOGICAL ABODE AND ALSO A CULTURAL AND EDUCATIONAL HUB FOR PEOPLE COMING TO "BDP"

ASHOKVAN

PROPOSED ACTIVITY PLAN

PROPOSED ACTIVITIES :

MAHAVANA (CORE ZONE)

1 PARKING
2 INFORMATION CENTER
3 MUSEUM FOR NATIVE SP. OF FLORA
4 AMENITIES (WATER FOUNTAIN , TOILET ETC)
5 NURSERY
6 TEMPORARY COMMERCIAL ACTIVITIES
7 RESEARCH CENTER

TAPOVANA (TRANSITORY ZONE)

A SPACES / AREAS FOR CONTEMPLATION
B ARBORETUM
C BUTTERFLY PARK
D ASHOK VANA
E LABYRINTH GROVE
F SPOTS FOR OBSERVATIONS/RESEARCH G PURPOSE (BIRD WATCHING)

SHRIVANA (PUBLIC ZONE)

PARIKRAMA MARG OR THE TRAIL

VALLEY LINE (BEFORE)

STREAM AFTER CONSERVATION OF WATER

WATER CATCHMENT AREAS (BEFORE)

OPPORTUNITY FOR PONDING (AFTER)

WAY TO TEMPLE (BEFORE)

WAY TO TEMPLE (AFTER)

TIME HAS COME TO REDEFINE THE CONCEPT OF OPEN SPACES FROM JUST COLLECTION CENTERS OR MEETING POINTS TO BROADER VISION LIKE BECOMING EDUCATIONAL OR CULTURAL HUBS OF PUNE CITY THERE BY ENHANCING THE HEALTH OF PUBLIC IN THE CITY THE CITY .