



DRAFT PUNE

RESILIENCE

STRATEGY

PIONEERED BY THE
ROCKEFELLER FOUNDATION

100



CITIES



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Introduction

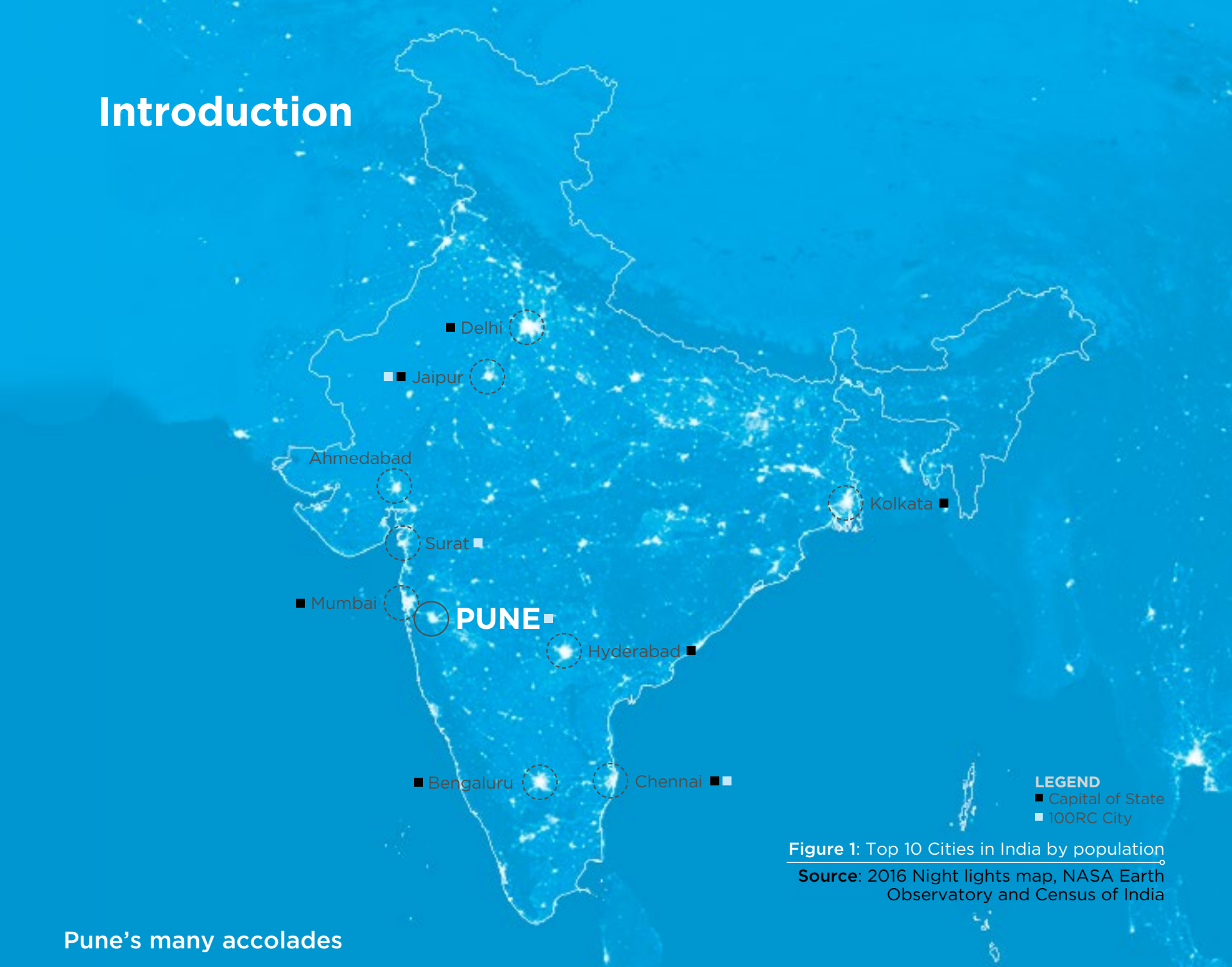


Figure 1: Top 10 Cities in India by population
 Source: 2016 Night lights map, NASA Earth Observatory and Census of India

Pune's many accolades



1st in urban **governance** across 23 Indian cities in ASCIS survey, 2018



1st in ease of **living** across 111 cities in India, MoHUA, 2018



1st in **quality of life** in India along with Hyderabad, as per Mercer, 2014



2nd largest varsity in India with **811 colleges**



2nd in India in **software exports**



7th highest **GDP** among Indian cities at **\$69bn**, Brookings Institute (2014)



9th most **populous** urban agglomeration in India

Pune is one of the most important **urban economies** in the country..

..however, Pune's **infrastructure** and **spatial growth** have been largely unplanned..

..additionally, the city's **ecology** and **environment** are severely stressed and degrading..

..nevertheless, effective **urban governance** and **basic service delivery** are significant levers..

..and Pune's robust **finances** and educated workforce also make it attractive for investments.

Rapid urbanization in Pune has meant that structural inequalities and systemic vulnerabilities of individuals, institutions, ecosystems, and city development processes have surfaced; necessitating strategic engagement to make city-systems more resilient.

With the motivation to address these challenges, Pune was selected in 2016 to join the 100 Resilient Cities (100RC) Network, pioneered by the Rockefeller Foundation. Fundamental to 100RC's philosophy on resilience is not only preparing cities for disasters but also, working with different socio-economic groups and a wide range of stakeholders to prepare for economic, social, and physical stresses and shocks.

Building on the mobilization and analysis done in Phase 1, in Phase 2, we have further explored challenges and outlined systemic solutions for them. By aligning new partners and resources we have had an opportunity to expand the resilience team and supporters, to ask hard questions and learn from local and global partners.

The work in this phase has resulted in specific priorities that we would like to seek inputs on, from Pune's expert ecosystem and the public. We will continue to refine the draft strategy laid out here and release the final Pune Resilience Strategy by June 2019.

To build resilience in Pune, we believe in building consensus and building allies



“ We want to **integrate** and **mainstream resilience** into city services, plans and initiatives. Pune has the potential to become a **lighthouse city** in resilience building in India and can encourage other cities to follow it. ”

HON'BLE SAURABH RAO
Pune Municipal Commissioner

“ Officials and political office bearers will keep changing, and hence, for resilience to be **truly entrenched** in the city, its **citizens** must take **ownership** of the Resilience Strategy. ”

HON'BLE KUNAL KUMAR
Joint Secretary, MOHUA, GOI | 100RC City Leaders Advisory Committee | Former PMC Municipal Commissioner

Figure 2: Key milestones

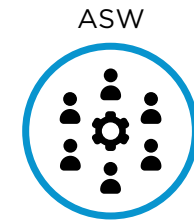
We investigated shocks/stresses & diagnosed the city on 12 resilience parameters

CHRONIC STRESSES weaken the fabric of a city on a day-to-day or cyclical basis

Top stresses in Pune: Mobility, health of water bodies, access to affordable housing, air pollution and solid waste management

ACUTE SHOCKS are sudden, sharp events that threaten a city

Top shocks in Pune: Flooding/ extreme rainfall and disease outbreak



ASW

60+

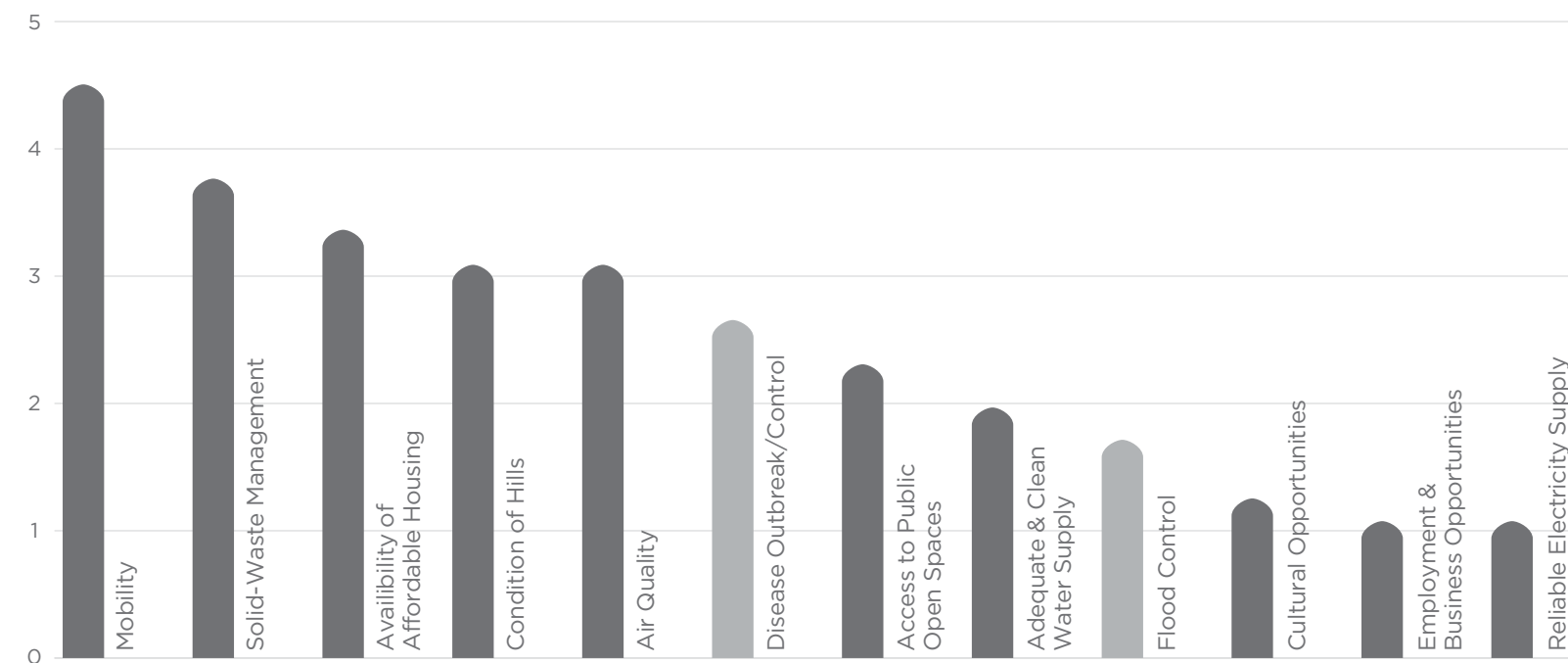
Experts prioritized shocks & stresses based on frequency and severity



Citizen Survey

500+

Citizens rated 12 shocks & stresses based on perceptions

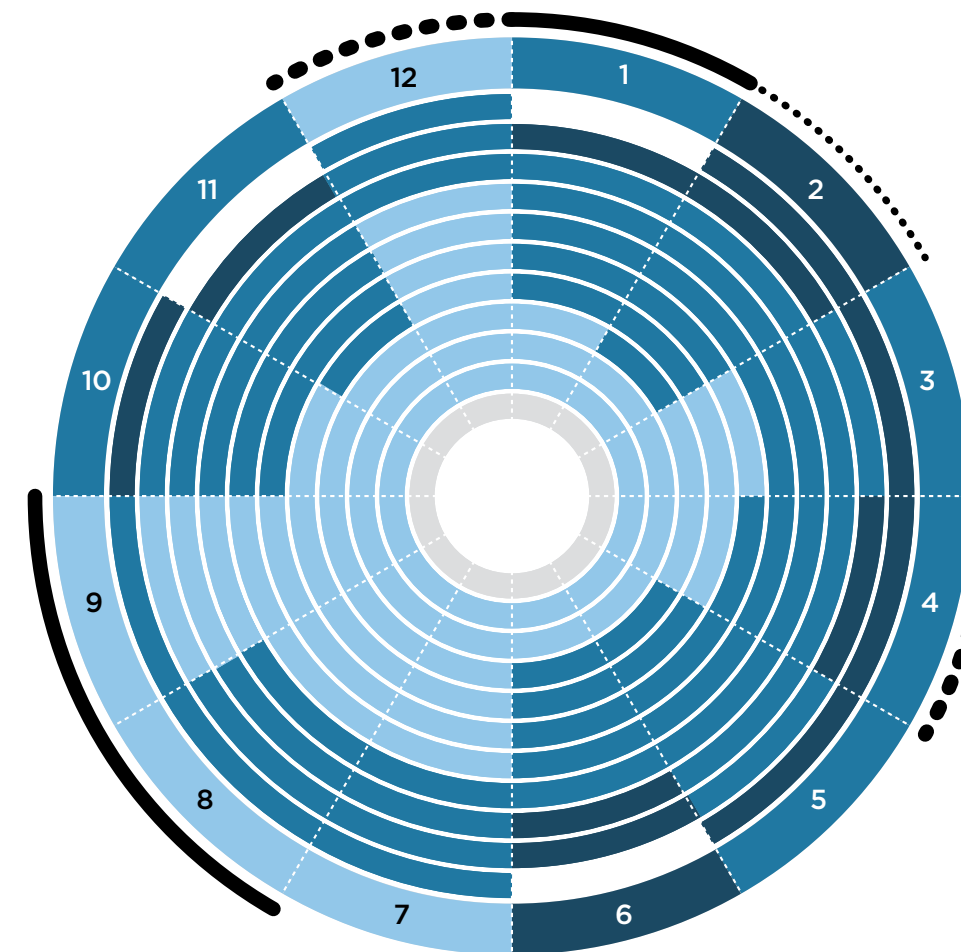


Average rating, participants rated from 1 (not a challenge) to 5 (most important challenge) **Figure 3: Shocks and Stresses in Pune**

PUNE'S RESILIENCE AS PERCEIVED BY STAKEHOLDERS

An evaluation of the city's resilience, based on detailed stakeholder inputs across thematic working groups, expert surveys, and expert interviews, indicate the following

- Areas Of Strength
- Doing Well, But Can Improve
- Need To Do Better



ACTIONS BEING UNDERTAKEN IN PUNE

An analysis of 300+ actions (plans, strategies, programs, projects, practices, initiatives, legislations, and funding actions) designed to contribute to the protection, functioning or advancement of the city, via the 100RC's City Resilience Framework revealed that

- Areas Of Deep Engagement
- Areas Of Mild Engagement
- Areas Of Low Engagement

RESILIENCE THEMES

- 1 Meets basic needs
- 2 Supports livelihoods & employment
- 3 Ensures public health services
- 4 Promotes cohesive & engaged communities
- 5 Ensures social stability, security & justice
- 6 Fosters economic prosperity
- 7 Maintains & enhances protective natural & manmade assets
- 8 Ensures continuity of critical services
- 9 Provides reliable communication & mobility
- 10 Promotes leadership & effective management
- 11 Empowers a broad range of stakeholders
- 12 Fosters long-term & integrated planning

Figure 4: Resilience Perceptions and Actions

We also took learnings from 100RC network cities to sharpen Pune's Resilience Strategy



Figure 5: World map showing 100RC member cities

NETWORK CITY INITIATIVE

1.1.1.3 MRT TOD / PLANNING GUIDANCE & INTEGRATION INCL BICYCLE PLAN

Boulder	Embed Resilience in the Comprehensive Plan: Integrate resilience into the Boulder Valley Comprehensive Plan
Pittsburgh	Design and construct smart and sustainable redevelopment projects
Mexico City	Establish policies and pilot projects to promote transportation-oriented urban development
Vejle	ROSBORG - Use Rosborg as a laboratory to address the challenges and opportunities that Vejle will face in 2050

1.2.4.4 CYCLING PLAN

New Orleans	Build an equitable bike share program
Athens	Urban Cycling plan
Semarang	Improve pedestrian and bicycle path
Melbourne	The metropolitan cycling network

1.1.1.2 MULA-MUTHA RIVER REJUVENATION PARTNERSHIP

Los Angeles	Revitalize, Enhance, And Protect the Los Angeles River Watershed's Ecosystem and Biodiversity
Santiago de los Caballeros	Build the ecological corridor of the Yaque del Norte
Santiago de Chile	Biodiversity and Water Ecosystem Protection Program
Byblos	Rehabilitate the main stream, Nahr Jaj
Surat	Real-time river health monitoring of Tapi

2.3.1.1 M&E / LIVEABILITY INDEX (UN HABITAT) / SDG - CONCEPTUALIZING AN EXPANDED MANDATE FOR THE PMC ENVIRONMENTAL CELL

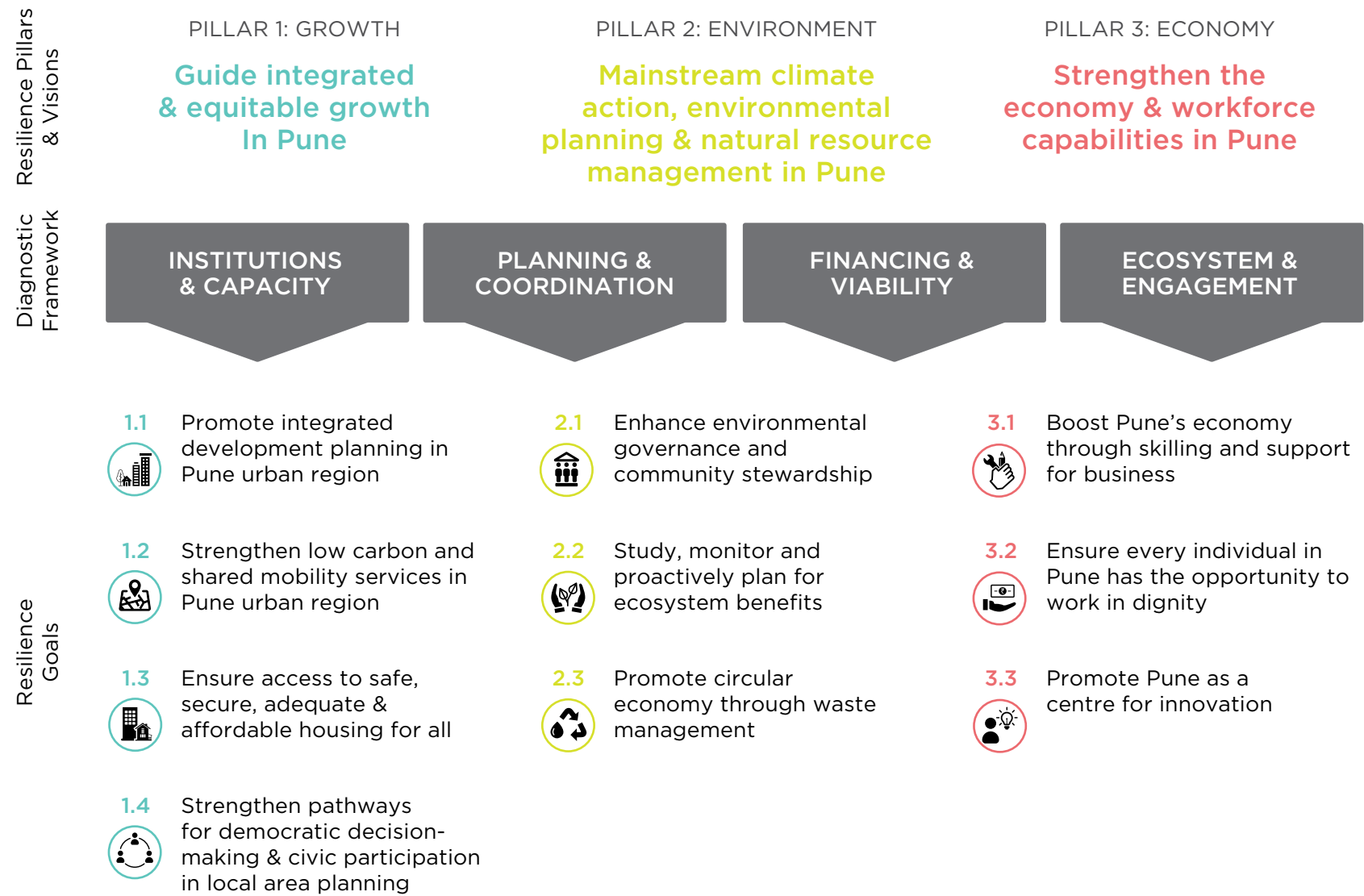
El Paso	Address identified environmental challenges by deploying best practices and identifying key performance-based metrics to assess infrastructure resilience
Cali	Establishment of a Socio-Environmental Observatory
Thessaloniki	Develop environmental monitoring tools

3.1.5.5 SKILLS SCOPING / LIGHTHOUSE / TRAINING

Atlanta	Conduct a participatory budgeting pilot by 2020
Berkeley	Engage community for Berkeley Strategic Plan
Norfolk	Launch Vision 2100, a citizen-led long-term planning initiative
Quito	Conduct citizen participation training programs for municipal employees
Greater Christchurch	Facilitate networking between community organizations as a means to develop shared direction and more efficient use of resources

Pune's Resilience Strategy

To build resilience in Pune, we have drafted inter-related goals and actions that can be implemented through projects. These enhance the on-going work in the city while also proposing new strategies. The actions and projects outlines for each goal are in draft stage, and we invite suggestions to further refine them.



PILLAR 1: GROWTH

Vision: Guide integrated & equitable growth in Pune

As Pune's population and urban spread increases, three broad spatial patterns emerge- a congested core of historic significance, medium density neighbourhoods that surround the core, and rapidly urbanizing peri-urban areas with governance deficit, witnessing haphazard township developments proximate to large employment centers.

The rapid urbanization following the booming economic opportunities in the region, not having institutions mandated to foresee and predictively plan and monitor these services, have accentuated environmental as well as infrastructural stresses of mobility and affordable housing. For example, there is no single authority or process that oversees the convergence of works by traffic dept., road dept., public bus & metro mobility services. Similarly housing adequacy is not measured or comprehensively planned for.

The development plans only cover land-use in their scope, and therefore integration of mobility, environment, economic development is overlooked, causing uneven and unsustainable growth. As the 34 surrounding villages get incorporated into PMC over the next few years, nearly doubling its footprint, it is imperative to guide growth and to ensure that the citizen experience across the region is equitable along various development parameters. Enhancing citizen engagement and promoting social cohesion, especially in areas populated with new migrants (both high-income professionals and livelihood seeking populace) will make these communities more resilient.



Integrated planning

Goal 1.1 Promote integrated development planning in Pune urban region



Access & mobility

Goal 1.2 Strengthen low carbon and shared mobility services in Pune urban region



Housing security

Goal 1.3 Ensure access to safe, secure, adequate & affordable housing for all



Community cohesion

Goal 1.4 Strengthen pathways for democratic decision-making & civic participation in local area planning



Goal 1.1 PROMOTE INTEGRATED DEVELOPMENT PLANNING IN PUNE URBAN REGION

ACTION 1.1.1 Enhance processes and capacities for integrated development planning in Pune region

Lead: PMC

Strategic planning for the urban area by PMRDA and municipal jurisdictions by PMC and PCMC, while enabling local area plans may be the way forward. Transit projects (metro, BRT, High Capacity Mass Transit Road) and addition of peri-urban areas are opportunities for new models of development planning, such as Transit Oriented Development and Local Area Plans. Plan frame-works are also needed to rejuvenate old core, high density areas that have below-par building stocks and services, while conserving heritage precincts and the pre-motorization urban fabric.

1.1.1.1 Launch a multi-stakeholder Forum of Sustainability Planning to foster innovations

1.1.1.2 Conduct pilots of LAPs and TOD plans in a range of typologies of density and land-use, with a participatory approach (see also 1.2.2.4 on public transit and land-use planning; 1.4.3.1 on participatory planning)

1.1.1.3 Develop guidelines for implementation, enforcement and monitoring of DP and their adoption in Pune, including for rejuvenation and conservation of core city precincts

1.1.1.4 Prepare a strategic structure plan integrating various Development Plans

ACTION 1.1.2 Enhance resilience at the regional scale

Lead: PMC

As the largest city in the metropolitan region, Pune impacts the region; conversely, a large population within Pune will be impacted by regional-scale developments and changes.

It is in the interest of all local self-governments (PMC, PCMC, and towns and villages) to be aware of resilience challenges and take steps to enhance resilience at the regional scale.

PMC as an important stakeholder can advocate improved natural resource conservation, especially water and biodiversity, integrated land-use and mobility planning, as well as help enhance appropriate economic growth in the region.

1.1.2.1 Study and report on resilience of Pune city within the metropolitan region for integration by PMRDA into its plans

ACTION 1.1.3 Map environmental assets and integrate conservation into development plans

Lead: PMC, PMRDA

Mapping natural/ near natural lands/ ecosystems and other environmental assets and maintaining the information as part of the Geographic Information Systems of planning authorities is essential for consideration of these assets in planning processes. Pilot projects may be initiated with a view to securing natural resources through instruments such as Payment for Ecosystem Services (PES), conservation easements and Transfer of Development Rights. The feasibility of these instruments within the current planning legislative framework, needs to be assessed.

1.1.3.1 Ecosystem & Environmental Assets Mapping and integration with DC Rules (see also 2.2.1.1 (biodiversity mapping) and 2.2.2.1 (groundwater mapping))

1.1.3.2 PES-Pay: Study feasibility of conservation easements and application of Payment for Ecosystem Services in PMRDA region (pilot projects, consultations)



Goal 1.2 STRENGTHEN LOW CARBON AND SHARED MOBILITY SERVICES IN PUNE URBAN REGION

ACTION 1.2.1 Enhance institutional capacity and coordination for mobility planning at PMC and for the Pune Urban Agglomeration (UA)

Leads: Municipal Commissioners PMC & PCMC; CEO PMRDA, District Collector, Maha Metro, PMPML, RTO, Traffic Police

It is essential that all government agencies linked to mobility planning, infrastructure development and service delivery in Pune have a comprehensive and coherent approach, and adequate institutional and technical capacities.

1.2.1.1 Set up a Mobility Department within PMC

1.2.1.2 Update the Comprehensive Mobility Plan (CMP) of PMC, including its links with the CMP of the PMRDA

1.2.1.3 Set up an Unified Metropolitan Transportation Authority (UMTA) for Pune UA

ACTION 1.2.2 Improve bus-based public transit

Leads: PMC, PCMC, PMPML

Bus-based public transit is the backbone of the public transportation system in the Pune region, providing affordable mobility through an extensive network. However, the quality of bus-based transit services has declined tremendously in recent years. Improvements are needed through actions external to the PMPML (such as investment, land-use planning linkages, regulation) as well as internal to PMPML (technical capacity, management, public engagement).

1.2.2.1 Establish service levels for bus-based public transit

1.2.2.2 Enhance investment in and incomes of PMPML

1.2.2.3 Strengthen regulation of PMPML through the RTA

1.2.2.4 Strengthen integration of bus-based public transit in land-use plans (see also 1.1.1.2 on innovative pilots of land-use planning)

1.2.2.5 Strengthen institutional structure, management and technical capacity of PMPML

ACTION 1.2.3 Integrate and improve para transit and shuttle operations for last mile and local area shared mobility

Leads: PMRDA, Maha Metro, PMC Traffic Dept, RTO, Traffic Police, Auto rickshaw unions/ associations

Short local trips currently made by private motorized modes could be converted to shared modes, with local circulator services. Para transit providers are mostly in the informal sector such as share-rickshaw and six-seater services. Better integration of these informal services into the PMC's mobility plans can increase the proportion of trips by shared modes.

1.2.3.1 Institutional arrangement for running shuttle services

1.2.3.2 Institute pilot shuttle services

ACTION 1.2.4 Improve facilities for pedestrians and cyclists

Leads: Road Dept, Traffic Dept, Bicycle Dept

Strengthen institutional and technical capacity to effectively implement PMC's Pune Streets Program and Pune Bicycle Plan

1.2.4.1 Continue Pune Streets Programme and Pune Cycle Plan

1.2.4.2 Conduct technical training on NMT planning

1.2.4.3 Bicycle Partnership for cycling promotion, through corporate groups, educational institutes, NGOs, individuals

ACTION 1.2.5 Institute a comprehensive public engagement programme on sustainable mobility

Leads: PMC, Head of Mobility Dept

Adequate institutional capacity to undertake public engagement, and actual processes to inform and engage the public, would enable a smoother and more rapid system transition.

1.2.5.1 Strengthen PMC's capacity for IEC and public engagement on sustainable mobility (see also 1.4.3.1 on capacity for participatory planning)

1.2.5.2 Implement IEC processes for sustainable mobility



Goal 1.3 ENSURE ACCESS TO SAFE, SECURE, ADEQUATE & AFFORDABLE HOUSING FOR ALL

ACTION 1.3.1 Reduce housing vacancies and create a vibrant, sustainable and inclusive rental housing market

Lead: PMRDA

Rental yields are not lucrative enough to offset the challenges in enforcing contracts that don't protect landlords adequately and long and expensive judiciary processes in case of conflict. Developing a healthy rental ecosystem can bring in the vacant stock into the supply fold and also create additional rental units to meet the housing demand.

1.3.1.1 Enact The Draft Model Tenancy Act, 2011

1.3.1.2 Incentivize a rental management ecosystem

ACTION 1.3.2 Incentivize private sector participation in responding responsibly to low-income housing construction & upgradation

Lead: TBD

In Pune, low-income groups drive nearly 75% of the demand in Pune but only about 4% of the supply. The major supply side barriers for private developers are availability of low cost developable land in the city, government approval processes that drive up interest, and stamp duty & registration costs that are passed down to the buyers.

1.3.2.1 Rationalize Pune DCR, streamline approval procedures and ensure transparency in applications

1.3.2.2 Make viability gap funding available for small/new developers

1.3.2.3 Earmark State/ULB land for low-income housing, esp in DP of newly incorporated villages

ACTION 1.3.3 Increase access to home financing and opportunities to use housing finance for repair and retrofitting

Lead: TBD

AHFCs finance low-income borrowers who find it difficult to get finance from banks/ traditional HFCs; are self-employed or employed in the informal sector and lack income proof. AHFCs also finance housing that banks / traditional HFCs are not comfortable financing, e.g. construction with plans sanctioned by Gram Panchayats, and certain types of informal titles. However, there are opportunities to use housing finance to improve living

conditions for households living in slums and for customers approved for the Beneficiary-Led Construction scheme of the PMAY. These segments remain unserved by housing finance, despite interest from lending organizations.

1.3.3.1 Support AHFCs/MFIs to finance improvements in living conditions for households living in slums

1.3.3.2 Develop standards – clear definition of beneficiary segments, minimum size of housing units, criteria for projects to qualify for subsidies and also for banks to develop relevant products.

ACTION 1.3.4 Improve processes of land titling and de-link land rights from basic services, development rights & formal mortgage

Lead: Mashal

Property rights, when defined from a narrow "real estate" perspective, include rights such as use (e.g. residential, commercial, agricultural), transfer, gift, or restricting others from its use. However, in taking a household-centric view, which entails building a life on a property, the definition of property rights could expand to include rights such as developing the land, basic services, and formal mortgage. Thus, property rights could be better viewed as a bundle of rights, which include, but are not limited to Use (residential, commercial, etc.), development; transfer by inheritance; Basic services (e.g., electricity, water, sanitation), transfer by sale; and formal mortgage.

1.3.4.1 Training for residents on entitlement rights, building negotiation capacity & simple on-site

ACTION 1.3.5 Build institutional capacity to do participatory planning and regulation of housing in the Pune urban region

Lead: PMRDA

There is not unifying body that plans and monitors the housing demand/supply in the city or manages the various government housing schemes. Private sector housing goes through the PMC building dept. for approval; while the Slum Rehabilitation Authority, a para-statal body, operates independently with little coordination to oversee even the central govt sponsored programs affecting slum communities. Some NGOs fill the space and act both as mediaries and service providers of housing & infrastructure needs of the slum communities.

1.3.5.1 Pune Urban Region Housing Authority



Goal 1.4 STRENGTHEN PATHWAYS FOR DEMOCRATIC DECISION-MAKING & CIVIC PARTICIPATION IN LOCAL AREA PLANNING

ACTION 1.4.1 Institute policies and structures for inclusive and effective public engagement at PMC

Lead: PMC

There is no policy or guideline adopted about why, when and how public engagement may be done as part of civic public governance. Pilots are needed to develop and refine methods of inclusive and effective public engagement in the urban context.

1.4.1.1 Develop a draft policy for sectoral and area-based public engagement for placement before the PMC General Body

1.4.1.2 Constitute pilots of Area Sabhas as structures for deliberative, democratic public engagement

ACTION 1.4.2 Enhance institutional and civic capacities for participatory local area planning, implementation and service delivery

Lead: PMC

The ambition of instituting participatory processes must be accompanied with some effort on capacity building to conduct participatory processes in an inclusive, thoughtful and effective manner. This will include supportive administration, trained facilitators, and civic or public capacity to contribute as informed participants.

1.4.2.1 Create guidelines for public infrastructure and services planning, based on CPHEEO guidelines and URDPFI guidelines, customized for Pune

1.4.2.2 Orientation programmes on local area planning and public engagement for municipal officials, facilitators, the public, youth

ACTION 1.4.3 Undertake pilots of public engagement processes for ward/ neighbourhood level planning and implementation

Leads: PMC Ward Offices and sectoral committees

Structured, inclusive, effective forums for public participation help improve social cohesion. Innovations in ICT tools need to be fostered to support meaningful participation.

1.4.3.1 Conduct and evaluate ward or area level public participatory planning, and on selected themes (*see also, actions on participatory planning for mobility (1.2.5.1); biodiversity (2.1.1.1); groundwater (2.1.2.3); pastoral routes (2.1.4.1); waste (2.2.3.3); air quality (2.3.3.4)*)

1.4.3.2 ICT for public engagement and Social Accountability - innovations in tools, and pilots of usage in participation processes

1.4.3.3 Good practice manual on public engagement

ACTION 1.4.4 Improve voter turnout to make electoral outcomes more representative of wider city population

Lead: PMC Election Department, PMC Ward Offices

Average voter turnout in election is declining, which undermines representation and democracy. The reasons include difficulty in registration in electoral rolls, no options for absentee voters to cast their votes and low visibility of progress made.

1.4.4.1 Permanent online kiosks to facilitate voter registration

1.4.4.2 Targeted voting awareness programs for different types of rare & intermittent voters

1.4.4.3 Facilitate regular, structured and inclusive interactions of the public in each electoral ward with elected and administrative officials

PILLAR 2: ENVIRONMENT

Vision: Mainstream climate action, environmental planning & natural resource management in Pune

Valued for its climate and access to natural environment, Pune has been experiencing severe degradation of its ecological resources. Ecosystem benefits are often not recognized and valued in development planning and infrastructure creation. Degradation or destruction of the natural environment, as well as introduction of invasive aliens can result in exacerbation of extreme weather events, flash floods, landslides, and spread of disease. Further, sections of the urban poor population and certain migrant communities have direct dependencies on natural resources.

The overarching issue is to mainstream environmental thinking within the governments in the Pune metropolitan region – the focus currently is on compliance with environmental standards. The focus needs to be proactive environmental planning that recognizes the role that natural assets play in making the city resilient, and the lives of people safer, healthier and enriched.

The objective of this Discovery Area is on solutions that broadly institutionalize environmental planning while building capacities across departments within the PMC and in the PMR to better manage the natural resources in the city. The knowledge, capacities, and efforts of different civil society and community groups are valuable resources to enhance environmental planning and conservation. Enabling structures and processes to enhance public participation in environment conservation are also a focus of this Discovery Area, that intersects with Discovery Area 1.



Governance & community stewardship

Goal 2.1 Enhance environmental governance and community stewardship



Ecosystem benefits

Goal 2.2 Study, monitor and proactively plan for ecosystem benefits



Circular Economy

Goal 2.3 Promote circular economy through waste management



Goal 2.1 ENHANCE ENVIRONMENTAL GOVERNANCE AND COMMUNITY STEWARDSHIP

ACTION 2.1.1 Expand Institutional mandate and capacity of PMC to improve the sustainability performance of PMC

Lead: PMC

The PMC has a mandate for improving the urban environment. Comprehensive integration of sustainability in civic services and monitoring, with action plans & budgets would enhance resilience.

2.1.1.1 Create Pune Sustainability Cell at Environment Dept, for SDG Monitoring and Reporting

2.1.1.2 Conduct studies and prepare action plans for ecosystems, water, air and climate (*see also Action 1.1.1.3 and Goal 2.2*)

2.1.1.3 Institute a Sustainability Innovations Programme including blue-green infrastructure enhancement

2.1.1.4 Pune Resilience Accelerator programme for river ecosystem conservation and sustainable use planning

ACTION 2.1.2 Facilitate community stewardship and action for conservation

Leads: PMC Environment Dept, NGOs

Education for Sustainable Development (ESD) is a key strategy to enhance resilience in society. UNESCO suggests that learning to live together sustainably in cities and communities is one of the most important educational challenges of our time. SDG 4.7 focuses on ESD. Experiential, action-learning approaches to enable interaction with, restoring and managing natural assets may be useful for Pune.

2.1.2.1 Institute Sustainability Dialogues for public awareness and participation in monitoring the progress of localized SDGs

2.1.2.2 Learning Centres Network for hills, gardens, waterbodies

2.1.2.3 Pune Natural History Museum

2.1.2.4 Sustain-Learn - Resilience learning programme for Schools, Colleges, Public (*see also 1.4.2.2 on learning about participation*)

ACTION 2.1.3 Ensure wellbeing of vulnerable groups dependent on ecosystems, in conservation plans

Leads: PMC, NGOs (e.g. Anthra, CEE, Ecological Society), research institutes (e.g. BVIEER, ARI)

Various vulnerable and marginalized groups, such as dhangars and katkaris are directly dependent on ecosystems in the city for livelihoods and use of harvested resources. Their traditional rights and use arrangements of village commons and fields have been disrupted with changes in urban physical form and governance, often causing conflicts. A process is needed to recognize the direct dependence on ecosystems and knowledge of communities, and dialogue to ensure sustainable use and conservation of natural assets. Their deeper knowledge and cultural connections are valuable intangible resources, that can enrich understanding about nature among city folks.

2.1.3.1 Initiate 'Pastoral Pune' Project to map routes of nomadic pastoral groups, conduct dialogue, identify ways of protecting livelihoods and biodiversity, and enable knowledge sharing (*See also 1.4.3.1 on participatory planning*)

2.1.3.2 'Mase Khekade Zinge' - Sustainable development of waterscape and dependent communities in Pune urban region

2.1.3.3 Energy security for urban poor, reducing firewood usage



Goal 2.2 STUDY, MONITOR AND PROACTIVELY PLAN FOR ECOSYSTEM BENEFITS

ACTION 2.2.1 Map and develop an information base of ecosystems, their ecological attributes, benefits and benefits valuation

Lead: PMC Environment Dept.

Participatory programs and studies may be initiated to develop a comprehensive biodiversity strategy and action plan. Studies of the economic burden/ value of pets, pests and health hazards such as rock pigeons, Satvin trees would help to develop a mechanism within PMC to ensure effective review of policies, quarantine and regulation of such significant biodiversity elements.

2.2.1.1 Pune Local Biodiversity Strategy and Action Plan (LBSAP), including mapping ecosystems and environmental assets, ecosystems valuation, and integration into GIS maintained for development planning (*see also Action 1.1.1.3*)

2.2.1.2 Pune Pets and Plantations Project

ACTION 2.2.2 Map, monitor and manage urban groundwater

Lead: PMC Water Dept, GSDA

Groundwater provides an important buffer against low rainfall and shortages in surface water storages. Sustainable management of groundwater requires better information about the groundwater resources, and a strategy to improve recharge. In the medium-term, improved information and monitoring processes would help to devise sustainable use strategies with the participation of the public.

2.2.2.1 Policy and plans for regulation of groundwater recharge and discharge zones and usage in Pune (*see also Action 1.1.1.3*)

- Pune Aquifer Map to be integrated into the GIS maintained by the PMC Development Planning Cell
- Guidelines, DC Rules for groundwater recharge & discharge areas

2.2.2.2 Groundwater data centre and visualization platform

2.2.2.3 Participatory Groundwater Monitoring & Management Programme (*See also 1.4.3.1 on participatory planning*)

ACTION 2.2.3 Climate change studies and Climate Action Plan

Leads: PMC Environment Dept, Climate Collective Pune, other NGOs, academic institutions

Preparation of GHG Emissions Inventories, and vulnerability assessments will help identify sectors contributing to GHG emissions, climate risks, and sectors and communities exposed to specific risk factors, and help to prioritize mitigation and risk-reduction actions. As the largest city in the metropolitan region, Pune impacts the region; conversely, a large population within Pune will be impacted by regional-scale developments and changes.

2.2.3.1 GHG Inventory, vulnerability assessment and Climate Change Mitigation and Adaptation Action Plan, considering resilience of Pune city within the metropolitan region

2.2.3.2 Pune Renewable Energy and Energy Efficiency programme at PMC, including targets and facilitation of energy efficient buildings, rooftop solar, and solar inverters

ACTION 2.2.4 Comprehensive air quality monitoring programme, studies and preparation of Air Action Plan

Lead: PMC Environment Dept

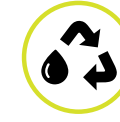
Improved monitoring, and participatory consideration of data with relevant municipal departments (e.g. transport, waste) will help create accountable and implementable air action plans.

2.2.4.1 Institute a comprehensive Air Quality Monitoring Programme with adequate monitoring stations & equipment

2.2.4.2 Institute Health and Exposure Studies, especially for specific populations with high exposures

2.2.4.3 Air Quality Data Visualization & Communication Program

2.2.4.4 Area and sector specific Air Quality & Emissions Reduction Management, and Risk-reduction Action Plans (*See also 1.4.3.1 on participatory planning*)



Goal 2.3 PROMOTE CIRCULAR ECONOMY THROUGH WASTE MANAGEMENT

ACTION 2.3.1 Strengthen the capacity of the PMC and the circular economy ecosystem towards 100% in situ processing of organic wastes, recovery of recyclables, and liquid waste management

Leads: PMC, PSCDCL, SWaCH

Pilot projects will help understand the institutional changes and capacities needed, including for promoting source segregation of waste streams, decentralized organic waste processing, retrieval of recyclables, closing or shortening recycling loops, and setting up systems to enable Extended Producer Responsibility (EPR) for difficult to recycle materials. Similarly, waste water treatment too will require innovations, including market-based approaches to mitigate untreated effluents. Good quality data, MIS and GIS on waste generators, collection services, and processing sites would help build effective and efficient data-driven decisions at the city level.

2.3.1.1 Zero Waste Wards - pilot for 100% organic waste management

2.3.1.2 EPR* Desk at PMC - to promote management of difficult to recycle materials, including innovations in products and materials

2.3.1.3 Waste GIS and Waste Matters Studies to keep track of segregation, composting, collection, user fee payment, and monitoring service provision

2.3.1.4 'StreamLine Pune'- Nalla rejuvenation for treatment of polluted run-offs/ run-off waste water

ACTION 2.3.2 Support formalization of scrap recycling economy and improve sanitation worker safety and livelihoods

Leads: PMC, PMRDA, KKPKP, SWaCH, Scrap traders

The scrap recycling economy is largely in the informal sector. While recycling provides economic and environmental gains, the informal nature of the sector

often means hazardous work conditions and pollution from mismanaged materials recovery processes. Support to the sector for integrating worker welfare and environmental compliance is necessary. This must be done through participatory approaches and institutional capacity building. Enhancing the circular economy also means shortening the materials loops, and reducing distances for transport of materials. Re-organization of the physical systems for materials movement and recycling may be needed to enhance the value of the recycling economy in Pune.

2.3.2.1 Create a Scrap Map for Pune

2.3.2.2 Closing the Loops, or shortening recycling loops

2.3.2.3 Promote Green Jobs in Recycling

ACTION 2.3.3 Promote public behaviour change for sustaining the circular economy

Leads: PMC, PSCDCL, NGOs, residents' associations

An IEC strategy and participatory governance with information on waste services and public responsibilities, incentives and penalties, area-based campaigns on waste segregation and littering etc would support the transition to circular economy. Active networks of people interested in and practicing composting may be strengthened.

2.3.3.1 IEC strategy for circular economy

2.3.3.2 Strengthen / promote Community Compost Networks

2.3.3.3 Participatory governance mechanism such as Ward Citizens' Committees for Circular Economy (*See also 1.4.3.1 on participatory planning*)

PILLAR 3: ECONOMY

Vision: Strengthen the economy and workforce capabilities in Pune

Post independence, Pune has been one of the most dynamic urban economies in India. This was due to its proximity to Mumbai & the western coastline, legacy of cooperatives, industrial growth driven by MIDC, especially in automotive manufacturing, and high human capital/education & skills levels as a result of being an educational hub. These factors also allowed Pune to take part in India's IT boom.

However, recent data/trends suggest that some of the traditional drivers of Pune's economic dynamism, especially low-skills manufacturing, mainly autos, as well as IT/ITes, are in decline/evolving and there is a risk that Pune will not be able to compete, provide jobs/livelihoods and meet the aspirations of its young educated population. While there is a widening skills gap, the risk is exacerbated by high participation in the informal sector which is faced with multi-dimensional poverty. Unlike other parts of India, Pune's high human capital and its status as an educational hub provide the strengths it needs to be resilient in the future.

But to capitalize on this, there is a need for Pune to develop high-skill sectors beyond IT and auto industry, especially those that generate high employment but also absorb the city's skilled graduates. The city has the potential to transform itself from just being an educational hub to also being a regional center of critical research & innovation. However, for the economy to be truly resilient for all, the multi-dimensional stresses faced by the most vulnerable workers in the city need to be addressed to capitalize on the potential of its citizens.



Skills & Business

Goal 3.1 Boost Pune's economy through skilling and support for business



Dignity of Work

Goal 3.2 Ensure every individual in Pune has the opportunity to work in dignity



Innovation

Goal 3.3 Promote Pune as a centre for innovation



Goal 3.1 BOOST PUNE'S ECONOMY THROUGH SKILLING AND SUPPORT FOR BUSINESS

ACTION 3.1.1 Invest in skilling the workforce for growing & evolving needs of sectors

Lead: Pune City Connect

There is a need to understand the skilling needs for the city and respond by simultaneously consolidating the rich but disaggregated skills ecosystem in Pune. This needs to be supplemented with strategic vocationalisation of higher education and standardisation of skilling centers across the urban region.

3.1.1.1 Pune skills-mapping/ skills gap analysis to create a baseline

3.1.1.2 Pune Skills World, a collaborative social enterprise that aims to extend skill development programs in Pune through digital platforms

ACTION 3.1.2 Create a conducive environment for MSMEs to start, thrive and expand to generate employment in the city

Lead: MCCIA

With the highest number of MSMEs in Maharashtra, Pune's conducive business environment for MSMEs has contributed immensely to its economic growth. But in order to remain competitive, these firms need to improve their productivity while also creating jobs to absorb the city's high as well as low skilled workforce.

3.1.2.1 Enterprise Pune (based on Enterprise Singapore) to provide good low-cost business consulting, legal aid and grants to improve firm productivity

ACTION 3.1.3 Create scope for local economic planning & development

Lead: PMC + PMRDA

Pune urban region needs to conduct pro-active economic planning, monitoring and development. Job creation/ economic growth in Pune, could be pro-actively linked to land-use planning, mobility, housing & service delivery, thus allowing the city to capture growing revenues from property taxes, transaction fees, & wider spill over benefits of growth.

3.1.3.1 Pune Economic Development Cell - Expand mandate / capacity of PMC social welfare department to enable local economic development



Goal 3.2 ENSURE EVERY INDIVIDUAL IN PUNE HAS THE OPPORTUNITY TO WORK IN DIGNITY

ACTION 3.2.1 Ensure universal coverage and delivery of coordinated social protection

Lead: PMC Social Development Department (SDD)

'Social protection' is used here in a broad sense to refer to social insurance, social assistance, and social safety nets - medical insurance, housing, and pensions being the most important priorities. Beneficiaries are often not able to access programs they are entitled to because they may lack proper documentation. In addition the bureaucratic steps to sign up and avail benefits are a major hindrance, especially since programs are operated under various city, state and national government departments. But ensuring these basic protections are availed can increase productivity of the city's workforce.

3.2.1.1 Doorstep, personalized assistance for coordinated and easy access of social protection programs- like Hakdarshak. Can work with individuals as well as employers.

3.2.1.2 PMC Single window unit for coordinating different state and local government programs

3.2.1.3 Emergency social safety nets - like homeless shelters, food kitchens

ACTION 3.2.2 Improve government regulation and worker entitlements, especially for the most vulnerable informal work

Lead: PMC Social Development Department

Many informally availed services in the city are not well regulated by the government, such as domestic work, construction, sanitation, transportation, etc. While these create employment and are important, the workers work in vulnerable conditions and don't enjoy basic entitlements like livable wages, paid leaves, healthy working hours and are often exposed to hazardous working conditions that impact both mental and physical health. The risks and regulations for the different types of work are varied. These need to be assessed individually and suitable regulations for each need to be developed and enforced.

3.2.2.1 Vulnerability assessment of informal workers - domestic, construction, sanitation, transportation, waste-pickers, etc.

3.2.2.2 Single window at PMC for coordination & convergence with various state and national depts. (e.g.: labor dept.)

ACTION 3.2.3 Create an enabling environment for formation, recognition, engagement and promotion of worker collectives

Lead: NULM + PMC SDD

Organizing can begin to address the vulnerability, insecurity and dependence commonly experienced by the working poor in the urban informal economy whose lives are controlled by powerful economic and political forces. But, organizing informal work by itself is not sufficient to bring about needed changes. Workers need representative voice in those institutions and processes that set policies and the 'rules of the (economic) game'. Ensuring a voice for informal workers in relevant urban planning, policy making, and rule-setting processes requires supporting the growth of their organizations, and building capacity for leadership, policy advocacy, and collective bargaining.

3.2.3.1 Mission for Elimination of Poverty in Municipal Areas (MEPMA)+ NULM - by organizing communities at the grassroots level, MEPMA facilitates the formation of SHGs, Slum Level Federations, & Town Level Federations with the objective of organizing the poor into self-reliant and self-managed groups (in all the slums), SHG-Bank Linkages, etc.



Goal 3.3 PROMOTE PUNE AS A CENTRE FOR INNOVATION

ACTION 3.3.1 Create pathways for transfer of knowledge and technology between industries, research institutions and universities

Lead: MCCIA

Research and innovation is important but ultimately holds its highest value when it is shared and flows freely between institutions where it can be practically used. In many cities, this means creating better and stronger connections between industry, researchers, and universities. These institutions can be complementary but their different styles, goals, and personnel can be barriers for effective collaboration and for allowing businesses and individuals to translate new research into new products and services. There need to be the right incentives and mechanisms for such collaboration to take place.

3.3.1.1 Innovation Vouchers Programme funded by CSR to provide SMEs with non-repayable grants to avail innovation support services by universities (e.g., of policy used in Hungary).

ACTION 3.3.2 Promote central data gathering and dissemination through open-data platforms to ensure ease of access of data for research

Lead: PMC + TATA Trust

Open and ready access to high quality data and a granular level is crucial to spurring critical research. There are many sources and types of data but often these are currently difficult to find and collate and are in many different places. An open data platform that can provide one-stop access to various data (e.g., socio-economic, geo-spatial) and also conduct some basic analysis itself would help in providing a strong base for researchers now and in the future.

3.3.2.1 Address human and institutional dimensions of open data provision and utilization for governance and service improvement.

3.3.2.2 Pune Data Observatory-review and improve the open data portal and quality of data.

ACTION 3.3.3 Nurture entrepreneurship in emerging sectors that take advantage of Pune's strengths in engineering, manufacturing, arts & culture, and high skilled labour

Lead: MCCIA

Nurture entrepreneurship by influencing mind-sets & improving safety nets while also strengthening the ecosystem in Pune with improved access to funding, mentorship, and on-boarding dynamic champions to lead innovation.

3.3.3.1 Start-up Subsidy Scheme

3.3.3.2 Pune Ideas Factory Foundation

We are introducing pilot projects with Pune's ecosystem and 100RC Partners

Project 1.1.1.4 Develop Guidelines for Transit Oriented Development

Lead: PMC

TOD experiences from across the world need to be assessed and applied to the context of Pune and its varied densities - Pune city core, peri-urban areas, etc. Further, planning and design interventions would be created for three different scales: Network, Area and Station. While discussing the plans at various level, built-form based regulations will be discussed along with street design, landscape design and urban utilities. Apart from the demonstrative plans, governance and finance mechanisms also need to be investigated for value creation and capture.

Project 1.2.1.3 Set up an Unified Metropolitan Transportation Authority (UMTA) for Pune Urban Agglomeration

Lead: PMRDA

The need for coordinated planning, financing, functioning of urban mobility services and infrastructure is strongly felt. The formation of a Unified Metropolitan Planning Authority (UMTA) as an entity to achieve such coordination has been recommended by the National Urban Transport Policy 2006 and the new Metro Policy. The proposed initiative will help formulate the constitution and role of an UMTA for the Pune urban region, and support the institutional and human capacity

development initially, once the UMTA is constituted.

Project 2.1.1.1 Create Pune City SDG Monitoring Framework

Lead: PMC Environment Dept.

For Pune to accomplish its vision on growth, environment and economy, it requires a strong monitoring framework to collect data and information under one integrated platform. It will also help Pune understand the impact of its actions on national and global mandates, and allow evidence-based course correction in policy and programmes. The SDG framework, if localized and grounded for Pune, can help measure the processes and the outcomes of the city's on-going transformation, including monitoring actions and projects under this resilience strategy.

Project 2.3.1.4 'StreamLine Pune'- A way forward for nalla rejuvenation in Pune City

Lead : PMC

Nallas, the natural storm water streams drainages are an integral part of the City's ecosystem, but are heavily polluted and remain choked. Devising a comprehensive, long term strategy for nalla and water body rejuvenation is a need of the hour which may include appropriate policy interventions, innovative finance models, globally validated technologies and most importantly stakeholder involvement.

Project 3.1.1.1 Pune Skills Mapping - a gap and opportunity analysis

Lead: PMC Social Development Department

Pune District skill-gap study conducted by National Skill Development Corporation (NSDC) forecasts that the district is likely to generate incremental demand / jobs for about 2.85 million persons between 2012 and 2022. So that Pune is able to meet's its vision to strengthen its economy and workforce capabilities, the talent and skills in the city need to match with what is demanded by the current and evolving market needs. A regular skills assessment using scientific tools will be useful in monitoring this match. This kind of assessment and monitoring is also prescribed by the National Urban Livelihoods Mission.

Project 3.1.1.2 Pune Skills World

Lead: Pune City Connect

While Pune Lighthouses caters to a few thousands, there is a high demand for vocational training in the city. Not only is this important to start careers, but also for ongoing need to retrain and reskill to remain relevant for employability. Pune Skills World, a social enterprise,

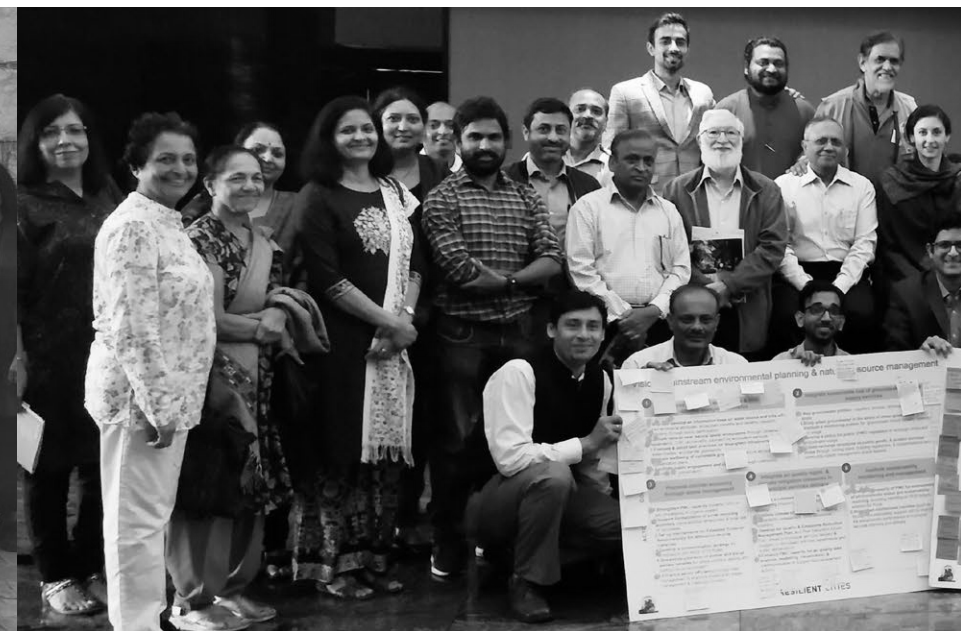
will address the twin requirements of larger reach with appropriate content and training built on the backbone of a digital technology platform. It would extend the skill development initiative of the physical skill development centres of Lighthouses to all aspiring citizens from the age of 14 to 45 in every municipal ward of Pune and take skilling into schools, colleges, skills centres and even the homes of citizens of Pune thus supporting at least 300,000 citizens - one member at least in every low-income family in the city.

Project 3.3.2.2 Pune Data Observatory-review

Lead: National Institute of Urban Affairs (NIUA) + PMC + MCCIA

Pune data observatory will be a platform which serves as a repository for accurate and frequently updated city specific spatial and non-spatial data that can be used as a decision support system. A data observatory will help eradicate data gaps that plague decision makers today. The observatory will allow decision makers to visualize trends and analyze data to develop the most efficient strategies. Through decision support techniques, the data observatory will also help policy makers solve complex urban problems.

If you are interested in supporting projects outlined in this document, please contact Pune Chief Resilience Officer (CRO)



Join us in building a Resilient Pune!

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DISCLAIMER

The information contained within this document is not conclusive and is part of an ongoing process designed to improve the resilience of Pune.

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