

On behalf of:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety

of the Federal Republic of Germany



Ministry of Housing and Urban Affairs  
Government of India



Smart City  
MISSION TRANSFORM-NATION



# Training on Urban Green Planning in Climate Smart Cities

## Training Manual for Training Institutes

Supported by

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Climate Centre for Cities



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## Imprint

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

### Published by

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

### Registered offices

Bonn and Eschborn, Germany

Climate Smart Cities Project:  
Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH  
B-5/2, Safdarjung Enclave  
Neu Delhi 110 029, India  
T + 91 4949 5353  
F + 91 4949 5391

E giz-indien@giz.de  
I www.giz.de

This project is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

### Responsible

Ms Vaishali Nandan  
Project Head – n Cities  
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH  
B-5/2, Safdarjung Enclave  
New Delhi 110029

T +9149495353  
F + 914949 5391  
E vaishali.nandan@giz.de  
I www.giz.de

### Authors

National Institute of Urban Affairs  
Dr Umamaheshwaran Rajasekar, Ms Amanjot Kaur, Ms Udit Agarwal

German Institute of Urban Affairs (Difu)  
Mr Jens Hasse, Ms Finya Eichhorst, Mr Kaj Fischer  
Consultant: Mr Klaus Hoppe

GIZ  
Ms Alokanda Nath

### Reviewers

GIZ  
Ms Irina Riehle  
GIZ is responsible for the content of this publication.  
New Delhi, India | Berlin, Germany  
January 2021

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# List of Abbreviations

BMC	Biodiversity Management Committees
BMI	German Federal Ministry of Interiors Building and Community
BMU	German Federal Ministry of Environment, Nature Conservation and Nuclear Safety
CBD	Convention for Biodiversity Diversity
CSC	Climate Smart Cities
CSCAF	ClimateSmart Cities Assessment Framework
CDWM	Construction and Demolition Waste Management
Difu	German Institute of Urban Affairs
GHG	Green House Gas
GIS	Geo Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
IKI	German International Climate Initiative
LBSAP	Local Biodiversity Strategy and Action Plan
LST	Land Surface Temperature
MoHUA	Ministry of Housing and Urban Affairs
NBA	National Biodiversity Authority
NDC	Nationally Determined Contribution
NIUA	National Institute of Urban Affairs
NULP	National Urban Learning Platform
PBR	People's Biodiversity Register
SBB	State Biodiversity Boards
SDG	Sustainable Development Goals
TU Berlin	Technical University of Berlin
UGP	Urban Green Planning
ULB	Urban Local Body
URDPFI	Urban and Regional Development Plans Formulation and Implementation





# Introduction to the training course

## About the project

The training on UGP is facilitated within the framework of the Climate Smart Cities (CSC) project (2018-2022). The CSC project is funded under the German International Climate Initiative (IKI), by the German Ministry of Environment, Nature Conservation and Nuclear Safety (BMU) in cooperation with the German Ministry of Interiors Building and Community (BMI) and coordinated by GIZ jointly with MoHUA, Government of India. Implementing project partners are the German Institute of Urban Affairs (Difu), NIUA and the Technical University of Berlin (TU Berlin). The CSC project attempts to anchor climate-friendly solutions within the Smart Cities Mission.

The project contributes to the achievement of the Nationally Determined Contributions (NDCs) to the Climate Goals as well as the Sustainable Development Goals (SDG). It acts as a facilitator in promoting cooperation between national and subnational actors by technically supporting international advisory and exchange formats and by supporting the implementation of measures.

The project works with three Indian Smart Cities of Bhubaneswar, Coimbatore, Kochi and their respective state governments of Odisha, Tamil Nadu and Kerala, in the planning and implementation of smart and climate-friendly measures for infrastructure and area-based development, as well as the measuring and monitoring of their Green House Gas (GHG) emissions.

## The ClimateSmart Cities Assessment Framework

MoHUA launched the ClimateSmart Cities Assessment Framework (CSCAF) under the Smart Cities Mission in February 2019 jointly with GIZ and NIUA. The CSCAF serves as a tool for cities to assess their present situation and provides a roadmap for cities to adopt and implement relevant climate actions. It is the first city assessment framework on climate relevant parameters in India. During this training, participants will take first steps to assess the status of urban green in their respective cities and receive knowledge they need to improve conditions in the future.

The CSCAF 2.0 is broadly categorised into 5 sectors with 28 indicators (see figure 1). Each of these indicators has a maximum of 5 levels representing different stage of development each with a corresponding weightage:

- I. Energy and Green Buildings,
- II. Urban Planning, Green Cover and Biodiversity,
- III. Mobility and Air Quality,
- IV. Water Management, and
- V. Waste Management.

The CSCAF is a bi-annual assessment process. Hence, cities need to constantly work towards becoming ClimateSmart and continuously build their capacities. In the second phase of assessment, the MoHUA is looking forward to providing cities with the required capacity building tools and measures which will help them improve and evolve their readiness to combat climate change.

## The approach

Within the CSC project, staff of urban local bodies (ULB) and other relevant actors receive trainings to build their capacity to perform the CSCAF independently. To this end, the training is based on practice-oriented and interactive learning. Participants are introduced to the theoretical background, participate in structured exercise activities, and reflect on what has been learned and its applicability to their own cities. At the conclusion of the training, participants have the knowledge and motivation to implement local actions.

This training is part of the larger capacity building work that has been envisioned as part of the CSCAF, and the training institutes which attend the training are expected to carry it forward with cities in their regions by contextualising and disseminating the learnings.

The intent of this manual is to enable you as a trainer to deliver the training on Urban Green Planning (UGP) for planning practitioners, especially in local administrations across India. As such, the manual aligns with the objectives of the training to:

- Create awareness,
- Improve knowledge
- Demonstrate the potential and possibilities,
- Engage the topic through interactive exercises, and
- Motivate and empower to act.

# Introduction to Urban Green Planning training

## Key content:

- Need and purpose of the training
- Urban Green Planning in the ClimateSmart Cities Assessment Framework

## Learning goals:

- Learn about the relevant parts of the ClimateSmart Cities Assessment Framework for integrated Urban Green Planning
- Understand the intention of this training of trainers workshop

The training has to be delivered against the backdrop of the smart cities mission. While the smart city concept is mostly associated with applying technology, it does not necessarily imply only digital approaches but an efficient use of available resources. UGP can unlock such locally available resources and provide cost-efficient benefits and core services of urban live.

The intent of the training on UGP is to inform about the relevance of urban green for general urban development, especially with regards to the challenges of climate change. The training aims to broaden the perspective on urban green. Participants' definition of urban greenery should go beyond the provision of leisure space towards an understanding of urban green as infrastructure. The basic guiding principles for such a definition are i) multifunctionality, ii) connectivity, iii) green-blue-grey integration, and iv) social inclusion<sup>1</sup>.

Furthermore, the training will familiarise participants with the 'green' dimension of the CSCAF. Specifically, this training focusses on three indicators within this framework, i) the proportion of green cover, ii) rejuvenation of waterbodies and open spaces, iii) and urban biodiversity.

Training participants will be enabled to analyse the current situation of urban green in their respective cities, devise an integrated plan to improve the condition of urban greens, and take first steps to implement such plans.

The technologies taught in this training include up-to-date satellite imagery, GIS spatial analysis tools and easy to perform stakeholder mapping to devise action-oriented plans to improve the condition of urban greenery, waterbodies and biodiversity.

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<sup>1</sup>For more background on these principles, we recommend the green surge project: Hansen, R., Rall, E., Chapman, E., Rolf, W., Pauleit, S. (eds., 2017). *Urban Green Infrastructure Planning: A Guide for Practitioners*. GREEN SURGE. Retrieved from <http://greensurge.eu/working-packages/wp5/>

## Urban Green Planning in the CSCAF

UGP emphasizes on implementation of an interconnected system of urban environment comprising green spaces, recreational places, biodiversity and natural conservation areas. Given their importance for climate change mitigation and adaptation, UGP indicators carry the maximum weightage in the CSCAF at 25% of the total score. In order to address the up-surging needs of urban areas, the CSCAF approach to UGP attempts to anchor climate friendly solution with regards to 5 indicators.

- Indicator 1: Rejuvenation and Conservation of Water Bodies and Open areas
- Indicator 2: Proportion of Green Cover
- Indicator 3: Urban Biodiversity
- Indicator 4: Disaster Resilience
- Indicator 5: Climate Action Plan

The indicators formulated are progressive levels and aspirational in nature from level '1' to level '5'<sup>2</sup>. Each indicator assesses as well as provide guidance to progress and achieve the next highest levels. Cities will be assessed based on the existing situation and guidance will be provided for cities aspiring to achieve progress in the next phase of assessment. This will provide each city with a roadmap enabling them to chart their own progress and devise relevant actions to address the same

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<sup>2</sup>For more information on the indicators and the specific sub-levels, please refer to (insert link to CSCAF brochure)

# General Training introduction

## Key content:

- General structure and content of the UGP training
- Technical aspects and facilitation strategies for workshop hosting and online sessions

## Learning goals:

- Be able to develop an agenda for the UGP training
- Learn about the requirements and skills needed to successfully deliver the UGP training, in person and online

Trainings are vital to replicate the successful development and implementation of climate mitigation and adaptation strategies. The packaged information and materials make it easy to transfer and customize the training multiple times over. However, it is the trainer who ensures the effectiveness of the training. The trainers also contribute to an important aspect of convening a class of participants, creating a sense of community for a cohort of participants who become partners in the journey to sustainable practices.

This section of the manual contains some general guidelines for trainers on how to provide for an engaging and fruitful training experience, as well as an introduction to the specific needs for hosting online sessions and virtual workshops.

## Content and Structure of Training Modules

The training is divided into thematic modules that use a combination of short introductory lectures, case work and exercises, wrap-up sessions and discussions, as well as individual work and readings. It also includes three stand-alone modules on specific indicators of the CSCAF. The structure allows for maximum flexibility to adapt trainings for specific needs. The recommended duration of total training time is three days to adequately cover all modules. The training is designed as an online workshop; therefore, it can work with a large number of participants. When held as in-person workshop, the training would work best with 15-25 participants facilitated by two trainers.

## Methodology of the training course

The training methodology is based on interactive, practice-oriented exercises linked to the CSCAF. Modules contain one or several of the following basic elements.

**Input:** The necessary theoretical background is provided to frame the topic and identify the need for action. This includes general to specific information from legal framework, environmental consequences to best practices.

**Exercise:** The interactive part of the training provides hands-on experience to apply technology to assess cities rating on the CSCAF indicators. Site visits are recommended for in-person situations to provide on-site exposure to tangible conditions. In remote-only trainings, a virtual tour of some facilities may be included.

**Reflection rounds:** The reflection elements can be part of each module or cover multiple modules. Participants are invited to reflect upon and share their experiences with the exercise and the topic.

## Agenda

The following agenda is based on a three-day training and can be adapted according to your own needs. In general, we suggest two 90 minutes sessions in the morning and two in the afternoon. In case of an online training, try to shorten the agenda to one 90 minute session in the morning and one in the afternoon. Virtual meetings tend to be more tiresome, when running for too long.

Day 1	Day 2	Day 3
Morning	Morning	
	Module Indicator Proportion of Green Cover	Module Indicator Biodiversity
Inaugural	Exercise: Mapping green cover	Exercise: Stakeholder Mapping
Afternoon	Afternoon	Afternoon
Introduction to the general topic	Module Indicator Rejuvenation of Waterbodies and open space	Module Feedback
Introduction Module 'integrated Approach'	Exercise: Mapping waterbodies	Closing session

## How to prepare and conduct successful trainings?

The following information will assist in the preparation and delivery of training modules. While not exhaustive, this list provides general guidance for preparing and conducting an effective training.

### Preparation Phase

- Participants should be invited as early as possible. The invitation should be attractively designed to motivate participation. Participants should be decision makers, whether high level official or operational manager. This helps to ensure implementation. It is also helpful to have participants with prior interest in the subject matter.
- Power Point slides to introduce and support each module should be prepared in advance. Participants will receive them as documentation of substantial information.
- A workbook containing instructions and necessary background information for casework and exercises should be compiled in advance.
- An exemplary workbook can be found in the Annex –1: Participant workbook.

### Start of the Workshop

- First impressions are important! When hosting an in-person workshop, participants should be greeted during registration with Identity-card, notebook, pen, and a folder. The folder should contain the workshop agenda, background information and important notes regarding timings, logistics and facility safety. In case of an online-only session, relevant information and documents can be send to the participants in advance. At the beginning of the training, the situation online is much more anonymous, but welcoming the participants personally is still possible: everyone should be kindly requested to activate their cameras, introduced to the workshop room/presentation tool and given a warm welcome greeting.
- In introductory remarks, the challenges and opportunities should be clarified. Participants should be met with a compelling presentation and supported data. Lastly, the remarks should make participants feel welcomed and ready to engage in the training.
- Introduction of the agenda structure should be brief, pointing out the active role of participants and presenting the training manual as back-up.

## During the Workshop

- To keep concentration high, the use warm-up games or icebreakers in the mornings or after lunch is recommended. These simple activities could be physical exercise, games, or quizzes related or not related to the topic. Examples can be found here <https://paradigmshiftleadership.com/tag/icebreakers/>.
- It is beneficial to reflect on what has happened and what will happen next when finishing and starting new sessions or modules.
- Time for questions, feedback, and reflections should be reserved.
- Group work and individual work should be balanced equally.
- For group work, clear tasks supported by leading questions need to be provided.
- Following the scheduled agenda as closely as possible is important. Yet, a certain amount of flexibility is required to accommodate the participants with any necessary changes.
- The exact time for continuance should always be announced, for example "at 12:45" instead of "in 15 mins".
- Frequent breaks are required to keep the concentration level high. This is especially important for online trainings.
- Providing participants with hand-outs of any additional information as well as a summary of key messages is always helpful. the training manual should be used throughout the entire training.
- A short outlook and the starting time for the following day to ensure participants arrive on time should always be given at the end of the day.

## How-to host online

The Covid 19 pandemic has created the need to move capacity building trainings to the digital space. Naturally, online workshops cannot fully replicate an in-person experience, it does however provide the advantage of time effectiveness, flexibility, and removes the need to travel. While all presentations and exercises presented here can also be delivered offline, the online setting brings about some specific requirements and challenges for workshop facilitators. In this chapter, we aim to provide a blue-print on how-to host training sessions online in general. The following chapters include instructions on how-to host the specific sessions of this training course.

## Technical Set Up

The first and obvious differences to an in-person workshop are the technical requirements needed in place in order to enable facilitating an online training. Some are necessary prerequisites; some are optional to improve the overall workshop experience.

**Computer** – a computer or laptop that can connect to the internet and is fast enough to run several tasks and programs in parallel is required. In theory, it is possible to host an online meeting with a tablet device. However, considering the limited controlling possibilities, these devices are the best choice. It is always advisable to host online workshops on a computer.

**Two monitors** – In order to oversee all running programs, presentation material, the participants and moderators notes, it is recommended to use a second monitor if available. This way, the main screen can be used for observing the conferencing tool and presentation, and the second screen for all other programs running in parallel.

**Good headset and camera** – this is recommended for all participants, but vital for the host. Either an integrated headset, or a separate microphone and earphones can be used. Especially an external microphone provides a much better sound quality compared to one integrated in a laptop. The same applies to an external webcam. While this is not an absolute necessity, it improves the overall experience for the audience if they can see the moderators' picture in good quality.

**Internet connection** – To increase speed and stability of the internet connection,

a (ethernet) cable instead of wireless internet connection is recommended. Data throughput is much faster and more reliable on cable, than on wireless connections that can easily get interrupted.

**Conferencing tool** – There is a large number of tools available to host online conferences. Some of them are free of charge, but most free options put a limit on the number of attendees and block certain functionalities. In any case, all available functionalities of the respective system should be assessed before choosing one option. Some functions can be provided through external tools (e.g. mentimeter.com for polling), but usually build-in functions provide a more smooth user experience and exclude potential incompatibilities. One important aspect to consider is if the chosen hosting tool allows for direct browser access for participants or requires the local installation of software. Direct browser access is preferable, as it enables a wider range of people to participate.

**Co-Hosting** – This is an important functionality that most paid online conferencing tools provide. It is possible to single-handedly host an online workshop but assigning one or more co-hosts should always be done. In case of an unstable internet connection, the online meeting will continue under auspices of the co-host and the main host will be able to re-join once eventual problems are resolved. Without a co-host, the meeting will be shut down altogether and all participants will have to be admitted a new.

**Backgrounds** – Most online conferencing tools allow the use of artificial backgrounds for video stream instead of the regular background, e.g., the office space where the host is located. For instance, showcasing an organisations logo, or even a PowerPoint in the background. To use those is optional and requires a fast computer and ideally a green screen or wall in the background to run smoothly. If the technical equipment allows for this gimmick, it can be a nice touch to the event. However, not using this gimmick, a clean background such as a blank wall is recommended to convey a professional image.

## Facilitation

To facilitate an online workshop differs from hosting an in-person meeting. Some rules need to be established to ensure an orderly process, how participants interact with the host and each other, and some workshop techniques you usually applied don't work in an online environment.

**Co-Hosts** – Again, it is possible to single-handedly host an online training. But the numerous tasks like controlling the technology, engaging participants and delivering inputs can make hosting online more difficult for a single individual host. Therefore, it is recommended to have one or more co-moderators to take some tasks. Clear roles and responsibilities should be assigned beforehand to ensure smooth proceedings. For instance, one colleague who is responsible for the technology and helps participants with technical issues. Also, it is advisable to have someone to keep an eye on the chat function to engage with participants.

**Public chat rules** – Most online conferencing tools include a public and private chat function. This is a great way to communicate during online workshops but requires some basic rules of engagement. A conversation in the public chat that runs parallel to a topical input can heavily distract the audience from the presentation. The type of acceptable conversation in the public chat and when to use it need to be clearly communicated. For example, asking for questions to the presenter to only be written down at the end of presentations. Also, it is advisable to make participants aware of the private chat function. This way, they can engage with each other without disturbing the entire audience.

**Video and sound** –participants should be kindly requested turn off their microphones when listening to a presentation. Since many people follow online workshops from their private homes or in busy offices, the surrounding noises can seriously disturb the



presentation. Most online conferencing tools also allow the host to set all participants on mute (silent mode) as default setting. Turning on a participants' microphone if they want to deliver feedback or ask a question verbally can always be done later and on a case-by-case basis. The same principle applies for participants cameras. While video streams do not distract as much, they do put a strain on the internet connection. Thus, it is best to limit them to a minimum, especially with large audiences. However, it is nice to at least have everyone turn on their camera at one point to see the faces of those participating. Typically, this is done during the welcoming part and at the end of the training.

**Ensure focus** – This is one of the most challenging aspects of online hosting. Especially with turned off cameras, the audience will find it easy to get distracted from the training and perform other tasks in parallel, such as reading emails or browsing the internet. This cannot be fully prevented, but it can be made easier for the audience to stay focussed by 1) creating awareness of this problem and asking participants to stay focussed. 2) considering shorter attention spans in online trainings. An input with a longer than 30 minutes presentation will likely tire the audience. Regular breaks and allowing for questions or feedback every 10-15 Minutes can counter this effect. 3) providing real breaks after sessions longer than 60 minutes. Otherwise, the audience will grab something to eat or use the restrooms which will break their attention.

**Engage participants** – A related challenge is to engage with the audience. As interaction on a physical level is not possible, other ways to connect with the audience need to be found. The chat can be a great way to do this by regularly asking questions to be answered in the chat and by establishing a simple sign code where a + signifies agreement and a – dissent. This way, the audience can give continuous feedback on presentations. Another option is to ask for verbal feedback for which participants turn on their microphones to answer or ask questions. But beware; opening up the floor can take a lot of time.

**Breakout sessions** – another great option to increase engagement are breakout sessions. Many online conferencing tools allow to create sub-sessions where a smaller number of participants are assigned to a 'private- room', separate from the main session. These can be used for group exercises or to set up several topical sessions on parallel. This option is especially useful to enable direct interaction between participants, which is usually falling somewhat short in online trainings.

**External tools** – There are a variety of tools available to support online trainings and make it more interactive. From online whiteboards to polling tools, almost every method used in an in-person setting can be simulated. However, these tools can (and will) create technical challenges and the results may differ significantly from an offline exercise. Many facilitation techniques are designed to foster exchange among participants rather than deliver concrete results and solutions. This exchange is more difficult when connection online. This should be considered when deciding what exercise to perform. We recommend to use break-out sessions often, as it enables participants to speak to each other directly in smaller groups.

**Technical issues** – They will occur, and calm composure is the best approach to deal with them. Pure online trainings are new for most people and institutions, the technical infrastructure is not always appropriate, and the computer savviness of the audience will be diverse. At some point, technical issues will arise. Sometimes, the audience will grow unsettled when they don't hear anything and nothing seems to happen while an issue is being fixed, thus explaining what is going wrong and what is currently being done is key to keep everyone engaged. Ideally, a dedicated staff member is assigned to take care of issues such as sound problems, connectivity issues or problems with screen sharing of external presenters.

**Material:** A Virtual facilitation Video plus Handout and a List of Facilitation tools can all be found on the NULP.

# Module 1:

## Inaugural Session

### Key content:

- Need and purpose of the training
- Welcome and Introduction of participants
- Welcoming remarks from decision makers
- Expectation management

### Learning goals:

- Be able to kick-off the workshop and inspire interest right from the beginning UGP training, in person and online

## Purpose of the training on Urban Green Planning for Indian Urban Local Bodies

### Input and instructions from the trainer:

This first module should provide an entry point to the topic and illustrate the need for UGP, as well as showcase some political backing for the issue. A first overview of the CSCAF should also be part of this module. The purpose of the training needs to be clarified, and the relevance of the issue for Indian ULB emphasized.

**Tip:** To generate interest and provide context, the latest figures and facts on urban green and climate change in general and from the target city/ region can be showcased. A few interesting numbers can be found in Section 1 in the training manual.

### Optional aspects:

It is helpful to have high-ranking officials inaugurate the training and give a few remarks at the beginning of the workshop. This could be someone from the MoHUA, GIZ or NIUA. In addition, to invite an official from the respective ULB to introduce the workshop and put it in a wider context, can emphasize the importance of the training issues. Alternatively, if the technical equipment allows for it, you may include a short video with introductory remarks.

**Material:** Presentation Session 1/ Training Manual Chapter 1/ NIUA CSCAF Brochure

## Introduction of participants and expectation assessment

### Input and instructions from the trainer:

To get to know the audience and understand their expectation regarding the training is vital to make sure the workshop is a success for all participants. Since this training is set up as an online session, the easiest way to let participants introduce themselves is to ask them to write their full name, institution and location in the online conferencing tool (in the chat section, and if possible, also as their nametag). To assess expectations, the the build-in polling function or mentimeter can be used for a quick round of questions.

At the end of the training, the trainer may refer to the initially collected expectations and check how they have been met or which other areas might be covered in a follow-up training.

**Tip:** A selection of expectation assessment questions is included in annex 2. In case you run the training as in-person workshop, the manual on Construction and Demolition Waste Management (CDWM) includes some good tips and practices how to assess expectations in offline formats.

**Material:** Polling tool (e.g. mentimeter.com), prepared questions, flipchart to include some non-digital element.

# Module 2:

## Thematic Background - Integrated Urban Green Planning

### Key content:

- Thematic Introduction into the integrated approach
- Implementation strategies for Urban Green Planning at different levels

### Learning goals:

- Gain theoretic background knowledge on the scope of the topic, and the aims and benefits of an integrated approach to urban green planning
- Awareness of the various steps required for implementation

### Introduction to integrated urban green planning and its core benefits

#### Input and instructions from the trainer:

In this module, the general background on UGP is introduced. It is especially important to explain the dimensions of urban green that lead towards an understanding of green infrastructure and ecosystem services. This view supports understanding of UGP as an approach that integrates various benefits and is relevant for different departments within a ULB.

Further, an overview of how the issue is included in the CSCAF should be given, as well as a first glimpse of the sub-set of indicators covered in this training (proportion of green cover, rejuvenation of waterbodies and open spaces, and urban biodiversity).

**Tip:** A comprehensive overview of the historical development of green planning is compiled in the presentation for workshop session 1.

To emphasize the various benefits that urban green can provide beyond leisure and recreational spaces, participants can be asked what they associate with urban green and climate impacts in their city. Juxtaposing the two helps explaining how urban green can mitigate climate impacts. A set of mentimeter questions can be found in annex 2.

The module does not contain a tailored exercise, but the action plan template from module 6 may be used here as a first warm-up that can be revised at the end of the workshop.

The checklist in annex 3 can be used to allow participants to perform a quick self-assessment of their city in advance

**Material:** presentation session 1 / Training manual chapter 1.2 for UGP principles / Training manual chapter 1.3 for UGP within the CSCAF / Training manual chapter 2 for UGP integrated approach / presentation session 6

## Implementation Strategies

### **Input and instructions from the trainer:**

If this module is chosen to start the training, a very specific practical example to illustrate successful possible implementation should be given. A variety of case studies covering specific sub-indicators to a fully integrated approach can be found in the annexure of the training manual. Additionally, detailed information about potential implementation strategies can be presented in this module or referred to in-depth at the end of the workshop in module 6.

**Tip:** This module offers a great opportunity to set up breakout sessions and divide the audience into smaller groups of 4-8 participants. Guiding questions should be provided to facilitate the sharing of experience with UGP and the integrated approach.

**Material:** Implementation strategies in general and examples for specific planning units (city level, policy, institutional) can be found in the training manual Section 2.

# Module 3:

## Indicator proportion of green cover

### Key content:

- Presentation of the indicator CSCAF 'Proportion of Green Cover'
- Mapping Exercise in Google Earth Engine
- Implementation strategies to increase the proportion of green cover

### Learning goals:

- Understand the indicator, how its calculated and measured
- Ability to facilitate the Google Earth Engine mapping exercise
- Capacity to instruct on implementation and facilitate a stakeholder exercise

### Introduction: Indicator proportion of green cover

#### Input and instructions from the trainer:

At the core of this module is the exercise to map and calculate the extend of green cover in the respective home-cities of the participants. However, more context is required in order to make sense of this indicator. To this end, the exercise should be extended to map green cover development over time and analyse land surface temperature (LST). Cross-referencing the development of green cover land surface temperature illustrates one of the most important benefits of urban green, the reduction of urban heat islands. At the beginning of the module, these concepts need to be explained.

**Tip:** It is helpful to address the various types of urban vegetation in participants regions to make the content more relatable. The checklist in annex 3 can be used to allow participants to perform a quick self-assessment of their city in advance.

**Material:** Presentation session 2, presentation session 1, self-assessment checklist

### Exercise: Mapping green cover

#### Input and instructions from the trainer:

This is the heart of the module. The exercise uses Google Earth Engine to analyse satellite imagery with the aim to first, map green cover in a given city and second, calculate the proportion of green cover over the total city surface area. The calculation formula is simple, but the exercise is not! Satellite imagery will be provided for all participants in advance and through the web-platform. Additionally, for this training, Java scripts to perform the analysis will also be made available. This is a specialized service that cannot be provided beyond the scope of this training. However, a tender template is included in the training manual for participants to get outside help if they want to extend their work with Google Earth Engine. In case the trainer is not completely familiar with the Google Earth Engine, a step-by-step instruction is included in the training manual annex.

**Tip:** To really familiarise participants with the tool and the concepts, Google Earth Engine can be used to also analyse older satellite imagery to calculate the change over time and to map land surface temperature.

Since this is a quite challenging exercise, it can be helpful to show the individual steps once or twice first, and then let the participants perform the steps on their own. Extra time should be kept for this exercise.

**Material:** Google Earth Engine Step-by-step instructions Annex 4, Shapefiles, JavaScript

## Implementation Strategy

### Input and instructions from the trainer:

The first step to increase the proportion of urban green cover (and therefore improve a city's CSCAF rating) is to find a clear definition of "green cover" for the respective city. Ideally green cover can be defined by all visible vegetation natural or planted as seen from the satellite. Broadly it includes forests, agriculture, vegetation along water bodies, along streets, dedicated parks-gardens, reservations on plots and vegetation on building roofs or vertical surfaces. Second, in order to plan for an extension of green cover, the legal framework needs to be understood. The trainer should present some of the most relevant national and regional guidelines and regulations. Ideally, the trainer can also refer to specific local regulations. Third, one needs to understand the institutional set-up and relevant actors for the planning process. Any plan to increase the proportion of urban green cover should be based on the analysis of these three factors.

**Tip:** Exercises for stakeholder mapping and institutional analysis can be found in module 5 of this manual.

**Material:** Urban Greening Guidelines, 2014<sup>3</sup>,

Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines for benchmarks and definitions<sup>4</sup>

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<sup>3</sup><https://smartnet.niua.org/content/8bb3fe4c-49ad-4208-a354-8f3135bed691>

<sup>4</sup><https://smartnet.niua.org/content/d19f4f87-aaa1-4e9a-9651-534cb28ddd3c>

# Module 4:

## Indicator rejuvenation of waterbodies and open space

### Key content:

- Presentation of the indicator CSCAF 'Rejuvenation and Conservation of Water Bodies and Open Areas'
- Mapping Exercise in Google Earth Pro
- Implementation strategies

### Learning goals:

- Understand the indicator, how its calculated and measured
- Ability to facilitate the Google Earth Pro mapping exercise
- Capacity to instruct on implementation measures to successfully preserve and rejuvenate waterbodies and open areas

### Introduction: Indicator rejuvenation of waterbodies and open space

#### Inputs and Instructions to the trainer

The module begins with introducing the indicator followed by explaining the components of urban environment. The importance of waterbodies and open spaces in urban areas should be emphasised here. This also encapsulates the adaptation and mitigation aspects of climate change, the urban heat island effect, and the positive role waterbodies and open spaces play towards addressing impacts of climate change.

A short introductory exercise can be included to help trainees relate the indicator to their daily life and practice. This could be a quick survey on the current status of waterbodies in the respective cities, the amount and type of open space or listing any current rejuvenation efforts. The checklist in annex 5 can be used to allow participants to perform a quick self-assessment of their city in advance

**Material:** Presentation Session 4, Checklist

### Exercise: Waterbody / Open space mapping

#### Inputs and Instructions to the trainer:

The Trainer shall give a short rundown on the exercise preceded with the need for mapping, linking it to the steps mentioned in the performance evaluation levels. It entails to map the area of a selected waterbody or open space and calculating the area using polygon geometry in google earth engine. Participants should also practice to assess the change for the past few decades using the engine, and measure the extent of change.



The step-by-step handout with screenshots needs to be shared with the participants to help them follow the process. Also, allocating some time to address individual queries during or after the exercise is advised, as not all participants will be well-versed with the technology and Google Earth Engine, specifically. It is to be ensured that the engine has been downloaded by all the participants before the exercise. After the exercise participants should be able to generate maps and share the area calculated for the waterbodies/open spaces via through the webhosting program or via Email.

**Material:** Google Earth Pro Engine, Handout for the exercise annex 6

### **Implementation Strategy, Financial Mechanism/Monitoring and Maintenance**

The session includes an introduction of various strategies towards mitigating urban heat island effects, rejuvenation and conservation of waterbodies and open spaces. The examples are to be shared with the strategies so as to help the participants understand implementation feasibilities. The training manual provides some details on the strategies in section 2. Following the levels of performance evaluation of the indicator, participants are then introduced to key measures required for a successful implementation strategy. This includes translation of guidelines at regional levels, and the different guidelines are to be shared with the participants. Emphasis needs to be put on the importance of the multi-stakeholder approach (constitution of committee) and the assessment of a baseline status, project execution and monitoring need to be explained. This also includes sharing case studies of a few successful strategies that have been implemented across various cities in India with a discussion on challenges that were faced and the strategies adopted to address those challenges. The participants can refer to the training manual to learn about the components required to be included while preparing a detailed project report and a request for proposal and tender documents.

A final reflection round on the introduced strategies may be held to discuss the various financial, coordination, technical or resource challenges that the participants feel they have faced or would face while implementing such strategies.

**Material:** Presentation session 4, Case Study handouts, Videos wherever possible

**General Note:** Participants should be able to ask questions, have their queries addressed before moving ahead, or receive answers to the same in the following sections/modules.

# Module 5:

## Indicator Urban Biodiversity

### Key content:

- Presentation of the indicator CSCAF 'Urban Biodiversity
- Stakeholder Mapping Exercise
- Implementation strategies to establish a local Biodiversity Management Committee

### Learning goals:

- Understand the indicator, how its calculated and measured
- Capacity to run an exercise to identify relevant stakeholders and important groups

## Introduction of Urban Biodiversity and its core benefits

### Input and instructions from the trainer:

This part of module first introduces the general concepts to urban biodiversity and then leads to a detailed introduction to its benefits. The definition quoted by the Convention for Biodiversity (CBD) should be used while giving the introduction. It consists of a general overview of Impacts of urbanisation on biodiversity, explains the need of its conservation and specifies the ecosystem services provided by biodiversity in urban areas. The task is to explain, in a more generalised way, how to connect with the plant and animal species thriving around us and generate a sense of belonging of the participants towards them. The explanation can include facts about the share of urban biodiversity in the total biodiversity present on earth, local species of cultural importance can be emphasised while giving examples and how are they depleting in the current situation.

The session may include a short reflection round on the introduced concepts and how these relate to the day-to-day practice in the participants' ULBs. Videos may be used to introduce everyone to the need of the diversity of species in an ecosystem in the city using local examples. The checklist in annex 7 can be used to allow participants to perform a quick self-assessment of their city in advance

**Material:** Presentation session 5, Checklist

## Legal foundations and relevant organisations

### Input and instructions from the trainer:

This section of the module comprises the presentation on the legal background including the regulatory framework at the national, state and city level. The details of the Biodiversity Act, 2002 and how section 41 of the act which specifically provides the scope to Municipal Corporations and gram-panchayats to perform all the activities relevant to its overall Biodiversity Management and to constitute a Biodiversity Management Committee (BMC) within its area of jurisdiction. Biodiversity Rules 2004 can also be explained focussing on Rule 22, which is about the formation and role of Biodiversity Management Committees at the city level. The input may also include policies such as the National Forest Policy 1988, the National Environment policy 2006, etc. The Administrative structure as per the Biological Diversity Act envisages a three tier system for implementation, with the National Biodiversity Authority (NBA), State Biodiversity Boards (SBB), and BMC in local bodies. There are also guidelines provided

by the National Biodiversity Board for operationalization of the BMCs which defines the function and financial aspects. The guidelines give an overview on the duties of different stakeholder, timeline for implementing rules and preparation of People's Biodiversity Register, as well as other related mechanisms for ease in implementation of the rules such as guidelines and advisories.

### **Optional aspects:**

This can be done either by the trainer or external experts such as someone who has been involved in the drafting of the rules or city policy.

**Material:** Presentation session 5

## **Exercise: Stakeholder mapping for Biodiversity Conservation**

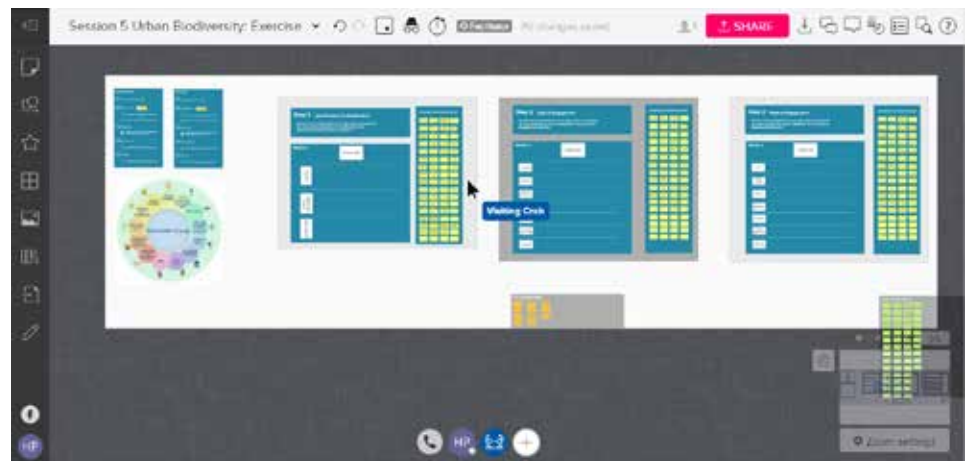
### **Input and instructions from the trainer:**

The exercise on the stakeholder mapping for biodiversity conservation and preparation of a local biodiversity strategy and action plan is divided into 5 steps. In the beginning the participants are asked to list down all the relevant stakeholders that can be part of the conservation process or influence it at any stage and level. This list can either be provided the trainer, or participants can be asked to prepare one depending upon the time constraints. As the second step, participants segregate the list of stakeholders into different levels of applicability, national, state or local level. For the third step, the functions related to biodiversity conservation have to be identified based on local context and the participants are asked to link the stakeholders identified in step 1 to the activities they might take part or influence. Some stakeholders can be part of multiple functions in the conservation process and they have to be taken at priority at the level of engagement during the plan formation. It has to be followed by step 4, which is the identification of the mode of engagement with the stakeholders, for example either through interviews or telephone conversation. Participants are asked to classify stakeholders into the mode of engagement according to their understanding. In the last step, the activities/functions of step 3 can be classified into the aspects of urban biodiversity like formation of a BMC, preparation of People's Biodiversity Register (PBR) and Local Biodiversity Strategy and Action Plan (LBSAP). As per the functions and the stakeholders identified for each of the activities in step 3, they can be brought down into the last step and allocated into different aspects.

Further steps can be incorporated edited into the exercise based on the objectives of the exercise and its level of involvement. The objectives clearly need to be identified before the exercise about what the trainer expects from participants and the exercise. During the exercise, discussions should take place about the placement of certain stakeholders at any level with everyone respecting their views and feedbacks. The following questions can guide participants while conducting the exercise:

- Why do you think a particular stakeholder is linked to this level/mode of engagement?
- Can a particular stakeholder be part of more than one activity or level of engagement, and how are you planning to engage them?
- Have you had any experience with a particular stakeholder while conducting any other planning measures or studies?
- How more and more stakeholders can be involved into the conservation process?
- What could be the strategy to select stakeholders for allocation of funds?

Figure 1: Example on the layout of sections of different steps



### Optional aspects:

The exercise can either be done manually with sticky notes/ chart paper or over the internet using whiteboard applications like mural.

### Technical aspects:

The exercise has to be properly designed beforehand, when using a tool such as the mural platform. Before conducting the exercise, participants need to be introduced to the usage and functions of the application. A buffer time slot has to be given to participants to test the platform before stating the exercise. A good way to do this is a small exercise in which participants have to create a virtual sticky note and place it in a certain section on the template that indicates their position in the ULB.

Each step should not extend more than 15 minutes. For all steps separate sections have to be prepared which should be clearly distinguishable from each other. In all sections, elements such as lines, notes and textboxes have to be locked while finalising the exercise before the training, so that participants are not able to move elements that are not meant to be moved and can only work with dragging, pasting and making new sections or sticky notes. Different coloured sticky notes can be used to show the segregation of the type of the stakeholders, so that it is easier to understand.

**Material:** Presentation session 5, Hand-out of exercise on mural

## Implementation Strategies

### Input and instructions from the trainer:

The task is to provide a detailed overview over the formation of the BMC and the formulation of PBR. Main information needs to be collected from the guidelines of operationalization of the BMCs and the PBR format booklet 2013. The discussion should include the detailed steps on the formation of BMC and PBR and what challenges can be faced by participants while conducting them. Effort needs to be made to explain the necessity of formation of BMC as per the law and for implementation of conservation measures, too. Selecting appropriate candidates for BMC is the most crucial step and the state biodiversity board needs to be consulted for that. Further, the BMC is responsible for carrying forward the task of preparation of the PBR as per the prescribed formats.

The trainer needs to have a general overview about how successful implementation of the National Biodiversity Strategy and Action Plans at local levels requires vertical integration of strategic planning and implementation, coordination (i.e. agreement on common priorities and on division of responsibilities and labour) and cooperation or collaboration (i.e. development of joint work plans, working together) between the various levels of authority. Conservation of biodiversity has to be undertaken in an integrated manner by incorporating the biodiversity conservation measures into the master plan or the city development plans, to ultimately lead to overall resource conservation.

**Material:** Presentation session 5, TOR for Development of Local Biodiversity Strategy and action plan Annex 9

# Module 6:

## Reflection, Outlook and Feedback

### Key content:

- Action to set up specific follow-up steps and set goals
- An informal exercise to set ambition
- Reflection exercise to consolidate the learnings from the training and provide feedback

### Learning goals:

- Be able to ensure follow-up and implementation by participants
- Facilitate reflection on the training, collect feedback and clearly formulate key take-aways

### Input and instructions from the trainer:

The last module of the training should be used to help participants reflect their learnings and to collect feedback in order to further improve future trainings. The trainer can use the suggested options described below, or any method the trainer is familiar with and prefers.

**Tip:** Frequently, participants develop more questions and insights over time and would like to share them with their colleagues. Direct exchange among participants can easily be facilitated by offering to keep the virtual room open for an additional 15-30 Minutes after the training has ended. Such sessions are generally perceived as extremely valuable and do not require any preparation from the trainer.

### Exercise: Quick Action Plan

#### Input and instructions from the trainer:

This is an easy to instruct exercise that participants can perform individually or in a group. It is vital to make sure that the exercise is taken serious and the template filled meticulously, despite its easy appearance. When done right, the template can cover all steps of the entire planning process and provide a blue-print for implementable projects.

**Tip:** Participants should fill out the template at the beginning of the training and revise it during the last session. This can provide helpful insights how the training has changed the approach towards green planning.

**Material:** Action-plan template annex 10

## Exercise: Letter to future-self

### Input and instructions from the trainer:

A rather informal way to reflect on learnings in a structured manner. It is easy to instruct as everyone knows how to write a letter. It has to be made clear that it is always an option to opt for a more formal style by writing a future project report instead of a personal letter. Also, an explanation should be given as to how the letter can be used for self-reflection and for creating a sense of public/peer pressure.

**Tip:** the letters of the audience can be collected by the trainer and send back to the audience at an appointed time (e.g. in 1 year). This provides a great opportunity for the trainer to stay in touch with the group and assess their real progress.

**Material:** Letter template, mailing tool<sup>5</sup>.

## Exercise: Five Finger Feedback

### Input and instructions from the trainer:

This feedback exercise works verbally and written, in online and offline settings. Thus, it is very versatile and easy to instruct. It also provides a way to quickly assess the success and impact of your session.

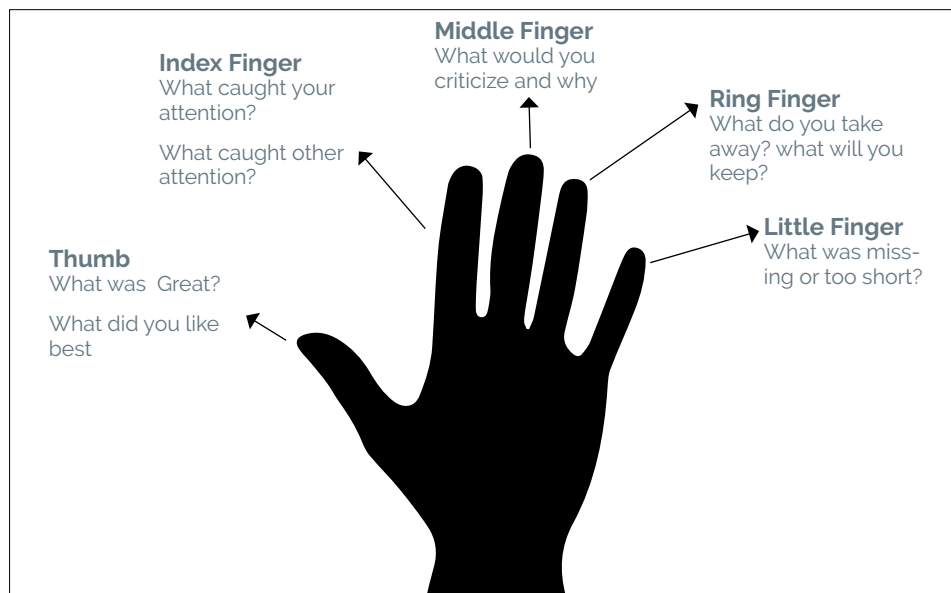
**Thumb** – thumbs up for something you really liked about the training.

**Index finger** – point at something that you think really was really important or surprising.

**Middle finger** – What did you not like or would like to challenge or criticise?

**Ring finger** – Define one specific aspect or practice you will integrate into your work in the future

**Little finger** – What did you miss or what has not been covered sufficiently?



**Tip:** The five guiding questions also work without the finger allegory and can be used in a questionnaire or follow-up email

**Material:** Hand picture.

<sup>5</sup>E.g. <https://www.futureme.org>

# Annex

## Annex 1 – Participant workbook



## Annex 2 – Mentimeter Questions Module 1

### Selection of participant introduction questions

1. Pre-selected choice: The organisation I am working for/I am member of?:
  - A. Training Institute
  - B. Municipal Corporation/Development Authority
  - C. Special Purpose Vehicle (SPV)
  - D. Other
2. Pre-selected choice: My function in the organisation I am working for?:
  - A. Researcher/Trainer
  - B. Head of Department
  - C. Manager
  - D. Town Planner
  - E. Other
3. Suggested Intervals: Since when are you working for this organisation (in years)?:
  - A. less than 2 years
  - B. 2 to 5 years
  - C. 6 to 10 years
  - D. 11 to 15 years
  - E. more than 15 years
4. Suggested Intervals: I spend ...% of my work for Urban Green (Planning)?:
  - A. up to 10%
  - B. up to 20%
  - C. up to 30%
  - D. more than 50%
5. Yes-No question: Are you directly involved in Smart City Mission project?:
6. Pre-selected choice: If yes, can you specify your involvement bit more in detail?:
  - A. Urban Planning
  - B. Digitalisation
  - C. Water
  - D. Transport
  - E. Urban Green
  - F. Other
7. Yes-No question: Are you generally involved in projects that are related to Urban Green?:
8. Scale: Importance of Urban Green/Urban Green Planning in your City on a scale from 1 to 10? (1 = low and 10 = high):
9. Open question: If you have a favourite green space in your city, what aspects about it do you like the most?:

### Selection of expectation assessment questions (all open questions)

1. What crosses your mind when you think of Urban Green in your City?
2. How would you describe Urban Green Planning in your City?
3. What would you like to take away from this workshop?
4. If you are involved in a project dealing with Green Cover, what exactly would you like to learn in this training?
5. Do you have further expectations?

## Annex 3 – Checklists for Integrated Urban Green Planning

### Module 3: Checklists for Integrated Urban Green Planning

#### Aim of Checklists

Checklists are intended to help the urban planner to break down complex tasks in smaller "packages". They secure that the different aspects of a complex task – as urban green planning – are considered and not forgotten. Checklists are never complete; therefore, one should always try to review and optimise existing checklist from time to time.

To assess and evaluate the status quo of urban green planning in your city, to identify options and priorities and action for implementation the following checklists. The intention is to help to initiate new or improve existing procedures towards integrated urban planning.

Basically checklists, as explained above, are means to support stepwise implementation based on a systematic approach. The lists are neither final, nor will they suit necessarily in all situations, as cities are unique, and the contexts differ from on city to another. Therefore, one needs to critically reflect the lists and adapt it to the situation on the ground.

However, the checklist support first discussions and round table dialogue in a public administration, when different planning and implementation departments come together to dedicate time on Urban Green as an integrated part of Urban Planning.

#### 1. Fast Checklist Urban Challenges and Planning Principles

Field of Action	Yes	No
<b>Urban Challenges</b> - UGI planning can help to tackle important urban challenges, such as climate change adaptation, biodiversity protection, a green economy, social cohesion, and others.		
<b>Urban Policies, Planning Principles and Strategies</b>		
Do municipal policies exist that deal with urban green cover in specific?		
Do municipal policies exist that deal with urban green cover in general?		
Does urban masterplan include urban green (spaces)?		
Does urban masterplan include actions or strategies for urban green?		
...		
Notes: Improvements/Action		
<b>Does your plan (existing or in development) include activities and measures to...</b>		
... adapt to the adverse effects of <b>climate change</b> , for instance by assessing vulnerabilities, taking appropriate action to prevent or minimise damage, and seizing opportunities that may arise (e.g. low-/no-regret solutions)?		
... protect local <b>biodiversity</b> , offer nature experience opportunities for citizens, and raise awareness for the benefits of species-rich environments?		
... contribute to a <b>green economy</b> that aims to improve human well-being and social equity while reducing environmental risks and depletion of natural resources? This involves considering the direct and indirect economic benefits of urban green spaces.		

Field of Action	Yes	No
provide equal opportunities for people from different backgrounds to access and benefit from urban green spaces and to promote social interactions among them, in the interest of greater <b>social cohesion</b> ?		
In your local context, are there additional pressing challenges? Please make a note of them and discuss ways they might be tackled through UGI planning.		
...		
Notes: Improvements/Action		
<b>Urban Planning Principles</b> - UGI planning is an approach based on the core principles of green-grey integration, connectivity, multifunctionality and social inclusion. <b>Does your plan (existing or in development) include activities and measures to...</b>		
... <b>integrate</b> urban green spaces with 'grey' infrastructure (e.g. roads, canals, drainage systems) and to promote combined green-grey infrastructure in ways that provide more benefits than traditional engineering approaches?		
... <b>connect</b> different green spaces in order to enhance recreation, mobility by bike and on foot, biodiversity, and natural ventilation, ideally by combining different goals for humans, other species, and abiotic flows?		
...support the capacity of urban green spaces to provide <b>multiple</b> ecological, socio-cultural and economic benefits, combining functions and services in ways that create synergies and reduce conflicts and trade-offs between them?		
...facilitate collaborative, <b>socially inclusive</b> planning processes that are open to all and incorporate the knowledge and need of diverse parties, with emphasis on vulnerable social groups?		
...		
Notes: Improvements/Action		

## 2. Detailed Checklist: Integrating Urban Green Planning in Urban Planning

Field of Action	Yes	No
<b>Structures and Processes</b>		
Are responsibilities for urban green assigned within administration?		
Does regular exchange between responsible departments/external actors take place?		
...		
Possible action/improvements:		
<b>(Climate) Smart Cities Mission – CSCAF</b>		
...		
Is UG Planning part of the smart city mission project in the city?		
Assessment of findings in CSC-AF is conducted?		
Concrete steps are derived from CSC-AF assessment?		
Smart City initiative promoting development of urban green spaces can be coupled with strategic landscaping to optimise benefits of greening programs		
...		
Possible action/improvements:		

Field of Action	Yes	No
<b>Studies and Data</b>		
Existing studies on UGP		
Further data on urban green existing? Where? Who "owns" the data?		
Institutions in the city that might support urban green planning?		
Studies on increase in property value due to the vegetative presence will provide an assessment of the economic value of city flora and help to convince residents about the monetary benefits emanating from maintenance and development of green areas		
...		
Possible action/improvements:		
<b>Integration of/into different aspects of urban planning</b>		
Linking green spaces with <b>stormwater infrastructure</b> to improve water quality and reduce pressure on stormwater systems (e.g., incentives or standards for decentralised water retention and drainage through rain gardens, swales, green roofs, constructed wetlands and permeable pavement; centralised solutions like bioretention basins; regional cooperation for vegetated river buffers and wetland protection).		
Linking green spaces with <b>transport infrastructure</b> to improve air quality, mitigate noise and provide safe opportunities for walking and biking and/or species movement (e.g., vegetation to house species and trap pollutants and noise along transport corridors; installing bike paths in green corridors).		
Linking green infrastructure with <b>energy and communications infrastructure</b> to maximise design and construction efficiencies and encourage walking, biking, species movement, aesthetic appearance and educational opportunities (e.g., bike paths along powerline corridors, promoting native vegetation, installing nature interpretation signage).		
Linking green infrastructure with <b>buildings</b> to maximise recreation opportunities in residential, institutional, and commercial areas (e.g., through minimum requirements or incentives for green courtyards or accessible green roofs).		
...		
Notes: Improvements/Action		
<b>Developing Plans</b>		
Developing a strategic plan with a <b>long-term vision</b> for UGI development and conservation, including <b>regular updates</b> to monitor progress and respond to changing conditions.		
Considering measures which are ' <b>no-regret</b> ' or ' <b>low-regret</b> ' (i.e., designed to increase robustness at low costs or to compensate for extra costs through added benefits).		
Getting plan support: through <b>mandates</b> (e.g., global or national policies that support the plan and its objectives), by linking it to locally important <b>challenges</b> (such as climate change) and/or collaborating with strong <b>advocates</b> (e.g., politicians, environmental NGOs).		
Developing a <b>coordinated</b> UGI strategy by considering the full spectrum of available planning <b>instruments</b> (e.g., formal and informal), and their strengths and weaknesses, as well as a range of <b>implementation mechanisms</b> (e.g., funding programmes, regulations, pilot projects to demonstrate new approaches, initiatives to support non-state actor involvement).		
<b>Linking</b> the UGI plan with those of other departments/sectors and those at other levels (e.g., at the city and regional levels), aiming at <b>synergies</b> (e.g., with the aid of cross-sectoral working groups or coordinated, simultaneous development of different plans).		

Field of Action	Yes	No
Are Green Space "strategies" integrated part of new city development plans/projects?		
Do concrete and current new developments exist, where green space planning is/could be integrated?		
Do options/rules exist to compensate loss of green space because of building projects?		
...		
Notes: Improvements/Action		
<b>Assessment of Urban Green (Networks)</b>		
Conducting a <b>comprehensive assessment</b> of existing green spaces of all types (i.e., also private and underutilised sites like brownfields and railways) in order to better understand the <b>deficits and potential</b> of your UGI network (e.g., quantity, quality, distribution, access, supply of benefits and citizen demand).		
Identifying existing areas that need to be <b>conserved or improved</b> and the need for <b>new</b> UGI elements and corridors between them.		
Using <b>integrated methods</b> to assess not just UGI'S monetary value, but its social and ecological value too, where appropriate.		
Framing assessments in terms of <b>challenges</b> to be tackled (e.g., vulnerability to the impacts of climate change, habitats that are threatened) and demonstrating potential <b>cost-savings</b> (e.g., by conducting a cost benefit analysis).		
Illustrating UGI benefits in a format that is attractive and easy to understand for non-experts (local politicians, decision-makers, and the general public) in order to raise <b>awareness</b> and gain <b>support</b> .		
...		
Notes: Improvements/Action		
<b>Connectivity</b>		
Developing and preserving a <b>city-wide</b> and <b>regionally linked</b> green network that promotes synergies between recreation, mobility, cultural heritage, wildlife, local climate, and the built environment.		
Developing and maintaining a <b>well-connected, safe</b> bike and pedestrian network (e.g., working to fill in missing segments of key corridors, producing a bike map) and ensuring <b>public accessibility</b> to both local parks and key recreational areas (e.g., instituting minimum requirements for park access, ensuring adequate access points at key parks).		
Developing and conserving a <b>habitat network</b> to support the <b>movement of species</b> (including identifying critical habitats and corridors as well as barriers or bottlenecks) and ensuring that quality habitats for flora and fauna are <b>well-distributed</b> throughout the city, based on sound ecological knowledge (e.g., key species, habitat preferences, seed dispersal, adaptation capabilities and movement patterns).		
Developing green corridors and 'perforated' green space (e.g. areas of dispersed vegetation) capable of improving <b>natural ventilation</b> as well as <b>flood control</b> in vulnerable areas.		
<b>Clearly define the kind of connectivity, functions, and aims</b> Increasing connectivity requires planning on large spatial scales and consideration of different kinds of connectivity, such as for humans, for biodiversity, or for urban climate. Practitioners should clearly define these functions and relevant actors in developing a plan for connectivity		

Field of Action	Yes	No
<b>Think long-term and integrate objectives at multiple levels</b> Connectivity objectives are best achieved when a long-term outlook is adopted, combined with regular monitoring and updates to incorporate new scientific knowledge and implementation strategies. Planning guidance at a particular spatial scale should additionally be 'nested' with related policies and instruments (including incentives and regulations) at multiple scales and across sectors		
...		
Notes: Improvements/Action		
<b>Multifunctionality</b>		
<b>Assessing</b> the various <b>ecological, social</b> and <b>economic</b> benefits of urban green spaces and <b>communicating</b> these to policymakers and the public.		
Assessing the <b>demand</b> for green spaces across the city and their <b>capacity</b> to provide services, now and in the long term.		
Developing strategic plans that highlight UGI's diversity of functions and services city-wide, <b>including socio-cultural</b> (e.g., nature contemplation, social interaction, sports, and play), <b>biodiversity</b> (e.g., habitats for rare species, wilderness), <b>regulating</b> (e.g., temperature regulation, flood control) or <b>provisioning</b> (e.g., agricultural products, fresh water, wood).		
At the site level, developing green spaces in ways that create synergies between different functions and services and <b>reduce conflicts</b> (e.g., through visitor management and guidance or spatial separation of conflicting uses).		
..		
Notes: Improvements/Action		
<b>Social Inclusion</b>		
Actively including citizens in plan <b>development</b> and <b>implementation</b> (e.g., through visioning forums, questionnaires, charrettes and citizens' juries).		
<b>Mobilising</b> and including the views of populations not usually active in planning (e.g., people with disabilities and the elderly, children and adolescents, immigrants, low-income and homeless people) by applying <b>participation methods</b> oriented towards these groups (e.g., Photovoice).		
<b>Delegating responsibility</b> to citizens (e.g., by supporting participatory budgeting, citizens' urban gardening initiatives, volunteer maintenance schemes or other forms of civic engagement for UGI).		
..		
Notes: Improvements/Action		
<b>Stakeholder Engagement</b>		
Identifying relevant actors (e.g., staff in other departments, external experts, universities, businesses and civil society) that are not yet engaged in UGI development, and finding <b>meaningful ways to engage them</b> (e.g., by networking, by directly reaching out to them, or by developing incentives for their involvement).		
<b>Cooperating</b> with other departments and external experts and maintaining <b>interdisciplinary networks</b> (e.g., identification of shared topics or objectives related to UGI across departments, sharing and exchanging knowledge from different fields of expertise and aiming at shared UGI solutions).		

Field of Action	Yes	No
Collaborating with non-governmental stakeholders, e.g. by supporting <b>co-governance</b> arrangements in the management of bottom-up initiatives (e.g., community gardens), and <b>fostering</b> the required <b>skills and frameworks</b> for coordinating such arrangements within or outside the administration (e.g., taking on a supervising, moderating, or facilitating role, as well as establishing contract agreements and access rights).		
Notes: Improvements/Action		
<b>Synergies/Windows of opportunity</b>		
Are new urban/state projects in the "pipeline"? Does urban green play a role?		
Are new private projects under development? Does urban green play a role?		
Do platforms of exchange with regional or state administration exist so that urban green aspects can be discussed or placed		
Do platforms of exchange with private stakeholders, companies exist so that urban green aspects can be discussed or placed		
Possible action/improvements:		
<b>Implementation</b>		
Using <b>pilot projects</b> to test novel approaches in cooperation with relevant partners (e.g., engineering, building design, water management, parks and recreation). Results should be evaluated to enable such strategies to be refined before application on a larger scale.		
Exploring additional <b>resources</b> , including national funding programmes, funds from private actors (e.g., Public-Private-Partnerships, compensation schemes and other regulatory instruments), joint projects with other departments or non-financial support through voluntary work and local knowledge.		
<b>Monitoring</b> to document improvements in the city's UGI and progress towards planning and performance targets, with provision to adjust strategies if progress is not adequate.		
<b>Communication</b> of achieved benefits and what you plan in the future are communicated towards citizens and i stakeholders, donors etc.		
Notes: Improvements/Action		

#### Sources:

- Hansen, R., Rall, E., Chapman, E., Rolf, W., Pauleit, S. (eds., 2017). Urban Green Infrastructure
- Planning: A Guide for Practitioners. GREEN SURGE. Retrieved from <http://greensurge.eu/working-packages/wp5/>
- Own elaboration and adaptation of above source

## **Annex 4**

### **Exercise: Proportion of Green Cover, Google Earth Engine and Step-by-step instructions**



## Annex 5

### Checklists for Rejuvenation & Conservation of Water Bodies & Open Areas

#### Module 4: Checklists for Rejuvenation & Conservation of Water Bodies & Open Areas

##### Aim of Checklists

Checklists are intended to help the urban planner to break down complex tasks in smaller "packages". They secure that the different aspects of a complex task – as urban green planning – are considered and not forgotten.

Checklists are never complete; this is why one should always try to review and optimise existing checklist from time to time

The objective of the checklist is to assess and evaluate the status quo of water bodies and open spaces in your city, to identify options and priorities and action for rejuvenation and conservation of water bodies and open spaces.

Basically checklists, as explained above, are means to support stepwise implementation based on a systematic approach.

The lists are neither final, nor will they suit necessarily in all situations, as cities are unique, and the contexts differ from one city to another. Therefore, one needs to critically reflect the lists and adapt it to the situation on the ground.

However, the checklist support first discussions and round table dialogue in a public administration, when different planning and implementation departments come together to dedicate time on Urban water bodies and open spaces as an integrated part of Urban Planning.

##### 1. Rejuvenation and Conservation of Water Bodies and Open Areas Indicator Checklist

Field of Action	Yes	No
<b>Data - Basics</b>		
A city level lake management committee exists?		
Resident welfare associations for the protection and conservation of Urban greens?		
Resident welfare associations for the protection and conservation of Urban water bodies?		
Land Use Pattern and Change documented?		
Socio-economic profile of the urban regions?		
Rainfall Pattern for past decade exist in terms of number of rainy days, precipitation, high intensity events?		
Notes: Improvements/Action		
<b>Assessment</b>		
Census of Water bodies exist?		
Inventory of urban ecosystems and species elaborated?		
Mapping of Location of Water bodies conducted?		
Various uses and user groups of the water bodies identified?		
Status of water body in terms of pollution, water level, and structural damages assessed?		

Field of Action	Yes	No
Ground water level assessed?		
Quality of water both surface and ground water assessed?		
Mapping of Open Spaces Conducted?		
Characteristic of open spaces- Pervious, impervious and soil quality assessed?		
Census of trees conducted?		
Status of Urban space in terms of ownership, conserved, encroached, protected?		
Urban Heat Island spots identified and mapped?		
Data on Recharge, Run off, and evapo-transpiration exists?		
Delineation of catchment areas, feeder channels and command areas of lakes, ponds, etc., conducted?		
Notes: Improvements/Action		
<b>Strategic Planning Approach</b>		
Plans for rejuvenation of urban water bodies exist or in process?		
Plans for greening/conserving/managing urban open space exist or in process?		
Municipal funds/budget allocated?		
Measures for rejuvenation exists?		
Maps of areas to rejuvenate elaborated?		
Good practices for rejuvenation of and conservation of Urban water bodies and open spaces exist?		
Notes: Improvements/Action		
<b>Implementation</b>		
Risk Index Prepared?		
Concrete measures initiated?		
Are practices like cleaning, de-silting, de-weeding, aeration, removal of floating and other invasive aquatic plant-species conducted?		
Practices like landscaping or greening of urban open spaces like roads etc been undertaken?		
Has any plantation measures undertaken for open spaces?		
Has any upgradation of heritage buildings undertaken?		
Regular monitoring and necessary adaption of actions takes place?		
Identification of ecologically sensitive areas done?		
Notes: Improvements/Action		

Field of Action	Yes	No
<b>Policies, Plans, Strategies</b>		
Does policies, plans, guidelines, strategies for rejuvenation and conservation of water bodies and open spaces exists?		
Does the strategic city planning incorporate measures for the rejuvenation and conservation?		
Is storm water management plan in place?		
Are there strict regulatory measures towards unmanaged exploitation of water and open resources?		
Are there regulatory measures for employment of Rain water harvesting in public, private and residential buildings?		
Are there regulatory measures to restrict encroachments and concretisation?		
Does the city manage the entire landscape through an ecosystem approach and water centric approach?		
Does the city master plan incorporate measures for landscaping or greening?		
Are there regulatory measures pertaining to permitted and prohibited activities in the open spaces?		
Has the identification of suitable and unsuitable tree species for plantation done?		
Notes: Improvements/Action		
<b>Interconnection</b>		
Storm water drainage system in place?		
Regular monitoring of storm water drainage infrastructure carried out?		
Employment of building bye laws?		
Solid waste management plan to ensure they do not pollute the water bodies or the open spaces (landfills)		
Notes: Improvements/Action		
<b>Stakeholder Involvement: Cooperation and Communication</b>		
Are synergistic partnerships with government established?		
Do partnerships or agreements with the private sector exist?		
Is collaboration between environmental agencies and universities/ research institutes to enable further research and monitoring of water bodies and urban open spaces incorporated?		
Is partnership with civil society organisations/ citizen groups established?		
Measures to raise awareness among the citizens conducted?		
Notes: Improvements/Action		
<b>Further Action</b>		
Facilitation of sustainable consumption of water resources and maintenance of open spaces?		
Does the ULB support or is part of global or regional networks of cities and local authorities with common missions related to rejuvenation?		
Facilitation of partnerships between private, civil society, citizens, and ULBs		
Notes: Improvements/Action		

## Annex 6 – Handout for the Google Earth pro exercise

### Steps to work on the exercise in Google Earth Pro

- Step 1** ▶ Click on the search tab and enter a region/city
- Step 2** ▶ Locate a water body or open space of interest and zoom in using the slider
- Step 3** ▶ From the tool bar, click on 'Add Polygon' and edit the specification as per the requirements. Rename the polygon.
- Step 4** ▶ Select multiple points around the waterbody or open space and close the polygon/outline by selecting the starting point again.
- Step 5** ▶ In the dialog box, click on 'Measurement' tab and note the area.
- Step 6** ▶ On the 'Places' window, right click the name of the water body/open space and save file as .kmz
- Step 7** ▶ From the tool bar, select the option to print and save file as pdf

### Steps to assess changes

- Step 1** ▶ Click on the tab for historical imagery at the bottom left of the window
- Step 2** ▶ Select the timeline to from the bar at the top right corner to view the images

*Figure 12: Step by step instruction to map water bodies in Google Earth Pro; own compilation*

### Steps to assess changes

*Figure 12: Step by step instruction to map water bodies in Google Earth Pro; own compilation*

## Annex 7 – Checklists for Urban Biodiversity

### Module 5: Checklists for Urban Biodiversity

#### Aim of Checklists

Checklists are intended to help the urban planner to break down complex tasks in smaller "packages". They secure that the different aspects of a complex task – as urban green planning – are considered and not forgotten.

Checklists are never complete; this is why one should always try to review and optimise existing checklist from time to time

To assess and evaluate the status quo of urban biodiversity in your city, to identify options and priorities and action for implementation the following checklists. The intention is to help to initiate new or improve existing procedures towards integrated urban planning.

Basically checklists, as explained above, are means to support stepwise implementation based on a systematic approach.

The lists are neither final, nor will they suit necessarily in all situations, as cities are unique, and the contexts differ from one city to another. Therefore, one needs to critically reflect the lists and adapt it to the situation on the ground.

However, the checklist supports first discussions and round table dialogue in a public administration, when different planning and implementation departments come together to dedicate time on Urban Biodiversity as an integrated part of Urban Planning.

#### 1. Urban Biodiversity Indicator Checklist

Field of Action	Yes	No
<b>Data - Basics</b>		
A city level biodiversity management committee exists?		
Notes: A committee of maximum 6 people and a chairperson need to be constituted by the municipality. Other than a Technical Expert Group (TSG) consisting of experts from various disciplines and line departments, universities, research institutes, colleges and schools and non-governmental organizations have to be made. It will provide technical inputs and advice to the BMCs on identification of plants and animals, monitor and evaluate the PBR exercise, examine confidential information and advice on legal protection, maintain a database of local and external experts on biodiversity.		
<b>Assessment</b>		
People's biodiversity register available		
Inventory of urban ecosystems and species elaborated?		
Notes: The formats (29&30) for urban biodiversity specifically, have been mentioned in the PBR booklet, which can be used to document the biodiversity. BMCs are responsible to prepare the PBR. Separate formats can be used for Road side plantation, Parks and Gardens, Housing estate, Commercial buildings, other institutional areas, Private club premises, Aquatic (water) habitat and Terrestrial (land) habitat in an urban area.		

Field of Action	Yes	No
<b>Strategic Planning Approach</b>		
Urban biodiversity plan exists/in preparation?		
Municipal funds/budget allocated?		
Measures for biodiversity improvement exist (in master, greening, or rejuvenation plan)		
Maps of areas to increase biodiversity elaborated?		
Have the local biodiversity action plan being included into the city master plan?		
Notes: Identification of threats to biodiversity and degraded ecosystems needs to be done to finalise the goals for establishing action plan. Priority species and habitats would be shortlisted for which the action plan needs to be detailed out and measures to revive them has to be established. This action plan has to be linked to the development plan or the master plan of the city for its better implementation, otherwise it could just be a stand-alone document.		
<b>Implementation</b>		
Calculation of City Biodiversity Index (as report) is developed?		
Concrete measures initiated?		
Regular monitoring and necessary adaption of actions takes place?		
Notes: Assessing city biodiversity Index provides the existing status of the biodiversity in the city, and its needs to be updated every 2-3 years, to check whether the conservation measures are in-line with the outputs or not. Based on the scoring of all the indicators, one can identify which indicators needs to be focussed on for improving the biodiversity status of the city. If the city biodiversity index has not been made earlier then it would be the baseline from where change can be noticed and planned for.		

## 2. Urban Green Planning: Biodiversity Action Checklist

Field of Action	Yes	No
<b>Policies, Plans, Strategies</b>		
Does an afforestation plan exist		
Does strategic city and regional planning to reduce urban sprawl exist?		
Is a policy implemented that prevents the advancement of urban areas over remaining vegetation fragments and safeguard the existing biodiversity?		
Is zoning policy for landscape cover aligned with environmental macro-zoning, restricting in this way the conversion and occupation of fragile areas (floodplains, endemic species habitat) and allowing a territorial planning that respect the local peculiarities?		
Does the city manage the entire landscape through an ecosystem approach?		
Notes: An effort should be made to connect the fragmented pieces of greens of the city through ecological networking and the proposed modifications should reflect in the development plan. The "Green Landuses" should be identified and properly zoned with respect to each other. Buffer zones needs to be provided for the fragile areas, to minimise the impacts of human activities on these. Based on the species sighting of the inline departments like forest officials, etc. in the city, potential habitats should also be identified in the city fabric and conserved accordingly.		

Field of Action	Yes	No
<b>Interconnection</b>		
Manage the urban environment to benefit biodiversity including the conservation of rivers, wetlands, and streams.		
Notes: Managing urban environments like conservation of rivers, wetlands and streams should be done through ecosystem services approach. Understanding other significant services provided by these habitats in an urban environment than just benefiting biodiversity would give an edge in conservation measures and might prioritize efforts made for protection.		
<b>Stakeholder Involvement: Cooperation and Communication</b>		
Are synergistic partnerships with government established?		
Do partnerships or agreements with the private sector exist?		
Is collaboration between environmental agencies and universities/ research institutes to enable further research and monitoring of biodiversity incorporated?		
Are biodiversity awareness and importance campaigns or information developed?		
<b>Further Action</b>		
Facilitation of sustainable consumption of resources that impact biodiversity?		
Does the ULB support or is part of global or regional networks of cities and local authorities with common missions related to biodiversity?		
Notes: The process of developing an action plan should engage as many legitimate stakeholders as possible. This will facilitate the collection of information to improve the quality and comprehensiveness of the plan, as each partner will bring their own knowledge and skills. Allowing stakeholders to provide inputs will also foster a greater sense of ownership and acceptance, making implementation of the action plan easier. Also, engaging multiple stakeholders will raise the profile of the action plan, which could enhance fundraising efforts.		

## Annex 8 - Hand-out of exercise on mural

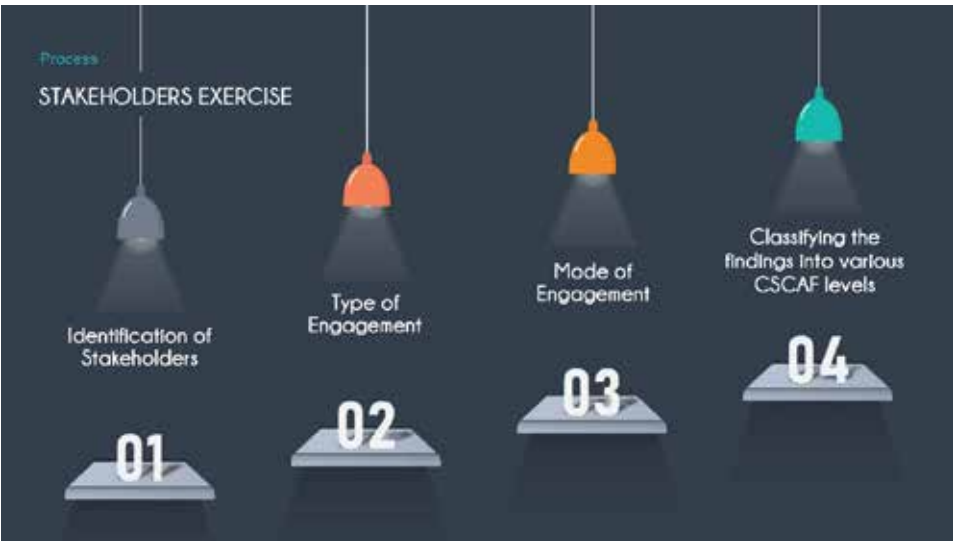


Figure: Steps of a stakeholder exercise; NIUA

### Step 1: Identification of the Stakeholders

Relevant Stakeholders need to be identified and distributed into three different levels, national or International State or regional and city or local area. Write the type of stakeholder on the prepared digital 'sticky note' and place them in the respective section on the mural template.

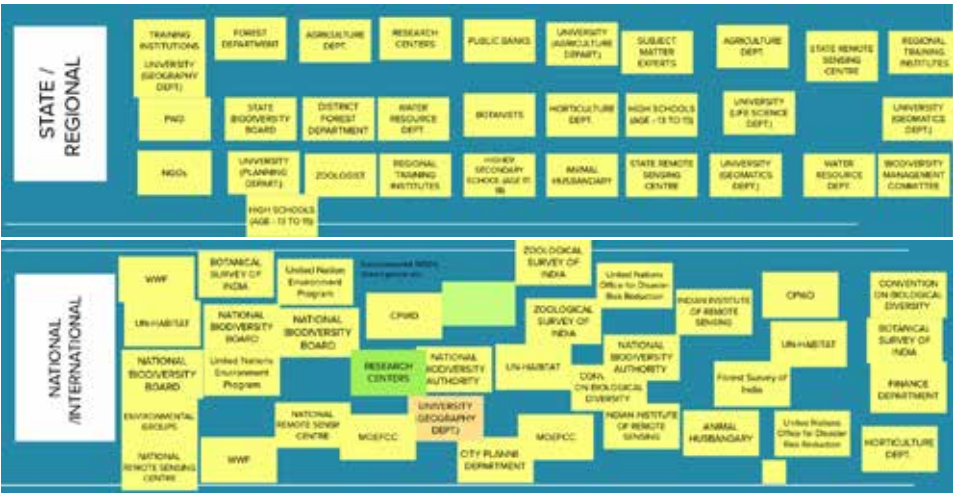






Figure : List of local level stakeholders; results

## Step 2: Classify type of Engagement

All the local stakeholders which were identified in the previous step need to be classified into the type of engagement depending upon the different activities related to urban biodiversity mapping and conservation. Copy the digital 'sticky notes' into the respective section of the template.

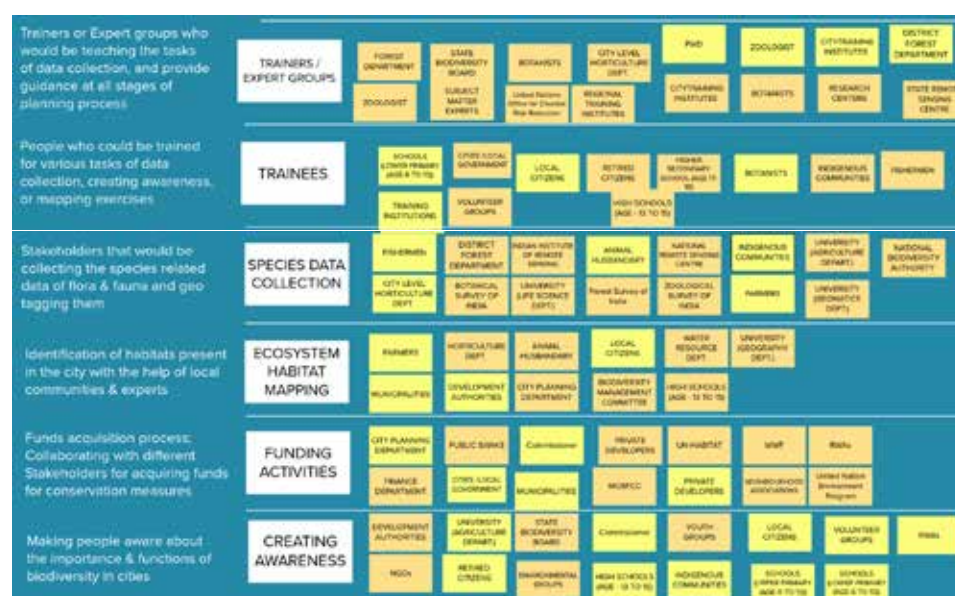


Figure: Type of stakeholder activities; results

## Step 3: Identify mode of Engagement

To identify the mode of engagement of all the types of engagement found in the previous step, create connections and linkages. To this end, connect the relevant means of communication to each activity. Any method of outreach can be relevant for more than one activity, and each activity can be achieved through various communication channels.



**Annex 9 - TOR for Development of Local Biodiversity Strategy  
and action plan**

## Annex 10 - Action-plan template

Step	What exactly should be done	Who is responsible	Who else is involved	How to get started	When	Remarks, things to be considered
	Describe as detailed as possible	Name the most important decision maker	Name other important stakeholders	Define your first 1-3 steps to get started	Choose a specific date	Describe potential obstacles and opportunities
1						
2						
3						
4						
5						
6						
7						
...						

## Annex 11 – Letter template

Date (put todays date)

Address

(put your office address to emphasize the official appearance)

Dear (put your own Name),

Intro section –

Describe in broad strokes the current situation in your city. What is going well, what challenges lie ahead and what is currently being implemented

Setting ambition –

Describe what the new goal(s) and define some of the necessary steps to get there. Also include important persons/positions you may need to involve.

Create commitment –

Define a timeline for your end-goal and the milestones in between. Write this in a style you would use to inform colleagues about upcoming project.

Add a reward you will provide for yourself/you aspire for achieving your goal, or a penalty for missing your target.

With kind regards,

Your former self (put your name if you like)

## Annex 12 - Five Finger Feedback instructions

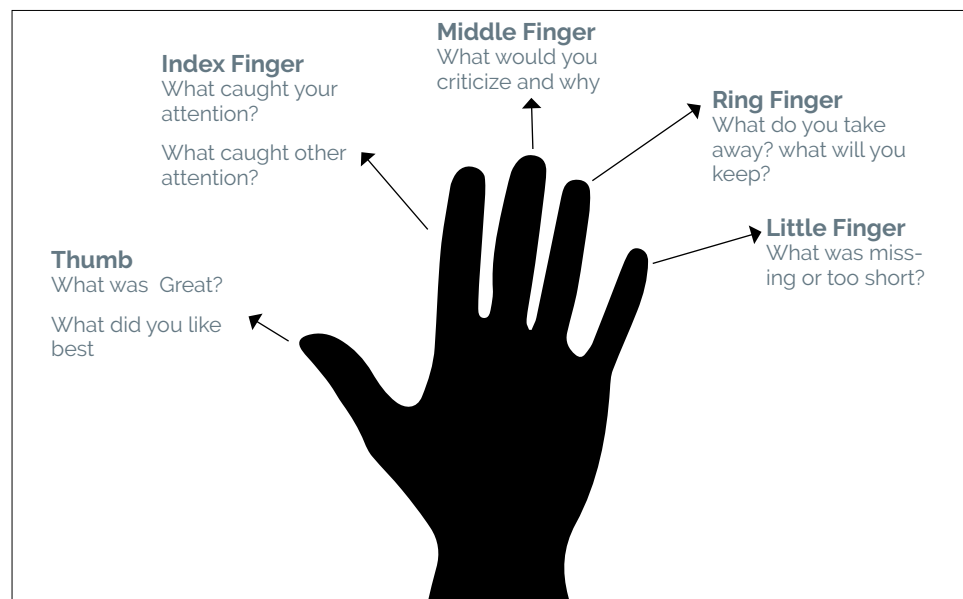
**Thumb** – thumbs up for something you really liked about the training.

**Index finger** – point at something that you think really was really important or surprising.

**Middle finger** – What did you not like or would like to challenge or criticise?

**Ring finger** – Define one specific aspect or practice you will integrate into your work in the future

**Little finger** – What did you miss or what has not been covered sufficiently?





Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH

Climate Smart Cities Project  
Second Floor, B-5/2  
Safdarjung Enclave  
New Delhi 110029, India

T + 91 4949 5353  
F + 91 4949 5391  
E [giz-indien@giz.de](mailto:giz-indien@giz.de)  
I [www.giz.de](http://www.giz.de)

National Institute of Urban Affairs  
(NIUA)

1st and 2nd Floor, Core 4B  
India Habitat Centre,  
Lodhi Road  
New Delhi 110003, India

T + 91 11 2464 3284  
F + 91 11 2461 7513  
E [niua@niua.org](mailto:niua@niua.org)  
I [www.niua.de](http://www.niua.de)

German Institute of Urban Affairs  
(Difu)

Zimmerstraße 13  
10969 Berlin  
Germany

T + 49 30 390010  
F + 49 30 39001100  
E [difu@difu.de](mailto:difu@difu.de)  
I [www.difu.de](http://www.difu.de)

