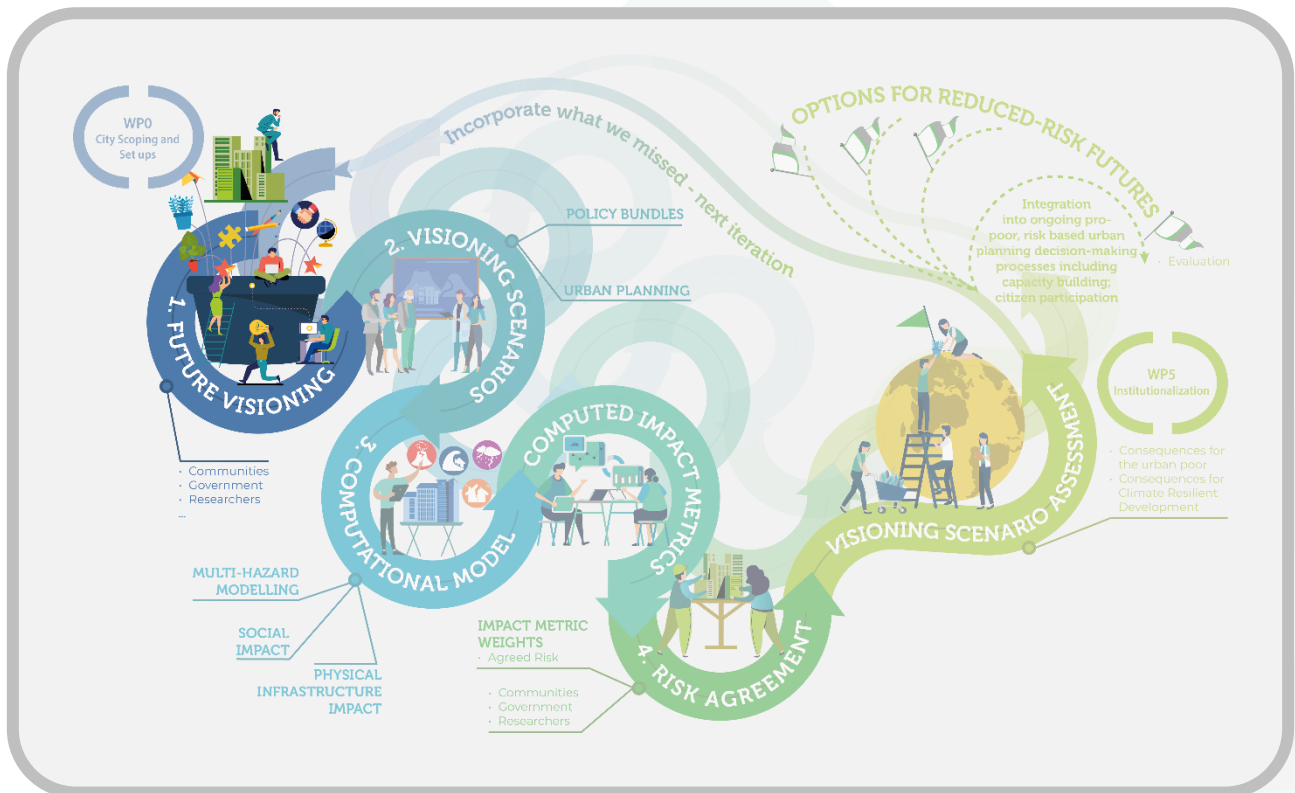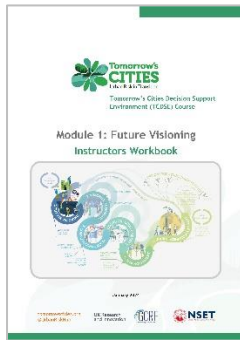# Tomorrow's CITIES
Urban Risk in Transition

Tomorrow's Cities Decision Support Environment (TCDSE) Course

Module 1: Future Visioning
Workbook

August 2024

Workbook
Module 1: Future Visioning

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PREFACE

This workbook on Module M1: "Future Visioning" has been developed under the Capacity Strengthening program on Tomorrow's Cities Decision Support Environment (TCDSE) Course of the Tomorrow's Cities (TC) project. This course aims to enhance the capacity of professionals from the Tomorrow's Cities and urban areas in utilizing the TCDSE and expand its reach so that the cities or urban areas can then adapt the framework based on scenarios specific to them and ultimately self-sustain.

Module 1: "Future Visioning" is the first module of the TCDSE course and is based on Work Package 1 (WP1) on "Future Visioning" of TCDSE. This workbook presents the details of module 1: "Future Visioning". This module is aimed to enable the participants to implement the TCDSE's approach and methods to deploy future visioning in their city.

Future visioning is the first stage of TCDSE and is a more 'people-centered' component of the framework. Target audience of this module are social mobilizers, urban planner, architect, GIS Expert, artist, DRR officials from Wards and Municipalities, Ministries from local, provincial, and Federal government, academician, researchers, representatives of Private sector, and Civil Society organizations (CSOs).

This module has nine sessions: Introduction Session, Exercise on Stakeholder Mapping, Everyday Life and Aspirations, Exercise on Everyday Life and Aspirations, Spatialising and refining visions, Exercise on Spatialising and refining visions, consolidating visions and designing policies, Exercise on consolidating visions and designing policies and Transitioning to Visioning Scenario. Each session of Module 1 course describes the process of Future Visioning trajectory providing both theoretical knowledge and practical skill through real time in-depth exercises. The course includes the key components of the TCDSE, future visioning process, objectives, key milestones, and outputs describing how the Future Visioning feeds to next step of TCDSE – Visioning Scenario. It also explains how Future visioning outputs contribute to the TCDSE and its different stages.

The module will be using various examples from TCDSE cities, including different methods used for future visioning process in different cities. The first four sessions are followed by in-depth exercises which enable the participants to understand and practice the process/methods of future visioning as well as we believe this module is able to transfer the skill and knowledge which will empower them to deploy it in their cities.

The goal of this module is to empower participants with the tools and expertise needed to excel in Future Visioning. Whether participants are professionals seeking to deepen their understanding or a newcomer eager to explore new horizons, this module offers something valuable for everyone.

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ABBREVIATIONS

CSOs	Civil Society Organizations
MOU	Memorandum of Understanding
NSET	National Society for Earthquake Technology-Nepal
TCDSE	Tomorrow's Cities Decision Support Environment
VS	Visioning Scenario
WP	Work Package

SESSION 1: INTRODUCTION

Authors of the Chapter: Dr. Thaisa Comelli, and Prof. Max Hope, Work Package 1 Leads

1.1   Objectives

The major objective of this session is to introduce the M1: Future Visioning.

By the end of the session, the participants will be able to:

- Discuss the Tomorrow's Cities Decision Support Environment (TCDSE) and its key components
- List the Purpose, Objective and content of Module 1: Future Visioning
- Communicate future visioning to diverse audiences, listing key milestones and outputs in simple terms
- Explain three rationales for thinking about the future with examples
- Discuss the critical mapping and disaggregation of urban groups for TCDSE workshops
- Provide short explanation on how future visioning feeds the TCDSE and contributes to risk-informed urban development planning

1.2   Structure of Session 1

This introductory session will describe the following topics.

Structure
1. Purpose, Objective, Target audience, course content and evaluation methods of Module 1: Future Visioning
2. Definition of key terms
3. Rationales for Thinking about the Future
4. Future Visioning in the Literature and in the TCDSE
5. The Wheel of Urban Assets
6. The Trajectory of Future Visioning
7. Logistical Arrangements of Future Visioning Workshop
8. Ethical Considerations

1.3 Purpose, Objective and content of Module 1: Future Visioning

1.3.1 Introduction to Tomorrow's Cities Decision Support Environment (TCDSE)
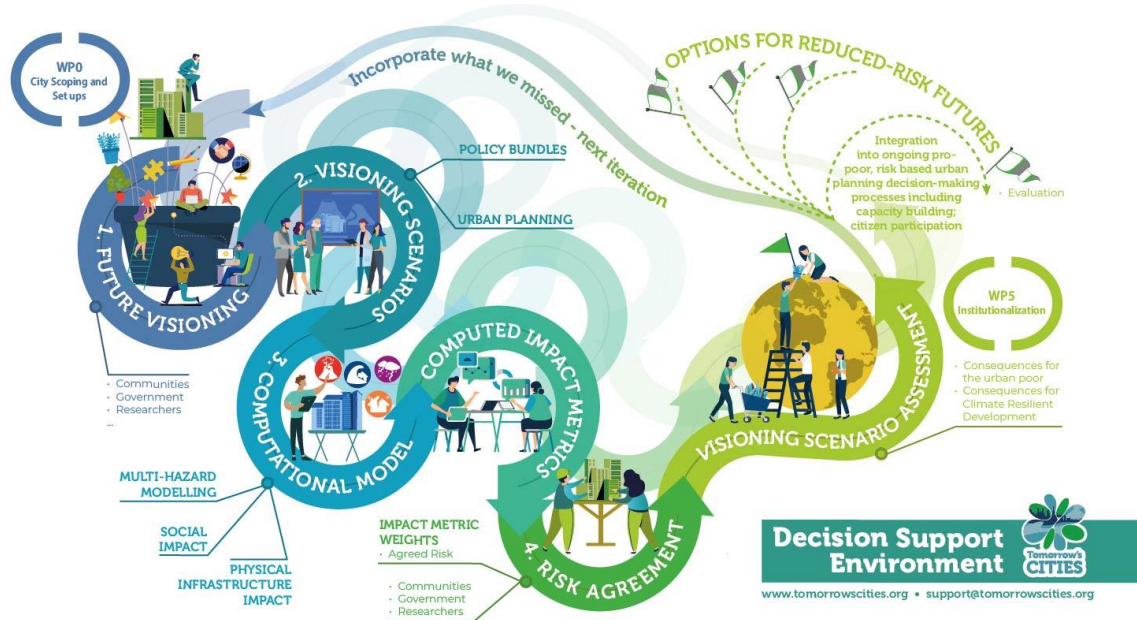
Figure 1: Summary of Tomorrow's Cities Decision Support Environment

Source: Tomorrow's Cities Communication Team.

The Capacity Strengthening program of Tomorrow's Cities is based on Tomorrow's Cities Decision Support Environment (TCDSE). The TCDSE is a flexible framework to support inclusive and evidence-based decision making, leading to a low-disaster-risk and more equitable urban development. As the name suggests, this is a process that supports informed decision making rather than making or enforcing decisions. Drawing on Tomorrow's Cities primary mission to reduce disaster risk for the urban poor, the TCDSE creates equitable and interactive spaces which allow multiple stakeholders and urban groups (whether institutional actors or urban residents) to think differently about risk. This is a space for learning; about the objective impacts of hazards on people, nature and the built environment, about different perceptions and experiences of hazardous events, and about how risk could be a negotiated concept. In a nutshell, the TCDSE articulates technical and political spaces of decision making by engaging in a systematic methodology composed of five stages: (1) Future Visioning, (2) Visioning Scenarios Development, (3) Multi-Hazard Physical and Social Impact Assessment, (4) Risk Agreement and (5) Institutionalization. It is important to note that, before the kick-off of the TCDSE, there is a preparatory stage (covered by Module 0 in this course) which deals with the assessment of existing data, a critical mapping and selection of stakeholder groups (on the basis of power imbalances in planning), besides other technical and logistical arrangements that allow the TCDSE to function.

- **Future Visioning** (Stage 1) encompasses a series of participatory engagements that explore desired urban futures with different city stakeholders, incorporating

expectations for land uses and critical urban assets, as well as expected policies to tackle the negative impacts of future natural hazards.

- **Visioning Scenarios Development** (Stage 2) renders these desired futures into detailed virtual representations that make Future Visions more realistic and connected to data-driven trends. Expected land uses are adjusted to meet planning standards, and a modelling of future exposure is incorporated. The latter means forecasting who the future urban residents will be, and where they will live and work. Further, Visioning Scenarios include a detailed refinement of policies discussed during Future Visioning workshops.

- **Multi-Hazard Physical and Social Impact Assessment** (Stage 3) subjects Visioning Scenarios to earthquake, flood and landslide events. This leads to an understanding of the consequences of the decisions made during future visioning and scenario building before a brick is laid. Maps of damage states combined with different impact metrics (number of casualties, of displaced households, etc) enable a clear visualisation of the spatial distribution of impact and help diagnose risk drivers back through complex causal chains in urban decision-making.

- **Risk Agreement** (Stage 4) opens up a collective definition of risk that accounts for the objective impact of hazards and the subjective priorities of key community and institutional groups that engaged with the TCDSE. Using digital tools, stakeholders unpack the consequences of spatial and policy decisions and how they increase or decrease disaster risk. They also assess the equity of the distribution of risk across space and the impacts of planning decisions on poor and disadvantaged communities in the event of natural hazard events, earthquakes, landslides or floods. Critical learning about risk, which results from our decisions, leads to an opportunity to modify our plans based on a clear understanding of the risk they imply.

- **Iteration** (Stages 1 to 4 repeated) is one of the key innovations of the TCDSE. Having developed a vision, translated this into a detailed visioning scenario and exposed its risk consequences, stakeholders now revisit problematic aspects of their vision that have led to the risk uncovered by this analysis. The city team then repeats Stage 1, modifying some aspects of the future vision. These modifications then lead to changes in the visioning scenarios. The new visioning scenarios are now exposed to the same hazard events and the impacts metrics are recalculated. This leads to both a refined understanding of critical decisions leading to risk, and to discussions about how to transfer that learning into the actual decision environment of cities. This helps to promote policy uptake by institutions. The process can be repeated as often as required so that these new insights into decisions and their consequences lead to safer development planning and better decision making.

- **Institutionalisation** (Stage 5) happens once stakeholders have learned enough from the process of iteration. Cities could take concrete lessons and outputs from the TCDSE (e.g., actual plans and policy ideas) and the very tools and processes of Tomorrow's Cities into their institutional environments for a process of pro-poor risk reduction that is meaningful and long-lasting.

It is important to always keep in mind that this is a Decision Support Environment – not a Decision *Making* Environment - which means that the outputs of iterations are only informing planning discussions within cities. That is, the TCDSE offers a way to think differently about planning, in which risk is central. Although concrete solutions could be used, it is less of a prescription and more of a process of stimulating critical urban thinking.

1.3.2 Purpose of M1

Module 1: Future Visioning is based on the WP1: Future Visioning of Tomorrow's Cities Decision Support Environment (TCDSE) process. Module 1 is aimed to enable the participants to implement the TCDSE's approach and methods to deploy future visioning in their city.

1.3.3 Objectives of M1

By the end of the module, the participants will be able to:

- Provide a short explanation on how future visioning feeds the TCDSE and contributes to risk-informed urban development planning
- Explain the methods of harnessing future aspirations from the past and everyday life experiences
- Translate aspirations into the map of the future city through the Co-Mapping Process
- Translate aspirations into the policy expectations, ensuring to orient policy options towards reducing the potential negative impacts of hazard
- Explain how Future Visioning feeds the two major components of Visioning Scenarios: (Spatial) Urban Planning & Policy Bundles

1.3.4 Target Audience of M1

Target Audience of this module are social mobilizers, urban planner, architect, GIS Expert, artist, DRR officials from Wards and Municipalities, Ministries from local, provincial, and Federal government, academician, researchers, representatives of Private sector, and Civil Society organizations (CSOs).

1.3.5 Contents of M1

The M1 course is a 3-day course (13.25 hrs.) with 11 sessions including opening and closing sessions of the training. It covers Five theoretical sessions and Four exercise sessions. The structure of M1 is as follows:

S.No.	Structure	Duration
1.	Opening Session: Introduction, Pre-test, remarks	60 min
2.	Session 1: Introduction to Future Visioning	60 min
3.	Session 2: Exercise on Stakeholder Mapping	90 min
4.	Session 3: Everyday Life and Aspirations	45 min
5.	Session 4: Exercise on Everyday Life and Aspirations	90 min
6.	Session 5: Spatialising and Refining Visions	45min
7.	Session 6: Exercise on Spatialising and Refining Visions	90 min
8.	Session 7: Consolidating Visions and Outlining Policies	45min
9.	Session 8: Exercise on Consolidating Visions and Outlining Policies	60 min
10.	Session 9: From Future Visions to Visioning Scenarios	45 min
11.	Closing Session	60 min

1.3.6 Course Evaluation

The course is evaluated at different stages to collect feedback and, in turn, update the course to foster its effectiveness for future training. The following course evaluations will be conducted in this module:

i. Pre-/ Post-Test:

The pre/post- test is an evaluation of participant's knowledge before and after the training in order to evaluate knowledge improvement.

ii. Session Evaluation:

The evaluation of each session by the participants in terms of its relevance, content, delivery and duration.

iii. Daily Feedback:

Feedback on course content and management aspects collected from participants at the end of each training day.

iv. Overall Training Evaluation

The evaluation of the training done by the participants in terms of the overall training course. This entails an evaluation of the following: facilitators, in terms of subject matter knowledge, ability to facilitate, etc.; handouts and references; relevance and usefulness of the content; pedagogical methods; and comments on future improvements.

1.4 Definitions of Key Terms

Nb: These are not universal definitions, but contextualized explanations of what these terms mean in the context of the TCDSE and, particularly, in the context of Module 1.

Aspirations: What individuals or groups hope to achieve, do or become in the future. In Future Visioning, we move from individual to collective aspirations, which are the building blocks of visions.

Baseline maps: Contextual information on the city and the planning area of the TCDSE displayed in a simplified manner to allow the conduction of co-mapping exercises. It should be explicit to participants if the baseline maps contain information about the present or about the future (forecasting).

Co-mapping: An exercise which in the TCDSE entails the overall translation of conceptual aspirations as spatial expectations. Co-mapping exercises should highlight issues such as desired land uses, assets to be preserved, increased/added or protected from hazards, and notions of urban form and social composition.

Disaggregation - of stakeholders or social/urban groups: In Tomorrow's Cities co-production activities usually start in disaggregated groups. Such groups are not divided randomly. Rather, they represent different social identities, conditions or power imbalances that could influence an equitable process of risk-informed planning. Disaggregating groups helps to understand how urban positionalities influence aspirations and practical proposals. Ultimately, it helps to ensure equity across different visions.

Exploratory Thinking: Refers to the exploration of different possibilities for the future. It usually relies on a set of assumptions or hypotheses.

Future Visioning Trajectory: In Future Visioning, this is a milestone-based pathway which starts with the selection of disaggregated stakeholders/urban groups and finishes with the assessment of products to compose Visioning Scenarios.

Future Visioning: The process of collectively producing visions for the future. In Tomorrow's Cities, these are usually normative – with emphasis on how the future should be – whilst incorporating explorations (possibilities) or trends (predictions).

Future Visions: A clear idea of how the future should be. Usually entailing a synthesis or encapsulated representation of such future. In Tomorrow's Cities, visions are urban-related and diverse (representing the positionalities of different groups).

Land-use maps: In future visioning, land-use maps are drawn/sketched by people. They need not be too complex and could roughly show the main desired/expected uses for a particular area. Such uses should reflect aspirations for the future while also informed by urban and hazard trends and possibilities.

Milestones: Critical checkpoints within the Future Visioning methodology in which cities ensure that the delivery of key outputs is viable and being produced with equity and quality. More than one milestone could be met in a single workshop.

Normative Thinking: Centered on what a good future (for the city or planning area) looks like. In the case of Tomorrow's Cities, this is about what a good future city should look like (assets) and enable/do (processes).

Outputs: Deliverables from future visioning activities. Concrete and tangible products such as maps, drawings, written statements and filled forms. Each Milestone will require a minimum number of outputs, although more could be delivered.

Policy Bundles: Package of DRR-oriented policies that compose Visioning Scenarios. Policy Bundles are actions aimed at reducing risk in the future, and they are modelled against hazards in the third stage of the Tomorrow's Cities Decision Support Environment.

Policy timeline (or pathway): Assemblage of diverse policies in a dynamic way to create a strategic pathway from present to future. In such a pathway, policies could build up incrementally or sequentially depending on assumptions such as the time required for implementation of each policy or the need to install other structural or procedural changes before implementation.

Policy: Expectation for specific measure, action or piece of legislation. All formats (from conventional policy to protocol, guideline or action) that aimed at achieving a stated desired outcome apply in this case. Usually entails the participation of the state, although they could be initiated or led by the private sector or civil society.

Predictive Thinking: Refers to what a probable future looks like given past events and certain (urban) trends.

Scale of governance: An indication of the scale within which DRR policies and decisions should operate, and who is expected to implement or enforce said actions.

Social composition: Speaks to groups' desires and expectations about who is supposed or expected to occupy a specific planning area. Usually brought up during co-mapping exercises.

Spatial translation: Refers to the creation of concrete spatial strategies that materialize aspirations discussed in future visioning.

Temporality (of policies): Refers to the socially constructed timings of policies. In a given context they could be understood as long- medium- or short-term actions, while also referring to different degrees of consolidation – e.g., a state policy (e.g., law) or a government policy (e.g., program).

Tomorrow's Cities Decision Support Environment: The main framework supporting cities towards risk-informed urban development planning.

Trade-offs: Refers to a choice when two desired outcomes or elements are incompatible or cannot coexist. In Tomorrow's Cities Future Visioning approach, they are context specific.

Urban form: In the context of future visioning, speaks to a broad understanding of how the future city should 'look like'- e.g., the average and maximum height of buildings, the amount of green areas, the form and disposition of networked infrastructure, etc.

Urban trends: General direction of travel of a given parameter or dataset from past to present towards the future. Often leads to a predictive (highly probable or plausible) future.

Visions: Encapsulations or synthesis of futures, usually desired ones.

Visioning Scenarios: Detailed representations of the physical (natural and built) and social environment of the future urban area of interest and policies that accompany these spatial items. Different stakeholder groups could produce different visions, and from each vision, different visioning scenarios could emerge. For more information, check the content of Module.

1.5   Rationales for Thinking about the Future

Before delving into Future Visioning, it is important to highlight three rationales for thinking about the future. These three different 'logics' or reasonings underpin different ways of thinking about visioning, and appear throughout the whole TCDSE. They are incorporated in TCDSE Future Visioning to support more sophisticated discussions about the future of cities in light of multi-hazard risk. Such rationales are rooted in different scientific disciplines but in contemporary urban policy and planning often appear at the same time, in a hybrid format.

NORMATIVE   PREDICTIVE   EXPLORATORY

Figure 2:   **Three Rationales for Thinking**

Source: Future Visioning Toolbox (image inspired by IPCC reports) [1]

- The first rationale asks how the future should be or what it should look like. This is called a **normative rationale** and is usually associated with qualitative methods and utopian thinking.

- The second rationale asks how the future will probably be or look like given past data and current trends. This is called a predictive rationale and is usually associated with quantitative methods and forecasting techniques.

- The third rationale is about asking how the future could be or look like under certain premises or conditions. This is called an exploratory rationale and could be an adaptation of forecasting (e.g., possible scenarios on the basis of quantitative data and different assumptions or 'what if' questions) or a qualitative assessment of diverse perceptions or expectations about the future (e.g., possible scenarios representing a good future for different social identities).

As mentioned, all these three rationales are used in the TCDSE, although each stage might emphasize a certain question. Future Visioning is usually known in the literature for its emphasis on normative questions. Yet, in Tomorrow's Cities, given the need to understand urban and hazard probabilities and possibilities, other rationales are used to constrain and refine visions.

1.6   Future Visioning in the Literature and in the TCDSE

There is no strict definition of what future visioning is, as cities and researchers have drawn on different conceptualizations and applied it in diverse ways. Yet, in contemporary urban planning and policy, visions are usually understood as encapsulations or synthesis of an aspired future according to a certain group. They are usually a response to this question: what **should future cities look like or be?** – which means that visions tend to be more normative in nature. In this vein, Future Visioning is the process of producing such aspired futures, which in many cases has happened in participatory ways or with inputs from different urban residents.

Tomorrow's Cities Decision Support Environment departs from this understanding of future visioning but refines it to make visions more aligned with the field of disaster risk reduction and a pro-poor focus. After all, in light of pressing urban trends such as the massive urban growth expected in the global South - and the possibilities of hazards this entails, often coupled with the worsened effects of climate change - visions cannot only be a 'wish list' for cities. They should respond to real challenges and constraints, both in the present and in the future.

In sum, Future Visioning in the TCDSE asks how cities should be, whilst also prompting reflections about possible futures and injecting data and information about possibilities and probabilities. The objective is to reach a pallet of options which are both desirable and plausible/possible. Moreover, in Tomorrow's Cities, participants are prompted to reflect not only about end-states in the future, but on the pathways that lead to such a range of aspired futures. Figure 02 suggests that process.
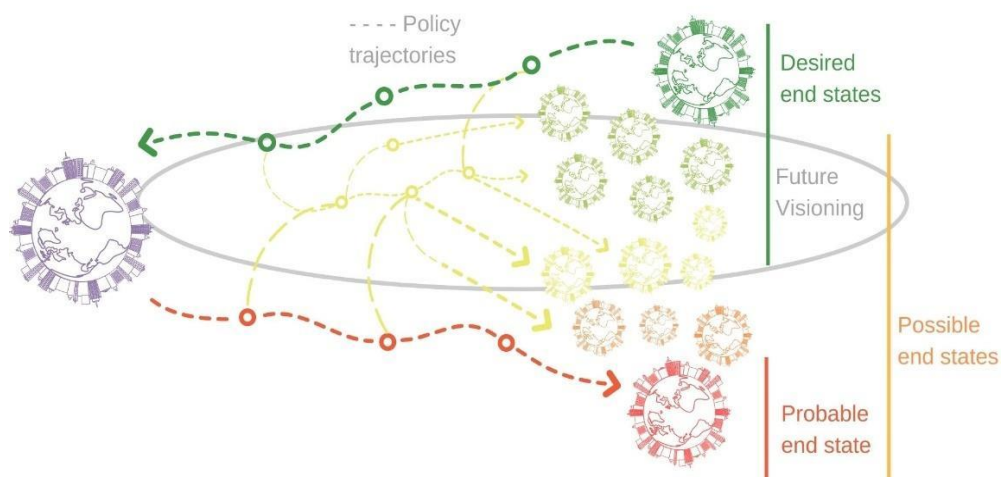
Figure 3:   **The concept of Future Visioning in Tomorrow's Cities**

Source: Future Visioning Toolbox (image inspired by IPCC reports) [1].

To pursue such ambition and acknowledging the diversity of urban contexts, Future Visioning in the TCDSE is proposed as a trajectory composed of five milestones. Each milestone relates to an output which helps to consolidate visions (and in the process, legitimizing the collective positions expressed in the vision) and provides data to generate Visioning Scenarios.

Besides being one of the five components of the TCDSE, Future Visioning is also the start of a longer engagement with stakeholders for risk-informed planning. That is, in many cities, this is the first time when the leads of the project will engage with some of the selected groups, which means that Future Visioning is also an opportunity to communicate the TCDSE with clarity and transparency. Participants should understand the scope, limitations and possibilities of this process, whilst also being able to voice their own concerns and interests. This helps to build trust and ensure a longstanding commitment between parties.

1.7   The Wheel of Urban Assets

In Tomorrow's Cities, Future Visioning is mostly about understanding what the different aspirations for the future of cities are and translating these aspirations into spatial and policy solutions that contribute to disaster risk reduction. Whilst conceptually simple, this process can be highly complex in practice. Discussions will likely touch on different aspects of urban life, and it might be hard to understand gaps and priorities in visions.

A key device – used both during Future Visioning and in other TCDSE stages – is the 'Wheel of urban assets. The wheel is mostly used to help participants think about different aspects of urban life, and it comes with a few methodological advantages: it helps to frame discussions, synthesize ideas, identify gaps and emphases, and understand urban assets (and their possibility of being impacted by hazards) in tangible and intangible terms.
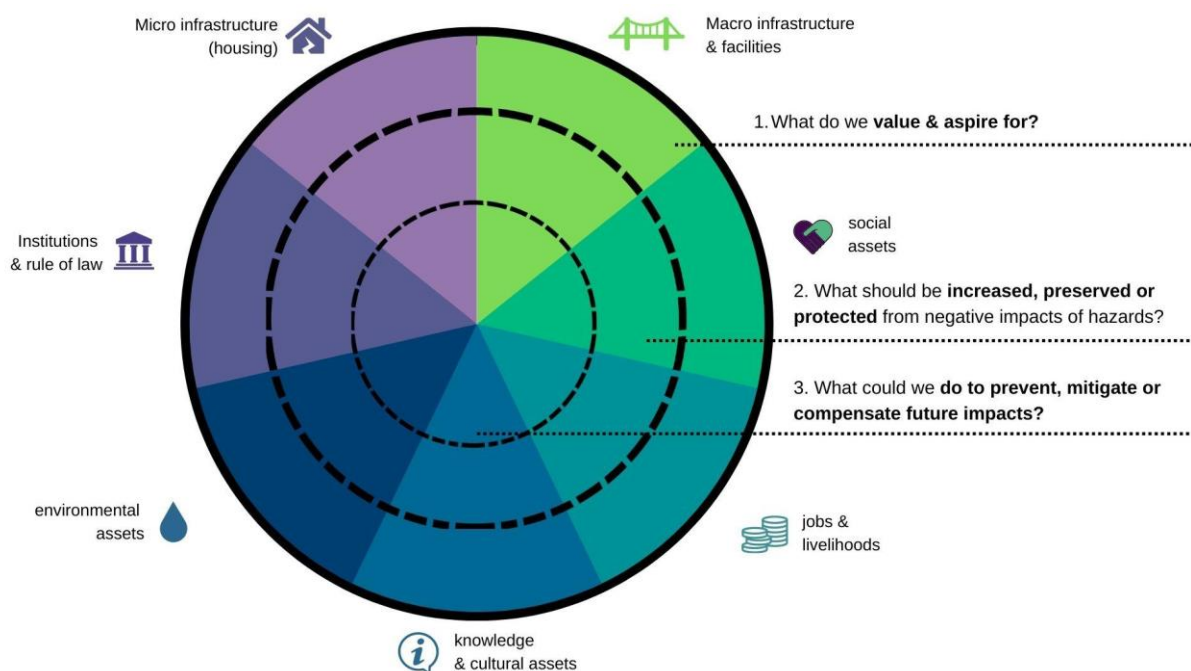
Figure 4:   **The wheel of urban assets. Source: Future Visioning Toolbox.**

As the image above suggests, the wheel helps participants to think about urban complexity by highlighting seven dimensions, each representing one class of assets:

a. **Macro infrastructure and facilities** – large scale infrastructures e.g., road networks, schools, hospitals, railways, bridges etc).

b. **Social assets** – social phenomenon which is directly related with people's physical, emotional, and mental wellbeing, as well as of family, and society e.g., life loss or injuries, being close to one's family, having a support network, being part of an inclusive community, social cohesion.

c. **Jobs and livelihoods** – Essential elements of everyday life e.g., earnings such as living close to or having access to job opportunities, being able to sustain livelihood practices over time, access to everyday essentials such as food, water, clothing, small industry etc.

d. **Knowledge and cultural assets** – aspects related with culture, religion, knowledge and skill e.g., preserving cultural and leisure practices, issues of digital inclusion/exclusion, having access and preserving religious and sacred sites.

e. **Environmental assets** – Elements related to environmental issues e.g., accessing green spaces, clean air and water resources, community park.

f. **Institutions and rule of law** – Elements related with Governance; institution, law, policy and rights of people e.g., having policies and laws enforced, having rights recognized, being able to access institutions and be heard, etc, and

g. **Micro infrastructure / housing** – small infrastructure like housing, sheds, components of house, traditional stone taps, e.g., having a toilet in the household, having access to affordable housing options, etc.

Cities are welcome to change terminologies (the labels of each section), so the final version of the wheel is easily digestible by participants. However, it is important to note that the wheel supports discussions in several stages of the TCDSE and is used to ask different questions throughout this process, which means that the format of the wheel chosen during future visioning shall remain the same until the end of the first TCDSE iteration.

In Future Visioning, three overarching questions are asked. These are represented by the three rings of the wheel (these questions are also used to structure the milestone-based 'trajectory' shown in the next section of this document).

The first question is "What do we value and aspire to?". This question is the essence of Milestone 1 and aims to capture visions in a broader and more conceptual way. The second question is "What should be boosted, preserved, or protected from the negative impacts of (future) hazards?". This question is mostly asked during Milestone 2, when participants translate aspirations in spatial terms. That is, they use their conceptual visions as a way to show in space what is added in the future (e.g., buildings, facilities), what is to be preserved (e.g., cultural practices, natural resources) and what is to be more intensively protected from hazards (e.g., housing, hospitals, care homes, etc). Finally, the wheel asks, "What could we do to prevent, mitigate or compensate for the impacts of future hazards?". This is a policy-oriented question which guides Milestone 3. Different from the previous ones, this question is less about translating aspirations and more about explicitly responding to future Multi hazards in a given area.

1.8   The Trajectory of Future Visioning

The three overarching questions shown in the wheel of urban assets are further unpacked as a methodological trajectory in which each question represents a milestone (1, 2 and 3) with preparatory (0) and concluding (4) stages. Whilst Milestone 0 is explained in this introduction (for being part of the preparation for Future Visioning and the whole TCDSE), Milestones 1, 2 and 3 are divided as sessions of this Module; Milestone 1 will be covered in Session 2 and 3, Milestone 2 in Session 4 and 5, and so on. Milestone 4 (Session 5) is about understanding how to transition from Future Visioning to Visioning Scenarios.
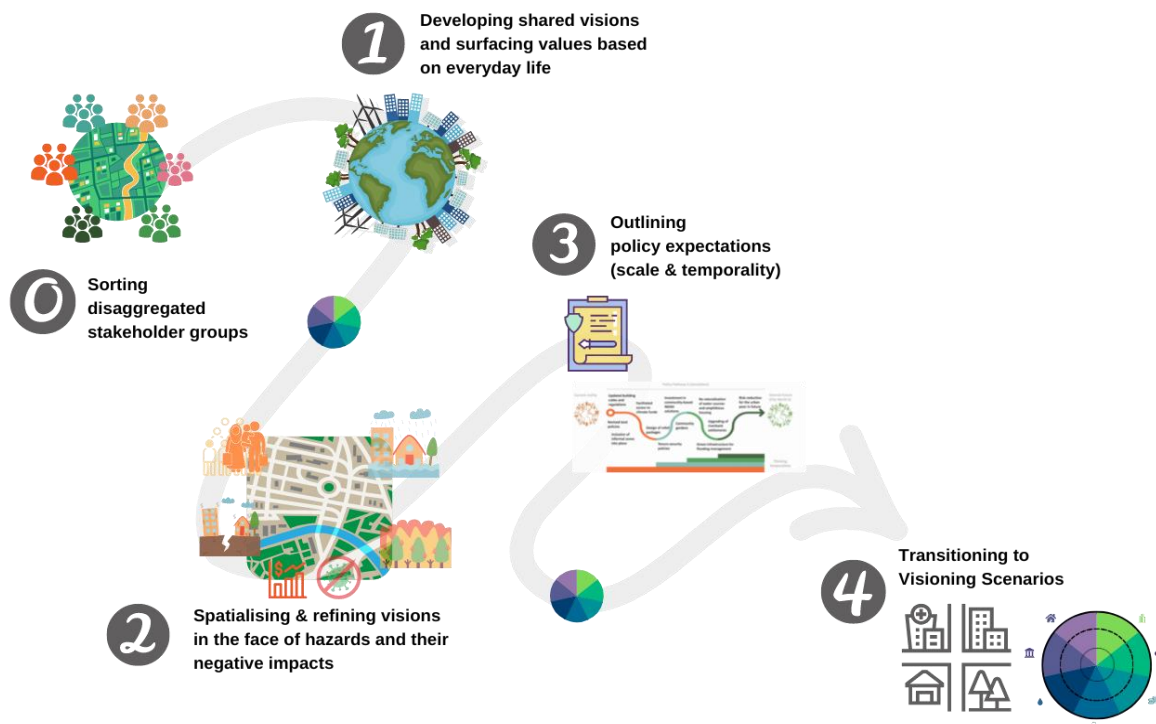
Figure 5: **The methodological trajectory of Future Visioning within the TCDSE**

Source: Future Visioning Toolbox.

Past experiences in cities indicate that this Future Visioning trajectory could be easily deployed as a 2-full-day workshop (provided there is enough human resources and interest to facilitate discussions with different stakeholder groups at the same time). Preparatory and transitioning stages might take longer though. If enough data is scoped in advance (Session 5 of this module will cover this topic), the entire Future Visioning process should not take more than 1 month.

The 'success' of future visioning depends less on how long it takes and more on how the process is designed and facilitated. Having more time will always help to make conversations richer, but it is important to avoid issues such as participation fatigue. On the other hand, fast conversations could be opaque, little useful to address power imbalances and ultimately undermine trust between stakeholders. Building a process which is both effective (able to deliver data and outputs) and meaningful (inclusive, empowering, pro-poor, and pedagogical) is the key to a well-balanced future visioning strategy.

Below the key milestones which shape this module are presented. They entail the delivery of a number of previously fixed outputs. However, each milestone is flexible and could incorporate different methods and strategies.

1.8.1 Milestone 0 – Sorting Disaggregated Stakeholder Groups

Output: Stakeholder Map containing critical notes on relevance (why are these stakeholders understood as important and what is the advantage or opportunity of having them in the TCDSE).

Overarching questions that guide this Milestone:

* Who should be involved in the TCDSE (and future visioning)? Why?

- Who (i.e., groups, identities) is historically at the center or marginalized in planning spaces and risk-related decision making?
- Considering the difficulty of engaging with all city actors, which ones could best represent the power imbalances that shape urban risk?
- How is this disaggregation of stakeholders improving pro-poor risk-informed planning?

This Milestone is numbered as '0' because it refers to preparatory activities – to be carried out before the TCDSE kick-off. City representatives should map powerful and marginalized voices/groups that could or should participate in the TCDSE. Different identities, conditions and interests will generate diverse visions for the future and lead to different priorities. Whilst participants might reach compromises and find common ground at a later stage in the TCDSE, it is important to understand the inequalities and differences that could shape risk-informed planning in multiple ways. Consensus is not a primary objective for future visioning, especially in the first iteration of the TCDSE. At this initial stage it is more beneficial to explore alternative versions for the good future city.

Below are examples of a few types of inequality that could support the production of your critical stakeholder mapping. They are clustered as 'Social', 'Spatial & Environmental', 'Institutional' and 'Epistemic' (or knowledge) inequalities, although it is important to keep in mind that groups will always be internally diverse, and inequalities could appear in intersectional ways.
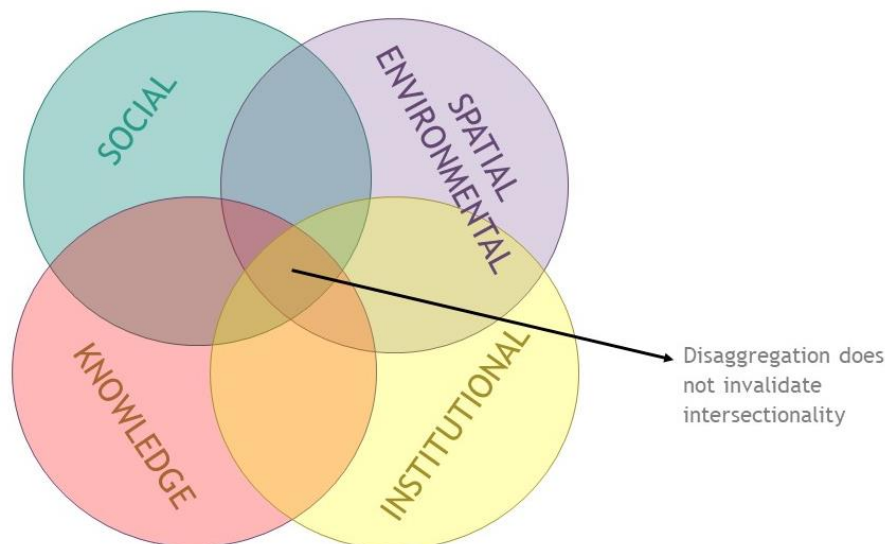
Figure 6: **Example of types of inequalities**

- **Social Inequalities:** relate to categories such as class, income, gender, sexual orientation, race, ethnicity, ability, body size or cognitive capacity.
- **Spatial & Environmental Inequalities:** could relate to issues of land and property ownership, current exposure to sensitive or hazard-prone land, ease of access to environmental goods (e.g., clean water), exposure to non-natural hazards (e.g., inhabiting landfills), imminence of being unevenly damaged by climate change (e.g., coastal communities or groups living close to riverbeds), etc.
- **Institutional Inequalities:** could relate to issues such as citizenship and/or migration status, inclusion in digital/official databases, ease of access to government facilities and institutional support (e.g., living close to a public health or legal support facility), stigma (e.g., grassroots groups or social movements who are deemed dangerous, prosecuted or stereotyped in some other way).

- **Epistemic or Knowledge Inequalities:** relate to ways of being in and knowing the world (e.g., indigenous, customary, vernacular or empirical knowledges) which are currently not as legitimized or included in urban planning and disaster risk decision making.

The above taxonomy is a suggested way to frame the process of stakeholder mapping, which does not mean that Tomorrow's Cities partners necessarily need to use it to finalise their choices, nor is it mandated that all types of inequalities (and their context-representative groups) are included in the TCDSE. Nevertheless, it is important to be conscious of factors and conditions that are prioritized or left out of the process.

The final decision of who will engage in the TCDSE should take into account at least four factors:

- If both powerful and marginalized voices are represented in the mapping, with reflections about relevance and power (for instance, which groups could form alliances, which are expected to have conflictive views, etc).
- Existing gatekeepers and socio-institutional networks (ideally composed of individuals and groups aligned with the pro-poor ethos of the hub and willing to be critical of the process if need). Because the presence of Tomorrow's Cities in some of the approached areas is inevitably limited, it is recommended to make an engagement with groups that are already formed rather than recruiting participants from scratch. This makes it more probable that stakeholders will still engage with some of the tools, methods and learning from the TCDSE, even if/when the project is no longer active.
- Stakeholders' own willingness and interest in the process. In that sense, it is important to consider that different groups might have different motivations and availability to participate. This requires that the whole engagement is communicated in the most transparent way possible from the onset.
- The recommended maximum number of Visioning Scenarios given logistical, budget and time factors: six. This means that in most cases it is not possible to have more than six disaggregated social groups, leading to a clustering of some identities or conditions in some cases.

Considering the last two points, city partners might want to consider alternative routes through which stakeholders engage with the TCDSE. For example, it is not uncommon that high profile urban authorities and policy makers do not have time or are unwilling to participate in time-consuming and community-oriented Future Visioning workshops. It is nonetheless important that the TCDSE is aware of the visions of decision makers, and that these actors support the process of trade-off thinking that leads to more realistic visions and policy uptake later in the process. In this sense, it might be useful to think of follow-up engagements (for instance, periodic meetings, interviews of focus group discussions) where stakeholders remain engaged with the team even without producing some of the outputs of each milestone).

1.8.2 Milestone 1: Spatialising and Refining Visions

This will be unpacked in Session 2 of this course. Participants will learn and discuss how past and everyday life experiences lead to different aspirations for the future, and how to better understand and structure such aspirations to generate spatial and policy proposals.

Output: One 'visioning statement', one 'wheel of urban assets' with a summary of key elements of visions, and one visual representation – e.g., drawing - of that vision.

Overarching questions that guide this Milestone:

- *What do we value and aspire to?* (First Question in the Wheel of Urban Assets)
  - What are the main aspirations of your group for a 'good future city'?

- What should your future city have (assets) and what should it enable people to do (desired or needed practices)?
- Which values guide this vision? Why do you aspire to this future?
- To what extent is this vision inclusive for poor and marginalized groups?

1.8.3 Milestone 2: Developing shared visions and surfacing values based on Everyday Life

This will be unpacked in Session 3 of this course. Participants will understand how broad visions can be materialized as spatial expectations; land-use plans with expectations of urban form and/or proposed interventions in the consolidated built environment.

Output: One co-produced map with main desired land-uses, proposed interventions, notions of urban form and notions of social composition. Optional: Complementary products such as sketches and 3D models.

Overarching questions that guide this Milestone:

- What should be increased, preserved, or protected from the negative impact of hazards? (Second question in the Wheel of Urban Assets)

  - How to translate the key elements of your vision into spatial guidelines (e.g., land-use plans, expected interventions/changes, notions of urban form)?
  - What adaptations, additions or trade-offs are needed in light of planning requirements, socio-spatial trends and the possibility of multi-hazards?
  - Are your spatial expectations contributing to reduce disaster risk for the poor?

1.8.4 Milestone 3: Outlining Policy expectations

This will be unpacked in Session 4. Participants will learn how perceptions about multi-hazards and their impacts help to co-produce DRR-oriented policies.

Output: One list of policies – either located within the wheel of urban assets or with their dimensions mentioned. Desirable: notions of governance (who is expected to implement that policy) and temporality (if a short, medium or long-term endeavor).

- What could be done to prevent, mitigate, or compensate for the possible impacts of future hazards? (Third question in the Wheel of Urban Assets)

  - Which action points are required to bring your current city closer to your aspired future city?
  - In which ways (directly or indirectly) could future hazards negatively impact the assets and processes you aspire to for the future?
  - What could be done in light of these events (policies)?

1.8.5 Milestone 4: Transitioning to Visioning Scenario

This will be covered in Session 5. Participants will understand how the outputs of future visioning contribute to feeding the rest of the TCDSE, and how to evaluate the effectiveness and meaningfulness of their Future Visioning trajectory.

Nb: Whilst overarching questions could be adapted by cities depending on the methodological strategy chosen, outputs remain overall fixed to enable consistency across different TCDSE experiences.

1.9 Logistical Arrangements of Future Visioning Workshop

i. Time

The minimum time suggested for the deployment of future visioning is 2 full days: one day for introducing the TCDSE and developing Milestone 1 (this session), and another day for developing Milestones 2 and 3 (sessions 3 and 4). Having previous relationships with stakeholder groups and gatekeepers could help. Continuing to build equitable partnerships is also essential for participants to feel valued and part of a process of meaningful change – whilst future visioning is about thinking of a distant future, it has impacts on the present.

Furthermore, it is important to keep in mind that other TCDSE stages also require loops of interaction, which means that stakeholders must understand how the stage of future visioning fits within a broader process – both conceptually and logistically. It is recommended that cities produce a timeline indicating in simple ways: when or how many times participants are expected to engage with the TCDSE; with what purpose, or to produce which outputs; and the reasoning for what engagement.

ii. Venue

No venue is neutral, but some spaces could be more convenient for certain groups (particularly marginalized and disadvantaged ones) or exacerbate power imbalances. The team deploying future visioning should reflect on whether it makes sense to conduct conversations with different stakeholders at the same time – in breakout groups or with different tables in the same room – and the implications of that choice. In any case, where workshops are conducted matters.

In some situations, gathering different stakeholder groups in a public building – such as the municipality headquarters – could be considered convenient if such stakeholders live in different areas of the city and said building is central. In other cases, participants might find this environment too formal and intimidating. Besides issues of access, some groups might even refuse to attend meetings depending on where they are held due to pre-existing conflicts. Yet, in many cases, community centers, schools or public open spaces (more informal and frequently accessed ones) are usually perceived as more welcoming. Overall, a good guidance would be to 'go where people are' – e.g., if informal settlement dwellers are contacted, it would be respectful and convenient to conduct the meeting in that location, if there is enough space. If gathering stakeholders in the same date and space proves challenging, conducting workshops with separate groups in smaller venues might also be a good option.

iii. Format

Most future visioning activities will require a reduced number of participants, so everyone has a chance to express their thoughts. Sessions might begin and close in plenary format but should eventually move into smaller groups. The 'shape' of the group assemblage might also matter. For instance, gathering participants in a circle might imply less hierarchy between them, or between them and facilitators.

iv. Accessibility

Acknowledging and ensuring the presence of disadvantaged, marginalized and vulnerable individuals means making arrangements, so their participation is comfortable and meaningful. Groups such as elderly or disabled persons may require special arrangements and adapted methodologies. The future visioning preparation team should also consider how comfortable or capable groups would be working with certain materials and in different languages. Overall, experiences in cities show that participants end up enjoying cooperative activities such as drawing and making collages, but this evaluation should be context specific.

v. Preparing materials

The strategies chosen by each team will require different materials: printouts such as large maps and the wheel of urban assets (usually a few copies are required per group), sheets of white paper, flipcharts, sticky notes, pencils and crayons, and so on. Make sure the workshop design includes all necessary materials. Computers, projectors and Wi-Fi connection are also often needed.

vi. Documenting and Recording

Interesting conversations and rich outputs could lose impact if these are not properly recorded and documented. Make sure you take sufficient pictures, have note-takers to describe objective and subjective aspects of the sessions, and properly digitize or transcribe outputs.

1.10 Ethical Considerations

Ethics protocols could vary from context to context, so the guidance in this document is not too extensive. Yet it is important to have in mind that all future visioning activities – and the TCDSE more broadly – should be aimed at improving wellbeing rather than causing harm. With this in mind, a few considerations are necessary:

- People should participate with informed consent. This entails a clear understanding of what the project is about and that no harm will occur from not attending workshops or disagreeing with facilitators or other groups.

- The recording and documenting of positions, statements and conversations should also happen with explicit consent. In the past, cities have prepared information or attendance sheets for signing, which included explicit consent notes where participants would agree to have their image and statements shared for research purposes.

  - Even if/when participants consent to have their discussions and outputs shared, personal or any sensitive data should be kept confidential, stored safely and for a limited amount of time. Overall, avoid collecting personal data when not strictly necessary.

- Future Visioning workshops should be safe spaces for opinions and ideas to be shared freely and transparently. This entails mutual respect between participants and between facilitators and participants. No participant should feel that their visions could be later used against them.

- In many situations, it might be sensible to hide people's faces from recordings and photos. This is particularly an issue if workshops include children.

SESSION 2: EXERCISE ON STAKEHOLDER MAPPING

2.1 Objectives

By the end of the session, the participants will be able to:

- identify the powerful and marginalized voices/groups that could or should participate in the TCDSE.

2.2 Structure of Session 2

This introductory session will describe the following topics.

Structure
1. Presentation of Case Study
2. Overarching question guiding the exercise
3. Instructions for Exercise
4. Example of Exercise

2.3 Presentation of case study:

This is Tomorrowville, a fictitious place inspired by datasets from Kathmandu and Nairobi. Tomorrowville is a peri-urban area experiencing rapid urban growth. Its current population is 40k people, and it is expected that this number will double 30 years from now. Because of its current rural characteristics, many families have their livelihoods connected to agricultural practices. Those who work in some of the industrial sites also live nearby. Cheap land and opportunities at industrial sites are also factors associated with the formation of some small informal settlements along the river. Low-income and informal settlements there are marked by high density and a concentration of ethnic minorities, newly arrived migrants and women who are head of households. Some middle-income households can also be found in gated communities. Because of the recent COVID-19 pandemic, Tomorrowville has young community volunteers who are well known in the area and are very active politically. Tomorrowville is exposed to earthquakes, flooding and landslides. Some events are likely to get worse given the effects of climate change. Session 2: Everyday Life and Aspirations
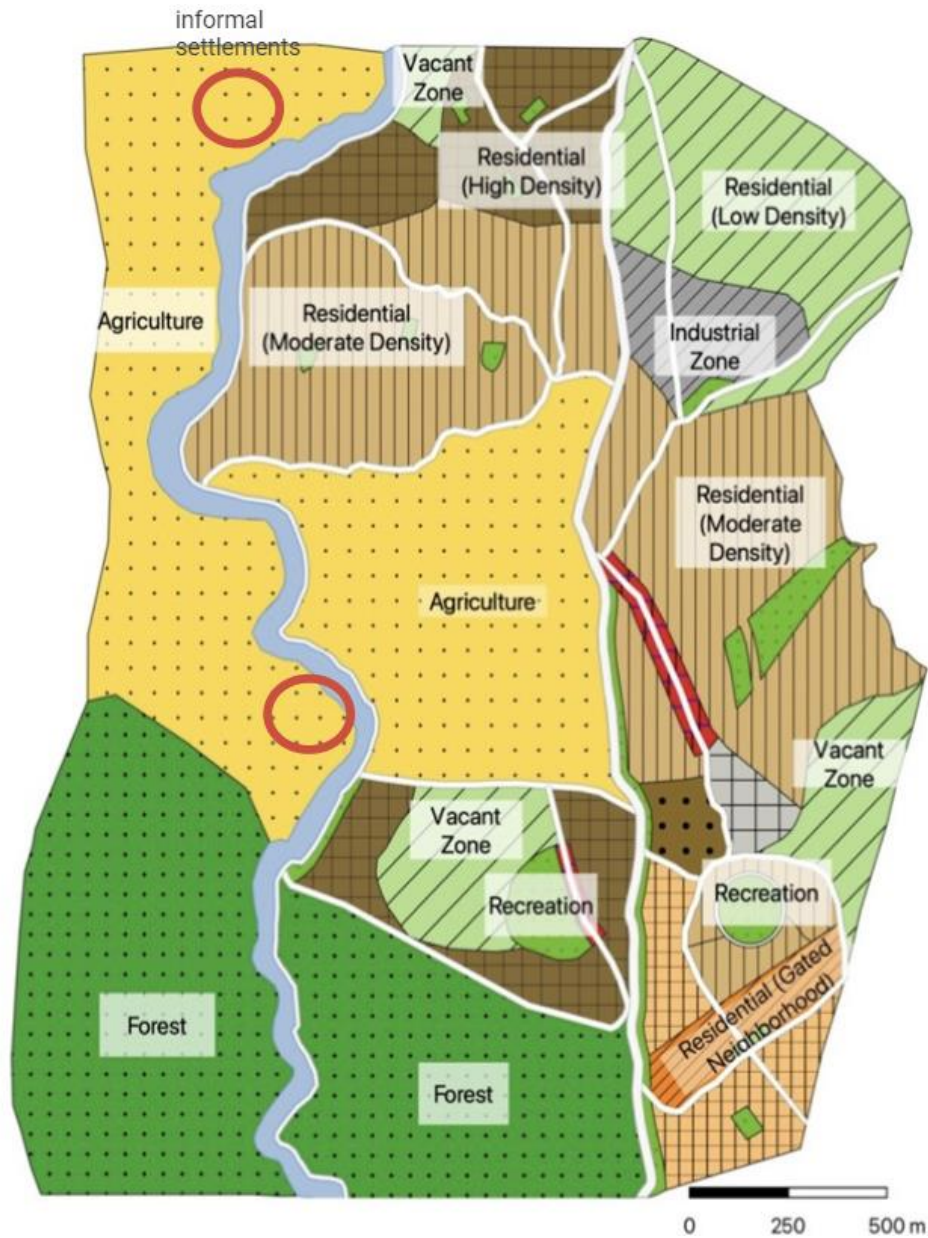
Figure 7: **Current land use of Tomorrowville**

2.4   Overarching question guiding the exercise:

Who should be part of TCDSE coproduction engagements? Why?

2.5   Instructions:

In break-out groups: produce a stakeholder map suggesting who are the powerful and marginalized voices in Tomorroville.

The first stage of the exercise is a free brainstorm, when you name all groups that come to mind – for example 'farmers/workers', 'farmers/landowners', 'informal settlement renters', 'women', 'youth', etc. (Nb: in a real TCDSE process, this thinking will be informed by a contextual analysis of the area and evidence which points to the relevance of those groups, either in the presence or for the future of that area).

In the second stage of the exercise, you will try to apply a framework to your brainstorming. In short, you should check if you are capturing different types of urban inequalities (e.g., socio/environmental, social, institutional, knowledge). This could lead to a larger number of stakeholders or gaps being identified.

In the third and final stage, you should finalize the proposed TCDSE groups considering the recommended average number of 6 groups. To do so, you might need to cluster groups, as the image below indicates. You can also add symbols to indicate if you find these groups are usually more powerful or marginalized in planning dynamics.
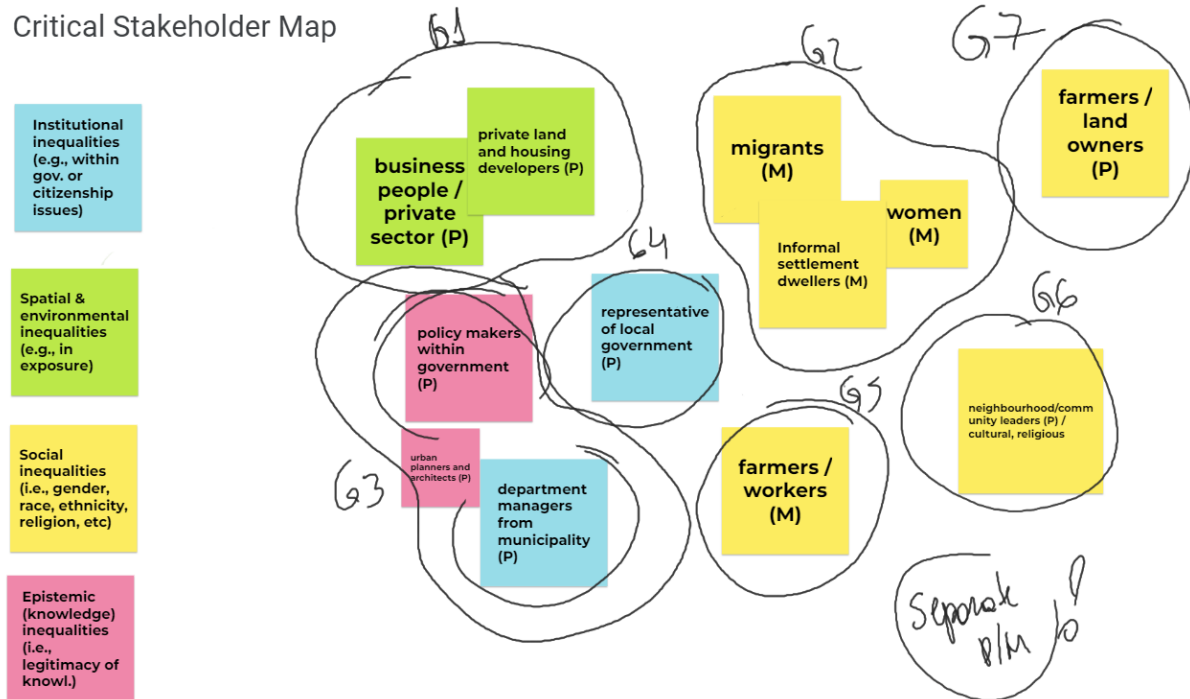
Figure 8: **Example of critical stakeholder map**

Here, collective identities or positions are disaggregated, but still with some internal diversity. Each group is color coded according to the suggested taxonomy of inequalities. The letter 'G' indicates the number of groups, that is, different conditions and identities are clustered to form the final disaggregation. The letters 'M' and 'P' indicate if groups are considered to be powerful and marginalized, even though in reality power and marginality might appear in relative and nuanced ways in cities.

In plenary, groups will present their stakeholder maps, finding similarities and differences.

Note for facilitators: only introduce the framework of inequalities and the notion of clustering once the discussions have advanced. The framework should facilitate – not constraint – the conversations. The overall aim is to have a map that represents fairly well inequalities in the city. It is not meant to capture all the details, but the most prominent aspects of planning in that area.

SESSION 3: EVERYDAY LIFE AND ASPIRATIONS

Authors of the Chapter: Mr. Mehmet Kalaycioglu, and Dr. Thaisa Comelli

3.1   Objectives

By the end of the session, the participants will be able to:

- Explain how past and everyday life experiences can lead to different aspirations for the future
- Facilitate a movement from individual to collective aspirations
- Differentiate methods to produce visions
- Facilitate critical thinking about the equity and justice implications of visions

3.2   Structure of Session 3

This session will describe the following topics.

Structure
1. Milestone 1 – Developing shared visions and surfacing values based on everyday life
2. key questions
3. Activities
4. Outputs
5. Harnessing aspirations: techniques and approaches
6. Organizing aspirations: the 'wheel of urban assets'

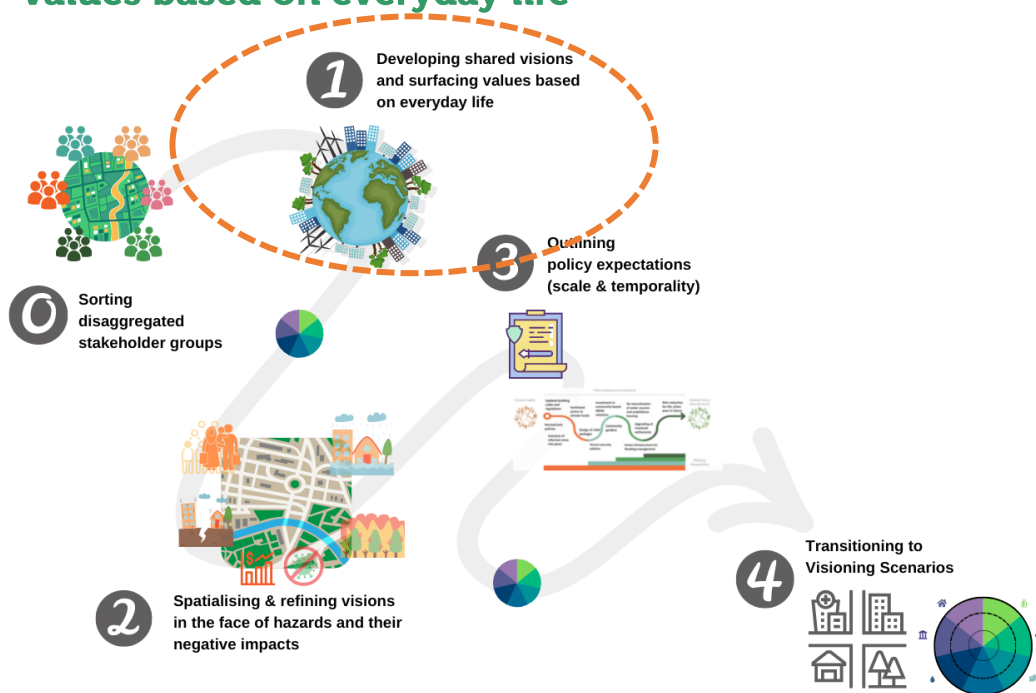## 3.3   Milestone 1 – Developing shared visions and surfacing values based on everyday life

Figure 9:   **Future Visioning Trajectory with an indication of the milestone 1**

Milestone 1 – Summary

Overarching Question	What do we value and aspire to?
Activities	Discussing past and everyday life (emphasis on hazards)
	Harnessing individual aspirations and moving towards collective aspirations
	Collating aspirations into the wheel of urban assets
Outputs	Visioning statement, visual representation of vision, wheel of urban assets with main aspirations

3.4   Questions

This session presents the key questions, activities and outputs related to Milestone 1 of the Future Visioning Trajectory. Such milestone is about moving from present to future, and from individual to collective aspirations. Methods and techniques to harness aspirations could vary. However, these should draw on the key overarching question guiding this stage, which is:

'What do we value and aspire to?'

This question should be asked in disaggregated groups. For instance, if a group of participants is divided as 'women', 'migrants', 'renters', 'property owners' and 'youth' (after a critical process of stakeholder mapping and selection), the question will be about the aspirations of the group as representatives of that identity or condition. Moreover, the question is not about what we want and aspire in the short term, but what do we want and aspire for a longer-term future – usually 30 years from now. This timeframe is crucial, because it helps participants to move from more individualistic positions to more collective ways of thinking.

From that overarching question, 4 other points should be somewhat covered:

a.   What are the main aspirations of your group for a 'good future city'?

   -   How would you like the future city to be for future generations or someone who is in a similar position to yours (e.g., women, migrants, middle class, etc)?

b.   What should your future city have (assets) and what should it enable people to do (desired or needed practices)?

c.   Which values guide this vision? Why do you aspire to this future?

d.   To what extent is this vision inclusive for poor and marginalized groups?

The first question assesses the vision of that group for 'others' (individuals similar to them) in the future. The second question explores the assets and processes that compose that vision. The third question tries to understand the values underpinning the visions, that is, why do people value certain things. The fourth question is designed to make participants reflect on the ethical components of their vision – if they are inclusive and mindful of poor and marginalised groups. This will help to match visions with the principles guiding Tomorrow's Cities.

At this point, it is important to differentiate values and aspirations. In the context of this work, aspirations are what groups hope to achieve in relation to the proposed question. For instance:

• Aspirational statement 1: "We (women) would like future residents to have access to toilets".

• Aspirational statement 2: "We (youth) would like to have more transport opportunities".

• Aspirational statement 3: "We (migrants) would like to have safe housing options".

- Aspirational statement 4: "We (renters) would like to see more parks in the city".

Values, on the other hand, are the reasoning behind those aspirations. Following the above fictitious example, women might aspire for housing with toilets because they fear harassment in public toilets at night. This aspiration is both about a material asset (toilets) and about a subjective value (being free from harassment and gender-based violence). Youth groups might aspire for more transport opportunities because they want more possibilities to meet peers and hang out, or because they want to access more easily job opportunities.

It is essential to uncover what is underneath visions, particularly because not all aspirations might be realised in plans. In that case, at least the essence of that vision could be eventually captured in plans and policies. This is also an opportunity to discuss with participants that, although all their aspirations might be relevant, not everything is part of the scope of the TCDSE, which deals with future options aimed at reducing future disaster risk.

3.5   Activities

For some people it might be difficult to make a movement from individual to collective, and from present to future, which is why it is recommended that future visioning activities always start from more personal and grounded conversations. Two topics have been proven particularly useful for triggering thoughts about a desired future city:

a. Asking participants to individually think of – and later discuss – past experiences in the city, particularly challenging ones and those connected to hazards.
b. Asking participants to think of and describe their everyday lives, including 'normal days' 'special/good days' and 'bad/challenging days'.

   - This could be part of an icebreaking conversation or a more elaborated storytelling technique. The important thing is that participants have time to think of their personal ways of seeing and experimenting the city. Visions do not emerge in a vacuum; aspirations and desires for the future will usually emerge from those statements.
   - Directing the conversation towards hazards is also useful to frame the discussion and think of aspirations that somehow connect to natural or human-induced hazardous events.

The above discussions could happen in plenary or in already broken-down groups, which will depend on the future visioning design of each city. Yet, for discussing collective aspirations, which - the next step, participants should be in their respective groups.

Once individual experiences have been shared, it is much easier to think of common aspirations or desires for the future. It is always important though that facilitators remind participants that this is not about their future, but about the future of people similar to them - living in that city (or planning area) 30 years from now (or another similar timeframe).

There are different ways of harnessing collective aspirations, which will be covered in point 2.4 (about methodological adaptations). Regardless of the strategy chosen, deliverables should be compatible with the definition of future visions, that is, they should present a synthesis of what that group aspires.

3.6   Outputs

Three outputs should be delivered by the end of the first milestone of Future Visioning:

- One Visioning-Statement

- This is a short sentence or paragraph which describes the aspired future city – what is has (assets) and what does it enable people to do (practices)
- Example: "Our city in 2050 is safe, green and resilient. It protects the vulnerable from hazards such as earthquakes and flooding, and it provides good infrastructure and facilities so people can move about easily. It also has good and accessible housing for all, particularly low-income groups".

> **Vision Statement***: A future Kibera with vertical buildings and social amenities to accommodate the increasing population with public spaces left, and planning that is more inclusive*

Figure 10: Example of Visioning Statement from Men and Elders Stakeholder group of Kibera, Nairobi

- One visual representation (drawing or collage) of that vision
  - Example: (the below is a digital drawing but could be something produced with simple materials such as crayons or coloured pencils).

- **One wheel of urban assets** organising the discussions of the group and synthesizing the main elements of the vision in relation to different urban dimensions. More notes on this output in section 2.5.
  - Example: use of the wheel of urban assets in Istanbul.

Figure 11: Use of wheel of urban assets in Istanbul.

- Nb: it is usually difficult for participants to formulate their aspirations in a few words. Moving from the group discussion to the wheel requires good facilitation. Without biasing the conversation, facilitators should support participants in producing that synthesis and locating that onto the wheel. It is also important to note that not all discussions will fit into the visioning-statement. The wheel is an opportunity to capture discussions about aspirations in their diversity.

3.7 Harnessing aspirations – techniques and approaches

There is no single way of approaching future visioning. As long as the main milestones of the trajectory are met, and that the key outputs are delivered, cities could go about activities in different ways, modifying key questions and techniques depending on the groups they are working with and their interests and contextual challenges.

Below some techniques to harness aspirations are highlighted These have been deployed in the past by Tomorrow's Cities partners or by other cases in the literature.

3.7.1 Discursive Techniques

Example A: Focus Group Discussions in Istanbul

About: Participants engage in a semi-structured collective discussion in which facilitators pose the pre-designed prompts and questions in a flexible and organic way. As suggested in this textbook, the conversation could start with an open discussion about past experiences and everyday life challenges – particularly those connected to hazards – and evolve into a collective discussion of what a good future city could look like and do.

Specially in the case of marginalized groups, it is not always easy to make a transition from past and present to future, or to move from discourses about struggles to ones of aspirations. This requires good facilitation so that the group moves naturally from one question/prompt to another.

In the case of Istanbul, conversations often stayed longer on everyday life to capture as many challenges as possible. The excerpts below illustrate what memories and everyday struggles in the city look like for recipients of the Municipality's social assistance scheme (first statement) and a group of women from different neighbourhoods (second statement):

"If there would be any social type of housing targeting poverty groups to own houses, we would have wanted to move to safe places of the district".

"Before the [drainage of] rainfalls, we need a proper sewage system. The sewage system is constantly overflowing. Infrastructure is very old; it does not suffice anymore."

In many cases, struggles are already mixed with aspirations, which is why there needs to be an explicit effort to compile and synthesise normative views on the future city.

"We would like to live in a safe and secure environment in every sense, both against disasters and people. Earthquake is not the only natural hazard; I think drug abuse is a worse problem. When children cannot find any places to play sports or hang around decently, they will find other things to get involved with."

As section 2.5 will show, the wheel of urban assets is a device created to organize visions, understand how they relate to different dimensions of urban life and what is being prioritized or forgotten.

Figure 12: **Focus Group Discussion in Istanbul**

3.7.2 Storytelling with Drawing Techniques

Example B: City World Assemblage in Suita, Japan (Uwasu et al., 2020)

About: This case is a combination of Focus Group Discussion and Co-drawing methods. Digital tools were also used to refine visions and bring rough drawings to life.

In a nutshell, participants develop a visual representation (drawing) that represents their city as a world – capturing universalistic perceptions of how that city should be. A short catch-phrase – similar to a visioning statement – also helps to describe the drawings.

Figure 13: **Example of "City Worlds" developed in Suita, Japan. Source: Uwasu et al., 2020.**

Example C: The River of My Life and of Kibera, Nairobi

About: This is the example of a strategy which combines storytelling and drawing. Participants are asked to tell the individual story of their lives as a river, drawing past events, current experiences and possible futures. This is a metaphor useful to absorb, and it enables some creative adaptations. For instance, participants could talk about the bends of their rivers, and possible bifurcations in the future – towards better or worse spaces.

After discussing their individual drawings (there might not be time to see all in the case of a plenary), groups come together to draw a river that represents their city - or planning/case study area. Similarly, the collective river should contain statements that represent past events, current trends and possible futures – including good ones.

Figure 14: **Training of river methodology in Nairobi. The picture on the left-hand side represents collective rivers, and the ones on the right-hand side represent individual rivers.**

Example D: Collective timeline in Quito

About: Similar to the 'river of my life', this technique combines storytelling and drawing.

Participants are invited to activate their memories by building a collective timeline. In Quito, stakeholders were divided as 'community' and 'institutions. The timeline enabled to strengthen the sense of community amongst residents through the recognition of a common story – which emerge from the assemblage of individual stories.

Questions addressed topics such as: motivations for living there, changes in the space, economic activities, growth (new inhabitants), hazards (memory and response to events), vulnerable groups, etc. Whilst there was only one 'community', participants were broken down into smaller groups and given materials such as markers, stickers, glue sticks and coloured paper.

Activities such as this stimulate a sense of cooperation and collective thinking, which is desired for future visioning.

Figure 15: **Collective timeline in Quito.**

3.7.3 Embodied & Interactive Techniques

Example E: Role Playing / Drama Sessions in Kathmandu

About: Whilst the above examples are usually about developing visions on the basis of personal experience, in some cases it might be useful to invite stakeholders to think through the lenses of other social identities or urban conditions. Role playing exercises might remove some of the real-life tension between stakeholders or even contribute to build mutual recognition and empathy. Further, activities such as drama sessions might also help to disrupt persisting power imbalances and communicate aspirations in more subjective ways. This is particularly recommended when discursive methods such as conventional focus group discussions would accentuate pre-existing power imbalances.

Figure 16: **Role playing session in Kokhana, Kathmandu.**

3.7.4 Complementary Strategies

Other strategies could be used to prepare for future visioning, build relationships and mutual trust, and continue a long-term engagement with/between participant. Cities might also use these methods to collect additional data and solve unanswered issues.

Notwithstanding, please note that some of these methods are not suitable for developing visions per se and its related outputs: collective visioning statements, drawings and wheel of urban assets with collated aspirations. This is why they are considered complementary and not core strategies for the final design of future visioning.

- Interviews (face to face, online, by telephone)

  Representative individuals of each stakeholder group could be interviewed in-depth to talk about their individual experiences and aspirations. This could be used to calibrate – test the potential efficacy – of questions to be asked in workshops, or to complement some of the produced outputs.

- Participatory Observation and Transect Walks

  An in-depth observation of certain areas in the city and/or transect walks through critical points could be useful when facilitators or other relevant participants are not entirely familiar with the planning area to be developed in the TCDSE, or when the site is more complex and requires that even residents pay attention to some of its characteristics. Given the project's objective to reduce disaster risk, observations and walks could also be helpful to provide an initial mapping (to be further discussed in Session 3) and start discussions about main hazards – where they have or usually happen, intensely affected areas, and so on.

- Participatory photography

  Similar to (or coupled with) participatory observation and transect walks, exercises of participatory photography could help to document the planning area to be worked within the TCDSE, providing additional information to workshops. This could be carried by facilitators or with the support of workshop participants. For instance, facilitators could establish a fixed route and ask participants to take photos of spaces in the city they value and want to maintain towards the future, spaces they would like to change (to give space to their aspirations), or assets and processes that somehow allude to their aspirations. These photos would help to support discussions that would lead to collective visions.

As it is possible to grasp, methods and techniques could be combined to produce meaningful conversations and optimal results. No method is out of the table, as long as visions remain collective, inclusive, pro-poor and disaster risk- and future-oriented.

3.8 Organizing aspirations – the 'wheel of urban assets'

Regardless of the methods chosen to harness aspirations, all activities of Milestone 1 should end with a synthesis of each groups' visions. This synthesis (visioning statement and representative image) is then collated into the 'wheel of urban assets'. This is a device which will help to organise the vision; it will show elements that have been prioritised, elements that have been forgotten, or the overall coherence between different aspects of that vision. The wheel also helps to further synthesise narratives that are often more complex and keep track of all discussions that might not have appeared in the synthesis of drawings or visioning statements.
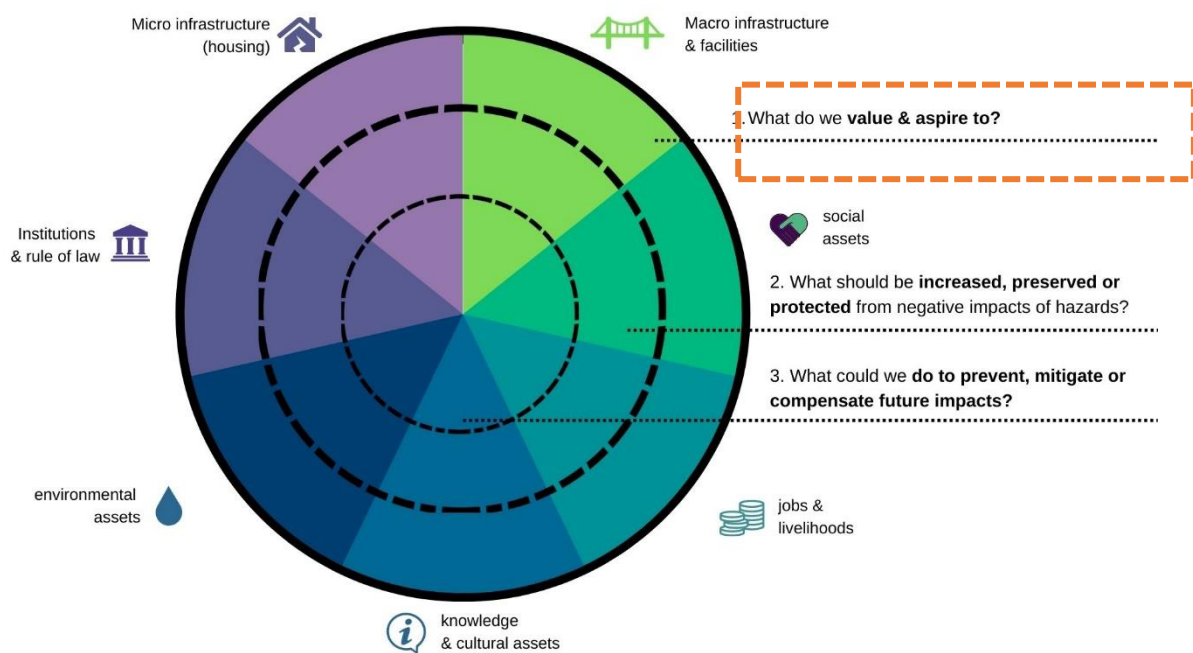
Figure 17: **Wheel of urban assets with the overarching question of milestone 1 highlighted. Such questions could be rephrased in workshops to simplify the message.**

Figure 18: **Collation of the discussion in Focus Groups into the Wheel of Urban Assets (Istanbul).**

SESSION 4: EXERCISE ON EVERYDAY LIFE AND ASPIRATIONS

4.1 Objectives

By the end of the session, the participants will be able to:

- Discuss how past and everyday life experiences lead to different aspirations for the future.
- Plot future aspirations in the different dimensions of "Wheel of Urban Assets" and deliver "Wheels of Urban Assets" with collective aspirations.
- Deliver a collective "visioning statement" for aspired future city from collective aspirations.

4.2 Structure of Session 4

Structure
1. Overarching Question
2. Instructions

4.3 Overarching question

What do we value and aspire to?

4.4 Instructions

Participants will move to break-out groups representing 4 different collective positionalities: (a) planners & authorities; (b) young community volunteers / activists; (c) influential elders; (d) migrant women. This is a simulation of a result of a critical stakeholder exercise – practiced in Part I of this exercise.

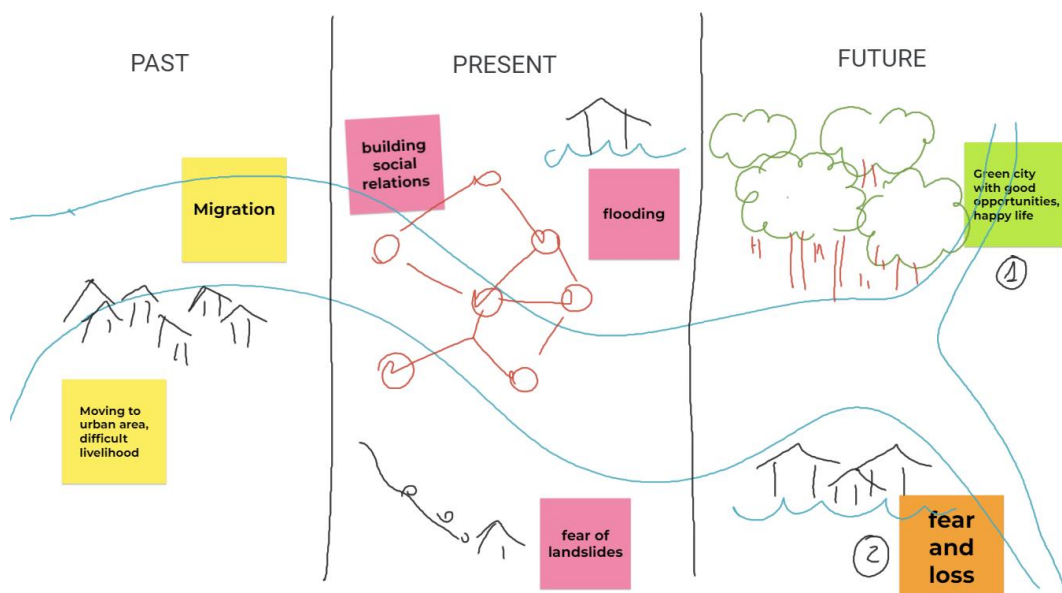The first part of the exercise is individual. You will 'draw' a river that represents your life.

Figure 19: **Example of individual river**

Now you will draw the 'Tomorrowville river' using the same logic. But now, instead of thinking of your individual experiences, think of the collective experience of the city and the group you are representing.

Note for facilitators: If time is running short, guide participants to focus more on the future than on past and present.

With the support of the facilitator, you will now collate your aspirations for the future of Tomorrowville into the 'Wheel of urban assets' and add a 'Visioning Statement' that captures the essence of your vision. See an example below:
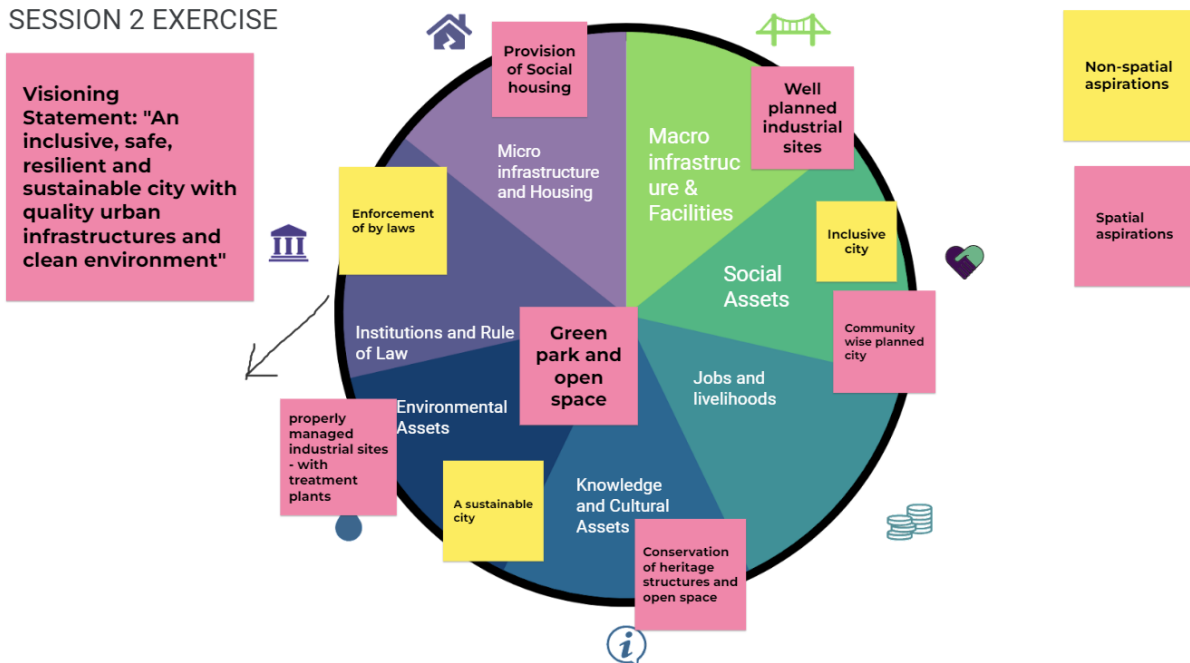
Figure 20: **Example of Wheel of Urban Assets with aspirations and Visioning Statement.**

Note for facilitators: if time allows, try to reflect with a group about which aspirations are more spatial oriented, and which ones are not. This will be helpful in the next exercise.

In plenary, participants will share their collective rivers, wheel of assets and visioning statement.

SESSION 5: SPATIALISING AND REFINING VISIONS

Authors of the Chapter: Dr. Suresh Chaudhary, and Dr. Thaisa Comelli

5.1 Objectives

By the end of the session, the participants will be able to:

- Explain the steps for Spatialising and refining future visions.
- Discuss the diverse impact of hazards on the future city and how to protect valuable assets
- Translate aspirations into the map of the future city through the Co-Mapping Process.
- Connect broad aspirations with notions of land-use, urban form and social composition towards visioning scenarios – a key output of TCDSE

5.2 Structure of Session 5

This session will describe the following topics.

Structure
1. Milestone 2 – Spatialising and Refining Visions
2. Key Questions
3. Activities
4. Outputs
5. Notes on contextual differences
6. Making co-mapping more creative and inclusive

5.3 Milestone 2 – Spacialising and Refining Visions
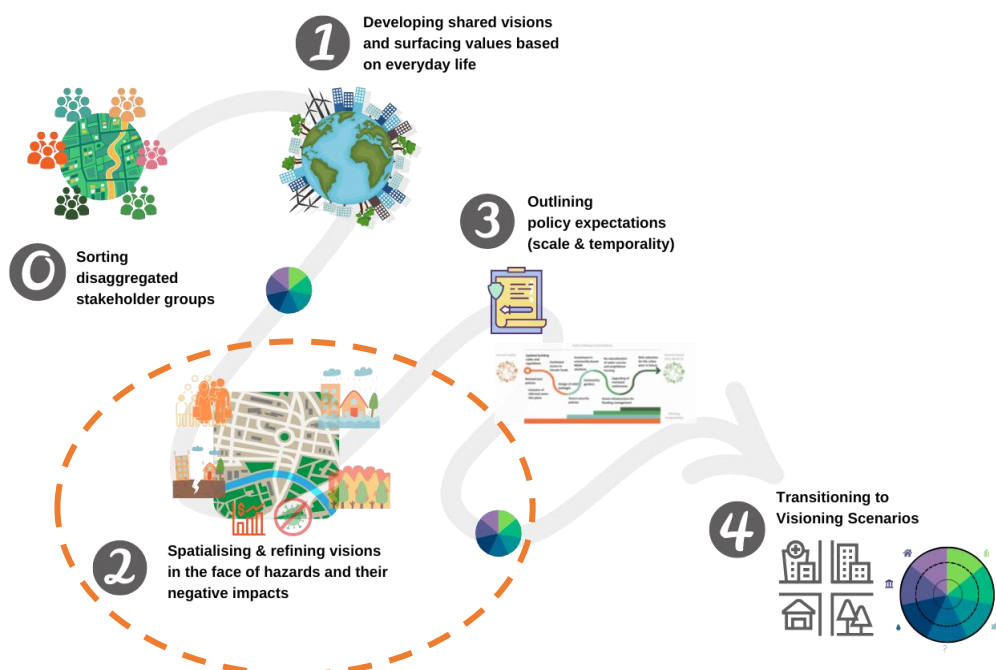
Figure 21: **Future Visioning Trajectory with an indication of the milestone approached in this session.**

Milestone 2 - Summary

Overarching Question	What should be increased, preserved, or protected from the negative impacts of hazards
Activities	Co-mapping: Translating aspirations from wheel of urban assets into baseline map and sketching desired land uses, including expectations connected to urban form and social composition
Outputs	One co-produced map (essential); visual complements – e.g., drawings (optional)

5.4   Key Questions

This session presents the key questions, activities and outputs related to Milestone 2 of the Future Visioning Trajectory. This milestone is about supporting diverse stakeholder groups in the translation of broad aspirations into concrete spatial proposals for the future of a given planning area, which include a rough distribution of desired land uses, expectations for interventions (useful in the case of more consolidated areas) and broad notions of urban form (i.e., density, height) and social composition (e.g., distribution of income levels). The main activity recommended for this Milestone is a co-mapping exercise, in which participants imagine together how that future area should look like, whilst also being confronted with urban trends and possibilities – particularly in relation to hazards.

The second milestone of Tomorrow's Cities Future Visioning trajectory asks participants:

'What should be increased, preserved or protected from the negative impacts of hazards?

This is not only about dreaming of a desired future, but about making concrete decisions informed by spatial realities on the ground. As usual, groups should be thinking with the lens of their social identities and urban conditions instead of planning from an individual perspective.

Because of the complexity of the exercise and due to possible issues of data scarcity, spatial information displayed should be simplified. Yet, the proposed timeframe – usually 30 years from now – remains the same, which means that this is about future assets and future hazards, although participants might choose to increase (boost) or preserve present assets.

In sum, this milestone draws from normative views about the future - how a good future city should be - but adds exploratory and predictive rationales into the mix – how this future good city should be considering trends and possibilities and considering that there are different ways to translate aspirations onto space. In other words, participants will be invited to be planners for a long-term future and will be therefore confronted with contextualized trade-offs. Even for planning practitioners and authorities, this might prove to be a difficult challenge. After all, political planning cycles usually consider shorter timeframes, and are not always informed by multi hazard information.

From the overarching question in the wheel, 3 other points should be somewhat covered:

a. To what extent do your map and spatial guidelines represent the key elements of a vision?
b. What adaptations, additions and trade-offs are needed considering situated planning requirements, socio-spatial trends and the probability of multi-hazards?
c. Are spatial expectations contributing to reducing disaster risk for the poor?

The first question is about assessing the process of translating broad and conceptual visions in spatial terms. That translation could take multiple forms and, if time allows, facilitators could even enable the production of more than one map or set of guidelines per group (an increased

exploratory rationale is encouraged here!). Regardless of the number of outputs, stakeholder groups must identify their key aspirations in that spatial proposal – they should 'see' their visions materialized in sketched risk-informed urban plans.

The second question is about adapting and refining visions in the face of urban trends and the probability of future multi hazards. At this stage, it is important that participants confront the fact that not all their visions are compatible with trends. For example, participants might desire a future settlement marked by low density, which is unlikely – or could lead to spatial exclusion - if trends indicate that the population is growing. Also, occupying certain lands – for instance, riverfronts or coastal areas - might not be possible or may require adaptations due to natural hazard-related trends. Furthermore, whilst elaborating visions conceptually, they might have forgotten assets which are meaningful to them, and the co-mapping exercise could be a moment to add information and detail to visions. For instance, participants may have aspired for a 'green and safe city' (focusing on environmental assets, macro infrastructure and policy). In that process, they might have forgotten that protecting cultural or religious sites is important, or that housing issues (e.g., having enough social and affordable housing for the poor) have not been sufficiently addressed. In sum, whilst it is not expected that maps and spatial guidelines are too comprehensive, there should be more refinement in the visions, as these plans will later become detailed Visioning Scenarios.

Finally, the third question assesses the ethical ideas underpinning visions. Groups will have used their identity lens to elaborate proposals, but it is important that those proposals are minimally inclusive and progressive. As suggested in one of the above examples, desiring a green low-density settlement might be a valid aspiration shared by many groups, but if it leads to exclusion and the reproduction of spatial marginalization, it might need adaptations. Plans will not be perfect, and it will not be possible to assess their performance in relation to hazards yet. However, it is crucial that the co-mapping process is critical and mindful of power imbalances in cities.

5.5   Activities – steps for co-mapping

Different from Milestone 1, in which it is possible to experiment with many strategies to harness aspirations, Milestone 2 requires a more structured approach, although adaptations are often needed and encouraged. To facilitate the understanding of how a co-mapping activity could work, this will be broken down into 8 steps, which could be shifted or further detailed as needed.

It is important to note that activities might look distinct depending on the type of data available and on the situated challenges of the planning area in question. Less occupied and developed lands might be easier to work with, because they will have less human and infrastructural layers, and therefore will require less effort to identify oneself and propose interventions. More densely occupied areas will operate on the basis of 'upgrading' logics and will therefore require more sensitive interventions. In those cases, any changes in property, housing and infrastructure could generate deep conflicts or be inviable from a budgetary perspective – all factors that need to be accounted for when planning workshops.

Step 1: Displaying and discussing baseline and hazard maps

Ahead of workshops, the team designing the exercise should have curated and worked to simplify maps to be shown to participants. There will be at least two layers composing the co-mapping exercise: (a) the baseline map and (b) a transparent sheet of paper (could be several) in a similar size - which allows participants to draw on top of that map. The images below illustrate that.
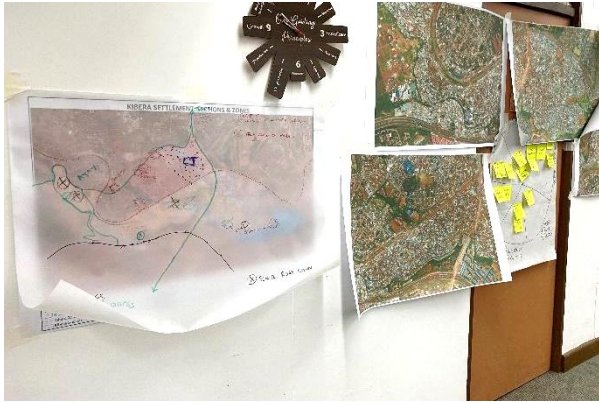
Figure 22: **Training for co-mapping exercise in Nairobi.**

Figure 23: **Deploying Future Visioning (Milestone 2) in Kibera, Nairobi.**

A 'baseline map' will usually contain simplified yet useful information about the planning area to be worked within the TCDSE. For instance, it could be a map of the area's current land use with some information on infrastructure, natural assets (e.g., rivers, forests) and human occupation. When there is not enough data or capacity to produce a simplified – curated – map, a satellite image (e.g., Google Earth) might be shown, even though it could contain an overload of information.

It is essential that either baseline maps display hazard information (e.g., layer of floodplains on top of satellite image) or that there is an additional map layer containing such information. This will depend on the type of hazards – their interconnection - and the data set available. Whenever possible, it is recommended that hazard information is displayed in a digestible way, that is, through simple codes or symbols. For instance, facilitators could show an earthquake map through a 'traffic-light' system. The image below illustrates how this happened in the case of Istanbul. In case scientists identify a 'hotspot' for potential hazards, these could also be indicated with simple symbols.

Figure 24: **Facilitators display a layer of earthquake hazard in a traffic light system. Istanbul**

If possible, adding layers of urban growth forecast could also trigger discussions about how the future should look like considering probable scenarios.

Finally, it is essential to mention that, in many cases, local authorities might already have a plan or study for that particular planning area. If available, such a plan could be shown in strategic ways. Participants should be reminded that plans usually assume a smaller timeframe for the

future and might not always be implemented as designed – or at all. Still, this could be a useful moment to expose urban residents to the government's visions for the future. Participants might be asked which elements of the plan they consider acceptable and not acceptable, and the extent to which that plan is considering relevant trends and hazards.

For instance, the planned implementation of macro infrastructure (e.g., expansion of road networks or railways) could be pulling unplanned urbanization in the future, with the increase of informal settlements in hazardous lands. Because the Tomorrow's Cities Decision Support Environment is fundamentally pro-poor, a transparent discussion with participants about the extent to which recognize future informality is an essential part of this process – even if informality is not initially part of visions.

When Future Visioning workshops are being held with government authorities or the private sector, the opposite strategy might be useful. That is, first, diverse groups of residents are asked about their visions for the future. Then, powerful groups are exposed to residents' visions and asked about possible gaps in their own plans and possible compromises.

It is important to always remember however that, at this stage, it is important not to have an ideal plan, but a pallet of possible options for the future, which will become Visioning Scenarios to be tested against hypothetical future hazards.

Step 2: Finding oneself in the baseline map

After baseline maps (and other layers) have been shown, the first thing to do is ensuring that all participants are indeed capable of interacting with the maps – a task that, at first, could be intimidating for some. The way of approaching this challenge is again context-specific, although a few suggestions could be highlighted.

If the planning area is consolidated and participants live there or close to it, a useful starting point might be to ask participants to find their houses or working places (or commuting routes) in the map. This will require that the scale of the map is appropriate for such a discussion - there might be a larger map for localization purposes and a smaller one for co-design.

If participants live in different locations or far from the land in question, facilitators might start by roughly showing (drawing on top of) main roads and networked infrastructure, or by pointing to well-known landmarks such as public spaces or large facilities. Additional questions might be useful for participants to grasp the scale of the map. For instance, facilitators may ask 'how long does it take' to get from a given point to another (provided they know the answer). The image below shows stakeholders finding their home in the basemap.

Figure 25: Participants are finding their home location in the baseline map during the Future Visioning Workshop of Rapti city.

The next step can only take place once everyone feels minimally confident to draw onto the map.

Step 3: Identifying assets to preserve

Before co-drawing a map for the future, it is important that groups have a brief discussion about things they want to preserve in the present towards the future. This is done through a strategic use of the 'wheel of urban assets' (delivered in Milestone 1), and usually – although not always – relates to environmental and cultural dimensions of urban life.

The image below recalls the questions (number 2) to be asked in this co-mapping exercise.
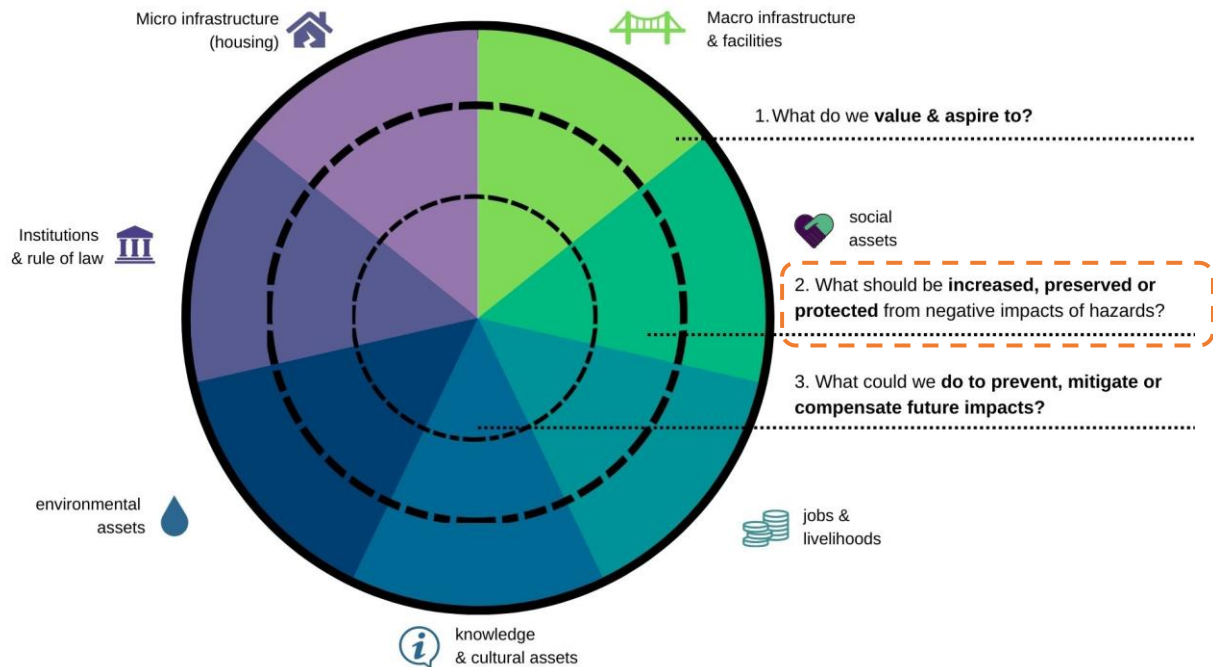
Figure 26: Wheel of urban assets with overarching question of Milestone 2 (question 2) highlighted.

In the case of Kokhana, Kathmandu – illustrated through the images below – it was important for many participants that temples and funeral sites in the present are preserved for future generations.
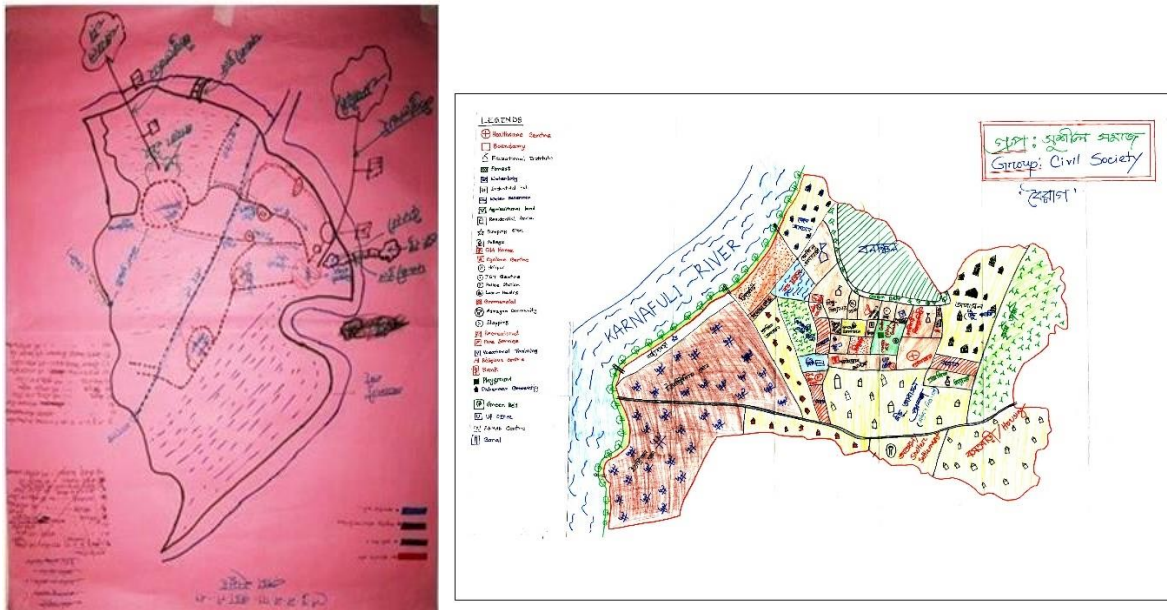
Figure 27: **Co-mapping exercise in Kathmandu and Chittagong with an identification of valued assets to be preserved.**

Step 4: Identifying zones of interest and roughly sketching land uses

The main basis for Visioning Scenarios is expected (future) land use, so this should be the focus of the co-mapping exercise – and possible to see in the main outputs. Participants should agree with facilitators what are the primary land-uses to be represented – e.g., industrial, commercial, residential, recreational, environmental preservation, agricultural, etc – and which colors or symbols match those uses. Indications of mixed use (different combinations) are also encouraged to prompt diversity and complexity in that land.

There is no need for precision in this exercise, but it is important that participants provide some rough guidance on issues such as connective infrastructure (i.e., main mobility routes, nodes and modals), urban form (e.g., if there is desire for density, if high-rises are acceptable, etc), and notions of social composition (e.g., how to distribute different income levels across residential areas, how ethnically diverse is the area expected and desired to be, etc).
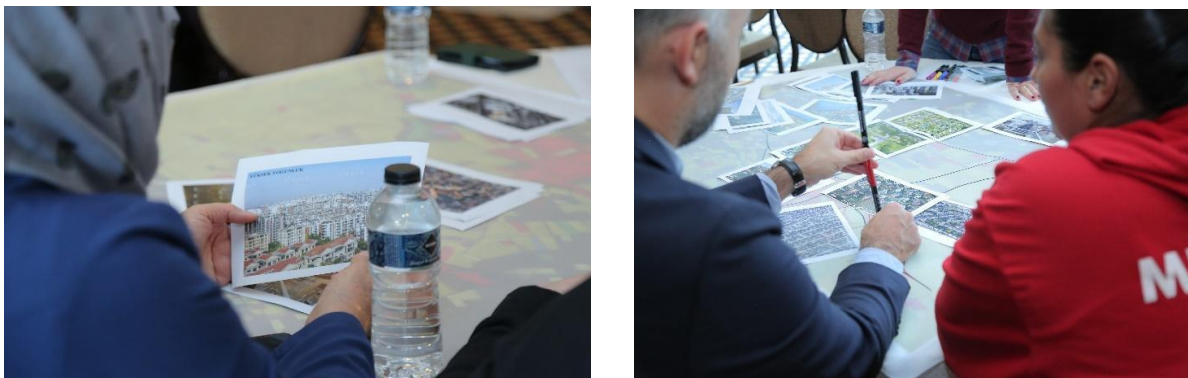
Figure 28: **Participants observe pictures and having discussions about urban form. On the right-hand side, the facilitator is using simple devices (markers) to illustrate ideas of building height.**

Due to the complexity of this exercise, at least two caveats should be made at this point. First, facilitators should instigate here a discussion of trade-offs. That is, the map should no longer

display only what participants desire, but also what is required and possible in that land. At the same time, because one of the main objectives of the TCDSE is precisely to understand the consequences of planning decisions, participants could experiment with the maps – for instance, exploring one option with less density and one option with more, to see which one performs best in relation to hazards. Second, there are authorship issues to be highlighted here. That is, the pictures that are shown during workshops might reflect, not the reality of possible urban forms, but the gaze of those who designed that activity on the topic. It is important that pictures convey a diversity of possibilities, which could include lessons/ideas from other cities and contexts.

Step 5: Identifying assets to be added or increased – translating aspirations

The aspirations identified in Milestone 1 (session 2) might not always be easily translated into spatial solutions. For instance, participants might aspire for 'safety', 'clean rivers' or 'good waste management' – all options which are best translated as soft policies. This doesn't mean that these aspirations cannot become somehow shown in space. For instance, facilitators might prompt participants to mark which areas of the river need more attention, or current dumping sites to be treated by waste management policies. In other cases, aspirations could be quite concrete and easy to translate, although some trade-off thinking might be instigated. For instance, if a group aspires for a mall, a cultural centre, a language centre, a community-led museum and a public hospital, facilitators might ask if all those uses need to be in different buildings, or if a couple of buildings could not encompass such aspirations.

Figure 29: **Figure 19: Wheel of urban assets showing the aspirations (collected during Milestone 1) of women in Kibera, Nairobi.**

In the context of spatial planning, trade-off thinking is mostly about understanding that not all aspirations can 'fit' within a limited land – and often a limited budget - which means that making choices and elaborating creative responses might be needed.

It is also important that, whenever possible, participants elaborate on the extent to which the translated aspirations on their plan are responding to the possibility of hazards or could be adapted to perform better in light of hazards. For instance, participants might agree that a community center could work as a good shelter in the case of earthquakes and flooding, whilst parks and community gardens could work as useful buffer zones, protecting buildings and people from such hazardous events. This conversation is further elaborated in the next step.

Step 6: Identifying assets to protect from hazards

Hazards should eventually become a focus of discussions in this part of future visioning workshops, and participants should discuss, not only how could their plan perform better in light of hazards, but what is more valuable and worth protecting in light of major and/or cascading events.

Here, trade-off thinking is required again, as the land in question might have different characteristics, which means that some assets could be more protected than others. Whilst it might be hard to protect intangible assets such as 'good climate governance', others are easier to identify and move around. This should not become too complicated discussion and participants should be aware that this plan is yet to be submitted to an accurate process of multi hazard modelling. Still, it could be useful to identify what is more essential in the case of a hazardous event.

Step 7: Revising current alternatives and exploring new ones

Ideally, trends and constraints – and the trade-offs these entail – will have been raised naturally throughout the exercise. Yet, if some discussion did not come up, or if the workshops are designed in a way that allows participants to see other groups' options at the end, it might be useful to have a final moment for revisions, so stakeholders can make final adjustments.

If time allows, this could also be a moment to explore different or 'hybrid' solutions – designs that mix and match ideas – to respond to the same problem framed in Milestone 1. In the TCDSE, it is advisable that groups engage with the exploratory rationale – a diversity of plausible futures – as much as possible.

5.6   Outputs

Two outputs should be delivered by the end of the second milestone of Future Visioning:

- One co-produced map

  - This should contain spatial expectations and guidelines and will ideally feature: desired land uses, intentions for preservation, changes and additions, notions of urban form, and notions of social composition.
  - More than one map could be delivered as a way of exploring different ways to translate core aspirations.

- **Visual complements** such as sketches or 3D models (optional - if relevant).

5.7   Notes on contextual differences

The Activities section of this document indicates a logical and incremental set of general steps to translate aspirations and complicate them in face of hazards. Yet, it has been suggested that the context in which such activities happen could require a modified approach. Whilst this document cannot account for all possible contextual differences, it highlights two key factors that must be taken into account for the design of co-mapping exercises: (a) degree of occupation

and infrastructural complexity of the land in question, and (b) types of multi-hazards to be discussed.

5.7.1 Degree of occupation and infrastructural complexity

This point refers to a range of options - from practically unoccupied land with low diversity of current (human) uses, to an intensely populated area full of socio-technical arrangements. The TCDSE has tended to prioritize the former option, although the latter can also feature in the framework.

Less occupied land might be easier to work with (and design upon), as people have less stakes in the process, and baseline maps are easy to navigate. Yet, such lands might require sensible discussions on issues such as: what development means, the ethical, infrastructural or overall implications of expanding onto peri-urban and rural land, and whether there might be unintended negative consequences of the selected choices beyond the reduction of potential hazard-related disasters. During Stage 4 of the TCDSE (Risk Agreement/Negotiation) there should be an opportunity to reignite such conversations, particularly through the themes of gentrification and carbon footprint – they compose a 'co-benefits' analysis. Yet, it is important to have such discussions on the radar still during the stage of Future Visioning.

More occupied land will be extremely complex from a navigation perspective and will usually require more conversations about incremental actions – even if the ultimate goal is transformational. For instance, in the case of Nairobi, the land to be worked within the TCDSE is the informal settlement of Kibera – an extremely densely populated area. As land is scarce, almost any possible macro intervention in that area would entail evictions to some degree. And even though discussions happen in a larger timeframe – 30 years from the present - this could have drastic consequences on the lives of the poor and marginalized, which means that the mapping might require a more incremental approach to spatial change – that is, small interventions that build towards wider transformation. Still, participants should be aware that all spatial and soft policy alternatives elaborated during future visioning are modelled in Stage 3 (computed impact metrics) as if they were implemented at once.

5.7.2 Types of multi hazards

The ways in which different hazards are connected to each other and might impact the land in question could vary significantly from case to case, and this entails different strategies on how to display such information. As already mentioned, the objective here is not to show an accurate picture of hazards yet, as this will happen in Stage 3 of the TCDSE. Still, hazards should inform discussions, which could happen in visual or non-visual ways.

In the first case, this could be, as already suggested, a simple map which shows an indication of the expected growth of floodplains or lands more sensitive to being affected by earthquakes. Having a notion of the timeframe attached to that information – even though it might not match exactly the timeframe of the future visioning exercise – is also useful. Alternatively, non-visual strategies could be adopted, such as a broad talk on how hazardous events (e.g., fire) might start and what are the possible ways to prevent or mitigate them. Facilitators could also describe a hypothetical event in the future involving more than one hazard as a way to instigate reflections from participants.

In sum, the strategy to display hazard information should be bespoke and therefore requires good interaction between the team designing Future Visioning and the one conducting Computational Modelling. Having the presence of a physical scientist or engineer in workshops could also help to build trust and create meaningful spaces for knowledge exchange.

5.8   Making co-mapping more creative and inclusive

Despite being less flexible than Milestone 1, Milestone 2 can also incorporate creative strategies for mapping aspirations. For instance, in Quito the TCDSE team collected additional/required information on the planning area using drones. Yet, instead of only showing such images during workshops, participants took part in the data collection process. They visited the site, took notes and engaged in a discussion on the purpose of collecting aerial views of the site. This was crucial to include residents in scientific procedures and produce informed conversations about the future of the area.

Figure 30: Data collection with drones with the participation of community representatives in Quito.

Whilst it is tempting to assume that the activities set out here are inclusive in themselves, it is not that the simply adding 'local residents' (often called 'lay subjects') into the TCDSE scientific spaces will be sufficient to enable them to represent their views and aspirations. Facilitators will need to be constantly mindful of, on the one hand, the pre-existing knowledge of participants, and on the other, potential special needs and requirements. This applies to all Future Visioning activities but is particularly important in the mapping of aspirations.

Conceptual and broad aspirations can be represented and captured in different ways; there could be drawings or written or verbal statements explaining aspirations. Different methods will allow different people to express themselves more effectively. They also have limitations. Maps are spatial representations of aspirations, and therefore imperfect, as every representation shows a few ideas while hiding others. Moreover, they will require significant adaptations where participants have visual or motor disabilities or are not confident in the use of mapping tools. Existing experiences with the TCDSE indicate that anticipating some of these challenges and having good facilitation helps. After all, well trained facilitators can guide people through the maps and translate many aspirations whilst interfering with the process only when needed.

Still, any adaptations of this method should be attentive to accessibility issues and plan for inclusivity.

SESSION 6: EXERCISE ON SPATIALISING AND REFINING VISIONS

6.1 Objectives

By the end of the session, the participants will be able to:

- list out steps for spatialising and refining future visions in the face of hazards.
- Participants will be able to facilitate the translation of visions/aspirations in spatial terms and delivery a sketch map of future aspired city

6.2 Structure of Session 6

Structure
1. Overarching Question
2. Instructions

6.3 Overarching Question:

What should be increased, preserved, or protected from the negative impacts of hazards:

6.4 Instructions:

Participants will move to break-out groups representing the same groups of the past exercise.

- First of all, let the participants discuss on the participatory hazard mapping (PHM).

  - Let the participants identify the potential hazard in the given base map, list the potential hazard.
  - Discussion on the consideration of hazard in the co-mapping
  - Facilitator will add the hazard if missed by participants in given city scenario

- The second part of the exercise consists in quickly analysing the wheel of urban assets and visioning statement, identifying aspirations which could be turned into spatial solutions.

Note for facilitators: If this has not been done in the past exercise: help participants to differentiate (e.g., using different colours) spatial and non-spatial aspirations.

Next, you will see the contour of Tomorrowville with some current features such as natural assets (e.g., river) and road networks. A small version of the current land use should also be visible. With the support of the facilitator, you will start turning your main aspirations in the wheel into spatial proposals.

Note for facilitators: start with macro land-uses and major interventions, only moving to small-scale interventions when time allows. Yet the participants themselves should dictate the emphasis of the conversation, checking which aspirations are more important and therefore should appear in the map. Facilitators should take notes on the discussion and ask participants to negotiate and justify their choices. The map does not need to be perfect, but it should be readable and of easy interpretation from the facilitator. See the example below.
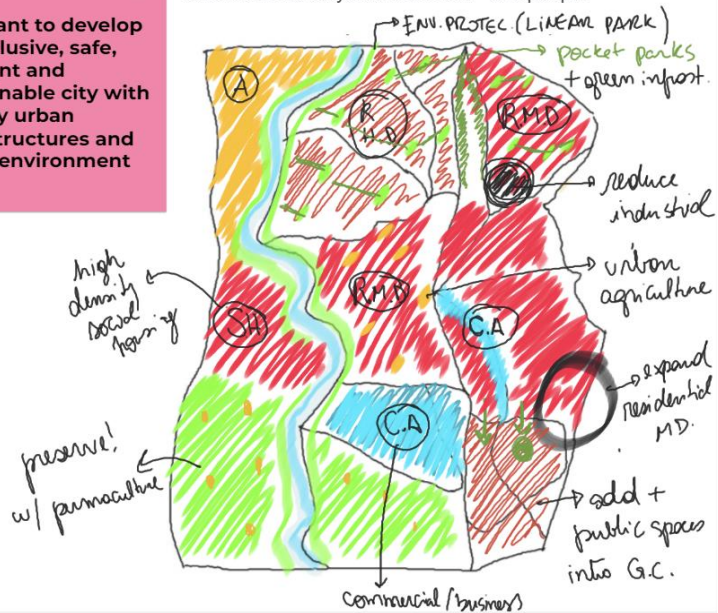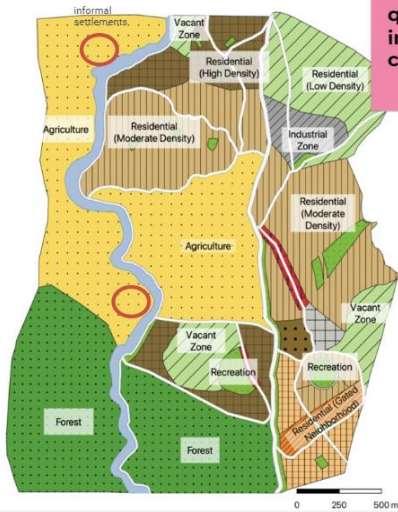
Figure 31: **Example of Co-Mapping**

Check if basic land uses (commercial, residential, recreational, industrial, mixed) were discussed by the group. Do not forget to discuss urban form (e.g., high or low density?) and social composition (e.g., who should/will be living there in the future?).

You should also discuss if your decisions contemplate poor and marginalised populations. Try to justify why.

In plenary, groups share their maps.

SESSION 7: CONSOLIDATING VISIONS & DESIGNING POLICIES

Authors of the Chapter: Ms. Rita Thakuri, and Dr. Thaisa Comelli

7.1   Objectives

By the end of the session, the participants will be able to:

- Describe Policy and its role in the TCDSE
- Describe the process of consolidating visions and designing policies deploying Wheel of urban assets
- Translate aspirations into the policy expectations, ensuring to orient policy options towards reducing the potential negative impacts of hazard

7.2   Structure of Session 7

This session will describe the following topics.

Structure
1. Milestone 3 – Outlining policy expectations
2. Key Questions
3. Activities
4. Outputs

7.3   Milestone 3 – Outlining Policy Expectations
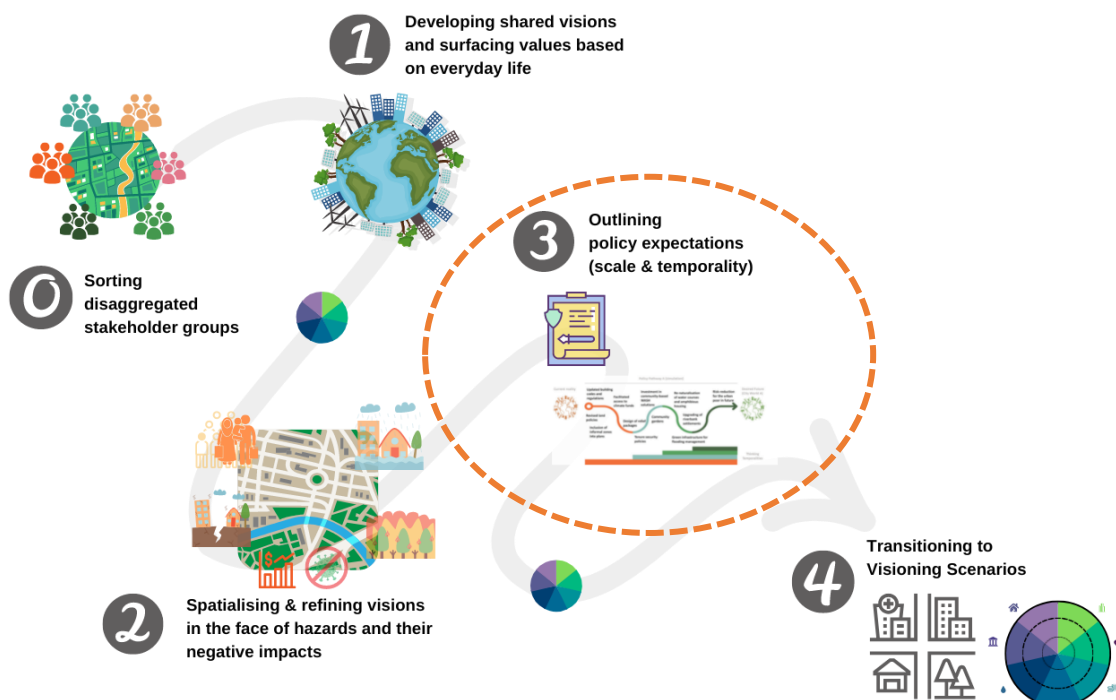
Figure 32: **Future Visioning Trajectory with an indication of the milestone approached in this session.**

Milestone 3 - Summary

Overarching Question	What could we do to prevent, mitigate or compensate for the potential negative impacts of future hazards?
Activities	Hazard Brainstorming and Policy outlining • Hazard Brainstorming • Translating aspirations from wheel of urban assets into policies • Orienting proposals towards hazards
Outputs	List of policy alternatives with three priorities (essential); complements – e.g., diagrams, policy timeline (optional)

7.4   Key Questions

In the previous phase of Tomorrow's Cities Future Visioning trajectory (Figure 02 above), different groups of stakeholders (selected in Milestone 0) will have been asked about their past and present experiences, as well as their hopes and aspirations for the future (Milestone 1). They will have also engaged in a co-mapping exercise that will translate those aspirations in spatial terms, sketching a plan that somehow dialogues with potential future hazards and other urban trends (Milestone 2).

In this final participatory phase of Future Visioning (Milestone 3, as Milestone 4 is mostly about data management), stakeholders will be asked to brainstorm policy options that respond to their aspirations and orient such options towards the tackling of potential urban challenges arisen from future hazards.

The overarching question that guides this milestone is:

'What could we do to prevent, mitigate or compensate the potential negative impacts of future hazards?'

The main objective of this phase is to understand and discuss how policy expectations could lead to a strategic set of actions that, whilst meeting aspirations, is also reducing disaster risk for the urban poor in the future. Such policies will continue to be refined, ideally in a participatory manner, to compose a Policy Bundle in further TCDSE stages. Once the Bundle is defined, it will be tested against potential future hazards along with the spatial urban development plans sketched in Milestone 2. The coupling of policies and urban development plans – detailed through computational techniques – is called 'Visioning Scenario' (VS) – the second stage of the TCDSE. There should be at least one VS per stakeholder group, although participants are welcome to explore more than one version of their visions. The computational modelling team might also add to this bunch of VS existing urban development plans or projections for organic urban development, so all these futures go through a future multi-hazard simulation.

7.5   Different scales and temporalities of policies

The TCDSE proposes a broad take on what 'policy' means; it could be any measure, guideline, protocol or set of actions aimed at achieving a stated desired outcome. For the purposes of future visioning, what matters is that stakeholders see their aspirations activated through strategic actions, and that proposed expectations and solutions are informed by or directed towards the potential negative impacts of future hazards.

At least two relevant factors should be discussed throughout the elaboration of policies: (a) scale of governance and (b) temporalities. Scale of governance refers to who is expected or should

enforce or implement each policy. The conversation need not get too technical, although it is important to have facilitators or policy experts that understand how pre-existing policies echo or contradict the solutions elaborated by a group. Contextual information should be injected with sensibility - to inform rather than overwhelm discussions.

Time management is also a concern at this phase. In more rapid approaches, the discussion of policies could happen as a follow-up to the co-mapping exercise, which could lead to fatigued participants. Workshop designers should always try to balance the required depth of discussions with the fact that there is a lot to cover in future visioning, and other TCDSE stages will also entail public participation.

As for the temporalities of policies, it is important to note that Policy Bundles in Visioning Scenarios will go through multi-hazard modelling as if such actions are implemented at once in the city. Because such simplification is unlikely to reflect the realities on the ground – and the TCDSE aims for real impact, it is essential that participants have some notion of what is more urgent or should happen in the short term, or what actions require more structural changes, therefore being realized in the long term. Keeping in mind the timeframe of the exercise – usually 30 years from the present – is important to instigate such thinking and consolidate the understanding that actions in the present will also impact a desired long-term future.

The refinement of policies through different temporalities should start in Future Visioning and be resumed in other stages – e.g., during the Institutionalization (last phase) of the TCDSE or even in other/parallel community- or government-led initiatives –, then being transformed into a 'pathway' for transformative action. Below is an illustration of what a policy pathway emerging from a group of stakeholders' aspirations could look like.
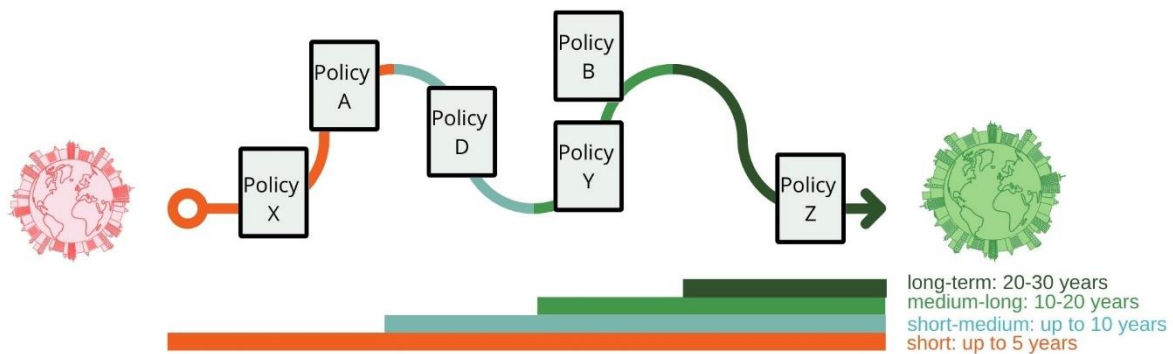
Figure 33: Simulation of policy pathway starting in Future Visioning and consolidated later. Source: FV Toolbox.

7.6 Activities

Partner cities in the TCDSE have discussed and elaborated policies in different ways. In early and more exploratory experiences – e.g., the case of Kathmandu -, aspirations and broad solutions were translated into policy alternatives by the TCDSE team. In more recent experiments of this future visioning trajectory, policies were elaborated by stakeholder groups themselves using a more structured and bottom-up approach. The below description of stages suggests a way of elaborating policies *with* participants. As usual, adaptations that speak to context specificities might be needed.

Stage 1 – Hazard Brainstorming

It is important to discuss potential future hazards in the city and its negative impacts as we aim to direct policy discussion towards DRR which reflects future urban planning with minimal impact of potential negative hazards. In this stage facilitators need to be conscious of hazards that will be studied under the TCDSE scope and used in computational modeling. Once we let the participants identify the hazards under the TCDSE scope, facilitators will stimulate the discussion towards the potential negative impacts of each hazard. Based on the experience of stakeholders usually the hazard brainstorming goes smoothly, and they will list down the immediate negative impacts of each hazard however if required facilitators can provide few examples not to influence their outcome but to help the process. Once the list of impacts is ready, stakeholders will also categorize the impact based on the seven dimensions of wheel of urban assets. In case community hazard mapping was done before the future visioning workshop that map could be used as a reference for this brainstorming session.
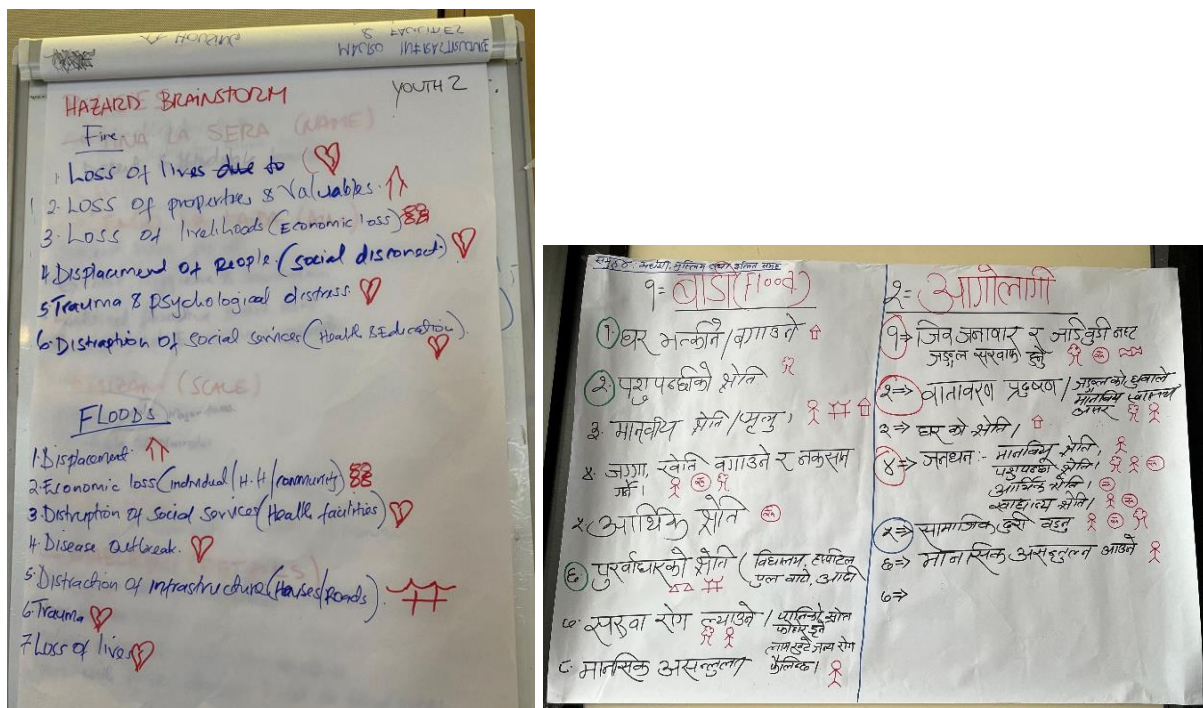
Figure 34: **Examples of Hazard Brainstorming in Nairobi and Rapti**

Stage 2 – Recalling the wheel of urban assets

As previously mentioned, Milestone 3 could happen on the same day as Milestone 2 or at a different moment. In any case, it is important that stakeholder groups get a chance to look at their 'wheel of urban assets' and evaluate what has been covered and what is yet to be developed.
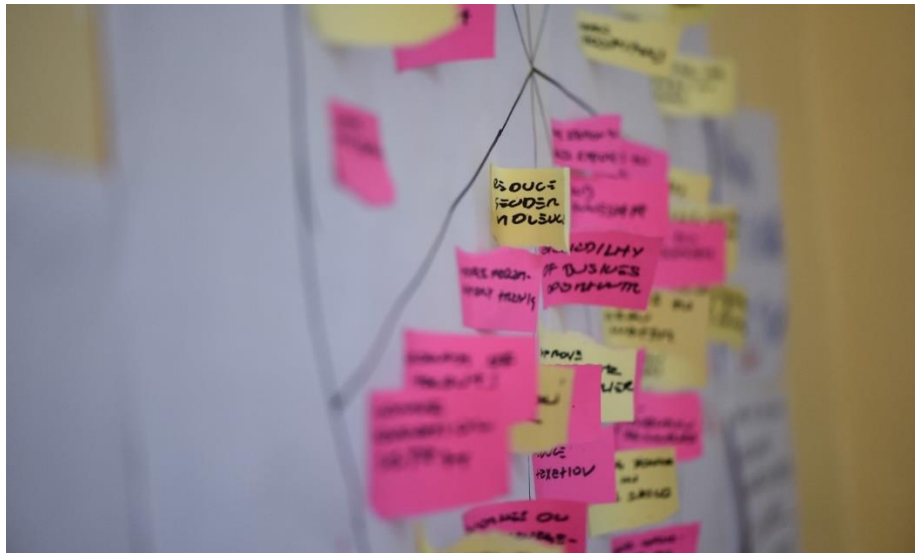
Figure 35: **Examples of wheel of urban assets in Nairobi.**

Facilitators could start by analyzing what aspirations in the wheel have turned into spatial proposals during co-mapping exercises, and what was not possible to translate in spatial terms. An important clarification is needed at this point: whilst in the TCDSE land-use plans and spatial guidelines are often not called policies, they could be understood as such, which means that this exercise is also conceptually a complement to Milestone 2. Here we are dealing with a different type of policy – less concrete and spatial ones.

For instance, a desire for more flood-resilient infrastructure could be translated as a policy guideline to reinforce bridges and build a retention basin for stormwater management – this should be captured in the co-mapping exercise of Milestone 2. Yet, strategies such as depolluting rivers or managing urban waste are less possible to pin down in a land-use or spatial plan. In those cases, 'softer' (or less infrastructure-oriented) policy approaches are needed, which is what Milestone 3 tries to capture.

This is also a moment to provide detail to broad statements that often appear in the wheel. For instance, if participants aspire for a 'clean neighborhood' or 'clean river', facilitators might ask 'what could be done' to achieve that future. The response is already a policy expectation to some degree. Even more abstract aspirations such as 'more community cohesion' could turn into policy strategies – not necessarily government-led ones. For instance, stakeholders could propose the creation of cultural or collective spaces that foster engagement and meaningful interactions or ask for institutional support for community-led initiatives. In sum, most aspirations could become policies. It remains to be seen, however, whether these policies make sense from a risk perspective.

Stage 3 – Orienting the discussion towards pro-poor disaster risk reduction

In an open and pedagogical visioning space, all aspirations matter and could be translated into policy alternatives. Yet not all aspirations are easy to implement or are relevant for a discussion about pro-poor disaster risk reduction. At this point, it is important that facilitators support stakeholders in the elaboration of future alternatives which are desirable and possible from a risk perspective. Similar to Milestone 2, being clear about the scope of the project, its capacity, and the constraints imposed by urban and hazard trends is essential to build trust and share knowledge amongst participants. Stakeholders should be aware that one of the main objectives of this exercise is to, in the Visioning Scenario stage, form Policy Bundles that will be tested

against multi-hazards. This means that, if they cannot elaborate on how their policies are informed by or respond to the possibility of future hazards, these are unlikely to produce 'impact metrics' (see Module 3 for more information), which makes that policy not suitable for the specific purposes of the TCDSE. To go about such discussion, it is recommended that facilitators highlight the third question that is being posed through the conceptual wheel of urban assets.
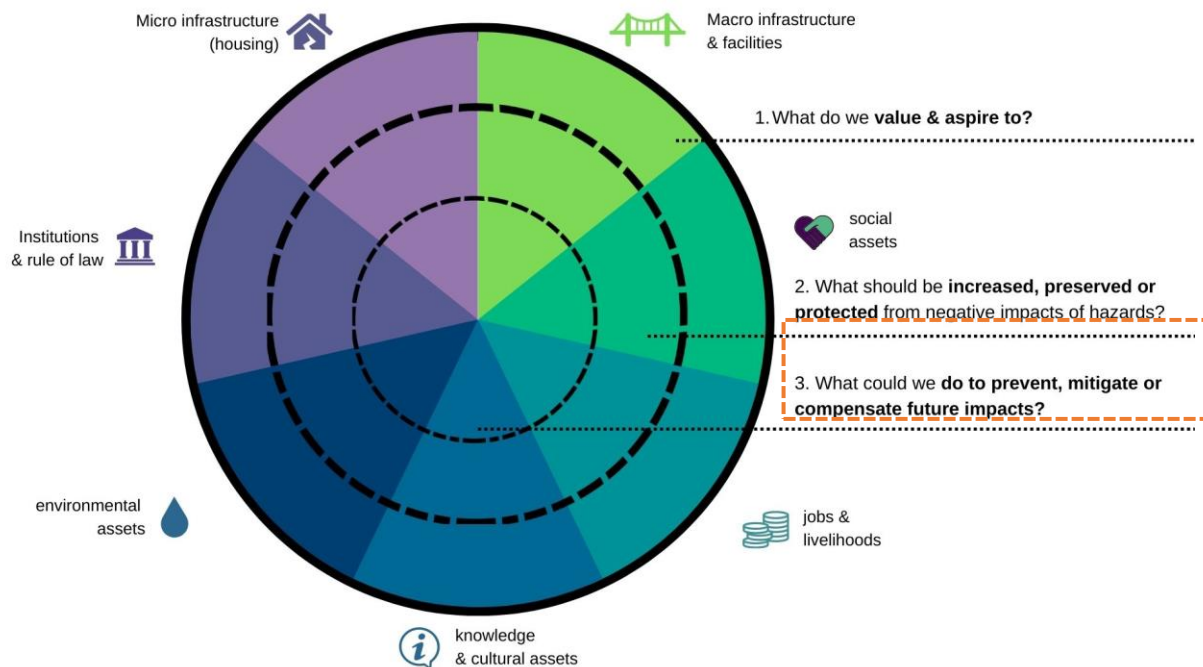
Figure 36: **Conceptual wheel of urban assets highlighting the overarching question asked in Milestone 3.**

In this stage, the mixing of normative, exploratory and predictive rationales for future-thinking is explicit. That is, informed by their visions (ideas of how the future city should be) and probabilities (urban and hazard trends), participants are now exploring possible alternatives to reduce disaster risk in the future. For more meaningful insights, it is recommended that this conversation happens organically as a sort of brainstorm. Still, facilitators should have questions and prompts ready, such as:

'If a major earthquake followed by a tsunami hits the planning area we are working with, which actions could we take to prepare for it, mitigate its impact or compensate those more affected?'.

'If in 30 years we have informal settlements along the riversides of this area, what could be done to support those households to prepare for that event, to mitigate its impact, or to be compensated afterwards?'.

'Thinking of the different social groups that will be living and working in that area, who would be more vulnerable to disasters? Which policies do we need to strengthen the capacities of these groups in the event of a major or persistent hazard?'

These are illustrative examples, as all prompts and questions should be thought in relation to the physical and socio-cultural context of cities. The point of that brainstorm is to consolidate an understanding that the future is an uncertain place and requires contingency plans. Even if all the aspirations of a group are implemented, it does not mean that they will be effective and comprehensive enough. And even if they are, they would still be constrained to a relatively small planning area.

Planning in an informed and participatory way does not mean that one will arrive at an idealised future. In every city there are external (less controllable) factors and unpredictable events which are just too complex and strong to account for. On top of this, hazards will not cease to exist in the future due to 'good' planning, and policies should respond to that uncertain and hazardous future. This is not about undermining the visions, but to bring them closer to plausible future realities.

Stage 4 – Outlining key proposals

After this first brainstorming stage, participants move to a prioritisation task. It is not a problem to have an extensive list of policy alternatives, but there should be a notion of what is more important. Facilitators should go through the wheel of urban assets, asking if each dimension has been contemplated enough. It is not mandatory to cover all dimensions of the wheel, although asking for at least one policy per wheel dimension could be a useful way to format workshops and ensure that the conversation is comprehensive. In some previous TCDSE experiences, groups chose to focus on only a few dimensions, as they thought this emphasis could strengthen their collective position. Conscious choices such as this should be embraced by the TCDSE as empowering stakeholder groups is one of its objectives. The main point of this stage is to make sure that no important idea or aspect of risk-informed planning has fallen through the cracks of the policy brainstorming.

Furthermore, facilitators should keep in mind that, whilst these policies are elaborated through the 'lenses' of certain stakeholder groups – e.g., women, informal dwellers, planners, disabled persons, etc -, they should aim at reducing disaster risk for the poor. That is, here we depart from a smaller collective position to arrive at an expanded notion of what a 'good' future should look like – and to whom is that future for. Asking questions that point to those more marginalised in the planning system or are perceived as more vulnerable to the effects of hazards, and how those policies are benefiting them, is therefore an essential part of this stage.

Stage 5 – Initial discussion on scale and temporality

In the TCDSE stage of Visioning Scenarios, stakeholders should have an opportunity to see their spatial urban development plans in a computed (i.e., GIS) format, and to refine their policy options through a more structured approach (See Module 2 for more information). But still at this stage of Future Visioning, it is important to have initial discussions that point to two important factors underpinning most policy options.

First, participants should be able to point out/suggest the main actors (government or not) that could or should implement or enforce proposed policies. In many cases, community groups are quite aware of their political and policy surroundings, and able to propose sophisticated arrangements. Also, it might be that participants want to see existing policies enforced rather than new ones, which could lead to a discussion about the possible problems surrounding implementation and how that could change in the future.

Second, participants should discuss the temporality of their policies. Some actions will be more urgent and require short term actions to produce results in the future. Others should be implemented in the longer-term, as they require changes in existing frameworks or arrangements. Balancing desires and constrains will be the focus of the Policy Bundle discussion in the Visioning Scenario stage. Still, thinking of temporalities could help to advance those ideas. That exercise could be as simple as adding post-its into a pre-designed timeline, as the image below suggests. However, be careful to document the wheel of urban assets if participants are going to transfer post-its/sticker notes into another framework.
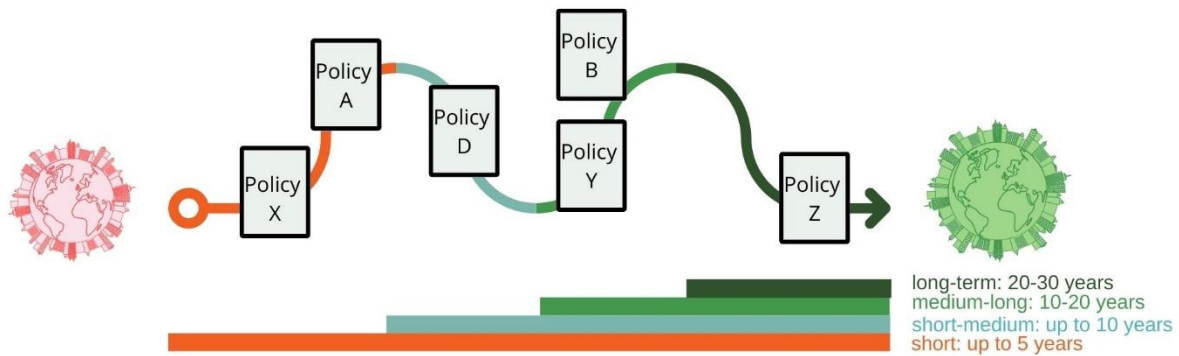
Figure 37: **Illustration of possible timeline to be drawn with stakeholders. Source: Future Visioning Toolbox.**

writing possible actors and institutions on top of the timeline – or culminate in a more sophisticated product such as an institutional map. This stage would be the end of the Future Visioning trajectory from a multi-stakeholder and participatory perspective. Yet, the overall engagement does not end here. It is essential to communicate that, after Future Visioning, other opportunities for interaction will come. Participants may choose to continue to follow the TCDSE and share their contacts to do so.
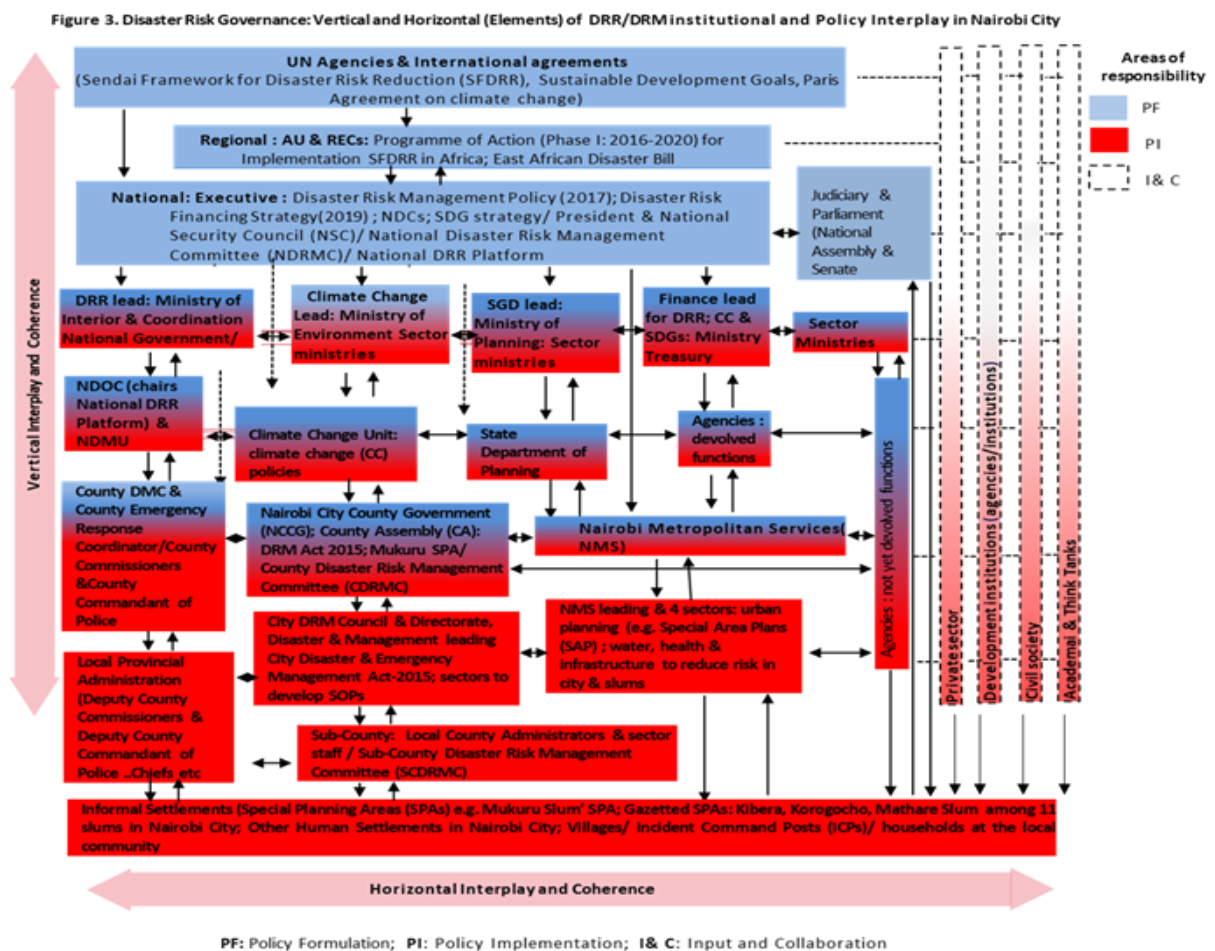
Figure 38: **Institutional mapping produced by the Nairobi team.**

7.7   Outputs

Two outputs are expected by the end of the third milestone of Future Visioning:

- One list of policy alternatives (essential)

  - Each policy should be placed within the wheel or indicate the dimensions that it relates to
  - It is recommended that policies indicate the scale of governance that it relates to (including possible actors to engage with) and temporality.

- **Visual complements (optional yet recommended)** such as diagrams showing actors involved to design, implement or enforce said policies, and the timeline showing how the policies are to be articulated in time.

SESSION 8: EXERCISE ON CONSOLIDATING VISIONS AND OUTLINING POLICIES

8.1 Objectives

By the end of the session, the participants will be able to:

- Translate aspirations/visions into the policy expectations.
- Learn how perceptions about multi-hazards and their impacts help to co-produce DRR-oriented policy expectations.

8.2 Structure of Session 8

Structure
1. Overarching questions
2. Instructions

8.3 Overarching Question

What could we do to prevent, mitigate, or compensate for the potential negative impacts of future hazards?

8.4 Instructions

In break out groups, go back to the wheel of urban assets from Part 2 and check if there are some key aspirations for the group which did not feature in your map. List them in the wheel using sticky note with the help of a facilitator.

Now discuss with your group if and how could those aspirations be connected to DRR policies (justify how useful can they be to prevent, compensate or mitigate the impact of future hazards. See the image below for an example of how flexibly discussions could be captured in the wheel.
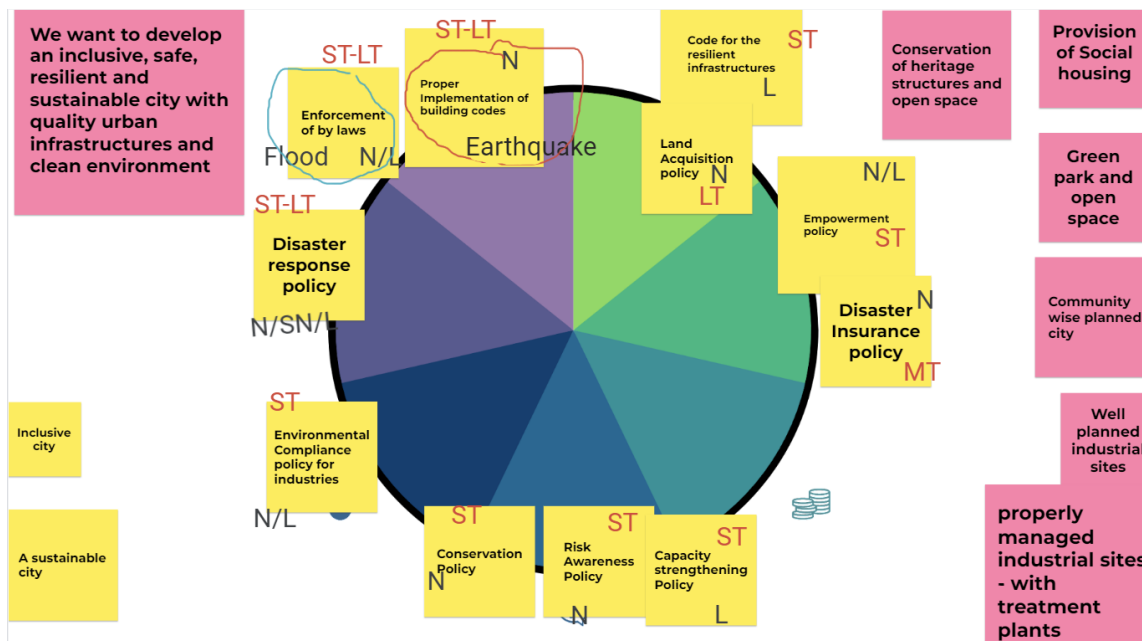
Figure 39: example of how flexibly discussions could be captured in the wheel

Note for facilitators: you can support the discussion by providing examples of how different aspirations (seemingly not related to DRR) could become DRR-oriented policies.

Now curate the wheel, phrasing aspirations as policies – actions guidelines aimed at a certain objective. It is not a problem if the exercise gets messy. In the validation workshops – as part of the Visioning Scenario stage – you will get a chance to refine these options.

Whenever possible, flag the temporality and scale of the policies – if short-, mid- or long-term, and at what scale they operate. If time does not allow, do not worry. The conversation about policies is happening again in the stage of Visioning Scenarios (Work Package 2), when there is an opportunity to discuss scale and temporalities.

SESSION 9: TRANSITIONING TO VISIONING SCENARIOS

Authors of the Chapter: Dr. Thaisa Comelli, and Prof. Max Hope, Work Package 1 Leads

9.1 Objectives

By the end of the session, the participants will be able to:

- Explain how Future Visioning feeds the two major components of Visioning Scenarios: (Spatial) Urban Planning & Policy Bundles
- Discuss how Future Visioning outputs contribute to the TCDSE and its different stages
- Identify the key roles of Future Visioning beyond the deliverables

9.2 Structure of Session 9

This session will describe the following topics.

Structure
1. Milestone 4: Transitioning to Visioning Scenarios and the Roles of Future Visioning
2. Spatial Development across the TCDSE
3. Policy Development across the TCDSE
4. Key roles of Future Visioning beyond the deliverables

9.3 Milestone 4: Transitioning to Visioning Scenarios and the Roles of Future Visioning
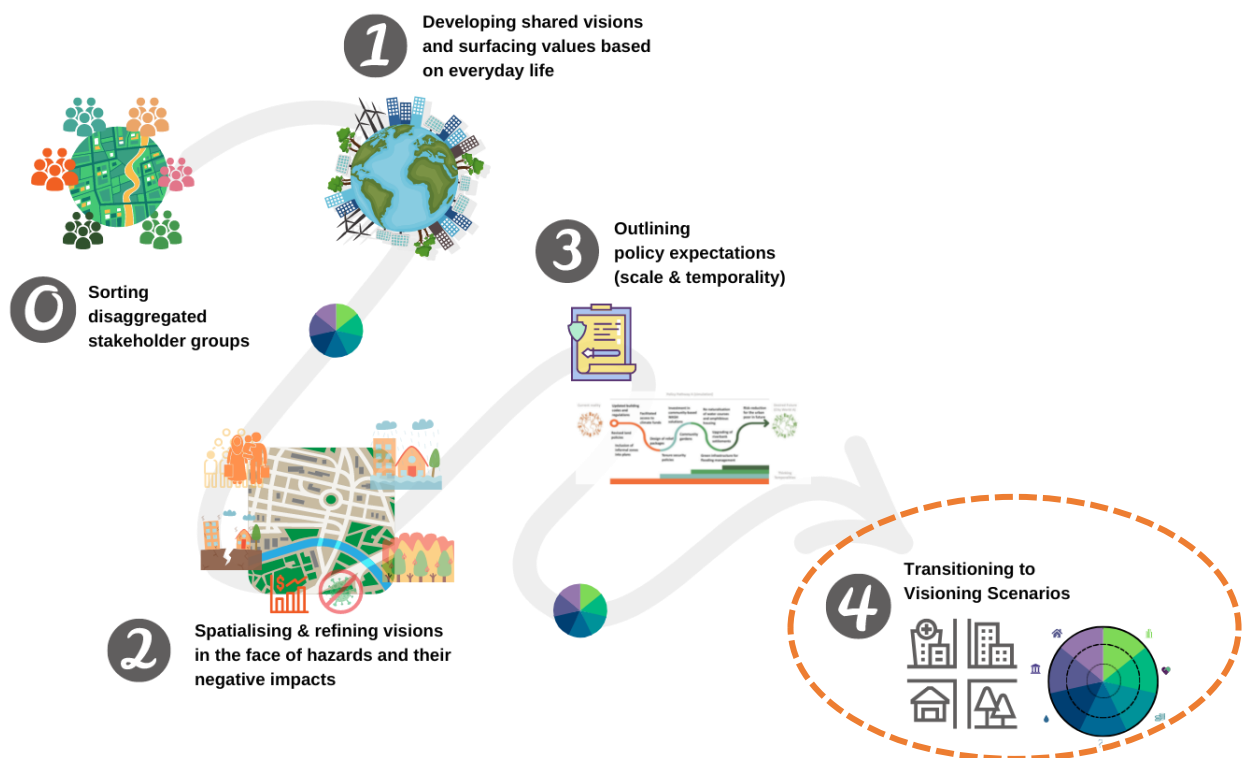
Figure 40: Future Visioning Trajectory with an indication of the milestone approached in this session.

The delivery of the outputs of Milestone 3 closes the participatory stages of Future Visioning, which leads to a transitioning stage towards Visioning Scenarios. For simplification purposes, such transition is called Milestone 4 in the Tomorrow's Cities Future Visioning trajectory.

This is considered a Milestone because it requires comprehensive documentation and analysis of conversations and outputs delivered throughout the whole process. Such analysis leads to a strategy on how to better conduct the Validation Workshop as part of Work Package 2 (Visioning Scenarios). In this workshop, GIS representations of the different Future Visions - along with more complex datasets - will be shown, and policies will also be detailed. This is also an opportunity to inject more realism into the visions, for instance through a discussion of diverse demographic, economic or legal trade-offs. In sum, Validation Workshops are spaces to confirm the interpretation of visions, but also to refine them or cover any component that might have been missed throughout the Future Visioning trajectory.

Even when cities consider that Future Visioning activities have been concluded with success, there needs to be in place a strategy for data management and continuous engagement with stakeholders.

Below the strategy for a critical assessment of future visioning outcomes is connected to two main threads that cut across the TCDSE: Spatial and Policy Development. An understanding of what comes beyond and after future visioning is essential for an assessment of its practical success.

9.4 Spatial Development Across the TCDSE

Tomorrow's Cities Decision Support Environment could be broken down into many stages and components. However, there are two major elements which cut across the whole framework and help to give shape to both Future Visioning and Visioning Scenario strategies. The first component is called 'spatial development', and it refers to how spatial expectations sketched during future visioning later become Spatial Urban Development Plans containing infrastructural and social datasets in a GIS format. Beyond this transition, there is a longer process which precedes Future Visioning and exceeds Visioning Scenarios. That process is summarized in the infographic below and it is crucial for a proper positioning of Future Visioning within the TCDSE.

Stage	Illustration	Activities	Framing criteria / Guidance
0. Preparation		Engaging in a comprehensive assessment of the planning area in the present for the production of a baseline scenario for the future	**CRITICAL CATEGORIES** (I) Natural environment (II) Cultural and Historic Environment (III) Urban/Infrastructural Environment (IV) Natural Hazards onto current land use pattern (preliminary data) (V) Forecasting of Urban Growth
1. Future Visioning		Co-producing a map or sketched spatial plan informed by preliminary hazard data and containing broad spatial expectations (collated through the wheel of assets)	**CRITICAL COMPONENTS** (I) Main Desired land-uses (II) Desired expectations for changes & interventions (for consolidated areas) (III) Notions of urban form (height, density, etc) (IV) Notions of social composition (e.g., distribution of income levels)
2. Visioning Scenarios		Detailing spatial urban plans in GIS with the possibility of at least one loop of feedback. There could be more than one Visioning Scenario per group	Variations in Urban (spatial) plans might account for conflicts within groups or the need (and possibility) to explore more than one future spatial scenario
3. Impact Metrics		Assessing the performance of spatial plans (coupled with policies) on the basis of impact metrics	Spatial urban plans and policies are already 'locked' for computational modelling and can no longer be changed until the next TCDSE iteration
4. Risk Agreement		Ranking Visioning Scenarios (policies + plans) on the basis of how group priorities shape the importance of impact metrics (according to clusters)	Besides the negotiation of impact priorities which leads to the ranking, participants discuss the implications of Visioning Scenarios in terms of carbon footprint and land value
5. Assessment		Choosing of one scenario or of another TCDSE iteration	Once the concept of risk is democratised, spatial elements and interventions might be incorporated in a more risk-sensitive manner

Figure 41: **Infographic summarising process of spatial development across the TCDSE.**

The trajectory represented in the infographic is a simplification of what happens in the TCDSE but is nonetheless a good departure point for understanding how Future Visioning is part of a broader process which needs to unfold with coherence.

For spatial development across the TCDSE, it is crucial that cities scope relevant spatial datasets in advance (Stage 0 in the infographic), which could include information on natural, cultural and infrastructural environments. Maps and datasets related to hazards should also be in place before Future Visioning workshops, and it is recommended that some sort of urban growth forecasting (e.g., what happens if no official planning guidelines are in place or if the existing ones do not change) informs the TCDSE. Such datasets are essential to inform the co-mapping exercises of Future Visioning. After all, without any notion of context or probable futures, co-mapping would turn into a 'Wishlist' or a utopian plan for the future with no basis on real life challenges. Hazard information is also critical, so this becomes a truly risk-informed planning exercise – instead of a standard activity of participatory planning.

During future visioning, it is essential that TCDSE checks if the minimum requirements for Visioning Scenarios are in place. That is, the co-mapping should provide an idea of main desired land-uses, expectations for changes or interventions (if relevant), and notions of urban form and social composition. The degree of detail will likely vary from group to group depending on the flow of conversations. Yet, it is highly recommended that participants discuss – if superficially – these points. Otherwise, GIS modelers will need to assume what participants would have desired, which could lead to Visioning Scenarios that do not express well stakeholders' aspirations and positions. As already mentioned, more than one version of the map could be produced.

At the Visioning Scenario stage stakeholders should have at least one opportunity to check the results of their work, contest assumptions, ask questions and propose changes. This could be on the same day when policies are refined – as the next section will detail. Depending on the political and logistical conditions, and the willingness of stakeholders to do so, TCDSE leads could provide an opportunity for the mix and match between Visioning Scenarios. For instance, a women's group could have, beyond their Visioning Scenario assembled in GIS, a second and third alternatives which come with elements from other groups. This will depend on the capacity of the GIS team to process dozens of scenarios and groups' perceptions that there might be other interesting solutions to test. It is crucial to remember that, after this stage, the content of Visioning Scenarios is no longer the subject of debates. From this point forward, interactions will focus on negotiating what risk means. And Visioning Scenarios will be tested and ranked based on that collectively-produced concept – Stages 3 and 4 of the TCDSE. Finally, during the assessment of Risk (Stage 5), cities might choose to proceed differently, conducting the whole TCDSE again, or implementing parts or the entirely of one of the plans.

Not necessarily the spatial version which performs best in relation to a new understanding of risk will be the one implemented. The TCDSE is a decision support – not making – environment, which means that this process is not supposed to prescribe an ideal solution for cities. At the very least, Future Visioning workshops will help to communicate with clarity how different groups see in concrete ways what a better future city looks like. This could lead to important negotiations and compromises that are more inclusive and risk informed.

9.5 Policy Development Across the TCDSE

The process of policy development follows a similar logic to spatial development, as it is possible to see in the infographic below.

Stage	Illustration	Activities	Framing criteria / Guidance
0. Preparation		Providing context to the work by scoping 'formal' policy options - i.e., codes, laws, regulations, one-off actions within the state apparatus - available in each city	**1. SCALE** — supra-national, national, city-wide, neighbourhood **2. DEGREE OF CONSOLIDATION** — state or government policy? **3. SECTOR/THEME & RELEVANCE TO RISK** — Where is the policy positioned? How it contributes to reduce the impacts of hazards? **4. AMBITION FOR POSITIVE IMPACT** **5. CONNECTION TO WHEEL OF ASSETS**
1. Future Visioning		Harnessing aspirations for the future and outlining policy solutions that speak to stakeholders' own ambitions for positive impact in the event of a hazard or multihazards	**1. TYPOLOGY** — Preventing (prospective), mitigating (corrective) or compensating (compensatory) future impacts? **2. SCALE AND TEMPORALITY** — Who should implement such policy? At what scale? In the short, medium or long term? **3. PRIORITISED WHEEL DIMENSIONS**
2. Visioning Scenarios		Structuring policy options by introducing external factors and constrains to support the refinement expectations. Exposing stakeholders to the scoping of existing options and 'lessons from elsewhere'	**1. MAIN CONSTRAINS & EXTERNAL FACTORS** — (a) Socio-economic, (b) natural, (c) legal **2. EXPOSURE TO EXISTING OPTIONS** — (a) In that particular context (b) Elsewhere (lessons from other cities) **3. DEFINITION OF POLICY BUNDLES** — Refinement of previously elaborated options and/or incorporation of new proposals and/or desire to enforce existing options
3. Impact Metrics		Feeding hazard information & data into previous activities to make work more robust. Modelling policies to generate metrics	Previously to this stage, there should be an assessment of whether policies indeed affect impact metrics, otherwise they should go straight for a discussion in the next stage
4. Risk Agreement		Discussing other possible benefits of selected policies beyond disaster risk reduction	The wheel helps to sustain and frame the evaluation of policies in relation to their respective clusters
5. Assessment		Consolidates policy pathways	After the evaluation of scenarios, policies could be structured as an action plan that creates a 'pathway' for disaster risk reduction in the future city

Figure 42: Infographic summarising process of policy development across the TCDSE.

Before Future Visioning, there should be a stage of scoping when the existing policy environment intersecting or relevant for that planning area is mapped. This includes codes, laws, regulations, programs or any action that could somehow impact the land subjected to the TCDSE process.

Such policy environment should be understood in relation to a few minimal categories, including scale (if ward, local, national, or supra-national level), degree of consolidation (if a state policy such as a law or a government policy such as a program), sector (e.g., health, infrastructure, housing, etc.) and relevance to risk (why that policy is considered to affect the impact of hazards), ambition for positive impact (the aims of the policy in discourse), and the connection to the wheel of urban assets (for a better connection with other TCDSE stages). This is the first scoping and other categories could be found relevant after discussions with stakeholders.

Whilst it is not expected that during Future Visioning stakeholders will navigate the policies scoped in Stage 0, some notion of what is legally feasible in the near present or possible precedents might be relevant, which is important that facilitators are familiar with that context. As usual, maintaining focus on the timeframe – 30 years from the present – is important to understand the role of future visioning in this dynamic. Both stakeholders and facilitators will allude to policies in the present, either for identifying gaps or opportunities. Yet, what is relevant and possible in the present might not be so in the future, which is why policy conversations in Future Visioning should be more concerned with matching aspirations and reducing the impacts of future hazards on the area than on being entirely viable in the present. As mentioned in Milestone 3, three categories structure Future Visioning's approach to policy development. First, facilitators should check if different typologies are somehow discussed, that is, if there are policies aimed at reducing, mitigating and compensating the future impact of hazards. Second, it is crucial that notions of scale and temporality are present. Third, the wheel should continue to be used to ensure consistency and provide a notion of prioritization.

Policy discussions are then more grounded during Stage 2 when, besides checking a detailed version of their Visioning Scenarios, participants refine their policy options based on 3 main factors. First, participants are more directly exposed to the possible constraints to their policy options, which might have been only superficially mentioned in Stage 1. For instance, they might be asked (and provided information on) whether their policies are feasible from a legal, socio-economic and natural perspective. This is not meant to invalidate the policy, but to instigate a discussion about relevance, and about what needs to change in the present to make that option valid in the future. Second, participants will be exposed to existing policy options in their own context (e.g., existing laws and frameworks they might not be familiar with as they are not disseminated or enforced) or elsewhere (i.e., policies from other cities and countries). This will help to both refine their current aspirations or go through a different action route. Third, as policies are prioritized, participants are reminded of the definition of Policy Bundles and of the fact that their policies should be able to generate impact metrics. If not, they might be suitable in other political spaces, but not necessarily within the mainstream of the TCDSE.

Whilst Stages 3 and 4 will support participants in the understanding of the consequences of their policy options – specially on risk-related impact, Stage 5 might be an opportunity to discuss ways forward, transforming policies into action notes that create a pathway into the future. Also, similar to what happens in the spatial development, it is necessary that the data shown in and produced during future visioning is discussed by the whole TCDSE. Future Visioning needs to embed the transdisciplinary nature of the framework, so exercises do not become meaningless 'wish lists' that are not informed by important trends and constraints.

Finally, as one may infer from this process, the two threads of spatial and policy development are commonly overlapping. Spatial datasets and policies are not the same thing, but during future visioning, both spatial guidelines and strategic action points could be understood as policies, although they are split methodologically to make the process more logical and pedagogical.

9.6   Beyond deliverables

Finally, Milestone 4 and the wrapping up of future visioning also encourages critical thinking about the different roles and outcomes of future visioning, which go beyond tangible outputs. In this sense, it is important to highlight three key roles of Future Visioning within the TCDSE: (a) a practical role, (b) a socio-pedagogical role, (c) and a political role.

As seen in the section above, Future Visioning has a **practical role** within the TCDSE, which means that the framework will not work properly if **key outputs** (the wheel, visioning statements, maps with spatial expectations, policies) are not produced at this stage. The assemblage of Visioning Scenarios requires that certain datasets are in place. Some of them are contextual and should have been scoped before Future Visioning workshops. Other types of data are connected to the aspirations harnessed and translated during future visioning. It is important to understand the minimum data required from stakeholders so there are no substantial gaps which would need to be filled in the form of assumptions by the ones leading the TCDSE. In other words, aspirations should have been produced in a reflective way, requiring minimal interpretation by others.

Whilst this final session has been mostly about explaining the practical development of the TCDSE according to two major components – spatial and policy development -, it is important to keep in mind that the success of future visioning is not only measured by data, but by a holistic evaluation of other outcomes.

Future Visioning is the first stage of the TCDSE, and it is the more people-centered component of the framework. For most stakeholders, Future Visioning workshops and spaces will be the first point of contact with the team leading the process and the assembled structured for risk-informed planning more broadly. A **socio-pedagogical role** for future visioning therefore means that in this stage there should be a **commitment to build healthy relationships based on mutual trust and respect**. It also means that there should be spaces for meaningful learning about other individual and collective positions, as well as learning about objective and subjective elements of risk. Such learning is consolidated later in the TCDSE, but it starts in Future Visioning. Put differently, by the end of Future Visioning engagements, participants should leave the engagement feeling that they have been transformed by the process to some degree – either because they learned something new, or because they now see their city through a different lens. This could happen no matter the background of the individual and group. In sum, this is not only about getting stakeholders together to get insights and 'data' to be used by scientists, but about forming a network of actors who are committed to share and build knowledge and solutions for risk-informed urban development planning.

Finally, Future Visioning has a **political role** within the TCDSE, which is connected to the process of stakeholder selection. Cities should select stakeholders based on their relevance to a risk-informed discussion, and on the principle of creating **equitable spaces for the interaction between powerful and marginalized voices**. The disaggregation of stakeholders is recommended so the TCDSE understands how different social identities and urban conditions lead to different understandings of what a good future city – based on every day and hazard-related experiences – looks like. In practice, this could lead to the activation of groups that already identify themselves as collective subjects – e.g., neighborhood associations, municipal authorities, NGO representatives, etc. – or groups that are engaging with their peers for the first time – e.g., residents under social assistance scheme identified by authorities. During future visioning, **conversations should be politicized so collective positions are identified and sustained**, and so conflicts within and across groups can also be surfaced in a healthy (democratic and transparent) way.

ANNEXES

Annex 1 – Case study for Milestone 1: Istanbul

Discussions of everyday life and the harnessing of aspirations in the city of Istanbul (Buyukcekmece District) happened through Focus Group Discussions with different disaggregated groups: women, youth, elderly, disabled, social assistance beneficiaries, roma people, Syrian migrants and NGO representatives. Initial meetings with representatives of the municipality and Mukhtars were useful to both understand relevant stakeholders to be called and challenging issues to be addressed during workshops. Complementary interviews were also conducted with representatives from the private sector (construction companies) with stakes in the defined planning area of Buyukcekmece.

From that experience, the Istanbul team highlights a few methodological and ethical notes:

i. Focus group discussion (FGD)

Should be:

- Conducted with a group with a single criterion/characteristic in common (women, disabled, migrants, etc.) or accommodating people from the same age group (youth, elderly, etc.)
- Expected time: Between 1-3 hours (per FGD) – these were conducted in separate turns at first, with a complementary workshop in which all groups were in the same room but gathered at different tables.
- Attendance: Maximum of 9 people - preferably an odd number in case of voting implementations are needed.

ii. General Recommendations:

- There should be a moderator or facilitator for the group discussion.
  - Facilitator: should have experience with basics of urban planning and disaster risk. Preferrable: previous knowledge of co-drawing/collage methods.
- In addition to the facilitator, there should be at least one rapporteur to take notes
- The presence of a 'technical person' (e.g., engineer, physical scientist) is encouraged to take possible questions from the participants.
- Other than social groups from communities, NGOs or Private sector (e.g. Construction sector) can also have their views shared via focus groups.

iii. Duties of the Facilitator

The facilitator should:

- Synthesize the results for each group and represent the main themes in a particular group within a «One visioning statement» as an output.
- Summarise the meeting results to be shown on the related category of the Wheel of Urban Assets.
- Moderate each meeting without going out of the scope of the framework of Tomorrow's Cities Project. That is, disaster risk should somehow be part of conversations.
- Be able to adjust their language according to participants' literacy levels.
- Develop tools and methods suitable for each group and be able to visually represent the meeting ideas together with the participants.

iv. Structure and Conversation Flow

1. As meetings with the community groups would probably be the team's first contact with them, the facilitator should start off with a clear and concise presentation about the project and its objectives. Previous information (e.g., socio-economic conditions, land-uses and hazard maps) about the area can be part of that introduction.

Figure 43: **Photo from a Presentation in Istanbul**

Important Note: A preliminary information form can be handed out to people before any explanation (presentation) or knowledge exchange in order to find out about their disaster awareness levels, neighbourhood conditions and basic opinions on the main subjects. This method can be used for a pre-test or post-test for the FGDs.

Figure 44: **Example of the Preliminary Form used in Istanbul.**

2. After the short presentation, the facilitator asks every participant to introduce themselves. The facilitator should start the discussions following a pre-prepared FGD guideline and spark the debate among participants. This will help to compare the results of different groups on similar questions.

Figure 45: **Example of the FGD Guidelines used in Istanbul.**

3. First part of the FGD Guideline - Everyday life, present challenges and neighbourhood characteristics:
   - Note-taker takes note on details of each neighbourhood with respect to what each participant mention about his/her neighbourhood.
   - Facilitator asks more questions in an interactive way about the income groups, demography, economic activities, building conditions for each neighbourhood.
   - This part will be omitted in private sector and policy-maker meetings, instead official statistics and planning documents can be used.

4. Second part of the FGD Guideline – Experience with disasters & perception for potential risks & expectations from policymakers:
   - The facilitator carefully asks each individual about their experience in past disaster events in the current neighbourhood or in another place that they lived previously –.
   - Then the impacts of hazards are discussed with respect to the potential vulnerable groups.
   - The discussion in this part finishes with the policy proposals for DRR and responsibilities of policymakers and the community to become resilient to hazards.

Figure 46: **Photos from Focus Group Discussions in Istanbul**

5. Third part of the FGD Guideline - Collective aspirations for resilient futures

    • In FGDs, if a group cannot express themselves in this part, facilitators may carefully remind them what they said for their current condition (socio-economic, housing, disaster risk) and asks them for the probable future according to them. Next, the facilitator asks them what they would like to change and what is their desired future. Each disaggregated group come up with a vision and underlying urban planning ideas for a "good city" in the end of this part.

    • Planning Authorities or policymakers may have a different vision compared to community representatives, or they may not be willing to share their vision other than their official documents in the focus group discussion. In that case, a good option is to finish all community meetings, then translate those aspirations into discussion topics before having visioning meetings with the policymakers.

Examples of the Visioning Statements from disaggragated group meetings in Istanbul (Büyükçekmece District)
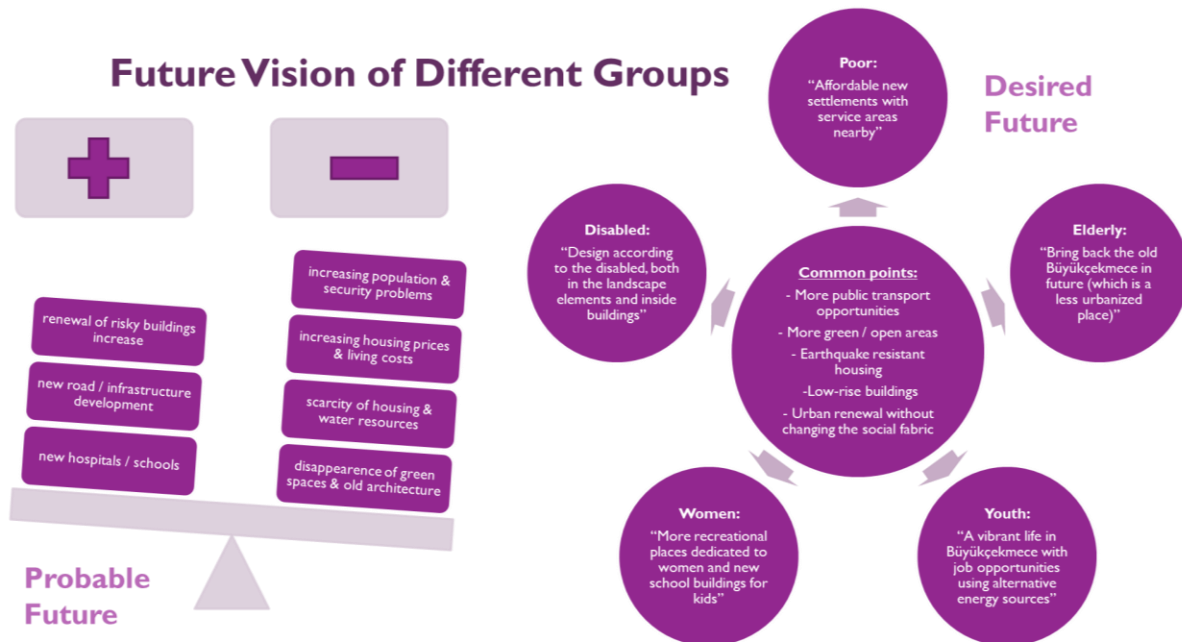
6. In FGDs, narratives may cover abstract ideas that are hard to quantify, represent on a landuse map, or have no direct relation with DRR. Other than verbal communication to collect ideas from individuals, writing and drawing methods can be used in FGDs or in a

separate workshop. Moreover, the Wheel gives an opportunity to categorise those ideas and quantify the important risks based on those categories. The Wheel may be further introduced in that Workshop as there is a time limitation in the FGDs.
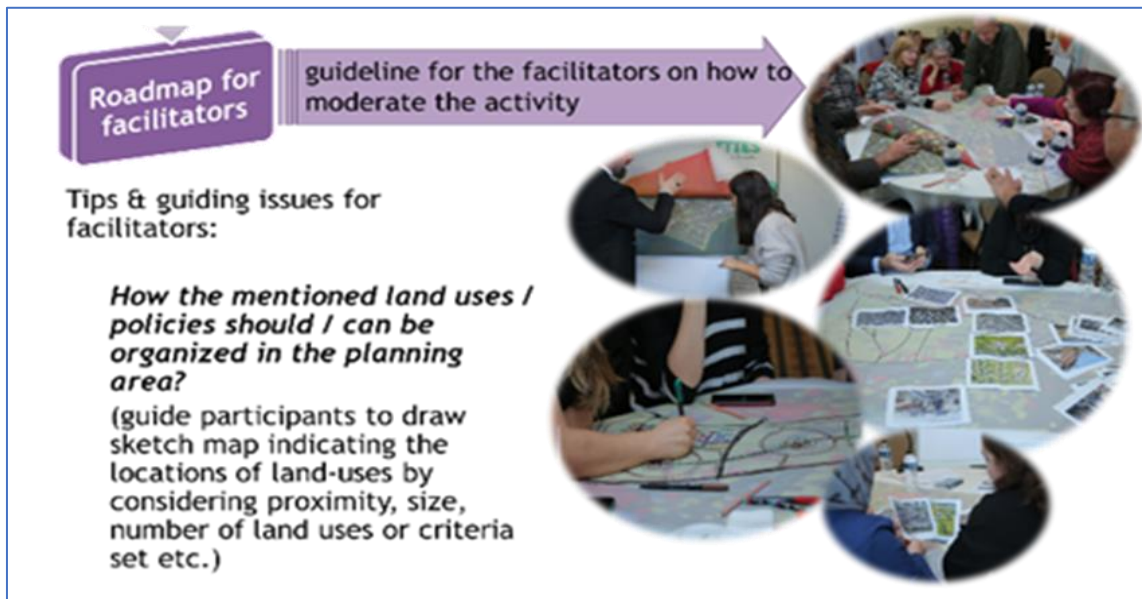

Figure 47: **Example of the facilitation method for drawing exercise in a workshop with the participants in Istanbul**
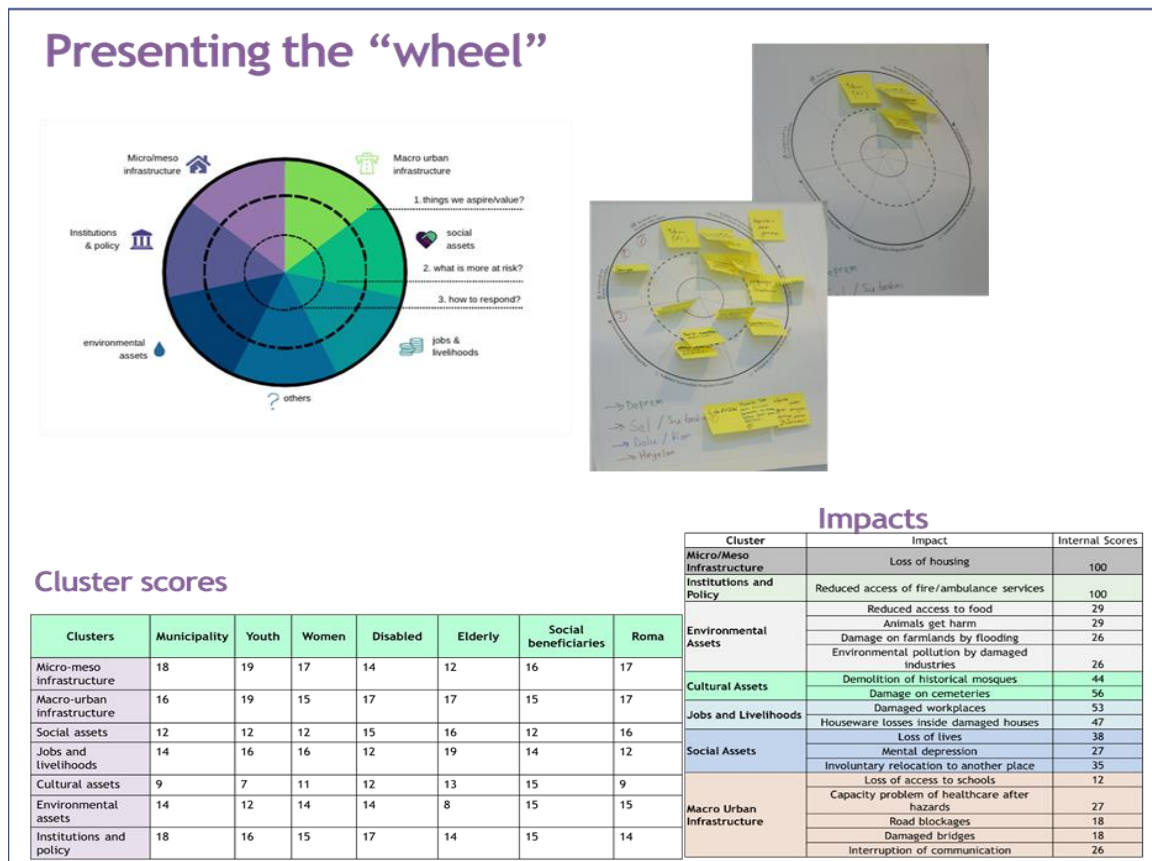

Figure 48: **The Wheel and the impact scores in Istanbul with respect to the themes / clusters.**

Annex 2 – Basis and Data for Mapping in Milestone 2

Besides the guidelines in the document, here are a few classifications of maps that could be used as a basis for the curation of existing information and production of baseline maps for the co-mapping exercise. Whilst this document presents a few options, these are only the starting of discussions which should happen between the leads of all TCDSE stages and relevant professionals or facilitators.

Table 1: Type of baseline information for maps with description and notes on usefulness

Type of information	Description
Orthophoto	Orthophotos show ground features with detail from a top-down perspective. They are usually created by satellites but can also be created with aerial or drone photography. Its major advantage is that you can see the features of Earth and even measure distances with anything from buildings to streets. *Eg. Google Satellite Imagery*
Topographic	Topography is the underlying foundation of a landscape and can refer to mountains, valleys, and rivers on the surface. A topographic base map generally includes elevation in the form of contours. But it can also incorporate natural and artificial features such as administrative boundaries, hydrography, parks, urban areas, and transportation. *Eg. Topographic base maps*
Satellite	Satellite imagery provides users with an aerial view of a location captured from space. This is a useful type of base map if you want to see any features with an aerial view. Because satellites orbit in a circular path with repetitive acquisitions, it's capable of capturing imagery with up-to-date information. *Eg. Sentinel-2 Views*
Elevation	A digital elevation model, also known as a DEM, is a digital representation of the elevation surface of the Earth. Elevation is the vertical distance between the ground surface and an ellipsoid model or geoid. This is useful for depicting any type of construction project as elevation can add extra cost. *Eg. SRTM Digital Elevation Model*
Contours	Elevation contours are just another way of showing how elevation changes in geographic locations. These lines show constant heights of elevation. Lines closer together represent steeper terrain. Whereas lines spaced further apart show gentle slopes. *Eg. Contour Map*

Table 2: Possible additional information according to urban sector

Type of Information / Sector	Description
Land use, Land Cover & Environmental elements	Ecosystems, protected areas, natural parks, environmental sensitive areas, forests, wetlands, aquifers, flora, fauna, biodiversity
Mobility routes & Road Network	Roads, bridges, public transportation systems, harbor facilities, airport facilities
Other socio-technical systems	Water supply, electricity supply, gas supply, telecommunications, mobile telephone network, sewerage system

Building Distribution	Buildings: land use, construction types, Monument and cultural heritage
Essential facilities	Emergency shelters, schools, hospitals, fire brigades, police
Physical Vulnerability	Building, physical infrastructures and lifeline facilities with notes on fragility
Social Vulnerability	Map with distribution of socially vulnerable residents according to pre-established criteria – relevant to disaster risk in that particular context.

i. Software and open data sources

Below is a list of a few sources – particularly open data ones – which could support co-mapping exercises. Please note that all platforms should be easily accessible by participants, and the diversity of stakeholder groups should also be taken into account – for instance, the inclination to use or not digital software.

ii. Ushahidi

The Ushahidi platform has emerged as a common and easy-to-install system for crowdsourced crisis mapping. Ushahidi allows citizens with mobile phones to send 140-character text messages to a publicized telephone number. These messages are read by a group of editors, who attempt to identify where the messages were sent from and are published on a web site as red markers at their best-guess location.

Ushahidi works in many cases because it is superficially simple to understand. It makes use of existing communications infrastructure namely that most people have cell phones and relies on both on the ability to send text messages and a willingness to send reports to a site which is not immediately viewable.

iii. Satellite imagery

Satellite imagery is a type of aerial photography that captures features on the Earth's surface. There are many different types of satellite imagery, including Visible Imagery, Infrared Imagery, and Water Vapor Imagery, that can be used to obtain information about natural and man-made objects on the earth.

iv. Open Data Kit (ODK)

Open Data Kit (ODK) is a free an open-source set of tools which help organizations author, field, and manage mobile data collection solutions. It supports a wide range of question-and-answer types and is designed to work well without network connectivity.

v. Open Map Kit (OMK)

Open Map Kit is an extension that launches directly from within ODK Collect when the OSM question type is enabled in a standard survey. It is what allows you to browse OSM features, and to create and edit OSM tags.

vi. Maps.me

Map Me is an open-source mobile application that can be used with iOS and Android devices that provide offline maps, especially useful for navigation. They get their data from OpenStreetMap. The beauty of both apps is that the maps work with no connectivity– all they need is your phone's GPS.

vii. JOSM

JOSM (Java OpenStreetMap Editor) is an open-source editor for OpenStreetMap data. JOSM allows you to create new data and edit existing data for OSM. To edit existing data in OSM, you will need to download data first with an internet connection. After downloading an area, users can work offline to edit data before re-uploading the data to OpenStreetMap.

viii. OSMCha

OSMCha, or the OpenStreetMap Changeset Analyzer, is a tool designed to review uploads and changes to OSM data, largely to prevent bad edits and vandalism to map data. This tool allows users to filter by username, location, dates of upload, and other metadata features.

Annex 3 – Policy Information for Milestone 3

i. Supplementary definitions

As a complement to the broad take of the TCDSE, here are few Definitions of Public Policy available in the literature:

1. According to CDC "Policy is a law, regulation, procedure, administrative action, incentive, or voluntary practice of governments and other institutions. Policy decisions are frequently reflected in resource allocations [1]".
2. Anke Hassel has stated in her paper that "Public policy is a set of decisions by governments and other political actors to influence, change, or frame a problem or issue that has been recognized as in the political realm by policy makers and/or the wider public [2]."

There are usually two kinds of policies, soft policy, and hard policy. Soft policies have moral suasion to influence the public to follow it, however the hard policies are strict guidance of Governments such as laws, building codes and tax regulations which must follow by the public [3].

Public policies are developed by the government with input from various relevant stakeholders of the Nation. These policies are implemented and monitored by respective government departments/offices in the respective country. Considering the increasing growth of population in urban area and simultaneously growing risk of Natural Hazard and manmade disasters, having visionary policy of Urban Development in line with Land Use Plan, Disaster Risk Reduction and Management, Climate Change Adaptation/Risk Reduction, and other cross cutting theme is essential aspect of every National to develop resilience city.

The recent World Cities report 2022, has also stated the importance of effective policy action for secure urban future with this statement "The vision of sustainable and equitable urban futures will not be guaranteed unless cities and subnational governments take bold and decisive actions to address both chronic and emerging urban challenges. Without ***urgent and transformative policy action at all levels***, the current situation will only get worse...".

Public Policy has essential value in the coordinated development of the Urban and Rural areas in the Nation where City leader plays important role to formulate and implement such policies for the benefit of urban citizens.

ii. National and Municipal Policies – Examples from Nepal

This list of formal policy options in the case of Nepal illustrate a broad range of frameworks and guidelines that could be considered policies.

Legal documents directly related to Risk Sensitive Land Use Plan and Urban Development in Nepal: • Land use Act 2019 • Land Use Policy 2015 • Local Government Operation Act, 2017 • National Urban Development Policy, 2007 • National Urban Development Strategy, 2017 • Building Act 1998 • Basic Guideline (Bylaws) related to settlement development, urban planning and building construction 2015/016
Documents related to Disaster Risk Reduction and Management (DRRM) in Nepal: • National Policy for Disaster Risk Reduction 2018 • Disaster Risk Reduction and Management Act 2017 • Disaster Risk Reduction and Management (DRRM) Rules 2019

- Nepal Disaster Risk Reduction National Strategic Plan of Action (2018-2030)
- Water Induced Disaster Management Policy 2015
- National Adaptation Program of Action (NAPA 2010)
- Framework for Local Adaptation Plan of Action 2011 (LAPA)
- National Disaster Response Framework 2013
- National Strategy for Disaster Risk Management (NSDRM) 2009
- Environmental Protect Act 2017
- Local Disaster and Climate Resilience Planning Guidelines, 2017
- Guidelines for the relocation and Rehabilitation of High Risked Settlements, 2018
- Climate Change Policy 2019

Other Supporting Legal Provisions for RSLUP Framework:
- Constitution of Nepal
- Lands Acts of 1964
- Land Acquisition Act 1977
- Forest Policy 2017
- Forest Act 2017
- National Industrial Policy 2010
- Right to Housing Act 2018
- Public Health Act 2018
- Land (Survey and Management (Act 1963 (2019)
- Ancient Monuments Preservation Act 1956
- Insurance Regulation 1992

iii. International Frameworks (Supra-national Policies)

Public policies related to urban development, disaster risk reduction and climate change adaptation and resilience are usually guided by the Global Frameworks such as Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030, UN Sustainable Development Goals (SDGs), Parish Agreement, New Urban Agenda, Addis Ababa Action Agenda, World Humanitarian Summit 2016 etc.

Global Frameworks are developed to enhance the national capacity of each country to reduce the risk of disaster as well as to promote resilience development policy and strategic action points at the ground level. Hence, linking the national policies and strategic actions in line with the goals and target of global framework is equally essential.

### iv. Examples of urban trends for co-mapping and policy discussions

Below are examples of data and information on urban and hazard trends that could feed future visioning workshops, particularly in the deployment of Milestones 2 and 3, which could often happen on the same day.

v. Urban Growth Trends, Challenges (DRR, CC, Socio-economic)

The Recent trend of Urban growth has shown rapidly increasing urban population to cities and towns and significant decrease in the Rural spaces. The world City Report has projected that till 2070 Urban population will grow by 58% whereas the population in in towns and rural settlement will be decreased by 24% at figure below.
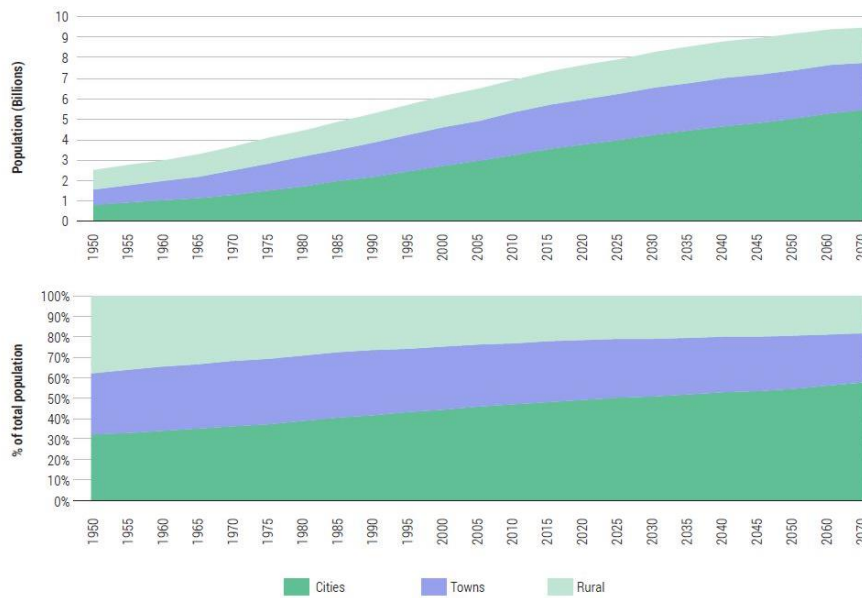
Figure 49: **Evolution of population by degree of urbanization 1950-2070**

(Source: World City Report 2022)

vi. Current Hazard/Disaster Trends

According to Global Assessment Report (GAR) 2022, the number of medium and large-scale disaster events has increased to 350-400 during 2001-2020 which is more than double compared to year 1970-2000, where it was averaged between 90-100 disaster events. The report has further projected that if the current disaster trend continues, such events will increase by 40% globally which will be 560 by 2030, the reference figure from GAR report shows the data below.
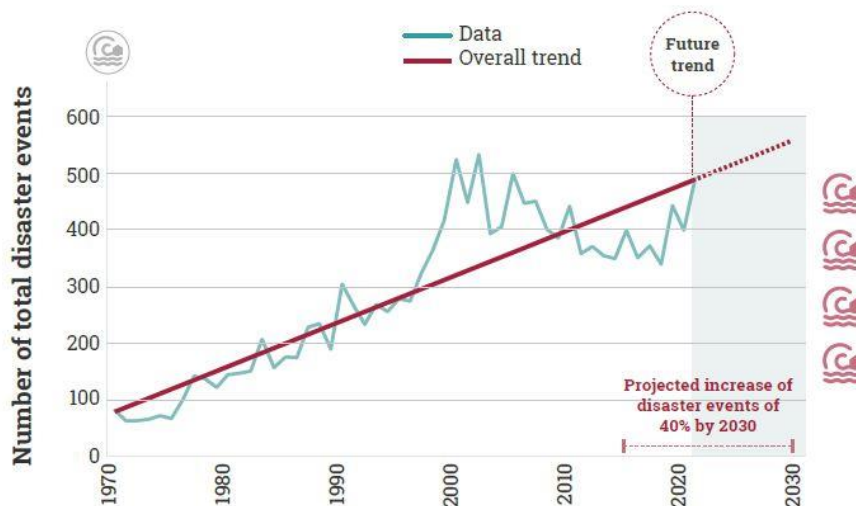
Figure 50: **Number of Disaster Events from 1970 to 2020, and Projected increase between 2021-2030**

Source: GAR, 2022; UNDRR Analysis Based on EM-DAT (CRED, 2021)

REFERENCES

The references that led to the elaboration of Tomorrow's Cities Future Visioning approach and therefore support the drafting of this document can all be found in the document 'Future Visioning for Pro-poor Disaster Risk Reduction: Activities Toolbox' - elaborated after an extensive process of literature review and from the learning of the first cities that integrated the research hub: Quito, Istanbul, Kathmandu and Nairobi. All mentioned to this document must recognize the original document, which is protected by copyright.

[1] Hope, M., Filippi, M. E., Ensor, J., Pelling, M., Comelli, T. (2023). Future Visioning for Pro-poor Disaster Risk Reduction in Tomorrow's Cities. Tomorrow's Cities Disaster Risk Hub. https://doi.org/10.7488/era/2911.

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