



DRAFT
PANAJI SMART CITY
PROPOSAL
FAST TRACK ROUND

INDEX

PERT Chart for Area Based Proposals & Pan City Proposals (Q32).

Citizen Engagement.

Citizen Engagement.

Area Based Development Proposals: Church Square Revitalization.

**Area Based Development Proposals: Interlinking Core City & Patto Area -
(a) Upgradation of Rua de Ourem Creek & Patto Area.**

**Area Based Development Proposals: Interlinking Core City & Patto Area :
(b) Mala Lake Revitalization.**

Area Based Development Proposals : Integrated Urban Water Management (IUWM)

**Area Based Development Proposals: Service Improvement for Urban Poor in
Mala Heritage Zone.**

**Area Based Development Proposals: Provision of ‘Smart’ layer &
improvement for Entire Area Based Development.**

Area Based Development Proposals: Conservation of Heritage & Culture.

Area Based Development Proposals: Biodiversity Conservation.

Details of Pan City Proposals: Smart Transportation & Eco Mobility

Details of Pan City Proposals: Smart Environmental Services

Financial Summary of Panaji Smart City Proposal



Church Square Revitalization



Interlinking Core city and Patto area



IUWM



Urban Poor



Service provision



Conservation



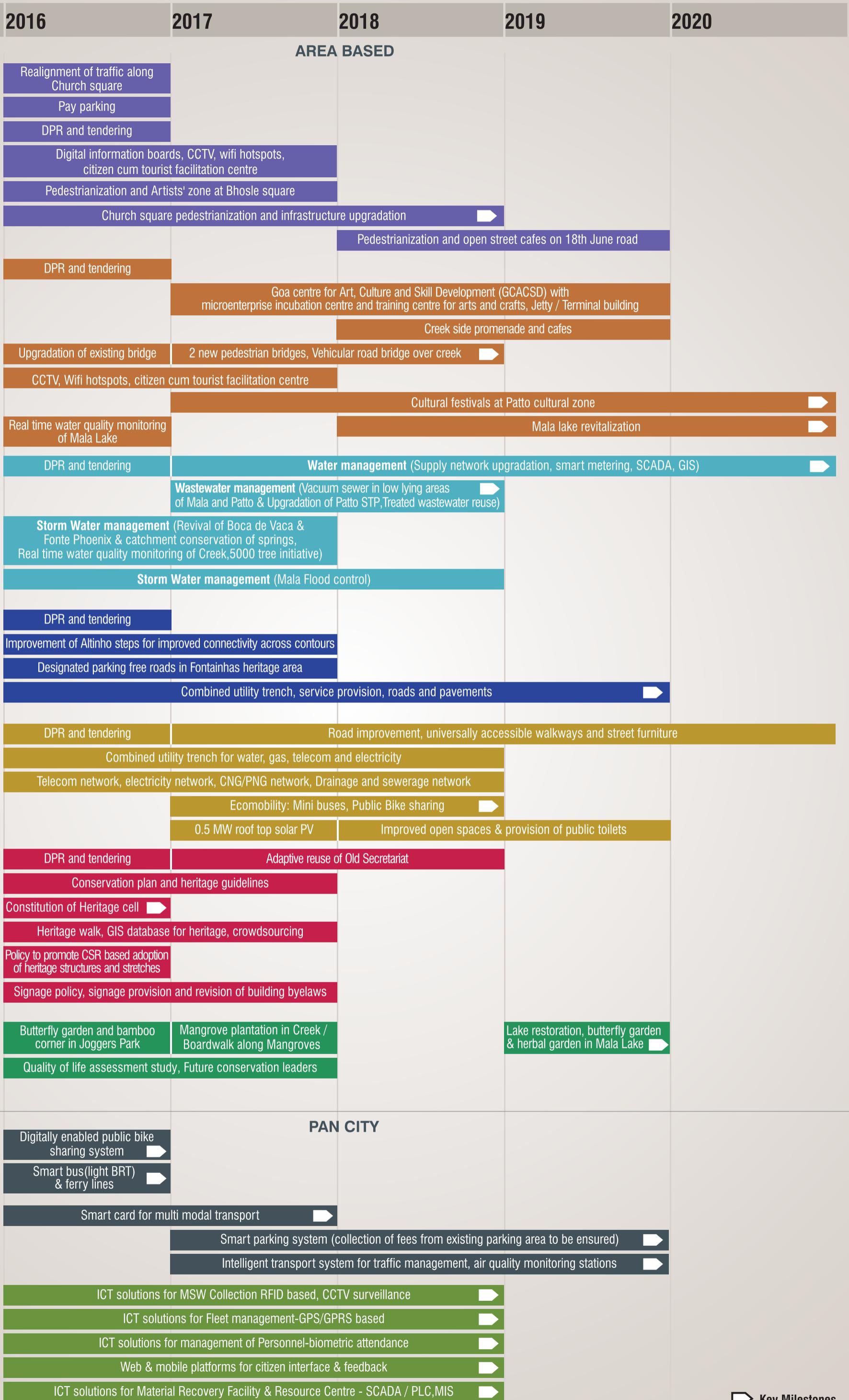
Biodiversity



Smart Transportation and Eco Mobility



Smart Environmental Services



Key Milestones

DEVELOPMENT STRATEGY (FAST TRACK MODE)

ANALYSE

Reviewing and studying winning proposals for identification of gaps

CONSULT

Extensive citizen consultation on the fast track proposal to obtain comments and feedback

REWORK

Rework on the proposal based on comments and feedback from MoUD & citizens.

CONVERGE

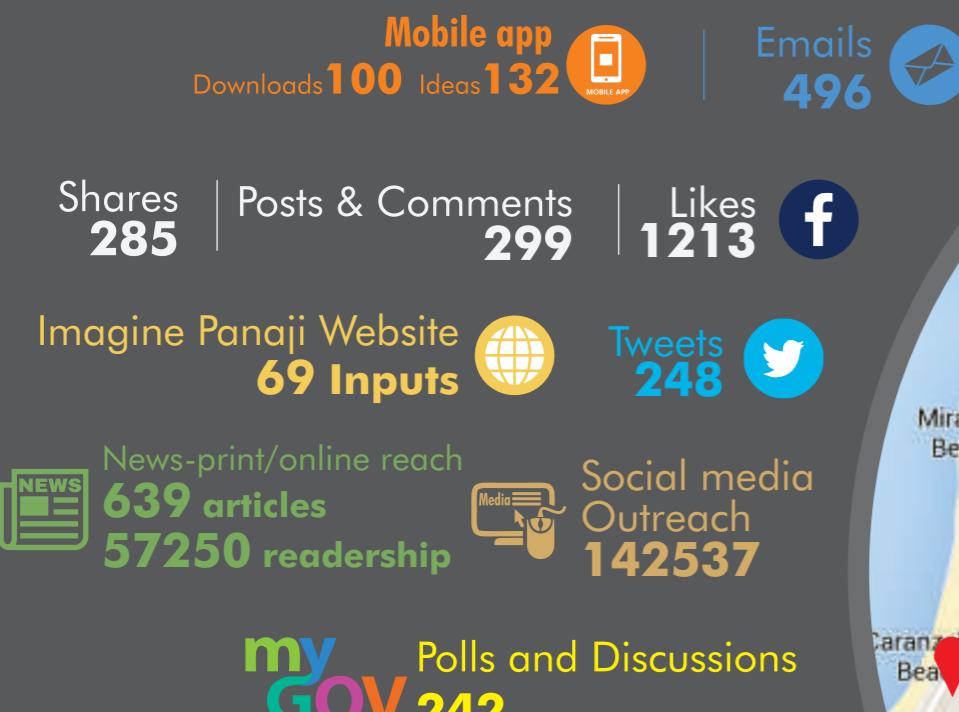
Incorporate finance received under the missions / programmes of the GoI & external multilateral agencies.

DELIVER

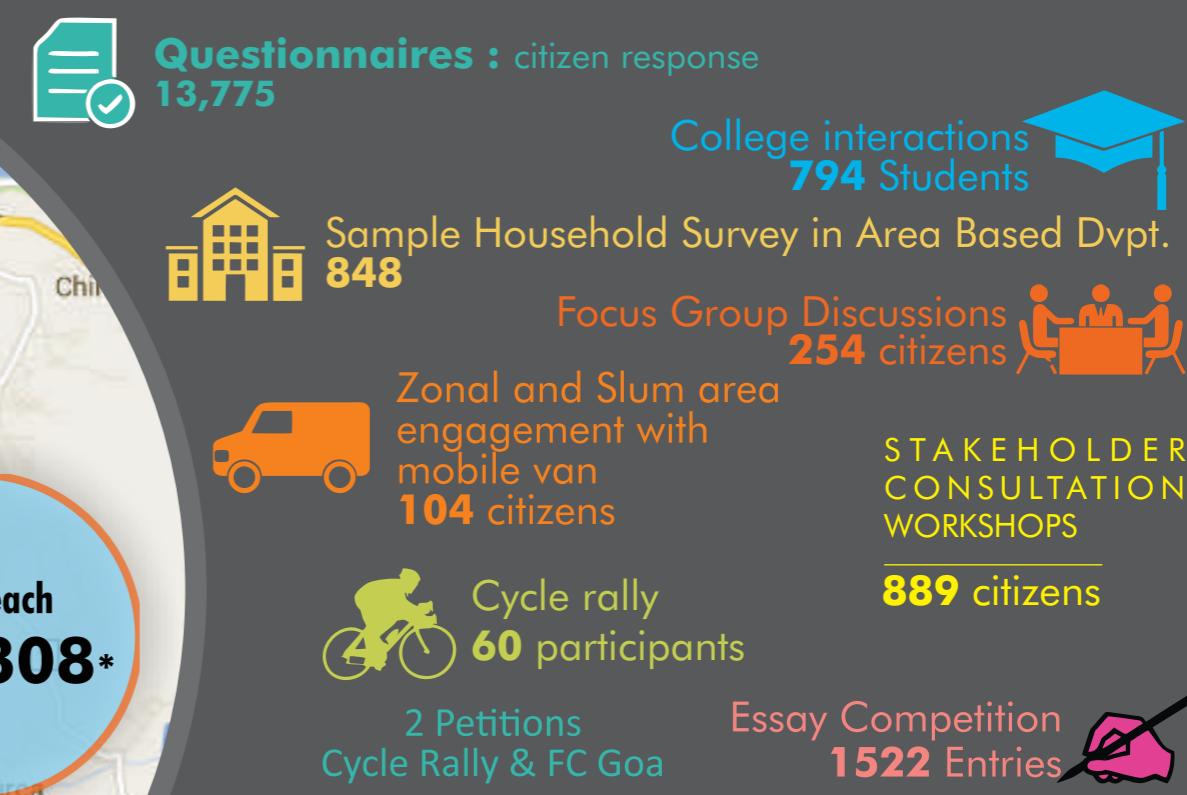
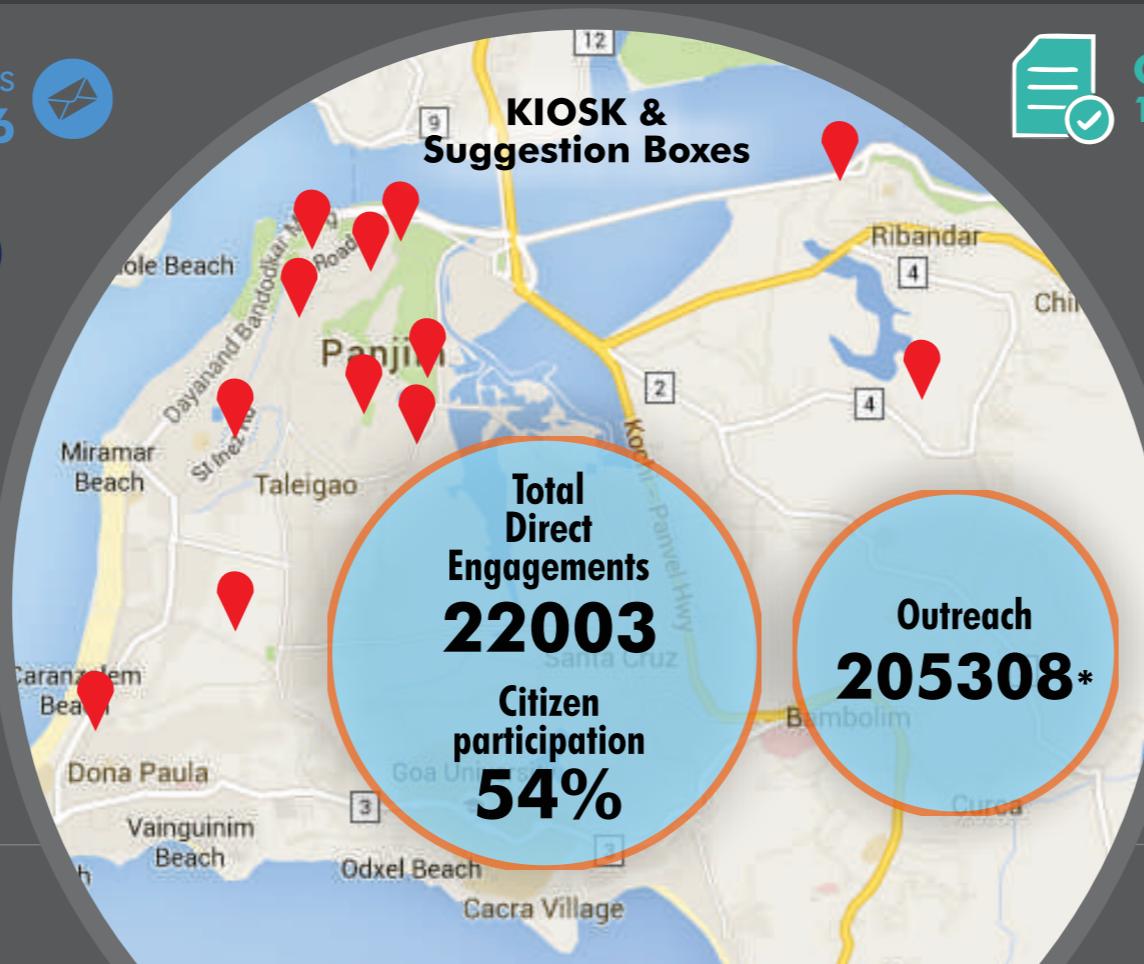
Finalisation of proposal after incorporating all the suggestions and submission to MoUD

CITIZEN ENGAGEMENT (ROUND1 & FAST TRACK MODE)

ONLINE ENGAGEMENT



OFFLINE ENGAGEMENT



Associated Partners



FAST TRACK NEWS CLIPS



Smart proposal 2.0 veers around transport, waste

ROUND II: SMART SUGGESTIONS

- 51 per cent citizens want for inclusion of urban mobility
- 49 per cent voted for solid waste management
- 7 per cent wanted citizens' engagement in park-city initiatives
- Comprehensive plan to co-create parking, lack of parking facilities and absence of
- Vehicle for inclusion of urban mobility in park-city initiatives
- Initiatives and inclusion of public transportation for high-speed
- Initiatives for collection and disposal of wastes, mainly due to rural population plus education
- Proposals have also suggested adoption of mobile and e-platforms for grievance and service provider status
- Initiatives and inclusion of public transportation for solid waste management
- Initiatives for solid waste management and park-city initiatives
- Initiatives to include facilities for collection and disposal of wastes, mainly due to the area of conserving concerns by the citizens. Additionally, citizens have also suggested adoption of mobile and e-platforms for grievance and service provider status to enable accountability and
- Initiatives and inclusion of public transportation for solid waste management and park-city initiatives
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CCP meeting approves improvised Smart City proposal



Panaji invited to fast track its Smart City proposal

Panaji is one among 21 cities that were invited to fast track its proposal and submit it to the Centre before April 2018. A few months ago the Panaji Smart City cell had embarked on a massive campaign while engaging various stakeholders to gather feedback and suggestions towards the smart development of the city of Panaji. The final proposal was submitted to the government with all the required data. The State Civil Minister is an innovative minister by the Government of Goa who looks to drive economic growth and improve the quality of life of people by building local development and harnessing technology in a timely manner for citizens.

FAST TRACK PHOTO GALLERY



ONLINE

Emails 413 | Tweets 160 | YouTube Views 132

my GOV Polls & Discussions 67

Fast Track Whatsapp Groups

f Likes 543+ | Posts & Comments 103 | Shares 98

KEY TOPICS

Smart Information System
Citizen Service App
RFID Tagged Litter Bins
Public BicycleSharing
CCTV Surveillance
WIFI Zone
Pedestrian Friendly Walkways
GIS Based Waste Monitoring System
Smart Parking Technology

Focus Group Discussions

Press Conferences

Stakeholder Consultation Workshop

127 Citizens

OUTREACH

Radio 72086 | Social media 72086

News-print/online 244 articles 54,000 readership | Website 5521

Associated Partners





STATISTICS/ KEY INDICATORS

7000 trips/day
Saved by 20 mini buses

440
Cycle trips

20%
Increase in tourist footfall

70%
Reduction in crime and accidents

Public square

Decongestion Plan by CCF

SUSTAINABLE DEVELOPMENT GOALS & TARGETS ADDRESSED



- By 2030, reduced road accidents
- Sustain economic growth
- By 2030, promote sustainable tourism



- By 2030, sustainable public transport, improving road safety
- By 2030, inclusive and sustainable urbanization
- Safeguard culture and heritage



- Strengthen resilience & adaptive capacity



Existing



Proposed

PROJECT TITLE & DESCRIPTION

Church Square Revitalization: Image of the city

Revitalization of a cluttered public space into a pedestrianized public square portraying the image of the city.

Church square, core area of the CBD, is rich in heritage, is an iconic area representing the image of the city, is a crucial traffic node for Panaji city (road transport and waterways) and is a cultural hub. But this area also faces issues related to high density, pedestrian safety and traffic congestions. The proposal envisages to transform the presently chaotic Church square into a pedestrian square with focus on Ecomobility (creating a model public space for replication to other parts of the city, pedestrianization of 18th June road and Bhosle square to initiate implementation of CCF decongestion plan for core city, mini buses for public transportation, universally accessible walkways and public bike sharing scheme), culture (creation of artists' zone at Bhosle square), heritage (heritage listing and conservation initiatives) to leverage the associated tourism & economic potential (expected increase of 20% in tourists)

KPIs ADDRESSED

1. Identity & Culture
2. Economy & Employment
3. Mixed use
4. Compactness
5. Open Spaces
6. Transportation & mobility
7. Walkable
8. IT Connectivity
9. Safety
10. Air quality
11. Basic services

ESSENTIAL FEATURES ADDRESSED

1. Non Vehicle Streets/Zones
2. Visible improvement in the area
3. Pedestrian friendly pathways
4. Encouragement to Non Motorized Transportation
5. Innovative use of open spaces
6. Safety of citizens especially children, women and elderly, esp women, children and elderly
7. Additional 'Smart' applications (high tech multipurpose citizen cum tourist facilitation centre, opening Patto parking for tourists)
8. Robust IT Connectivity and Digitization

SUB- COMPONENTS

- Pedestrianization of Church square
- Table top junction in front of Church, upkeep of Garcia de Orta Municipal garden
- Pedestrianization of 18th June road;
- Street cafes on 18th June road, pay parking, pedestrianization & artist zone at Café Bhosle square.
- Citizen cum Tourist Facilitation Centre; Digital information boards; Wifi Hotspots; CCTVs

COST (Cr.)

23.46

0.86

0.55

1.38

Total: 26.25

Old & New City of Panaji



Interlinking Old & New city: Proposed road bridge over Rua de Ourem Creek



Patto Area & Rua De Ourem Creek: Proposed Interventions



Patto Area & Rua De Ourem Creek Proposed Intervention



STATISTICS/ KEY INDICATORS

3 Pedestrian links,
1 Road link

50,000
Footfalls/year at Patto Cultural zone

5
Creek side cafes

**Goa Centre for Art,
Culture & Skill development**

20% Increase in revenue
generation from area

**Micro enterprise
incubation centre**

SUSTAINABLE DEVELOPMENT GOALS & TARGETS ADDRESSED

8 GROW JOBS AND
ECONOMIC GROWTH



- Economic productivity through diversity
- By 2030, decouple economic growth from environmental degradation
- By 2020, reduce unemployed youth



- By 2020, restore water related ecosystems



- By 2030, inclusive and sustainable urbanization
- By 2030 safe, inclusive, accessible, green and open spaces



- By 2020, sustainably manage & protect coastal ecosystems

Key Map



PROJECT TITLE & DESCRIPTION

Interlinking core city & Patto area for citizens and tourists: to create public spaces.

1. Upgradation of Rua De Ourem creek and Patto area (as cultural and tourist hub)

Bridging the spatial and cultural disconnect between core city and Patto area through creation of a cultural cum recreational hub in Patto and along the Rua de Ourem creek with focus on youth and tourists.

Patto area with contemporary administrative and commercial developments is largely deserted after office hours, isolating it from core city. These two islands are proposed to be bridged to complement each other (core city gets more open spaces and Patto area gets footfalls after office hours). Abandoned creek side kiosks and walkways are proposed to be revived as promenades with creek side cafes. Patto Cultural zone would be developed on PPP basis for organizing events and festivals during weekends and evenings. Goa Centre for Art, Culture and Skill Development would be developed with involvement of private sector for promotion of arts, crafts, yoga, culture and microenterprises with focus on skill training and entrepreneurship opportunities for urban poor.

KPIs ADDRESSED

1. Identity & Culture
2. Economy & Employment
3. Open spaces
4. Housing and Inclusiveness
5. Walkable
6. Transportation & Mobility
7. Safety
8. Mixed Use
9. Wastewater Management

ESSENTIAL FEATURES ADDRESSED

1. Visible improvement in the area
2. Innovative use of open spaces
3. Safety of citizens especially children, women and elderly especially children, women and elderly
4. Wastewater recycling
5. Non-vehicle streets/zones
6. Pedestrian friendly pathways
7. Encouragement to non-motorised transport
8. Smart Parking

SUB- COMPONENTS

- Goa Centre for Art, Culture and Skill Development (GCACSD), Jetty/ terminal building
- Up gradation pedestrian bridge and provision of 2 new bridges
- Patto cultural zone, creek side cafes, road bridge over Ourem creek (convergence funding Rs. 27. 37 Cr.)
- CCTV, Wifi; Citizen cum Tourist facilitation centre

COST (Cr.)

20.85

10.93

1.18

Total: 32.96

Mala Lake Proposed Intervention



Existing Condition of Mala Lake



Proposed of Mala Lake Promenade



Interlinking Core city
and Patto area

STATISTICS/ KEY INDICATORS

20,000
Sq.m blue sponge

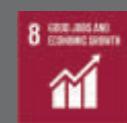
20,000
Tourists/year

Blue Green Corridor

Employment for Urban Poor (aquaculture, tourism)

Sustainable Urban Drainage System (SUDS)

Ecotourism: Waterfront Development



SUSTAINABLE DEVELOPMENT GOALS & TARGETS ADDRESSED

- Economic productivity through diversity
- By 2030, decouple economic growth from environmental degradation
- By 2020, reduce unemployed youth



- By 2020, restore water related ecosystems



- By 2030, inclusive & sustainable urbanization
- By 2030 safe, inclusive, accessible, green and open spaces



- By 2020, sustainably manage & protect coastal ecosystems

Key Map



PROJECT TITLE & DESCRIPTION

Interlinking core city and Patto area for citizens and tourists

2. Revitalization of Mala lake

Revitalization of neglected Mala lake as a recreational water front and biodiversity hotspot for locals and tourists.

Abandoned Mala lake, which was once a 75,000 sq.m water body, now stands at 20,000 sqm still acting as a blue sponge for runoff from Altinho and other areas. The brackish water lake, part of coastal ecosystem, is also surrounded by pockets of urban poor. The proposed waterfront development envisages to revive the lake as a tourist attraction whilst creating employment opportunities related to tourism and aquaculture for local urban poor

KPIs ADDRESSED

- Identity & Culture
- Economy & Employment
- Health & Education
- Open spaces
- Housing & Inclusiveness
- Transportation & Mobility
- Walkable
- IT Connectivity
- Air quality
- Safety

ESSENTIAL FEATURES ADDRESSED

- Pedestrian friendly pathways
- Non-vehicle streets/zones
- Innovative use of open space
- Visible improvement in the area
- Safety of citizens especially children, women and elderly
- Robust IT Connectivity and Digitization
- Encouragement to NMT
- Additional 'Smart' Applications

SUB- COMPONENTS

- Lake revitalization and real time quality monitoring
- Activities related to Yoga, biodiversity, etc. (convergence funding)
- Fountain (Lake aeration)
- Aquaculture opportunities for urban poor (convergence funding)
- Citizen cum Tourist Facilitation Centre; Wifi Hotspots; CCTVs

COST (Cr.)

5.95

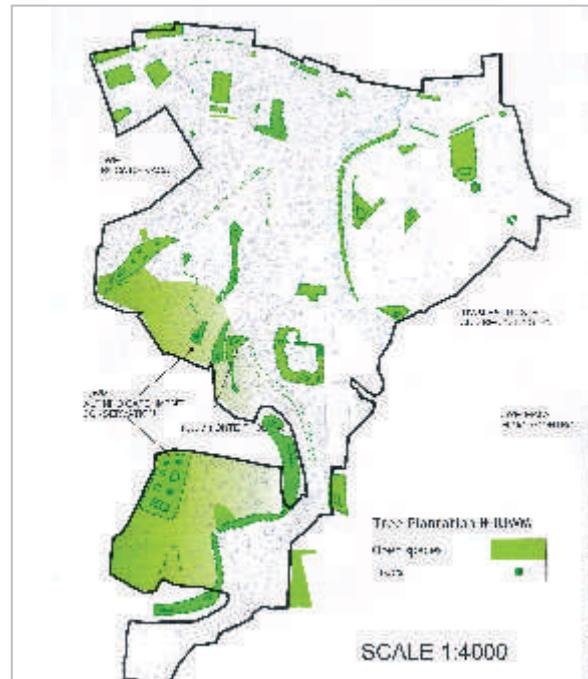
0.91

1.24

Total: 8.10

Sub Total for
interlinking Core city
& Patto area = 41.06

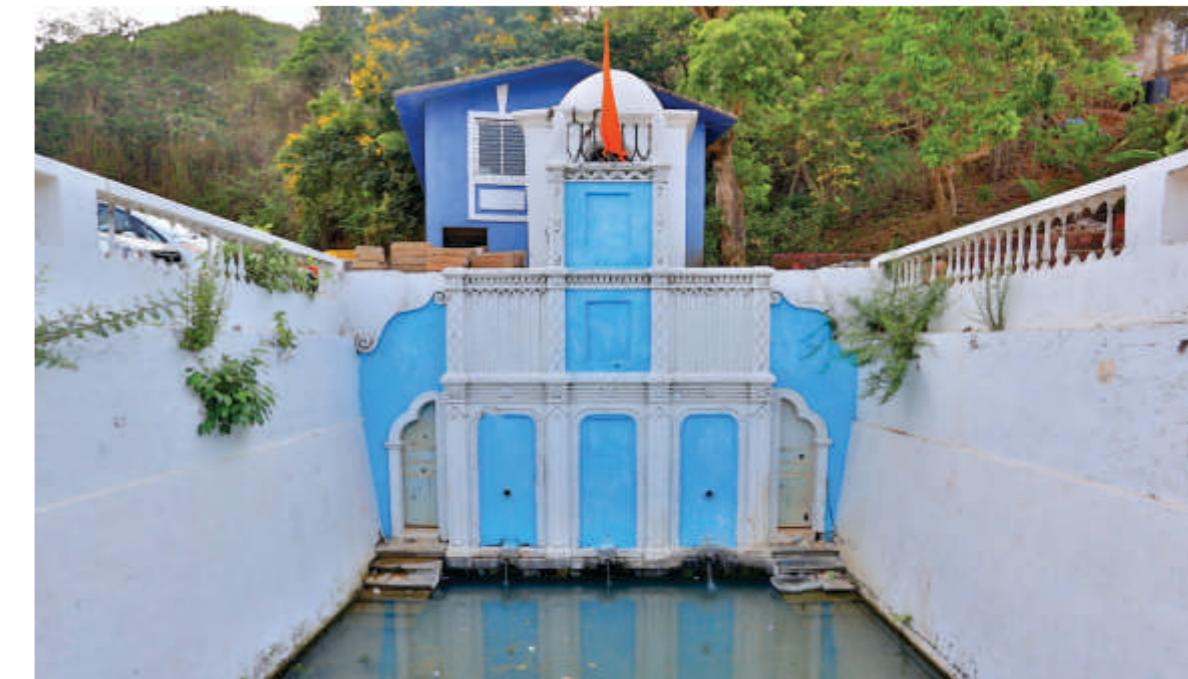
IUWM: Proposed Interventions



Community Adoption of Trees



Fonte Phoenix - Natural Spring Rejuvenation



STATISTICS/ KEY INDICATORS	100%	20%	24x7	25%	5000	10%	2
SUSTAINABLE DEVELOPMENT GOALS & TARGETS ADDRESSED	Coverage of water network & smart meters	Reduction in NRW	Water Supply	Recycling of wastewater	Tree plantation	Increase in spring discharge over 10 years	MLD STP
	<p>• By 2030, reduced air, water, soil pollution</p> <p></p> <ul style="list-style-type: none"> • By 2030, safe & affordable drinking water for all • By 2030, improve water quality, recycle • By 2030, Integrated Water Resource Management, local community involvement <p></p> <ul style="list-style-type: none"> • By 2020, cities adopting integrated policies <p></p> <ul style="list-style-type: none"> • Resilience and adaptive capacity <p></p> <ul style="list-style-type: none"> • By 2020, reduced marine pollution • By 2020, sustainably manage and protect coastal ecosystems 						

Water & Services Management & Articulation in Dense Urban Neighborhoods Drawing by Charles Correa Foundation for the Challenge Fund

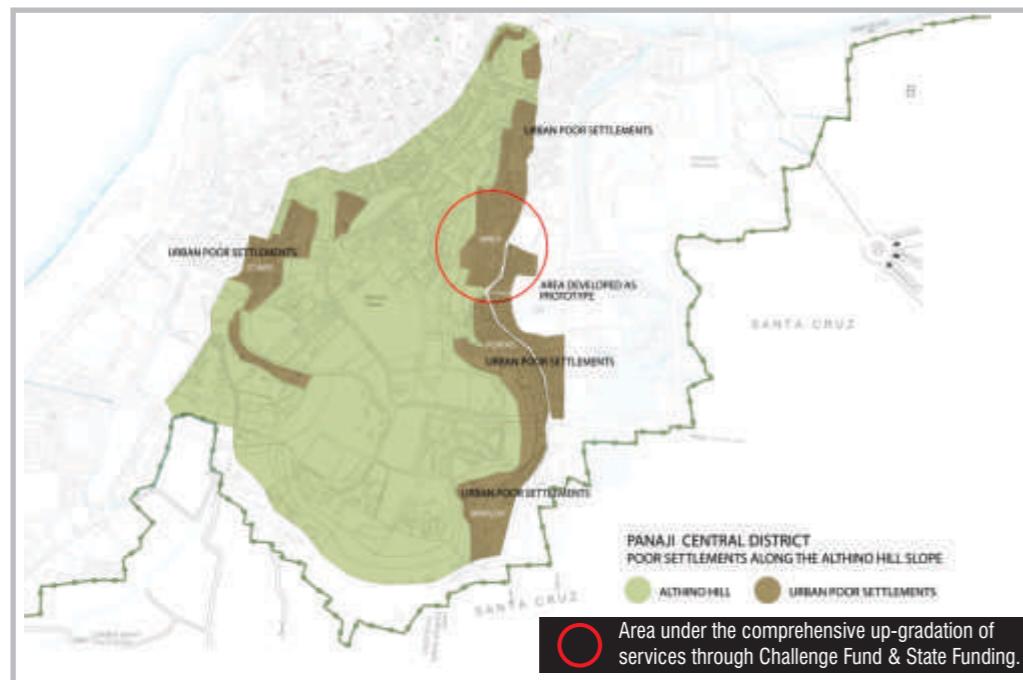


PROJECT TITLE & DESCRIPTION	KPIs ADDRESSED	ESSENTIAL FEATURES ADDRESSED	SUB- COMPONENTS	COST (Cr.)
Integrated Urban Water Management Enhanced efficiency and environmentally sustainable management of water, wastewater and storm water as interconnected components of the urban water cycle. With blue green sustainability as the central theme, this proposal aims at improving water, wastewater and storm water management through interventions targeted at reducing water footprint for the city. For improved water management, 24x7 water supply network is proposed with smart components of SCADA, GIS and smart water meters to reduce losses. Wastewater management through increased capacity of Patto STP (0.6 MLD to 2MLD) and improved discharge quality (above the prescribed standards) to reduce pollution of Rua de Ourem Creek, and hence, Mandovi River. More than 25% recycling of treated wastewater is proposed to reduce discharge into the Creek. Provision of vacuum sewers in low lying areas of Mala and Patto and real time water quality monitoring for creek would facilitate improved wastewater management. Storm water management with focus on reducing runoff generation through catchment conservation of Boca de Vaca and Fonte Phoenix springs (and revival of these springs as tourist destinations), plantation of 5000 trees and Mala flood control measures are proposed.				21.3
			WATER Water supply network; Smart components: smart meters, SCADA and GIS based water meters for monitoring	9.69
			WASTE WATER Up gradation of Patto STP (from 0.6 MLD to 2 MLD); Recycling of treated wastewater (laying of line for horticulture under National Green Highways Project); Vacuum sewers in Mala and Patto pockets	5.32
			STORM WATER Revival of Springs (Boca de Vaca and Fonte Phoenix); Delineation of catchment area of springs; catchment conservation plan and measures for catchment conservation; Real time monitoring of Creek Urban forestry; 5000 trees; My neighborhood trees initiative; Mala Flood control measures 1. Construction of pump house and pumping station 2. Installation of sluice gate and electronically operated tidal control gates 3. Improved drainage network	0.36
				6.05
				Total: 42.72

Area Based Development Proposals: Service Provision for Urban Poor in Mala Heritage Zone.

PANAJI SMART CITY PROPOSAL

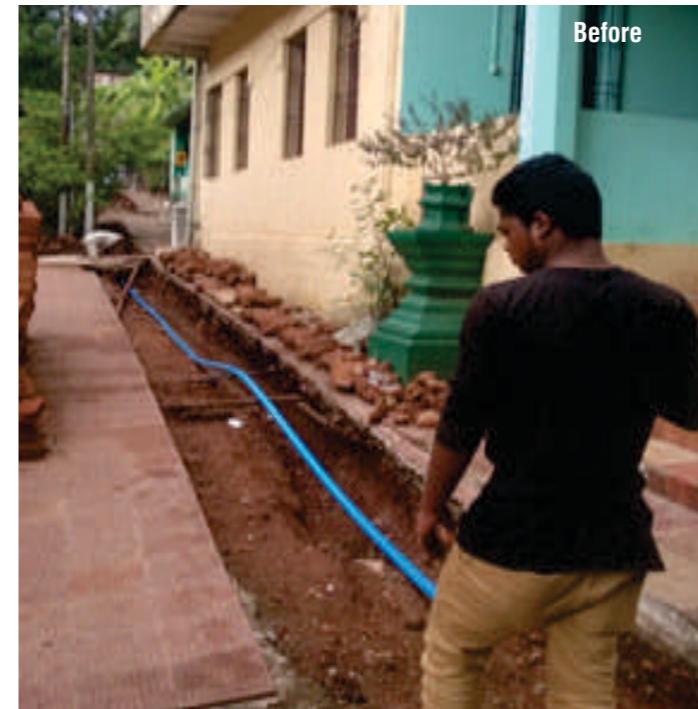
Location Of Pockets of Urban Poor in Mala Heritage Zone: Challenge Fund Report



WORK EXECUTED UNDER MALA CHALLENGE FUND

* Pavers	- 1000 Sq. m
* Water Supply	- 600 Rm
* Storm water drains	- 700 Rm
* Sewer lines	- 200 Rm
Total Funding	- 2.5 cr

Completion of Water Supply Line



Mala Challenge Fund Work



Existing Altinho Steps



STATISTICS/ KEY INDICATORS

1524

DUs Upgradation for urban poor

SUSTAINABLE DEVELOPMENT GOALS & TARGETS ADDRESSED



- By 2030, poor and vulnerable have access to basic services
- By 2030, build resilience of poor
- Reduce vulnerability

Combined utility trench for gas, telecom, sewerage, water & power



- By 2030, equitable and adequate sanitation
- End Open defecation

5

Parking free roads

100%

Water, sewerage & drainage coverage for urban poor

- Economic productivity through diversity
- By 2030, employment for men, women, youth

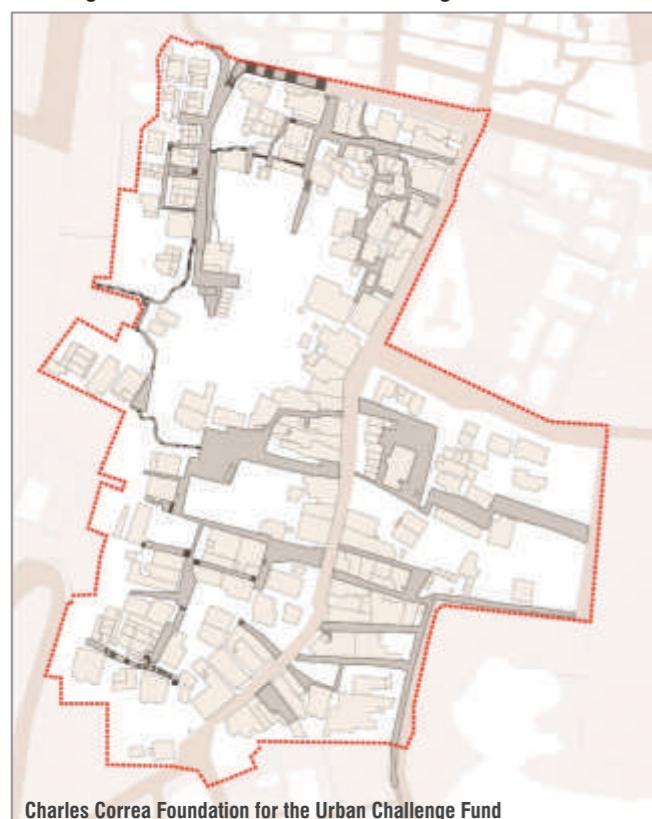


- By 2030, social, political, economic inclusion of all
- Equal opportunities

0.5

Sq.km intervention under Challenge Fund

Challenge Fund Intervention in Mala Heritage Zone

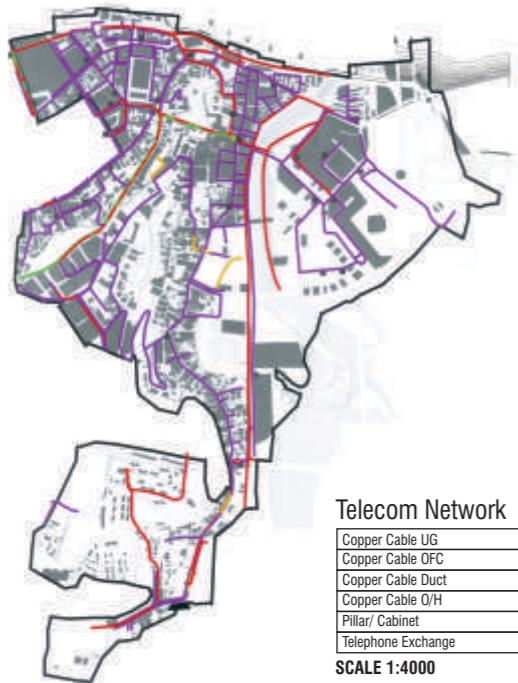


PROJECT TITLE & DESCRIPTION	KPIs ADDRESSED	ESSENTIAL FEATURES ADDRESSED	SUB- COMPONENTS	COST (Cr.)
<p>Service Improvement for Urban Poor in Mala Heritage</p> <p>Extension of existing Challenge Fund intervention</p> <p>Improved liveability for urban poor in narrow lanes of Mala Fontainhas Heritage zone through improved service provision.</p> <p>Mala Fontainhas heritage area also houses pockets of urban poor where conventional interventions are difficult owing to the undulating terrain and narrow lanes. As part of the Challenge Fund initiative of Ministry of Housing and Urban Poverty Alleviation, the city has undertaken upgradation of infrastructure facilities in 0.5 sq.km pocket of urban poor through provision of combined utility trench for water, gas, electricity and telecom, paving, façade improvement and toilet provision.</p> <p>This initiative is proposed to be extended to the narrow lanes in the entire Mala heritage area under SCP to provide access to safe and reliable infrastructure to urban poor while reducing diseases and related expenses due to deteriorating infrastructure. Urban poor would also be given preference in construction and other jobs created under this project. Mala area, located along foothills of Altinho also has several steps which facilitate cross contour connectivity by reducing trips to be undertaken by urban poor. These steps, which require upkeep, would be improved under this intervention. Creation of parking free zones with citizen participation would be undertaken.</p>	<p>1. Identity and Culture</p> <p>2. Economy and Employment</p> <p>3. Open space</p> <p>4. Housing and Inclusiveness</p> <p>5. Walkable</p> <p>6. Transportation and Mobility</p> <p>7. Basic services (water supply, sewerage, sanitation, telecom, electricity)</p> <p>8. Underground electric wiring Safety</p>	<p>1. Improved quality of life for Urban Poor</p> <p>2. Pedestrian friendly pathways</p> <p>3. Encouragement to NMT</p> <p>4. Non-vehicle streets/zones</p> <p>5. Innovative use of open space</p> <p>6. Safety of citizens especially children, women and elderly</p>	<p>1. Combined utility trench for water, gas, electricity, telecom</p> <p>2. Street lighting poles</p> <p>3. Laying of sewerage and drainage network, improved telecom and electricity network</p> <p>4. Improvement of Altinho steps</p> <p>5. Designated car free zone</p>	<p>12.16</p>

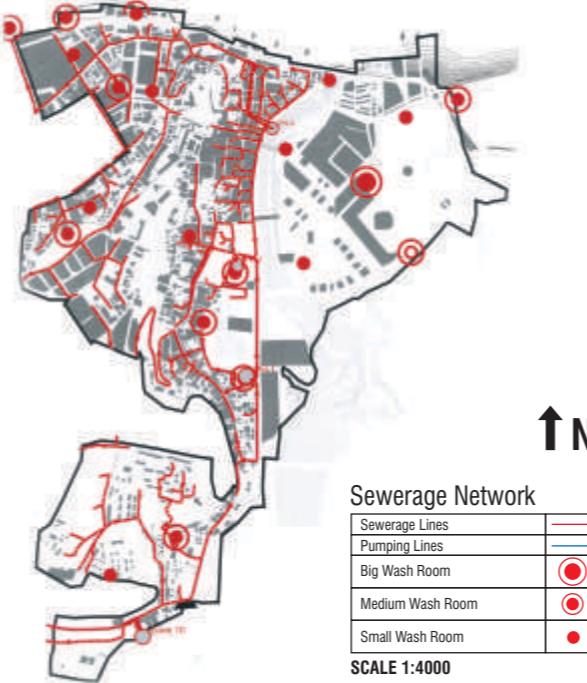
Total: 12.16

Charles Correa Foundation for the Urban Challenge Fund

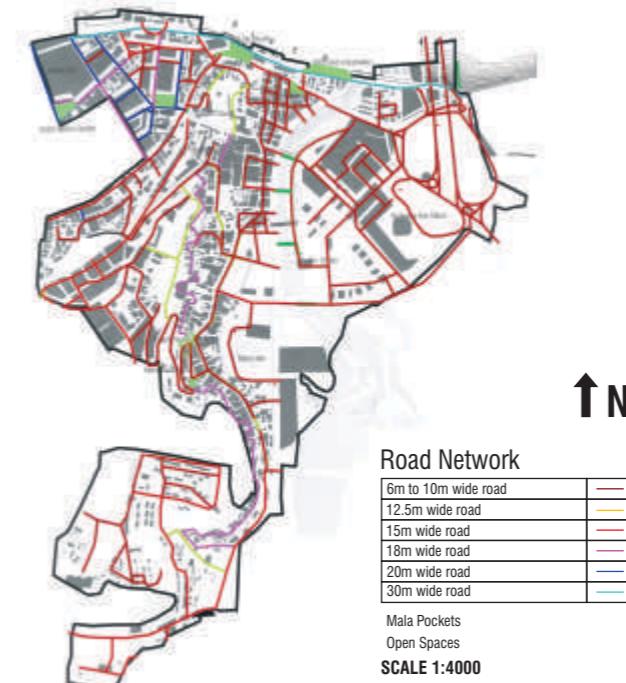
PROPOSED TELECOM NETWORK



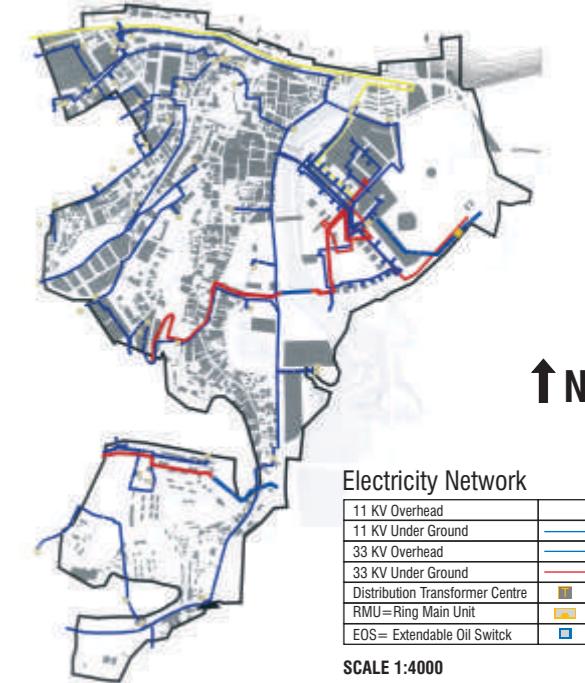
PROPOSED SEWERAGE NETWORK



PROPOSED ROAD NETWORK



PROPOSED ELECTRICITY NETWORK



STATISTICS/
KEY INDICATORS

440

Cycles

20

Mini buses

1822

Sensor based LED streetlighting

0.5

MW roof top solar PV

Service provision along
25 km road length

100%

Coverage of sewerage, drainage coverage

Open defecation
free

SUSTAINABLE
DEVELOPMENT
GOALS & TARGETS
ADDRESSED



- By 2030, reduce deaths due to air, water, soil pollution



- By 2030, equitable and adequate sanitation



- By 2030, increase share of renewable energy
- By 2030, double energy efficiency improvement rate



- By 2030, productive employment for men, women, youth



- Quality, reliable, sustainable and resilient infrastructure



- By 2030, enhance inclusive and sustainable urbanization

Proposed Lane And Facade Treatment



Proposed Street-Scaping: Image by Charles Correa Foundation for Pedestrianisation Proposal of the Core City Areas

PROJECT TITLE & DESCRIPTION

Provision of smart & improvement of basic services in entire area (2 sq. km)

Improved quality of life in the selected area through efficient and smart infrastructure for healthier and happier communities.

Basic infrastructure is proposed to be improved in the entire ABD and a 'smart' layer is proposed to be added to increase resource efficiency and improve overall quality of life in the area. Proposed infrastructure upgradation includes improved roadways, universally accessible walkways and service provision along the entire area (covering nearly 25 km of road length).

Initiatives to promote Ecomobility, which will then be extended to the entire city, for provision of 20 luxury mini buses suited to the narrow lanes of core city along with Public bike sharing system with 440 cycles is proposed. Citizen consultations highlighted issues related to multiplicity of services related excavations. Hence, combined utility trench for water, gas, telecom and electricity would be provided along with 100% coverage of drainage and sewerage network. Electricity network with compact transformers, telecom network and CNG/PNG network for clean fuel with reduced emissions would be provided across ABD. Improved green and open spaces and provision of public toilets for attaining open defecation free status are proposed. To harness the renewable energy potential, generation of 0.5 MW of power is proposed through roof solar PV panels for use within public establishments like Kadamba bus terminal. For improved energy efficiency, entire ABD would be provided with sensor based LED street lighting.

KPIs ADDRESSED

- Transportation and Mobility
- Basic services (Water supply, sewerage, sanitation, telecom, electricity)
- Energy efficiency
- Energy Source
- Energy supply
- Safety

ESSENTIAL FEATURES ADDRESSED

- Encouragement to non-motorised transport
- Adequate water supply including waste water recycling and storm water reuse
- Sanitation including solid waste management
- Energy efficient street lighting

SUB- COMPONENTS

- Road improvement, universally accessible walkways, street furniture
- Combined utility trench for water, telecom, gas and electricity
- Storm water drainage, sewerage, telecom and electricity network
- Ecomobility: city bus loops (20 Mini buses)
- Ecomobility: Public Bike Sharing System
- Sensor based LED Street lighting, improvement of open spaces, provision of public toilets, CNG/PNG network, 0.5 MW roof top solar PV
- Mandovi road bridge (convergence funding 514 Cr.)

COST (Cr.)

128.54

11.00

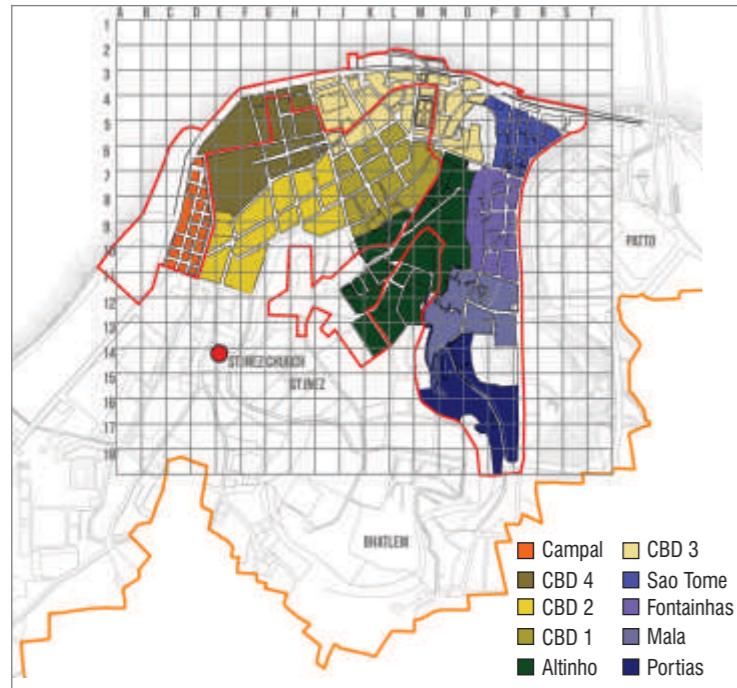
94.07

28.78

67.67

Total: 330.06

LISTING & GRADING OF HERITAGE STRUCTURES IN PANAJI



Heritage Structures In Core City : Credit Charles Correa Foundation Report on Heritage Listing



Mala Fontainhas Heritage Quarters



STATISTICS/ KEY INDICATORS

2
Heritage walks

50,000
Tourists/year to Old Secretariat

912
Listed heritage structures

Heritage cell

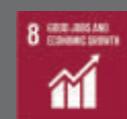
Façade Restoration

Adaptive reuse/TDR

Heritage Guidelines

CSR based adoption of heritage buildings along heritage walks

SUSTAINABLE DEVELOPMENT GOALS & TARGETS ADDRESSED



- Economic productivity through diversity
- By 2030, promote sustainable tourism



By 2030, enhance inclusive and sustainable urbanization

Adaptive reuse of Old Secretariat as Heritage & Art Museum & Interpretation Center



PROJECT TITLE & DESCRIPTION

Conservation of Heritage and Culture

Leveraging the tourism potential of rich Indo Portuguese heritage through incentivizing conservation, creating livelihood generation opportunities and reinforcing citizen connect with heritage.

The city, with more than 912 listed heritage structures signifying rich Indo Portuguese heritage, has notified a heritage zone in the core city which regulates development in this area. These heritage structures, although a subject of pride for the owners, require extensive maintenance. Hence, incentivizing heritage conservation by transparent scientific GIS based documentation of heritage structures while associating the citizens with heritage through crowdsourcing to share memories associated with buildings and stretches is proposed to facilitate formulation of heritage guidelines and conservation plan which would be implemented through a heritage cell at the CCP.

Old Secretariat is proposed to become a Heritage & Art interpretation center cum museum e-tickets for all tourist attractions would be provided. CSR based adoption of heritage structures along the heritage walk and highlighting heritage walks through markers is proposed.

KPIs ADDRESSED

1. Citizen participation
2. Identity and culture
3. Economy and Employment
4. Intelligent Government Services
5. Safety
6. Transportation and Mobility

ESSENTIAL FEATURES ADDRESSED

1. Additional 'Smart' applications

SUB- COMPONENTS

COST (Cr.)

- Heritage Conservation Plan and constitution of Heritage Cell
- 2 km paved heritage walks with markers
- GIS database for heritage & crowd sourcing
- Adaptive reuse of Old Secretariat as Heritage & Art Museum & interpretation center
- Signage policy & signage provision
- CSR policy for adoption of heritage structures and stretches, building byelaws.

0.3

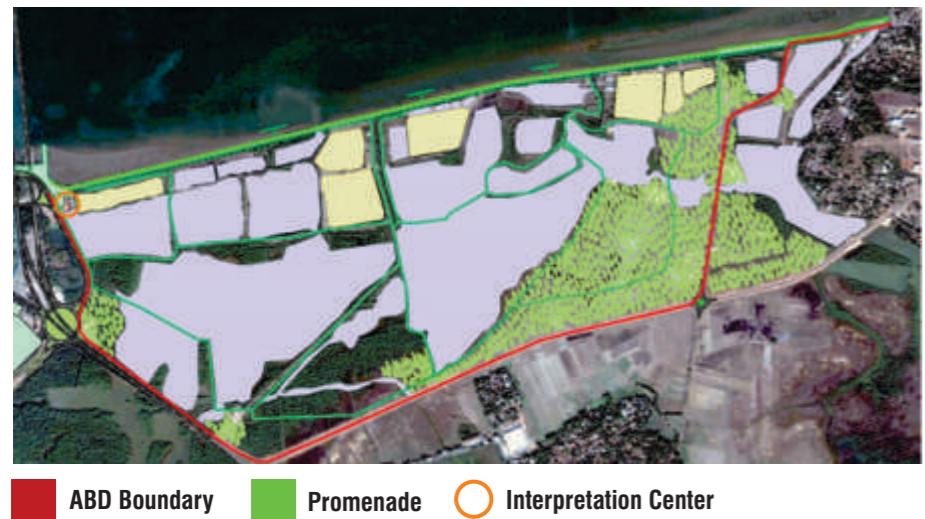
16.50

1.08

0.33

Total: 18.21

Proposed Biodiversity Park along ABD (Coastal Ecosystems, Biodiversity, Salt Pans)



ABD Boundary Promenade Interpretation Center

Salt Pans in the Biodiversity Park



Existing Mangroves in Biodiversity Park



Biodiversity

STATISTICS/ KEY INDICATORS	1 km nature trail along mangroves	Green Jobs	Support Provision of Ecosystem Services	14 Species of Fauna	Salt Pans	1 km Green Tunnel	People's Biodiversity Register	Bio-diversity Park	27 Species of Flora
SUSTAINABLE DEVELOPMENT GOALS & TARGETS ADDRESSED		<ul style="list-style-type: none"> By 2020, restore water related ecosystems Local community involvement in water resource management 		<ul style="list-style-type: none"> Strengthen resilience Adaptive capacity for climate hazards 		<ul style="list-style-type: none"> By 2020, reduce marine pollution By 2020, sustainably manage & protect coastal ecosystems 		<ul style="list-style-type: none"> By 2020, restoration & sustainable use of forests, wetlands Halt loss of biodiversity By 2020, integrate ecosystem & biodiversity values in development process Ensure conservation, restoration & sustainable use of forests, wetlands 	



Proposed Mangrove Walk



PROJECT TITLE & DESCRIPTION

Biodiversity Conservation

Restoring the native biodiversity of Western Ghats through revival of native floral and faunal species (global biodiversity hotspot).

Panaji located along the Arabian sea coast, is rich in coastal ecosystems, avifaunal diversity (E bird initiative of Cornell university with 1059 bird sightings covering 329 species), mangroves and other biodiversity associated with Western Ghats. Increasing urbanization mandates the need for intervention for biodiversity conservation through provision of flora and fauna that can reinstate the pollinators of Western Ghats in the city. The city has taken initiatives under Asian Cities Climate Change Resilience Network funding under Small Grants Program to sensitize future conservation leaders, GSIDC supported People's Biodiversity register, biodiversity park, mangrove park and other such initiatives which are proposed to be extended under the SCP by strengthening interlinkages between mangrove and biodiversity park and ABD (salt pans, avifauna, aquatic life & mangrove stretches)

Biodiversity interventions - creating green jobs, improved micro climate, hosting rich flora & fauna.

KPIs ADDRESSED

- Economy and Employment
- Open spaces

- Economy and Employment
- Open space
- Citizen Engagement

- Open Spaces
- Economy and Employment

- Economy and Employment

ESSENTIAL FEATURES ADDRESSED

- Innovative Use of Open Space
- Additional 'Smart' applications

- Innovative Use of Open Spaces
- Additional 'Smart' applications

- Innovative Use of Open Spaces
- Additional 'Smart' applications

- Additional 'Smart' applications

SUB- COMPONENTS

Joggers Park: Butterfly garden and bamboo corner

Mala lake: Butterfly garden, lake restoration, herbal garden

Quality of life assessment study and boardwalk for nature trail along mangroves

Rua De Ourem Creek area: Mangrove plantation

Future conservation leaders for biodiversity

COST (Cr.)

0.17

1.62

0.33

0.25

0.68

Total: 3.05

BICYCLE ROUTE PROPOSED BICYCLE NETWORK



PROPOSED BUS ROUTES



RE-ORGANISATION OF TRAFFIC FOR LIGHT BRT & BIKE-SHARING



STATISTICS/ KEY INDICATORS

55,406 tCO₂e (2013-14)

Transport Sector GHG Emission

SUSTAINABLE DEVELOPMENT GOALS & TARGETS ADDRESSED



- By 2020, halve the number of global deaths and injuries from road traffic accidents



10482 (2012-13)

Private & Commercial Registered vehicles



228 tCO₂e

GHG emission reduction from intelligent parking management system

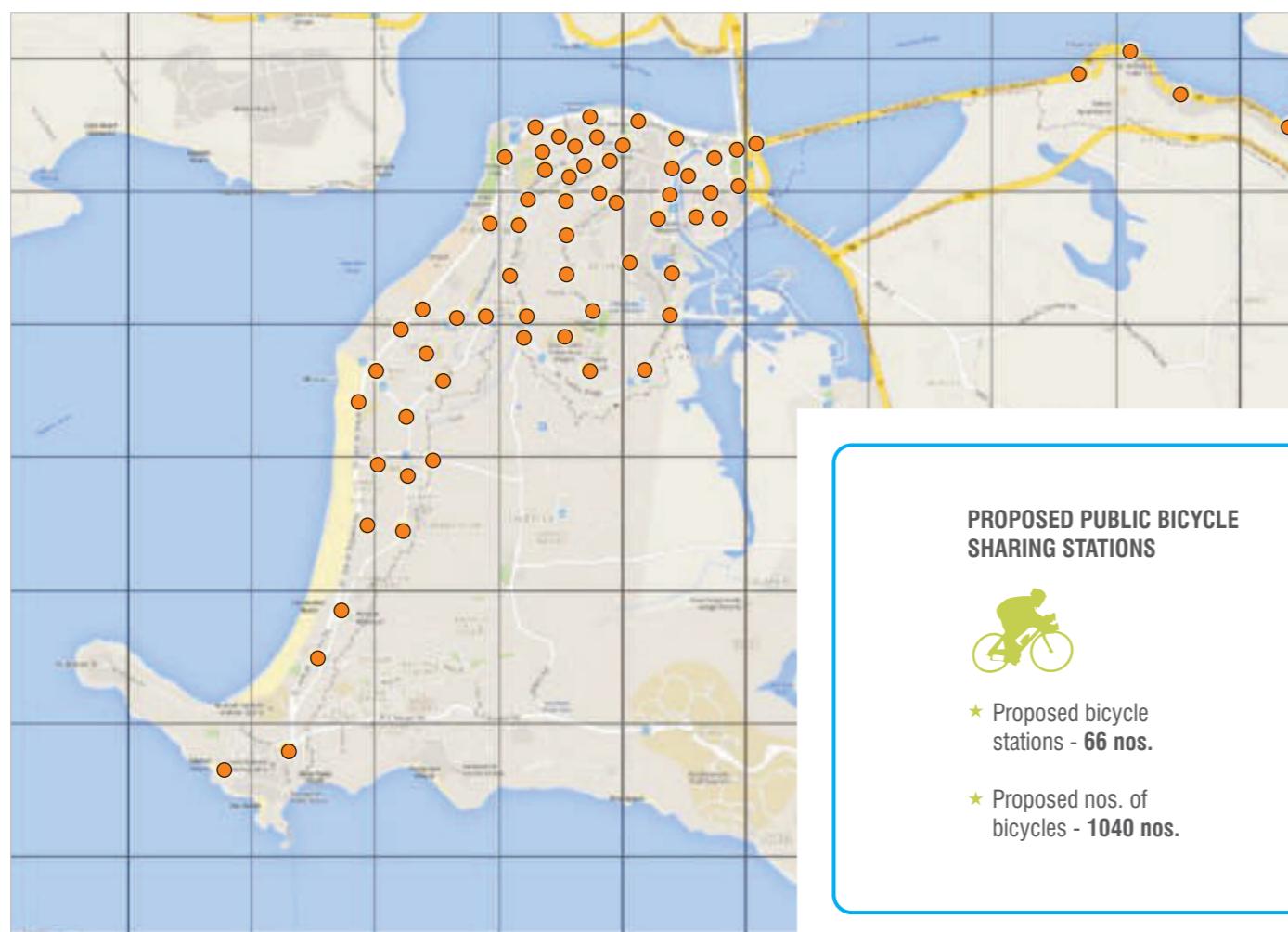


95 tCO₂e

GHG emission reduction from PBS

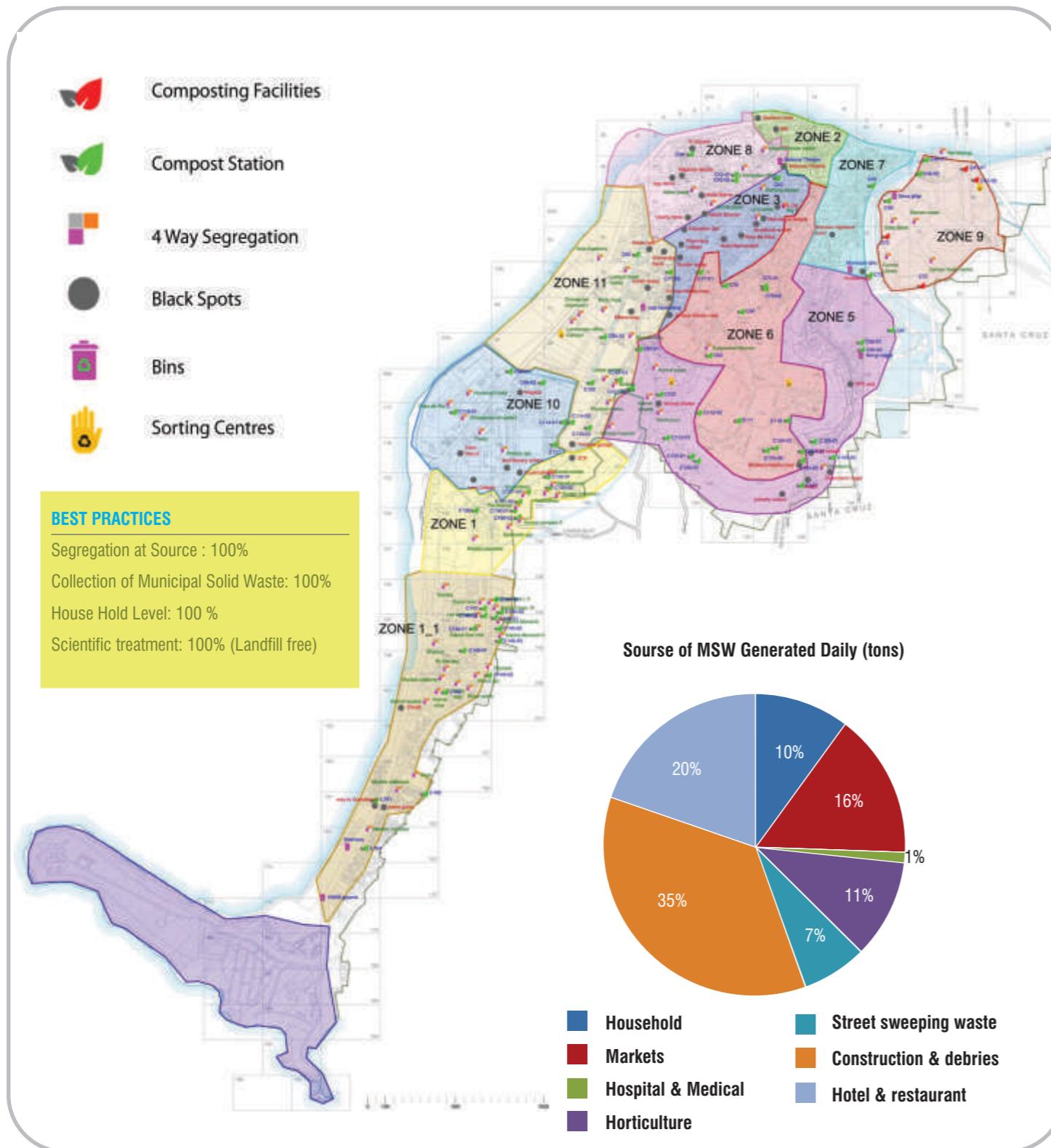
Smart Transportation
and Eco Mobility

Smart Transportation
and Eco Mobility



PROJECT TITLE & DESCRIPTION	KPIs ADDRESSED	ESSENTIAL FEATURES ADDRESSED	SUB- COMPONENTS	COST (Cr.)
A) Smart Transportation and Eco Mobility Comprising the setting up of a state of the art integrated and intelligent transportation platform for and non-motorized and multi modal public transportation, pedestrianization, smart parking and traffic management and ICT applications for monitoring and citizen feedback and information system.	Walkable Transport Compact ICT enabled government services Safety and security Energy Efficiency Air Quality	Accessible and affordable transportation infrastructure Pedestrian friendly core business district Increasing use of public transportation and non motorized transportation Multi modal seamless integration of traffic and transportation Smart Parking Decongestion and reduction in trip time Improved Air Quality	Smart components for public bikes, buses and ferry Central command and control centre for integrated and intelligent transportation system Smart Parking Air quality monitoring stations Improved Air Quality	38.30

SWM Zone Map



SWM Sorting Station



Bailed Recyclable Waste



PROJECT TITLE & DESCRIPTION	KPIs ADDRESSED	ESSENTIAL FEATURES ADDRESSED	SUB- COMPONENTS	COST (Cr.)
B) Smart Environmental Services Comprises ICT based solutions for integrated solid waste management. ICT based solutions for monitoring of solid waste collection, transportation, treatment & recovery/reuse facilities and personnel Automation of Material Recovery Facility and Resource Centre	Waste Management ICT enabled Government services Citizen participation Energy efficiency	Bin Free and Zero Waste City Transparency and citizen interface State of the art MIS Waste to Energy Waste to Resource	RFID devices for waste collection tracking GPS and GPRS controller for vehicle tracking system Biometric attendance MIS for Material	11.80



STATISTICS/ KEY INDICATORS

7912 tCO₂e (2013-2014)
Solid Waste GHG emissions



SUSTAINABLE DEVELOPMENT GOALS & TARGETS ADDRESSED

- By 2030, reduce the number of deaths and illnesses from air, water and soil pollution



- Sustain economic growth
- By 2030, devise and implement policies to promote sustainable tourism



- 96 Decentralised composting stations,
- 3 Centralised composting stations, 95% Door to door collection

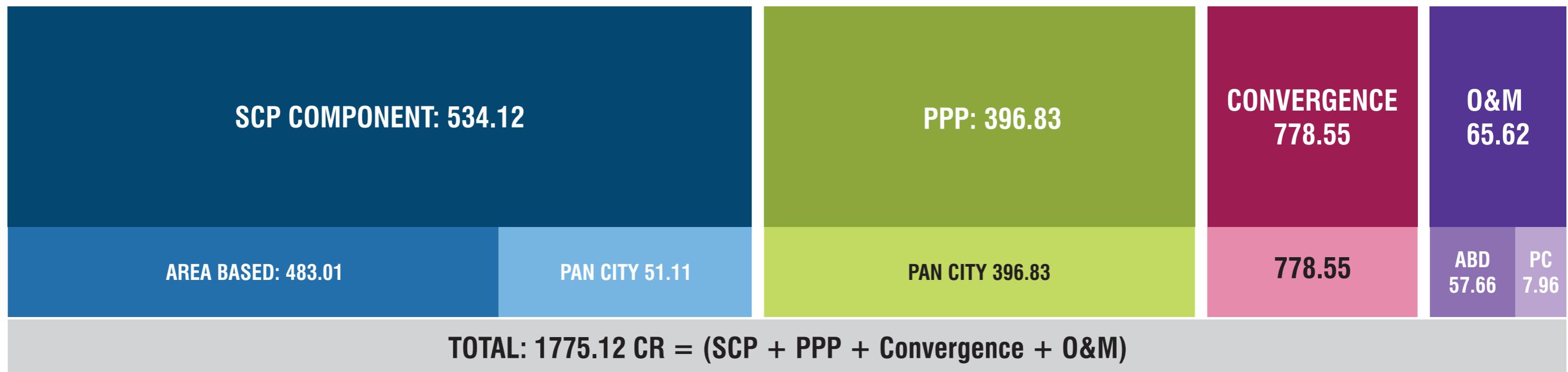
800 tonnes
Recyclable Waste sold / yr.

46.67 L
Revenue generated / yr.



- Strengthen resilience and adaptive capacity

Overall Financial Summary



Panaji Smart City Proposal Financial Plan (along with the ULB Contribution towards O&M for 10 years)

Intervention	ALL FIGURES IN CRORES							
	Smart City proposal component			Public Private Partnership	Convergence with other schemes	Operation & maintenance (10 years) (A)	Revenue generation (10 years) (B)	ULB Contribution for O&M (10 yrs)** (A-B)
Area Based Development	State Govt.	Central Govt.	Total					
	267.06	267.06	483.01	---	778.55	57.66	54.67	2.99
Pan City			51.11	396.83		7.96	---	7.96
Total	267.06	267.06	534.12	396.83	778.55	65.62	54.67	10.95

