# Socialising Tomorrow's Cities

*Envisioning a city in Rapti/Deukhuri Valley, Nepal*


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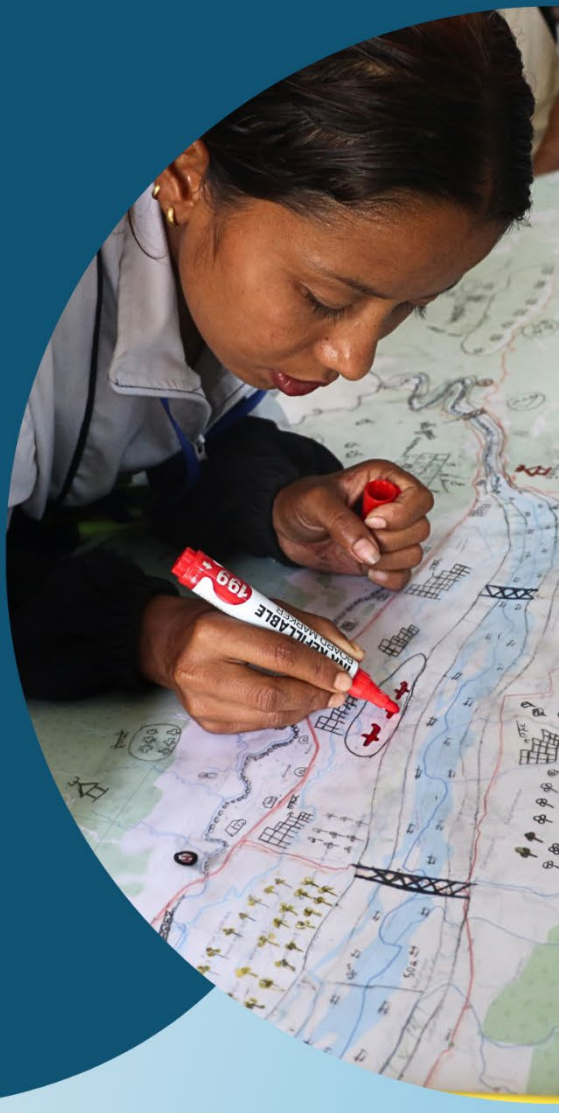

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ISBN: 9789937162951

**Published by**

**Southasia Institute of Advanced Studies (SIAS)**
NK Singh Marga-306, Kathmandu Metropolitan city -31
Minbhawan, Kathmandu, Nepal
Email: sias-info@sias-southasia.org
Website: www.sias-southasia.org

**Tomorrow's Cities (TC)**
Website: tomorrowcities.org
University of Edinburgh (UoE)
9-16 Chambers Street, Edinburgh, UK

**Funded by**

Tomorrow's Cities (TC)
University of Edinburgh (UoE)
UK Research and Innovation (UKRI)
Global Challenge Research Fund (GCRF)

Photo: SIAS

First Edition: March 2024

## *Acronyms*

| | |
|---|---|
| CBS | Central Bureau of Statistics |
| FGD | Focus Group Discussion |
| GCRF | Global Challenge Research Fund |
| GRM | Gadhawa Rural Municipality |
| HH | Household |
| IoE | Institute of Engineering |
| iPHM | Initial Participatory Hazard Mapping |
| LT | Long term |
| masl | metres above sea level |
| MMD | Madhesi, Muslim and Dalit |
| NDRI | Nepal Development Research Institute |
| NSET | National Society of Earthquake Technology |
| NSO | National Statistics Office |
| PA | Practical Action Nepal |
| PHM | Participatory Hazard Mapping |
| PIDA | Provincial Infrastructure Development Authority |
| RRM | Rapti Rural Municipality |
| SIAS | Southasia Institute of Advanced Studies |
| SM | Shitganga Municipality |
| ST | Short term |
| TC | Tomorrow's Cities |
| TCDSE | Tomorrow's Cities Decision Support Environment |
| UoE | University of Edinburgh |
| UKRI | UK Research and Innovation |
| WP | Work Package |

## *Acknowledgments*

Our deepest gratitude goes to all the community members of Rapti/Deukhuri Valley for their active participation, enthusiasm, and willingness to share their knowledge and experiences during our multiple field visits to Rapti. Special thanks to the dedicated participants of interviews, Focus Group Discussions (FGDs), Participatory Hazard Mapping (PHMs), and the Future Visioning Workshop for sharing their insights on the previous and current hazard incidences and offering invaluable perspectives on the capital city. We extend our appreciation to the government officials of all three Rural/municipalities of Rapti capital city for their cooperation and support throughout the field visits and the execution of the workshops. In particular, we would like to thank Mr. Prakash Bista, Chairperson of Rapti Rural Municipality, Mr. Yam Narayan Sharma Pokharel, Chairperson of Gadhawa Rural Municipality (GRM), and Mr. Chhabi Lal Poudel, the Mayor of Shitganga Municipality for their enthusiastic support, facilitation and guidance. We would also like to extend our heartfelt gratitude to all the ward chairs of RRM, GRM (1,2 and 3) and SM (8 and 9) for their help in identifying and reaching out to the potential participants. A vote of thanks to Mr. Chhabi Raj Pokharel, CEO, Provincial Infrastructure Development Authority (PIDA), and the entire team of PIDA for their support and active engagements during research activities in Rapti Valley.

A special acknowledgment goes out to all the participants of Work Package 1 (WP1), Future Visioning workshop for their unwavering commitment and active engagement and for sharing their tangible and intangible aspirations for the future capital city during the intensive two-day workshop. Our vote of thanks to the Vice Chairperson of RRM, Ms. Kamalapati Chaudhary and Vice Chairperson of GRM, Ms. Sharada Kumari Chaudhary and the Chief Administrative Officer of RRM, Mr. Neb Bahadur Oli for their gracious presence as the chief and special guests. A special vote of thanks is extended to our social mobilisers, Mr. Ramesh Panthi and Mr. Asharam Chaudhary for their crucial fieldwork assistance. Their efforts in reaching out to participants, securing confirmations for the workshops, and facilitating the disaggregated groups during workshops were instrumental to their success. Likewise, we would like to convey our heartfelt thanks to all the facilitators and note-takers (SIAS, IoE, NSET, NDRI and PA Nepal) and the technical and admin team (SIAS) for their dedication and hard work that significantly contributed to the success of WP1 workshop, despite the challenging weather conditions at the temperature of 40 degree centigrade. Heartfelt gratitude to Mr. Basanta Neupane for his engagement and support during workshop and fieldwork and Ms. Bipika Poudel and Mr. Kushal Pokhrel for their effort in proofreading the book.

We would like to extend our gratitude to Dr. Max Hope (Leeds Beckett University, UK), Dr. Thaisa Comelli (University College London, UK), and all other international teams for their continuous support and encouragement. Lastly, we would like to extend our warmest thanks to the Tomorrow's Cities project (see https://tomorrowscities.org/) with the United Kingdom Research and Innovation (UKRI), Global Challenges Research Fund (GCRF) and University of Edinburgh (UoE) for the financial support in conducting research as well as encouraging in co-producing knowledge that can benefit in building equitable and resilient tomorrow's cities.

# Executive summary

Socialising tomorrow's cities refers to communities' engagement in and acceptance of city development planning and processes, and ensuring its implementation. Socialisation, therefore, bears the notion of co-production of a city plan involving disaggregated communities, local authorities, concerned stakeholders and researchers. As a matter of fact, socialisation fosters institutionalisation of an engineered city. In this book, we analyse six cases of communities envisioned cities from southwestern Nepal and unpack their aspirations, hopes, future land use plans, risk management strategies and envisioned policies for materialising tomorrow's equitable and resilient city.

Among the five cities (Rapti, Nablus, Chattogram, Cox's Bazar and Dar es Salaam) where the UKRI-funded Tomorrow's Cities (TC) project is implemented, this book discusses about Rapti – a recently declared capital city of Lumbini Province, Nepal. Based on the three fieldworks during December 2022 – June 2023 and the two-day Rapti Visioning Workshop in June 2023, this book compiles expectations, aspirations and hazard information regarding the planning of equitable and resilient capital city that were expressed, imagined and co-mapped (i.e. co-produced map) by disaggregated community groups of Rapti (i.e. Tharu, Migrants, Squatter, Ethnic, Madhesi, Muslim & Dalit or MMD and Planners). This book aims to share actionable findings and processes adopted by the TCDSE with local authorities and other *new cities* of the global south.

The Rapti/Deukhuri valley located around 400 km southwest of Kathmandu, ranging from ca. 200 masl (floor) to ca. 1,000 (hills), is an east-west elongated valley, 60 km long and 20 km wide, and surrounded by Chure hills in the north and Dunduwa hills, bordering India, in the south. Parallelly, the Rapti River dissects the middle of the valley from east to west. The proposed capital city within the valley includes all 9 wards of Rapti Rural Municipality (RRM), Wards 1-3 of Gadhawa Rural Municipality (GRM), and Wards 8-9 of Shitganga Municipality (SM). With a sub-tropical climate on the floor and cool weather on the hills, forest and agriculture are the dominant land use patterns of the valley. Of the total 76,194 population, the proposed capital city is mainly inhabited by the indigenous and ethnic population comprising an average of 57% (mainly Tharu), Brahmin and Kshetri (25%), Dalit (13%), and Madhesi and Muslim (5%). This socio-ecologically diverse geography, however, is exposed to multi-hazard risks. While the valley floor is primarily prone to inundation and flood, the hills are vulnerable to landslide and fire.

Given its socio-ecological diversity and exposure to multi-hazard risks, six disaggregated groups representing local social diversity that are stated above were identified by engaging with local communities and authorities, and unpacked nuanced discussion concerning the cities aspired and policies envisioned by the groups. As we summarise below, all groups aspired to both social (e.g. end discrimination, ensure equality, sustainable livelihoods, conservation of culture) and spatial (e.g. dedicated zones for various urban assets) and envisioned policies for equitable and resilient future cities.

*Tharus*, the major indigenous community of Rapti/Deukhuri Valley, prioritised preserving fertile land, their key income source. Besides large infrastructures and industrial establishments to boost local economy, they also emphasised green space for environmental conservation. Their core priorities for disaster risk management included embankments and improved drainage systems to prevent the inundation of their agricultural fields and settlements. Additionally, they proposed policies to resolve the issues of informal settlers and manage tenants and unregistered land for an inclusive and equitable future city.

The *migrant* group proposed strategic settlement expansion in Rapti River floodplains and northern hill regions (i.e. Chure), integrating agricultural lands, green spaces, commercial centres, railway, and airport with risk-resilient infrastructures. Assuring equitable access to basic services, adherence to culture and developing a self-reliant economy (through sustainable agriculture, local employment, tourism and industry), they hope to alleviate the problem of out-migration. Among the noteworthy policies they encompassed were the affordable housing permit process, Chure and Rapti river conservation, livelihood security for the marginalised, and ethical governance for a resilient and equitable future city.

*Ethnic* communities aspired to future city with agricultural zones, green belt and embankment to control flooding and inundation. Industrial area, conservation of culture, nature-based tourism, homestay and community building were the key urban features that this group aspired. Policies to safeguard land, housing and livelihood security, preserve ethnic culture, conserve forest and water resources, foster inclusive decision-making and manage and prevent disasters were considered significant for a risk-resilient city.

The *Madhesi, Muslim, and Dalit (MMD)* group specifically advocated for social housing and accessible basic services to promote an equitable society. They envisioned dedicated zones for agriculture, commerce and industry, promoting local employment and self-sustainability. Their major policy highlights included economic-status-based (i.e. not caste/ethnic based) social housing, provision of disability-friendly and resilient infrastructures, water treatment system at the source of drinking water, and improvements in education, healthcare, and public administration integrity, aiming to enhance residents' quality of life and foster accountability in tomorrow's equitable city.

The *informal settler/squatter* group, which also included freed bonded labourers (i.e. *Kamaiya* and *Kamlari*), mainly residing in public lands, forest fringe and along the river in the valley. They envisioned land and housing security, vocational training, quality education, affordable health services and employment opportunities for alleviating poverty and promoting social inclusion in future city. Their policy priorities included distribution of landownership certificates, disaster risk management, establishment of industries and micro-enterprises. Public housing, poverty alleviation, improved irrigation and drinking water services, natural resource conservation, embankment and bridge construction were prioritised among others.

The *Planners* group comprising locally elected representatives and government officials (mainly engineers and urban planners) envisioned an eco-friendly city with infrastructure, sustainable agriculture, increased employment, and culture and tradition-based tourism. Their policies priorities included bottom-up approach to policy formulation and implementation, land use mapping/categorisation, updated building code, solid waste and disaster management, natural resource and archaeological heritage conservation, basic infrastructure services coordinating federal, provincial, and local governments. Policies for employment opportunities through industries and microenterprises, entrepreneurship skills, technological advancement were accorded top priority.

The visions of these diverse groups clearly illustrate the intertwining of both social and spatial aspects in their envisioned cities. For this, at least, five envisioned policies were prioritised to realise tomorrow's equitable and resilient capital city. This included disaster risk reduction and management (DRRM) policy to address present and potential risks. The second policy related to managing informal and marginal communities focused on equity. The third one revolved around agriculture and future food and livelihood security. The fourth envisioned policy was related to the conservation of forest, water and local ecology. The final envisioned policy was related to the generation of employment and economic prosperity in the future Rapti city.

To promote socialisation of tomorrow's capital city in the Rapti/Deukhuri valley, we propose the following three recommendations for local and provincial authorities. First, most of the envisioned land uses are within the hazard-prone areas, be it valley floors or surrounding hills, generating awareness about the exposure of the area to multi-hazard risks while also integrating communities' knowledge and perspectives and addressing their priorities on local risk management should be integral to devising policies. Second, migration of people from the surrounding hills has already turned Rapti into a heterogeneous society which will be more diverse in the future. Hence, policies that encourage inclusive activities in different socio-economic and political forums, such as employment opportunities, training, decision-making and leadership become essential to avert potential cultural conflicts and materialise the notion of equitable tomorrow's city. Finally, policies that encourage small-scale, traditional and local businesses and generate employment opportunities remain crucial for sustainable and resilient livelihood. It is imperative that the city authorities promote inclusivity, equity, ecology and good governance in addition to economic development for discrimination-free, risk-resilient and well-governed tomorrow's capital city.

KEYWORDS

Risks
Rapti
Nepal
Hazards
Disasters
Social city
Spatial City
Co-mapping
Equitable City
Co-production
Envisioned Policies
Tomorrow's Cities
Engineered Disasters
Rapti/Deukhuri Valley
Differential Positionalities
Disaggregated Communities
Participatory Hazard Mapping
Socialising Tomorrow's Cities

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# *Chapter 1: Knowledge Co-production for Socialising a Resilient and Equitable Tomorrow's City*

**Dilli P. Poudel**

## Introduction

Socialising tomorrow's cities refers to communities' engagement in and acceptance of city development planning and processes and ensuring its implementation. Socialisation, therefore, bears the notion of *co-production* of a city plan involving disaggregated communities having differential socio-economic positionalities (to balance local power dynamics and benefit from the diverse traditional knowledge and practices), local authorities and concerned stakeholders. As a matter of fact, socialisation fosters institutionalisation of the technically planned and engineered city. Co-producing cities, therefore, is a co-evolutionary process that demands a deliberative and discursive relationship among the community, researchers, stakeholders and authorities (see also Collins and Ison 2009, Geekiyanage et al. 2021, Ziervogel et al. 2021). In this book, we analyse six cases of communities envisioned cities from southwestern Nepal and unpack their aspirations, hopes, future land use plans, risk management strategies and envisioned policies for materialising tomorrow's equitable and resilient city.

This book is a part of a multinational and multidisciplinary research project titled "Tomorrow's Cities" (TC)[1], funded by the United Kingdom Research and Innovation (UKRI) Global Challenge Research Fund (GCRF). The TC project aims to reduce risk for the poor in tomorrow's cities by deliberately deploying 5 Work Packages (WPs): WP1 – Future Visioning, WP2 – Visioning Scenarios, WP3 – Computational Modelling, WP4 – Risk Agreement, and WP5 – Institutionalisation. These WPs are designed based on our four years (July 2019-March 2023) of learning from Kathmandu (Nepal), Istanbul (Turkey), Nairobi (Kenya) and Quito (Ecuador), which are collectively called *learning cities*. Learnings from these cities are now being transferred to other *new* cities Rapti/Deukhuri (Nepal), Nablus (Palestine), Chattogram and Cox's Bazar (Bangladesh) and Dar es Salaam (Tanzania). This book represents envisioned city planning in the Rapti Valley (locally called *Deukhuri Uptyaka*) – a recently declared capital city of Lumbini Province, Nepal. Based on the past fieldwork (see Chapter II) and the two-day Visioning Workshop organised in Rapti in June 2023, this book compiles expectations, aspirations and hazard information pertaining to the planning of equitable and resilient cities, which the disaggregated community groups of Rapti (i.e. Tharu, Migrants, Squatter, Ethnic,

[1] The method adopted by the Tomorrow's Cities project is called the Tomorrow's Cities Decision Support Environment (TCDSE)

MMD[Madhesi, Muslim & Dalit], and Planners) expressed, imagined and co-mapped (i.e. co-produced map). Following two objectives guide the book: share actionable findings with local authorities and extend learnings to other cities of Nepal and the global south.

Each disaggregated group's information (i.e. risks – participatory hazard mapping, aspirations, co-maps and envisioned policies) has been presented and analysed in deliberately designed separate chapters. In addition, photos, co-maps, figures and tables have been used to analyse the disaggregated aspirations and envisioned plans and policies. We envision four layers of audience for this book. The primary and immediate audience would be the local authorities (i.e. wards and municipalities officials) and provincial (Provincial Infrastructure Development Authority, urban planning and disaster management units/divisions of Lumbini Province) of Rapti. Authorities from other cities of Nepal are the second group of audience. Given the context of the implementation of the Tomorrow's Cities Decision Support Environment (TCDSE) in *new cities*, we expect that the members of these cities would find it helpful to develop their own city-specific reports. Finally, if we could succeed in forming the 'Tomorrow's Cities Academy', the book may serve as essential reading material.

Since Rapti City is in the making, we believe that sharing the findings of this book with local authorities provides a solid foundation to accelerate the Institutionalisation process. Sharing, additionally, would also facilitate identifying actionable plans thereby fostering resilient and equitable cities, setting examples for new cities. Although we will delve into the empirical details from the next chapter considering their policy implications, in the following section, we discuss the theories on why knowledge varies among groups while envisioning cities, how knowledge is created and formed, why true and real knowledge is discursive, and why knowledge is contingent upon time and social contexts. We think such theoretical understanding facilitates to discern diversified knowledge on par with unequal socio-political positionalities so we can discern envisioned policies targeted to eliminate inequality in tomorrow's cities.

**The theories of knowledge production**

On June 2023, we conducted the Future Visioning workshop with the communities of Rapti (Deukhuri) Valley (see next chapter for a detailed introduction) to know "how an equitable and resilient tomorrow's city" can be achieved in the coming thirty years or so. Disaggregated groups consisting of different socio-economic positionalities (see next chapter) came up with different ideas, images and thoughts. It was arduous for us to understand which knowledge corresponds and relates to tomorrow's city. All were equally valid for us. Although individuals' knowledge base (e.g. capacity and agency) might have circumscribed the envisioning process of future cities, every piece of knowledge comprised theories of individuals. Their knowledge was commensurate with their beliefs. All of them seemed right in their subjective domains

and knowledge structures, as knowledge is a subjective interpretation and discursive construction of an individual. However, it questions whether an objective reality exists outside us, i.e. humans or not or which envisioned city corresponds to the aim of an equitable and resilient city in the Valley.

Several theories are known for truth-making and the production of "real" knowledge. Theorists of the theory of "correspondence" believe that there *is* an objective reality that can be corresponded. They claim corresponding "truth" as they believe, exists in relation to reality so the truth is correspondence to, or with, a fact (SEP 2015). The theory of correspondence is often traced back to Aristotle's definition of truth: "*To say what is that it is no, or of what is not that it is, is false, while to say of what is that it is, and of what is not that it is not, is true*" (Ibid). His definition explicitly indicates that 'true' and 'false' knowledge is discernible by human judgment and interpretation. Hence, a real objective world outside us/humans exists. Aligning the positivist school of thought, correspondence theorists consider truth as a 'relational property' (to an object), generalizable through numbers and facts. Similarly, realists or realism provoke scientists can describe reality independently based on their norms and values, as followed by physical sciences as well as positivists and quantitative analysts (Benjaminsen and Svarstad 2021). Having said that, these ways of constructing and producing knowledge do not represent the diverse knowledge that we were accustomed to in the Rapti workshop, as they were mutually exclusive and shaped by agencies (i.e. unequal and differential socio-economic positionalities, access to knowledge acquisition, local politics, networks). Burawoy (1991) considers that positivists reduce the potentialities of knowledge creation that come up with diverse sources and suppress the interpretative capacity of individuals (e.g. researchers and respondents).

Theorists of the theory of "coherence", on the other hand, assert the proposition of knowledge should be logically coherent, such that the proposed knowledge *may* carry the truth conditions of reality. It advocates the values of the object of focus, whatever they may be, so any proposition consists in its coherence of realities (SEP 2018). Compared to the theory of correspondence, which states that truth corresponds to objective facts, the theory of coherence seeks coherence with a set of beliefs instead of testing truth. Epistemologically, the pragmatic use of both theories might be conflicting as the coherence theory states that the relation is the coherence of (true) propositions, which is correspondence to correspondence theorists (SEP 2018). The reality is thus never transparent as a person holds his/her ontogoly/ies and epistemology/ies regarding a phenomenon or the word, but accessible only in particular ways (Braun and Wainwright 2005). An analysis of acquired knowledge, therefore, is true or false varies ontologically and epistemologically.

Relating to Rapti's future visioning, for instance, an indigenous individual's interpretation of her/his "own" community in relation to achieving an equitable and resilient city differ if the interpretation is done by a non-indigenous person or outsider (e.g. migrants). Both propositions might bear the true conditions of a future city but they are ontologically distinct. Thus, knowledge produced out of individuals' experiences and expressions is phenomenological. At the core, theorists of the theory of coherence believe in the possibility of the existence of reality as they think an objective reality outside humans may exist. But whose knowledge is real remains questionable.

Phenomenologists believe that institutionalisation of certain human behaviours and actions (i.e. social relations, practices, knowledge) in society passes through internalisation/socialisation and externalisation (i.e. execution of actions) subjectively (Berger and Luckmann 1966) which is also the interplay and result of reciprocal and recursive interactions between structure (i.e. norms, rules, institution) and agency (i.e. ability/capacity of actors, power) (Giddens 1986). Having disaggregated groups in the discussion also means that their knowledge base varies depending on their institutions and structure of the society. Although this study eschews ontological holism and epistemological monism, the beliefs of phenomenologists and structuralists appear relevant while interpreting diverse aspirations and expectations, as aspiring for an equitable and resilient future city by the disaggregated groups were shaped by their socio-cultural and economic relationships with the landscape they live and interact with (see Ley 1977, Massey 2005 [2008], Relph 1976, Tuan 1976).

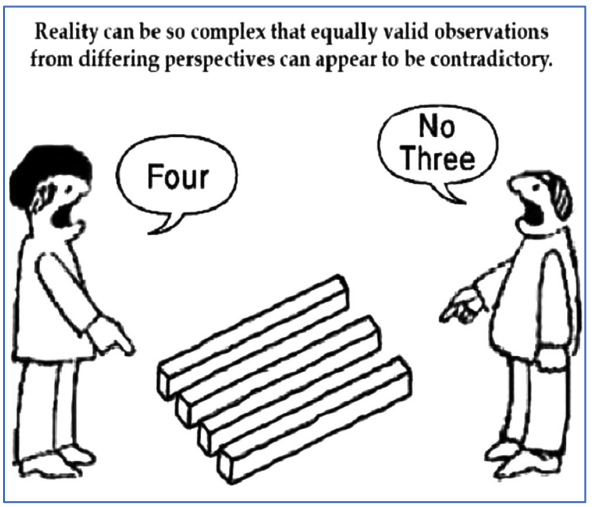
According to five thousand years old Sanskrit literature i.e. *Bhagawat Geeta* (18:18), knowledge and object of knowledge motivates individuals' action whereas the actor, the cause and the activity is the constituent of actions (GitaPress 2019). An object is a specific situation, phenomenon, relation or element in experience which yields conscious meaning or it is a reflection of an individual's interaction with an object outside him/her. An object of knowledge therefore refers to the consciousness of the distinction between the *idea of an object* and the *object that warrants the idea* (Leighton 1907). Leighton (1907 [emphasis in original]) considers knowledge begins in simple thinking which appears in the form an *idea* or *image* in mind. The experience-induced ideas and images mediate consciousness of an individual and its object. A knower's knowledge is therefore based on individual's social contexts, interest and capacity, so it is contingent and inflects individual's actions to execute and practise knowledge. Nature is thus *nothing more* than a social construction (Castree 2005 [emphasis in original]). As the object of knowledge (e.g. different types of cities in the future) varies among individuals and groups (or communities), claiming the existence of a single objective reality bears the risk of failure in future planning.

Werlen (1993; cited in Holt-Jensen 1999: 147) thinks reality exists in the form of its *meaning* as it appears to an individual but not as it might exists as such. So, meaning connects the

objective and subjective world. Through the subjective construction of such meanings, according to Berger & Luckmann (1966), individuals develop shared concepts, actions and mental maps in the form of language institutionalising shared meanings of their actions and shared cooperation among individuals, which, during the course of time, become understandable to society, which, they refer as "*reciprocal typification*".

In modern times, postmodernists advocate epistemic parity in knowledge production as they disregard the existence of a single (objective) reality outside humans and believe in the existence of "multiple real knowledges" at the same time (Aase and Fossåskaret 2007). Post-modernists bear an attitude of skepticism, distrust on ways of knowing and being taken for granted and universalism including objective notions of social norms, absolute truth and modern humanity (Peet 2006). Since reality is complex and equally valid from different perspectives (fig. 1)[2], allowing all knowledge might be more pragmatic to knowledge production and implementation. These theorists believe that knowledge is constantly changing and contingent upon time, space and agency, so can only be generated through *interactions* (Laclau and Mouffe 2001). In the context of Rapti visioning workshop, the disaggregated groups proposed different processes and actions to be taken for an equitable and resilient city. Their propositions/visions about different *types* of cities might be difficult to devise ***a*** future city plan in a material technocratic sense, they came up with different types of cities which individual groups think bear the true conditions for designing tomorrow's equitable and resilient cities. However, multiple engagements and iterations with all (the same) groups, considering local risks (physical and social), to discern similar and dissimilar propositions would lead us to design a single proposition of an equitable and resilient city in Rapti. In this book, we present in detail a group-wise envisioned city and the hazards and disasters they experienced and observed, and, analyse and summarise key findings to support and facilitate city development process in the Rapti valley without undermining the notion of inclusion and future risk management.

*Figure 1: Perspectives regarding a reality*



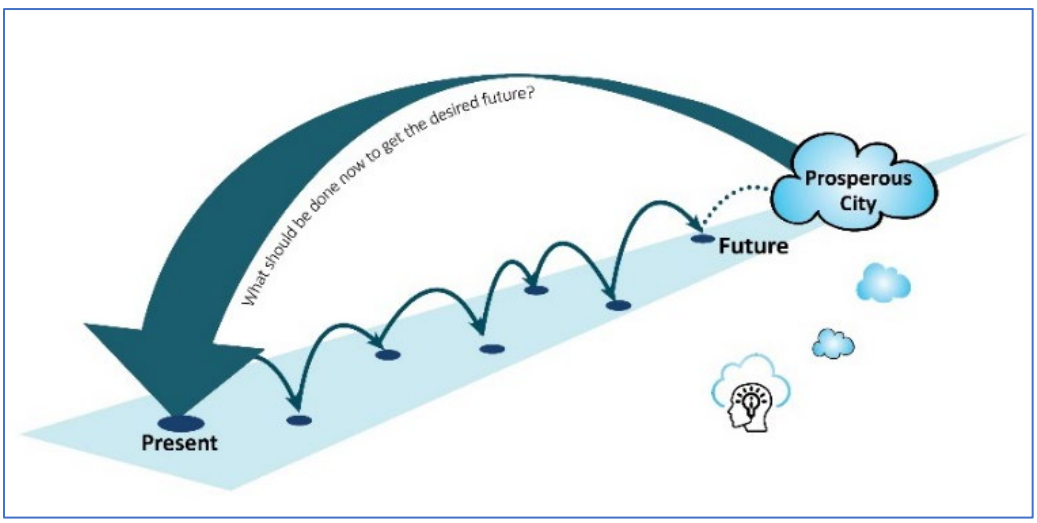

[2] This figure has been adopted from www.facebook.com (accessed on 8 Feb, 2015) (see also Poudel and Aase 2015)

**The process of Future Visioning**

Internalising the notion of co-production of knowledge, the visioning workshop was guided by a structured method of visioning process (see Hope et al. 2022), which was designed based on our four years of research experiences from the *learning cities,* i.e. Kathmandu (Nepal), Quito (Ecuador), Istanbul (Turkey) and Nairobi (Kenya). The method we adopted to explore aspired cities is called normative visioning (Hope et al. 2022, Pelling et al. 2023). Normative visioning captures aspiration, desires, dreams and norms relying on participants' consciousness and socio-economic positionalities. The participants envisioned how a future city *should* be and what sorts of actions (e.g. land uses, development activities, risk management and policies) are needed to achieve it. As presented in the fig. 2 (Poudel et al. 2023 and 2024), it helps participants to envision future taking consideration of the present contexts which is represented by a thick and flat back-headed arrow in the figure. Also, several actions needed to achieve the aim of prosperous city, i.e. equitable and resilient, are represented by front-headed small arrows in the figure. It is a qualitative way of predicting desired future city which later need to be embedded into technical plan to materialise and realise it. The prediction is guided by six structured steps (see below) which we deployed in organising a two-days' workshop. Steps 1 - 4 were completed on the first day and the rest on the second day. The six steps of the future visioning are briefly presented below.

In a workshop combining representatives from all disaggregated groups (see next chapter), we asked every individual to write or draw their (1) past experience [30 years ago] related to livelihood, risk and city lives, (2) present experiences and changes against the past experiences, and (3) desired future, i.e. at least 30 years from now. This exercise was done on

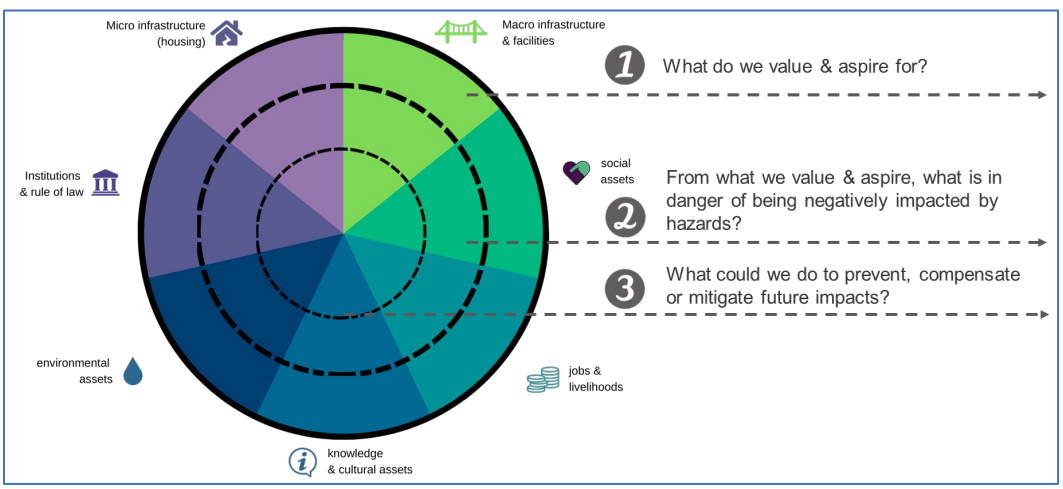
*Figure 2: Normative future visioning [adopted from (Poudel et al. 2023) and (Poudel et al. 2024)]*



A4 size paper and participants were requested to explain only the major events of their past and present experiences and future aspirations.

Followed by this step, the disaggregated groups engaged to develop a collective aspiration of their group representing the city. Before executing this step, we separated the disaggregated groups into designated tables. The disaggregated groups comprised (1) Tharu, (2) Migrants, (3) Squatter, (4) Ethnic, (5) Madhesi, Muslim & Dalits, and (6) Planners, including the government and municipalities' representatives (mainly engineers and urban planners). These Disaggregated groups were selected based on three fieldworks conducted during December 2022 to June 2023 and consultation with local governments, i.e. municipalities (see next chapter). In this step, the group represented their communities and brainstormed their city's past and present development and changes, and envisioned the development and changes they required in the future. Each group was facilitated by a facilitator and note taker. Both facilitators and note takers were trained by organising a two-days workshop and a refreshment training prior to executing the visioning workshop.

*Figure 3: Wheel of Urban Assets (adopted from Hope et al. 2022)*




The third step involved the Wheel of Urban Assets exercise (fig. 3), one of the major parts of the normative future visioning. Although both the above steps were not an actual future visioning, these were the precursors of the Urban Assets as the information included in the collective aspiration can be useful while doing this step. Urban assets are the pre-defined themes or situations or phenomena which were selected based on the findings of our four years of experiences in the above mentioned four *learning cities*, which, additionally, helped participants to think about a future (i.e. tomorrow's) city. The assets included (1) micro infrastructure, e.g. housing; (2) macro infrastructures & facilities, e.g. bridges and roads; (3) social assets, e.g. sense of place, belongingness, traditional places; (4) jobs & livelihoods, e.g.

factories; (5) knowledge & cultural assets, e.g. education, religion; (6) environmental assets, e.g. green parks, conservation; and (7) institutions & rule of law, e.g. policies to achieve aspirations. These assets were discussed through three questions: what are aspirations, what are risks (both physical and social) to achieve the aspirations, and what are the possible policies to achieve future cities considering risks management. These assets were presented in a wheel with three rings and seven triangles inside it. The triangles represented seven assets and the rings represented the three questions. All the groups were provided a printed hardcopy of A1 sized colour image of the wheel of urban assets to enable them to put sticky notes on each triangle and discuss according to the given questions related to the rings.

Subsequently, the individual group, taking reference of the collective aspirations (i.e. step 2) and wheel of urban assets (i.e. step 3), collectively designed a statement of their envisioned cities in a sentence. The disaggregated groups also presented their findings in panel after the completion of each step, specially step 2, 3 and 4. So all the groups and researchers (i.e. facilitators and note takers) know each other's aspired cities and provide feedback. The groups were given flexibilities to edit or add anything after the presentation in the panel.

The fifth step involved the co-mapping exercise. The co-mapping aimed to locate urban assets into a map of the city. For this, each group was provided with an A0 sized map of the Rapti city with some existing (i.e. present) key features such as road, administrative buildings, rivers, irrigation cannels and major settlements to enable the groups identify their areas and locate the future urban assets. To facilitate the co-mapping exercise, an A00 sized map (double than A0 sized map) hanged on the wall throughout the workshop for the participants to crosscheck the location and the size of the places for their desired land use in the bigger-sized map. After the fifth step, each disaggregated group produced a land use map of their aspired future city, which is referred to as co-map.

Finally, the group worked on designing the potential themes of future policies focusing on those Urban Assets that could not be located in the co-maps, e.g. knowledge & cultural assets and institutions & rule of law. Additionally, the participants also designed future policies to achieve other urban assets explained above. All the groups were requested to design and rank at least three policy themes in bullets according to the urgency, priority and temporality.

Furthermore, in the first week of June 2023, prior to conducting the visioning workshop, we also conducted Participatory Hazard Mapping (PHM) with each of the disaggregated group where they identified and located past and present hazards (floods, landslides, earthquakes and fire) on the hardcopy of A1 sized maps. We conducted PHM with the Planners (the sixth disaggregated group) in September 2023. In the PHM discussion, facilitated by three

facilitators to each disaggregated group, participants located hazards based on their observation and experiences in past hazards and disasters.

Although the contents of the methods and techniques of implementation were the same, participants articulated and expressed their desires and aspirations differently through co-maps and envisioned policies. There are some commonalities but differences too. The conditions of reality or truth proposed by the participants were not identical. To uncover the different 'truths', in this book, we have developed dedicated chapters to analyse each group's visions regarding future cities.

**Organisation of the book**

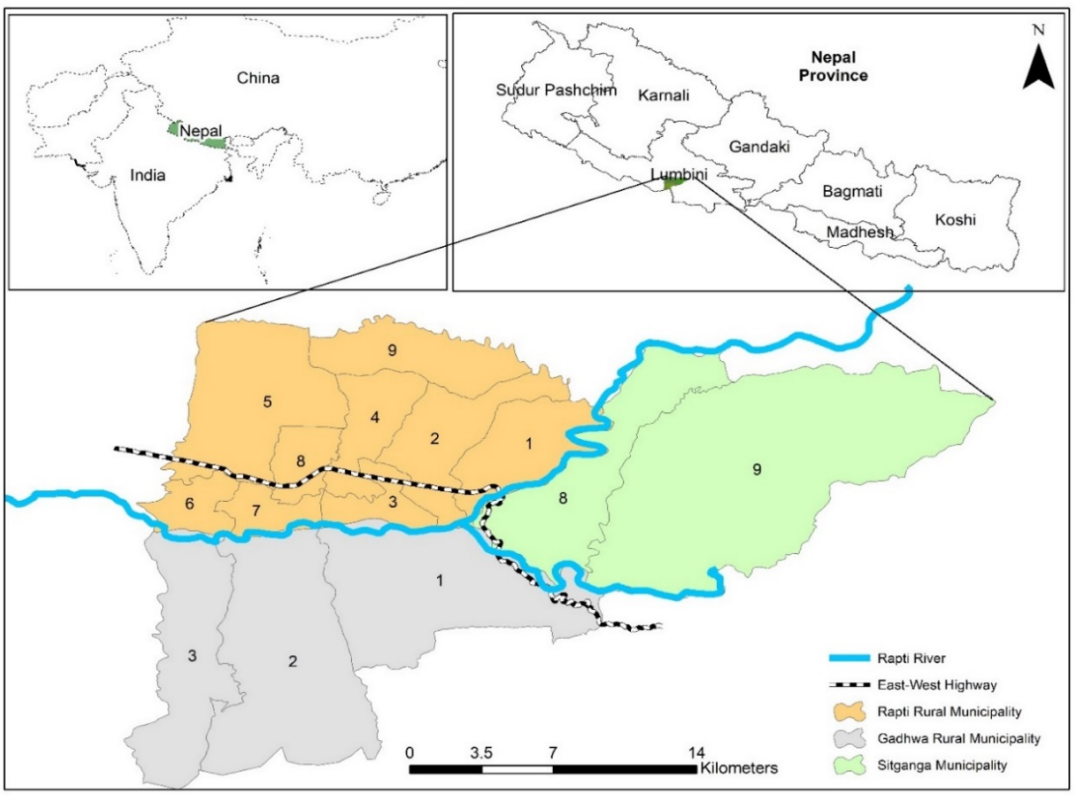
The second chapter introduces the Rapti Valley elucidating its geographical and demographical characteristics. This chapter also describes the past fieldwork and justifies the selection of the six disaggregated groups and their rationalities to envision future capital city in the valley. From chapters three to eight (i.e. Ch3 Tharu, Ch4 Migrants, Ch5 Ethnic, Ch6 MMD, Ch7 Squatter, and Ch8 Planners), we present individual disaggregated group visions in detail, following the Visioning steps described above. Each section briefly introduces the respective disaggregated group tracing their history, migration, social positionality and relationship with other groups, and their roles in local economy and politics, and analyses the information collected from the PHMs. Elaborating envisioned aspirations, co-maps and policies in detail with photos and quotes wherever applicable, we conclude with a brief summary and key findings at the end of each chapter dedicated for the disaggregated group. In the 9$^{th}$ chapter, we present the combined findings from the six dedicated chapters and discuss key findings related to risks and envisioned land uses and policies. The summary and conclusion chapter intends to facilitate local and provincial authorities to discuss on the potential options related to development, construction and risk management that are envisioned by the disaggregated communities, so the authorities will explore the possibilities of utilising the findings to nurture an equitable and resilient future capital city in the valley.

## *Chapter 2: Rapti (Deukhuri) Valley: disaggregated groups and deployment*

**Dilli P. Poudel & Rojani Manandhar**

This book presents communities' visions of tomorrow's equitable and resilient cities in the Rapti Valley (locally called Deukhuri Valley) (see location map 1 below). Comprising 485 sq. km., administratively, the valley belongs to Rapti Rural Municipality or RRM (all 9 wards[3]) and Gadhawa Rural Municipality or GRM (wards no. 1, 2 and 3) of Dang district and Shitganga Municipality or SM (wards no. 8 & 9) of Arghakhanchi district. The valley, which is located around 400 km west of the nation's capital city Kathmandu, was declared a "new capital city" of the Lumbini Province of the Nepal government on 6th October, 2020. Immediately after the declaration, the Provincial Infrastructure Development Authority (PIDA) initiated city planning. They considered the land-pooling method as an appropriate approach for the development of the capital city (PIDA, 2022). In this method, the government initially pools

*Map 1: Administrative map of the Rapti/Deukhuri Valley - a proposed capital city of Lumbini*




[3] A ward is the lowest administrative and political unit of the Nepal government.

both government and private land from owners. A designated portion of the land (maximum 40% of the total pooled *land in the case of private land) is reserved for infrastructure construction such as roads, parks and bridges. Subsequently, the remaining land is returned to the original owners with a proposed land use plan (e.g. agriculture zone, industry zone, etc.). The owners can use the land, but they cannot change the proposed land use and sell it to others by modifying it. Furthermore, according to the Chief Executive Officer (CEO) of PIDA, land selling was fully banned following the declaration of the new capital city to avoid land speculation. During our visit to the valley in December 2022, and May-June 2023, however, the communities of the Rapti Valley expressed their dissatisfaction regarding the ban. They reported that they were not consulted by PIDA during the city plan design process. Consequently, the land pooling project was not functioning as stipulated. To improve this situation, the researchers of the Tomorrow's Cities Decision Support Environment (TCDSE) – a framework of a computation tool comprising physical and social sciences to analyse future multi-hazard risks – came in contact with PIDA and the mayors of all three rural/municipalities. They proposed implementing TCDSE in the proposed capital city to facilitate government efforts. The local authorities (i.e. PIDA and three rural/municipalities) agreed to the proposal and signed a Memorandum of Understanding (MoU) in May 2023 in Rapti. Subsequently, the UKRI GCRF-funded TCDSE was implemented in Rapti by forming five community-based disaggregated groups and an additional group comprising government engineers, planners and elected representatives (see below). The TCDSE aimed to understand and document the aspired cities of the different groups of people residing in Rapti. Additionally, local hazards and risks were studied, so that the TCDSE team could propose a framework for the local authorities. The overarching goal of the TCDSE project is to reduce the risk for the poor in Tomorrow's city. The TCDSE approach is peculiar in the sense that it facilitates designing an inclusive city plan considering social diversity, vulnerability and differential exposure (social and physical) of communities to risks. Local authorities acknowledged the importance of incorporating an analysis of the local risks to capital city implementation plan for future city development in Rapti.

**Human geography**

Comprising a total 76,194 population (NSO, 2021), the Rapti valley is an east-west elongated valley (approx. 60 km long) bordered by the Chure hills on the north and Dunduwa hills on the south (bordering India). The valley is one of the Inner Tarai (i.e. plain land between Mahabharat and Chure hills) regions of Nepal. Situated in the mid-western part of Nepal, it is dissected by the East-West highway from east to west at the bottom of Chure, and the Rapti river from north to south (see map 1). The width of the valley is around 20 kilometres. The

**Population distribution, Rapti Valley** (CBS 2021)

Household: 17143
Population: 76194
Male: 36357
Female: 39837

proposed city is rich in natural resources as forest is the dominant land use category followed by agriculture (table 1).

Table 1: Land use of the Rapti valley

| **Classification/ Municipality** | Agriculture | Gazing area and orchard | Forest | Road network | River and water | Barren land/ sand | Other (bush, etc) | Cliff |
|---|---|---|---|---|---|---|---|---|
| **Rapti (%)** | 43.03 | 1.02 | 51.84 | 0.41 | 0.87 | 2.27 | 0.06 | NA |
| **Gadhawa (%)** | 14.5 | 2.87 | 65.27 | NA | 0.73 | 6.22 | 9.77 | NA |
| **Shitganga (%)** | 13.38 + 0.13 (uncultivated land) | 1.59 | 83.14 | NA | 0.243 | 1.31 | NA | 0.21 |

*Source: (PIDA, 2022)*

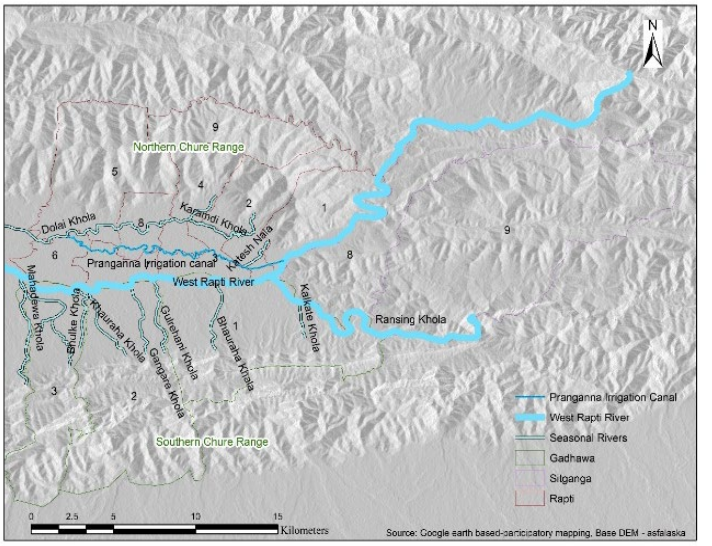
The valley floor which consists of unconsolidated and terraced materials, a type of deposit called 'Dun gravel' (Kimura, 1998), which makes it the most productive agriculture field. The West Rapti River, locally called Rapti River, originating from the mid-mountain region of Nepal, passes through the middle of the valley, which later descends towards the southwestern direction and crosses the Indian border to meet the Ghagra River. Situated on the flat land of the valley floor surrounded by hills, with elevation ranging from 200 metres above sea level (masl) to 1,000 masl, Rapti area has a sub-tropical climate on the floor and cool weather on the hills.

The capital city has a diverse topography consisting of hills, plains, undulating terrain, and rivers. The plain section (i.e. valley floor) is located adjacent to both sides of the Rapti River, while the hills occupy three sides of the Valley, excluding the western side. Being a perennial

*Photo 1: The valley floor with Rapti River far behind as seen from the northern Chure hill*

river, Rapti's major tributaries are Jhimruk River, Mari River, Arun River, Lungri River, Sit River, Dunduwa River, Sotiya River and Gandheli River.

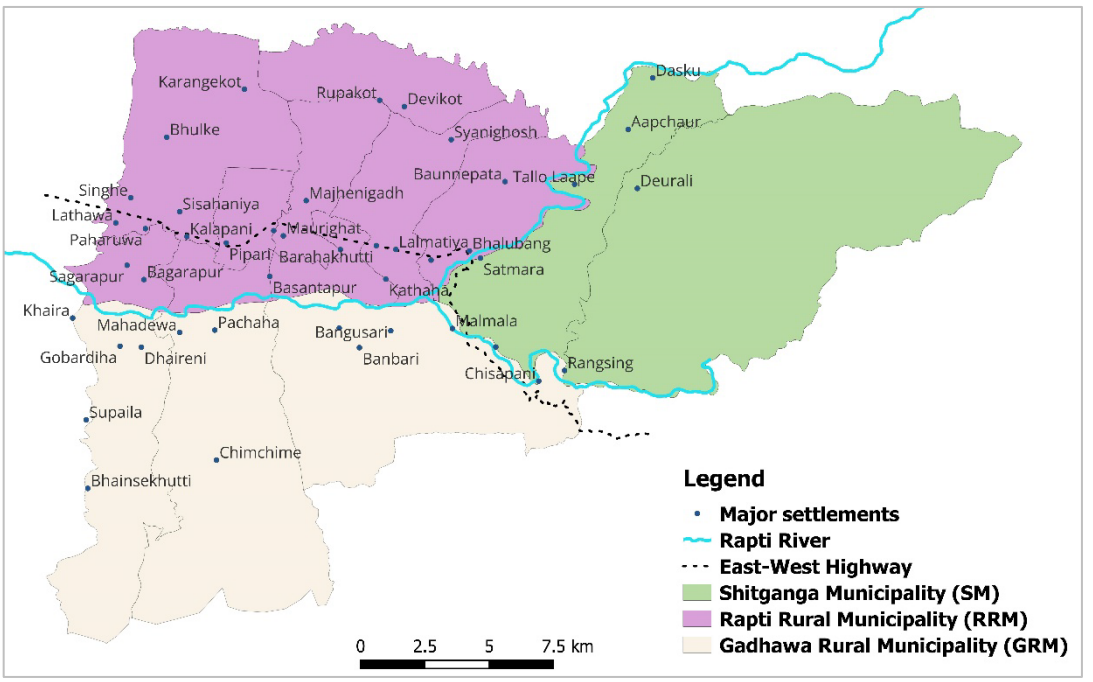
*Map 2: Rapti River System*




*Source: Vista of Rapti Valley (Poudel et. al., 2023b)*

Most parts of RRM (except ward no.9 and some parts of wards no. 1 and 5) and wards no. 1, 2 and 3 of GRM lie on the flat plain area. SM comprises of hilly terrains, gradually increasing in elevation from west to east. Mahadewa, Pachaha, Gobardiha, Madhabpur, Khaira, Patringa, Jethangaun, Kalakate, Ratanpur are the major settlements located in the lowland area of GRM whereas Supaila, Chimchime and Bhainsikhutti are the settlements located on the base of the hills. Similarly, Basantapur,

*Map 3: Major Settlements*

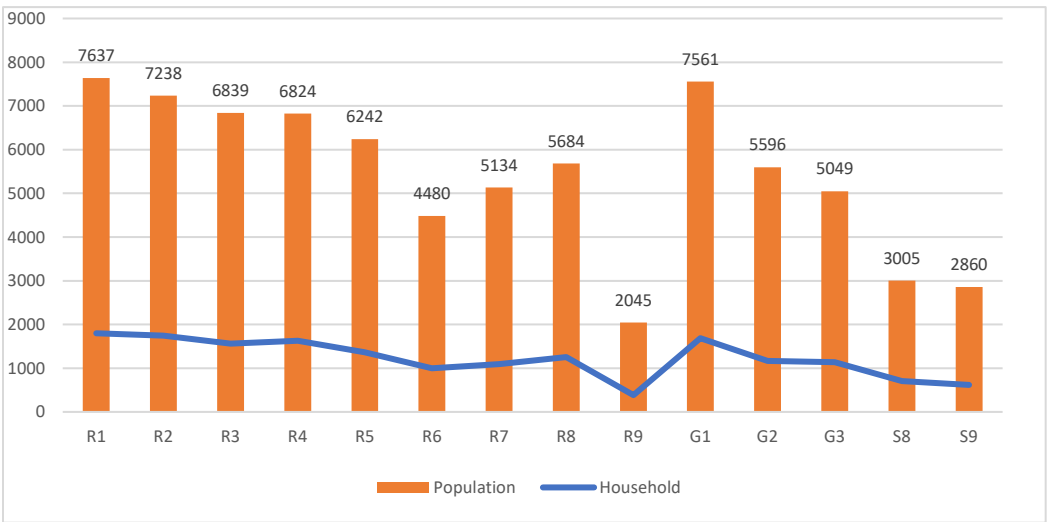


Pakhapani, Bhalubang Bazaar, Masuriya, Lalmatiya, Khururiya, Maurighat, Sisahaniya, Pipari, Kathaha, Lathawa, Paharuwa, etc. are major settlements of RRM located in low land and flood plain area whereas Syanighosh, Baunnepata, Bagasoti, Ghoshkhola and Magar settlements are located in the hilly part of RRM. Additionally, settlements like Karangekot, Rupakot and Devikot are located on the ridge of the Chure hills of RRM. There are also settlements in the valleys within the Chure hills. Bhulke village of RRM 5, which consists of around 52 households, is an example. During our visits, communities living on the ridges (e.g. Karangekot and Devikot), small valleys (e.g. Bhulke) and the base of hills (e.g. Supaila) shared their experiences with the flood and fire hazards and subsequent disasters.

In terms of ward-level population distribution, representing R for Rapti, G for Gadhawa and S for Shitganga in figure 4, R1 has the highest population, followed by G1 and R2. R1 to R5 are also the main administrative areas of the proposed capital city. Being the hilly wards of the capital city, R9, S8 and S9 have the lowest population and household distribution compared to other wards.

This provincial capital city is mainly inhabited by the indigenous and ethnic population *(Adivasi/Janajati)* which comprises, on average, 57 percent (45% in SM, 61% in GRM and 65%

*Figure 4: Ward-level population distribution of the Rapti Valley*

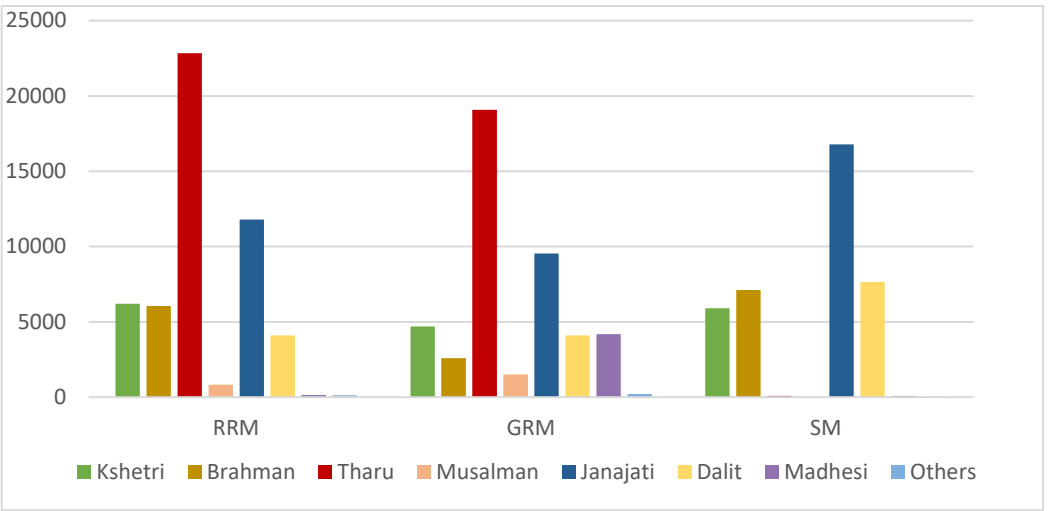



*Source: (CBS, 2021)*

*Photo 2: A Tharu Kumal girl busy with making clay pots (left) and Children of RRM 9 on their way to school (right)*


in RRM) of the total population (NSO, 2021)[4] as shown in the figure 5. The Tharu community stands out as the predominant indigenous group in both RRM and GRM, representing an average of 43 percent (44 percent in RRM and 42 percent in GRM). However, SM exhibits a minimal Tharu population, accounting 0.21 percent. Following the Tharu, various other indigenous groups such as Magar, Kumal, Tamang, Newar, and Majhi, etc., are residing in the capital city, with their largest concentration in SM at 44 percent.

*Figure 5: Population distribution of Caste/Ethnicity in the Rapti Valley*




*Source: NSO, 2021*

[4] The ward level data on caste/ethnicity categories, based on the population census 2021, have not been published by the government yet.

Subsequently, the Brahmin (both Hill and Tarai) and Kshetri communities constitute nearly 25 percent of the total population, predominantly residing in SM (35 percent). Moreover, approximately 13 percent of Dalit communities, including Pariyar, Biswokarma, Mijar, Kami, Sanyasi/Dasnami, Sarki, and Damai/Dholi, inhabit the rural/municipalities. The highest concentration of Dalit communities is found in SM (20 percent). The density of Madhesi and Muslim populations notably thrives in GRM (12 percent) compared to 2 percent in RRM and only 0.26 percent in SM.

Regarding the language spoken, Tharu and Nepali are the most commonly spoken languages in the province capital, with over 90 percent of the people speaking Nepali. Other ethnic languages like Magar, Awadhi, Kham, Doteli, Gurung, Tamang, Newari, Urdu, Hindi, etc. are also prevalent, indicating the rich ethnic diversity of the area.

The table below presents the population distribution based on the caste/ethnic affiliation.

*Table 2: Population based on caste/ethnicity*

| | Kshetri | Brahmin | Tharu | Muslim | Janajati | Dalit | Madhesi | Others | Total |
|---|---|---|---|---|---|---|---|---|---|
| **RRM** | 6207 | 6063 | 22830 | 837 | 11796 | 4097 | 157 | 136 | 52123 |
| **GRM** | 4701 | 2588 | 19069 | 1502 | 9543 | 4092 | 4185 | 218 | 45898 |
| **SM** | 5911 | 7122 | 78 | 17 | 16790 | 7654 | 81 | 38 | 37691 |

*Source: (NSO, 2021)*

### Selection of the Disaggregated Groups

Although the valley has historically been the place of Tharu communities (see chapter III), the region now encompasses diverse population including migrants, various ethnic communities (mainly Magars, Kumals, Newars, Gurungs, Tamangs), Dalit (mainly Bishwokarma, Pariyar, Mijar, Sanyasi/Dasnami), Madhesi (mainly Yadav) and Muslim communities, and individuals living in squatter and informal settlements. Additionally, the migration of people from the surrounding hill districts continues to grow. Given the changed and evolving social contexts, the social scientists

*Photo 3: Community interaction with the people of Supaila, GRM 2*

actively engaged in consultations with most of the existing communities, so that tomorrow's capital city would not only be resilient but also inclusive.

Based on our past research (see below) and the consultation with the elected representatives of the RRM, GRM and SM, we categorised the communities into five disaggregated groups, namely (1) Tharu, (2) Migrants, (3) Squatter, (4) Madhesi, Muslim & Dalit (MMD), and (5) Ethnic communities. Later, to gather the local government's views, we also added (6) Planners group which comprised elected representatives, engineers and planners from the local government, including PIDA.

*Photo 4: The social scientist team in the Tharu village in Paharuwa, December 2022*

The selection of six groups, which we called "disaggregated groups", was not arbitrary. It was based on fieldwork as well as the consultation and recommendation of local governments. We conducted three different fieldworks to form these disaggregated groups (Table 3). In the first fieldwork in December 2022, we aimed to build rapport with local authorities and communities, meet local elected officials, conduct group discussions with local communities, interview some individuals, conduct transect walks, and observe local geography, particularly focusing on risk-prone areas and communities. To understand the existing risks of hazards (e.g. flood, landslides and fire), we also organised initial Participatory Hazard Mapping (iPHM) with three groups during this fieldwork.

With the knowledge and experiences of the first fieldwork, we conducted the second fieldwork in May 2023, which aimed at identifying potential groups for the Future Visioning

Workshop (see below) where communities envision their versions of aspired resilient and equitable cities. In this fieldwork, with the help of two local social mobilisers, we further consulted with communities through group discussions and individual interviews. Additionally, we shared our experiences and communities' reflections with local authorities and discussed identifying the disaggregated groups. Although we collectively selected the disaggregated groups, we requested the assistance of local authorities in facilitating to select five to seven representative individuals for each group.

The third fieldwork was conducted in June 2023 with twofold objectives. Initially, we introduced the importance of the TCDSE and Future Visioning Workshop to each disaggregated group separately. Subsequently, we conducted a Participatory Hazard Mapping (PHM) exercise to understand the hazards experienced and observed by each group. For this PHM exercise, we provided an A1-sized map to each group to locate past and present hazards they had observed and/or experienced. Each PHM workshop was facilitated by three facilitators and social mobilisers. Additionally, during this phase of the fieldwork, we, in collaboration with the local authorities, also agreed on a date to conduct the Future Visioning Workshop in Rapti; scheduled for 14-15 June 2023.

*Table 3: Fieldwork and data collection (August 2022-June 2023)*

| Month/Year | Events | No. of Activities | Participants | Female | Male |
|---|---|---|---|---|---|
| **Aug-22** | Phone interview | 7 | 7 | 1 | 6 |
| **Dec-22** | In-person Interview | 9 | 9 | 4 | 5 |
| | FGD | 3 | 24 | 1 | 23 |
| | iPHM | 3 | 24 | 1 | 23 |
| **May-23** | PHM | 5 | 34 | 9 | 25 |
| | In-person Interview | 13 | 13 | 0 | 13 |
| | FGD | 1 | 17 | 0 | 17 |
| **Jun-23** | FGD | 3 | 35 | 12 | 23 |
| | FV Workshop | 1 | 46 | 18 | 28 |
| | | **45** | **209** | **46** | **163** |
| ***(F)ocus (G)roup (D)iscussion; Initial (P)articipatory (H)azard (M)aping; (F)uture (V)isioning*** | | | | | |

Being an indigenous community, the selection and formation of the **Tharu group** for the Future Visioning workshop held a significant rationale, as the Rapti (Deukhuri) Valley is known as *the land of Tharu* and they comprise about 43 percent of the total population. Authorities

agreed that the reflection of Tharu culture and tradition is important for fostering socio-cultural cohesion in the future city within the valley. While the Tharu community lives on the valley floor, other indigenous communities live in the surrounding hills, especially in the Chure (north). The **ethnic group** comprises mainly Magars and Gurungs. Other migrated ethnic communities like Kumals, Tamangs, Newars, Ranas and Rawals reside either on the valley floor or at the bases of hills. To ensure the representation of these diversified (indigenous and non-indigenous) ethnic communities, the researchers, local authorities and social mobilisers mutually agreed to form Ethnic as one of the disaggregated groups for the visioning workshop.

The selection of the **Migrant group** was not solely based on their status as migrants *per se*, it was also because of their extensive history in the region, spanning over five decades. Moreover, some migrants also hold influential positions in the local economic, social, and political affairs. Additionally, migration in the Rapti Valley has a prolonged history and remains a prevalent practice among the hill people even today. This trend is expected to accelerate significantly once the development of the capital city commences. So having the Migrant group included in the visioning workshop was crucially important to understand what the capital city should consider, particularly regarding the needs and perspectives of potential future migrants.

Although the migration history of **Madhesi and Muslims** is longer than the **Dalit** community, we included them in one group as they are minorities in the valley. Madhesi and Muslims migrated either from India or other parts of Nepal's Tarai. In fact, Madhesi and Muslim communities were among the first migrants to the Rapti Valley following the Tharu, arriving before the beginning of modern migration from the hill region. So, inclusivity could not be ensured in the envisioned tomorrow's resilient Rapti city without the input from these minority communities.

The inclusion of the **Squatter group** which also comprises 'freed bonded labourers" (see chapter VII), was extremely important not only due to their high concentration at present but also due to the likelihood of a considerable rise in squatter settlements within the future capital city. Although PIDA and local authorities lacked official documentation regarding the exact number of households living in informal lands, our review and analysis of secondary documents as well as interviews with the Ward Chairs suggested that around 20 percent of households in RRM, 30 percent in GRM and 10 percent in SM are poor and squatter households (Poudel et al., 2023b, RRM, 2019, SM, 2019, GRM, 2018).

In our consultation with local authorities regarding how they plan to address existing and potential future squatter communities, they claimed that they have enough public land which can not only be used for new city planning but also distributed to poor, marginalised and

squatter households in tomorrow's capital city. Explicitly, making and forming the Squatter group for the TCDSE process in Rapti and including their voices in the city planning process, would undoubtedly help local authorities in executing tomorrow's equitable and resilient city planning for the Rapti Valley.

The incorporation of the **Planners group**, which comprised municipal and PIDA's engineers and planners and local elected representatives, served two clear purposes. Firstly, it allowed researchers and other communities to understand how local authorities and planners are thinking of designing the new capital city. And, secondly, their engagement with the aforementioned five groups would allow them to learn about communities' aspirations in the future cities, which in turn, would help them to reflect back on their approaches to executing city planning endeavours and activities.

After the successful conduction of the workshop, the researchers immediately delved into a daunting task of transcribing the recordings of the two-day workshop and the PHMs conducted. Community engagements during our multiple field visits to different settlements, including the preliminary meetings with the workshop participants just before the main event, assisted us to discern the participant's voices. While transcribing the recordings, even the minute details were taken into consideration so as to capture the emotions of the participants without eroding their values and the passion they demonstrated during our interactions with them. Though the tasks that took several days for researchers to complete, the in-depth review of recordings provided us a strong base in writing the chapters for each disaggregated group (Chapter 3 to 8) in as much detail as possible.

**Recapitulating the future visioning workshop**

The Future Visioning Workshop or Work Package (WP) 1, an integral part of the Tomorrow's Cities Decision Support Environment (TCDSE), was conducted at Rapti (Deukhuri) Valley on June 14-15, 2023. Honed by the place-based knowledge through fieldwork and engagements, as explained above, the workshop broadly aimed to co-produce the Community's and Authority's visions for a resilient and equitable capital city in the Rapti Valley over the next 30 years or so.

The workshop comprised a total of 75 participants including facilitators, note-takers and technical staffs, with 46 individuals (including 18 females) representing communities and authorities (PIDA and three Rural/Municipalities). The participants, comprising representatives from various socio-economic backgrounds, such as farmers, entrepreneurs, business persons, politicians, teachers, local stakeholders, municipality and ward representatives, government officers, representatives from local indigenous institutions, women, Dalits, and informal and marginal communities, as well as representatives of the rich

*Photo 5: Distinguished guests of the Rapti workshop*


households, were disaggregated into six different groups: the Tharu group, the *Pahade* group (the migrants), the Squatters group, the Madhesi, Muslim, and Dalit group, the Ethnic group and the Planner group, as explained above. A team of 16 facilitators and note-takers (9 females), including two local social mobilisers actively engaged in facilitating the disaggregated groups and ensuring the smooth functioning of the prescribed visioning process (see Chapter I).

The inaugural session of the workshop commenced with opening remarks from the distinguished guest: chief guest, Vice-chairperson of RRM, and the special guest, Vice-chairperson of GRM. Both dignitaries acknowledged the workshop's intrinsic value as a platform for profound learning. They urged the participants to seize the opportunity to envision the future city they desire. The Vice-chairperson of GRM additionally emphasised the necessity for critical discussions, ensuring that the process of envisioning the city should not inadvertently affect different ethnic groups living there. Subsequent to these esteemed guests' remarks, a social scientist shared insights from the Khokana visioning workshop held in 2021 (Poudel et al., 2023a, Poudel et al. 2024). He also stressed the significance of visioning, emphasising considerations beyond big infrastructures. The focus was directed towards addressing issues of marginalisation and inequality, crucial for crafting a future society that is both equitable and resilient. Lastly, Chief Administrative Officer of RRM echoed these sentiments, highlighting the need to integrate both social and economic factors as well as hazards for developing an equitable city. He urged consistent support from the local, provincial, national and international organisations, proposing that municipal authorities integrate the workshop findings into their master plans based on the expert feedback. Additionally, the local social mobilisers also had an opportunity to share their experiences in forming the disaggregated groups. They recognised the value of inclusive engagement and the significance of bringing diverse voices together to craft a more holistic vision for the Rapti Valley.

The technical session led by another social scientist, with presentation in Nepali language to ease participants and help them understand and delved into the details about Rapti's geography, demography, social composition and the associated hazards based on the PHMs. Subsequently, the visioning process was showcased, drawing on examples from both the Rapti

fieldwork and experiences from Khokana (2019-2022) (Poudel et al., 2023a). Following the technical session, the participants were divided into their designated disaggregated groups. Along with a key facilitator, each group was led by a facilitator and a note-taker. Engaging actively, the participants shared their individual and collective aspirations, designed the Wheel of Urban assets, formulated the visioning statements, mapped their tangible aspirations onto the provided A0-sized baseline maps of the Rapti capital city while reflecting their intangible aspirations through envisioned policies and intervention mechanisms, carefully considering both scale and temporality. The reflections of all these exercises were shared among participants during the panel discussion.

As the workshop came to a wrap, a concise recap was presented by a social scientist, expressing gratitude to the participants for their dedication and active engagement throughout the two days of visioning exercises. Facilitators and note-takers were also acknowledged for their unwavering support and dedication despite the challenging working conditions at a high temperature of 40 degrees Celsius. It was emphasised that the workshop signifies not the conclusion, but rather marks the beginning of a continuous community engagement process that will persist in subsequent work packages and associated workshops, serving as a crucial element of the TCDSE.

*Photo 6: Participants including researchers of the future visioning workshop in Rapti, June 2023*

## *Chapter 3: Tomorrow's City of Tharu*

### *Visioning Statement: "Based on Tharu civilisation, we wish to make risk-free, prosperous, clean, beautiful, and equitable capital, Deukhuri Valley"*

**Salu Basnet, Rojani Manandhar & Dilli P. Poudel**

### Introduction

The Tharu people are an indigenous ethnic group who has primarily resided in the foothills of the western Nepal Himalayas for centuries (Rajaure, 1981), including Rapti (Deukhuri) Valley. They possess a unique language, culture, and festivals like *Maghi* and *Aitwari*. Agriculture is their primary source of income and sustenance. As per the population census 2021, the Tharu population in Nepal stands at 1,807,124, constituting 6.2 percent of the country's entire population. Within the Tharus, several sub-groups exist such as Rana, Katharia, Dangaura, Kochila, and Mech as documented by Rajaure (1981). Back then, the Tarai region was enveloped by a dense jungle plagued by malaria, which created a natural barrier that deterred outsiders. However, the Tharu group succeeded in surviving and continuing their way of life. This geographical isolation led the Tharus to forge a unique and self-reliant society, in terms of their livelihood practices, language, religion, and culture different from the hill people. Following the eradication of Malaria in the 1960s, a large number of hill people migrated and settled in this area (McDonaugh, 1989), increasing the heterogeneity in Tarai (Gunaratne, 2002).

The Tharu of the Rapti Valley is called Dangaura Tharu, renowned as the Tharus of Dang. They uphold a historically rooted traditional institution led by Pradhan or the Chief of Tharu. This institution encompasses established norms and rules/regulations that foster community cohesion and oversee water resources and irrigation management. The leadership structure within this institution considered as *Badhghar system* includes the *Pradhans*, *Kakandar*, *Agharia* and *Saghariya*. While the *Pradhans* (head of the village) held village leadership, *Kakandar* (or *Jamindaars*[5]), being close to *Pradhan*, assumed leadership of the village for one year. *Agharia* is responsible for managing the water/irrigation-related tasks in the village. Even today, these roles and responsibilities related to *Pradhan* and *Agharia* persist. While the Pradhans exercise power and represent higher-class societies within the Tharu community, many Tharu HHs have been living on public lands for generations (Poudel et al., 2023).

Given their dominant size in terms of population, impacts of culture and language on other migrant communities, and their influential role in local politics and constituency, it is

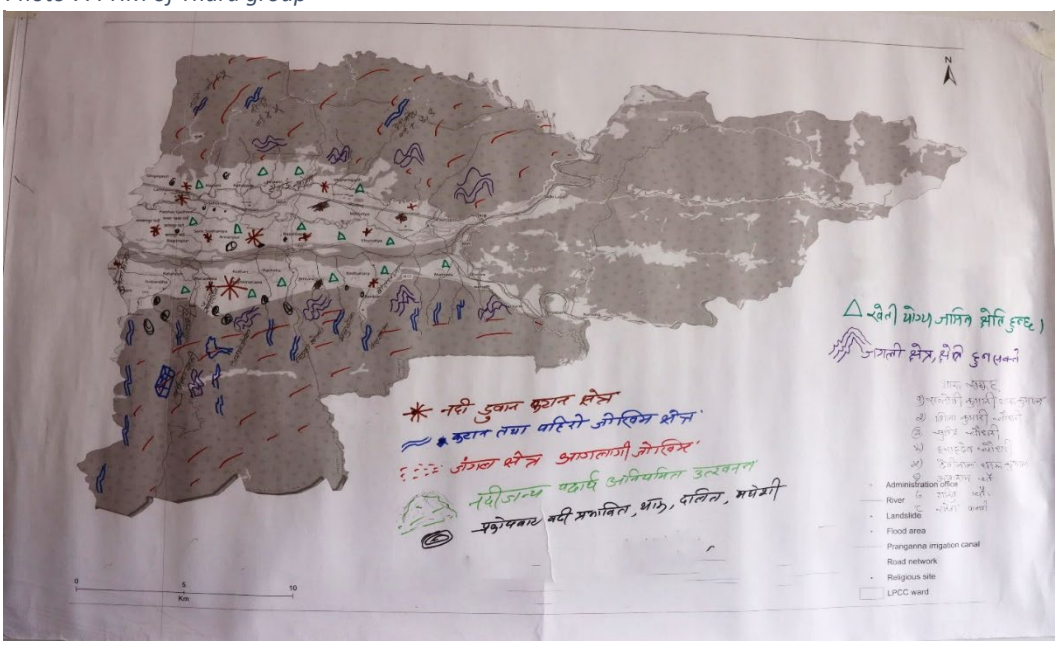
[5] Jamindaars are those who hold maximum land in the village.

exceedingly important to integrate Tharu visions/perspectives into city planning. This incorporation is crucial for fostering an equitable and resilient tomorrow's city in the valley that takes into account the diverse needs and contributions of the Tharu community.

**Participatory Hazard Mapping (PHM)**

The PHM aimed to comprehensively understand the past and present disasters experienced and observed by the Tharu communities in the capital city. This understanding, drawn from the community's knowledge and experience, is crucial for fostering the development of risk-resilient future cities. During the process, participants highlighted flood and landslide occurrences as the major disaster events in their locality followed by the incidences of forest fire.

*Photo 7: PHM of Tharu group*




The participants identified flood and inundation as the major disaster events at Gadhawa Rural Municipality (GRM) and Rapti Rural Municipality (RRM). They highlighted the damages caused by flooding in the Dolai, Mahadewa, Khauraha, and Bauraha rivers, while emphasising the recurring hazardous events caused by flooding in the Rapti river annually during the monsoon season. An important insight shared by the participants was the escalating risk of flood hazards, primarily attributed to the unregulated extraction of riverbed materials, which if left unchecked, would further exacerbate the risk of flooding. Also, the Rapti river tends to expand laterally, resulting in the erosion and incisions at the northern or southern banks. Specifically, a male participant recalled the perilous flood of 1961 A.D. (2018 B.S.) at Rapti

which caused extensive damage to numerous HHs. Additionally, during one of the interviews, we were informed that some of the HHs in *Baklahi* (GRM 3) were compelled to migrate to other places (within/or outside of the valley) due to severe damage inflicted on their houses during the 1961 flood.

Dolai, a seasonal river in RRM, is identified as the primary source of hazardous impact during the monsoon season. As reported by respondents, the floods of 2003 A.D. and 2022 A.D. caused widespread inundation in numerous settlements like Paharuwa (RRM 5), Lathawa (RRM 5), Singhe (RRM 5), Bhanpur (RRM 7), Chhotki Sisahaniya (RRM 7), Mahadewa (GRM 2), Jethangaun (GRM 2), Patringa (GRM 2), Ratanpur (GRM 3), and Khaira (GRM 3). These settlements routinely face the recurring challenge of flooding and inundation from the Rapti and other seasonal rivers. Almost all HHs have to bear some kind of loss, be it the inundation of their houses or damage to their cropland. One of the female participants vividly recalled her experiences of the 2003 flood, "The *whole Sisahaniya (RRM 7) was inundated, causing damage to our house. The water level rose almost up to our necks. My kids were very small at that time and we somehow managed to bring them to my maternal house.*"

*Photo 8: A Tharu Pradhan showing the level of 2022 October flood in the bamboo stick in his courtyard (Source: Poudel et al. 2023)*

Another male participant highlighted the impact of the recent 2022 flood affecting Wards 5,6,7 and 8 of RRM, along with Wards 2 and 3 of GRM. *"Several houses were inundated, and the paddy fields were flooded, with the most severely impacted being the poor and marginalised families*" he shared. Seasonal rivers like *Bauraha, Khauraha, Mahadewa, and Supaila* of GRM also pose threats to the nearby settlements, mainly causing inundation during the monsoon season. Participants expressed concern that HHs situated along the banks of both Rapti and other seasonal rivers face heightened risks due to these recurrent disasters. So, they suggested constructing embankments along these rivers to reduce the flooding impacts in the future city. Moreover, uphill settlements in RRM like Bhulke (RRM 5), Karangekot (RRM 5), and Devikot (RRM 9) experience landslide events. The risk of landslides is also high in Aamkholiya (GRM 3) and Supaila (GRM 3) settlements of GRM.

The forested areas throughout the capital city are notably prone to fire hazards. The fire hazards are primarily human activities rather than natural occurrences. The risk of fire arises

from the desire to access highly productive grasses and fodders within the forests, control wild pests and animals, and the negligence involved in using flames or lighters for smoking or igniting fires. These actions have led to disasters that not only endanger the forest biodiversity but also pose risks to neighbouring settlements.

While planning future capital city, it is hence essential to recognise its vulnerability to potential disasters. Failure to prioritise risk-sensitive developmental activities and disregard the valuable lessons from the community's past experiences might contribute to an escalation in the city's susceptibility to disasters in the future.

**Individual and Collective Aspirations**

The Tharu group consisted of eight participants, comprising 6 males and 2 females, from RRM and GRM. These participants represented a wide range of socio-economic backgrounds. Among them were individuals from urban areas engaged in various businesses, while others came from rural communities and relied on agriculture for their livelihoods. A significant portion of the participants were local activists. This diversity among the participants translated into varied access to resources, opportunities, and decision-making power. Their backgrounds and experiences underscored the different ways they engage with and contribute to their communities, highlighting the multifaceted nature of their perspectives and roles within the group.

*Photo 9: Individual aspiration of one of the male participants*

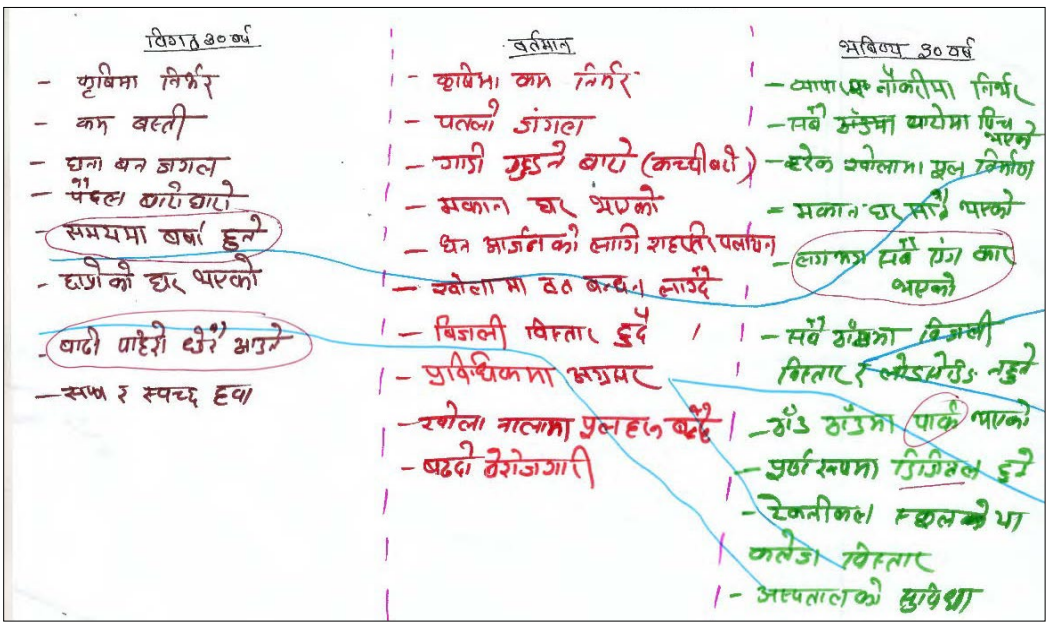


*Photo 10: Participants discussing the city aspirations*

The Tharu individuals fondly recalled their past experiences of engaging in collective community work – a practice they observed to be diminishing in present times. They attributed this shift partly to the development of the mixed-culture society, stemming from rapid migration from the hilly parts of the western region. Nonetheless, they expressed a strong desire to maintain community cohesion within this diverse cultural society. Reflecting on earlier times, they reminisced about relying on witch doctors, locally known as *Shaman,* for medical treatment due to the lack of hospitals nearby. Education was a privilege, primarily accessible to a few members, particularly males from high-class families.

However, they acknowledged significant improvements in the present context, with a notable shift towards more inclusive education, offering opportunities for both males and females. Likewise, the group highlighted the considerable advancements in health services and the expansion of road networks, making their daily life more convenient. These improvements positively impact their community's well-being and accessibility to essential services, signifying substantial progress. While agriculture remains the major source of livelihood of the Tharu community, they mentioned that the farming system and technique have changed substantially over time. "*We used to do traditional agriculture back then but now we use chemical fertilisers in our farmland. Also, our irrigation system has improved,*" said one of the male participants in his late 40s. Likewise, the Tharu community highlighted notable transformations in various aspect of their lifestyle. Traditionally constructed mud huts with thatched roofs have changed to multi-storied cemented buildings. Additionally, wooden planks locally named *Sanghawa/Dhupaura* previously utilised as bridges or culverts, have been replaced with more durable cemented ones. The role of the *chaukidar* (watchman), once a village messenger, has been replaced by the media such as radios, television, newspapers, and social media, signifying the shift from traditional to contemporary modes of information dissemination.

As the Tharus transitioned from rural village life to city life, the group collectively aspired for a beautiful city that beautifully showcases Tharu culture while also incorporating modern amenities. They envisioned their city to possess advanced healthcare, quality education, effective waste management, efficient transportation and access to clean drinking water services. Besides, they longed to conserve agricultural land through the establishment of

agriculture-centric zones, *'Krishigram'*. Adequate open spaces for communal activities, a well-organised city along the riverbanks, comprehensive management of freed-bonded labourers and informal settlers while emphasising the management strategies for seasonal rivers are also their highly prioritised visions. Besides, they yearned for risk-resilient large infrastructures for the economic prosperity of the capital city. Formulation of policies that prioritise the welfare of low and middle-class residents, avoiding their displacements, also emerged as a priority in their aspiration. Additionally, they emphasised the necessity of conserving natural resources like forests, rivers, and spring sources, reflecting their commitment to sustainable development alongside modernisation.

**Wheel of Urban Assets and Visioning statement**

The Tharu group envisioned macro infrastructures to accommodate the basic needs of the burgeoning migrant population in the future capital city along with preserving and promoting their cultural and traditional identity. The Tharu community expressed their concerns that their cultural identity has been slowly overshadowed by the rapidly increasing migrant population in recent years. They constantly fear that it would be a daunting task to preserve their culture with the expansion of mixed-culture society in the valley. Although sceptical, they proposed naming the roads and town squares in tomorrow's Rapti city based on Tharu identity as one of the strategies to preserve their identity, they opined promotion of cultural village and Tharu homestay would help them to sustain their traditional values and customs. Not only were they concerned about losing their culture, but they also showed their slightest concern to preserve the cultural values of people belonging to the other caste and religion. While constantly voicing for the proper housing management of free bonded labourers (*Mukta Kamaiya*) and informal settlers, the group advocated for an equitable society with no forms of discrimination based on gender, class and caste and appealed for equitable access to services and facilities.

*Photo 11: Wheel of Urban assets crafted by Tharu group*


The group prioritised the construction of disaster-resilient infrastructure like hospitals, schools, universities, wider road networks, bus parks, stadiums, toilets for better sanitation and hygiene, and well-managed drinking water projects. They emphasised on making black-topped modern roads with systematic traffic

signals, GPS (Global Positioning System) connections on the vehicles to minimise traffic and other possible road hazards, and flyover bridges for the easy commuting of pedestrians. Fed up by the inundation of their paddy field every year during monsoon, they had strong stands for the provision of proper drainage systems within roads to secure their agriculture production in tomorrow's city. In addition, the group came up with a unique idea to make a ring road encircling the valley that would serve as a physical connection for all three rural/municipalities and would amplify the developmental activities in the future. Likewise, they emphasised constructing embankments on both sides of the Rapti river and other seasonal rivers that create havoc every year during the monsoon season. Moreover, they pointed out the need to construct bridges over major and seasonal rivers to ensure the mobility of people and vehicles within the valley. Suspecting the burgeoning population in the capital city, the Tharu community pre-emptively envisioned preserving open spaces in the city and building green parks, children's parks, a zoological park and religious places like Jungle Kuti Ashram (GRM3) and other significant religious sites.

Given that Agriculture is a major economic activity in the Tharu community they had strong disagreement in using their fertile agricultural land for other land use purposes as this would have very harsh impacts on their livelihood. One male participant shared his concern "*All these agricultural lands will be converted into markets and business centres, and we will be the ones suffering most from all these developments happening here in the capital city. Hence, we should advocate for saving our agriculture land*." Another male participant added, "*Except few Tharu households who own sufficient land, others agriculture-dependent poor households will be compelled to sell their land and migrate to other places.*" In addition, emphasising the need for a well-managed irrigation system, they recommended concrete lining of Praganna irrigation[6] to ensure its proper functioning even during the peak monsoon, which otherwise is mostly flooded during that time. They also envisioned for agriculture zone to secure the livelihood of lower-class family and enhance their food security. Stressing the importance of agriculture zone, one of the males opined, "*Tharu Kumal of Gadhawa, Pahade* (i.e. migrants from hills) *Kumal of Lalmatiya and Chaudhary and Yadav of Sisahaniya will surely be displaced if we fail to separate agriculture zone during the city planning*."

Highlighting the role of big industries in regulating the local economy and accelerating the development of the area, they opined to establish industries at GRM 1, which would create numerous job opportunities for the burgeoning population in the capital city. They envisioned that the area adjoining the east-west highway and near the existing administrative centre (RRM 3) would emerge as a city centre and will be the place for a business hub where several hotels, restaurants, business houses and firms would create adequate jobs and investment

[6] Age-old locally managed irrigation system of Deukhuri

opportunities for people. The group pointed out that waste management could be a major headache for the city authority, hence they discussed selecting a suitable location for a dumping site at SM 1. However, they were not sure if everyone (i.e. other disaggregated groups) would agree to the location they had identified. Along with the construction of dumping site, they highlighted the need to focus on waste recycling as an effective approach to waste management. While they realised the importance of forests for ecosystem functioning, they were of the view that using some of the forest areas for future development activities would do no harm. One of the male participants expressed "*Rather than using agriculture land of individuals, it is better to use this forest area for infrastructural development*."

*Photo 12: Presenting the wheel of urban assets*


While most group members were in favour of constructing an airport on public land available in Bhanpur area (RRM 7), one of the members had a major disagreement with this. Instead, he suggested making an airport somewhere near the capital city. He remarked, *"Is it necessary that the airport has to be made within the capital city, it can rather be made in the neighbouring city".* The group also envisioned to build two stadiums. The public land available nearby forest located to the south of Arnanpur (RRM 7) was proposed as the location for one of the stadiums while the other one towards the east of Mahadewa (GRM 2).

Merely envisioning infrastructure is inadequate for developing a resilient and beautiful city; effective policies and their diligent implementation are equally crucial. In acknowledgment of these considerations, the group was engaged in discussions about essential policies. These policies aim to address issues related to inclusivity, preservation of cultures and traditions, and the support and upliftment of marginalized groups, such as the poor, freed-bonded labourers, and informal settlers. Moreover, the group actively discussed policies to enhance agricultural production for sustainability. They are also prioritising policies that guarantee equal and affordable access to services and facilities, including education and health. The group's recognition of the significance of well-placed and enforced policies underscores their dedication to constructing a genuinely resilient and aesthetically pleasing Rapti city. Towards the end of the discussion on urban assets required for a resilient future city, the group consolidated their aspirations and crafted a vision statement as “Based on Tharu civilisation, we wish to make risk-free, prosperous, clean, beautiful, and equitable capital, Deukhuri Valley”.

**Co-mapping**

The participants gained a more distinct vision for the prospective capital city during the co-mapping exercise where they transferred their spatial aspirations mentioned in the wheel of urban assets to the map. The group started their discussions on spatial aspirations, possible land uses and agreed on their locations. They envisioned low-density areas mixed with agricultural land, featuring relatively small houses across all three local levels where existing settlements are located. Anticipating a surge in business and residential activities near the administrative area, the group aspired for a thriving mixed-land use from Masuriya (RRM 3) to Pakhapani (RRM 1) that would accommodate high population density in the high-rise buildings. Specifically, they marked the stretch along the East-West highway (on both sides), as a city and business area with high-rise buildings to accommodate future migrants to the capital city. Additionally, they planned for another residential area at SM, where agricultural productivity was comparatively lower. The group proposed to construct housing for relocating the freed-bonded labourers and informal settlers at Gobardiha near Dhaireni (GRM 3), Kohalwa (RRM 8) and SM 9. Big hotels, tall buildings, hospitals and other service centres were strategically planned in the Rapti riverbank, to ensure accessibility and convenience to residents and visitors while also offering major tourist attractions.

*Photo 13: Participants of Tharu group during co-mapping*

They envisioned a green belt, fifty meters away from the Rapti river embankment and flanking both sides of the highway. This green space would serve to preserve and maintain greenery, regulate the microclimate and function as an effective mode for controlling air pollution. Additionally, they emphasised the need for bridges in specific areas like Sisahaniya (RRM 7), Mahadewa (GRM 2), Basantapur (RRM 3), Badahara (GRM 2), Bhalubang (RRM 1) and other locations with seasonal and small rivers. The proposed infrastructure aimed to ensure safe mobility of people and vehicles to and from the city area, especially during peak monsoon season. Realising the importance of open space for the mental well-being of its inhabitants in a rapidly urbanising city, they planned for such open spaces in residential and mixed agriculture-residential zones. They also stressed the need to allocate an area for a children's park in Kothari (GRM 3) and south of Maurighat (RRM 4). In addition, an area in Kulpani community forest towards the south of the postal highway in Ward 2 of GRM was designated for the operation of a zoo.

Considering the larger geographical coverage of the capital city and anticipating significant future in-migration, the group deemed it necessary to construct a ring road connecting all the municipalities with the city centre. They also emphasised the expansion of the road network, ensuring they are all black-topped, accessed with proper drainage systems and well-equipped with modern traffic signals. Envisaging the growing need for convenient air transport services, the group proposed the construction of a domestic airport in the area extending from Arnanpur to Bhanpur in RRM 7.

*Photo 14: Tharu group presenting their aspired vision for the Rapti city*

The Tharu group highlighted the importance of making education and health services affordable, accessible, and of high quality. Acknowledging the increasing demand for technical skills in the job market, the participants emphasised the need to upgrade and construct a new technical school at Gobardiha (GRM 3). Similarly, in response to the recent trend of individuals migrating to other cities for higher education, they advocated for the establishment of a university that would not only cater to the educational needs of the city residents but also attract migrants from the neighbouring cities seeking quality education. During the discussion, there was a divergence of opinions regarding the location of the university. While one male

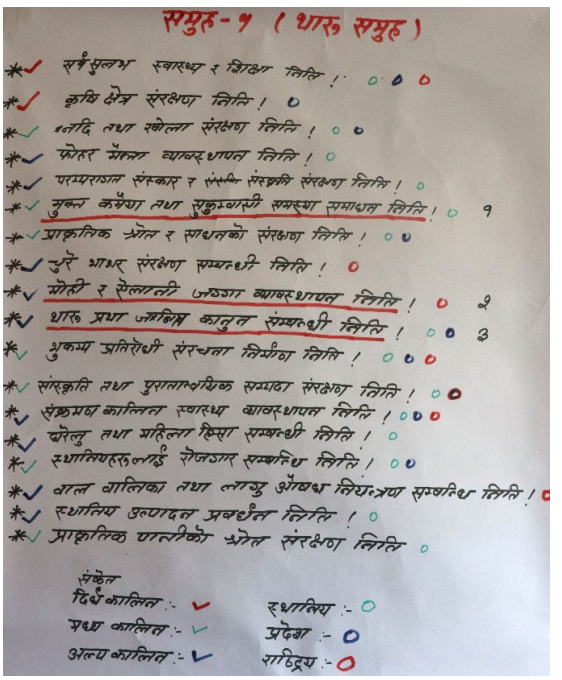
participant suggested GRM, others representing RRM preferred their own area. The participants from RRM argued, '*We have already allocated a technical school at GRM; rather than planning both the educational infrastructures in the same area, it is better we make the university at RRM*'. Reluctantly, the male participant agreed to locate the university in the proposed area, i.e. in the vicinity of Deuki Community Forest (CF) in RRM 5.

The group consistently emphasised on promoting and preserving Tharu culture, values and traditions throughout the two-day workshop. This agenda was reiterated several times during our informal meetings, interviews and interaction programs as well. Due to the emotional attachment to their culture and place, a primary concern was the renaming of 'Deukhuri Valley' as 'Rapti Valley'. One of the male participants who was also the chairperson of *Tharu Kalyankari Society* of Dang expressed his discontent, stating, "*I express my dissatisfaction on behalf of Tharu Kalyankari Society and myself for renaming our Deukhuri valley as Rapti valley. Deukhuri Valley is our identity and we are extremely shocked at how and why the name is changed".* They discussed instances where names of various other places had changed over time. For instance, 'Chhutki' and 'Badki' Sisahaniya are now called 'Sano (lit. translation of Chhutki)' and 'Thulo (lit. translation of Badki)' Sisahaniya respectively. In response to these changes, they proposed the idea of naming town squares and roads in the Tharu language that would help preserve their culture. Additionally, they asserted the need to establish Tharu cultural villages in ward 6 of RRM area, providing an opportunity for visitors to learn about the Tharu culture. To further acquaint tourists with their culture including the traditional livelihoods, cuisines, values, and customs, they planned to continue operating Bagarapur homestay and initiate new ones at Khaira and Gobardiha (GRM 3) and Pathargadhawa (RRM 6). This initiative aimed to showcase and sustain the rich tapestry of Tharu culture for both locals and visitors alike.

Majority of the Tharu communities in the Deukhuri Valley rely heavily on agriculture. Faced with the persistent concern of losing their fertile land due to increasing migration and urbanisation, they consistently emphasised the need to safeguard it. Proposing proactive measures, they recommended designating RRM 2 (Kathaha), RRM 3 (Khururiya), and RRM 6 and 7 as agricultural zones –adamantly advocating against any alternative use such as construction activities in these areas. Furthermore, they also emphasised the need to make agriculture conservation areas at Karangekot (RRM 5), Devikot (RRM 9), and other hilly parts of SM to promote the cultivation of ginger, lemon and Black Pepper. To enhance agricultural productivity, they expressed the need to upgrade the existing Praganna irrigation and Barkapat irrigation systems. Additionally, they envisioned the construction of an irrigation canal along the agricultural lands, deeming it crucial for securing an ample agricultural production in the future.

The participants emphasised the crucial role of industries in propelling city's development and providing adequate employment opportunities for its people. Consequently, an agreement was made to allocate specific area in GRM 1 for industries. They opined industries should be separated from settlement areas and hence, the forest areas were allocated as a suitable location for industries. Additionally, they also informed that a land plot has already been acquired for the establishment of paper industry at Malmala in GRM 1. A collective decision was made to constrict the administrative areas of the capital city, extending from Maurighat (RRM 4) to Barahakhutti (RRM 2) encompassing Pakhapani area (RRM 1) as outlined in the Master Plan of PIDA. They opined that the area up to Pakhapani (RRM 1) was deemed excessive for administrative purposes. In addition, they proposed relocating the Armed Police Force (APF) from its current location in Pakhapani to construct residential buildings/area for government officials. Apart from this, realising the importance of accessibility and convenience during disaster events, they have designated a holding/evacuation centre nearby Bijauri (RRM 8) as a preparedness measure. This strategic allocation aims to minimise the impact of potential disasters and enhance the safety of the local residents.

*Photo 15: Policies envisioned by Tharu group*




**Policies**

While tangible aspirations were translated into maps, all of the intangible aspirations were introduced into the policy discussions to ensure their integration into the aspired future city. The Tharu group expressed apprehension about safeguarding their identity, customs, and traditions amidst a swift rise in migration and the increasing trend among the youth to embrace non-Tharu culture. One major challenge recognised by the group is the preservation of their cultural values as they transition to urban living. Hence, the group emphasised the need of adopting measures to promote and preserve their traditional norms and values. To address this concern, they demanded the formulation of policies pertaining to Tharu customary practices and urged their implementation through collaborative efforts with provincial and local governments. This will help achieve an effective outcome, that would facilitate the promotion and preservation of their most cherished traditions.

*Table 4: Translation of the aspired policies of the Tharu group*

| S.N | Policies | Temporality | Level of Implementation |
|---|---|---|---|
| 1. | Tharu Customary Practices | Short term (ST) | Federal |
| 2. | Policy to resolve issues of informal settlers and free bonded labourers (*Mukta kamaiya*) | Medium Term (MT) | Local |
| 3. | Tenant (*Mohi*) and Unregistered land (*ailani jagga*) Management Policy | ST | Federal |
| 4. | Accessible education and health | Long Term (LT) | All three levels |
| 5. | Conservation of agriculture zone | LT | Provincial |
| 6. | River conservation | MT | Provincial and Local |
| 7. | Waste management | ST | Local |
| 8. | Conservation of culture and traditional values | ST | Local |
| 9. | Natural resource conservation | MT | Provincial and Local |
| 10. | *Chure bhabar* conservation | ST | Federal |
| 11. | Conservation of Tharu culture and traditional values | ST | Provincial and Local |
| 12. | Construction of earthquake-resilient building | MT | All three levels |
| 13. | Conservation of culture and historical heritages | MT | Federal and Provincial |
| 14. | Health pandemic | ST | All three levels |
| 15. | End domestic and women violence | ST | Local |
| 16. | Employment for locals | MT | Provincial and Local |
| 17. | Children and drug addiction | ST | All three level |
| 18. | Promote local production | MT | Local |
| 19. | Water resource conservation | MT | Local |

For an equitable future city, the group emphasised establishing a well-managed mechanism for the informal settlers and free bonded labourers in the valley, currently residing along riverbanks, forest areas and other public lands. Given the vulnerability of these places to disaster risks, primarily recurrent flooding and inundation, the group proposed relocating the *Mukta Kamaiya* (free bonded labourers) currently living in Muktinagar (RRM 2) to safer locations, through the construction of social housing. They opined that unless the informal

settlers are provided with proper residences and social security, the city cannot be beautiful and efficiently managed.

As mentioned earlier, numerous Tharu families have been residing in and cultivating public land for generations. The group anticipate the development of a policy that would grant such families a land ownership document, recognising their customary rights. Moreover, many migrant households also possess public land and have been utilising it for generations. Hence, the group also focused on the need to formulate and execute policies addressing tenants and unregistered land. They asserted that this policy needs to be prioritised by the national government, creating a conducive environment for its effective implementation.

Though the Tharu group prioritised the three policies mentioned above for a resilient and equitable capital city, they also engaged in discussions regarding several other policies that need to be formulated and implemented effectively. The policies that were discussed during the workshop have been translated and listed in table 4 above.

**Conclusion**

Tharus are the major indigenous community inhabiting the valley floor of Deukhuri/Rapti, who possess rich cultural values, traditions and language that make them unique among other communities. For many generations, agriculture has served as their primary means of livelihood. However, concerns have arisen within the community regarding the potential use of their fertile agricultural land for other purposes like construction of infrastructure during the development of the capital city. This raises apprehensions about the increasing risk of displacement of the poor households with small landholdings. Acknowledging historical instances of eroding cohesion among communities, the Tharu group stressed the importance of strengthening communal bonds in the planning and development of future cities to ensure a more inclusive and harmonious environment.

A primary concern of the Tharu group revolves around preserving their cultural and traditional values, with a specific focus on planning the city based on the Rapti river civilisation. While highlighting the importance of agriculture and advocating for the conservation of agricultural areas in RRM and the hilly parts of SM, they also emphasised the need to establish industrial areas in GRM to foster rapid economic growth and provide adequate employment opportunities for the residents. Recognising agriculture as the backbone for the future city's food security, they recommended allocating separate areas for mixed settlements (both agriculture and residential housing) in SM, RRM (Wards 8 and 5) and GRM (Wards 2 and 3). Environmental conservation was another aspect they valued most. Their vision included making green parks and green belts along the river corridor and highway, with a special emphasis on the conservation of forest areas and the fragile hills surrounding the city. The

group also strongly advocates for utilising specific portions of the forest areas for the construction of infrastructure instead of compromising the highly fertile agricultural land on the valley floor. This approach reflects their commitment to balancing development needs with environmental conservation, seeking to preserve crucial agricultural resources while strategically utilising forested areas for necessary infrastructure.

Additionally, they suggested designated zones along the east-west highway for business/service and residential purposes. Furthermore, the group emphasised the importance of constructing large infrastructures like ring roads (encircling both the valley and hills connecting all three municipalities of the capital city), multi-purpose stadiums, and an airport within the capital city for enhanced connectivity and overall development. Addressing the tourism aspect, the group placed a prime focus on upgrading and establishing Tharu homestays, hotels and resorts. They also stressed the importance of reviving the originality of the name of a place, highlighting these considerations as a crucial element during the city's development phase. This comprehensive approach aims to balance economic growth, agricultural sustainability, and cultural preservation in the planning and development of the capital city.

While recognising the importance of large infrastructures for a resilient future in Rapti city, the group acknowledged the existence of the scattered settlements at present. In light of this, they also considered the significance of constructing and upgrading small-scale infrastructures, particularly public schools, health posts, foot trails/roads, and other community-based health and services. Anticipating the potential rise in the informal settlers and challenges associated with it in the future city, the group strongly suggested the formulation of effective policies to resolve these issues. Additionally, implementing policies aimed at protecting the Tharu culture and managing tenants and unregistered land are other crucial aspects of city governance for an equitable future in Rapti city. They underscored the importance of coordination between the local and provincial governments in implementing these policies. Moreover, they stressed the need for the national government to create a conducive environment, ensuring the effective implementation not only of envisioned policies but also of the proposed land use plans for comprehensive development. Given the valley's vulnerability to disasters such as floods, landslides, and earthquakes, which pose a significant threat to the lives of local people and their livelihoods, the group emphasised the importance of risk management and mitigation measures. Their plan included situating high-density residential development in low-lying areas, with no flood and landslide risks. The plan also included an evacuation centre in the city centre that is both accessible and convenient for the residents during disaster events.

## *Chapter 4: Tomorrow's City of Migrants*

### *Visioning statement: "Culturally-rich, inclusive, independent and well-governed Deukhuri city with conservation of natural heritage, risk-proof infrastructures, tourism promotion and employment opportunities"*

**Rojani Manandhar, Dilli P. Poudel and Anushiya Shrestha**

### Introduction

Once known as Kalapani (lit. blackwater, symb. Death Valley)[7] due to deadly Malaria, Tarai (the southern flat land of Nepal) used to be avoided by the hill people (known as *Pahade*). Historical evidence indicates that migration to the Tarai region of Nepal, including the Deukhuri Valley (Inner Tarai[8]), gained momentum following the successful eradication of Malaria in the late 1950s (Gartaula and Niehof, 2013). Soon, the Tarai region became a promising destination for individuals of diverse castes and origins, given its productive flat land for agriculture along with various other economic activities. Hence, Hill-to-Tarai migration became a prominent demographic, socio-political, and economic phenomena, including the Deukhuri Valley.

The Tharu community (see Chapter III) is the original indigenous community in the Deukhuri Valley. Magars and other *Aadivasi Janajatis (ethnic group)* reside in the surrounding hills. The rest of the current population are migrants like Brahmin, Kshetri, Gurung, Dalits (hill), etc. The impetus behind the migration of hill people, primarily lies in geographical and economic challenges in the hills, including harsh climates, difficult terrains, lack of arable and fertile land, lack of educational institutions, and limited economic opportunities - all of which have contributed to livelihood practices in the hill areas (FGDs/Interviews 2023). We have dedicated chapters for Tharu (Ch 3), Janajati or ethnic (Ch 5), and Madhesi and Muslim (Ch 6) communities. In this chapter, we describe the visions of Migrants community, which is also known as Khas Aarya community. This community mostly migrated from nearby hill districts like Rolpa, Rukum, Pyuthan, Gulmi, and Arghakhanchi among others (Poudel et al., 2023). According to household surveys conducted in 2023, the history of their migration dates back several decades, with some having arrived in recent years and others as far back as a century

[7] In the past, the Tarai region was notorious for severe malaria, and staying a night there was considered risking one's life, hence earning names like *Kalapani* (Blackwater) or Death Valley. As noted by a British observer, both Tarai people and *Pahades* (hill people) generally die if they slept in the Tarai between November 1 and June 1. (Guneratne, 2002)

[8] Inner Tarai Valleys are the elongated river valleys in the southern lowland of the country which are enclosed by the Himalayan foothills, viz the Mahabharat Range in the North and the Churia/Siwalik Hills in South.

ago. As mentioned above, their motive to migrate varied, with most seeking employment and alternative livelihood opportunities, some pursuing educational prospects, and a few driven by social ties such as marriage. Although the migrants comprise around 17% of the total population, many households of this group are rich in terms of land holding, access to local economic and political engagements, and representation in government jobs, and therefore, hold significant and influential social positionalities. In the valley, most of the migrant communities reside along the highways and city centres, which provide them with convenient access to a wide range of services, including jobs, government facilities and education. Some marginalised migrants are also found to be settled in the forest fringes and the hills. During our fieldwork, we came to know that hill communities are still migrating to the valley, which, as participants said, will increase in the future because the valley is now considered as the capital city of the Lumbini Province. Given their socio-political positionalities to influence local politics and decision-making along with the future potentiality of increasing migrant communities, it was crucially important to have migrants as one of the disaggregated groups.

**Participatory Hazard Mapping (PHM)**

The discussion with the migrant community concerning the hazards and disasters, they have encountered and witnessed in the capital city, predominantly highlights a surge in hazard incidents in recent years. According to them, the rapid changes in the urbanisation pattern and the development endeavours are some of the major factors responsible for these incidents. Although natural hazards like landslides and flooding from seasonal rivers pose significant threats to the city's inhabitants, inadequate planning and oversight during infrastructure construction have exacerbated these hazards, particularly inundation, rendering severe impacts on the local population. It's astonishing that the flat terrains fed by well-structured year-round irrigation canals are flooded and inundated every monsoon. *"Experts should visit the region during the monsoon season in order to witness the extent of the potential catastrophe",* the participants of the hazard mapping stressed.

With several seasonal rivers flanking both the northern and southern parts of the Highway that almost bisects the valley, annual monsoon floods originating from these rivers (which usually flood for max. 3-4 hours a day during intense rainfall) look natural. The process of urbanisation and developmental activities, involving infrastructure construction along these seasonal rivers, without adequate planning, is worsening their impacts, affecting the residential and agricultural areas alongside the highways (East-West highway in RRM and Postal highway in GRM). Seasonal rivers converge with Dolai River and Singhe River causing inundation mostly in areas of Sisahaniya (RRM 7), Kohalwa (RRM 8), Kalapani (RRM 5), Paharuwa (RRM 5), Singhegaun (RRM 5), and nearby settlements alongside the highway in RRM.

For instance, the improvements made to the East-West highway resulted in better road conditions. Nevertheless, inadequacy of drainage to channel water from the northern Chure region to the southern part towards the Rapti river, led to the inundation of settlements on both sides of the highway. According to a Brahmin male in his 30s, *"Apart from Pakhapani (RRM 1), the entire part of RRM spanning 500 meters on either side of the Highway, is facing the brunt of flooding and inundation during monsoon. This situation is a result of human activities, particularly the rapid constructions along the highways*". Additionally, the construction of dams and embankments without adequate research on the drainage problems in the Sohanpur area of Lamahi Municipality further constrained the Dolai and Singhe river outlets, exacerbating the issues. *"People destroyed the embankments in Sohanpur area to prevent their houses from flooding"*, shared another *Brahmin* male in his 40s. According to him, another major reason is the extensive extraction of sand, gravel, and boulders in the upper parts of the seasonal rivers which resulted in the heightened water velocity downstream. Sand and boulders serve as check dams, regulating water velocity in the upstream (hill) regions. Moreover, the construction of houses and the levelling of land in the valley (previously serving as water logging areas) for the development of tracks alongside highways have significantly diminished the water infiltration capacity. This reduced natural water seepage combined within adequate drainage systems have intensified the inundation of settlements situated on either side of the highways.

*Photo 16: Migrants (Pahade) are focusing on Participatory Hazard Mapping*

Likewise, the construction of drainage systems (i.e. canals) along much of the RRM was executed at a level higher than the roads. This flaw in the design hindered the flow of water into these canals even during light rainfall, frequenting the flooding of houses and settlements located alongside the roads. A male migrant in his 70s shared that the construction of embankments narrowing the Khauraha River (GRM 2) and the elevated height of a cemented bridge in Mahadewa settlement in GRM 2 have contributed to the filling of roads, exposing the settlements below the riverbed to flooding and inundation. *"The lack of proper planning and community involvement has led to adverse consequences, with the entire settlement facing the brunt",* he shared his frustration.

*Photo 17: Ongoing bridge construction in Mahadewa River with the nearby houses below the riverbed*

Apart from the flooding and inundation that affect the valley floor of the capital city, occurrences of landslides are frequent in the hill areas of RRM 9 (Devikot) and RRM 5 (Karangekot and Bhulke), as well as in the Supaila region of GRM 3. Similarly, the capital city faces a significant threat from flaring forest fires, primarily triggered by human activities, spreading across both Chure and Dunduwa hill regions. Additionally, the challenge of lightning strikes is prominently observed, particularly in the upstream regions of RRM 5 along the ridges in Devikot (RRM 9) and Karangekot (RRM 5) areas. As the migrant participants recounted in 2022, four students lost their lives to lightning strikes. It also caused structural damage to a house in the Lalmatiya village (RRM 2).

Despite being exceptionally habitable, it is crucial to acknowledge that the capital city's susceptibility to disasters may accelerate in the future, if the developmental activities are not risk-sensitive and disregard community's past experiences.

**Aspirations**

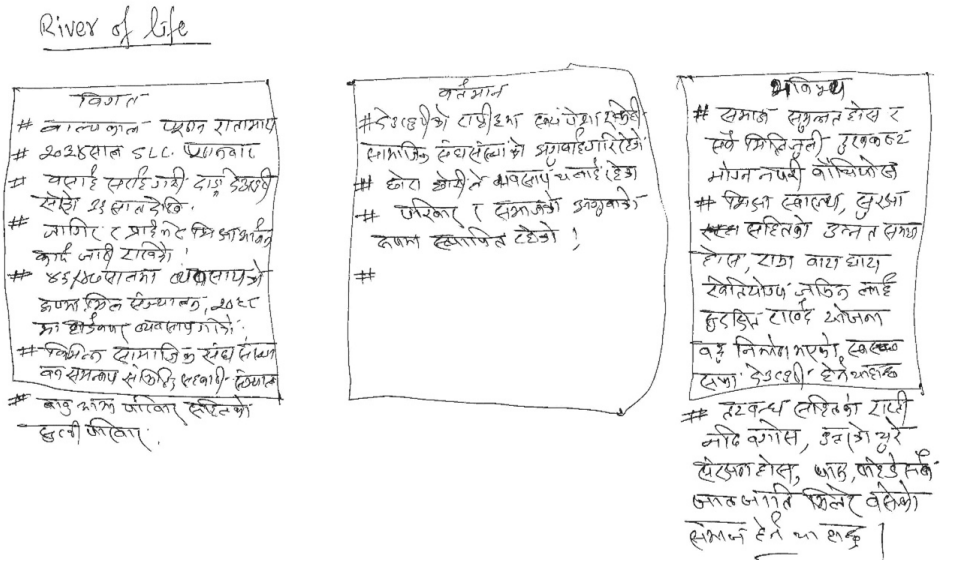
Since the selected disaggregated group represents the Capital City, this section describes the migrants' past, present and future aspirations for the future city. Later the aspirations are converted into tangible (i.e. land use map) and intangible (i.e. policies) outcomes.

Past Aspirations

The exercise started with a demonstration by the facilitator, giving examples of her life story on past, present, and future aspirations. The demo dusted out confusion of the participants and motivated them to exercise their aspirations as demonstrated. The participants immediately started working on their individual aspirations without the need for further explanation or any complexities. All of them wrote down their aspirations in text form without any drawings.

Reflecting on their past, participants fondly recounted their challenging childhoods, marked by the absence of essential infrastructure such as roads and bridges. These deficiencies made it arduous to access basic services like schools, hospitals, and markets, all of which were situated at a considerable distance. Some even reminisced the days when they had to embark on foot journeys to Koilabaas (Indian border) to purchase groceries, clothing, and fuel, as there were no roads or transportation services available. This mode of travel, though common, became especially precarious during natural hazards, posing life-threatening risks. Likewise, the sparse population in the scattered settlements with houses made of thatched roofs were vulnerable to fire hazards. Inundation during the monsoon season was an annual

*Photo 18: Individual River of life of a participant of Migrant group*



occurrence, adding another layer of challenge to their lives. Agriculture served as the primary source of livelihood for the villagers, but the absence of irrigation facilities posed significant challenges for farming. *"This limitation not only made agricultural work more difficult but also resulted in poor crop yields"*, shared one of the male participants from GRM. Additionally, the practice of open defecation was widespread, and the community lacked access to proper drinking water facilities. They relied on river water for their needs. Gender-based discrimination, which was deeply ingrained in the village, rendered women socially inactive. They were confined to domestic and household chores, denied educational opportunities, and excluded from the decision-making process and participation in community institutions. Pregnancy and childbirth were particularly perilous due to the absence of adequate health facilities. The only woman participant in the group shared, *"Women had to endure immense hardship during pregnancy because there were no provisions for pre- and post-pregnancy check-ups, and childbirth took place at home".*

On a positive note, the villages were blessed with thriving natural environments like pristine rivers and abundant forest resources. The societies were well-governed, corruption-free, and well-cultured, respecting the elders and caring for the younger ones. Among the most delightful memories were the occasions when school friends would share their lunches with each other. These shared meals not only filled their stomachs but also fostered strong bonds and harmonious relationships among them.

Present Aspirations

The current situation has seen significant improvements, marked by enhanced access to essential services such as healthcare and education, the development of better infrastructure including improved roads and bridges and the construction of modern housing in more densely populated areas. Women now enjoy increased recognition and ample opportunities for social interactions. The utilisation of advanced technology and efficient irrigation systems has led to a substantial boost in agricultural production. However, on the flip side, the environment is grappling with escalating pollution due to a growing population and increased extraction of natural resources from rivers and forests. Hazard incidents are also on the rise, stemming from uncontrolled population growth and various development projects. Discrimination though less apparent, is still prevalent in society. The lack of job opportunities has driven a significant portion of the youth to seek employment abroad. Furthermore, weak governance and the absence of ethical considerations among both residents and officials have fuelled corruption and discontent in the community.

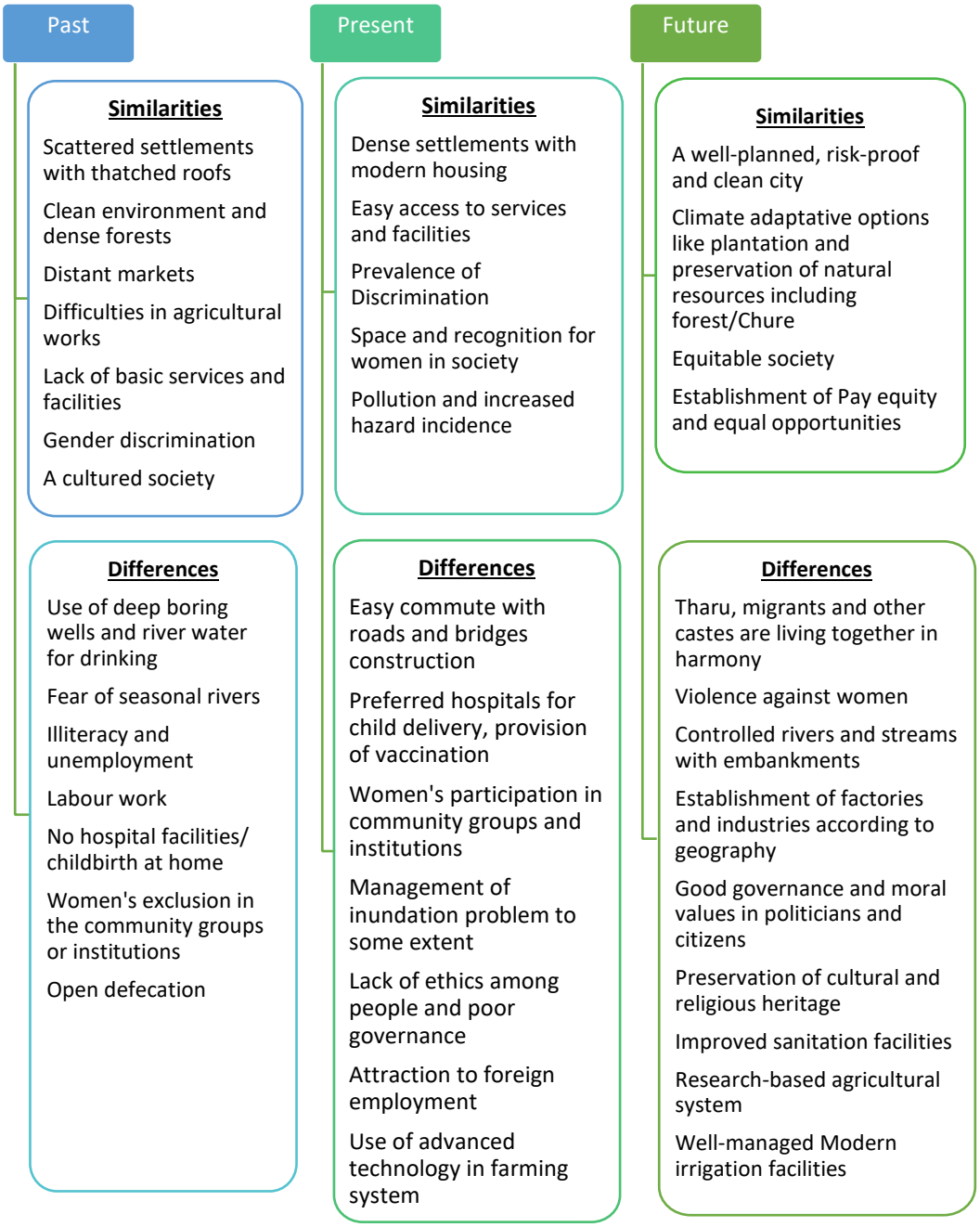
Future Aspirations

Aware of their past and present circumstances, the participants have multiple expectations and a clear vision for their future city so that future generations can enjoy both natural and built environments equally in the city. They not only aspire to have earthquake-resistant housing, but also well-managed and resilient infrastructure, including bridges, roads, hospitals, and educational institutions. However, they emphasised the need for community consultation before embarking on these development initiatives. They desire for a city that hosts ample industrial establishments, offers job opportunities for local youths, and discourages migration. They also aspired for a clean city adorned with green spaces, parks, and the sustainable management of rivers and streams. They even envision activities like rafting in the Rapti River and cable car operations to hill areas to boost tourism. The preservation of the Chure Hills stands out as a top priority, along with safeguarding their religious and cultural heritage which has the potential to bolster tourism. Furthermore, in their envisioned future city, there is zero tolerance for violence against women, and discrimination is eradicated, with equal opportunities and fair pay for both males and females. However, achieving these aspirations hinges on political will and effective governance, the participants echoed.

*Photo 19: Participants of Migrant group discussing collective aspirations*

As the rest of the workshop process revolved around future aspirations, the subsequent sections will provide more detailed insights into the collective future aspirations and co-mapping that emerged during these discussions.

*Figure 6: Similarities and dissimilarities of individual participant's past, present and future aspirations*




Note (Fig. 6): "Similarities" denote the cases, phenomena, events and experiences are similar or equal to all participants, whereas "Differences" denote the cases, phenomena, events and experiences are not similar or equal or happened to all participants.

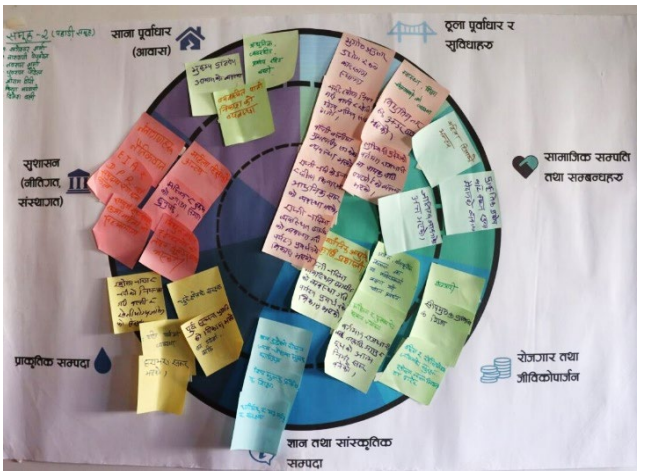
**Wheel of Urban Assets**

All the visions and ideas discussed during the city aspirations were thoughtfully sorted into the framework of the "Wheel of Urban Assets." This framework also provided ample space for the inclusion of more aspirations if they were deemed relevant to the future city. While all seven assets on the wheel were well-thought-out, the participants found themselves particularly attracted to a few, specifically macro infrastructures, and jobs and livelihoods. These two assets seemed to stir the passions of the participants more than any other.

Macro Infrastructures

Under this asset, they pictured a remarkable transformation. They envisioned the establishment of industries within the capital city, carefully aligned with the region's physical geography and distanced from densely populated areas. On both sides of the majestic Rapti River, they dreamt of modern cities, epitomising progress and growth. Their focus was also directed toward enhancing the city's aesthetics and functionality. They contemplated a city where not only the electric wires and other cable networks would be undergrounded, but it would also have wider, high-quality roads and streets. In the domains of healthcare and education, their dreams reached even greater heights. They passionately envisioned a capital city equipped with advanced healthcare facilities and educational institutions, transforming it into a hub of learning and healthcare, attracting people from near and far. A domestic airport became an integral part of their expansive vision, linking their thriving city to the whole nation.

*Photo 20: The Wheel of Urban Assets of the Migrant*




Social Assets

Under this asset, the participants were resolute in their stance on violence against women as well as ending gender-based discrimination. They also yearn for ample open spaces in the future city as well as safeguarding religious and cultural spaces that can be used as safe spaces during disasters.

Jobs and livelihoods

In the realm of jobs and livelihoods, their vision included a strategy to promote tourism by introducing thrilling rafting experiences on the Rapti River, which they anticipate will generate numerous job opportunities and bolster the local economy and livelihood. Furthermore, they recognised the importance of preserving their rich cultural and religious heritage. This commitment was not only driven by a desire to safeguard their history but also to attract more tourists to the capital city. They understood that cultural and religious sites hold immense potential to draw visitors, thus contributing to the future city's economic prosperity. But their aspirations did not stop there. The participants were deeply committed to modernising agriculture and farming practices, ensuring that the capital city could meet its daily needs for dairy, poultry, meat products, grains, and vegetables. They envisioned an agricultural city that could sustain itself, reducing its dependence on external sources for essential goods. Additionally, they placed great emphasis on equipping the future population with vocational training and ample job opportunities, paving the way for a prosperous and inclusive city where everyone could thrive. They also had a desire to establish pay equity, ensuring that individuals, regardless of their gender, received fair compensation for their work. All these aspirations are envisioned towards a more just and equitable tomorrow's society.

Environmental Assets

The preservation of the Chure hills, teeming with unique biodiversity and largely susceptible to landslides and forest fires, was another essential component of their envisioned future city. Their commitment to maintaining a green and beautiful city was not just about aesthetics; but also entailed a pragmatic approach to disaster resilience. The city would be adorned with lush greenery, parks, and meticulously maintained public spaces; not only providing a visual delight but also serving as safe havens during times of disaster. They foresaw a proactive approach, including regular awareness programs and implementing an early warning system to mitigate hazards like fires, floods, and inundation. This strategy was aimed at ensuring the safety and protection of people, their settlements, the valuable agricultural lands and the crops they yield.

Knowledge and Cultural Assets

Though least prioritised, in this asset, the participants stressed the need for an awareness campaign that sensitise future population to the prevention of forest fire which is one of the most frequent hazards in the hilly parts of the capital city. Other aspirations like vocational training and the importance of preserving their rich cultural and religious heritage are also re-enlisted in this asset.

Institution and Rule of Law

According to the participants, aspirations like the end of violence against women, undergrounding electric and internet wires, women's representation in institutions and society, and the establishment of pay equity can be achieved only with the government's will and support -hence listed out in this category of the wheel of Urban Assets. Also, they believed all these aspired development initiatives should proceed only after thorough consultation with the local community both before and during the environmental Impact assessment (EIA) and detailed project report (DPR) processes. Lastly, to realise their vision of a city thriving in harmony with its natural surroundings and safeguarding both its residents and the environment, it's imperative to have leaders and politicians who embody strong moral values and ethics.

*Photo 21: Participants presenting their Wheel of Urban Assets*

Micro Infrastructures

The participants aspired that the future city would be fortified against earthquakes as well, featuring resilient infrastructure that include earthquake-resistant houses and buildings and the provision of infrastructures like drinking water supply system. These far-sighted approaches were designed to bolster the city's resilience in the face of various hazards, creating a safer and more secure haven for its inhabitants.

Summarising all the thematic visions and aspirations for a resilient and equitable future city, the participants came up with the following vision statement at the end of the first day, *"Culturally-rich, inclusive, independent and well-governed Deukhuri city with conservation of natural heritage, risk-proof infrastructures, tourism promotion and employment opportunities."*

**Co-mapping**

The participants had a clearer picture of the future capital city, i.e. develop the RRM valley floor into a hub for commerce and agriculture, designate GRM for industrial purposes, and use the hill areas in RRM and SM for residential purposes. They aspire to preserve the Chure Range from Bhalubang (RRM 1) to Lamahi (District headquarter of Dang) by using it solely for residential purposes. In the upstream areas (RRM 5, RRM 9 and SM 9), the climate is pleasant

throughout the year, with refreshing cool air. Winters are characterised by abundant sunshine and warmth. So, they envisioned that the elites will naturally shift there in the future to escape the hot climate and the crowd of the valley floor. It will also be a safe haven for children and elderly people, protecting them from scorching temperatures that can reach up to 44 degrees Celsius in summer in the downstream areas. "*There is a notable surge in land trading activity, with a substantial portion of land in RRM 5 and 9 (including Devikot* and Rupakot -*RRM 9, and Karangekot - RRM 5 having already been traded",* shared one of the participants. According to the participants, this would help preserve the land on the valley floor from haphazard construction of residential buildings and can alternatively be used for agricultural and other purposes.

According to the participants, upgrading and enhancing the quality of the existing gravelled road (road to Devikot - RRM 9) to a four-lane road will reduce travel time to a maximum 6-7 minutes to commute up (i.e. hill) and down (i.e. valley) the route. It will help save fuel and energy as only people from the working age group will be traveling for jobs/business and agricultural work. *"However, we need to refrain from track openings through these regions to protect the fragile Chure range which is extremely vulnerable to landslides and erosion if its natural state is disrupted"*, stressed one of the participants who had prior working experiences in community forests and is also a social activist in the capital city. They envisioned promoting homestays in the hill area of RRM 9 and SM showcasing the ethnicity and culture of the Magar community and simultaneously in the valley floor of RRM and GRM to promote Tharu culture and traditions.

They also noted the government's plan to designate Chure (northern hill) area as a conservation zone. For this, the plan involves upgrading and expanding the postal highway in the southern part in GRM. This development is aimed at accommodating the increased traffic flow, allowing larger vehicles to use this route, while also designating the Mahendra Highway (i.e. East-West highway) as an alternative path. According to the former Community Forestry Users Group (CFUG) president and social activist, *"It is safer to reroute the highway through the industrial zone in GRM rather than having it run through the residential area".* As a result of the Postal highway upgrade, there will be a natural expansion of existing settlements with a population of high-density and low-income around GRM 2 and 3, and minimum traffic flow as well as very little settlement expansion in RRM, and ultimately supporting in Chure conservation.

*Photo 22: Migrant group co-mapping their aspired future city*

They are eager to promote the capital city as a popular tourist destination. They aspire to introduce Cable Cars in the Devikot area (RRM 9). Also, all existing religious places like Devikot (RRM 9), Junglekuti Aashram (GRM 3), Khauraha Baba Mandir (related to Tharu culture) in both RRM 5 and GRM 2, Kulpani Mandir in GRM 2, Buddha mandir/Gumba in the forest areaof Kohalwa (RRM 8), Ghanta Dev mandir in RRM 2 and Gufa Mandir in Chisapani in GRM 1 are to be promoted as the tourist destination. Some of these religious sites also possess natural features that are unique and seek special promotion. For example, the pondwater at Khauraha Baba Mandir in RRM 5, contains sulphur, which is renowned for its therapeutic properties in treating skin diseases and allergies. "*Although the water may appear polluted, it is, in fact, due to the presence of sulphur that imparts a murky appearance and treat skin allergies*", shared one of the participants.

Consideration for low-income dwellers was also a key aspect. When asked about the concentration of low-income households in future city, the participants were clear and consistent in their message. They outlined a global pattern, suggesting that low-income households should be concentrated near commercial areas or the city centre, along highways and road networks, to ensure accessibility to jobs and employment opportunities. Typically, middle and low-income groups would settle along highways and city centres in RRM, GRM, and Tallo Laape and Satmara in SM 8.

According to the participants, the future city will have low and middle-income households concentrated along the highways, city centres, and the fringes. Hence, basic services like schools and local hospitals are envisioned in the major and expanded settlements that are distant from major road networks like Chimchime, and Supaila in GRM 2 & 3 respectively and the upstream settlements in RRM and SM. In addition to having accessible schools and hospitals to communities, they had a vision to establish a regional hospital to accommodate the medical needs of people from the neighbouring hills of Rukum, Rolpa, Pyuthan, and other surrounding districts/municipalities, etc.

They aspire to develop new macro infrastructure mostly in GRM, like the university in Mahadewa (GRM2), upgrade the existing Ayurvedic hospital, Rapti Technical school, local hospital (50 beds) in Gobardiha (GRM 3), zoo in Kulpani, temple and picnic spot in GRM 2, and playground in GRM 1 nearby the suspension bridge. According to them, services in these areas can be easily accessed with the construction of multiple bridges in the Rapti River.

Domestic Airport was also one of the major priorities of all group members; stationed at the Bhanpur (RRM 7) area on the riverbank. *"It was not included in the master plan at first, so we had a long debate with local authorities for its necessity and inclusion in the Master plan",* the male participant in his 60s added. There are currently 57 bigha (ca 38.6 ha) of available public land, which means there will not be the need for settlement relocation or demolition of private properties for airport construction since the land is entirely vacant. The only structure that requires demolition is a water tank. While some people have argued about the potential risk of airport construction in the flood plains of Rapti, other participants didn't consider that an issue and provided examples of the airports in Thailand and China which they claimed were constructed above the sea.

*Photo 23: Participants of Migrant group with facilitators presenting their aspired city*


The idea of rafting serves as a means to boost tourism and create livelihood opportunities along the Rapti River, accompanied by the iconic signature bridges. However, there is a pressing need for the annual removal of river deposits at the Bhalubang (RRM 1) area, which marks the confluence of the Rapti and Rangsing rivers. Additionally, constructing a dam at this

juncture holds great potential for dual purposes: providing water for the Praganna Irrigation Canal[9] and creating an ideal setting for rafting and boating activities. *"Neglecting such measures could reduce water flow in the Rapti River once the Naumure reservoir[10] is constructed, leading to water shortage for the local communities in the long run"*, shared a male participant in his 60s.

Waste management is also among their prioritised aspiration, which they have envisioned in the forest region above Majhenigadh (RRM 4). Another waste management project is intended in a forest area far from the residential area of Supaila (GRM 3). Acknowledging the value of agriculture, they have envisioned conserving the area in the south of Mahendra highway starting from Lalmatiya (RRM 2) up to Singhe (RRM 5) in RRM as the Agricultural zone.

In the area adjoining the airport between the agricultural zone and Rapti river, they envision developing the new (green) city in RRM with commercial/business centres and high-rise/signature buildings along with parks, green belts, children's parks, plenty of open spaces and recreation centres. Likewise, ample open areas and playgrounds are also envisioned in the other areas in all three administrative zones for social gatherings, physical activities like jogging and yoga, and providing children with plenty of spaces for leisure activities. Additionally, these open spaces can serve as shelters during times of disaster. A stadium is envisioned in the RRM 5 in the current Deuki community forest as the area is located in a highland and hence can be used as a safe space for shelter during disaster events. An administrative zone has been envisioned on the northern side of the highway from Pakhapani (RRM 1) to Maurighat (RRM 4) area in 27 bigha (ca 18.3 ha) of land. The East-West Railway, envisioned as a national pride project in RRM, is situated to the north of the administrative zone, featuring a Railway Station in Bhalubang (RRM 1). A dedicated road network added parallel to the railway is expected to reduce the need to access the Mahendra Highway. "*If the capital city's development progresses as planned, it has the potential to become the second most picturesque city after Pokhara*", shared a male participant in his 60s. They also thought of security and envisioned an Armed Police Force camp in the existing area in Pakhapani (RRM 1) and an Army camp in Paharuwa (RRM 5). Bridges in every 5 km distance is envisioned above the Rapti river to connect RRM and GRM and also in the seasonal rivers in RRM, GRM and SM for easy access to highway/roads. Along with this, the regional Bus Park is also aspired in Bhalubang (RRM 1) on the way to Pyuthan. As the valley floor is more susceptible to hazards like flooding and inundation during monsoon, they also yearn for an

[9] Praganna irrigation system is one of the crucial infrastructure channelling irrigation water to most of the agricultural lands in the valley floor in RRM

[10] A reservoir is currently under construction in ward number 7 of SM, adjoining Pyuthan with the intention of redirecting water to Kapilbastu.

early warning system (one already installed in Bagasoti in SM8). The meteorological station in the Bagasoti area was used to transfer meteorological data directly to Delhi first and then later to Nepal in earlier days. "*We also need a robust early warning system that can effectively communicate alerts for the local community as well as across Nepal*", shared a male participant in his 60s. Aware that the current inundation problems are due to the lack of adequate drainage systems, they prioritised underground drainage system alongside road networks in their communities and also along the base of Chure hills, so that the water flowing from the hills wouldn't cause them inconvenience in the future.

Regardless of the ongoing or forthcoming development initiatives, they held a firm conviction that involving the local community was imperative as it effectively blends local knowledge with technical expertise, leading to positive and favourable outcomes. Failing to do so would result in a waste of resources and time, further exacerbating the issue at hand. For instance, the ignorance of consultation with the local community during the construction of the bridge and embankment in the Mahadewa (GRM 2) settlement led to dissatisfaction and debates. When community members attempted to share insights with technical experts regarding recurring events during the monsoon season, they were met with dismissive responses like, *"Who are the engineers and technical experts here, you or us? You can't possibly know better than us."* Consequently, the level of settlements is now considerably lower than both the road level and the riverbed, exacerbating flooding issues, particularly evident in the most recent monsoon period.

**Policies**

The participants are well-informed about the existing policies that can be instrumental to realise their aspired future city. They strongly hold the view that the government's focus should be on enforcing policy implementation to drive the development of both the city and the nation as a whole. The policies listed during the discussion are briefly explained below:

<u>Policies to authorise blueprint of housing/building construction with minimal or no charge with the goal of minimising the risk of earthquakes and other disasters</u>

According to the participants, the building code guidelines are already outlined in the policy, but the primary challenge lie in their practical application and associated expenses. They claimed that the process of obtaining approval for blueprints is both costly and cumbersome, posing significant barriers for individuals with low to moderate incomes. Additionally, they opine that the attitudes of government officials and prevalent corruption exacerbate these difficulties, discouraging economically disadvantaged individuals from constructing homes in compliance with the prescribed building codes. They asserted that if the fees for blueprint approval were waived or significantly reduced, it would undoubtedly incentivise greater adherence to building codes.

*Table 5: Translation of the aspired policies of Migrants group*

| SN | Name of the Policies | Time | Scale |
|---|---|---|---|
| 1 | Policies to authorise blueprint of housing/building construction with minimal or no charge with the goal of minimising the risk of earthquakes and other disasters-Immediate/local government | Short-term (ST) | Local Level |
| 2 | Policies for prioritising conservation of Rapti River and Chure area | ST | Local Level |
| 3 | Policies for making the national pride projects that are required in the making of the capital city, of national standards | Mid Term | Provincial |
| 4 | Policy for managing livelihoods for marginalised and ethnic groups living within the capital city along with gender diversity and equal wages for women | ST | Local |
| 5 | To create an equitable and exploitation-free society, need for honest and popular leadership development policy | Long Term | National |

Policies for prioritising conservation of Rapti River and Chure area

While national policies for the conservation of the Rapti and Chure regions are in place, it is imperative that these policies be given higher priority and enforced rigorously. "*If we continue extracting resources from both the Rapti and Chure regions, the preservation of these areas will become unattainable and the delicate balance of these ecosystems and the preservation of their unique characteristics could be compromised*", the participants echoed. Reintegrating the need to maintain delicate balance between economic development and environmental preservation, they prioritised the policy that stipulates conservation of the environment in achieving the desired future city.

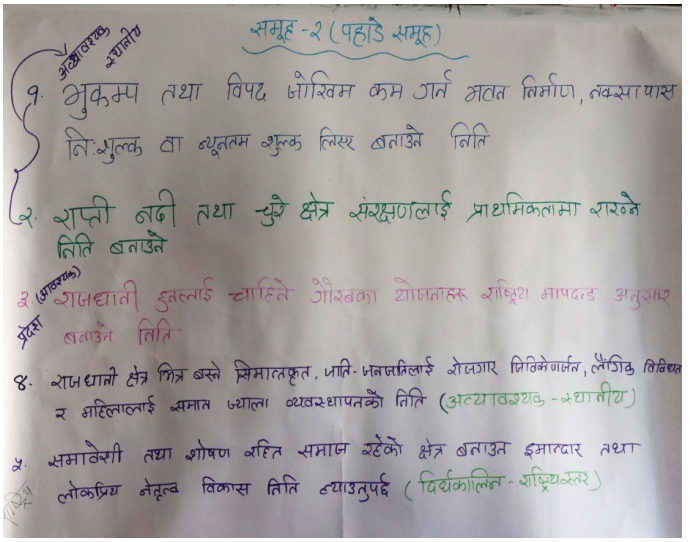
Policies for maintaining the standards of the national pride projects that are required in the making of the capital city

While the group envisioned constructing infrastructure like universities, hospital, industries, airport etc., they are aware that these are not sufficient to ensure quality and standards that they have envisioned in their future city. They acknowledge the need for strict policies and the government's will and support to materialise their visions.

Policy for managing livelihoods for marginalised and ethnic groups living within the capital city ensuring gender diversity and equal wages for women

The male participants claimed that discrimination and domestic violence against women/female was no more prominent in the capital city. The female participant, however, had a different view. She shared that gender-based discrimination prevailed across various sectors, be it participation/ institutional representation, wage distribution and/or job allocation. She demanded that each instance of domestic violence against women should be given unwavering attention and a serious response so as to protect the rights, safety, and well-being of women. She stressed on the need for a policy against gender discrimination, giving an example of the price disparity between roosters and hens (small size and alive) in the market, where roosters often tend to be priced higher (800 NRs) than hens (500 NRs). To which, male participants made a joke out of it saying roosters are tastier than hens. Furthermore, despite policy regarding equal pay currently exists, the implementation is poorly practiced. Hence, the issue should be regularly raised and enforced. Despite differences in the views regarding the current state of gender-based disparities, the participants agreed that the future dynamics of gender-based inequalities in the provincial capital were uncertain, as its population was increasing and diverse primarily due to increasing migration from across the country.

*Photo 24: Envisioned policies of Migrant (Pahade) group*




Need of honest and popular leadership for policy development and achieving an equitable and exploitation-free society

According to the participants, developing comprehensive guidelines for the qualities necessary to become proficient and effective politicians as well as government officials is crucial for ensuring the integrity and competence of individuals entering public service. These guidelines would not only serve as a roadmap for aspiring politicians but also contribute to the betterment of the political landscape and governance. The participants further emphasised that they should also be dynamic and subject to periodic evaluation and updates (giving examples of the Civil Service exam) to reflect changing societal needs, values, and

challenges. By providing a clear framework for the qualities expected of politicians, these guidelines can contribute to a more ethical, effective, and representative political landscape and ultimately the aspired equitable future city.

**Conclusion**

In the capital city, migrants predominantly settled on the valley floor, particularly in the RRM and GRM regions, with few populations in SM. The participants of this group exhibited a deep understanding and vivid visualisation of their future city, considering different aspects such as potential population growth, possible city expansion areas, and hazards. These perspectives were influenced not just by their abilities and prior experiences but also by their exposure and seemingly higher social positionalities within the capital city.

Migrants showed foresight in planning for the city's future population growth and consistently grounded in the imperative of ensuring hazard-free conditions. They had a well-defined vision for the allocation of agricultural lands, commercial/city centres, and green spaces along with the conservation of natural resources including Rapti River and Chure Hills. They believed conservation is crucial as it is the basis of human existence, and remain essential for future well-being, and additionally safeguard against natural calamities and catastrophes. They prioritised preserving the fertile agricultural land of the valley, hence envisioned the expansion of settlements in the flood plains of Rapti river (with necessary protective measures like embankments) and hill regions. Their envisioned agricultural zone also aligned with the Government's master plan for developing agricultural zones in RRM 6 and 7. They noted that expanding the city in hill regions require resilient infrastructure. They also stressed the enhancement of the existing road infrastructure in the hills rather than building new ones to minimise landslides and environmental impacts and promote safety. Their concern for ensuring a balance between development and disasters clearly illustrated their invaluable understanding of fragility of the Chure hills and developing this emerging city without imparting adverse impacts on biodiversity-rich surroundings.

Considering the need for parallel development throughout the capital city, the participants strongly agreed on the need to develop the majority of the new macro-infrastructures in the southern part of Rapti in GRM and a few in SM8 and not only concentrate on RRM. Lacking knowledge of SM 9's geography and society, they found themselves at a loss when it came to strategising their development initiatives in the area. They were also aware of the need for an equitable society with easy and equal access and affordability, especially in the health and education sector and hence located at least basic schools and local hospital/health posts in every major settlement.

Their primary focus was on fostering self-reliance in the capital city by increasing food production through the promotion of local agricultural productions. Similarly, creating employment opportunities through promoting local tourism and the establishment of industries, and other essential city services was also considered crucial in fostering self-reliance. This approach aimed to discourage the trend of out-migration of youths seeking foreign employment. They planned to make utmost use of Rapti River and its adjoining areas, from rafting to building new cities and airport in its flood plain. They believe the area will be safer with the construction of a dam upstream (Naumure Reservoir, SM7) that is expected to regulate the flow in Rapti River year-round making it less susceptible to flooding. Introducing rafting in the Rapti River can offer multiple benefits, encompassing tourism enhancement, increased employment opportunities, as well as crucial contributions to the preservation of the river's ecosystem and the sustenance of local livelihoods reliant on its resources. In terms of safeguarding the local culture and heritage, they believed as long as the existing practices continue undisturbed and at their customary pace, the local cultural identity, ethnicity, and traditional practices will endure without alteration and will remain unchanged even in the future.

Considering the confined indoor conditions in urban areas, which offer limited open spaces, especially for children and old age, they envisioned ample open areas in the future city for multiple purposes such as sports, leisure activity, and social gatherings, as well as evacuation centres/shelters during disaster events. Along with that, they have also envisioned waste management and allocated the wasteland in the forest area of RRM and GRM far from the settlements so that leachate after treatment do not affect agricultural land and settlements.

The participants believed that all of the envisioned aspirations are attainable unless they are hindered by corrupt politicians, who can create a substantial obstacle to the city's development. They also expressed strong dissatisfaction with the current operational methods of the government and the existing bureaucratic system. They believe that the country's existing/formulated policies are among the best in the global south and worldwide; however, they find the implementation to be deeply disappointing. As such, addressing corruption and fostering ethical governance are essential prerequisites for sustainable development and the well-being of society, thereby equitable and resilient tomorrow’s city in the valley.

## *Chapter 5: Tomorrow's City of Ethnic Communities*

### *Visioning statement: "Green, equitable, risk-free city focused on physical and cultural aspects of Janajati people along with employment opportunities based on skilful training"*

**Anushiya Shrestha, Dilli P. Poudel and Salu Basnet**

### Introduction

The *World Social Situation Report* defined an ethnic group as one that "generally shares a common sense of identity and common characteristics such as language, religion, tribe, nationality, race or a combination thereof" (UN, 2018). As evident from its multi-ethnic, multi-lingual, multi-religious, and multi-cultural characteristics embraced in its 2015 constitution, Nepal acknowledges that ethnicity and caste are intertwined aspects of its social fabric. According to the 2021 national census, there are 142 casts and ethnic groups in Nepal, which is an increase from the 125 groups recorded in the 2011 national census.

The 2015 constitution of Nepal (in Article 261) has endorsed the establishment of *Adhibasi Janajati* Commission (Indigenous Nationalities Commission, INC) to study the overall situation of indigenous and ethnic communities in Nepal. This commission is tasked with devising policy, legal and institutional changes, providing policy recommendations to the government for their empowerment, and preserving their language, script, culture, history tradition, art and literature and overall rights and interests.

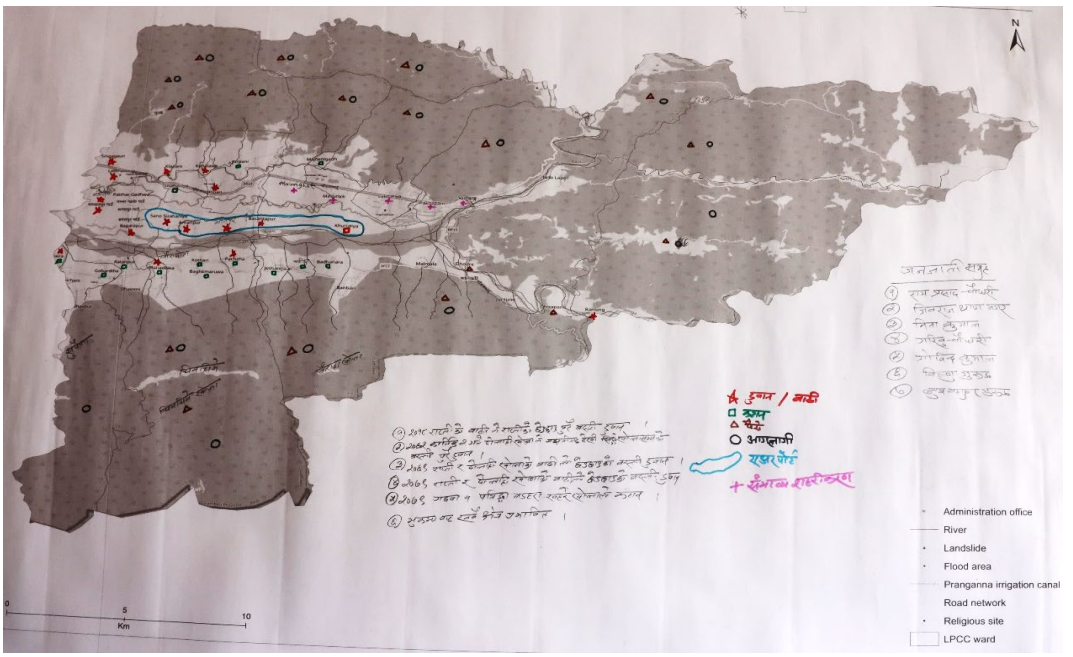
Rapti, the provincial capital city of Lumbini Province, is mainly inhabited by the indigenous Tharu community and the ethnic/*Janajati* population, constituting over 57 per cent of its population (see Chapter II). Broadly, the Tharu indigenous community of Rapti resides on the valley floor, and the ethnic communities inhabit the surrounding hills. Striving to escape the hardship of living in the hills and seeking better livelihood opportunities, some hill ethnic communities migrated to Rapti Valley few decades ago. Many of them settled on the foothills of the Valley. Although the origin of the ethnic groups varies, they comprise mainly of the Magar, Gurung, Ale, Rana, Rawat, and Kumal communities. Among them, poor ethnic households are dominant in wards in the SM, compared to other areas (Poudel et al., 2023).

### Participatory Hazard Mapping (PHM)

The ethnic group recognised the systemic and complex nature of urban development, and that the urban development process often increases the risk of disasters. In the case of Rapti Valley, they have identified risks as natural (e.g. floods, landslides, earthquakes), geographical (e.g. hilly/mountainous, rough/steepness, undulating, surfaces), cultural (e.g. multiple

religions), human-induced (e.g. haphazard constructions), and social (e.g. caste, ethnicity, and class hierarchies). A major concern of the ethnic community was the threat to their ethnic roots. They justified their fear by providing examples of instances such as renaming Deukhuri Valley into the current Rapti Valley and the attempts to displace the traditional and ethnic inhabitants from their aboriginal settlements. From their perspectives, Tharu Kumal, Pahade Kumal, and low-income communities were among those most vulnerable to the impacts of the development of city infrastructures in the valley. One participant remarked during an informal conversation, *"The traditional settlement of Tharu Kumal lies in the market area of Gadhawa and the group has been upholding their traditional pot-making profession, which they undertake near the forest. Several attempts had been made to relocate this community but with strong leadership, the group has resisted such attempts".*

*Photo 25: PHM of ethnic group*




Besides these imminent social risks, the Rapti Valley is exposed to the risk of flooding, inundation, landslides and forest fires. The inundation and flooding are recurrent in Basantapur (RRM 3), Arnanpur (RRM 7), Bhagwanpur (RRM 6), Bhanpur (RRM 7), Bagarapur (RRM 6), Majheriya (RRM 6), Lathawa (RRM 5), Singhe (RRM 5), Kalapani (RRM 5), Pipari (RRM 8), Khaira (GRM 3), Mahadewa (GRM 2) (by Kahurasota river), Pachaha (GRM 2), Rangsing (SM 8), Chhotki Sisahaniya (RRM 7), Khururiya (RRM 2). Katan (lateral/side erosion) is most prevalent in areas like Jorpani (RRM 8), Majhenigadh (RRM 4), Gobardiha (GRM 3), Khaira (GRM 3), Ratanpur (GRM 3), Mahadewa (GRM 2), Bagmaruwa (GRM 2), Pachaha (GRM 2),

Jethan Gaun (GRM 2), Badahara (GRM 2), Patringa (GRM 2), and Majhenigadh (RRM 4). The Rapti flood in the early 1960s that affected its riparian settlements and the Rangsing area (SM 8) was still fresh in the participants' minds. The Dolai River (previously named Burlahaiya River) flows through several wards of RRM and along the East-West Highway. Although the occurrence of flood spread through those wards had reduced threat to settlements, the flood in 2005 had a significant impact. That flood inundated many settlements from Majhenigadh (RRM 4) to Singhe (RRM 5) River, including areas that had never been inundated in the past. Similarly, Rapti and Dolai Rivers flooded in 2012 and recently in 2022, affecting many nearby settlements (e.g. Paharuwa and Lathawa of RRM5). The participants lamented, "*The flood of 2022 damaged the settlements in Patringa (GRM 2) and Badahara (GRM 2) of Gadhawa and extensively affected paddy fields and swept away fisheries*."

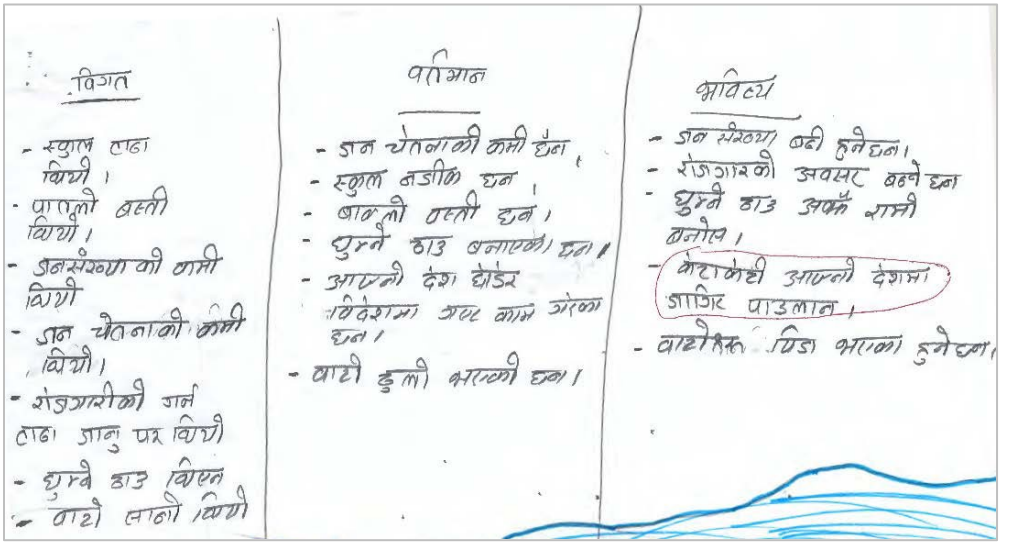
Settlements flanking Bauraha River and Chimchime (GRM 2) are vulnerable to landslides and floods. Dhodre (SM 8) and Chisapani (SM 8) are prone to landslides, whereas Bhulke (RRM 5) and Karangekot (hilly settlements of RRM5) are at risk of both landslides and fires. The communities feared that, as the entire valley is prone to earthquake risk, rampant conversion of agriculture to non-agricultural uses and concretisation of farmland could aggravate this risk. The communities opined that congregating urban development towards the northern part of the highway, specifically in areas such as Bhalubang (RRM 1), Pakhapani (RRM1), Barahakhutti (RRM 2), Maurighat (RRM 4), and Lalmatiya (RRM2) – that are less potent agriculturally and comprise unirrigated *bari (field)* land – could help to mitigate this risk. The communities also opined that some land for urban development could also be obtained through forest recession. This, they opined, could reduce the pressure of acquiring private lands.

**Individual and Collective Aspirations**

The ethnic group comprised six participants (4 female and 2 male), ranging in age from their early twenties to sixties and belonging to diverse socioeconomic backgrounds. It took some time for recalling varying past experiences and orientating the participants in right direction. However, tracing the trajectory of their lives (past, present, and future life) as 'the individual rivers of life' soon engendered spontaneous responses from the participants. The participants shared their past experiences, such as lack of education opportunities, roads, drinking water, sanitation, health, electricity, and market services. Some male participants recounted that cattle rearing was a vital livelihood but, improper management led to filthy villages. As ethnic community originally belonged to the hilly areas, cultivation of corn, mustard, dryland crops was most common in the past. Additionally, reliance on traditional food production and processing, as opposed to modern technology, made agriculture a laborious task. Despite hardship, agricultural production was low which made poverty a prevalent problem among the ethnic groups. They remarked that tiny houses with thatched roofs were common, which

made the settlements prone to fire. Their past life was rife with difficulties characterised by limited access to services and opportunities.

*Photo 26: Individual aspirations of one of the participants of ethnic group*




The participants openly acknowledged that their lives have improved on multiple fronts. The establishment of secondary schools in their villages has provided access to education. Similarly, expanding roads, drinking water services, electricity, communication, market access, hospitals, and other infrastructures significantly improved their quality of life. As the population has increased, previously sparse settlements have become more densely settled. The participants expressed gratitude for the inclusive government policies and actions that prioritised the rights of women, children, and indigenous groups and gave impetus to the inclusion of marginalised communities. They remarked that the changes on the environmental front have, however, been deleterious. Chemical fertilisers have replaced traditional organic farming. Some have even borne significant losses due to the damage of standing crops caused by attacks from locust swarms. While the fire risk has reduced, a new challenge has

*Photo 27: Participants preparing their collective aspiration*

emerged due to declining rainfall and depleting natural water sources. Additionally, deforestation has contributed to increased occurrence of flooding and landslides. On the economic front, foreign employment and well-managed cattle rearing have opened new avenues for economic empowerment. Thatched roof houses have increasingly been replaced by tin, and the construction of wooden and cemented houses symbolises opportunities that the ethnic communities have embraced. However, the earthquake and COVID-19 pandemic resulted in some unprecedented challenges.

They envision a future where Rapti City becomes an inclusive, clean, green, disaster-resilient, safe, and well-managed capital of Lumbini province. In this system, they aspire to see the city developed extensive school infrastructures, maintain well-paved and black-topped roads, equip hospitals, provide adequate transportation services that are managed properly, improve access to drinking water service, and establish reliable electricity connections. Additionally, the city will prioritise open spaces, forests, and children's parks, while also improving drainage systems and implementing comprehensive measures for flood and landslide management. They also hope that the government will address the issue of bonded labourers, offering individuals with employment opportunities and emancipating them from perpetuating dismal livelihoods circumstances. Furthermore, adhering to their cultural background, they aspire to safeguard their cultural and religious heritages and recognise the unique identities of ethnic and indigenous communities and their settlements.

**Wheel of Urban Assets and Visioning Statement**

They envisioned the development of wide road networks with proper drainage systems and earthquake-resilient infrastructures in their city. They also prioritised establishing playgrounds for children and high-quality schools and universities that provide classes in ethnic languages. Similarly, they envisioned the availability of hospitals and the construction of embankments for flood control. Ethnic communities recounted being derogated as herders and taunted for embracing recreation in their cultural activities. Although traditional culture-based discrimination has become less severe, they noted that caste-based discrimination still

*Photo 28: Wheel of assets as crafted by ethnic group*

prevails in the Rapti Valley. They advocated for the elimination of all forms of caste-based discrimination and also for the preservation of temples and monasteries. These activities, they stressed, would help to redress social injustices, and promote social cohesion.

The commercialisation of traditional occupations such as making bamboo and clay-based artefacts [for example, making clay pots, baskets, *namlo* (Hempen strap)*, damlo*[11]*, nanglo (flat round woven tray), doko*[12]*,* etc.)] and supporting micro-enterprises based on the skills of ethnic groups, could foster inclusive employment opportunities. Homestay and community building that reflect the identity of ethnic groups and preservation of traditions (dance, music, cultural dresses) could help recognise traditional knowledge and cultural assets. The ethnic community also called for attention to the maintenance and improvement of the environment in this urbanizing city, with a focus on the Green City idea, and encouraging investment in park construction and water source conservation. Reiterating the need to address discriminatory practices and promote social inclusion, the ethnic community stressed the need to formulate inclusive policies and legal instruments that explicitly spell out the inclusion of ethnic communities. They also prioritised revamping existing water user committees, making them more inclusive and effective for the conservation of water sources at each settlement. They argued that ethnic communities still lagged in terms of their reach to information and demanded that the government should undertake awareness programmes, such as subsidies for agriculture and health insurance. Similarly, training facilities aimed at upskilling individuals and fostering employment opportunities are among their other priorities. They also expressed an interest in developing earthquake-resilient houses and improving sheds for livestock. Interestingly they remarked that while housing is a basic need, lack of equitable access to drinking water and electricity, drainage services, and public toilets can not only add health-related risk but also perpetuate inequalities. Encapsulating their aspirations and visions for the future city, they curated a visioning statement, "*Green, equitable, risk-free city focused on physical and cultural aspects of Janajati* [lit. ethnic] *people along with employment opportunities based on skilful training*".

*Photo 29: Participants presenting wheel of urban*

[11] Rope that is used to tie in the neck of domestic animals to a peg

[12] Wooden basket or *doko* used for collection of grass, fodder, dry leaves. *Damlo* (Hempen strap) supports farmers to carry *doko* on their back.

**Co-mapping**

Ethnic communities opined that agricultural zones should be near the settlements, located towards the western edge and the centre of the Rapti Valley (in the ward of 1 and 2 of GRM). They also allocated an agriculture zone by the settlements near *Sano Nadi* (lit. small river) in wards 6 and 7 of RRM, which they opined, could help effectively manage the irrigation service. They also opined that 50 metres of land on either side of the Rapti River should be conserved as a Green Belt. Delineating this setback is crucial to mitigate the risk of flooding.

*Photo 30: Participants of ethnic group during co-mapping exercise*

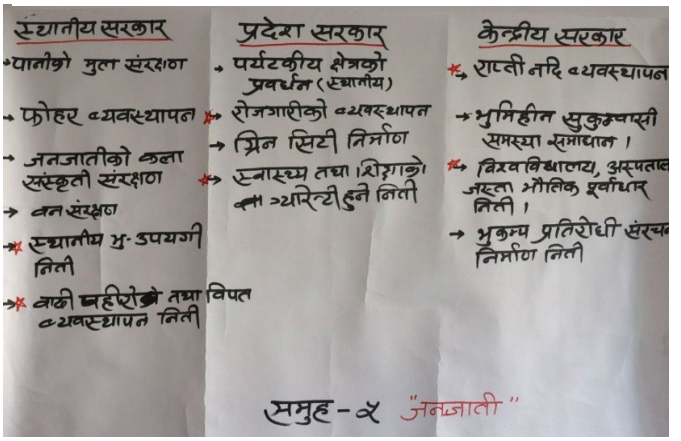
Similarly, they stressed the need to construct embankments to control flooding and inundation. However, some settlements in the central part of the Rapti Valley are prone to inundation. For instance, one of the female participants shared, "*Katesh Nala or Karamdi River* (RRM2) *mixes up with the Dolai River, a seasonal river that emanates from the forest and causes damage as it flows meandering.*" Similarly, the Bhainswar River (RRM 8) was notoriously devastating due to its destructive characteristics. Bhulke (RRM 5), Tallo Laape (SM 8) and the northern part of the valley was prone to landslide, while Tallo Laape (SM 8) in Kharala experienced frequent inundation.

The participants opined that the settlement would expand on both sides of the highway. A male participant expressed his views, "*The settlement can be maintained in the places as are now. Management of the settlements should be ensured*". Hence, they stressed constructing concrete bridges in Tallo Laape of SM 8 and the bus park towards the north-eastern part of the valley. They envisioned a blend of settlements. They placed mixed settlements towards the southern area of Shitganga Municipality, anticipating that the wealthier groups would shift into high-rise buildings. Kumal settlement was envisioned towards the central part of Gadhawa Rural Municipality and the *janajati* (i.e. ethnic) settlement towards the central part of Shitganga municipality. They opined that managed settlements would be developed towards the northern and eastern parts of the Rapti Valley. A female participant elaborated, "*We should make the settlement at a safe distance from the river for safety purposes. Our current policy has defined 50 metres setback from Rapti River, and we need to abide by that. Further, we cannot occupy the forest area for settlement, the first reason is it is difficult to make the settlement in forest area and the second is we cannot go against the national policy*". Diverse viewpoints emerged as some advocated for the settlements near the forests, while others opined that the settlements should be closer to the rivers, as this would help with drainage management. The group designated the southern part of RRM for the development of hospitals. The participants agreed that a hospital could be developed near Bhalubang (RRM 1) while a hospital cum medical college could be developed in Tallo Laape (SM 8). They also added that a hospital was also needed near Lalmatiya (RRM 2) and another, albeit smaller (100-bed) hospital, was needed in Gadhawa. They reiterated the importance of expanding educational infrastructures, including schools to cater to the expanding settlement. A university was considered as a possibility in the Bhalubang area (RRM 1). The business centre, they opined, could extend from Bhalubang (RRM 1) to Sisahaniya (RRM 7), Gobardiha (GRM 3). Concerned about the environment, they proposed two dumping sites far from settlements- one towards the southern fringes in the outskirts of the GRM and another at southern forest area of SM. To boost economic growth, the participants suggested locating the industrial area near the forest, in areas such as Laami Damaar (SM 9), Pakuri of SM and in the south-eastern part of the valley. Similarly, they envisioned developing the airport in the

*Photo 31: Ethnic group presenting their future envisioned Rapti Valley*

Bhanpur (RRM 7) area along the flood plains of RRM. While they are hopeful that road networks will be extensively developed, they also aspired to develop Railway connections and cable car connections towards the western part of the RRM. The central part of RRM was earmarked for an administrative centre, while the homestay in ward 8 of SM. Hotels have also been included to enhance the tourism potential of the valley. Embracing the cultural values, they hope to conserve the temples and the Buddhist monastery in RRM, the ethnic settlement in SM and the Kumal settlement in GRM. They expressed their aspiration, "*We also need a big Gumba* (monastery) *like in Lumbini for the tourist*". The group also hopes to conserve public places. They noted, "*There are 3-4 Chaupari*[13] *at Mathura Danda of SM-9 where Mela* (fair) *is organised annually during Ekadashi*[14]*. We need to develop further and manage these sites*". Similarly, they emphasised the importance of conserving water sources, particularly in Lalmatiya (RRM2) and Sisahaniya (RRM 7). The participants agreed that conserving the Lake of Laami Damaar (SM 9), Harshedanda (RRM 2), Khauraha baba (RRM 5) could enhance tourism prospects. Similarly, they also highlighted the potential of religious tourism in the valley. Supadeurali and Baraha mandir of Laami Damaar (SM 9) are revered religious sites and attract tourists to the area. Complementing this religious tourism with history and culture-based tourism, they added a museum in the south-eastern part of the valley.

*Photo 32: Policies enlisted by ethnic group*




While they opined that the gradual shrinking of forests would be inevitable to avail land for a myriad of urban infrastructures in this provincial capital, they also acknowledged the prime role of forests and envisioned conserving forests in the northern and western edges of the valley as Eco-forests. They aimed to promote nature-based tourism and develop a vulture conservation centre closer to the Eco- Forest in the northern part of the valley. They also suggested a zoo in the Kulpani area towards the eastern part of GRM 1. Their priority for social security was also evident in their plans for a police station in the south-eastern part of the

[13] Traditionally created tree sheds that provide resting space for pedestrians and serve as a communal space.

[14] Ekadashi is the eleventh lunar day (i.e. Tithi) of the waxing (i.e. Shukla Paksha) and waning (i.e.Krishna Paksha) lunar cycles in a Vedic calendar month.

valley, an army camp in the north-eastern part, and the camp of the Armed Police Force (APF) in the Southern part of the valley.

**Policies**

The participants highlighted the pressing need for a comprehensive policy that could safeguard land, housing, and livelihood of the socioeconomically disadvantaged groups who face potential displacement in the wake of urbanisation (see Table 6). One participant eloquently expressed their concern, "*While the government may allot land, these groups often lack the financial means to construct their house following the prescribed guidelines, leaving them no recourse, but to sell their land and migrate elsewhere*". Recognising that the federal government has commissioned actions for distributing land to poor and landless squatters,

Table 6: Prioritized policies of Ethnic groups

| S.N | Policies | Level |
|---|---|---|
| 1 | Policy to ensure that the poor and marginalised will not be displaced during the urbanisation process. | All three levels |
| 2 | Policy for landless/ squatter management | Federal |
| 3 | Policy to ensure that capital city formation will not hamper the agricultural land or any other land use. | Local and Provincial |
| 4 | Policy for promotion of local tourism | Local |
| 5 | Policy to ensure that the construction of new infrastructures will not cause any harm to existing houses and infrastructures | All three levels |
| 6 | Houses and other buildings should not be constructed in places with a risk of landslide and flood. | Local |
| 7 | Policy for Rapti River Management | Federal |
| 8 | Policy for Green City | Provincial |
| 9 | Policy for conservation of social and cultural assets | Local |
| 10 | Policy for waste management | Local |
| 11 | Policy for water source conservation | Local |
| 12 | Policy for preserving culture and tradition of an ethnic group | Federal |
| 13 | Policy for forest and environment conservation | Local |
| 14 | Policy for making earthquake-resilient infrastructures | Federal |
| 15 | Policy for local land use | Local |
| 16 | Policy for employment and livelihood management | All three levels |
| 17 | Policy for disaster management | Local |

the group underscored the necessity of coordinated actions from all three levels of the government to ensure employment and livelihood security.

The participants of the ethnic group argued that the provincial government should take the lead in formulating and implementing policies for developing the provincial capital as a Green City. They advocated for collaboration with the local government in managing local land use responsibilities. The participants emphasised that the construction of new infrastructures should not be at the expense of agricultural land and should not disrupt existing settlements and other land uses and infrastructures. This, they stress, calls for coordination between the three tiers of the government. Disaster prevention and management emerged as their next priority. They urged for policies that discourage construction in landslide and flood-prone areas. Further, they note that the valley will remain susceptible to flooding unless river management policies are implemented. Managing Rapti River, they opined, requires actions from the federal government, while the conservation of other local water sources demands local initiatives. Recognising the local government as the custodian of local resources, they urged the implementation of policies for forest and local environment, waste management, social and cultural assets, and tourism promotion. Policies of earthquake-resilient infrastructure, they asserted, would require robust support and guidance from the federal government. Also, according to their experience, preserving the culture and tradition of the ethnic groups cannot be effective without efforts from the federal government.

**Conclusion**

The participants in this group originated from hilly areas and shared their past experiences that included limited access to education, infrastructures such as roads, drinking water, sanitation, education, health services, etc., and challenges compounded by social marginalisation. While they nestled in the hilly terrain and their livelihoods revolved around dryland cropping and cattle rearing in the past, migration to the current Rapti Valley became a way out of their daily drudgery. This migration allowed them to create a new community with close connections to their ethnic roots. The participants openly acknowledged tangible improvement across multiple facets of their lives and aspired to urban development. They envisioned a mix of settlements, including indigenous and ethnic communities across different municipalities. They advocated for improved healthcare, transportation and education services, conservation of water sources, and infrastructures for disaster prevention and management. Dumping sites, eco-forests, and vulture conservation, among others illustrate their concerns for the environment. Although less prominent, they also expressed an interest in the economic growth of the city through nature and religious tourism, and industrial development. Amid these transformations and aspirations, they feared that urban development would ensue at the expense of their traditions and identity. They were

concerned about the welfare of the poor and marginalised groups, culture, and the environment. Besides, they also feared that the private land might be acquired for urban development and could bring ramifications, particularly for agriculture-based livelihoods and poor, marginalised, and ethnic communities.

Although the participants differed in their opinions on settlement locations, where some advocated for locations close to the forests while others preferred riverside for better drainage, they shared palpable concerns for the poor and the marginalised and respectful social inclusion of the socioeconomically and culturally diverse communities in the Rapti Valley. Their vision for the future Rapti City evolves into an inclusive, clean, green, disaster-resilient, secure and well-managed capital of the Lumbini Province. They emphasised the need for comprehensive policies to ensure land, housing and livelihood security of the poor, landless and marginalised groups. Recognising the ongoing initiatives to identify and provide land for the landless groups, they called for coordinated efforts from all levels to address land, housing and livelihood challenges. They advocated that the government address the issue of bonded labour - offering employment opportunities and ensuring their respectful social integration. Aligning closely with the constitutionally envisioned rights, they aimed to preserve their cultural heritage and gain recognition for their unique traditions, while also valuing and harmoniously converging with the indigenous culture and communities. Lastly, they stressed that efforts for disaster prevention, river management, balancing urban development, conserving culture and environment, maintaining social harmony, and establishing security require coordination from all three levels of the government.

## *Chapter 6: Tomorrow's City of Madhesi, Muslim and Dalit communities*

***Visioning Statement: "A resilient Rapti city in the leadership of the local government and direct community engagement, which promotes local cultural diversity, fosters tourism, local scale-based businesses, and agriculture."***

**Rojani Manandhar and Dilli P. Poudel**

### Introduction

The Madhesi, Muslim, and Dalit (MMD), representing three different community groups, enrich the region's diversity with their distinct culture and identity. These communities are perceived as minorities compared to other communities. Consequently, they often face social marginalisation, evident in their limited influence within the society. The terms "Madhesi" and "Pahade" delineate primarily linguistic and geographic ethnologies (ICG, 2007).

The 'Madhesi' identity is intricate and diverse, encompassing various caste and ethnic groups. Predominantly Hindus, the Madhesi also comprise some Muslims, Buddhists, and Christians. The Tarai *Janajati* (indigenous groups) often do not identify themselves as Madhesi (TNH, 2007). Often referred to by derogatory names like '*Marsya*' (a disparaging word for Madhise or of Indian origin) or *Bhaiya* (Hindi for brother, mocking Indians) or '*Dhoti*' (mocking the cultural attire), the Madhesi have nonetheless, managed to overcome the discrimination associated with these words and their socio-political marginalisation with the Madhes Movement in 2007/8 (Sha, 2015). The Madhes movement had ignited their desire and struggle to reclaim the lost dignity and respect. With the Madhes uprising, their political representation, compared to local indigenous groups, is also getting stronger in the province and local government. Some of them now boast robust economic status through active engagement in business and commerce. Following Khas Arya (Hill Brahmin and Kshetri), the increased political representation (mostly at the province and local government) is largely dominated by men from Madhesi Brahmin and middle caste groups (Yadav and Sah) in Tarai (TNH, 2007). Nevertheless, certain segments of Madhesi population continue to face social, economic, and political marginalisation both nationally and within the Tarai society.

The Muslims hold significant importance as one of the largest religious minorities in Lumbini Province (Province 5) constituting 6.93% of its population (CBS, 2021). Despite forming about 5.09% of the nation's total population (ibid), with 80% concentrated in the Tarai region, they have historically been perceived as outsiders (International Crisis and Safer world, 2019). Their migration to Nepal traces back to the 15th century, primarily from India, seeking refuge from the British East India Company rules. In an interview carried out in September 2023, a Muslim participant revealed that their ancestors were initially Hindus from India, compelled to convert to Islam by the British rulers at that time. Seeking safety, they fled to Nepal and settled

here in Rapti/Deukhuri Valley. Even today, they grapple with a persistent feeling of being distrusted and viewed suspiciously that they are 'Nepali' or 'Madhesi' by dominant groups.

The 2015 constitution acknowledged Muslims for the first time by incorporating them into a list of marginalised groups and offering a job quota. However, with less than 1% representation in civil service positions (Khalid, 2016), their inadequate inclusion exacerbates the existing 'crisis of trust' between Muslims and non-Muslims/the state (International Crisis and Safer world, 2019). This lack of trust holds significant social and political repercussions, resulting in discrimination, intensifying their marginalised status (ibid).

Approximately 12 percent of Dalit communities (both Madhesi and Hill) such as Kami, Sanyasi/Dasnami, Sarki, Damai/Dholi, etc., are housed in the capital city (RRM 2019, GRM 2018 and SM 2019). These Dalit households, like migrants of other castes, also migrated from neighbouring districts seeking improved opportunities and livelihoods that were otherwise challenging to secure in their hometowns. They migrated in the latter half of the twentieth century when Tarai was open to development following the eradication of malaria in 1950s. Some Dalit communities integrated somewhat seamlessly with higher castes by engaging in occupations directly tied to household necessities, while others continue enduring discrimination, although subtly, due to their lower caste status. In terms of representation, Dalits are in state mechanisms solely due to the mandatory constitutional provisions, compared to Madhesi and Muslim communities (Darnal, 2022) [15].

Moreover, all three communities, being minorities (except for the elite Madhesi) were also subjected to bonded labour (i.e. Kamaiya) for their livelihood in the past (Fieldwork, 2023). This perception of being minorities, especially as Muslims and Dalits, also hampers their complete integration and active involvement in various aspects of societal progress and decision-making processes. Consequently, their voices often endure marginalisation and inadequate representation, perpetuating or reproducing a cycle of inequality and restricted opportunities for these communities within Tarai, including the Rapti Valley. Hence, these particular community groups have been chosen and integrated into one of the disaggregated groups for detailed consideration in envisioning the future capital city.

The Rapti valley accommodates all the Madhesi, Muslim, and Dalit, primarily in the valley floor, and extending to the periphery of the forests. Additionally, Dalits are also found residing in the hill areas of RRM and SM. Notably, the affluent or elite groups of these communities tend to reside in the market-centric regions along the highways, while those with fewer

[15] Dalits are represented in all three spheres of the government–local, provincial, and federal.

resources often inhabit areas adjacent to the forests and riverbanks, seeking proximity to employment opportunities and market access.

**Participatory Hazard Mapping (PHM)**

The participants acknowledged that the Deukhuri Valley is experiencing swift urbanisation, which is evident through a notable transformation in the landscapes, primarily in agricultural and forest areas. Nestled between the forests of the Chure (northern) and the Dunduwa (southern) hills, and known for its fertile agriculture and planned irrigation, the valley is now grappling with the increased threats of hazards like flooding, inundation, landslides, fire (forest fire), lightening and earthquakes. These hazards have intensified in recent years due to the rampant development activities happening in the area, which is ultimately also responsible for creating social and cultural risks.

According to the participants, one of the most prominent issues is that the valley floor often faces a significant risk of flooding and inundation, even during off-seasonal rainfall. Settlements in GRM including Ratanpur (GRM 3), Gobardiha (GRM 3), Mahadewa (GRM 2), Dhaireni (GRM 3), Pachaha (GRM 2), Jethangaun (GRM 2), Badahara (GRM 2), Malmala (GRM 1), Supaila (GRM 3), and Bhainsikhutti (GRM 3) are consistently threatened by the Rapti River and seasonal rivers like Supaila, Mahadewa, Khauraha, Bauraha among others. Similarly, Kalakate (GRM1), Dhodre (SM 8), Tinkhande (SM8), and Rangsing (SM8) villages face risks from the Rangsing River. Additionally, urbanising settlements like Lalmatiya (RRM2), Sisahaniya (RRM7), Kalapani (RRM 5), Lathawa (RRM 5), & Paharuwa (RRM5), and Kohalwa (RRM 8), & Pipari (RRM 8) are prone to inundation and flooding from rivers such as Dolai and Singhe. The settlements of RRM mentioned above are highly susceptible to inundation from heavy rainfall lasting only a few hours, even during the post-monsoon period (September and October). This poses a threat to the lives and livelihood of the people. One of the participants recalled the event of October 16$^{th}$ 2000 when a massive flood occurred in Kalapani (RRM 5) and Sisahaniya (RRM 7) area leading to the inundation of one-storey buildings. The areas spanning from Pakhapani (RRM 1) to Singhegaun (RRM 5) and Kalapani (RRM 5) typically experience heavy rainfall, leading to frequent flooding in the Dolai and Singhe rivers and affecting the nearby settlements. "*One cannot imagine the intensity of rainfall in this area, resulting in annual floods and inundation of the surrounding",* shared a female participant. Despite this recurring issue, a hospital is constructed at Sisahaniya (RRM 7) without due consideration of the risk of flooding and inundation. *"The lack of vision from public representatives/government in undertaking such developmental activities just to satisfy the public often led to the wastage of resources and project failures"*, shared one of the male participants in his 30s.

Likewise, the 2003 flood in the Rangsing River not only swept away four houses in Tinkhande, Chisapani of SM8 but also destroyed the agricultural fields in the vicinity, resulting in the tragic loss of life of an elderly woman and many cattle. The flood events in Rangsing, causing both casualties and economic losses, are not new and have a similar history dating back to 1961 when the flood swept away numerous people and livestock. The agricultural land of Tallo Laape (SM8) and the existing road of Satmara (SM8) are also prone to flooding and inundation from the Rapti River and require embankment. Furthermore, in earlier days, the settlements were sparse which allowed sufficient spaces for waterlogging. However, there is limited space for waterlogging now due to the lack of open space (caused by rapid construction activities), surmounting the water level in the seasonal rivers with narrow outlets, thereby inundating the surrounding settlements and also towards downstream.

*Photo 33: Participatory Hazard Mapping of Madhesi, Muslim & Dalit*

However, initiatives like building embankments alongside the riverbanks in Rapti and other seasonal rivers have been started, reducing the threat to some extent. Although such embankments have lessened the risk of flooding, it does not eradicate the whole problem. This is evident in Chisapani area (GRM 1) and Bhalubang area (RRM 1), where flooding and inundation occur annually despite the embankments in the Rapti River. One of the participants noted that the narrowing of the Rapti River (from 600 meters to 500 meters) downstream towards the west further exacerbates the issue. This becomes more concerning when seasonal rivers merge with the Rapti River, triggering the overflow of excess water, ultimately leading to the inundation of agricultural lands and settlements.

According to the participants, the rivers including seasonal rivers used to be wider in the past, with limited or no impact on people. However, people have encroached on the riverbanks for

agricultural works and other purposes now. With limited areas for water flow, the river swelled up during heavy rainfall, which caused flooding and inundation in nearby settlements and agricultural fields, affecting lives and livelihood. With regards to the solution, a male participant said, *"The extraction of river resources such as sand and stones from the Rapti river, which serves as a major source of tax income for Deukhuri, should be conducted periodically to deepen the river. This action will prevent water from overflowing above the embankment/dam, thereby averting inundation."*

Land surveys conducted prior to the 1970s primarily targeted agricultural and residential regions, overlooking the unused land along riverbanks. As the river altered its course, it flowed through the middle of the settlements displacing people from their lands*. "The river's flow should be given the necessary space it requires without unnecessary encroachment, maintaining its essential area without disrupting its natural flow. Hence, constructing embankments on both sides of the river could ensure the safety of people and prevent further displacement"*, shared another male participant in his 40s.

The delicate Chure range experiences frequent landslides, particularly in the hilly areas within the valley. Settlements such as Bhulke (RRM 5), Majhenigadh (RRM 4), Tin (GRM 2), Gangrer (GRM 2), Dhodre (SM 8), Tinkhande (SM 8), Chisapani (GRM 1), and Rangsing (SM8) are particularly susceptible to these landslides. The mixing of landslide debris with rivers increases the riverbed, thereby posing a significant risk of flooding. Furthermore, these landslides have resulted in the loss of fertile agricultural land, negatively impacting crop production and the livelihoods of local people.

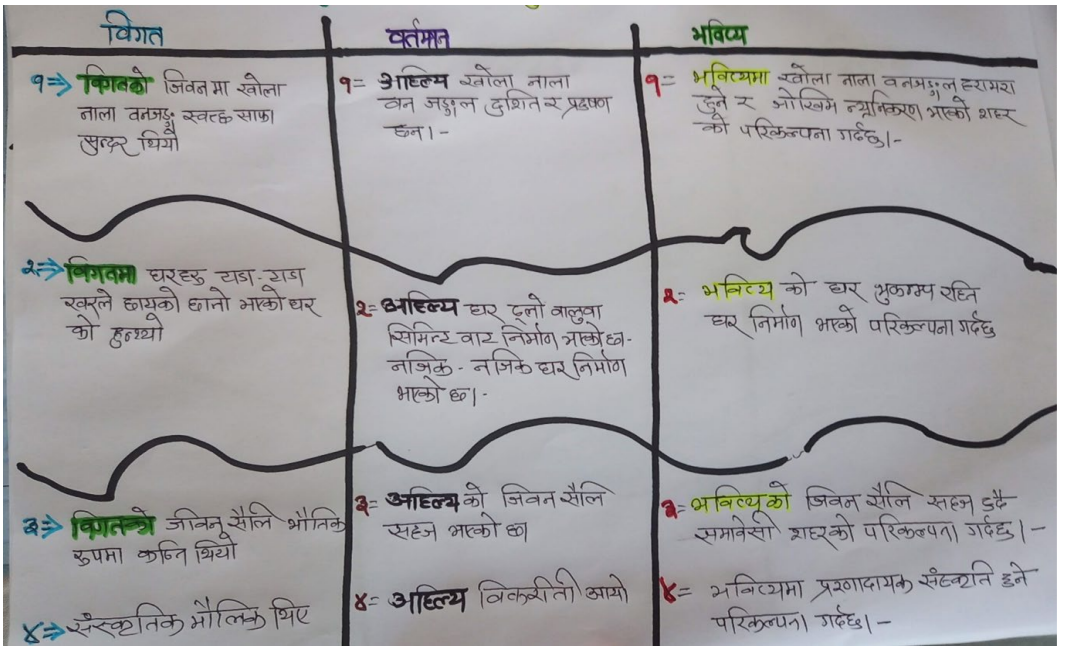
Another major hazard impacting the natural resources and the people of the valley is forest fire. These fires are mostly human-induced and are often deliberately set to clear the forest floor to obtain higher quality grasses and plants for livestock. Additionally, lightning, primarily occurring in forest areas, poses a threat, occasionally claiming the lives of both people and livestock. In 2022, three students from Masuriya (RRM3) lost their lives due to lightning in Majhenigadh (RRM 4). The lightning also caused physical damage to animal sheds and the loss of cattle and herds.

In recent years, the incidence of these hazards in the valley has escalated in tandem with the burgeoning population and increased construction activities. This escalation poses grave implications for both the resources and the inhabitants, imperilling their lives, livelihoods, and cultural integrity. It is imperative to account for these risks of hazards comprehensively in the planning process to ensure a resilient and sustainable future city for its residents.

**Aspirations**

Reminiscing the past, participants fondly recalled a time when natural resources were abundant, the environment was pristine, and the society was steeped in rich culture and traditions. Inhabitants resided in sparsely populated settlements with houses constructed from mud and stones, topped with thatched roofs. Life in these conditions was undeniably challenging, and livelihoods depended heavily on limited agricultural production. Moreover, inadequate hygiene and sanitation exacerbated the difficulties they faced.

*Photo 34: Individual River of life of a participant (past, present and future)*




The spectre of caste-based discrimination loomed over society, particularly affecting those from lower castes. People were illiterate and employment opportunities were scarce, leaving many in precarious economic circumstances. The absence of basic infrastructure, such as roads, compounded their daily struggles, making commuting a daunting task. Additionally, frequent hazards like floods and landslides posed a constant threat, causing damage to both property and lives.

Presently, one can observe a polluted environment due to the growing population, increased vehicular activity, and the widespread use of chemical fertilisers. Urban areas have become more densely populated, characterised by the proliferation of concrete buildings and enhanced infrastructure such as roads and bridges. Discrimination persists in society, although it has illegalised and notably diminished. The influence of foreign cultures and practices is increasingly posing a threat to traditional customs and cultures. Political instability

and a lack of sufficient opportunities have compelled many young individuals to seek foreign employment.

On a positive note, the introduction of modern techniques and knowledge has led to a significant improvement in agricultural production. There has been a noticeable increase in awareness among the people, resulting in improved hygiene and sanitation practices. The media has contributed significantly to disseminating early warnings regarding potential hazards. Additionally, the establishments of aevacuation centres, embankments, and other retaining structures, have been instrumental in mitigating the impact of disaster events.

*Photo 35: Participants exercising collective aspirations of Rapti*

Looking towards the future, their aspirations concentrated on transforming their city into a beautiful one with abundant natural resources and environmentally friendly infrastructure. They envision a city with top notch education, healthcare, communication, and transportation facilities, all while preserving its rich cultural heritage. They wish that their city plans to construct earthquake-resistant houses, buildings, and other critical infrastructure to accommodate the growing population and future migration. The management of the Rapti River is a priority, featuring retaining structures and a lush green belt on both of its banks. Agricultural lands are meticulously managed, benefiting from advanced irrigation systems and organic fertilisers, making the city self-sufficient and capable of exporting surplus products.

They expect that the future society is characterised by equity and inclusivity, ensuring equal opportunities for education, employment, and healthcare for all its residents. Furthermore, settlements in the city are thoughtfully designed to accommodate the needs of the migrant population, fostering a harmonious coexistence and shared prosperity.

**Wheel of Urban Assets**

The envisioned aspirations were categorised into the seven dimensions of the Wheel of Urban Assets. Moreover, most of their aspirations fit into the urban dimensions like macro infrastructure, institutions, and rule of law, followed by jobs & livelihoods.

Micro Infrastructure

Within this asset, participants have compiled a list of housing and residential structures that not only possess earthquake-resistant quality but are also affordable for everyone. They have conceptualised a people-centric initiative named the '*Janata Aawash* program' (i.e. public housing programme), which receives full government support and prioritises affordable housing for marginalised communities.

Macro Infrastructure

In this asset, the group has envisioned various essential infrastructure crucial for the development of the capital city, equipped with state-of-the-art facilities. Their vision extends beyond just ensuring the availability of clean drinking water; they also advocate for the establishment of laboratory testing facilities to maintain water quality for the wellbeing of the city's residents. Furthermore, the group envision the incorporation of educational institutions such as universities, technical schools, agricultural schools, and medical colleges within the city. Their rationale is that these facilities will not only benefit the capital's inhabitants but also provide neighbouring districts with convenient access to quality education and healthcare.

*Photo 36: Participants presenting the wheel of assets in the panel*


The group also emphasises the importance of inclusive infrastructure design, with a focus on accessibility for differently abled individuals. They stress that road safety measures should meet minimum standards, encompassing features like overhead bridges, zebra crossings, wider footpaths, speed bumps, traffic signals, and street lighting. Moreover, they propose beautifying the city by undergrounding wires and cable networks, enhancing its aesthetic appeal.

Regarding the management of natural resources, particularly the rivers, the group recommends constructing embankments along susceptible areas alongside the Rapti River and seasonal rivers. They emphasise the importance of efficient irrigation systems for agriculture, whether through diverting river water into irrigation canals or by digging deep bore wells to ensure sustainable agricultural practices.

Social Assets

According to the participants, it is imperative to foster a deep sense of respect and consideration for the diverse castes and religions of all its residents while shaping the future city. Additionally, to ensure effective and attainable development initiatives, participants strongly emphasised the necessity of actively involving the community in local development efforts. Moreover, the envisioned future city should prioritise the provision of contemporary sports facilities and programs to ensure both the physical and mental wellbeing of its inhabitants, helping them cope with the stresses of urban life in the capital.

Jobs and Livelihood

In the realm of jobs and livelihoods, the participants place a strong emphasis on economic wellbeing in their envisioned city. Their aspired city is committed to providing employment opportunities for all by establishing various industries and factories. With designated zones for agriculture, commerce, and industry, they aim to streamline and optimise these key sectors for sustainable growth. Moreover, job security and advancement will also be ensured by nurturing local skilled professionals and recognising the value they bring to the community. Additionally, their efforts extend to the tourism sector by managing rafting and water-based transportation to create employment opportunities and promote tourism, ensuring a thriving and diverse economy for the residents of the city.

Knowledge and cultural assets

The envisioned city is dedicated to embracing and celebrating its rich diversity in terms of languages, cultures, traditions, and religious practices. It places a strong emphasis on maintaining and safeguarding local costumes, cuisines, folk dances, and musical instruments, for all its residents, regardless of their caste or ethnic background. This commitment highlights the city's determination to foster a welcoming and inclusive environment where various cultural elements can coexist and thrive.

Environmental assets

In this asset, the aspired city will have lush green parks along the river corridor which not only offer a serene natural escape but also enhance the city's ecological beauty. Additionally, the city boasts well-designed parks that provide green spaces and entertainment centres, as well as promote tourism by showcasing the natural splendour and cultural richness of the area, thereby adding vibrancy to the urban landscape.

Institutions and Rule of Law

*Photo 37: Wheel of Urban Assets of MMD*


Under this asset, the aspired city is dedicated to fostering robust laws and policies. The city will have access to senior medical professionals and specialists at the ward level to ensure healthcare needs are met effectively. Policies supporting practical and technical education are in place, nurturing a skilled and knowledgeable workforce. The establishment of a medical college under the ownership of the local government bolsters the city's healthcare infrastructures. To support agriculture, organic fertilisers are provided to meet farmers' needs, promoting sustainable farming practices. Furthermore, policies are in place to guarantee accessible and high-quality education through the public school system, emphasising equal opportunities for every student. These initiatives uphold the principles of fairness, education, and better healthcare within the city.

Incorporating all these aspirations, the MMD group came up with the following visioning statement, *"A resilient Rapti city in the leadership of the local government and direct community engagement, which promotes local cultural diversity, fosters tourism, local scale-based businesses, and agriculture."*

**Co-mapping**

The participants began by acquainting themselves with the map, identifying their residential areas and significant landmarks like roads, temples, and rivers. This initial orientation facilitated them in understanding the map, which proved valuable in deciphering land use patterns during the co-mapping activity. They successfully pinpointed their residences using these landmarks and assisted one another throughout the process.

Regarding land uses, all participants reached a unanimous decision to conserve the forest area in its current state, refraining from its occupancy or destruction in any form, to ensure that future generations can benefit from it. They anticipated that the population would increase in the future, leading to the expansion of high-density settlements along the existing settlement areas on both sides of the highways, [East-West (Mahendra) highway and the

Postal (Hulaki) highway]. Moreover, the migrant population is expected to predominantly settle in the city's outskirts in the forest fringes of Chure hills, also characterised by high-density development.

The highly anticipated Janata Aawash (public housing) program is envisioned for the existing settlements along the East-West Highway and the Postal Highway. The major settlements in Barahakhutti (RRM2), Nayagaun (RRM4), Kalapani (RRM5), Malmala (GRM1), Badahara (GRM2), Jethangaun (GRM2), Dandagaun (GRM2) and Gobardiha (GRM3), and Sidhdhara (SM9) have been designated for the public housing program. *"This approach will ensure everyone living in the city has access to safer and affordable housing",* shared an elder participant of the group.

In the context of agriculture, specific agricultural zones have been designated along the floodplain areas on the northern side of the Rapti River in RRM [stretching from Pakhapani (RRM1) to Bhagwanpur (RRM6)], adjacent to the embankment running alongside the Rapti River. This embankment is connected to green spaces and parks allocated for recreational purposes. Likewise, in GRM, agricultural zone is envisioned from Jethangaun (GRM2) to Madhavpur (GRM3), extending south of the settlements and highway, towards the forest fringes. Agricultural pockets were also envisioned in the flood plains of Rangsing River in Chisapani (GRM1) and across Rangsing (SM8), Laami Damaar (SM9), and in between Chhahare and Sidhdhara in SM9.

The existing irrigation canal has been extended from Rapti River in Malmala (GRM1) towards GRM 3 to make it accessible for all agricultural land. Furthermore, plans include the establishment of agriculture farms in Pachaha (GRM2) situated in the agricultural land between two seasonal rivers, as well as in Chisapani (GRM1) and above Kohalwa and Jorpani area in RRM8. Additionally, to enhance agriculture production and business, research and development centres are planned for the northern area of the Postal highway, situated between Mahadewa (GRM 2) and Gobardiha (GRM3), as well as in Sisahaniya (RRM5).

Specific areas have also been allocated for the cultivation of medicinal herbs and fruit farming, to safeguard the environment and promote agribusiness. These areas include the forest fringes just beyond the settlement areas in both RRM [from Bhalubang (RRM 1) to Singhe (RRM 5) beneath Bhulke (RRM5)] and GRM [from Kalakate (GRM1) to Supaila (GRM3)], as well as in the forest areas of SM 8 and 9. Additionally, the forest in the capital city will also be preserved for its biodiversity, encompassing both flora and fauna. A portion of land, which is currently being used for agricultural activities, has also been designated for the airport in the Bhanpur area (RRM7).

*Photo 38: Participants engaged in co-mapping exercise*

The participants have also outlined their vision for placing schools, healthcare facilities such as hospitals and health posts, and police stations within each settlement. This strategic approach is aimed at ensuring that every individual has convenient access to these essential services within a short distance, hopefully contributing to an increase in the literacy rate, health status, and security within the capital city.

Specifically, the establishment of schools are envisioned in various locations, including Singhe (RRM5), Bijauri (RRM8), the northern part of Nayagaun (RRM4), Maurighat (RRM4), Masuriya (RRM3), Kathaha (RRM2), Pakhapani (RRM1), Banbari (GRM1), Pachaha (GRM2), Mahadewa (GRM2), Gobardiha (GRM3), Supaila (GRM3), Chimchime (GRM2), Chisapani (GRM1), Rangsing (SM8), Charange (SM8), Tallo Laape (SM8), Sidhdhara (SM9), Chhahare (SM9), Laami Damaar (SM9), and other pre-existing settlements.

In a similar vein, the plan includes setting up small-scale healthcare facilities like hospitals or health posts in existing settlements across all three municipal bodies that collectively form the capital city. These facilities will be located in places such as Supaila, Chimchime, Gobardiha, Mahadewa, Pachaha within the GRM, Chisapani, Rangsing, Chhahare, and Laami Damaar within the SM. Furthermore, a larger hospital is slated for construction in Bhalubang, and additional medical institutes are proposed in RRM in Masuriya, Maurighat, Sisahaniya, Majhenigadh, Singhe, and Bhulke. A medical college is also planned for Sidhdhara (SM9). Additionally, the vision includes establishing a university and medical college in Malmala

(GRM1) and expanding a technical school at its existing location in Gobardiha (GRM3). Furthermore, colleges are envisioned in Gobardiha (GRM3), Pachaha (GRM2), Lalmatiya (RRM2), and Maurighat (RRM4).

The participants have also envisioned transforming the capital city into a thriving industrial hub and a vibrant business and commercial centre, which would significantly contribute to the creation of ample job opportunities for its residents. To accommodate largescale industries, specific areas in Juraune (GRM1) and the Chhahare -Sidhdhara area in SM9, have been designated, strategically situated away from residential regions. For small-scale industries, various pocket areas have been proposed, including Malmala (GRM1), Jethangaun (GRM2), Masuriya (RRM3), Maurighat (RRM4), Jorpani (RRM7), Kalapani (RRM5), and Singhe (RRM6). Market and bazaar areas are slated for development in major settlement locations like Singhe (RRM6), Patthar Gadhawa (RRM6), Pipari (RRM8), Masuriya (RRM3), Bhalubang (RRM1), Pachaha (GRM2), Gobardiha (RRM3), and Sidhdhara (SM9). These market areas and bazaars will serve as platforms for promoting and selling local products (agricultural and handwoven bamboo products). An auto-village was envisioned along the green park nearby the forest areas, north of Majhenigadh and Maurighat (RRM4). The auto-village aims to enhance customer convenience by offering a variety of automotive services and products in one location, including repairs and maintenance. The waste disposal sites were also integrated into their envisioned city map, with specified locations within the forested areas of each ward in GRM and Chhahare (SM9), to manage the capital city's waste at a considerable distance from residential areas.

*Photo 39: Participants with their co-mapped Rapti city*

In order to safeguard and celebrate indigenous cultures, the vision also includes the establishment of a Tharu museum in an area, preferably near Tharu settlements like Kothari (GRM2). Similarly, an *Aawatgram* (Yadav Museum) has been incorporated to promote Madhesi culture, situated in the forest fringe of Pachaha (GRM2). *"Our existence will only be justified if our culture and traditions, which are our roots, endure in the future*", shared the senior male participant. Furthermore, cultural centres have been designated in various locations, including the forested area of Malmala (GRM1) and Baghmaruwa (GRM2). Additionally, two cultural centres are planned for Jorpani and the forested area above it (RRM8); one in Majhenigadh (RRM4) and another in Tallo Laape (SM8).

Recreational centres such as children's parks, playgrounds, stadiums and picnic spots have been included in their envisioned city, particularly in Baghmaruwa (GRM2). Additionally, numerous areas have been designated for children's parks in various locations, such as Bararkhuti (RRM2), north of the highway in Masuriya (RRM3), Majhenigadh (RRM4), Pipari (RRM8), Baghmaruwa (GRM2), and Kulpani Picnic spot (GRM2). Playgrounds and a stadium are planned for the floodplain south of the Rapti River in GRM2, as well as in Paththar Gadhawa (RRM6) and Tallo Laappe (SM8). These facilities have been strategically placed to ensure accessibility for all settlements.

To enhance accessibility and promote tourism, a road network has been introduced along the river. Similarly, various infrastructure elements like bridges, overhead bridges, and bus parks have been integrated into their envisioned city. Given that the city is surrounded by multiple rivers and rivulets, the lack of bridges has often hindered commuting, particularly during the monsoon season. *"Every year, we have to suffer a lot while commuting during monsoon season due to the lack of bridges and proper roads especially in the seasonal rivers"*, shared a female participant in her 30s. Therefore, the participants have allocated several bridges for their future city, especially over the Rapti River, connecting Bagarapur (RRM6) & Gobardiha (GRM3), Basantapur (RRM3) and Jethangaun (GRM2), and Khururiya (RRM2) & Badahara (GRM2). An overhead bridge is planned for the busiest junction along the Mahendra highway in Paharuwa (RRM6) and in Masuriya (RRM3). Furthermore, a bus park is envisioned in Mahadewa (GRM2). The participants aim to introduce rafting in the confluence of Rangsing and Rapti Rivers as well as other modes of transport systems primarily to promote tourism. Furthermore, hotels, homestays, and resorts are envisioned on both sides of the Rapti River to provide accommodation for incoming tourists, especially in Malmala (GRM 1), Badahara (GRM2), Patringa (GRM 2), Kothari (GRM 2), Ratanpur of GRM 3 as well as Bhanpur (RRM 7), Basantapur (RRM 3), Khururiya (RRM 2) and Kathaha (RRM 2) of RRM.

To address the risks associated with various hazards, ensure the safety of residents, and provide shelter during disaster events, the plan includes the establishment of evacuation centres throughout the city. These centres are strategically located, particularly in the forest

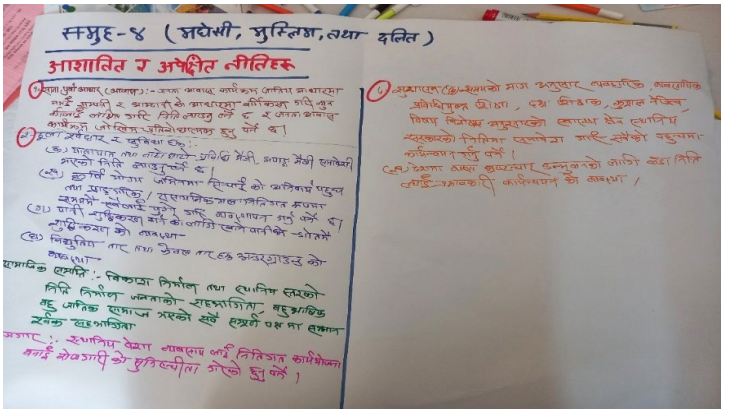
fringes near settlement areas of GRM (Malmala, Pachaha, Dhaireni, Madhavpur) and RRM (Lathawa, Jorpani, Barahakhutti). The selection of these areas was based on their accessibility and proximity to the city, which is vital in the event of an emergency. "*The idea for these evacuation centres popped out from past experiences*", shared one of the male journalist participants, who fondly recalled people being gathered at community centres during flooding events. Additionally, they envision easy and affordable access to clean drinking water, which can be achieved more readily if water purification systems are installed at the water sources themselves. *"The system will prove extremely beneficial during disaster events as well, preventing the chances of water contamination and spread of waterborne diseases",* the participants echoed.

**Policies**

The participants listed out the policies according to the dimensions of the wheel of urban assets and prioritised the policies that are under Micro infrastructure, Macro infrastructure, and Institutions and Rule of Law.

Under the micro infrastructure, the participants strongly argued that the public housing programme (i.e. Janata Aawash) should adopt a policy that advocates for a more equitable approach to determining eligibility. They suggested that the eligibility for low-income housing should be determined by income and property status rather than caste and ethnicity. This shift in criteria promotes fairness and inclusivity by ensuring that those who genuinely require affordable housing can access it. The participants also underscore the importance of building these housing units with disaster resilience in mind, which is essential for the safety and security of the residents and for sustainable urban development.

*Photo 40: Envisioned policies of Madhesi Muslim & Dalit group*




Within the policies under macro infrastructure, the development plan should include provisions to make transportation and road networks accessible for people with disabilities and technologically advanced for all.

*Table 7: Policy envisioned by MMD group*

| S.N | Dimension | Policy Expected |
|---|---|---|
| 1 | Micro infrastructures (Housing) | ● The low-income housing program (*Janata Aawash*) should have a policy to identify the low-income groups on the basis of their "property and income level" rather than based on caste and ethnicity. These housing programs should be disaster resilience. |
| 2 | Macro infrastructures and services | ● There should be provision for the disabled friendly, technology friendly, and inclusive transportation and road network.<br>● There should be compulsory access to irrigation facilities in all agricultural land, and provision of accessibility to enough organic and chemical fertilizers to all farmers.<br>● Provision of water treatment system at the source of drinking water.<br>● Provision of underground electrical wiring system |
| 3 | Social assets | ● There should be provision of respectful and equal participation of local community from different castes and religions in all the development activities and local level policy development process of the city. |
| 4 | Jobs and livelihoods | ● There should be provision to ensure inclusive employment opportunities for all through promoting local skill-based businesses into the work plan of the city. |
| 5 | Institutions and rule of law | ● The quality of education should be practical and technically updated as per the need, should have the provision of skilled teachers, and should be the specialist-based health care facilities accessible to all in leadership of local government.<br>● There should be strong and effective policy to eliminate corruption in the city. |

Furthermore, there should be access to irrigation facilities for all agricultural land. Farmers should have equal access to both organic and chemical fertilisers. This will ensure that agricultural practices are sustainable, and farmers have the necessary resources to optimize crop yield while minimizing environmental impact. Additionally, installing water treatment

systems at the source of drinking water is essential for ensuring clean and safe drinking water for communities. Moreover, the installation of an underground electrical wiring system enhances the safety and aesthetics of urban areas. Incorporating all these provisions into development plans should improve the living standard for the entire community. It ensures that infrastructure and services are designed to meet the diverse needs of the population, while also considering environmental and safety concerns.

Under the Institution and Rule of Law, the educational standards should be aligned with practical and technical requirements and involve qualified educators. Also, specialised healthcare services should be made available to all, under the leadership of the local government. Additionally, a robust and efficient anticorruption policy should be in place for the city. Participants think incorporating these measures into the city's governance and service delivery strategies promotes not only the quality of education and healthcare but also the integrity of the public administration.

Additionally, it enhances the overall quality of life for residents and fosters a positive and accountable environment within the city. Under the social assets, it is imperative to establish a framework that actively encourages and facilitates inclusive and equitable engagements including individuals from diverse castes and religious backgrounds within the local community. This principle should be upheld throughout the entirety of city development initiatives and the formulation of policies at the local level. This will provide ample opportunities for individuals to contribute, ensuring their voices are not only heard but also respected and valued in the city developmental processes.

In jobs and livelihood assets, it is crucial to establish a set of strategies and actions aimed at ensuring that every individual within the community has fair and equal access to employment opportunities. This can be achieved by actively endorsing and integrating local businesses, that rely on the skills and expertise readily available within the community, into the city's workforce development plan. This not only benefits the local economy but also promotes inclusivity, community engagement, and skill development. It's a proactive approach to addressing unemployment and fostering economic and social development within the community, as participants expressed.

**Conclusion**

Considering the past socioeconomic challenges like discrimination, poverty, and exclusion, this group yearns for a city where all individuals have equitable access to resources and opportunities, fostering an environment free from the shackles of caste/ethnicity and class-based discriminations. Their hope resonates with creating a harmonious society, transcending social barriers, building a community where inclusivity and fairness prevail over historic prejudices and social inequities, and fostering a welcoming and inclusive environment where

various cultural elements can coexist and thrive. They aim to spare future generations from enduring the same prejudices and hardships they faced in the past and continue to confront today.

In terms of land use, the participants had a unanimous decision to preserve the current forest area for future generations. They also intend to be self-sufficient in agriculture with the establishment of agriculture farms and research centres that can enhance agriculture production and agribusiness. Anticipating population growth, they expect high density settlements along the East West (Mahendra) and Postal (Hulaki) highways. They aim to secure comprehensive government support to improve their standard of living, encompassing various facets of life, notably through a people centric initiative called the *'Janata Aawash* program', i.e. public housing programme. This programme is centred on providing safe and affordable housing, especially targeting marginalised communities. They also emphasise deliberate involvement of the community in local development efforts to ensure inclusive, effective and achievable development initiatives.

Their approach to essential infrastructure development extends beyond solely benefiting the residents of the capital city. It encompasses a broader vision that aims to cater to the needs of individuals residing in neighbouring districts as well. They prioritise convenient access to quality education and healthcare, aiming to encourage their utilisation. This initiative anticipates boosting literacy rates, enhancing health standards, and improving overall security within the capital city and surrounding areas. Developing robust road networks with high quality infrastructure to connect settlements also stands as a crucial plan for their envisioned city.

The participants also envisage transforming the capital city into a bustling industrial hub and a vibrant hub for business and commerce which would significantly contribute to the creation of ample job opportunities for its residents. The plan involves locating largescale industries strategically away from residential areas in GRM1 and SM9, while envisioning small scale industries in pocket areas along highways in RRM and GRM. With designated zones for agriculture, commerce, and industry, their envisioned city is dedicated to ensuring employment opportunities for all, nurturing local skilled professionals. They also stressed promoting the physical and mental wellbeing of its inhabitants, aiding in coping with the urban stresses. Moreover, they concentrate on boosting tourism by initiating rafting activities along the Rapti River, as well as showcasing the region's natural splendour and cultural heritage, adding vibrancy to the urban landscape. Additionally, their urban plan incorporates designated waste disposal sites situated within forested zones in each ward of GRM and in Chhahare (SM9). This strategic placement aims to manage the waste generated by the capital city at a significant distance from residential areas.

Preserving and celebrating the indigenous culture is also one of their prioritised aspirations. They intend to establish a Tharu Museum, *Aawatgram* (Yadav Museum), and various cultural and recreational centres such as homestays, hotels, and resorts. Additionally, the plan includes development of children's parks, stadiums, and playgrounds designed to serve both as recreational hubs and evacuation centres/emergency shelters during disasters. These facilities are strategically placed to ensure accessibility for all settlements within the city.

Regarding the policy assessment, the participants have listed out policies focusing on ensuring sustainability and equitable access to resources and opportunities. Especially, participants' argument for the *Janata Aawash* Programme under micro infrastructure underscores a two-pronged approach: promoting fairness in eligibility criteria ensuring that resources reach those who require them most and emphasising the importance of disaster-resilient housing. They opined that both approaches are essential for fostering inclusive, safe, and sustainable urban development. The proposed development initiatives under macro infrastructure like transportation, road networks, irrigation, equal access to organic and chemical fertilisers for sustainable farming, water treatment systems, underground electrical wiring, etc. also served the same purpose of fostering inclusivity, sustainability, and improved living standards while considering diverse needs, environmental concerns, and safety measures. They also enlisted policies aligning measures to improve education, healthcare, and public administration integrity, elevating residents' quality of life and fostering accountability within the city. The participants stressed the need for a framework promoting inclusive engagement across diverse castes and religious backgrounds within the local community. Upholding this principle in city development and local policies, offers ample opportunities for all voices to contribute, ensuring respect and value for each individual in these crucial processes. Likewise, policies for integrating local businesses that utilise readily available skills into the city's workforce plan, foster inclusivity, community engagement, and skill development, benefiting the local economy while ensuring fair access to employment for all community members. The MMD group considered that such a proactive approach tackles unemployment while driving economic and social development within the community.

To summarise, the participants' keen determination and profound sense of accountability toward fostering a safer, inclusive, and discrimination free society for future generations is clearly apparent. Their active engagement in a two-day workshop reflects their dedication to shaping a future urban landscape that prioritises diversity, equity, and a sense of belonging for all members of society. Also, their enthusiastic participation underscores their desire to pave the way for a better and more harmonious tomorrow.

## *Chapter 7: Tomorrow's City of Squatter*

***Visioning Statement: "Our wish is a prosperous Rapti city with adequate and accessible services and employment, discrimination-free, disaster-free with safe and clean environment and good governance"***

**Anushiya Shrestha, Dilli P. Poudel and Rojani Manandhar**

### Introduction

An "informal settler", commonly referred to as a *"sukumbasi"* in Nepal, is defined as "a person who has no house for shelter, no private land for cultivation, and no other opportunities of earning a livelihood" (Karki, 2002, p.207). The early informal settlements in Nepal were mainly created by the rural population displaced by natural hazards and located in the rural areas. This, among other reasons, was driven by the hope of escaping marginal life in the hills and acquiring land in the Tarai plains (Kaplan and Shrestha, 1982). According to their estimation, the *Sukumbasi* population of the country was 160,000 in the late 1970s, who in many cases, periodically occupied the same areas of land but were repeatedly evicted by the then Forestry Department (ibid). However, the government surveys then did not include bonded labourers and *sukumbasis* as landless groups, leading to an underestimation of the actual landless population in the country (Karki, 2002). Kaplan and Shrestha (1982) argued that landless and near landlessness is continuously produced and reproduced to maintain a surplus of the low-wage labour force that the dominant class (composed of village landowners, absentee landowners, and rural elites) co-opt to control over the means and systems of production and appropriate social, economic, and political power. It is, therefore, no wonder that the landless population in Nepal continued to increase. The population further accelerated due to socio-political conflicts in the country, primarily during the 1996-2006 Maoist insurgency (MoUD, 2014).

The National Urban Development Strategy (NUDS) 2017, which guides national urban development endeavours up to 2035, notes that about 10% of the national urban population resides in informal settlements and that the increasing trend of informal settlements is a major urban issue (MoUD, 2017). According to the Society for Preservation of Shelter and Habitation – Nepal (SPOSH-Nepal), a federation of informal settlers, Kathmandu Valley alone has over 35,000 informal settlers living in 54 squatter settlements, many occupying the land for almost four decades. Some of these settlements are inhabited by permanent residents, with second and third generations sharing the same shelter (Lumanti, 2008). Although informal settlers and settlements in Nepal emerged from the rural area (see Karki, 2010), their size and number have grown in both rural and urban areas. Over the years, informal settlements have concentrated mainly on marginal public land of different urban centres

(Sengupta and Sharma, 2006). Given the proximity of the majority of the settlements to the major rivers, many informal settlements and the settlers are highly vulnerable to frequent flooding and riverbank erosion (DWIDP, 2009; KVDA, 2015; Dangol and Day, 2017).

Over the years, the government of Nepal has been increasingly progressive and inclusive in terms of incorporating informality issues in policy documents (see Shrestha et al., 2022). The 2015 Constitution has endorsed the right to housing (Article 37) as a fundamental right and recognised "squatter" management as a joint responsibility of the federal, provincial, and local governments. Furthermore, the government has enacted the Land Related Amendment Act 2020 and formed a new Landless Squatters' Problems Resolution Commission to identify genuine landless squatters and resolve the issue.

In the Rapti/Deukhuri Valley, informal settlers are mainly concentrated in wards no 2, 3 and 4 of Rapti Rural Municipality (RMM), ward no. 3 of Gadhawa Rural Municipality (GRM) 3, and ward no. 8 of Shitganga Municipality (SM). A recent study by Poudel et al. (2023) notes that Rapti Valley has many poor households and squatter population that reside in public land and forest fringe. The study states that around 30 percent of households in the proposed capital city are poor, comprising 15 percent in SM, less than 30 percent in RRM and over 30 percent of the total households in GRM. The same study indicates that the poor, marginalised and squatter households comprise over 60 percent of the population in the valley, with about 50-65 percent owning less than five *dhur* (0.0084 ha) of land and 18 percent being landless. Alarmingly, 70 percent of households are functionally landless in the Rapti Valley. The provincial government acknowledges the need to provide land to the squatter households, which can be an important policy debate in tomorrow's Rapti City. Yet the process requires adequate studies and preparations, including generating a state-of-the-art cadastral map of the area to identify distributable public land and taking political decisions to materialise land distribution schemes. A local authority believed that marginalised and landless people would benefit from the present city planning as they either own very less land or are completely landless and are dependent on daily wages. The formation of the new capital city, they expect, will generate more job opportunities. Against this backdrop of the majority of landless or near landless population in Rapti City, heeding the perspectives and visions of this group can be an important resource for the provincial government in developing a disaster-resilient and inclusive capital city in the future.

**Participatory Hazard Mapping (PHM)**

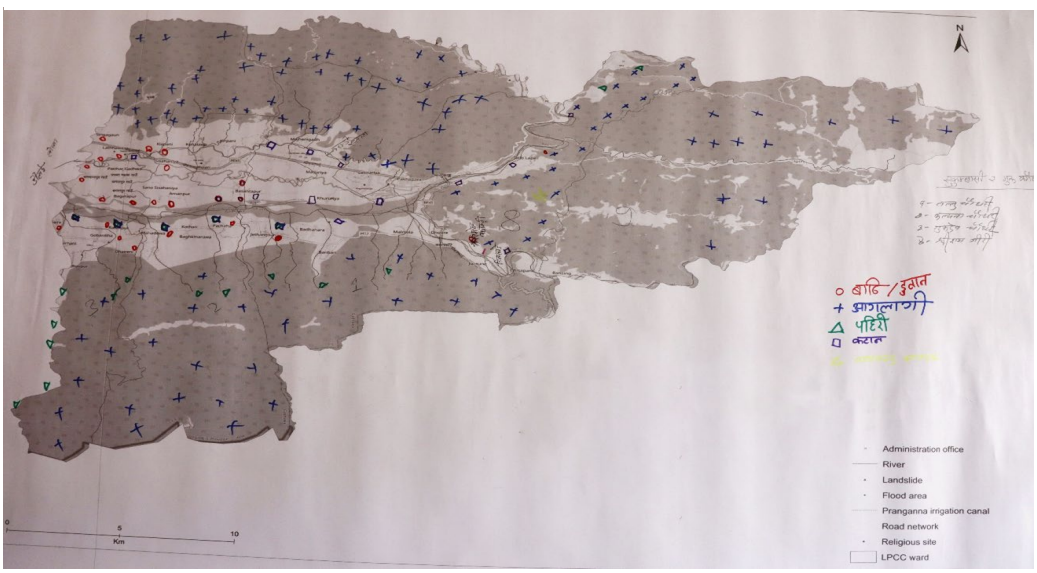
The participatory hazard mapping (see Photo 41) co-developed with the local communities, identified fires, floods and landslides as major hazards in Rapti. The risk of fire hazards spread in all of the community forests and the jungle areas in Chure and Dunduwa hills. They claimed that forest fires in the past were natural or accidental while the forest fires these days are

intentional. Forest fires threaten the settlements adjoining the forest such as in Muktinagar (RRM 2). They recalled a forest fire in the mid-1990s that burnt the entire Khururiya village (in ward 3 of RRM) and suffered a casualty.

Flooding and inundation are recurrent problems in Sisahaniya (RRM 7), Kalapani (RRM 5), Paharuwa (RRM 5), Lathawa (RRM 5) which lie close to the Dolai and Singhe Rivers. Hard hit are several other riparian settlements including Bagarapur (RRM 6), Arnanpur (RRM 7), Basantapur (RRM 3), Gobardiha (GRM 3), Mahadewa (GRM 2), Pachaha (GRM 2), and Jethangaun (GRM 2). Besides flooding and inundation, river lateral cutting/soil erosion by Karamdi river has added threats in Masuriya (RRM 3), Majhenigadh (RRM 4), Paharuwa (RRM 5), Basantapur (RRM 3), Khururiya (RRM 2) and other major settlements such as Gobardiha (GRM 3) and Ratanpur in GRM 3. Lateral cutting/soil erosion is also common in the flood plains like Mahadewa (GRM 2), Pachaha (GRM2), and Jethangaun (GRM 2) and Badahara (GRM 2) and nearby Bhaluwang (RRM 1) and Tallo Laape of SM 8. Rangsing River also caused soil erosion in the Tinkhande area in SM8. The flood in the early 2010s, which originated from the tributaries of the Rapti River, the Jhimruk and Madi Rivers, washed away fish, together with murky black water in Rapti.

Landslides are common in the ridge/source of the seasonal rivers in the southern part of GRM and the northern part of SM 8. These threats are not limited to monsoon season. Paradoxically, the participants claimed that such accidents are frequent during the dry season. They explained that while people avoided going to the riverside during rainy seasons, this was not the case during dry seasons. The participants remarked that drowning in the river caused

*Photo 41: PHM of Squatters group*

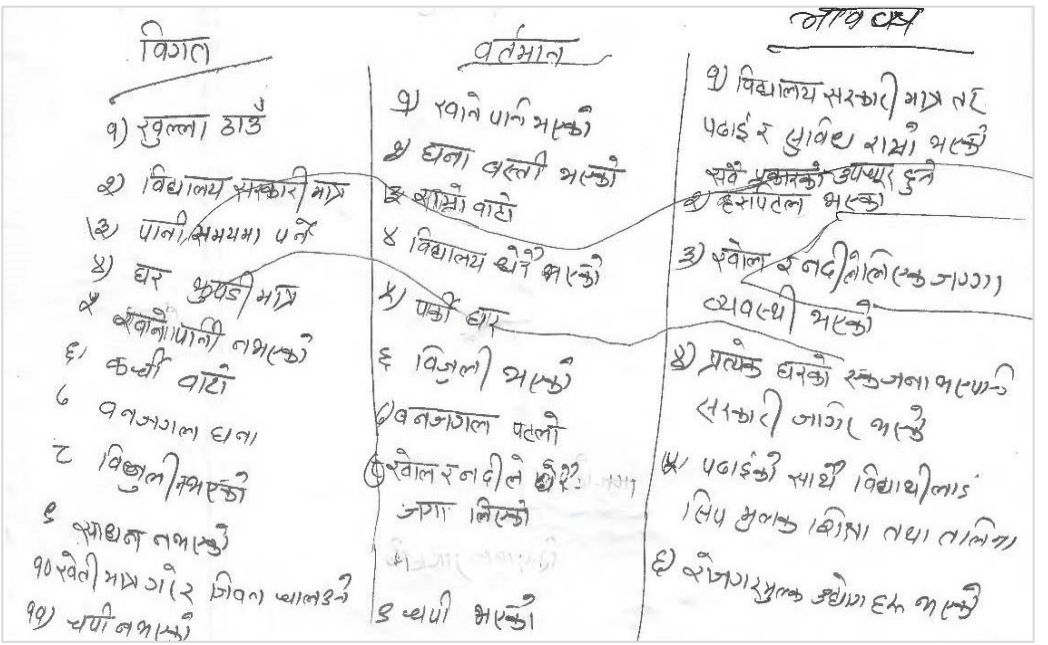


2-4 casualties every year. Apart from climate-induced vagaries, wild animals have emerged as a dreadful risk in the area. For instance, according to the participants, 2-3 people in the area suffer fatal snake bites every year. The area also suffered tragic losses from wild animals, particularly wild boars, which displaced a settlement of 12 households as these marauding animals devastated their standing crops and threatened their lives and livelihood.

**Individual and Collective aspirations and Vision Statement**

The squatter group comprised five participants which included three women and two men with ages ranging from the early 20s to early 60s and belonging to RRM and GRM. Except for one woman who migrated from a hill village almost three decades ago, the rest were local residents. All of the participants remarked that the absence of hospitals, electricity, jobs, drinking water, irrigation, and other basic infrastructures and services made their lives challenging until a few decades ago. Flooding of agricultural land and houses with thatched roofs exposed them to flood and fire risks More brutal were the daily hardships and severe discrimination they endured as bonded labourers[16]. Gender-based discrimination

*Photo 42: Individual aspiration of one of the female participants of Squatter group*




[16] The people without land or work get loans from landowners, allowing them to sustain a minimum livelihood. In exchange, they had to live and work on the landowner's land as quasi-slaves or bonded labourers. Exorbitant debts were charged, and whole families were forced to slave labour for years and even generations, bonded by indebtedness to the landowner and bonded by unequal social relations to sell labour in lieu of the loan taken.

compelled young girls to compromise their lives as they were exchanged as bonded labourers (i.e. *Kamlari*) for the livelihoods of their families – in some cases for the employment security of their male siblings. Although migrant squatters were not formally bonded labourers, lack of land and livelihood security made their lives challenging. The participants unanimously agreed that the present situation, although not without problems, has relieved them from many of these discriminations prevalent until some decades ago. Access to infrastructure services (such as drinking water, irrigation, electricity, education, hospitals, black-topped or gravelled roads, etc.) has improved, and the local government and community have become relatively supportive. For example, the respondents noted that local governments have provided galvanised sheets for replacing thatched roofs (to reduce the risk of fire). Similarly, other participants shared how the local forest user groups provided wood and other material support after the respondent's son's house was destroyed by fire.

*Photo 43: Squatter group presenting collective aspirations*

Not all their experiences are rosy. An elderly participant remarked that her settlement suffers from both water scarcity and abundance. While they still lack access to piped drinking water supply and relied on hand pumps for daily water use, the lack of permanent embankment in Pipari River in RRM 8 has made flooding a recurrent problem in their settlement. She added, *"With the onset of the rainy (monsoon) season and swelling of the rivers, children suffer the most as the rivers do not even have culverts. The constant dread of losing their lives in crossing these rivers while commuting for schooling forces many to forgo their schools"*. She opined that with predominant biases against informal settlers, recurrent flooding that risks their lives and livelihoods got persistently overlooked and water supply projects were abandoned incomplete. In her words, *"Our necessities are hardly anyone's concern"*. Others also shared similar experiences. Despite society's strides in inclusivity, the social, economic, and political disparities persisted in more subtle ways. A woman who had been liberated from Kamlari labour mentioned, *"Our lives have improved from the dire state once were in, but we are still mistreated based on our past as bonded labourers".*

Furthermore, although some participants who shared a common past as *Kamaiya*/*Kamlari* have received '*Nissa'* (a provisional document provided before the land ownership

certificate), migrant squatters were uncertain if they would ever be provided land ownership except for a feeble hope based on the activities that the government initiated regarding the provision of land ownership for squatters.

The participants aspired to develop a future city that ensured access to essential infrastructure services, better roads, water supply, irrigation, waste management services, high-quality free education, and health service, etc., and has the provision of vocational training, establishes industries, and ensures employment. The participants also prioritised the construction of bridges, culverts, and dams, including those over seasonal rivers. They prioritised the prevention and protection against fire hazards, assurance of land and housing security, conservation of culture and care for the elderly, and elimination of poverty and discrimination in the tomorrow's city that they envisioned.

Encapsulating their collective aspirations, they stipulated their visions in a sentence, *"Our wish is prosperous Rapti city with adequate and accessible services and employment, discrimination-free, disaster-free with safe and clean environment and good governance".*

**Wheel of Urban Assets**

Among the seven components of the "Wheel of Urban Assets", the squatter group primarily emphasised the development of macro infrastructure and facilities. Their priorities included the construction of embankments in flood-prone areas and the construction of bridges over the seasonal rivers that are common in this provincial capital. Similarly, completion of pending drinking water projects, and construction and management of well-equipped hospitals, schools, and elderly care homes are among their other priorities. Impressively highlighting the interconnections between the city, expanding population and the need to ensure employment and livelihood security, they emphasised the need for establishment of industries and construction of irrigation projects by diverting rivers and drilling deeper wells. Aware of the limited formal education that many people in squatter settlements had, the group advocated for vocational training as a way to upskill and create employment opportunities for those who lacked chances to get formal education. They opined that vocational training also opens the opportunity to start up micro-enterprises as a reliable and sustainable means for generating employment. Photo 44 provides a detailed illustration of the Wheel of Assets prepared by the group.

They emphasised the addition and extension of road networks for effective city development while also including cycle lanes and footpaths, which have often been ignored by the planners and policymakers aiming for modern cities. While they acknowledged the importance of forest conservation, they opined that some part of the forest in the area should be used for industrial development to provide employment security and strategically regulate out-migration ensuing from prevalent unemployment problems. Similarly, they opined that the drive for forest conservation should not undervalue the need to ensure affordable access to forest-based products. Interestingly, they also included temples and pointed to the importance of respecting sociocultural values while reiterating the need to end persisting gender and other identity and class-based social discriminations as well as the role of social organisations in realising these changes. They opined that social organisation could organise awareness programmes such as street drama and posters to sensitise against discrimination and contribute to cultivating an inclusive society. Awareness of disaster prevention and the formation of a well-informed disaster management committee were other areas that the group prioritised. They also pointed out the need to avail disaster management equipment, including ambulance and fire brigade. Similarly, they advocated for policies and legal bases to monitor river deposit extraction which benefited some of the privileged population while reproducing water-induced risk for many of their settlements.

*Photo 44: Wheel of Urban Assets crafted by Squatters group*


*Photo 45: Participants presenting their Wheel of Urban Assets*

Contrasting the difference in the water supply services in the area with an active water user committee with the one that lacked such a committee, they advocated for the formation of a drinking water management committee.

**Co-mapping**

Many squatter settlements of Rapti Valley, as in other parts of Nepal (see Lumanti, 2008), are located along the river and bear the brunt of recurrent flooding and inundation. Dolai River, Singhe River and Rapti River in RRM frequently inundated settlements along the highway in Paharuwa (RRM 5), Lathawa (RRM 5), Sagarapur (RRM 6), Bagarapur (RRM 6), and Bhagwanpur (RRM 6) areas. Seasonal Rivers also inundated the Mahadewa (GRM 2), Ratanpur (GRM 3) and Gobardiha (GRM 3) areas in the south and north of the postal highway in GRM. The participants opined that these settlements either have to be relocated, or embankments have to be constructed to save the future city from inundation. Understandably, one of their foremost priorities is the construction of embankments, culverts, and concrete bridges, including those over seasonal rivers. They specifically asserted the need for concrete bridges in the Supaila River (on the way to Supaila settlement in GRM 3), Dolai River [around the Jorpani (RRM 8) and Nayagaun (RRM 4) area and Majhenigadh (RRM 4) area], and Rapti River [around the Tallo Laape (SM 8) area on the way to Pyuthan district connecting to SM 8 – part of which lies in the Rapti valley]. They specifically highlighted the urgency of channelling surface runoff from the northern part of RRM into the Dolai River (RRM 8). Furthermore, they emphasised the necessity of constructing embankments along the seasonal rivers and implementing measures to manage water flow from seasonal rivers to mitigate flooding issues. These measures, in their view, could significantly reduce the flooding and inundation risks for ensuring the safety and well-being of the settlements in the RRM. In addition to infrastructures for preventing flood and inundation, they also stressed the need of arranging adequate fire brigades, ambulances, and other services for effective disaster management.

Besides disaster management, the squatter group also envisioned an industrial area extending to Dhodhre (SM 8), Malmala (GRM 1), the southern part of Pachaha (GRM 2), Baghmaruwa (GRM 2), Dandagaun in the forest area of GRM 2, and the Pipari forest area in the northern part of RRM 8. The roads connecting the industrial area with the city will spur commercial centres and business districts, attracting businesses such as shops, restaurants, banks, and other commercial establishments, providing a range of services to support the growing industrial sector. This economic zone in the northern part of the RRM and expanding along the roads, will create employment opportunities, accelerate the economic growth and prosperity of the region, and improve the quality of life for its residents. Improved, wider, black-topped roads emerged as an indication of the modern city that the squatter group envisioned. Nonetheless, they also noted that footpaths and cycle lanes are also integral for an inclusive, safe, and clean city. They stressed that a domestic airport was needed to make

the city accessible. They suggested that the airport could be constructed in the Bhanpur (RRM 7) area in the central part of Rapti city (in RRM) where a vast (60 *bigha* land, i.e. 40.6 ha) unregistered/public land was available.

*Photo 46: Participants of Squatter group during co-mapping exercise*

The group realised that with urbanisation, the population will increase, settlements will expand and the demands for basic needs such as water supply will surge. In the current context, some areas have access to improved water supply, while others do not. The group stressed that immediate action was needed to improve water availability in water-deficit areas such as ward 8 of RRM. Three years ago, a water supply tank was constructed on the way to Devikot in the central and hilly part of the RRM 9, but the laying of distribution pipes was left incomplete despite the user communities' contributions (NRs 1000 per household). A resident (female) from the area complained, "*The water user committee paid no attention to the maintenance of water supply infrastructures although the leaking of water reservoirs damaged a house nearby*". Others informed that a deep boring (130 m deep) was added for the water supply project, but the effort turned futile as it did not yield water. However, all agreed that capacitating the water user committees and improving water supply service was necessary for reliable water supply service, particularly because the water demand will continue to rise with urbanisation. They noted that the area still has a large mass of agriculture-dependent population, but the land use will continue changing towards non-agricultural uses. They stressed that a mixed land use comprising agriculture and residential areas, including high-rise buildings will inevitably expand in the area. Controlling this drift from agriculture, they stressed, would need reliable irrigation services, by adding deep borewells

and improving and extending existing irrigation services. One deep bore, they emphasised, was urgent in ward 2 of GRM in the southern part of the Rapti city.

*Photo 47: Squatter group presenting their envisioned city*

The group opined that while the forest on the steep hills should remain intact, the flatter land with forest should be used for city development. Nonetheless, they emphasised the need to conserve forest, open space and public parks. Accordingly, they envisioned building a park in GRM-3 within the southern part of Rapti city. Similarly, they envisioned open spaces in areas near Bhulke (RRM 5), and area within GRM2 located west of Banbari (GRM 1) and down to Jethangaun (GRM 2). They added an administrative zone partly occupying the forest in the RRM, close to the main settlement area as they thought this would make access to administrative services easier. The squatter settlements located in GRM-1 and SM-8 will expand, the participants stipulated. The establishment of government schools for affordable access to high-quality education was one of their priorities. The group noted that Rapti Technical School, which shifted recently from RRM to GRM 3 after the declaration as the capital city, will have to be upgraded physically and strengthened institutionally for accessible vocational education. They noted that the technical school, which has students from across the country, will grow further making Rapti City a hub for vocational training. Addressing the current need to migrate for higher education, the group envisioned establishing a university in the forest area near Malmala in GRM 1.

They remarked that since most wards, e.g. Sisahaniya (RRM 7), Pipari (RRM 8), Maurighat (RRM 4), Pathargadhawa (RRM 6), Nayagaun (RRM 4), Barahakhutti (RRM 2), Pakhapani (RRM

1), Bhalubang (RRM 1) had existing schools, their focus should be upscaling these schools and improving the quality of education they provide, rather than adding new schools. A man from the group, however, informed that Lalmatiya (RRM 2) area only had a private school and stressed including a government school, to which the group agreed. They also added a school in SM 9. They also emphasised that the government should build old age homes and provide human resources for the proper services and care of senior citizens. The group also noted the need to refurbish, renovate and conserve existing temples in Simalchaur (RRM 4), Junglekuti (GRM-2), behind Muktinagar in Harse Danda (RRM 2), and add new temples in Hanseswor, Gobardiha (GRM 3), and Bhalubang (RRM 1) of the Rapti city.

Other macro-infrastructures that the groups prioritised in their future city were big hospitals (in Laami Damaar and Sidhdhara area of SM 9 and Gobardiha of GRM 3). An elderly lady recalled a recent case where her neighbour who got ill at mid-night could access medical service from a nearby health post and shared her observation, "*Our city has many seasonal rivers and travelling is difficult during the rainy season. If we have small hospitals and health posts nearby, we can get emergency health services even during such days*". The group consented to the need to have accessible primary health treatment services and located primary hospitals/health posts and clinics in Barahakhutti (RRM 2) and Sisahaniya (RRM 7) along the highway and on the northern side of Maurighat in RRM 4. While they agreed that the location and number of the primary health centres can vary as per the area of the ward, they also noted the need to expand the existing essential hospitals in Pachaha (GRM 2) and Ayurvedic hospital in Gobardiha in GRM 3 and in SM 8 on the way to Pyuthan district.

Acknowledging that the development of the city would also increase waste generation, they envisioned developing a dumping site in GRM towards the southern part of the city and connecting it with the road network, so that the waste from the entire city could be managed safely.

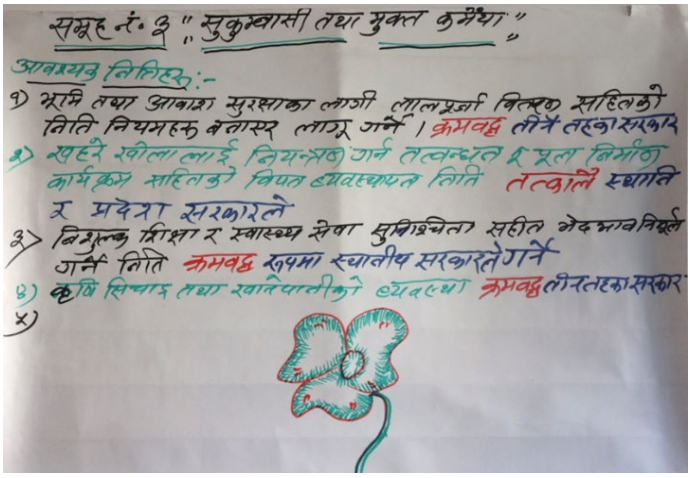
**Policies**

Given the prevalent risk of flooding and inundation, the informal settlers emphasised the policies for disaster risk management. This policy, they opined, is pivotal for constructing embankments, including those in the seasonal rivers, and controlling flooding and inundation of many settlements. However, addressing the risk and insecurity that prevailed in the lack of land ownership was their foremost priority. They acknowledged that providing land titles required coordination between the federal, provincial, and local governments and was not possible overnight. However, the distribution of "*Nissa*" (a provisional document provided before the land ownership certificate) under this land and housing security policy regenerated the hope of land and housing security among the *mukta kamaiya*s (i.e. freed bonded labours). Other informal settlers, however, had not yet received the *Nissa* and were not assured of

getting included under this policy. Nonetheless, they unanimously demanded, "Before distributing the land titles, it is imperative to assess the eligibility of those claiming for land and concentrate on the indigent and eligible individuals. The land and housing security policy and regulation must be executed with utmost care to avert disparities, corruption, and malfeasance".

This focus on mitigating discretionary power within policy execution arises from their real-life encounters, such as disparities between the informal and formal settlements in the advancement of urban infrastructures like water supply. Additionally, they observed that the needs and concerns of the informal settlers also vary. For instance, the local governments in Rapti City distributed complementary tin or galvanised sheets under their policy to replace the thatched roofs. Elaborating on this scenario, the participants recounted, "*Some individuals who received grants did not replace their roofs. Instead, they spent it on other household expenses. Consequently, the local authorities have temporarily withheld the program until further notice*". The ramifications have fallen on other informal settlers awaiting the replacement of their thatched roofs and remained uncertain about the reinstatement of the policy.

*Photo 48: Policies enlisted by Squatters group*




Troubled by dire poverty, they valued education as the key to overcoming poverty and stressed that the local government should upgrade the quality of education. They further emphasised that governments should gradually ensure free health and education opportunities for the poor. In line with the constitutionally stipulated responsibilities of the three levels of government for providing housing, employment, and essential services for the landless and informal settlers, they stressed the importance of formulating and implementing policies for the establishment of industries and the improvement of irrigation and drinking water services. While economic upliftment and infrastructure opportunities are important, they opined that policies and campaigns against discrimination remain integral to overcoming social stigma and supporting their inclusion in this fledgling urban society. The list of policies presented in Table 8 is the translation of the ones written in the Nepali language by the participants themselves. The sequence of the policies is based on the priority for implementation set by the participants.

*Table 8: Prioritised policies of Squatters group*

| S.N | Policies | Temporality | Level |
|---|---|---|---|
| 1 | Policies for Land Certificate distribution for land and housing security | Sequential | All three level |
| 2 | Disaster Management Policy including bridge and dam construction in the seasonal river | Short term | Local and Provincial |
| 3 | Policy for eradicating discrimination with the security of free education and health services | Sequential | Local |
| 4 | Policy for irrigation and purified drinking water management | Sequential | All three level |

In a nutshell, the squatters, which included freed bonded labourers called for the formulation and implementation of policies to end social discrimination, provide quality education, prevent potential disasters, ensure social security along with implementing effective monitoring and sustainable management of forest and river-based natural resources. Safe housing services and policies for land and housing security were among their core area of interest.

**Conclusion**

The priority for availing the basic infrastructure largely ensues from existing gaps in these basic services in the squatter settlements. These gaps, as the group members opined, reflected the deep-rooted disparities owing to their landlessness, which compounded with their weak socioeconomic and political positions, constrained their abilities to challenge and question these disparities.

Some key conclusions can be drawn from their aspirations and co-mapping exercises. First, the participants prioritised quality and affordable education, vocational training, and employment to break down the persisting socioeconomic challenges. They emphasised the importance of expanding employment opportunities through industrial development. Similarly, they envisioned having access to free health and elderly care services. They acknowledged that the socioeconomic disparities they have been enduring will not vanish until the government considers the responsibilities of providing services to such socioeconomically marginalised groups. The land and housing security assurance that the government, including the provincial government, has constitutionally embraced will become pivotal for the envisioned inclusive urban development to materialise.

Second, as elaborated above, Rapti City is exposed to many risks such as fire, flooding, landslide, inundation, and erosion. Engagement of the squatter communities in mapping the hazards and planning the city not only provided visibility to the everyday experiences of these

excluded groups but also elucidated that for these communities, the risks extend beyond the physical risks. Not only are the squatter settlements in precarious locations, but they are also vulnerable to the socio-politically constructed everyday risks. As explained above, their vulnerabilities to the latter, among others, are rendered from the intentionally set fire, health-related risk in lack of drinking water services, and the negative externalities of the educational opportunities forgone to avoid risks. These risks stem from stereotyped derogatory behaviours and discriminatory practices. Policies and actions for disaster management and eliminating discrimination will be important steps to protect squatters from these recurrent physical and socioeconomic risks. However, as the participants rightly stressed, while policies are important, timely, effective and accountable implementation for housing, livelihood security and economic upliftment of the indigent will remain the primary determinant of envisioned outcomes.

Third, the co-mapping exercise also helped the squatter group flag possible areas where different infrastructures they prioritised could be developed. However, it is important to note that not all participants were familiar with the vast area in which the Rapti City extends. Similarly, the influence of those relatively revered due to their age (elderly) and privileged due to education and knowledge of the area, history, and participation in the previous group exercise (i.e. PHM) was unavoidable in locating these infrastructures, disasters, and land use types. Hence, the maps should be used as an indication of the priorities of the group rather than the sole basis for selecting the sites as the locations for developing these infrastructures, devising the land use or other development plans in this future city. Another tension that might affect the translation of these aspirations into practice is the established unequal power relations and top-down technocratic planning processes that can perpetuate the marginalisation of squatters to the resources and the planning and decision-making forums. This, as Kaplan and Shrestha (1982) emphasised, reinforces the importance of better understanding the socio-structural forces underlying landlessness and power dynamics inherent within and beyond the communities. Nevertheless, the visioning exercise provided the squatter groups, otherwise excluded in formal planning processes, an opportunity to mark their presence, voice their opinions, and showcase knowledge, capacity, and express concerns, as reflected in this chapter. This can be instrumental in better connecting and positioning the group in Tomorrow's city planning process and creating a more inclusive, disaster and discrimination-free, safe, clean, prosperous, and well-governed Rapti City as the group aspired.

## *Chapter 8: Tomorrow's City of Planners*

***Visioning Statement: "Building an equitable city/society by increasing employment and maintaining good governance through quality and sustainable infrastructure development, conservation of natural, cultural and social heritage."***

**Swosthi Thapa, Rojani Manandhar and Dilli P. Poudel**

### Introduction

The term 'Planners' comprises government-employed (e.g. engineers and urban planners) and elected representatives of the local government who engage in rules and plan making and ensure their effective implementation for prosperity and development. So, they are vital actors in local decision-making exercises. Since the initial settlement of the Tharu indigenous community in Rapti Valley, the local government and decision-making practices have been through several governance systems.

Historically, Rapti Valley was ruled by a powerful Tharu king named Dangisaran Tharu from $12^{th}$-$13^{th}$ century (Chaudhary, 1999). The rulers themselves were the planners in the past. During the Rana regime (1846-1951 AD), there was a tradition called *jamindari* (landlords and revenue agents), where Ranas ruled at the city centre and *jamindars* at the villages (Bista, 1987). In the past, *jamindars* used to rule over resources like forests and water, infrastructure like roads and canals, and local customs and traditions, in addition to the conflict management related to access to resources and everyday conflict in villages. *Haldar Baje* was another key person in the past whose advice and decisions were respected by all villagers. This system is continued as *Badhghar* tradition in the valley at present and engages mainly in managing the local irrigation system. The *Badhghar* system mainly comprises 3 members (1) *Pancha (Pradhan)/Kakandar* 2*) Agharia* 3) *Saghariya*. The *Kakandar* is the head of this system while, *Agharia*, who also acts as a messenger, engages in works related to canal and water management, and *Sagharia* assist *Agharia* and works under his instruction. For example, when any canal and drainage management as well as risk management needs to be done in the village, the *Agharia* calls (shouts) throughout the village and immediately one person from each house gathers for necessary planning and management, and villagers follow the advice collectively.

During the Rana regime (1846-1951 AD), the poor farmers had to take loans from the *jamindaar* which they either had to pay with interest or work as *Kamaiyas* (quasi-slaves or bonded labourer for local landlords) in *jamindaars*' houses throughout their lives. Sometimes the loan was passed to the second generation and sons/daughters also remained *Kamaiyas* for their entire lives. However, with the change in the political system, revolution against this system was started by *Kamaiya* (male bonded labour) and *Kamalari* (female bonded labour).

The Kamaiya Liberation Movement that started on May 1st, 2000 led to the elimination of this tradition on July 17th, 2000 (Fujikura , 2001). Subsequently, the government settled these freed bonded labourers in Lalmatiya (RRM 2) by providing 5 *Kattha* (0.17 hectare) of land to each household. Now, the place where these freed labourers live is called Muktinagar (lit. *Mukti* = freedom, *nagar* = town/place/area).

Since Nepal's declaration as a federal state in May 2008, the local government has possessed power alongside central and provincial governments which has facilitated the grassroot engagements to uphold social well-being, development activities, economic prosperity, and livelihood improvement. The Local Government Operation Act 2017 has decentralised power and authority to the local government, i.e. municipalities and provided enough opportunity to envision and execute an equitable and resilient local plan. In the current political and administrative system of Nepal, the local government is the primary and responsible entity for implementing almost all kinds of development activities. Therefore, the inclusion of local urban planners, engineers, government officials, designers, architects, elected political representative, etc. in the discussion and brainstorming for local development is pivotal to envision a resilient city in the Rapti Valley, especially in the changed liberal contexts. Hence, they were selected as one of the disaggregated groups, collectively called 'The Planners' during the future visioning workshop in Rapti.

**Participatory Hazard Mapping (PHM)**

The participatory hazard mapping of the planners group highlighted incidents of past and recent years which they observed and experienced in Rapti/Deukhuri valley. According to the planners group, the fragile Chure belt on the northern side of the valley make the valley susceptible to both landslides and floods hazards in the upstream as well as downstream areas and posed threat to both forest and human settlements. As the hilly areas are fragile and composed of young sedimentary rocks, landslides have been catastrophic. One male participant stressed, *"Landslide mainly occurs in upstream areas during the rainy season. Last year, a landslide occurred during Dashain in September due to heavy rainfall and the road was fully blocked. It was also heard that two persons died on that incident"*. The participants experienced and noticed this disaster in areas of Bhulke (RRM 5), Lewase (RRM 9), Devikot area (RRM 9), Okhale (RRM 9), Rupakot (RRM 9), Bardada (RRM 9), Dhaireni (RRM 9), Syanighosh (RRM 2), Chisapani (RRM 9), Baghidamar (SM 8), and near to Chaite (RRM 1). Such hazards are not only occurring naturally during the monsoon season but also emerge due to haphazard road construction in the hilly areas without considering future risks. The areas along the bank of the river have also experienced landslide, especially the Rangsing river towards SM including areas of Laurikot (SM 9), Ganasthari (SM 9), Kanachaur (SM 9), Chhahare

*Photo 49: Participatory Hazard Mapping of Planners group*


(SM 9), Rangsing (SM 8), Chisapani (SM 8), Barange (SM 8). However, GRM hasn't faced such types of disaster. Also, Rangsing river, being a devastator in the past posed a threat of flood and inundation to nearby settlements of Rangsing (SM 8) for a long-time, impacting houses and agricultural lands. But the construction of embankment along the river has reduced these problems to larger extent.

The Valley have been the victim of flood and inundation along the banks of Rapti river near Mahadewa (GRM 2), Baghmaruwa (GRM 2), Jethangaun (GRM 2), Banbari (GRM 1), Malmala (GRM 1). However, strong and wide embankment along both banks of the river has halted the risks. Nonetheless, the threat lingers if consistent monitoring is not maintained, the participants expressed. Also, the seasonal rivers from Chure (north of the valley) range flow at a higher speed during monsoon causing damage to the areas of Singhe (RRM 5), Kalapani (RRM 5), Kohalwa (RRM 8), Jorpani (RRM 8), near Tallo Laape (SM 8), and Majhenigadh (RRM 4). Even the embankment can't control the gushing water and the settlements and agricultural fields gets affected by flood annually. The participants mentioned Karamdi river mixed with Dolai River caused maximum damage to the livelihood of that area annually.

Along with the flood, the participants remarked on the experiences of inundation in various parts of the valley mainly along the east-west highway in RRM and the postal highway in GRM. Both the seasonal rivers, and main rivers (Rapti and Rangsing rivers) have added threats in Kalapani (RRM 5), Kohalwa (RRM 8), Pipari (RRM 8), Bhagwanpur (RRM 6), Lathawa (RRM 5),

Pathargadhwa (RRM 6), Jagpur (RRM 6), Bagarapur (RRM 6), Singhegaun (RRM 5). The affected areas also include Balapur (GRM 3), Ratanpur (GRM 3), Gobardiha (GRM 3), Dhaireni (GRM 3), Chisapani (SM 8), Rangsing (SM 8), Juraune (GRM 1), near Baghusari (GRM 1), near Jethangaun (GRM 2), Supaila (GRM 3), Chaite (SM 8). Although the flood risk has decreased after the construction of the embankment, the river can still cause damage in the future, if monitoring is not done regularly.

*Photo 50: Destruction of physical infrastructures caused by flood of Dolai River*

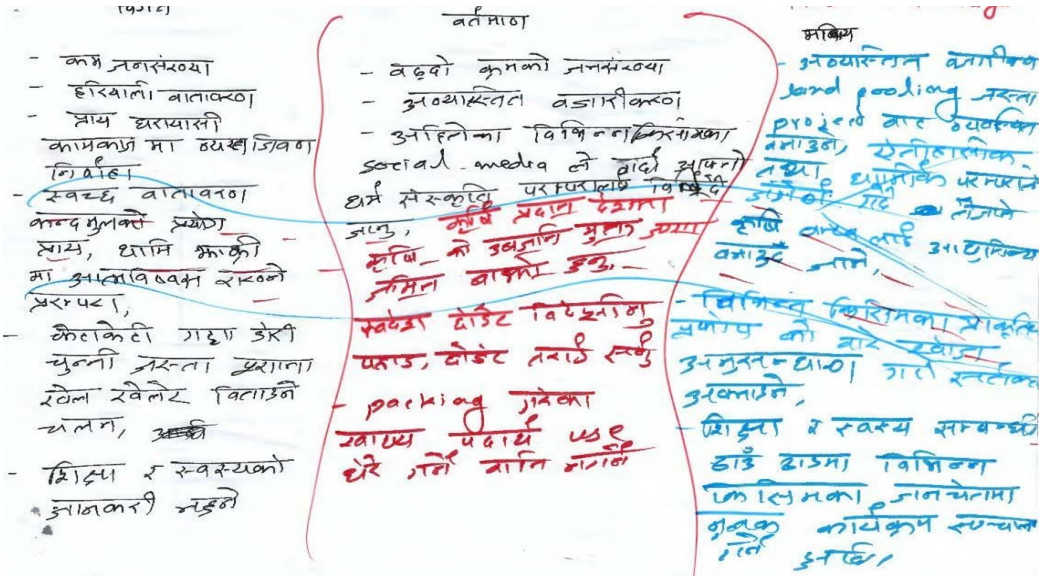
The planner group also identified risk of fire hazards in the forest areas extending from Bhulke village (RRM 5) in the northern side to Bhalubang (RRM 1) in the east. Additionally, the forest areas of SM 8 and 9, as well as of GRM 1,2,3 especially in the consisting southern areas towards Supaila (GRM 3), Bhainsikhutti (GRM 3), Chimchime (GRM 2), Ghopte (GRM 2) extending to Juraune (GRM 1) poses risk of fire One of the female participants *expressed, "Forest fire occurs annually in GRM 2 even during daytime and causes destruction".*

**Individual and collective aspirations**

Past aspirations

The planner group comprised 11 participants (8 males and 3 females) from various government organizations with different designations as well as elected representatives from the wards and municipalities. The discussion commenced with the demonstration by the facilitator showing examples of her life, her past experiences, present context and future aspirations. Based on that, the participants expressed their past and present life trajectories along with future perceptions through 'individual rivers of life'. They also worked together to determine collective aspirations for Rapti valley. The participants, especially females, expressed challenges regarding limited access to education for girls, as they used to be busy with household works but males were supposed to go to other cities for higher level education. Also, due to the lack of communication facilities, postal service was the only option in past for sharing information between people.

*Photo 51: Individual aspiration of a female participant*



Likewise, the availability of only foot trails (*Goreto bato*) and the lack of transportation led people to use boats (built from a single tree) to cross the river. Lack of basic health facilities and sanitation caused the prevalence of different diseases like Malaria, Diarrhoea, and Pneumonia. People believed in Shamans/Witchdoctor (*Dhami, Jhakri*) as traditional healing practices and followed home-based treatment. The dense forest in Rapti valley and its biodiversity created adequate water sources and timely rainfall, making green village and clean Rapti river. Fishing being the main occupation of the Tharu community, was highly prevalent in the rivers and the canals. However, settlements with thatched roofs and without electricity were prone to flood and landslides. Rivers were very deep with narrow width causing high water velocity. Despite having more open spaces, agricultural production was low, but the produced food was organic without chemical pesticides. The produced food was stored in huge pots made of mud (*Bhakari*), especially in the Tharu community. Although there was a sparse settlement in Deukhuri, the society was fair and equitable with cohesion, coordination, collaboration, and mutual support where collective decision was made in communal places/squares (*Chautaro*) for community-based activities. There was intensive use of local language, culture, heritage, and tradition. One of the female participants mentioned, *"Community cooperation for developmental works used to make everything easy and even engineers were not required to make the irrigation canal because the ancestors themselves had made 10-15 km long irrigation canals with their own design"*.

Present Aspirations

Participants believed that they experienced both positive and negative changes in the present context. Infrastructure and facilities including transport network expansion with black-topped roads, establishment of schools and colleges for higher education, promotion of technical education, health institutes, and electricity facility, are developed in close proximity, which collectively uplifted the life of people now. The use of firewood and kerosene as a fuel in the past has been replaced by Liquified Petroleum Gas (LPG) and electricity. Mud/Stone houses with thatched roofs have been replaced by concrete houses with roofs of galvanized sheets/tin showing the improvement in livelihood. Although agriculture production has increased after 2000 AD, productive land is left barren now and thus dependency on packaged or imported foods has increased. Improvement in Information, Communication and Technology (ICT) and access to mobile phones has led to the active participation of people in social media platforms for business, education and information sharing purposes. Increase in transportation facilities has made easy for people to travel to different places within short period of time. As the Rapti River has become wider now due to lateral erosion, construction of an embankment has been done to control the river width. Foreign employment has opened the door for economic empowerment and self-resilience, but it has also led to brain drain of youths. As development is happening rapidly, there is a surge of international and rural-urban migration (migration from Hill to lowland area) in the valley which has expanded business and city area. But with the increased urbanisation, construction, and development activities, people have experienced environmental deterioration with an increase in deforestation, pollution, public land/riverbank encroachment, dense and unmanaged settlements, reduction in water absorption capacity of the land, etc. Haphazard land fragmentation and land transactions have caused flood and inundation. Other problems like fire risk, less rainfall, intense rainfall, no rainfall, and scattered/spatial rainfall, drinking water shortage, extinction of wildlife, and drying up of rivers and streams are also increasing. Additionally, food products are mixed with chemicals and pesticides. Social cohesion has degraded, and society has become full of animosity, jealousy, and greed, and there is erosion of traditional culture, religion, and customs. Although social media has been used as one of the promising technologies for communication, business enhancement, and knowledge upliftment, its negative usage has affected society. One of the participants mentioned, *"Due to Facebook, TikTok, and other social media, people spend most of their time in mobile phones and do not perform livelihood-based work. This has also made them the victim of hacking and swindling."*

Future Aspirations

The participants envisioned the future of Rapti valley as a green and prosperous city has managed and safe settlements with access to all city services. They aspire to establish a valley with a university for higher education and 100% access to education to all. Their goal is to enhance the existing education system by delivering more practical, life applicable knowledge. Well-facilitated disaster resilient infrastructure like health institutions, roads, drinking water and electricity services in every corner would be managed. Deukhuri/Rapti, after being declared as the capital city of Lumbini Province, would accompany increased urbanisation and migration. One of the participants expressed, *"Population management in the future should be done in terms of ratio, creativity, activity, equitable resource distribution, and it should be balanced with the ecosystem"*. They desired to manage the environment through the usage of vehicles and machinery powered by alternative energy sources like solar energy, wind energy, etc. Along with the development, there would be equality and inclusiveness in every activity with well-managed society, markets and community ensuring the rights of every caste, ethnicity and culture, women, children, and elderly people. In pursuit of improved urban environments and livelihoods, the participants have envisioned several key initiatives. These include the development of river corridors, construction of earthquake-resilient buildings and risk-proof physical infrastructure, incorporating a thorough assessment of the risks (both pros and cons). They also seek to improvise land pooling schemes within Rapti valley. The participants aspire to preserve historical and religious cultures and traditions, and to establish open spaces for yoga and meditation centres. They envisioned adoption of modern agricultural practices with advanced technology, and promotion of research on natural hazards and identification of their solutions. They also prioritised promoting Nepali and Tharu culture at international platforms through social media. Also, they intend to use ICT to manage flood and disaster impacts. However, urbanisation and development increases risks such as degradation of water resources (Rapti river), deforestation for settlement expansion, lack of open spaces, water scarcity, extinction of wildlife, increased pollution, etc. According to the participants, agricultural production will be reduced in the future which will cause people to face health issues, resulting from the consumption of packaged and processed foods. They also noted

*Photo 52: Planner presenting collective aspirations*

chances of potential food insecurity due to their dependency on imported food. Also, they fear that the future society may become more materialistic and lack social empathy/emotions and community cohesion. While the increased use of ICT will increase cybercrime, it will, however, also be used to empower youths for self-employment and support skill development to combat unemployment problem; hence optimistically contributing to Nepal's prosperity.

**Wheel of Urban Assets**

Macro infrastructures

Under the macro infrastructures, the participants outlined several key developments like the establishment of roads, proper bus parks and bridges, well-facilitated hospitals and an airport, a university with different faculties, a multipurpose stadium, and industries aimed for development and betterment of the capital city. Additionally, they emphasised the construction of robust and sustainable embankments and spurs along riverbanks, efficient irrigation canals and drainage systems, along with ensuring access to safe drinking water for all. Their vision also involves transitioning towards apartment-style/high rise buildings to manage increasing population while preserving productive land.

Jobs and livelihood

In order to reduce out-migration and foreign employment, and to provide jobs and enhance livelihoods, participants aspire to establish employment-generating industries like garment factories, sawmills, jute mill industries, etc. Also, they prioritise the development of micro-enterprises and offer training programs for livelihood and microenterprise development, skill development and entrepreneurship, particularly for youths. One of the participants expressed, *"Employment and livelihood improvement could be enhanced by reducing the imports and promoting local/traditional production of various agricultural and business-based products. For example, individual who is skilled in casting iron/iron work or individual who is skilled in crafting traditional musical instruments* (like Madal) *could produce them locally and promote them"*.

As most of the people are dependent on agriculture for living, they envisioned the capital city with modern and scientific agricultural firms, and commercial livestock firms for self-reliance in agriculture productions. Also, multipurpose agriculture cultivation techniques like agroforestry, terrace cultivation, multi-storey cropping system, etc. could be practiced. Fishing being the main occupation of the Tharu community could also be sustained through scientific fish farming methods.

Social Assets

The participants envisioned the construction of temples, as well as the establishment of yoga/ meditation centres and community/conference halls for various community-level programs like marriage ceremonies. The planners focused on the upgrade/maintenance and preservation of *Maruwa Than* (the worship place of Tharu community), considering that the Tharu are the local inhabitants of Deukhuri. They also envisioned establishing a multicultural museum and Tharu cultural centre to safeguard social assets and heritage. Similarly, community cohesion and a sense of belonging would also be maintained through the construction of community buildings and communal places/public spaces like *pati-pauwa* (resting places), strengthening social ties and harmony.

*Photo 53: Wheel of Urban Assets aspired by Planners group*


Knowledge and cultural assets

Participants aspire for the transfer of traditional community knowledge to new generations through the conservation of temples, mosques, churches, *pati-pauwa* (resting places) for religious aspects as well as schools and libraries for education. Additionally, they aim to educate new generations about traditional food, natural diet/organic food and promote Ayurveda treatment. They also considered the importance of moral education to control the erosion of cultures and traditions.

Environmental Assets

They envisioned various environmental preservation initiatives aimed at enhancing recreational spaces and conserving natural resources, like the construction of green parks, conservation ponds, recharge ponds, along with the preservation of natural waterfalls, lakes, and watersheds. Also, they aspire to conserve forest resources through afforestation and reforestation in open spaces, adoption of proper forest management techniques, plantation of multipurpose trees and roadside plantation. The participants advocated against haphazard excavation practices and urged for the scientific utilisation of resources from Rivers, especially

the fine sand found in Rapti River which is suitable for construction, as opposed to other seasonal rivers which has a mixture of soil and sand.

Agriculture system could be modernised with the adoption of multilayer farming system, technologically equipped livestock farms, modern farming equipment and technologies. Also, the production, management, processing, packaging, and delivery activities could be shifted from traditional method to modern scientific method. They also recognised the importance of community forests and its sustainable management. Furthermore, they stressed the joint efforts required for waste management from both the community and government to control all types of pollution, especially in rivers. Additionally, they highlighted the significance of land use categorisation (agriculture, industrial, open space, urban planning) for future city planning.

*Photo 54: Planners group presenting the Wheel of Urban*

Institution and rule of law

The participants envisioned a scientific land use policy for land categorisation (agricultural land, industrial area, forest area, urban area, open space, etc.) for a mega city plan. They suggested updated building codes for development and construction activities as well as for houses and housing colonies. One participant expressed, "*If building code could be updated with a provision like, an individual should plant at least 4 plants in 4 corners of houses during house construction then, it would help to build a resilient capital city.*" Also, they envisioned for construction of shelter homes (to provide shelter for people affected by disasters) and a Disaster Management Centre for disaster relief and management. A disaster risk reduction plan was suggested to improve early warning system to alert communities of probable hazard and risks. To ensure equal upliftment across all the communities, they expressed the need for various policy updates and implementations. These include improving and updating security policies and guideline for effective hazard response, as well as formulating policies and standards to control criminal activities. Policy for substituting imports by promoting local production and conducting livelihood and entrepreneurship development training was also envisioned.

Micro Infrastructures

The participants envisioned constructing culverts in small rivers, canals, and ponds for irrigation, including general facilities like public toilets, green park, social housing, yoga centre

for physical and mental fitness, streetlight on roads, public taps at resting stops and bus station/resting stops where people can rest while travelling or during rain.

Integrating the different aspects of the wheel, the participants came up with the following vision statement, "*Building an equitable city/society by increasing employment and maintaining good governance through quality and sustainable infrastructure development, conservation of natural, cultural and social heritage".*

**Co-mapping**

The participants of the planner group envisioned the Rapti valley as an eco-friendly city which emphasised every component for social and environmental development. These components include physical construction works, well-managed settlements, sustainable agricultural areas, and forests. They aspire for the city to embrace sustainable development, where the resource utilization, management, and service delivery would be sustainable. With the increasing population and escalating in-migration in the capital city, they envision that most of the following areas will be high density settlements in the future: Bhanpur (RRM 7), Basantapur (RRM 3), Ratanpur (GRM 3), Dadagaun (GRM 2), Jethangaun (GRM 2), Patringa (GRM 2) along the Rapti river; and Dhodre (SM 8), Shitganga (SM 8), Maurighat (RRM 4), Majhenigadh (RRM 8). Similarly, there will be low population density in areas like Kohalwa (RRM 8), Kalapani (RRM 5) Jagpur (RRM 6), Bagarapur (RRM 6), Pathargadhawa (RRM 6), Pachaha (GRM 2). The envisioned outer ring road will cover all three Rural/municipalities of the capital city, thus creating equitable development of transportation facilities. The outer ring road will also cover the outer area and connect nearby borders where markets would be expanded in the future.

The participants aspired to create an area for the domestic airport at Lalmatiya (RRM 2). However, one of the participants suggested, *"Airport construction will be unique infrastructure for Rapti valley, and it should be made at RRM-9 by removing the hill".* They opined that roads would be constructed along both banks of Rapti river in the form of embankments so that it could be developed as a buffer zone/park, which, they reckon, will reduce the impact of floods on the roads. The participants envisioned a Bus Park near Chisapani (SM 8) that provides facility to both SM-9 and SM-8, away from the main city centre and near the border of Rapti valley. They envisioned that the buses from this station could travel to different parts of the nation. Also, bus stand will be made in every 20km distance in the proposed outer ring road, that would cover almost every area of Rapti valley and along the Mahendra highway (i.e. East-West highway). They thought that the infrastructures, including the railway and outer ring road, would create more development and employment opportunities. Additionally, other microstructures like public toilets and public taps would also be maintained in bus parks and green parks.

*Photo 55: Planners group engaged in co-mapping exercise*

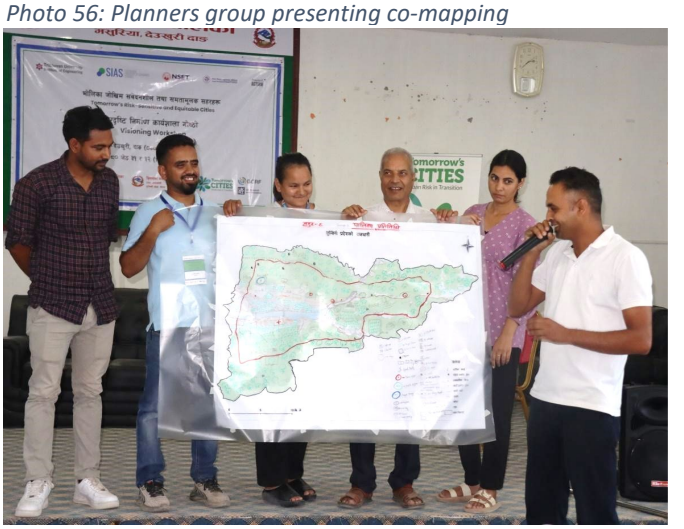
They thought that the forest should be well conserved (in the form of community forest) to maintain eco-friendly environment for living in the future as well. Also, they aspired to establish recharge ponds above Majhenigadh (RRM 4), below Ghorahibas (RRM 9) and near the river for the maintenance of soil moisture and water availability. To increase food security, they envisioned expansion of agricultural land near all settlement areas in GRM 1,2,3, RRM, and SM 8. They visualised development of agricultural farm at Chimchime (GRM 2) near Bhaurisal river (GRM 2), and animal farm at Gangrer (GRM 2) and nearby Bhaurisal river (GRM 2). They aspire to manage landfill site near Gadhawa (GRM 2). One male participant added, *"All the wastes of city as well as of nearby farms is better to be disposed to a designated remote place similar to Kathmandu disposing its waste in Bancharedanda in Nuwakot"*.

In order to develop tourism sector, they envisioned homestay in the hillside in Bhulke(RRM 5) and in Thakurikot (RRM 5) which offers fresh and relaxing environment for tourists. Similarly, Juluke (SM 9) would also be developed for homestays. Other homestays would be further developed in cultural communities to promote Tharu culture and Awadhi culture. Also, participants thought of developing a resort in the northern part of valley extending from RRM 9 to the neighbouring RRM 5 including Bardar (RRM 9), Rupakot (RRM 9), Uti (RRM 9), Ghorahibas (RRM 9), Lewase (RRM 9), Thakurikot (RRM 5) and the border of Rapti valley in the west. They envisioned a Fun Park at Badahara (GRM 2) and a green park near the border

of Arghakhanchi above Rangsing river, for tourist amusement and recreation. Economic development and employment opportunities would be increased through the development of industrial areas, which they envisioned developing near Rangsing River, Chisapani (GRM-1) and near Batuka (SM 9).

According to the participants, for the safety and security of the people and the city, there will be police offices near Barahakhutti (RRM 2), Bhalubang (RRM 1) and SM 9 with Armed Police Force near Gangrer (GRM 2). The Nepal Army would be in the eastern side of Bhulke (RRM 5) and the northern side of Kalapani (RRM 5) and Kohalwa (RRM 8). They aspired to construct two social housings (one near Majhenigadh (RRM 8) and another one at SM 9) for maintaining social security of poor and disadvantaged groups, landless, squatters, and low-income families. They envisioned a large teaching hospital with medical college near Pachaha (GRM 2), and another hospital in Sisahaniya (RRM 7) for better health facilities. A multipurpose stadium at SM 8, just across Bhalubang (RRM 1) was also aspired by the participants, where all sports activities including cricket would be performed. An area for a meditation hall was allocated at SM 9, near Chisapani.

*Photo 56: Planners group presenting co-mapping*

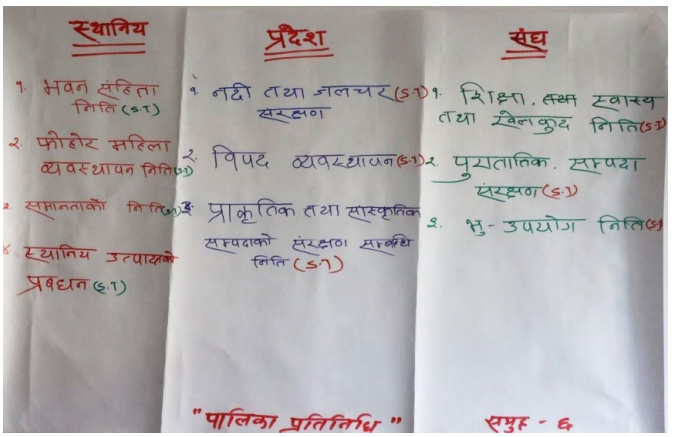


As the capital city does not have an existing university, the participants envisioned a university near Tallo Laape (SM 8) situated near the Rapti River. They aim that the establishment of university will provide quality education to youths and reduce out-migration for education purpose. *Dharmashala* (a building devoted to religious or charitable purpose, especially public rest house or shelter for travellers) was envisioned near Devikot Temple (RRM 9). Additionally, an auto village was considered in Juraune (GRM 1) near the Mahendra highway. The participants suggested establishing a permanent exhibition fair centre near Rangsing River (SM 9). Additionally, they proposed having open markets (*haat bazar*) near Nayagaun (RRM 4) along the highway route to Ghorahibas (RRM 9). One of the participants proposed, *'The exhibition centre would be opened once a year to attract internal as well as external tourists while, haat bazar developed near administrative centre would be operated weekly'.*

**Policies**

The participants of the planner group raised concerns regarding the lack of effective implementation of policies. Considering the fact that all three levels of government (i.e. federal, provincial, and local) develop policies without interacting each other, they expressed that policies from the grassroots level should be promoted for plan and then programmes development.

*Photo 57: Desired policies drafted by Planners group*




They highlighted the importance of updated building code policy for infrastructure and housing construction. One of the participants expressed, *'All of the houses, governmental infrastructures, housing colonies, development structures should be made stepping on international standard building policy. Also, the categories for housing development should be predefined. Then only, it is possible to build high rise buildings and low-rise buildings based on it.'* They emphasised the significance of solid waste management policies at the local government level, considering that waste is generated locally and could be managed more effectively from that level. During the discussions on agriculture policy, a female participant in her mid-20s underscored the urgent need for a comprehensive agriculture policy, as the government hasn't prepared a land use map to date. Additionally, they highlighted the necessity of an archaeological/ heritage conservation policy from the federal government to safeguard culture, tradition, monuments, temples, and festivals.

As the capital city, Rapti valley aims to create designated zones for the establishment of factories and industries, anticipating the creation of employment opportunities for future generations. Participants called for a targeted policy to manage industries and factories effectively, foreseeing potential inequality from development and urbanization, where the wealthy may benefit due to success in business, while the less affluent may become poorer due to increased expenses. So, the participants envisioned a policy for maintaining an equitable society from the local government level. They also urged the implementation of policy for the promotion of locally produced materials. One of the participants expressed, *"While conducting programs here, local products should be used, such as leaf plates* (duna tapari) *should be promoted displacing plastic products"*. They suggested that the province government develop and implement a *rivers and aquifers conservation policy* for sustainable

water conservation, as well as a *disaster risk reduction and management policy* under the presidency of Chief District Officer (CDO) of the district. Policies for natural and cultural resource conservation were urged towards the provincial government for the overall management, preservation and sustainable utilisation of resources and reducing excavation of river and forest-based resources.

*Table 9: List of policies envisioned by Planner group*

| S.N | Local government | Provincial government | Federal government |
|---|---|---|---|
| 1. | Building Code policy (Short term) | River and aquifers conservation policy (Short term) | Policy for Education, Health, and sports (Short term) |
| 2. | Solid Waste Management Policy (Short term) | Disaster risk reduction and management policy (Short term) | Policy for Historical/archaeological heritage conservation (Short term) |
| 3. | Policy for equality (Short term) | Policies for natural and cultural resources conservation (Short term) | Land-use policy (Short term) |
| 4. | Policy for promotion of local products (Short term) | | |

They emphasised federal government to develop a policy for scientific and quality education, health, and sports facilities accessible to everyone immediately. The participants highlighted the critical importance of developing a land use policy to effectively manage developmental activities based on factors like land condition (Chure hilly areas, plain area, fragile lands, etc.), land availability, and land categorisation (agricultural land, forest area, wetlands, barren and wastelands, construction area, river basins, etc.). This policy would facilitate organising land uses according to varied need and conditions of infrastructure development without compromising people's land rights and conserving natural resources. For designing the policies on historical and archaeological heritage conservation, they asserted that support and guidance from the federal government would be required. They also urged for a social security policy for every individual in the community. With the advancement of information and technology, they opined that cybercrime control and investigation policy would be required to avoid technological misuse in the future.

## Conclusion

The participants of the Planners group, comprising government employed (mostly engineers and urban planners) and elected representatives, shared their experiences and expertise to envision an aspired future capital city of Rapti/Deukhuri Valley. The traditional custom of rulers being the planners was modified with the initiation of the federal democratic system in the country. This governance mechanism replaced autocratic system with public participatory system, through nationally and locally elected representatives at all three levels of government (local, provincial, and federal). It lifted citizens' consciousness and increased participation in planning and decision making with the involvement of qualified authorities.

The group co-mapped current and past hazards including fire, flood, landslide, and inundation of Rapti valley. These hazards arise not only due to fragile hilly landscape but also due to haphazard road construction. Considering their experiences of annual catastrophe, they envisioned and aspired for making a resilient and prosperous capital city. Despite facing a lack of access to basic facilities in the past, they have upgraded the development condition of Deukhuri from social, economic, environmental perspectives and aspire to continue to do so in the future with the use of Information, Communication and Technology (ICT). They prioritised well-facilitated and disaster resilient infrastructures including shelter homes and disaster management centre for protection from unpredictable disasters and risk hazards. Rapti valley consists of indigenous, ethnic and migrant communities, exhibiting multi-ethnic and multi-cultural integration. As a result, they envisioned promotion of Nepali and Tharu culture at national and international platforms, aiming to attract both national and international tourists. This would promote business as well as increase employment opportunities and decrease brain drain of youths. They envisaged the implementation of a comprehensive plan including railway, airport, university and the construction of high-rise buildings and apartments within the capital city. The interconnection between existing Mahendra Highway and envisioned ring road is considered as a revolution in transportation within the capital city and for other districts as well. This forward-thinking approach aims to revolutionise transportation, foster development, planned urbanisation, create employment opportunities, and enhance self-resiliency to tackle future risks. Also, involvement of local people in every developmental activity would further maintain equality and inclusiveness in the community-based development. The participant's emphasis on land categorisation (agricultural land, industrial area, forest area, urban area, open space, etc.) and land use, and conducting infrastructure development based on land condition (Chure hilly areas, plain area, fragile lands, etc.) represents a significant initiative that could greatly benefit future development and construction activities.

For a safe future ecosystem, they prioritised the conservation of forest, maintaining the current state forest biodiversity. Additionally, they envisioned establishing a landfill site at

GRM 2 to ensure safe disposal of waste – keeping it isolated from settlements and minimising environmental impacts. They held a belief that achieving a resilient city involves more than just the construction of large infrastructures. Therefore, they also emphasised the importance of creating social spaces like green parks, public toilets, open markets *(haat bazar)*, exhibition centre, *Dharmashala* (a building devoted to religious or charitable purpose, especially public rest house or shelter for travellers), community conference halls, etc.

The planners stressed the immediate need for comprehensive land categorisation and land use policies involving all three levels of government to effectively plan and manage urban development. In order to provide good education and health facilities for all, they desired for appropriate policy and its effective implementation. Furthermore, along with infrastructure development, they raised their voices for environment and ecosystem conservation, and suggested producing biodegradable products. They also suggested that before conducting any construction and development, public hearing and consultation, public discussion and information sharing at grassroot level is of the utmost importance for making those activities successful. Along with factories and industries, they expressed the importance of agriculture for livelihood improvement and showed necessity of technologically improved agricultural tools, commercial farming practices, and cultivation-based trainings.

Despite comprising public representatives, engineers, architects, government employees, and urban planners in this specific group, most of them were not permanent residents of Rapti/Deukhuri. Consequently, they lacked a deep understanding of the physical, economic, and social geography of the area. With their limited knowledge to accurately identify hazard-prone and potential development areas within the valley, they tried to effectively convey viewpoints and opinions regarding the past experiences, present conditions and future aspirations concerning the Rapti Valley. However, a close collaboration with the local elected members would help planners to draw a comprehensive plan for a safe, healthy, prosperous, equitable and resilient capital city of Lumbini province.

## *Chapter 9: Summary and Conclusion*

**Dilli P. Poudel, Rojani Manandhar, Anushiya Shrestha, Swosthi Thapa and Salu Basnet**

### The social cities

The cities envisioned by different groups of communities[17] presented in the last six chapters (Ch3-8) corroborate the existence of multiple "realities" (Ch1). Their relationships with *places,* i.e. sense of place (see Relph 1976, Massey 2005 [2008])[18] and *environment* (see Tuan 1976)[19] have been phenomenologically reflected in the "disaggregated future cities", as the group members bear subjective *images* and *intents* regarding the objective places they live (see Ley 1977, Massey 2005 [2008])[20]. For instance, the Tharu community wanted a future city besides infrastructure development that especially preserves their cultural and traditional identity; the Madhesi, Muslim and Dalit (MMD) communities envisioned a city that embraces diversity and ensures equal access to resources and opportunities; the Migrant community aspired to reside in a city self-resilient in terms of agriculture production, employment opportunities and environmental conservation. In a similar vein, the Ethnic groups envisioned a future city with their respectful integration in mixed settlements, and the Squatter group wanted a discrimination-free city marching towards prosperity with quality and affordable housing and services (e.g. education, vocational training, employment). The Planner group acknowledged that community-based planning and a comprehensive land use categorisation and plan are quintessential for an equitable and resilient tomorrow's city. These diversly envisioned cities were informed by their residential historicity (e.g. migration history), experiential background (e.g. as bonded labourers, informality, marginality) and knowledge base (e.g. traditional knowledge, social positionality), which inflated and shaped their sense of place and reflected their aspirations.

Although the Deukhuri/Rapti Valley is known for the Tharu community (Ch2 and 3), a series of migrations ranging from the migration of Madhesis and Muslims more than a century year

[17] We tried to explore the diversity of perspectives across these socio-economically heterogeneous communities and foster socially inclusive planning of tomorrow's cities.

[18] To human existence, it is essential to know places practically. So Relph considered "place" as a phenomenon to understand the lived world of everyday experiences. Massy characterises city space considering it matters to inflect our understanding of the world, our attitude to others, our politics, the way we understand globalisation, approach cities, our practices and a sense of place. She thinks if time is the dimension of change, then space is the dimension of the social, i.e. contemporaneous co-existence of others.

[19] Tuan emphasised the way human perceives the environment to explore the affective bond between people and place.

[20] Ley considered that place is not solely an object, but it always has meaning and a certain image for its subject, i.e. people.

back to the migration of hill communities specially after the 1950s, i.e. after the eradication of Malaria spawned and spurred mixed society in the area. Migration from the hills comprising households with diverse social positionalities such as Brahmin, Kshetris, various Ethnic communities, and Dalits has shaped the valley's present socio-economic and political fabric. However, surrounding hills are *always* resided by, mainly, Magar and other ethnic communities, forming an indigenous practice of *Kot-Besi*. *Kot* refers to the hills/ridges and *Besi* to the Valley. The *kot-besi* tradition was an economic and ecological practice. It was an economic practice because the surrounding hill communities exchanged their products (e.g. crops) and services (e.g. labour) with the valley communities. It was also an ecological practice as the hill communities resided and cultivated during winter in the valley. Moreover, the Tharu tradition of *Badhghar* system, primarily related to regulating local irrigation practices comprising *Kakandar/Pradhan* (the chief), *Aghariya* (messenger and the chief of labour mobilisation for collective actions) and *Sagharia* (subordinate *Aghariya* for executing tasks), that existed before the outset of migration into the valley, is still practiced. Contrary to these good practices, keeping quasi-slaves in the form of bonded labour (i.e. *Kamaiya* and *Kamlari*) was traditionally rooted in rich families, which compelled many poor farmers to turn into informal settlers or squatters in the later years (Ch7). Although this tradition was abolished in July 2000 (Fujikura 2001), informality and marginality continue to pervade the valley, as more than 60 per cent of the total households are functionally landless and poor (most own less than five *dhur* or 0.0084 ha of land and some are landless) (Poudel et al. 2023).

The migration history also shapes hierarchical societies in the valley, fuelling unequal social positionalities, so, the production of *space,* e.g. co-maps was not only phenomenological but also power laden (see also Harvey 1973, Lefebvre 1991, Harvey 1996, Heynen and Robbins 2005, Swyngedouw 2006). While producing co-maps and aspired policies, the Tharu and Migrants groups were vocal, given their higher socio-economic positionalities and access to the local politics, whereas MMD, Ethnic and squatter communities with weak social positionalities, limited their envisioned horizon to focus primarily on persisting social issues (e.g. inclusion, discrimination, representation). Nonetheless, all disaggregated groups attempted to grasp futuristic notions in envisioning co-maps for future cities.

Even though past (i.e. 30 yrs. back) city experiences of the members of disaggregated groups were temporal-sensitive (diverse), depending on their migration, most of them experienced lack of services and facilities (e.g. education, health, electricity, transportation, markets), infrastructures (e.g. technologies, road, bridges and culverts, drinking water), livelihood opportunities (e.g. less agriculture production, food insecurity, less/unavailability of off-farm jobs) and exposure to hazard risks (e.g. uncontrolled Rapti River, fire hazards, risk to cross river, children's casualties, floods, no risk management plans). Nonetheless, the cultural bonding and collective activities (e.g. traditional practices and constructions, supportive,

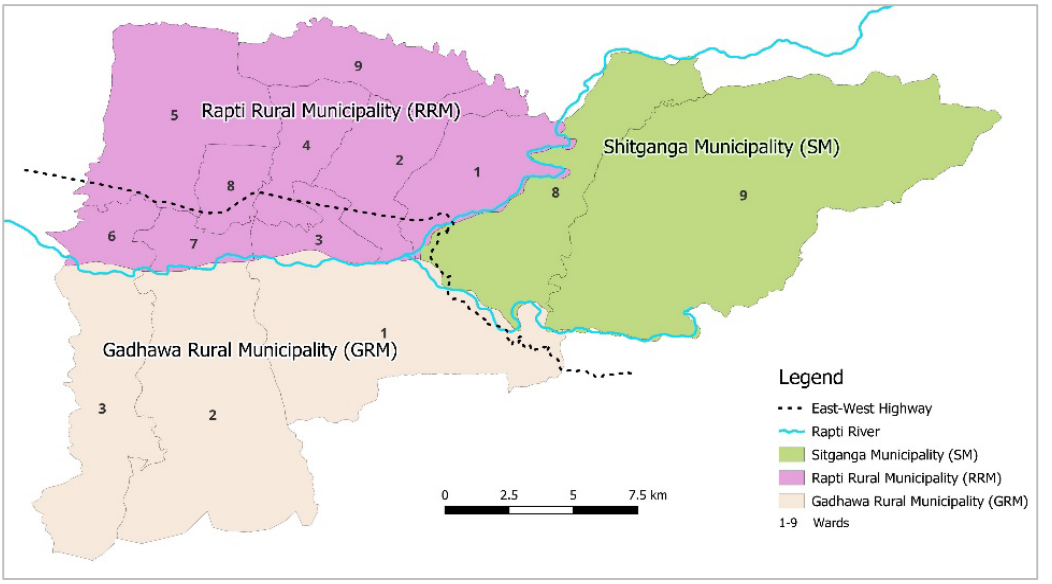
collective decision, honest, trustworthiness) was strong and the valley was environmentally healthy (e.g. open spaces, rainfall in time, dense forest, clean environment), although settlements were dispersed with traditionally built houses with thatched roofs. However, gender discrimination as manifested in distribution of roles and responsibilities (overburdened women and girls with daily chores) and limited access to education and other opportunities to women and girls, and the discrimination against the bonded-labourers (as *Kamaiya* and *Kamlari*) was profound.

*Figure 7: Components to be considered or eliminated in tomorrow's social cities*


At present, the disaggregated groups unanimously accept the increment in services (e.g. increased access to education, health and market facilities) and infrastructure development (e.g. construction of black-topped roads, irrigation canals, embankments, dams) in addition to increased agriculture production (using chemical fertilisers) and reduction of gender and other identity-based discrimination. However, increase in-migrants (Ch4), haphazard construction and market centres, dense settlements, decrease in open spaces and collective cultural lifestyles (e.g. eroding traditional practices, collective actions and mutual trust, growing influence of foreign culture and practices), and increase in pollution, deforestation (e.g. smuggling of timber) and floods mainly in small/seasonal rivers have been a matter of grave concern. Especially the haphazard construction (mainly roads, bridges and culverts) has increased inundation problem (in settlements and farmland) during monsoon (e.g. gravelled roads making commute difficult for kids). In spite of increasing risk and challenges, improved access to services, facilities, agriculture production and markets have made life in the present city relatively “easy” and secure in terms of food production and nutrition and hygiene.

Availability of gadgets have improved information access (e.g. increased social media, FM radios) as well.

*Map 4: Administrative Map of capital city, Rapti/Deukhuri Valley*




While the present dwellers of the Rapti Valley are slightly more aware about the local risk management, their future aspirations of the development of new capital city are primarily concerned with those aspects that hamper their everyday practices, e.g. haphazard construction, increasing flood, landslides, inundation and fire hazards, less/unavailability of employment/economic opportunities, cultural erosion, persisting discrimination, and pragmatic policies for proper management of these concerns in the future. In the following sections, beginning with the key findings of local hazard and disaster, we present the findings of the future aspirations of the disaggregated groups related to infrastructure development, land use plan and expected policies.

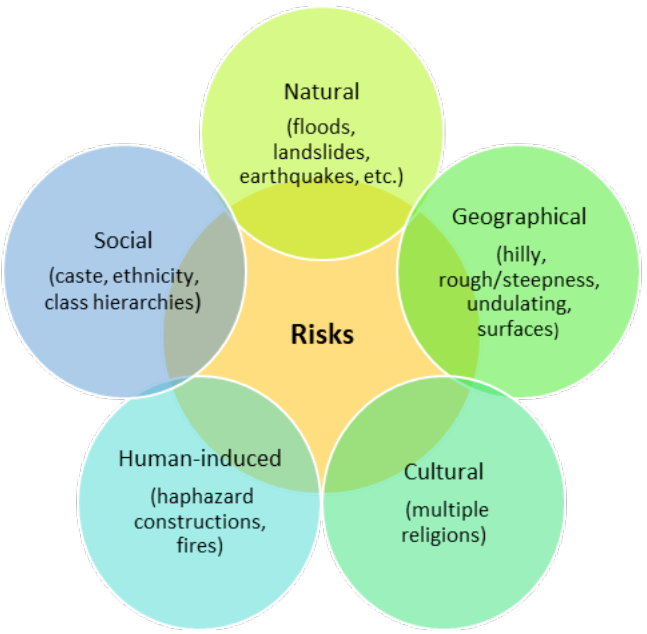
**The everyday and future risk of disasters**

Ecological diversity ranging from the valley floors[21] (ca. 200 masl) to the hill tops (ca. 1000 masl) creates a favourable environment for diverse agriculture production, vegetation and cultural practices (Ch2). Nevertheless, several tributaries of Rapti river including seasonal rivers originating from the northern (Chure) and southern (Dunduwa) hills trigger floods,

[21] The valley floor of Rapti/Deukhuri is elongated around 60 kilometres from the north to the south (bordering India) and stretches around 20 kilometres east to west.

inundation and landslides, exposing multiple households including poor, informal, marginal and farming communities to the risks, especially during monsoon. Additionally, they were worried about the possible expansion of urbanisation at the expense of the productive agriculture land in the valley floor. Some disaggregated groups also suggested new city development by clearing forest in the hilly areas considering future food security (e.g. Ch5). Although the Rapti river is less risky for the communities of RRM[22] (north from the river), it is still one of the major factors for annual lateral erosion in GRM, i.e. the southern bank of the river (Ch3). Participants also identified various types of risks that may affect the dwellers of the tomorrow's capital city, characterising risks and factors related to other geographical, socio-economic and cultural aspects (fig. 8).

*Figure 8: Characteristics of physical and social risks*




Particularly, the valley floors including RRM 5 (settlements like Kalapani, Lathawa, Paharuwa, Singhe), RRM 7 (Sisahaniya, Bhanpur, Arnanpur), RRM 6 (Bhagwanpur, Bagarapur) and RRM 8 (Kohalwa, Pipari), GRM 2 (Mahadewa, Pachaha, Jethangaun, Badahara, Patringa, Chimchime, Baghmaruwa) and GRM 3 (Gobardiha, Dhaireni, Supaila, Bhainsikhutti, Khaira), and SM 8 (Dhodre, Tinkhande, Rangsing, Lahape, Satmara, Chisapani) are exposed to floods and inundation, severely affecting the poor and marginalised families. Moreover, economic losses (loss of land, crops, houses, livestock, etc.), flooding in these rivers during rainy season results in 2-4 casualties every year (Ch7). The hill dwellers of RRM 5 (settlements like Bhulke, Karangekot) and RRM 9 (Devikot, Rupakot, Okhale, Bardanda, Dhaireni, Chisapani), GRM 2 (Chimchime, Gangre) and GRM 3 (Supaila), SM 8 (Dhodre, Tinkhande, Rangsing, Chisapani, Tallo Laape, Charange) have experienced and observed landslides events. These hilly parts are composed of sedimentary rocks, so landslides have been a catastrophe here (Ch8).

[22] RRM = Rapti Rural Municipality. GRM = Gadhawa Rural Municipality. SM = Shitganga Municipality. The number represents the Ward No. of that particular rural/municipality (see Map 4)

Additionally, the participants of hilly parts of both Chure and Dunduwa have experienced, human-induced fire hazards frequently, and lightening occasionally (Ch4, Ch6). Particularly, the hilly parts of RRM ranging from Bhalubang (ward no. 1) to Bhulke (ward no. 5), Supaila and Bhainsikhutti (GRM 3), Chimchime and Ghopte (GRM 2), and most of the forest areas in SM 8 and 9 are at risk to and experienced of fire hazards. In table 10, the frequency of the occurrence of the hazard events as experienced and observed by the members of the disaggregated groups is averaged. Since the possibility of observing a hazard by the six disaggregated groups is six, the (i.e. the observed hazard) chance of counting/repeating can be six too (although all participants may not have experienced the hazard impacts). So, we divided all hazard occurrences (i.e. frequencies) by 6 to get the averages in the following table.

*Table 10: Experienced and observed Hazards by participants in the Rapti/Deukhuri Valley*

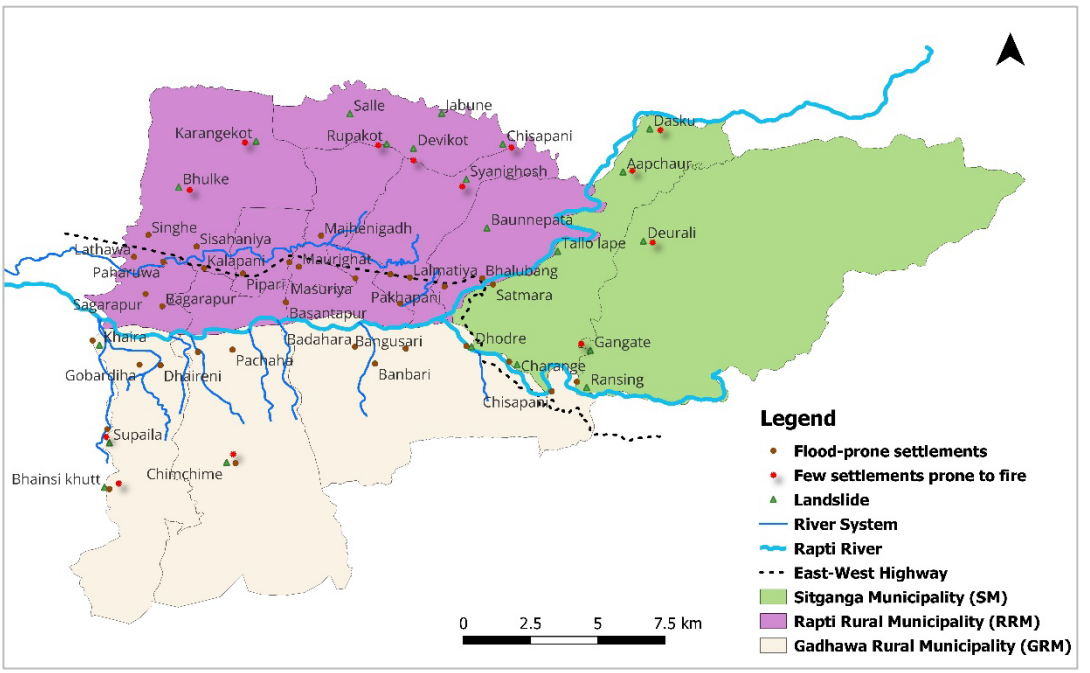
| Hazard types | Average frequency of hazard occurrence | | |
|---|---|---|---|
| | RRM | GRM | SM |
| **Flood** | 7.3 | 4.5 | 1.5 |
| **Landslides & Erosion** | 4.3 | 3.8 | 2.5 |
| **Inundation** | 8.3 | 3.5 | 0.8 |
| **Fire & Lightening** | 1.5 | 0.8 | 0.3 |

The table elucidates that RRM is more prone to both flood and inundation compared to GRM and SM (see Map 5, also annex). Although SM is mostly prone to fire hazard which has frequented in recent years, the numerical presentation on its occurrence is less inferential as the participants representing SM were less compared to two rural municipalities. Additionally, the temporality of the hazard occurrence is uncertain, although most of the observed and experienced hazards are depicted based on the last 10 years. Importantly, the participants were apprehensive that these hazards could turn into disasters in future with the intensification of migration and construction activities in the valley.

*Photo 58: Seasonal River flooding over the bridge: making commuting difficult for local people*

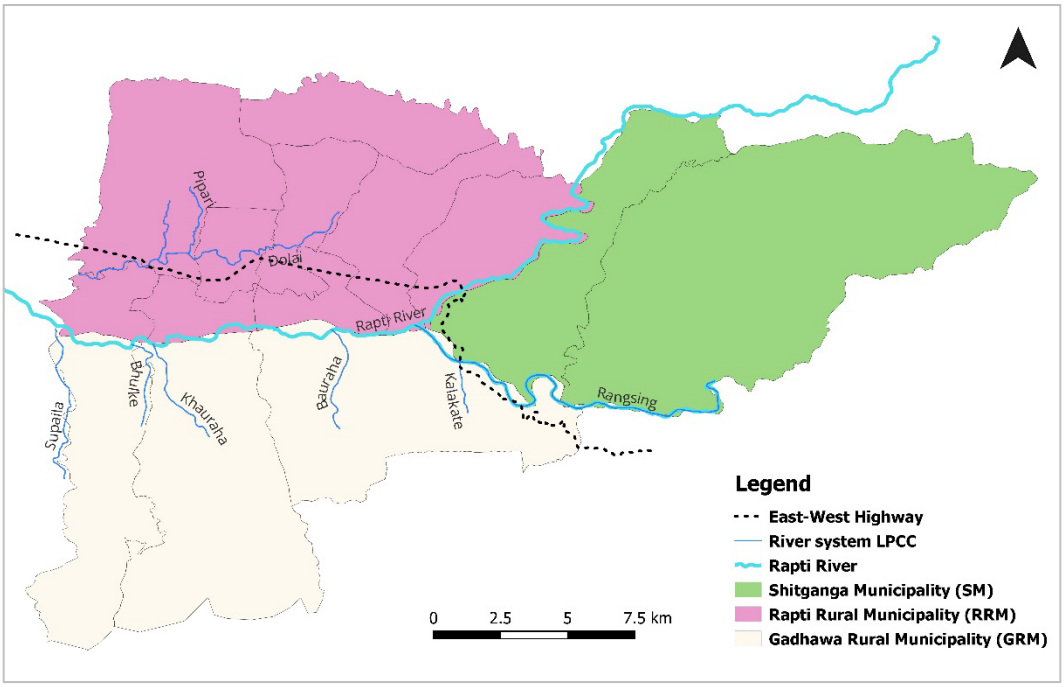
The city planners and disaster management authorities need to consider the following four factors for future city planning and development. First, the disaggregated groups explicitly suggested managing the seasonal rivers by constructing resilient embankments on both sides of all rivers, especially Dolai, Singhe, Supaila, Mahadewa, Bauraha and Rangsing (see Map 6, also annex) and diverting water for other purposes, e.g. irrigation.

*Map 5: Experienced and observed hazard locations and settlements in the Rapti/Deukhuri valley*



These seasonal rivers impact usually occurs during monsoon (June-August), occasional rainfall (e.g. October 2022) also cause flooding and affect people, farms and livestock. Although they flood for maximum 3-4 hours during monsoon but affect everyday livelihood, transportation and agriculture (Ch4 and Ch6) and occasionally cause casualties as well. Communities identified that the areas ranging from Pakhapani (RRM 1) to Singhe and Kalapani (RRM 5) experience heavy rainfall causing flood in Dolai and Singhe rivers annually (Ch6).

*Map 6: Risky and impactful seasonal rivers of Rapti*




Second, the growing construction of roads, bridges and houses have further heightened risks, which we refer to as "engineered disasters"[23]. Such engineered constructions have increased inundation and forced some communities to resist. For instance, to avoid inundation in the farm and settlement, communities *destroyed the embankment* constructed on the Singhe river in 2012 (Ch4). Annually, inadequacy to drain and channel the water originating from the Chure hills to the Rapti river inundate around 500 meters of the north and south sides of the East-West Highway. This risk is further increasing as, in addition to expanding old settlements, market centres, house construction and administrative hub are expanding in inundation

[23] The construction of bridges and roads must go through rigorous engineering processes; however, they are mainly top-down and technical. If such processes disregard the local risk contexts and community engagements, trigger hazards and, subsequently, disasters. So, we term such disasters as "engineered disasters".

prone areas. Another case of the "engineered disaster" that participant explained was the construction of a bridge in Mahadewa settlement (GRM 2; completed in early 2023), where the concerned engineers disregarded inundation and flood risk that the communities anticipated prior to its construction. Consequently, within a couple of months (in August 2023), adverse consequences were observed in the adjoined settlement (Ch4). Moreover, referring to the ongoing haphazard constructions, communities foresaw that if transforming agriculture landscape into city landscape for risk management goes unabated at the present pace, the disaster risks will increase in tomorrow's Rapti city (Ch6).

*Photo 59: Awaiting disaster: the incomplete embankment in Singhe river*

Another risk management strategy that the authorities ought to seriously consider at present and in the future is controlling the haphazard extraction of sand, gravel and boulders in the upstream parts, specially of the northern hills (Chure). Sand and boulders in the hilly part act as a check dam in controlling water velocity. Extracting these resources haphazardly increases flooding and inundation in the valley floor, as evident in the present. Growing hazards in the valley floor is also due to such extractions in the hilly areas. However, in case of Rapti river in the valley, regulated extraction of sand and deepening of the river, as participants suggested, would decrease inundation in nearby agriculture land and settlements (Ch6).

Residents of the hilly areas specifically of Bhulke, Karangekot and Devikot of RRM, upper Supaila of GRM, and many settlements in SM are at more risk of human induced fire hazards[24].

[24] People visit the forest to fetch grass and firewood and herd livestock. Some put fire into the forest to kill insects that affect livestock and clear slippery trails to walk through. Some also do so to clear ground expecting more and higher quality green grasses in the next season. These activities trigger forest fires in many hilly parts of the Rapti Valley.

Undoubtedly, without deploying appropriate policies and strategies to reduce and manage these risks, tomorrow's capital city cannot be risk-free and resilient.

**The spatial cities[25]**

The disaggregated physical plans generated through the *co-map* exercises where the communities envisioned their future cities can be broadly grouped into four categories i.e. land uses (e.g. agriculture zones, residential areas, industrial areas), infrastructures (e.g. roads, markets), services (e.g. hospital, university) and institutions (e.g. traditions, culture). At least three or all six disaggregated groups want agriculture zones, industrial areas, hospitals and medical colleges (or community health centres), university, schools or technical schools, airport, bridges (especially in the seasonal rivers), public/fun parks, homestays, quality roads with proper drainage (all-seasons), bus parks, market centres, waste management (with waste recycling approach), public housing, evacuation centres, cultural centres or museums, administrative zones, and the development of a separate zones for Police or Armed Police Force camps in their envisioned tomorrow's cities. Besides, at least two disaggregated groups also included the construction of zoo, stadium, temples, cultural specific villages, public toilets, and auto villages[26] in their city plans.

There are variations in terms of locations and land uses for the physical development of the above urban features (i.e. urban assets). Residential proximity of the participants of the disaggregated groups affected the identification or location of specific zones. However, all the groups agreed to construct an airport in Bhanpur area of RRM 7, agricultural zones in the flood plain of the Rapti river, and the construction of bridges in all seasonal rivers that affect communities during monsoon. They also agreed to develop at least 50 meters of both sides of the Rapti river as conservation area or green belt. More than four groups suggested developing GRM1 as an industrial area, but, two groups also wanted to develop it in SM 9. Communities want well-equipped hospitals and medical colleges in eight different wards of the municipalities (RRM 1, 2 and 7; GRM 1, 2 and 3, and SM 8 and 9). But they want community health centres or small health clinics in other wards of the municipalities. For the university, they thought RRM 1, 5 and 7, GRM 1 and 2 and SM 8 are appropriate. Although only three groups envisioned future schools, they want schools in almost all 14 wards of the three rural/municipalities. Additionally, two groups suggested developing Gobardiha of GRM 3 for the technical school (the Rapti government has already shifted the technical school from RRM

[25] In this section, with locations and land uses, we summarise the selected spatial features, constructional activities and development plans that the disaggregated groups proposed so that the local authorities can discuss the options envisioned. However, for the details of the envisioned land use plans, please read Chapters 3 – 8.

[26] An auto village refers to a specific location assigned for repairing, selling and market centres of automobiles and two-wheelers such as motorbikes, cars, tractors, autorickshaws, etc.

to GRM 3 and upgrading it physically and strengthening institutionally). Moreover, two groups specified Kulpani of GRM 2 for the development of the zoo.

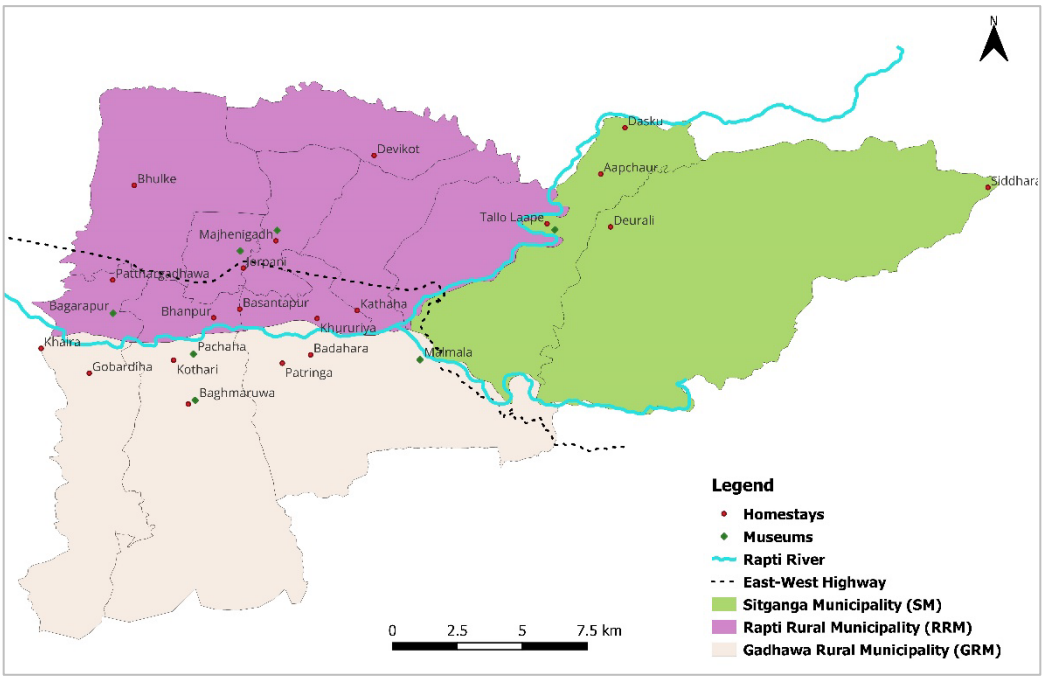
*Figure 9: Spatial features to be considered in future city planning*


For the public/social housing, the disaggregated groups provided multiple options such as RRM 2, 4, 5, 8 and 9, GRM 1, 2 and 3 and SM 9 (for the specific name of the villages please see Ch3, 4, 6 and 8). To settle bonded labourers and informal settlers, they suggested constructing housings in Kohalwa (RRM 8), Gobardiha near Dhaireni (GRM 3) and SM 9. Given the heightened impacts of floods and inundation in the valley floor, with an early warning system (Ch4), the disaggregated groups want to have several evacuation centres primarily in RRM (wards no. 2, 3, 5, 7 and 8) and GRM (1, 2 and 3). Given the growing risk of fire, some participants suggested arranging adequate fire brigades, ambulances and other services for effective disaster management (Ch7). Participants were also cautious about future pollution and haphazard construction activities as the in-migration of people is increasing rapidly. Considering these, they suggested waste management centres in GRM 2 and 3, RRM 4 and SM 9 with two dumping sites towards the southern fringes in the outskirts of the GRM and SM. However, the participants agreed to develop the future administrative zone in RRM ranging from ward no. 1 to 4 and comprising areas like Pakhapani, Maurighat and Barahakhutti.

Almost all disaggregated groups foresaw the potentiality of tourism for economic prosperity and one of the best alternatives for off-farm jobs in tomorrow's Rapti city. For this, they suggested several homestays in both hill and valley floors such as Kathaha, Khururiya, Basantapur, Bhulke, Pathargadhawa and Bhanpur of RRM 2, 3, 5, 6 and 7, Malmala, Badahara, Patringa, Kothari, Ratanpur, Khaira and Gobardiha of GRM 1, 2 and 3, and other hilly parts of SM 8 and 9. The hilly parts of RRM 9 was also recommended for the promotion of homestays and tourism development. Promoting culture conservation and tourism, Tharu and Madhesi

communities wanted to develop "Tharu cultural village" in RRM 6 and "*Awatgram*" (Yadav Museum) in the forest fringe of Pachaha of GRM 2. Additionally, other museums and cultural centres representing local histories were also proposed in Malmala and Baghmaruwa of GRM 1 and 2 and Majhenigadh and Jorpani of RRM 4 and 7, and Tallo Laape of SM8, including a museum in the south-eastern part of the valley (see map 7, also annex).

*Map 7: Envisioned tourism development locations in the valley*




One of the major features envisioned in the land use maps (i.e. co-maps) was the construction of road on both sides of the Rapti rivers with several crossing bridges and all-seasons roads to connect northern hill (Chure) with the East-West Highway in the valley floor. All participants suggested improving the quality of existing roads and Postal Highway, as they thought new linear settlements will develop in these areas in the future. Importantly, two group suggested constructing ring road encircling the valley connecting three municipalities and both hill and valley floors. To accomplish this, at least three bus parks were suggested in Bhaluwang, Mahadewa and Chisapani constituting RRM 1, GRM 2 and SM 8 respectively. Some participants recommended the construction of rail network connecting east to west, along the East-West Highway, at the bottom of the Chure hills, stationing Bhalubang in RRM 1 (see Ch 4 and 5). They also suggested constructing cable car linking Devikot (hill) with Maurighat (valley floor) – the administrative centre of the capital city.

Although all groups agreed that there will be several markets centres and the proposed administrative zone will also develop as a market centre, two groups were certain about the

potential area to locate future market centres in tomorrow's capital city. They suggested, Bhaluwang, Masuriya, Singhe, Patthargadhawa and Pipari of RRM1, 3, 6 and 8, Pachaha and Gobardiha of GRM2 and 3, and Sidhdhara, including a permanent exhibition fair centre near Rangsing river, of SM9. Another group came up with an idea of developing business centres extending from Bhalubang (RRM1) to Sisahaniya (RRM7) and Gobardiha (GRM3) (Ch5). Additionally, several locations were proposed for the development of stadiums (see Ch3, 4, 6 and 8), temples (see Ch4 and 7), and auto village (see Ch6 and 8). Future security of people and society was another concern of the disaggregated groups. In this regard, they assigned specific locations to institutionalise police and army forces. For instance, they wanted to establish police, and army and/or armed police force (APF) camps mainly in the northeastern and southern parts of the valley floor and hilly parts of the valley such as Bhulke and northern sides of Kalapani and Kohalawa (see Ch3, 4, 5 and 8).

One or two disaggregated groups proposed other features for future spatial plan of the city. That includes herbs and fruit farming in forest fringes and an agriculture research and development centre (Ch6), rafting in Rapti river (Ch4 and 6), open spaces (Ch3 and 7), children park in GRM3 and RRM 4 (Ch 3), eco-forest in the northern and western edges of the valley and a vulture conservation centre closer to the eco-forest (Ch5). Communities also aspired to see Ayurvedic hospital in GRM3 and SM8, deep borewells in GRM2 (Ch7), picnic spot in GRM2 (Ch4 and 6), resorts in several hilly parts of RRM5 and 9 (Ch8), underground drainage system (Ch4) and disable-friendly footpaths and cycle lanes (Ch7) in the tomorrow's capital city of the Rapti Valley.

**The envisioned policies for social and spatial cities**

The envisioned policies corroborate ensuring communities' need for social and spatial cities and managing the risk of disasters. Although most of the envisioned policies might have already existed or in the consideration of concerned authorities, communities envisioned policies and actions in four senses: to implement them considering future social contexts of the valley, to alert authorities to design and implement policies coordinating all three tiers of governments, i.e. local, provincial and federal (i.e. multi-scales), to strengthen local authorities to consider risk factors in future local planning and development activities, and to implement policies considering temporality and urgency (e.g. short and long terms plans and policies).

Of the envisioned policies of the six disaggregated groups, five of them are prominent, as listed and explained by at least four or all groups. The first is the *disaster risk reduction and management* (DRRM) policy, as the risk of disaster is pervasive in the present and looms for the future if left unchecked. They denoted it in different ways. For instance, according to the participants, there should be embankments in all seasonal rivers, a policy to promote

earthquake-resilient constructions (e.g. houses, roads, bridges) and control construction activities in landslide and flood prone areas. New construction that can harm existing houses and infrastructures should be discouraged while the process of obtaining house/building permits be eased and made affordable so the households will be motivated to construct disaster-resilient houses.

Second is the policy related to *managing informal and marginal communities* with the consideration of equity. In the future capital city, there should be policies and actionable mechanisms to manage informal settlers, landless households, bonded labourers (i.e. *Kamaiyas* and *Kamlaris*), and people living in the unregistered land (*ailani jagga*), providing land ownership certificates and ensuring poor and marginalised will remain unaffected during the urbanisation process. Identifying low-income households, there should a policy related to low-income housing program (*Janata aawash*) based on economic status of the households rather than caste/ethnic affinity. A policy to eradicate discrimination, free education and health services, and provision of respectful and equal participation of all communities irrespective of caste and religion in all the local development activities and policy designing is envisioned. They also emphasised that the facilities and constructions should be disable-friendly.

The third envisioned policy is about the *conservation and continuation of agriculture* including the promotion of local products and irrigation facilities. The participants agreed that there should be separate zones for agricultural activities and a policy to promote local products in tomorrow's Rapti city. The policy should ensure that the capital city formation will not hamper the agricultural land, provide access to irrigation facilities (also managing underground water) and ensure access to enough organic and chemical fertiliser to all farmers, thereby assisting development of a self-sustained future city.

Fourth policy is related to the *conservation of forest, water and local ecology*. The disaggregated participants were fully aware that if the valley, which is rich in forest and water, is not conserved and protected for the future city dwellers, the risk of hazards will increase exponentially. Keeping this into consideration, they proposed designing policies focusing on the conservation of the *Chure Bhabar* region (the lower corridor of the Chure hills) [27] and its ecology, the forests of the valley, Rapti river, and water resource conservation through recharge ponds and water treatment systems for future agriculture and drinking purposes. Additionally, they proposed developing future city as a green city with adequate open space

[27] A 3-5 kilometers wide strip of the lower corridor of the Chure hills is called *Bhabar* in Nepal. Locating in the northern part of Nepal's Tarai, i.e. flatland, the *Bhabar* is formed mainly by boulders. It also represents the northernmost boundary of the Ganga plain (Upadhya 2021).

in different locations that can also act as shelter and evacuation centres during disaster events. Conservation, according to all the disaggregated groups, is not only crucial for future well-being but also for prevention against multi-hazard disasters.

Policy related to *economic prosperity and employment generation* in the future Rapti city is the fifth most prioritised policy by the disaggregated communities. In addition to agriculture, they envisioned promoting tourism and local skill-based businesses for generating local employment opportunities. Additionally, they opined that the policies designed for economic prosperity should be guided by the notion of inclusive employment opportunities, gender diversity, equal wages for women, focusing on marginalised households and communities to develop an equitable tomorrow's Rapti city.

In addition to the envisioned policies stated above, they also proposed policies for the waste management, elimination of gender and domestic violence, conservation of local cultures and historical heritages, land use categorisation (e.g. management of unregistered land or *ailani jagga*), health, education (e.g. updated courses, skilled teachers, high-tech buildings), children and drug addiction, and a strong and effective policy to eliminate corruption in the future city.

**Socialising tomorrow's cities**

Recently declared as the capital city of the Lumbini Province (Nepal), the Rapti/Deukhuri Valley is the destination of many surrounding hill communities and neighbouring cities. Amid changing geographical and demographic context, the authority of the capital city should be cautious enough in devising future land use and risk management plans. The following evidences based on the disaggregated features (i.e. socio-spatial and risks) of the envisioned cities presented above can be instrumental to socialise tomorrow's resilient city equitably.

First, locations/zones that communities have proposed for spatial cities (e.g. both sides of the Rapti river and East-West Highway, northern hilly areas for the tourism and residential development, including others) are vulnerable to inundation, floods, landslides, and fire hazards. As we are cognisant regarding these risks and probable disasters now, generating awareness about the exposure of the area to multi-hazard risks while also integrating communities' knowledge and perspectives and addressing their priorities on local risk management should be integral to devising policies. This co-learning and inclusive approach could ensure community ownership of these development policies and enable their implementation for realising a future resilient city in the valley. Additionally, the valley floor holds most of the productive agricultural land, human settlements, market centres and administrative hubs in tandem with ensuing rapid land use change and construction activities, which are exacerbating the risks, so the policies and strategies to risk management should be an integral part of any political, development and social activities in the capital city.

Second, the tomorrow's city will not only comprise material constructions (e.g. high-rise buildings, wide road) and transportation (e.g. cars and motors, high-tech), but also continuation and preservation of the good practices of existing cultures, eliminating discrimination, violences (related to gender, inclusivity, caste/ethnicity) and the existing socio-economic disparities. Undoubtedly the pace of migration will increase and the societies will be more diverse in the future. So, the local authorities and leaders should be mindful of the changing demography, cultures and social dynamics. Appreciation of the cultural diversity and promotion of social capital will be crucial for developing a vibrant city. It is equally essential to challenge the entrenched power imbalances and top-down planning approach that may perpetuate marginalisation of poor and disadvantaged from both the resources and decision-making processes. Hence, the policies that encourage inclusive activities in different socio-economic and political forums such as employment opportunities, trainings, decision-making and leadership would be imperative to avoid potential culture conflicts, thereby facilitating the materialisation of equitable tomorrow's city. Adopting such holistic approach and addressing prevailing socioeconomic inequalities could create equitable access to opportunities, maintain harmony and avert risks in increasingly heterogeneous community.

Finally, it is quintessential for tomorrow's city to recognise the pivotal role of traditional, small-scale and local businesses coupled with tourism development to promote sustainable livelihoods of the local communities. In tandem with establishment of new factories and industries, this proactive approach will not only foster readily available local skills but also effectively addresses unemployment and reduce out-migration of youths. Formulating policies for integrating local businesses into city plan, steers economic and social development within the community, paving a way for a self-reliant and inclusive future city with reduced vulnerabilities to future disasters. The local authorities should also be mindful of this in advance not only for securing local livelihood and economic prosperity but also for minimising conflict, crime and disaster risks in emerging capital city.

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# Annex

**Map 3: Major Settlements**

**Map 5: Experienced and observed hazard locations and settlements in Rapti/Deukhuri Valley**

**Map 6: Risky and impactful seasonal rivers of Rapti**

**Map 7: Envisioned tourism development locations in the valley**

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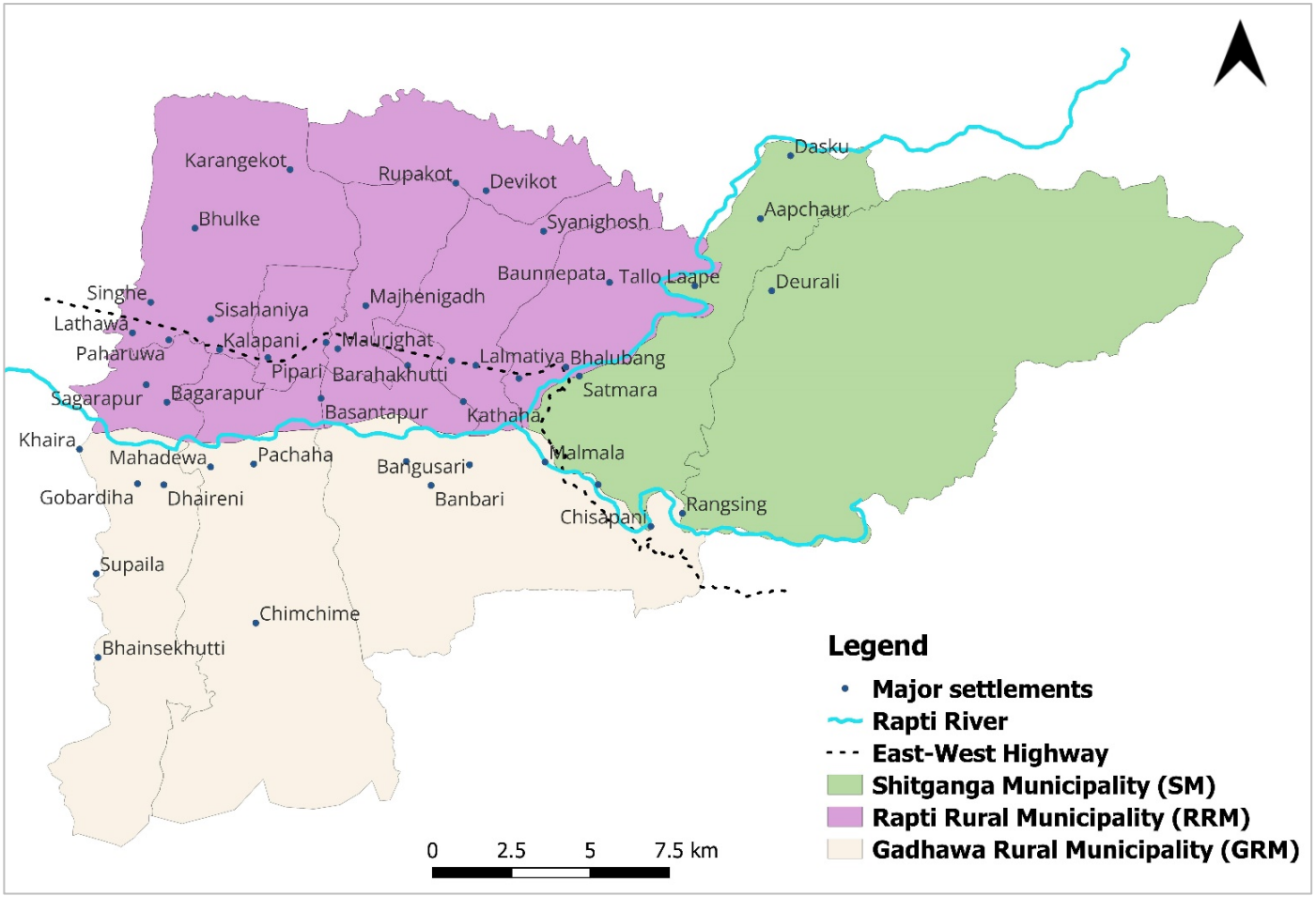

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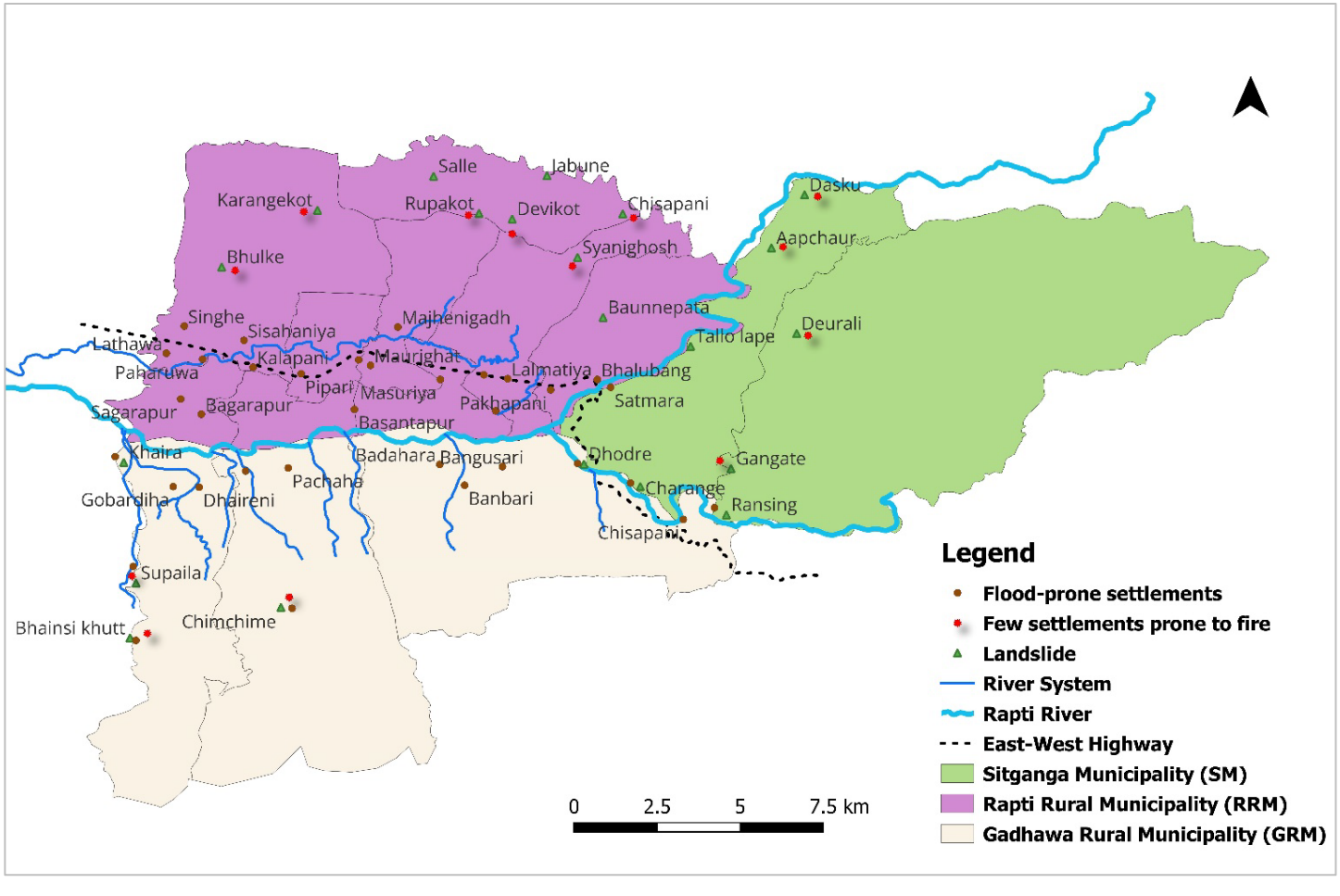

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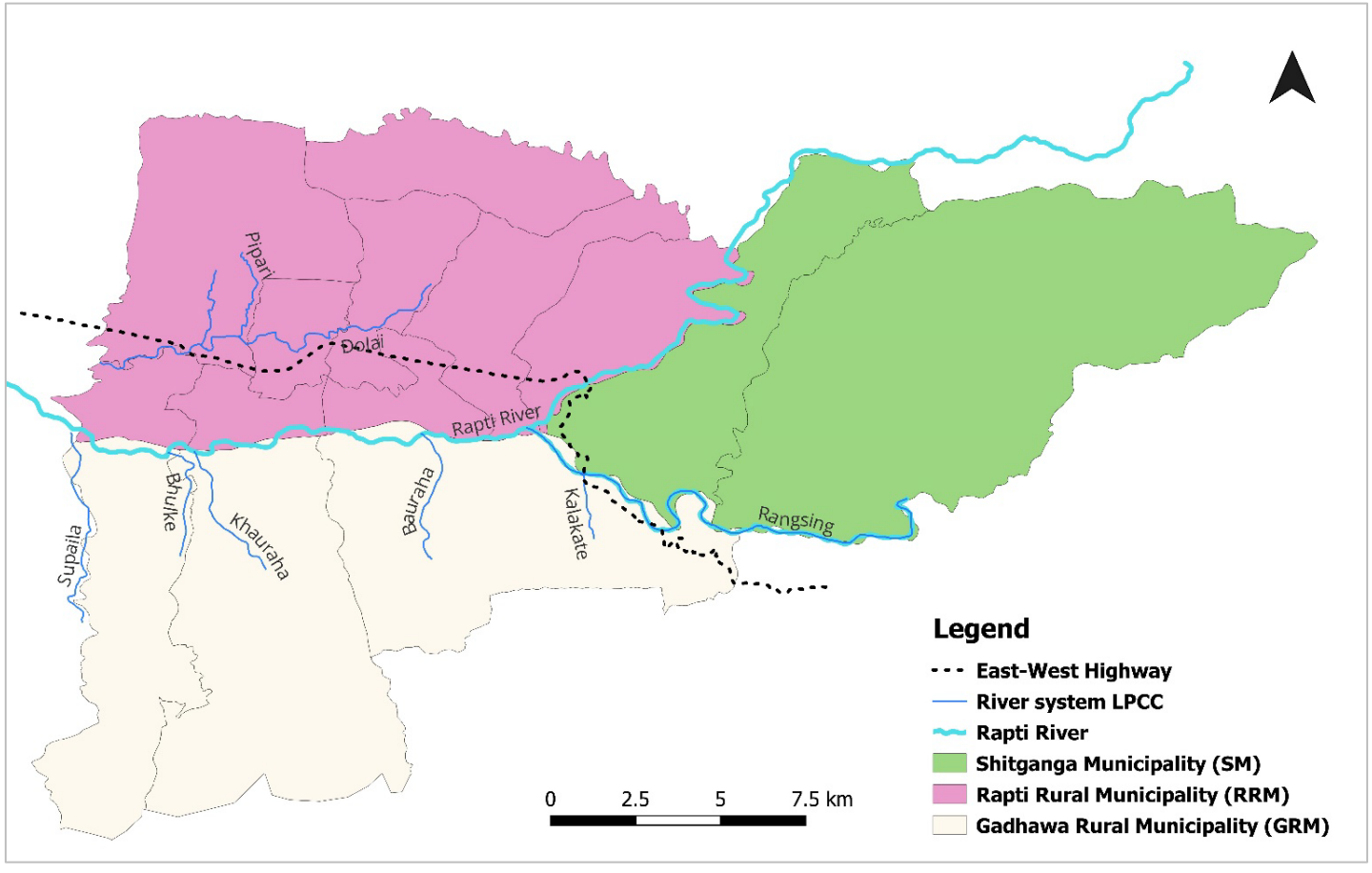

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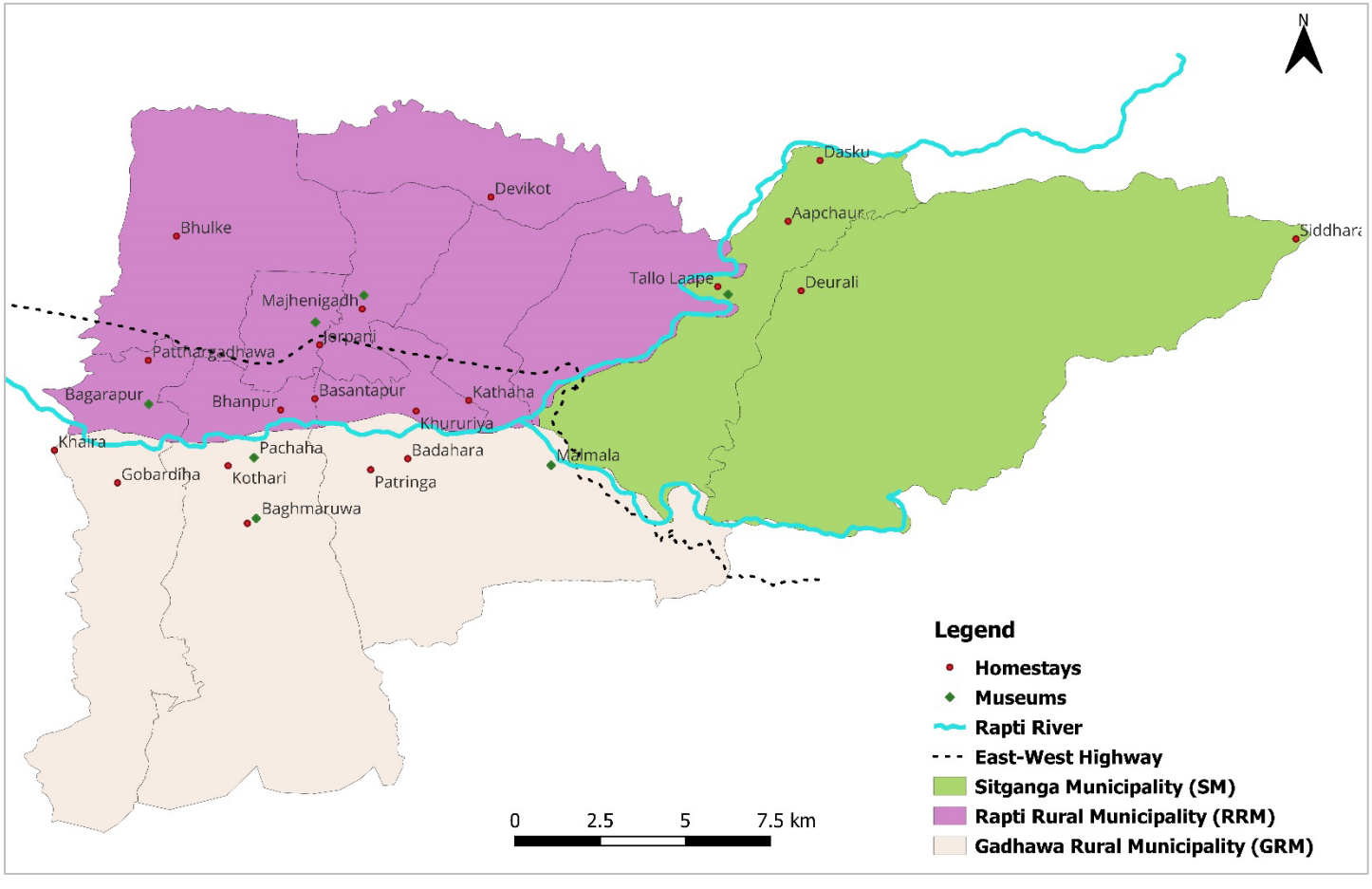

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ISBN
9789937162951