Naryn

Kyrgyz Republic

2023-2024

Enhancing Resilience through Integrated Spatial and Investment Planning

Strategic Spatial Plan

UN-HABITAT

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

AKDN
AGA KHAN DEVELOPMENT NETWORK

НАРЫН

Enhancing Resilience through Integrated Spatial and Investment Planning

Strategic Spatial Plan

United Nations Human Settlements Programme
P.O. Box 30030, 00100 Nairobi GPO KENYA
Tel.: 254-020-7623120
www.unhabitat.org

UN-Habitat Urban Lab

Laura Petrella (Chief, Planning, Finance and Economy Section)
Herman Jean Pienaar (Technical Advisor)
Pinar Caglin (Project Manager, Planning and Design Technical Lead)
Lennart Fleck (Finance and Economy Team Lead)
Anne Amin (Governance and Legislation Team Lead)

Main Authors
Maia Smillie (Urban Planner)
Shaakira Chohan (Urban Planner)
Semiha Turgut (Spatial Analysis Expert, Urban Planner)
Anastasia Ignatova (Urban Designer)
Yassine Moustanjidi (Urban Designer)
Kate Cotty (Urban Finance & Economy Consultant)
Omar Morales Lopes (Urban Economy Consultant)
Anna Kvashuk (Urban Legislation)
Samuel Njuguna (Urban Law and Governance Expert)

Layout Design & Graphics
Maia Smillie
Shaakira Chohan
Teodora-Irina Comanita
Yassine Moustanjidi

AKDN, Project Mangement Unit

Surekha Ghogale (Senior Advisor)
Omurbek Ibraev (Project Manager)
Nurbek Omurzakov
Aizaada Bekboeva
Salamat Ismakeeva

Aga Khan Agency for Habitat
Aziz Husein (Head of Sustainable Built Environment and Capital Projects)
Kira Intrator (Head of Planning and Innovation)

And with thanks to all who participated in meetings, field trips and working sessions from the government, service providers, AKAH, AKDN, UCA and inhabitants of Naryn.

UN-HABITAT

AKDN
AGA KHAN DEVELOPMENT NETWORK

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

НАРЫН

Contents

1.Introduction

Background & Purpose of the Document

This document builds upon UN-Habitat's ongoing support for the resilient town planning process in Naryn, as part of the Naryn Urban Resilience Programme. It outlines strategic responses to the challenges identified in the Naryn Town Profile report[1], adopting an integrated approach to overcome obstacles and harness opportunities for sustainable growth. To emphasise the benefits of an integrated approach, the document groups its recommendations into seven responses, rather than listing them individually or by sector. For example, as a response to the challenge of mono-centric urban development, suggested interventions around secondary nodes with mechanisms of land value capture demonstrate how integrated strategies of spatial and non-spatial dimensions are able to address this one challenge.

A people-centred approach is central to this document, ensuring that the city is analysed and understood in terms of where residents live, move, access services, and encounter challenges. By adopting this perspective, the recommendations target specific areas requiring appropriate interventions. The strategies outlined herein provide both a general overview of Naryn's current issues and actionable steps to address them. These actions are the result of robust project processes, including evidence-based and participatory data collection, stakeholder workshops, and field visits.

The project also involves aligning the Naryn Masterplan with global benchmarks and utilising insights from detailed analyses. Comprehensive information about Naryn's challenges and opportunities, as well as the supporting data informing these recommendations, is available in the Naryn Town Profile. As the project progresses, the actions outlined in the seven responses will be refined through participatory methods, spatially prioritised, and organised into projects to inform decision-making and guide targeted investments in Naryn.[2]

Integrated Planning Approach

A resilient Naryn requires a town prepared to face natural hazards and environmental threats, a built environment that complements its natural assets, and a thriving economy and community that ensures equitable access to opportunities for all.

The town's current challenges are complex and interconnected, arising from both spatial factors and non-spatial systems, such as financial, economic, legislative, and social structures. Addressing these issues requires an integrated approach, which identifies and understands the interrelations between different sectoral challenges and addresses them collectively. This method leverages Naryn's unique characteristics to generate holistic, resilient, and inclusive outcomes.

By adopting a city-wide, multi-sectoral perspective, Naryn can clearly identify opportunities to build a resilient and sustainable future. This approach enhances economic stability, improves quality of life for residents and visitors, and celebrates the town's cultural, social, heritage, and natural assets.

1 The Naryn Town Profile is a cumulation of data collection, cleaning, and analysis. It provides not only a descriptive overview of the city, through utilities, infrastructure, environmental, social, and economic indicators, but also includes a diagnostic assessment of the challenges as a way to understand the impacts that these have on the town

2 The Capital Investment Plan follows this report.

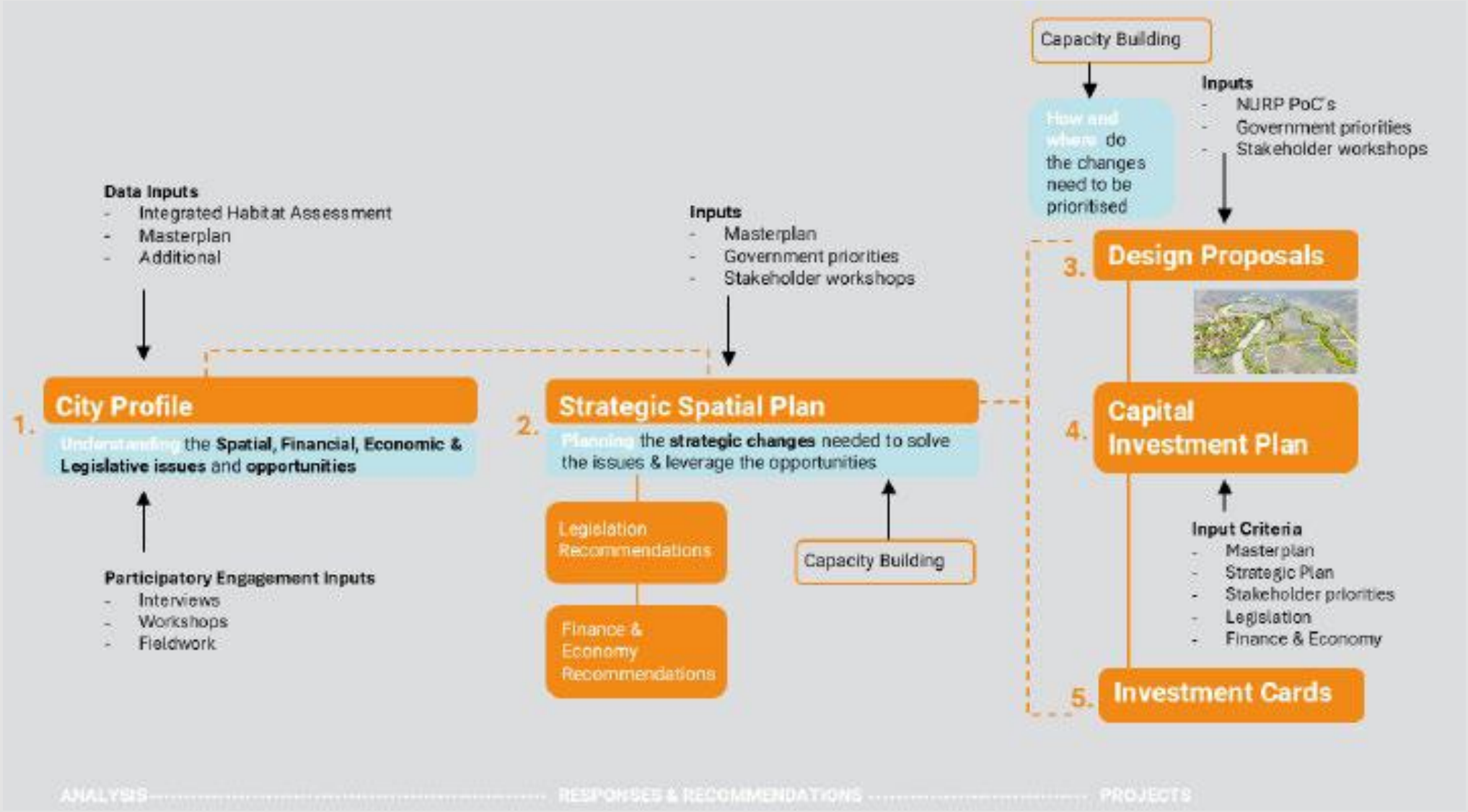
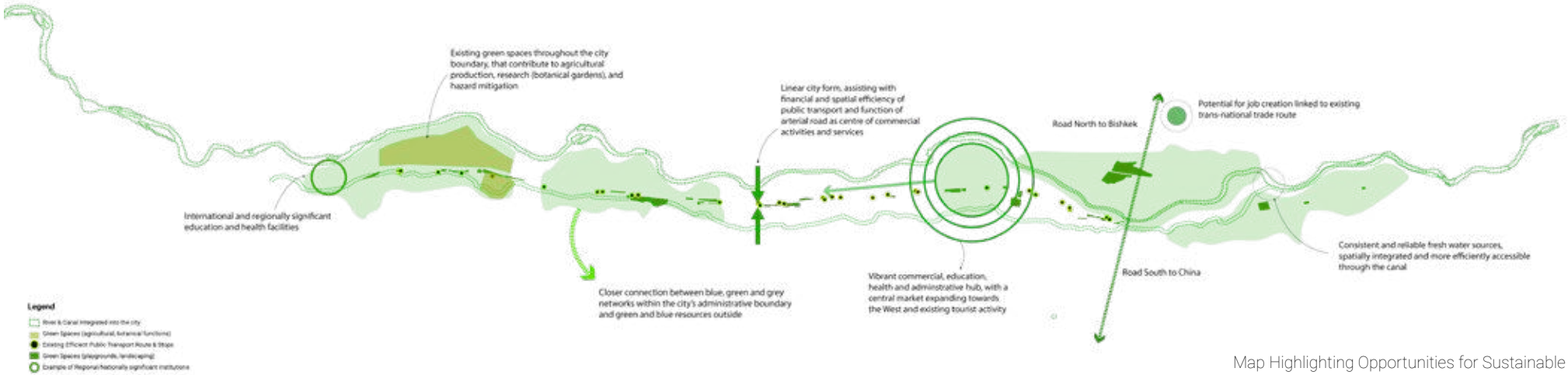


Figure 1. Project framework showing interrelation between phases, inputs, outputs, and outcomes

2. Strategic Overview



Map Highlighting Opportunities for Sustainable Growth

Summary of Opportunities

Naryn demonstrates strong potential for sustainable growth, with several initiatives already underway. Through integrated planning and targeted, low-impact interventions, the town's existing assets can be effectively leveraged to enhance resilience, improve well-being, and boost economic vitality for its residents.

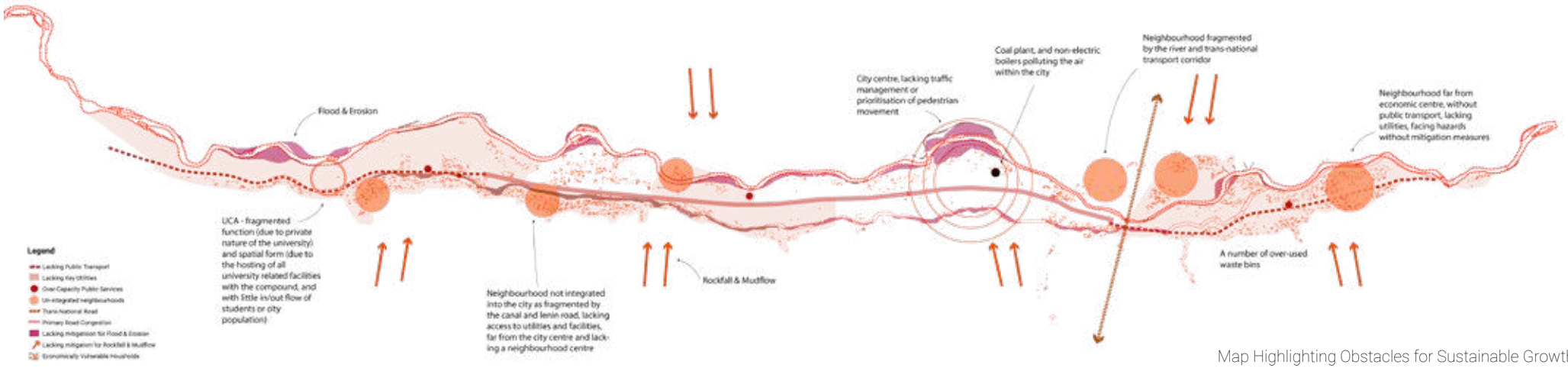
Naryn's geographic position and linear layout present unique advantages. With strategic planning, the town's central corridor can support efficient, accessible mobility. Expanding infrastructure, such as extending the trolley-bus electricity network, and encouraging multimodal transit options—like safe pedestrian paths and cycling routes—would further optimize access and movement along this spine. These initiatives not only strengthen connectivity but also contribute to sustainable mobility, public health, resilience, and overall quality of life.

Naryn's abundant natural resources are a key asset, providing opportunities to build sustainable, low-cost improvements. The consistent fresh water supply via the Big Naryn Canal (BNC), already integrated into the town, could be further utilized with cohesive, low-cost interventions that enhance water management and accessibility. Similarly, the town centre, as Naryn's economic and social hub, holds significant potential for sustainable expansion. Investing in adequate utilities, services, and infrastructure here can foster inclusive prosperity, encouraging gradual, managed growth that respects Naryn's environmental and ecological framework.

Improving Naryn's internal economic position through strategic planning can also enhance its role in broader economic exchanges, particularly given its access to transnational trade routes. This positioning offers the town a pathway to diversify employment, increase trade, and expand economic prospects for residents. Additionally, Naryn's cultural heritage and natural beauty create considerable tourism potential. With small, targeted interventions, as well as an emphasis on enhancing green and public spaces, the town can deliver a balanced approach to social, economic, and environmental development.

Naryn's land resources hold further potential as a valuable asset, both for managing sustainable urban growth and expanding agricultural production. The town could serve as a central processing hub for agricultural products from the Naryn, At-Bashy, and Ak-Talaa districts of Naryn Oblast. This agricultural role, combined with an anticipated population increase as investment flows into the city, could significantly support sustainable development and economic resilience.

Finally, Naryn's recent allocation of earmarked funds for sustainable development presents a timely opportunity



Map Highlighting Obstacles for Sustainable Growth

to adopt an integrated, strategic approach for maximizing the impact of these resources. With thoughtful planning and implementation, these funds can be used to generate long-term, tangible benefits for the community. Moreover, a supportive legislative framework provides local authorities with a foundation to champion sustainable development initiatives. This holistic approach has the potential to catalyze Naryn's transition into a greener, more resilient town, establishing a blueprint for sustainable urban growth.

Summary of Challenges

Naryn faces interconnected challenges that require integrated, strategic responses. Some issues arise from the town's natural constraints, such as its location and spatial layout, while others stem from unplanned growth and human development patterns. Additionally, hazard risks—both natural and human-made—add complexity to these challenges. If not addressed, these interconnected issues can lead to compounded negative impacts across various sectors.

For instance, inadequate hazard mitigation can disrupt access to essential facilities, roads, and utilities, increasing risks to households and livelihoods, particularly in vulnerable areas with lower incomes. This not only exacerbates environmental and infrastructure concerns but also deepens social exclusion.

Despite the town's abundance of natural resources, they are not well-maintained or integrated into urban planning. As a result, many opportunities for nature-based solutions—such as addressing pollution and hazard risks—remain untapped. This neglect further compounds social, environmental, and economic challenges.

The peripheral areas of Naryn, particularly in the East and West, are poorly integrated with the central town. These regions suffer from limited access to public transport, utilities (e.g. sewage and irrigation), and essential services. Consequently, schools, kindergartens, and health centres are overburdened, struggling to serve growing populations. Inconsistent water supply and insufficient electricity also lead to shortages, particularly in winter. Pollution, both air and solid waste, is another major challenge that negatively impacts public health and the environment.

Strategic planning issues also pose barriers. These include the centralisation of urban planning functions, inadequate local government capacity, limited inclusivity and collaboration mechanisms, poor data governance, insufficient integration of climate change adaptation and mitigation measures, and a lack of financial autonomy.

3. Establishing economic drivers for a resilient, sustainable Naryn Town

Setting out a clear and coherent vision for a future resilient Naryn helps to define a framework and action plan within which the city can prioritise its development planning and achieve its sustainable development objectives. This provides city leaders and development partners with a strategic direction, and helps to determine how each partner's actions can be leveraged to the greatest effect. Built upon social and communal values, and an evidence base of priority issues, the city can move in a committed manner to achieve its strategic goals and desired impact. Four economic drivers have been proposed for Naryn, which can act as guiding principles to make the city more attractive and resilient.[3] These economic drivers are: Naryn as an Education Town, Tourism Hub, Logistics Hub and Agro-Industrial Centre.

The drivers represent a combination of the town's existing potentials, and should not be considered separately. Instead, the drivers can be seen as interlinked and complementary, with the ability to promote each other. This reinforces the approach of integrated solutions for transformative impact which are further explained in the strategic responses and recommendations in Chapter 4 of this report.

In this chapter, the defining features of each economic driver, as well as the contextual understanding of Naryn's strengths, opportunities and weaknesses to achieve these goals are captured. They represent a co-developed vision created during participatory workshops with local stakeholders, including the local government, youth, students and private-sector business representatives.

Figure 2. Participatory workshops held with local stakeholders in Naryn, March 2024 . Photo ©UN-Habitat.

3 These economic drivers have been identified and selected in partnership with the City of Naryn. They are backed up by an economic analysis of Naryn's current industries and strengths and represent significant economic opportunities for Naryn to leverage for growth.

Figure 3. Participatory workshops held with local stakeholders in Naryn, March 2024 . Photo ©UN-Habitat.

Participatory Visioning[1]

Workshops involving stakeholders from local government, private sector businesses, academia, and youth—represented by students—were conducted to gain an inclusive understanding of Naryn's economic drivers. Using participatory approaches, these workshops enabled stakeholders to collaboratively define the characteristics of these drivers, offering diverse perspectives. Discussions examined existing opportunities and constraints, framing solutions to advance economic priorities. By working in mixed groups, participants fostered dialogue and exchange, enriching the outcomes.

The workshops succeeded in identifying economic drivers from a local perspective, with participants demonstrating a strong understanding of Naryn's potential and challenges. Ambitions for sustainable development were widely shared, reflected in proposed interventions such as waste management improvements, renewable energy initiatives, preservation of natural resources, and climate action strategies, including land optimisation approaches.

Government officials brought valuable insights, contextualising Naryn's development within regional and national frameworks. They contributed expertise on economic, legislative, and regulatory conditions crucial for realising the identified economic drivers and shared knowledge of existing initiatives, providing a broader development perspective. Contributions from private-sector businesses, youth, and academia revealed a strong commitment to engaging in the town's development. This enthusiasm highlights an opportunity for Naryn's local government to enhance participatory planning approaches. These groups offered a deeper focus on social and socio-economic dimensions of the economic drivers, underscoring the importance of inclusivity. Their contributions also suggest pathways for co-created economic initiatives, fostering local ownership and stewardship of development processes and projects, ensuring longer-term impact and sustainability.

1 For more information on the project's participatory approaches, see report on Participatory Planning and Training Activities

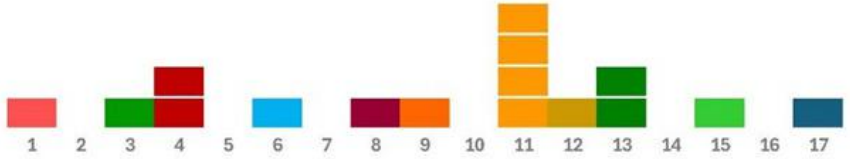


Figure 4. Potential SDG targets that can be addressed through an Education Town driver

Education Town

The recent investments and developments in Naryn to enhance its tertiary educational offerings are a strategic decision that can lead to a strong economic driver of it as an Education Town. The University of Central Asia (UCA) demonstrates a commitment from international development partners to strengthen the town's aspirations of becoming a hub of innovation, research and entrepreneurship. Coupled with the educational opportunities presented by Naryn State University, there is significant potential for the town to grow into an academic hub, enabling a vibrant exchange between education and industry, attracting diverse, external economic contributions, reinforcing the knowledge and skills of the workforce and community, and thereby contributing to improving the town's attractiveness and ability to participate in other local economic development initiatives. In this way, a dynamic ecosystem of education, industry, and community development can come together for mutual benefit and sustainable growth.

Both, contextual factors and opportunities, as well as international best practice examples can guide Naryn to achieve its future as an Education Town and define the features and principles which it adopts. Locally, stakeholders believe that there are several opportunities to develop this future. These stakeholders (government, youth, business) understand the opportunities with an integrated perspective, acknowledging that investment in the academic infrastructure and supporting the built environment will boost local economic development and city competitiveness, with potential to embed added beneficial impact around climate action, cultural amplification and social cohesion. Of the four economic drivers, the government stakeholders recommended the Education Town as the most advantageous for the city, based on the existing context.[4] Some of the key definitions of Naryn as a future Education Town, and the type of initiatives that could be implemented to support this economic driver include [5]:

• **A place where research and industry work together** to exchange knowledge and skills, providing high-quality services and continual learning through innovation. Establishing a knowledge and research hub with transit connections to main road networks and the Naryn airport supports the idea of creating an environment of mutual learning and exchange.

• **A cooperative environment** where educational institutions set a new standard for sustainable development, implement strategies that inspire local practices and support the reduction of the town's carbon footprint (for example, by installing solar power for renewable energy sources, limiting expansion of industrial zones and creating green zones, hosting agricultural and sustainable farming initiatives, etc.).[6]

• **A catalyst for local economic development** through students' economic participation, leading to increased Town attractiveness that draws in external strategic investments. This may include the development of sectors such as banking, marketing or fin-tech. Impacts on economic development also include a boost to productivity due to a skilled labour force in multiple sectors, re-emphasising the benefits of exchange between economic drivers. Improving the employment market and creating an enabling, creative environment for entrepreneurship may also help retain the economic participation of skilled graduates.

• **A catalyst for sustainable growth and critical infrastructure development** that takes advantage of the needs of a growing Naryn to embed green principles, nature-based solutions, and sustainable materials and practices.

• **A town where educational institutions and facilities support year-round socio-economic resilience**, by promoting diverse programmes that boost the attraction for local and international visitors (or students) during the

4 Based on outcomes from participatory visioning workshops held in March 2024

5 Extracted outcomes from participatory visioning workshops held with government, youth and business/industry stakeholders in Naryn in March 2024.

6 UCA is currently launching the Certified Programme on Urban Resilience (CPUR) for regional and municipal public servants within the framework of NURP, that will use Naryn State University members as trainers, highlighting the potential for collaboration between institutions.

winter months or low-tourism seasons. This also includes programmes to strengthen cultural awareness, local and indigenous knowledge and traditional practices, such as foreign exchange students that come to Naryn and learn about local practices while reciprocally teaching the local population.

Strategies to achieve:

From these definitions of an Education Town for Naryn, we can identify how interventions can have multiple benefits, enabling a physical, regulatory, financial, and economic environment that is self-reinforcing. It also demonstrates that strategically leveraging Naryn's existing conditions and strengths can accelerate its development outcomes. For example, developing initiatives around green networks of infrastructure, linked to public spaces across the city can improve the attractiveness of Naryn as an Education Town, while also improving the quality of life for its local people. Similarly, multi-functional nodes, protected and enhanced natural assets, and public transit linking people to opportunities and services can also fulfil multiple benefits and amplify local development outcomes.

International best practice examples of cities with an education-centric development framework echo these defining characteristics, and offer inspiration for employing urban planning, legislation and governance, and finance and economy instruments that together inform how this future vision is realised.

Figure 5. Utrecht City in The Netherlands (Source: Arquitecturaviva)

The case of Utrecht city in The Netherlands is one such example, offering ideas around key features of:

- Multi-stakeholder partnerships and community-led systems of innovation to demonstrate the relationship that can be developed between education, research and industry, and community.
- Celebrated culture, history and heritage while also considering progressive and innovative pathways to a sustainable resilient future
- Enhanced and integrated natural assets, increased green spaces and public spaces balanced across the city core as part of critical infrastructure development
- Increased commercial opportunities using technology and industry innovation to improve international student's participation in local economies.

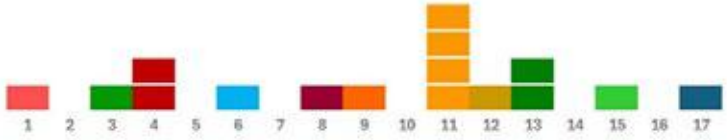


Figure 6. Potential SDG targets that can be addressed through a Tourism Hub driver

Tourism Hub

Naryn's tourism potential is influenced by several factors. Its natural assets, scenery, and environment, coupled with heritage and cultural offerings, offers clear strengths to develop this economic driver. The town's strategic location near China, and surrounded by key tourist destinations in the Naryn Oblast, is another opportunity to improve the attractiveness of the city to both domestic and international visitors.

However, in order to translate these assets into resilient and prosperous outcomes for the city and its people, certain interventions need to be undertaken to leverage the strengths and opportunities and address any weaknesses or threats that hinder its success. The priority consideration within this economic driver is that it is approached with a strong sustainability approach. Tourism, when not developed within sustainable boundaries, has the potential to cause more harm than benefit to an environment. In the case of Naryn, which already faces threats from the impacts of climate change, improper tourism development could have damaging consequences for people, livelihoods and the environment. Therefore, a tourism approach that elevates the protection and preservation of natural resources and the environment, and that embeds climate resilience principles is of utmost importance. Policy and regulatory frameworks should provide an enabling environment to do so and must be well-considered for the achievement of this future.

Several interconnected interventions could be undertaken to improve the attractiveness and competitiveness of Naryn and could catalyse the expansion of the tourism industry there. Together with local stakeholders, a collaborative understanding of how to define, strategise and implement the Tourism Hub was co-created.

First, addressing the poor infrastructure in the city is crucial to create the necessary connectivity, accessibility and sustainability needed to support tourism. In addition to the development of the Naryn airport, which will be an important connector and driver of tourism, internal networks of transport and mobility also provide essential, efficient, and effective movement to and within the city, and are important to maintain. A multi-modal mobility solution that includes sidewalks, safe crossings, and a network of public and non-motorised transport routes can make Naryn more accessible, and move people quickly, sustainably, and easily across the city. Improved mobility also has the potential to revitalise areas of the city with tourism potential but that are currently inaccessible or difficult to reach with the current mobility infrastructure. By adopting a nature-centric approach, mobility interventions can also support a reintegration of natural assets into the urban fabric of the city. For example, creating nature walking or cycling routes alongside the river and canals, and establishing vibrant public spaces around these attractive sites, can not only appeal to more visitors, but together with other green and sustainable interventions (e.g. tree planting), can also provide health, well-being and economic benefits for locals. In addition, enhancing infrastructure for sustainable tourism includes the development of commercial or real estate assets, such as public restrooms, hotels, museums, tourism centres, and supporting wayfinding or information systems. The development of tourism infrastructure should be approached with a similarly strong sustainable framework that promotes the creation of new jobs and further boosts the economy. Improving solid waste management, air quality, renewable energy and electricity generation and distribution, water management, and other services is also crucial to achieve this. However, these infrastructural and service needs are fundamentally tied to Naryn's local development too, and thus, an integrated and holistic approach can start to illustrate the benefits of a shared future. Already serving as a short-stay transit stop for tourists visiting surrounding attractions in the Naryn Oblast, with improvements in infrastructure, integration, and enhancement of natural assets and amplification of cultural features, Naryn has the opportunity to strengthen its offering as a key destination itself.

A thriving tourism sector requires strong public-private partnerships. In Kyrgyzstan, there exists a well-established legal framework for Public-Private Partnerships (PPPs), along with the operation of the Public-Private Partnership Centre. These should be adequately leveraged to support the economic driver, enabling implementation and management that is shared, and therefore, more attainable.

Beyond physical and built infrastructure, sustainable tourism is supported by a strong foundation of culture and heritage. Naryn is abundant in these regards and has the opportunity to cultivate and capitalise on its strengths to support economic development and competitiveness. The bilingual nature of people in Naryn is an advantage to visitors from neighbouring regions. An open and democratic political environment, a variety of cuisine, tradition, craft and art all provide opportunities to implement a cohesive inclusive future for tourism.

Furthermore, when considering the interconnectedness of the four economic drivers for Naryn, there is an opportunity to leverage the educational strengths, natural resources and landscapes, agricultural offerings, and Kyrgyz culture to offer a diverse range of activities and attractions. This also ensures a level of resilience and sustainability where the town is able to function in its different capacities throughout the year and across seasons (for example, offering winter sports tourism, farm eco-tourism and summer nature activities, alongside training and learning opportunities).

The human development aspects should also be carefully considered. Connecting the learning and vocational trainings that an Education Town could offer may offer a pathway to reinforce industry skills in hospitality, which in turn could strengthen the opportunities for a successful Tourism Hub. Enhancing skills, creating environments of exchange and mutual learning (cultures, language etc.), and enhancing local identity through the promotion of a Naryn brand can strongly reinforce the sustainability of a Tourism Hub that is led by community-based approaches.

Figure 7. Mendoza High Mountains, Argentina (Source: UNWTO FAO)

The case of Mendoza High Mountains, Argentina offers ideas around a Tourism Town, the key features of which are:

- Strategic plan used as an instrument for sustainable tourism, incorporating development priorities and domains of investment
- Multi-sectoral approach, encouraging strong public-private partnerships
- Embedded climate-resilience principles with community-based tourism for local economic development while preserving and enhancing traditional systems, natural and cultural heritage, climate adaptation and mitigation
- Adoption of new technologies
- Planning and investment into infrastructure as a stimulus for resilient economic development and sustainable tourism.

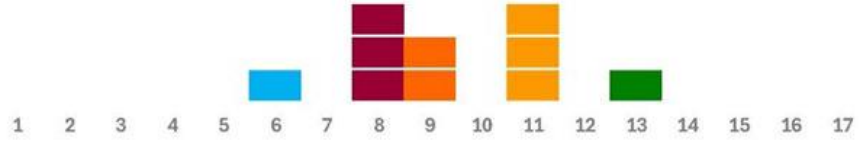


Figure 8. Potential SDG targets that can be addressed through a Logistics Hub driver

Logistics Hub

The future for Naryn as a logistical hub focuses on leveraging Naryn's strategic location to spur sustainable economic development and employment. By framing Naryn's existing conditions and characteristics as opportunities, an economic driver that is responsive and anchored in context emerges, and in this way, encourages greater sustainable and resilient development.

The key defining feature of this driver, co-defined by local stakeholders, is that of Naryn as a centre of trade, services and exchange that protects its natural resources and environment, connects and links people and places with high-quality, climate-resilient and sustainable infrastructure, while yielding local economic and socio-economic benefits. For it to prosper, it requires policy and regulatory frameworks to support the fostering of economic activity and investment along a geographical corridor.

The connective infrastructure is a fundamental enabler for this economic driver. Ensuring that roads and other transit routes are in place and well maintained, both for commercial uses, and the general public form a large part of the intervention required to make the Logistics Hub a success. The infrastructure needs to be resilient and protected from adverse climate impacts and hazards.

When planning and implementing these large infrastructure projects, it will be important to closely consider the relation to the natural environment and resources, and how supporting infrastructure (such as stops, fuel stations etc.) can be integrated in a non-invasive and sustainable manner. Naryn's neighbouring border with China is a tremendous opportunity. The border crossing to China needs to be reliably open in order to strengthen trade relationships, and the road connections well-planned, resilient and maintained.

Enhancing these connections and relationships link to, and strengthen the agro-industrial character of Naryn. By strengthening connectivity links in the region between China and the other regions of Kyrgyzstan, and through building storage centres and other logistical infrastructure can improve the ease of doing business and increase opportunities for trade. The ongoing construction of the Balykchy-Kochkor railway which is being implemented by Kyrgyz Railways can be an opportunity to leverage infrastructural development and linking Naryn to a trans-national route. With attractive services and increased productive capacity, the town's economic potential can be strengthened while improving its own connectivity.

Development with sustainable materials and construction techniques are important for this economic driver, given the extent of infrastructure that may be required. This would include the road construction, as well as buildings and facilities such as warehouses. Provision of high quality services should not cause harm to the natural environment. For example, storage facilities that can provide benefits of retaining operations

Figure 9. Logistics Hub workshopped with government officials in Naryn, March 2024 . Photo ©UN-Habitat.

through all seasons should not create adverse impacts on the environment, and consequently, the people too. Consulting with sector specialists in this regard should form part of the development process.

Facilities and hubs also have the potential to grow the market base for jobs and thereby contribute to improved employment opportunities.

It would be advantageous for Naryn to use the opportunity of ongoing development planning to introduce digital and technological solutions to support these industries, and to work with strong public-private partnerships to incorporate innovation early on in its development journey. Achieving the Logistics Hub driver requires significantly large, and well-planned investments. Funding, therefore, would be a key barrier to address. However, by linking the economic drivers and the sustainable features (such as climate-resilience) between them, government officials may be able to demonstrate the multiplied benefits of taking an integrated approach, and highlight the cross-cutting sustainable development outcomes these investments could bring about. This could help secure larger envelopes of sustainable funding and assure investors of the return thereof .

Figure 10. BAGC (Source: https://beiracorridor.org)

The case of the Beira Agricultural Growth Corridor offers ideas around a Logistics Town, the key features of which are:

- Enhanced infrastructure is the backbone of corridor growth. Direct, maintained roads without threat of closure lower costs for agriculture transportation and can lure external investment to the region. Investing in 'last-mile' infrastructure, such as rural roads, power connection, and irrigation, can also save time and money for farmers and investors.

- An independent organization that focuses on driving progress within the corridor, including liasoning with the government and coordinating with investors. This organization can be a joint partnership with local or national government and in Naryn's case, could focus on integrating the city of Naryn within the rural agricultural production chain.

- Accessible and affordable financial assistance, insurance schemes, and financial incentives, such as venture funds targeted towards agricultural innovation, can lower the barriers to entry for new and expanding businesses and provide new innovative businesses in the region.

- Reducing the barrier to entry for new businesses including costs and legal requirements, while also prioritising beneficial policies for existing smallholder farmers, can help spur investment in the region.

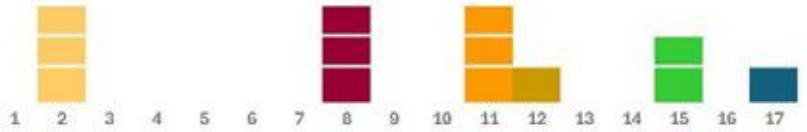


Figure 11. Potential SDG targets that can be addressed through an Agro-Industrial Centre driver

Agro-Industrial Centre

The economic driver of agro-industry for Naryn centres around the creation of a thriving hub for agricultural processing in Naryn Town, supported by the surrounding agricultural regions. It also builds upon a long-standing tradition of the agricultural activities of Naryn's nomadic populations. The potential for the economic driver therefore, recognises both the economic and social implications.

There is a clear desire to strengthen the Naryn identity through a unified marketing strategy that promotes Naryn Oblast's products under a cohesive brand name to emphasise the unique qualities and benefits of the Naryn region. This strategy can promote increased awareness of the high quality of Naryn Oblast's products, such as meat, dairy, and honey, and result in the Kyrgyz public (and beyond) specifically seeking out Naryn products. It can also highlight eco-friendly and organic aspects of Naryn's products. It can further amplify the awareness of Naryn Region and draw linkages with the tourism driver. Agriculture is an important part of Kyrgyz culture and history, and rejuvenating the practice within sustainable development ambitions contributes to the reinforcement of culture and identity for Naryn. This too is an opportunity that is strengthened through its connection with the Tourism Hub driver. As with the other economic drivers, it is crucial to frame the Agro-Industrial Centre within sustainable and resilient boundaries. Materials, processes and approaches can support these objectives, and should be clearly laid out in the regulatory frameworks that support the industry and its development.

Several agricultural products have potential for expanded production and distribution. There is sufficient demand for Naryn Oblast's core products of meat, honey, and dairy to justify the construction of new processing plants. Additionally, participatory activities voiced a desire to expand product offerings, both within these core areas by introducing new breeds of cattle, and by expanding the types of products Naryn offers.[7] It is important that any expansion of products offerings meet sustainable requirements and does not place any additional burdens on the environment. To diversify incomes, Naryn Oblast can develop secondary horticultural products in addition to livestock. According to the Ministry of Agriculture, black currant and sea buckthorn berries have recently increased production in Naryn Oblast and are well suited for the climate. This can also support the city's resilient development ambitions by reinforcing climate mitigation and adaptation strategies, where relevant. During the warmer months, potatoes also have potential in the region. Naryn, as a city of regional importance, can provide logistical infrastructure, such as warehouses and packaging facilities, for these products, strengthening urban-rural linkages. Complementarily, linking to the Education Town and expanding research for climate resilient crops can yield valuable exchange between industries, and improve Naryn's productive capacities. The potential to integrate sustainable goals and outcomes should not be undermined. Naryn's existing conditions and context demonstrates opportunities to transform the city's environment and green economy. For example, the large amount of food waste, when separated and sorted, can be used in soil fertilisation, and in this way sustainable and circular practices can boost conditions for agricultural production and green economies while also improving the health and well-being of the city and people.

Marketing products can be done collaboratively with private and public entities through a cohesive Naryn brand. Either the government, or a cohort of stakeholders, such as farmer cooperatives, can take on the project of developing a Naryn brand, including certification requirements, packaging, and marketing materials. This brand project can be promoted by a public-private organisation focused on developing Naryn's agro-cluster. This can promote strategic inter-organisational links in and around Naryn to foster the spread of information, the elimination of bottlenecks in production, and innovation. The cluster initiative can loop in Naryn's two universities to assist with driving progress in agricultural development, including researching new breeds to increase productivity, in the region.

There is significant agricultural production in Naryn Oblast, but given the lack of agriculture in Naryn Town, it is important to create strong links with the surrounding areas and draw in products for processing in the town. This is especially important given that Naryn is not enroute to Bishkek from Jumgal and Kochkor, two major Naryn agricultural raions. Furthermore, regenerating

7 Captured during participatory vision workshops held with students and business forum representatives

Naryn's capabilities for meat processing will revitalise its historic economic activities of meat supply, both domestically, and across borders. The renovation and adaptation of disused buildings could support such endeavours.

Exports to China can be a major opportunity to route agricultural processing through Naryn town and make it a hub of processing. However, according to the Ministry of Agriculture, China maintains strict import standards, and farmers may need additional assistance to meet export requirements, such as the development of a veterinary lab. International exports to Russia, EuAsEC member states and the United Arab Emirates are also significant opportunities to leverage.

There are two major factors to consider if a future of agro-industry is to be realised. Firstly, as with the Logistics Hub ambitions, it requires significant funding. Adopting a cross-cutting sustainable approach that demonstrates the environmental, social and economic considerations and benefits will help secure sustainable or blended financing. Private loans and investments will be equally important, and consideration must be given as to how the market can support this. Secondly, if not well planned, developed, implemented and maintained, including with supporting policy and regulatory frameworks, this economic driver has the potential to substantially affect the city's vulnerability to natural hazards and risks, with potential impacts on land degradation and carbon emissions. In addition to ensuring sustainable management of the processes and practices associated with agriculture, it will be crucial to interconnect solutions for water and waste management, land management and infrastructure. The Education Town driver can be a supporting link to ensure this sustainable approach, through research, innovation and learning and training programmes .

Figure 12. Nashik Grape Cluster, India (Source: AgriFarming.in)

The case of the Nashik Grape Cluster in Maharashtra, India offers ideas around an Agro-Industrial Town, the key features of which are:

- An independent public-private partnership that focuses on driving progress within the agricultural sector, including developing essential infrastructure, identifying challenges and bottlenecks, creating collaboration amongst partners, and marketing products externally. This organization was owned by farmer cooperatives but provided with significant government support to start.
- Knowledge sharing amongst partners, including regulation changes and workshops on new techniques, can help create shared growth in the cluster.
- Local research institutions and universities help monitor crops and provide insight into new technologies to increase yield and quality.
- Strong state support has enabled the development of infrastructure and special 'export zones' to improve the success of the cluster.
- A network of commercial and cooperative banks support the sector – important due to the capital intensive nature of cluster initiatives.
- Creation of a unifying brand name to market and export grapes under.

Concluding reflections on the economic drivers for Naryn

There are various possibilities to establish strong economic drivers for Naryn. When considered complementarily, the opportunities are greater. The indicative SDG targets which could be addressed in each of the economic drivers begin to give more ideas around the collective impact they could generate.

To understand these better, the features and suggestions that were shared and co-developed with local stakeholders during the workshops were categorised into areas of impact, identifying those that would generate benefit on environmental, economic, socio-economic, governance or social dimensions. A high-level, qualitative assessment was then carried out to visualise the possibilities of sustainable development that the economic drivers could generate.

While all four economic drivers have the potential to create impact in all areas, socio-economic development may be more emphasised in an Education Town compared to a Logistics Town. Correspondingly, a Tourism Hub may be a better framework to achieve as much environmental impact as socio-economic. In this way, these considerations can provide an early reference for how Naryn chooses to prioritise its sustainable development, keeping in mind the interconnected and cumulative benefits that are possible between all economic drivers.

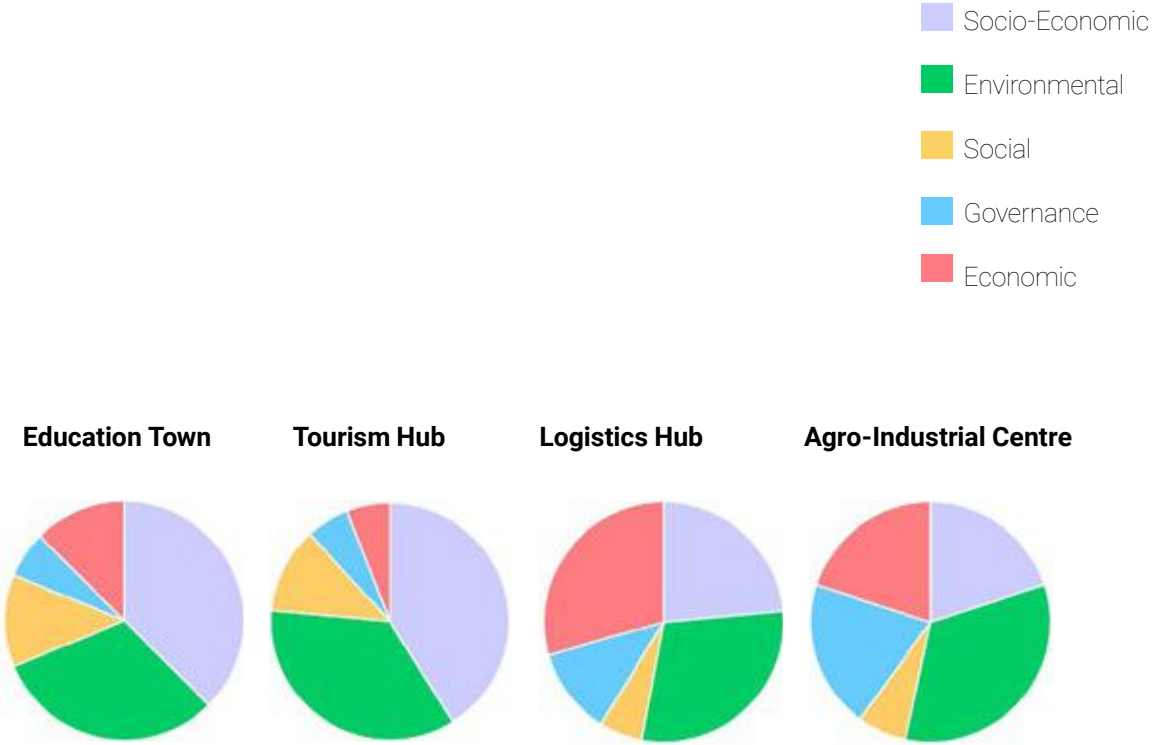


Figure 13. Indicative areas of sustainable development impact that may be possible as a result of implementing interventions proposed during workshops

Naryn green and natural features, Naryn, Kyrgyzstan Photo © UN-Habitat

4. An integrated, people-centred approach to strategic development in Naryn

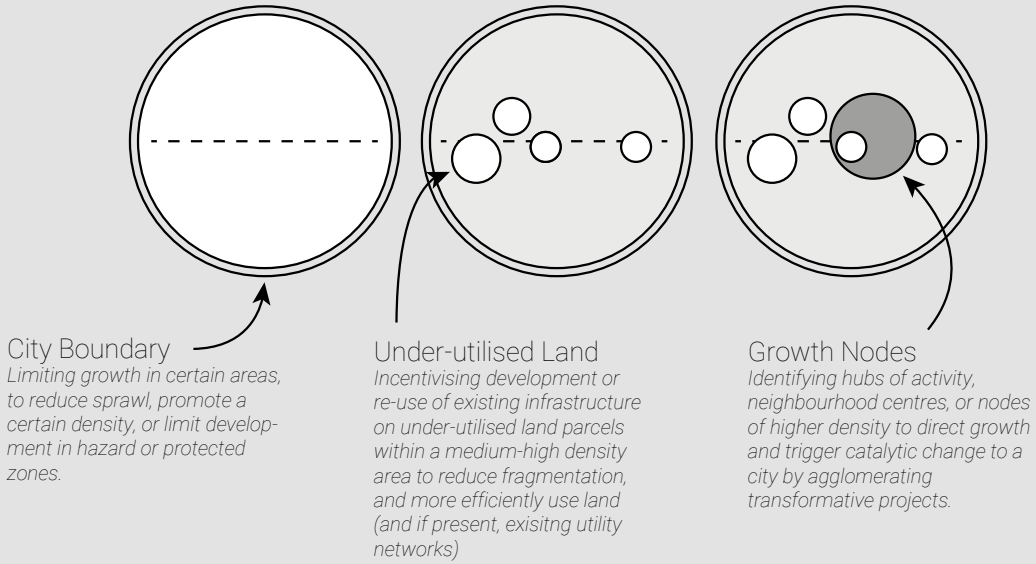
As described in the preceding sections, there are strong interrelations between the different problems in Naryn, and the possibilities that they represent. By considering them together, recommendations that are responsive to Naryn's context and growth trajectories are proposed as an integrated plan to guide the growth of the city and deliver multiple benefits. Reacting to the current issues and conditions, the plan is underpinned by three main concepts:

i. City Boundary

Limiting development in strategic locations and to varying degrees (no extensions to existing buildings, no new development, relocation) can help to reduce the risk posed by existing hazards and initiate or trigger development in other areas.

ii Developing or regenerating underused land

Identifying opportune sites within the fabric of the city (e.g. those areas that interrupt the movement of people, that are surrounded by facilities, are covered by utilities infrastructure) can reduce fragmented networks, increase vibrancy and economic activities and improve accessibility and integration of neighbourhoods. Depending on the condition of the existing site, old infrastructure can be used to preserve the heritage of the city.



iii Increasing density and diversity of land uses in nodes

Identifying sites, intersections or nodes to increase density can assist in providing focal points in the city; 'hubs' of diverse social and economic activity that can play diverse functions for the city depending on need and character.

Figure 14. These concepts, a development boundary, infill development, and growth nodes, assist in guiding a balanced growth of the city toward one that 1.) integrates 'blue and green' natural resources and 'grey' infrastructure, 2.) reduces inefficient and costly sprawl-type development, and, 3.) sustains medium density and vibrant areas that ensure equitable access to basic services and facilities for all residents.

Masterplan Alignment

In developing these issues and responses, the UN-Habitat team have run an assessment and alignment of the Naryn Masterplan[8], global benchmarks and the outcomes of the analyses that were undertaken. The integrated, people-centred approach applied to the data collection, spatial analysis and recommendations processes of the project contributes the main distinctions in the outcomes when compared to the masterplan. By introducing an assessment of deficit areas in relation to the current and projected future populations at sub-district level, the UN-Habitat team was able to gain a more detailed spatial understanding of the town's needs and conditions, allowing for responsive recommendations.

What this reveals is an overall strategic alignment with the recommendations proposed by UN-Habitat and the masterplan, with some divergences regarding the structuring or approach.

The two align in emphasising the importance of enhancing Naryn's natural resources. Both include aspects of protecting the blue network and main waterways with green buffer zones as well as creating connected green networks (for example between Jusaiev and Victory park and the riverside). Both plans also highlight the same areas for climate mitigation strategies such as reforestation. UN-Habitat's approach recommends additional mitigation and adaptation strategies in some areas of the town.

Similarly, the promotion of tourism, university, research, logistics and industrial production in Naryn has been validated with stakeholders and further detailed in the proposals through the suggestion of industrial clusters and research centres, as well as expanding the logistics

Key contributions from UN-Habitat's methodology

- Spatial analysis process
- New data sets to supplement existing sets, e.g. population
- Contextual and situational analysis and recommendations
- Participatory process
- Non-biased action plans and provision of investment plan

8 Developed for Naryn in 2018 by GPI Urban Planning and Architecture under the State Agency for Architecture of Kyrgyzstan, and approved in 2023.

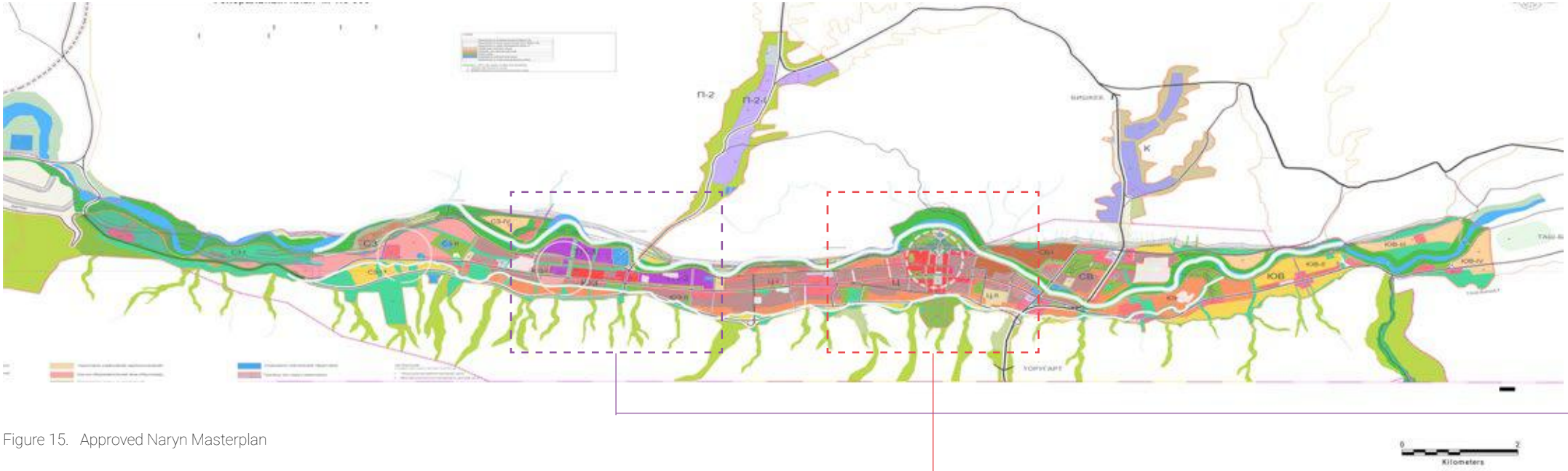


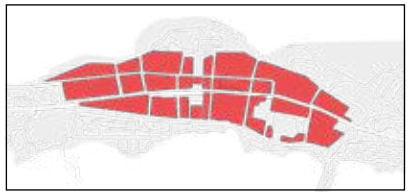
Figure 15. Approved Naryn Masterplan

capabilities of the city. However, where the masterplan proposes vast extents of industrial and research centres complexes, supporting it's Science City concept, UN-Habitat's approach indicated that smaller, integrated units with a diversity of functions may prove more useful in connecting with the university facilities, agro-tourism opportunities and industry.

New residential areas are necessary and reflect the growing population, and housing is included as an important development for the city between both plans. Most of the plots which have been identified in the masterplan for housing align with those proposed by UN-Habitat. However, as described in the City Profile report, the population figures used to develop the masterplan may not be accurately representing the current situation in Naryn. Population figures from 2019 are considered much lower when compared with the estimates of the UN-Habitat team.[9] Based on a more

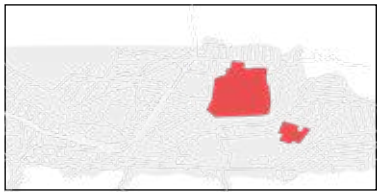
9 Based on the survey undertaken in 2021 by AKDN. See the Town Profile report for more details.

Figure 16. Illustrative example of methodological divergences between the Naryn Masterplan and UN-Habitat's recommendations for mixed-use develooment



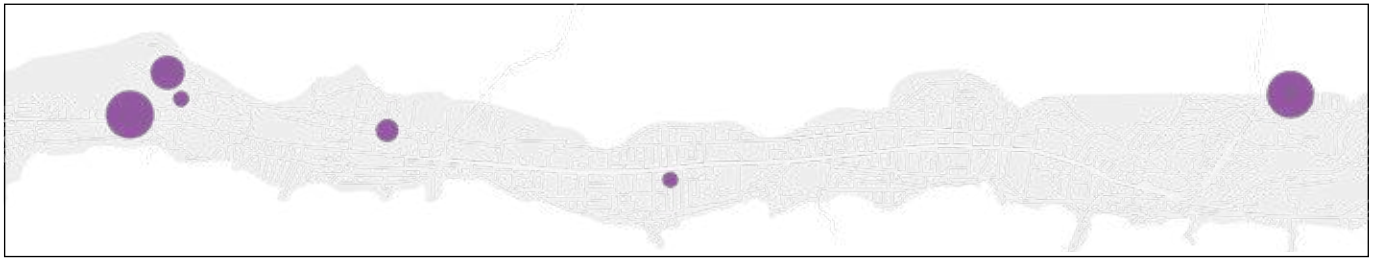
Clustered zones of mixed-use development with residential (as proposed in the Naryn Masterplan) emphasises a strong development core in the centre of the city.

UN-Habitat's analysis show benfits of approaching densification through infill development, locationally spread across the city in relation to population needs and hazardous areas, which could be a less-costly and more sustainable option of densification.



Vast extents of industrial area proposed in the masterplan connects to its Science City Concept.

Figure 17. Illustrative example of methodological divergences between the Naryn Masterplan and UN-Habitat's recommendations for industry



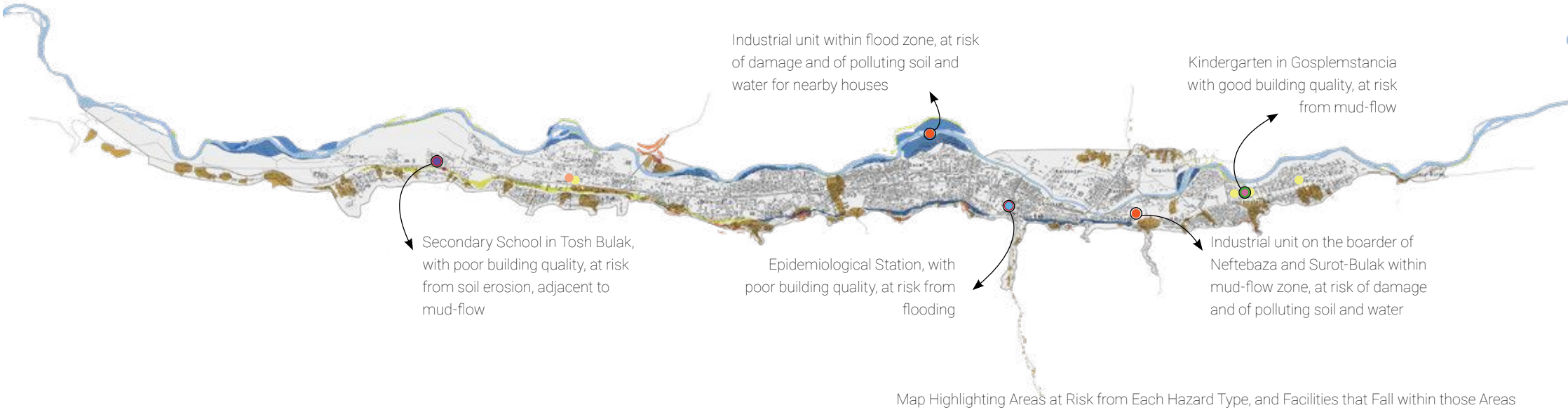
UN-Habitat proposes smaller areas for industry connected to existing amenities and facilities, such as the universities. This decentralised model helps to link industry to research and innovation, enabling a diversity of functions and more vibrant exchange of progamming on sites.

likely projection, and in relation to the spatial analysis carried out, UN-Habitat's proposal differentiates with a stronger emphasis toward infill development, rather than city extension. This promotes a less costly investment that improves the city's consolidation and sustainable densification, whilst limiting development in hazard zones or those areas that could otherwise be protected for cattle, farming, or green spaces.

Both plans identify mixed use development nodes. UN-Habitat's recommendations align with the general layout of the city as in the masterplan, where the city centre is retained as the central primary node. However, the recommendations also promotes smaller, secondary nodes, to ensure more equitable access to facilities, and less dependency on the city centre. These secondary nodes encourage greater proximity within neighbourhoods, and improved connections between people and opportunities. It also supports expansion and densification of areas away from the centre (for example as is already happening with Jany Jer).

The plans align in terms of a mobility strategy to reconnect the extents of the city and develop more sustainable solutions. The masterplan proposes larger infrastructural interventions, such as a train line, while UN-Habitat suggests a phased approach with smaller connections and interventions to improve the overall permeability. This means that mobility is considered both across the East-West and the North-South axes in the city. By introducing smaller scale mobility interventions, the recommendations could be more cost-effective to implement, with less disruption to existing infrastructure. The provision of services does not align exactly with UN-Habitat's recommendations or placement of public services. As the Masterplan doesn't include the rationale behind the placement of public services, UN-Habitat's approach is based on human-centric suitability models.

The highlighted divergences will be further evident in the recommendations of this report, and further, in the forthcoming project steps that will include the location of specific interventions in response to the strategies and as an outcome of community workshops. As part of its regulatory processes, Naryn will need to undertake detailed planning following on from the approval of the masterplan. The recommendations in this report will support Naryn as it undertakes this next stage, and could be used as a guide during this process.



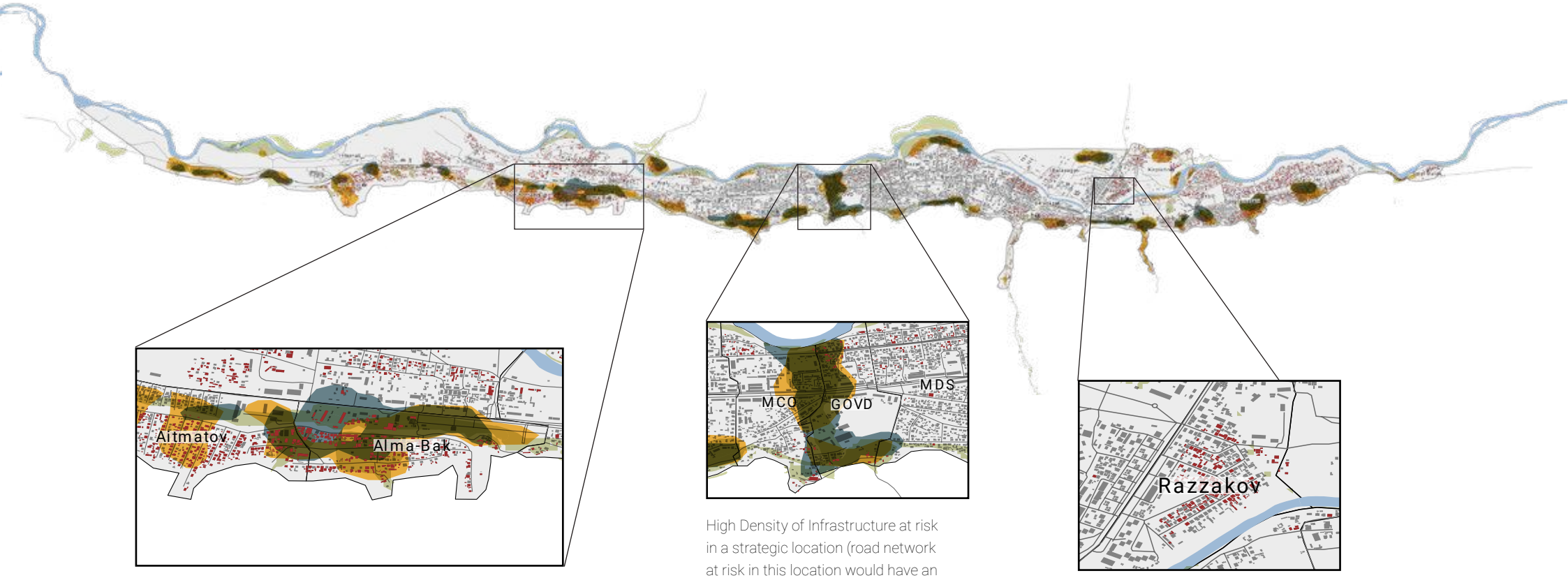
Map Highlighting Areas at Risk from Each Hazard Type, and Facilities that Fall within those Areas

Issue 1 Vulnerability to Natural Hazards & Disaster Risk

A number of hazards impact Naryn's growth in diverse ways – debris flow and rockfall sites, predominantly to the South of the city, areas at risk of flooding in the North (along the river), erosion as a consequence of water from the river and canal, and poor soil quality all impact the city in different ways and areas. While these hazards do not currently impact a high number of people in all areas, they do cause disruption and damage to infrastructure, and pose an increased risk to households in precarious areas if construction in these areas is not regulated. Three key facilities with high populations of vulnerable households within their servicing areas currently fall within hazardous zones, and present higher risks and more urgent threats. These include, a secondary school in Tosh Bulak of poor structural quality within an area at risk from erosion, one kindergarten in Gosplemstancia that is currently located within an area at risk from mud-flow, and an epidemiology centre in Neftebaza also exposed to mud- and debris flow. Due to the number of disadvantaged people that depend on these facilities, and the mitigating role that they play, the impact of hazards is exponential. Furthermore, irrigation channels (see following response map) that are blocked, damaged or insufficient in coverage are unable to be used as mechanisms for reducing the impact of flooding or collecting overflow flood water and debris flow.

Without mitigation, the impact of hazards on land, infrastructure and people exponentially worsens over time. Similarly, overlapping hazards can lead to compounding issues for the city, and mapping vulnerable households shows the extent to which they are unequally affected by hazards.

Note: For a description of the rationale that is used to identify locations of suggested responses, see Annexure 1: Rationale of Intervention and Project Location: Utilising Suitability Models for Evidence-Based Decision Making

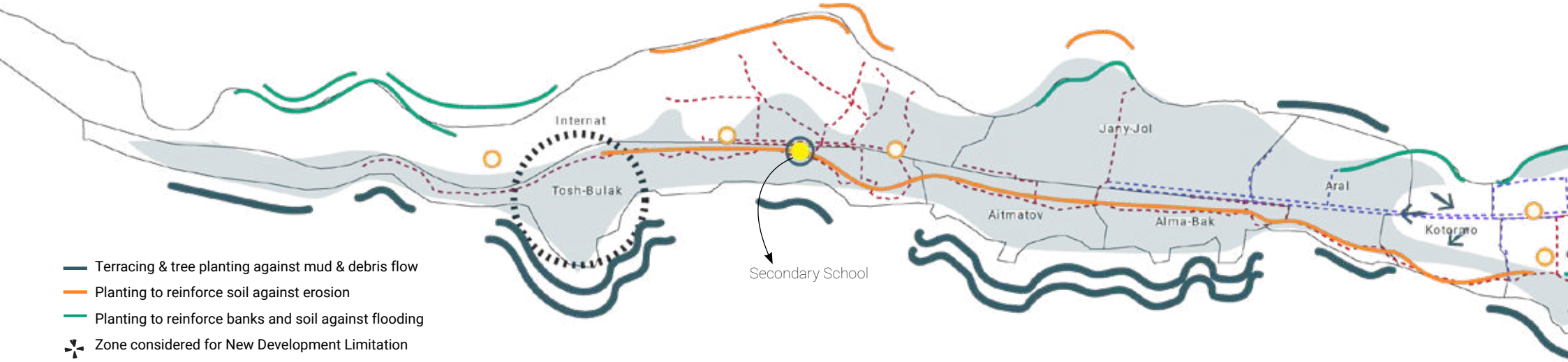


High Density of both Infrastructure at risk and of Vulnerable Households

High Density of Infrastructure at risk in a strategic location (road network at risk in this location would have an impact on the whole city's mobility and access)

High Density of Vulnerable Households (based on indicators such as distance from key services, reliance on services that are at risk of damage from hazards and income sensitivity)

Map Highlighting the Density of Infrastructure at Risk and Vulnerable Households



- Terracing & tree planting against mud & debris flow
- Planting to reinforce soil against erosion
- Planting to reinforce banks and soil against flooding
- Zone considered for New Development Limitation
- Key Facilities in need of Renovation
- Existing Irrigation Channels to be Extended
- Existing, Non-Functioning Irrigation Channels to be Maintained & Repaired
- Potential Safe Havens (public spaces or facilities - schools etc - as an 'evacuation meeting point', with a storage of equipment and termporary housing)
- High density of vulnerable households where services and utilities must be expanded

Response 1: Hazard Mitigation, Adaptation & Response Plan

Through recording vulnerabilities and pre-empting impacts from hazards through low-intrusive interventions.

Planning and preparedness

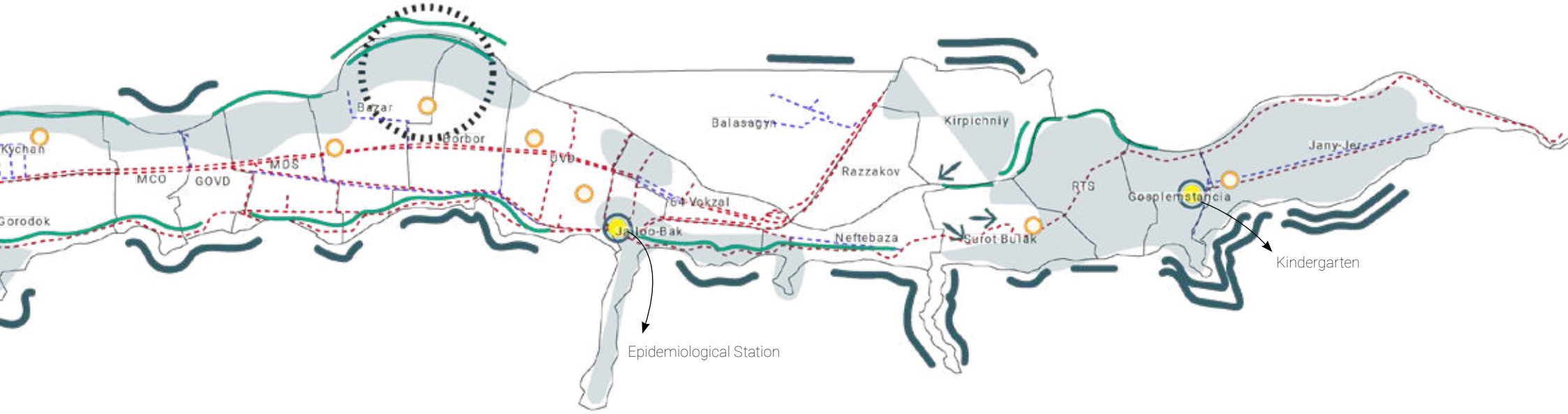
Mapping, planning for, managing and mitigating hazards in an integrated way is key to the development of the city as it will provide a blueprint for sustainable growth in a way that works with, and not against natural resources and risks. This response is one of seven integrated responses that follow, however it is fundamental, as it provides a recommendation for limitations to new development, as well as a starting point from which the growing pattern of the city can be formed and new development encouraged. The interdependence of hazard mitigation, adaptation and response is thus indispensable.

Expansion and improvement of social facilities

Reinforcing key structures that are currently at risk and are greatly depended upon by the population, such as the school, kindergarten and health unit, is a key priority. It is recommended to use the opportunity of upgrading building quality of the school and kindergarten to reinforce them against specific hazard threats to also expand these facilities due to the high demand in those areas (refer to the recommendation "closing the deficit gap in service provision" that follows and describes social facilities dependency). Identifying 'safe havens', or social facilities that could be used in response to a hazard, for example in case of an earthquake, major flooding or debris flow, as an assembly point, to distribute information or equipment or to temporarily house families, is an important aspect of post-hazard recovery. This may assist in a quicker response to hazards and reduce the consequences to the hazardous event. Potential 'safe havens' are highlighted on the map as existing public facilities that are not within hazard zones, and that have a large capacity and access for a high population number.

Adoption of nature-based solutions

Nature-based solutions can assist in reducing the



Strategic Map Highlighting Key Hazard Mitigation & Adaptation Measures

risks of hazards on the city, can enforce development boundaries through natural barriers, reinforce soil from erosion, and reduce the effects of flooding. Gabions (rock structures in terraced forms) along the canal side, as well as in-stream deflectors can assist in reducing effects of erosion and control flooding areas. Planting of trees and terracing in debris and mud-flow zones, prioritising areas of higher population and infrastructure density will reduce risk. Planting of shrubs, trees and wetlands in flood prone zones will assist in reducing flood impacts. Planting and constructing surface and hill-slope run-offs can reduce street flooding. Planting local plant species, shrubs and trees along the banks of the riverfront and along the side of the Big Naryn Canal will reinforce the soil and reducing erosion. This will also enforce the buffer zone in both cases, to prevent waste being thrown into the water network, protect people from drowning, and stop informal development in these areas. It is important to consider the hazards from a root cause perspective, ensuring that broader assessments on watersheds and the approaches to reduce pressures on the ecosystem can be addressed holistically. This may require further specialised studies. Aligning nature-based solutions with regulatory frameworks are crucial to achieve the desired impacts, including the consideration of adjoining jurisdictional responsibilities between different levels of government to initiate mitigation and adaptation measures, as in the case of the Big Naryn Canal. Clear coordination and cooperation are essential for effective nature-based solutions.

Policy improvements

Additional non-spatial measures such as limitations on new development in hazard zones can assist in reducing risk to people in Naryn. These control measures must be monitored over time, as even with physical mitigation measures in place, these limits to development may still be important to maintain. With new mixed-use development in Naryn (proposed within the following responses), and existing riverfront housing located in flooding zones, gradual relocation can be considered to encourage growth nodes, and limit development in hazard zones.

Expansion and improvement of utilities and services

Both reinforcing key facilities currently at risk, and expanding existing utilities and services are crucial to reducing hazardous impact on the city. This includes equitable access to schools, kindergartens, bus stops, clinics, public spaces, sewage, and water and electricity networks. A crucial component of expanded service networks are the irrigation channels (or stormwater drainage channels). The maintenance and construction of irrigation channels in areas that are most at risk from flood and mud-flow, and those with high population density should be prioritised. This is most important in the city centre, in MCO and GOVD, where a flood risk area covers the major arterial road. This strategic location would impact the mobility networks of the whole city and is therefore a priority, not only for flood mitigation, but also for the maintenance of irrigation channels in a targeted manner.

Improved urban management for preparedeness and responsiveness

It is important that Naryn adopt a comprehensive preparedness and response plan. The incorporation of early warning systems for floods or risky mudflows can prevent potential destructive impacts and help the city to respond to hazards in a timeous manner without serious harm to people or infrastructure. Capacity building for communities, especially those located in vulnerable areas or households contributes to a preparedness strategy and encourages greater community resilience. Institutional readiness and capacitation with clear roles and responsibilities will also be important for adequate preparedness.

Recommendation 1: Hazard Mitigation, Adaptation & Response Plan

Action items listed below are developed as an outcome of the recommendations. These will be further validated with stakeholders, then scored using a multi-criteria assessment (MCA) to evaluate in relation to the most impactful and important, aligning with the city's priorities and economic drivers. Further details of the interventions, including their location, will be developed in the forthcoming Capital Investment Planning phase of the project.

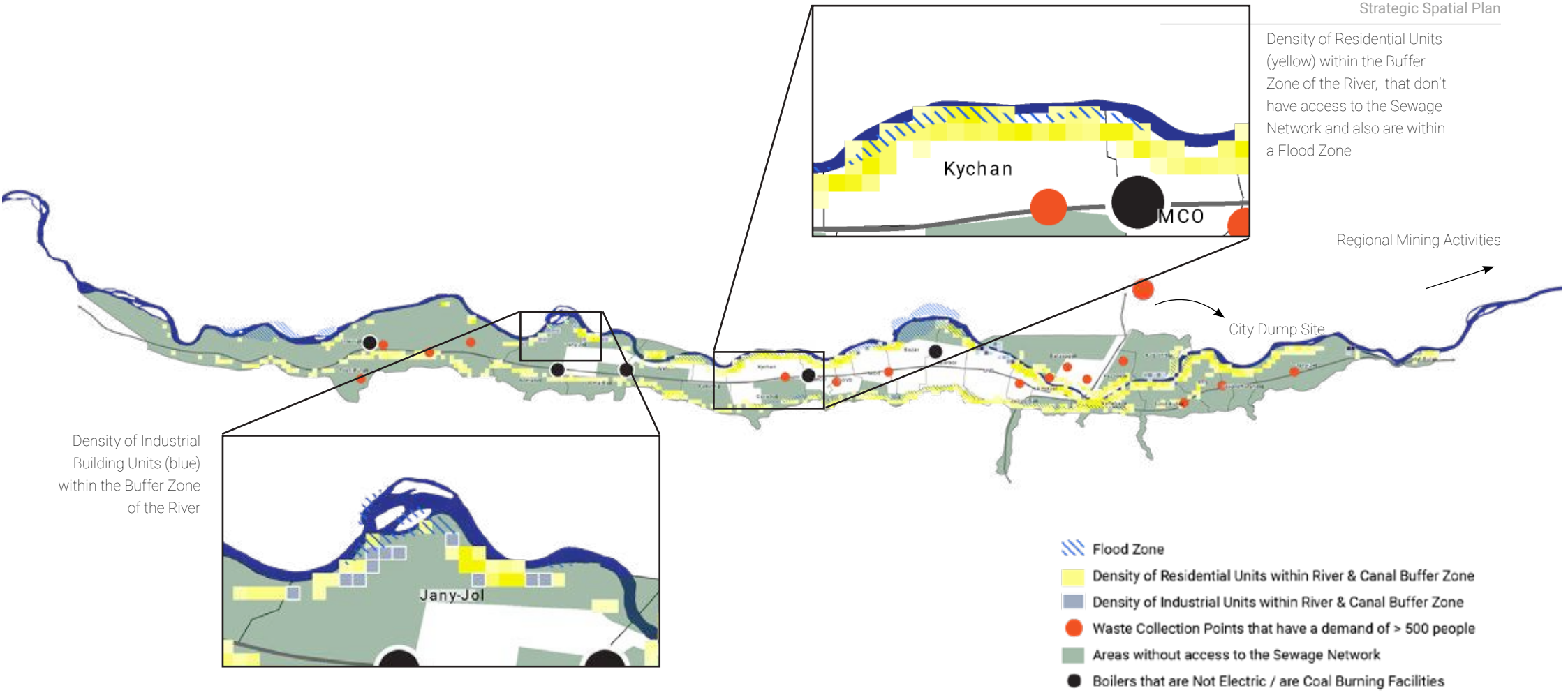
1. Canal reconstruction, planting and landscaping, gabions and in-stream deflectors
2. Riverside planting, terracing, gabions and netting
3. Reforestation planting
4. Reconstruction of irrigation ditches/stormwater runoff channels
5. Gradual relocation & limitation on new development in hazard and buffer zones
6. Reinforcement of secondary school No. 9 against soil erosion and flooding
7. Reinforcement of kindergarten & epidemiological facility
8. Transformation of Public Space as safe haven
9. Identification and renovation of public facilities as safe haven

Issue 2: Environmental Degradation and Pollution

The interconnection of Naryn's challenges is demonstrated again in this second issue, where the impact of pollution and deficient basic services in the town directly contributes to the degradation of its valuable natural resources.

In some areas of the city, households lack access to sewage networks and rely on septic tanks or self-made pits in the ground. These pits can lead to an increase in vector borne diseases, particularly in summer times. This also risks the contamination of soil of agricultural land, which may also have health consequences, as well as a risk of a polluted water table in areas that experience flooding. Not only human waste but also animal waste, if not managed, can contribute to soil and water pollution, as cattle are kept within household compounds. Another example of infrastructure causing harmful impact on the natural environment can be seen in the residential and industrial units that have been built within the protected river and canal buffer zone.[10] In many cases, waste run-off may pollute the soil and water systems and network, jeopardising the town's natural resources. The city accumulates additional damage to its environment, and the population's health and wellbeing from nearby polluting mines, and a large, unsorted waste dump site in the north of the city.

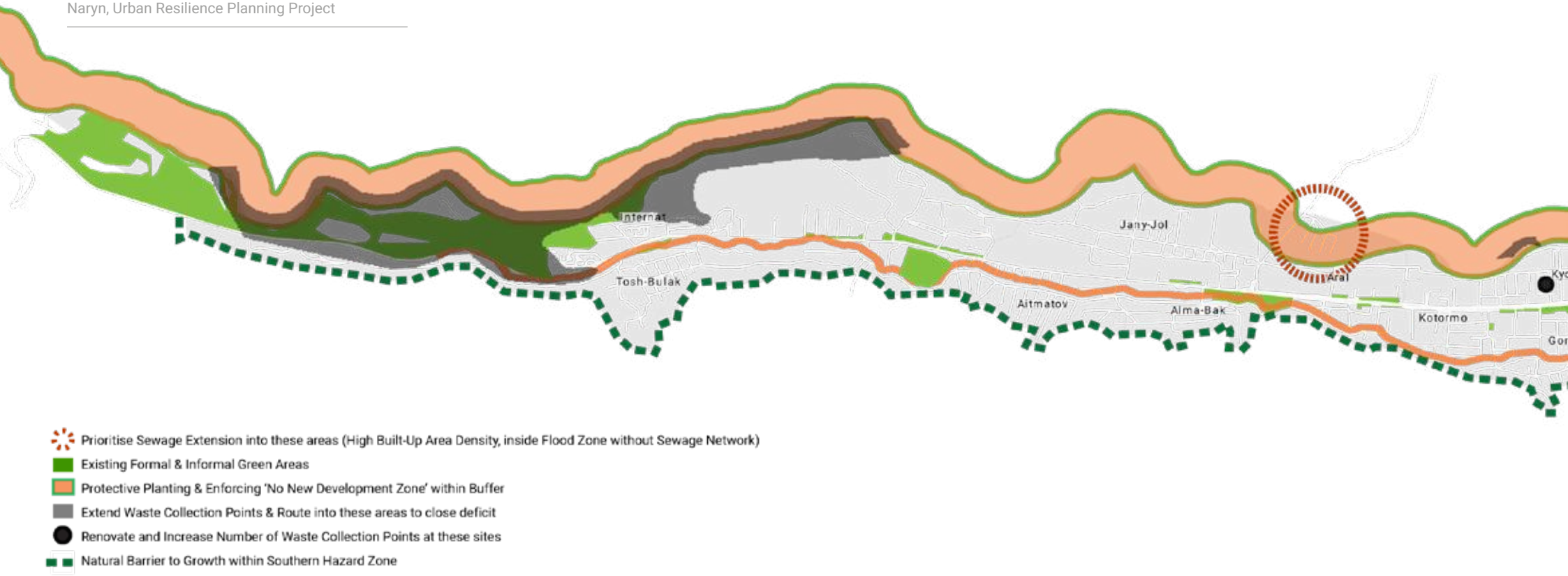
10 River and canal buffer zone is outlined in the 1995 Regulations on Water Protection Zones and Strips of Water Bodies in the Kyrgyz Republic



Waste management at municipal level happens through dedicated collection points in the city. However these are insufficient to meet the current demands, and deficient in their coverage, leaving a number of households without access to a municipal waste point.[11] This results in street pollution due to scattered waste, often exacerbated by high winds which easily spread the waste due to the poorly designed, unprotected collection bins and points. Since there is no established practice or regulatory enforcement for waste separation, both at source and municipal level, this contamination can be significantly destructive, causing blockages to the irrigation channels in the city, and pollution of green areas, the river and canal.

The harmful impacts on natural resources to which Naryn needs to respond to includes those on air quality. Due to the inconsistency and unreliability of electricity throughout the year, many households burn brown coal as their primary source for generating power. Coming from the nearby mines, this readily available source is also significantly cheaper, and thus, widely used. Unseparated waste is also regularly burnt. Together, these join to contribute tremendous air pollution, reducing its quality and risking serious negative health consequences. A number of large boilers that are located throughout the city, half of which are not electrified, adds to this significant issue of Naryn's very poor air quality.

11 Using a benchmark of household access of 200m to waste collection point



Response 2: Resource Conservation & Management

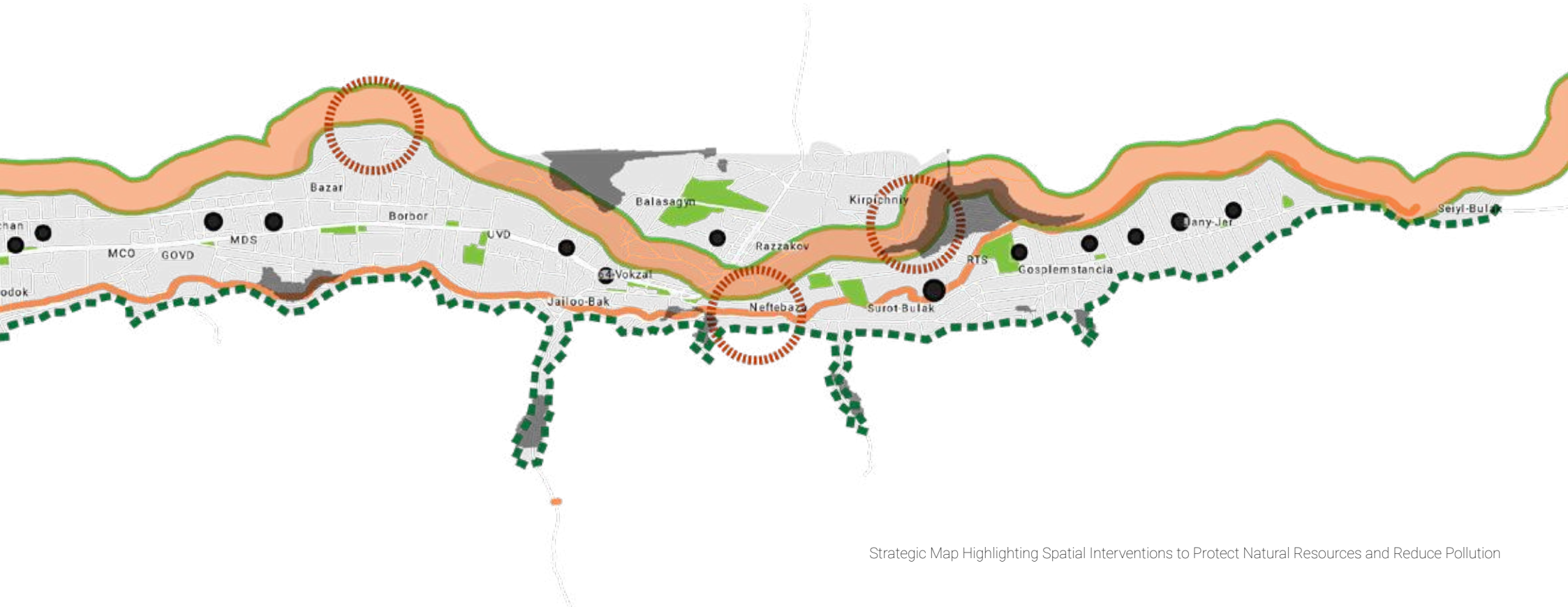
Creating a healthy environment and reducing the negative impact of man-made waste through Nature Based Solutions and waste management.

When considering the multifaceted impact of pollution, it becomes evident that responding to the challenge would require integrated interventions that relate to health, the provision of basic services, protection and management of natural resources, and the promotion of economic drivers for the city. A key understanding of what it would take to achieve the co-defined drivers that the city has set out for itself is that it would catalyse benefit by integrating, and thereby amplifying interventions. Therefore, expanding and improving the service and infrastructure provision could simultaneously support the development needed to spur local economic gains, while also protecting the environment and natural resources, if it is done sustainably.

Expansion and improvement of services and infrastructure

Expanding and improving utilities and infrastructure is equally important for ensuring that all of Naryn's people are able to equitably access key services and improve their overall health and well-being, as it is for attracting visitors to the city for tourism or education drivers. Achieving this distribution becomes even more urgent as the city grows to ensure that crucial infrastructure functions well and does not exacerbate what could be self-contained challenges.

Expanding the sewage network in a targeted and phased manner, prioritising areas with high population densities and within flood areas can assist in addressing immediate pollution risks. Renovating and increasing the number of waste bins in Naryn, predominantly in areas highlighted as having an insufficient capacity and high demand, as well as installing new waste points and collection routes to reach those that are currently presenting as deficit areas is also necessary. It is



Strategic Map Highlighting Spatial Interventions to Protect Natural Resources and Reduce Pollution

necessary to take into account new housing development when installing new waste points to accommodate for incoming population. Non-spatial urban management measures, such as increasing the frequency of collection, should also be considered if further assessments reveal this to be a factor in the current scenarios of waste dispersal.

Upgrading coal-run boilers to electric, or renovating coal-run boilers with filtering systems to reduce the degree of contributing pollution is essential. Providing grants and incentives for retrofitting and insulation of larger housing units and public buildings is a mechanism to embed mitigation principles early in project lifecycles (for new developments), and a potential to establish partnership-led approaches for delivering solutions. Incorporating regulatory mechanisms to support this will be important coherency, and thus success. Further analysis of solar- or hydropower, either within Naryn, or on a regional scale, would provide the most progressive and sustainable approach to transitioning away from coal.

Adoption of nature-based solutions

Nature-based solutions will be significantly advantageous to resolving this issue whilst expanding and integrating green, blue and grey networks (outlined in the following recommendation). They provide a solution that employs nature's ability to regulate, restore and regenerate resources. As highlighted in Issue 1, these also improve hazard mitigation, demonstrating the multiple benefits that can be yielded from integrated solutions.

Nature-based solutions alongside water systems are crucial to reduce pollution, by creating a natural barrier to protect from solid waste falling, for example through bio-fencing, or being littered into the water body, and by creating a natural filtration for the water system. This is particularly relevant around reservoirs and springs, but is equally crucial along the banks of the whole river. There are already existing planting along some parts of the river, making it easier to build upon and complement existing efforts.

Nature-based solutions can also be implemented in simple, yet effective ways to help with the challenges of poor air quality in the town. Planting indigenous species as carbon sinks can act as natural reservoirs that absorb and store harmful carbon dioxide.

Protection and preservation of natural resources and biodiversity

A conservation zone to the south of the city could enable the protection of natural areas, including terracing and trees (forest or orchards) that are fundamental to the mitigation of existing hazards, by reducing the impact of rockfalls and mud-flow (see response map 1 for indicative locations) whilst also creating a natural barrier to development in those areas more at risk from hazards.[12] Considering biodiversity-friendly development as an explicit strategy not only benefits people and adds greenery to the city, but also works in harmony with nature, including all the diverse species of animals, insects and ecology.

Prioritisation of health and well-being outcomes

Capturing the health and well-being benefits that are possible from conserving, protecting and enhancing Naryn's natural resources will be a significant enabler for its people. Together with supporting policies, it is essential for livelihoods, building a productive workforce, creating resilient and vibrant communities, extending and enhancing life expectancies, and promoting social interaction and cohesion.

Raising awareness and strengthening civic engagement

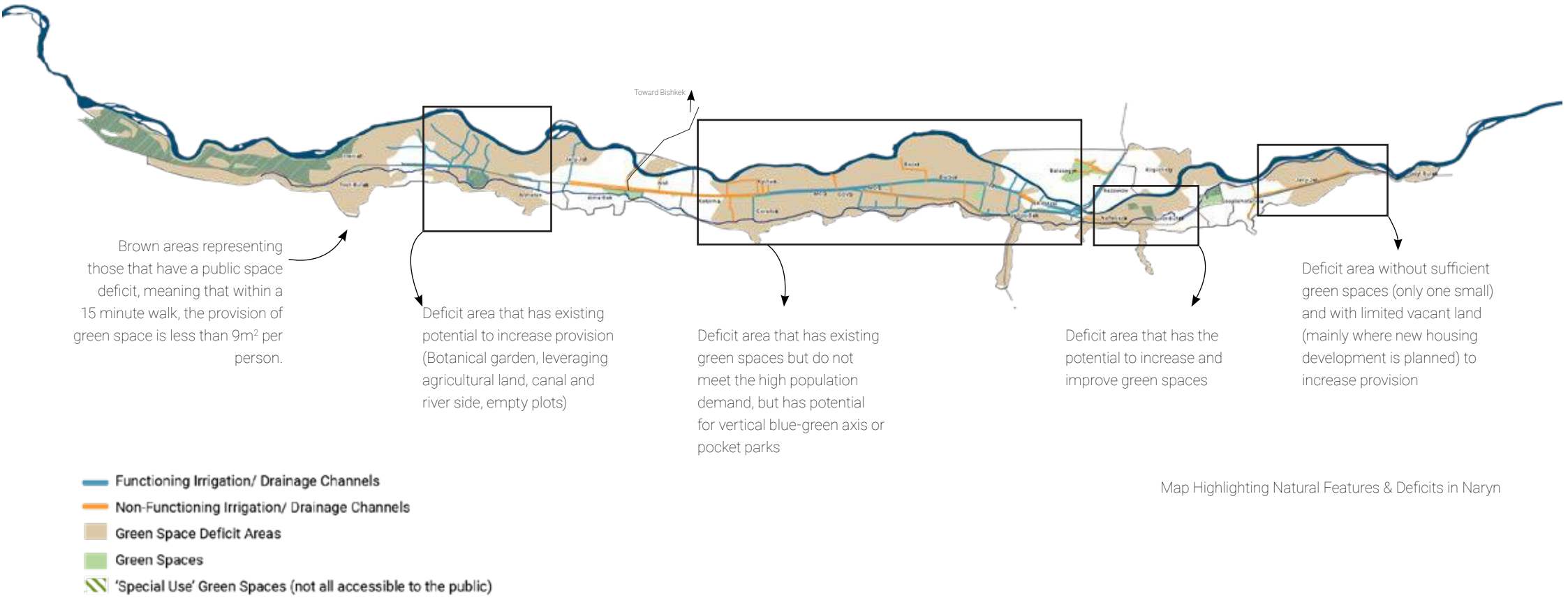
Behavioural changes are required to shift the patterns of environmental disregard. Improving civic engagement in the protection and preservation of natural resources helps to raise awareness and sense of connection to place for the people of Naryn, which can improve the individual and collective behaviour patterns, aiding the conservation and management of natural resources. Possibilities for this include introducing strond environmental education in school curricula, and adopting and encouraging enviornment-friendly practices and policies at the level of civic leadership, for example, through voluntary community meetings and cleanup campaigns.

Recommendation 2: Resource Conservation & Management

Action items listed below are developed as an outcome of the recommendations. These will be further validated with stakeholders, then scored using a multi-criteria assessment (MCA) to evaluate in relation to the most impactful and important, aligning with the city's priorities and economic drivers. Further details of the interventions, including their location, will be developed in the forthcoming Capital Investment Planning phase of the project.

1. Canalside and riverside planting and landscaping (for a natural barrier)
2. Forestation planting (to create a natural barrier to development)
3. Sewage network extension & central septic tanks for isolated neighbourhoods
4. Renovating and installing new waste bins
5. Renovation of coal run boilers (to reduce emissions)

12 Ensuring that adequate measures are in place before or whilst initiating a green boundary are necessary to provide sufficient energy for the citizens of Naryn. Solar and hydropower are key to the sustainable and reliable provision of energy for the city, and can be a source of income generation. Exploring case studies could provide a useful basis to initiate funding sources, governance structures, maintenance plans, and metering systems that ensure that energy is financially accessible to all in Naryn.

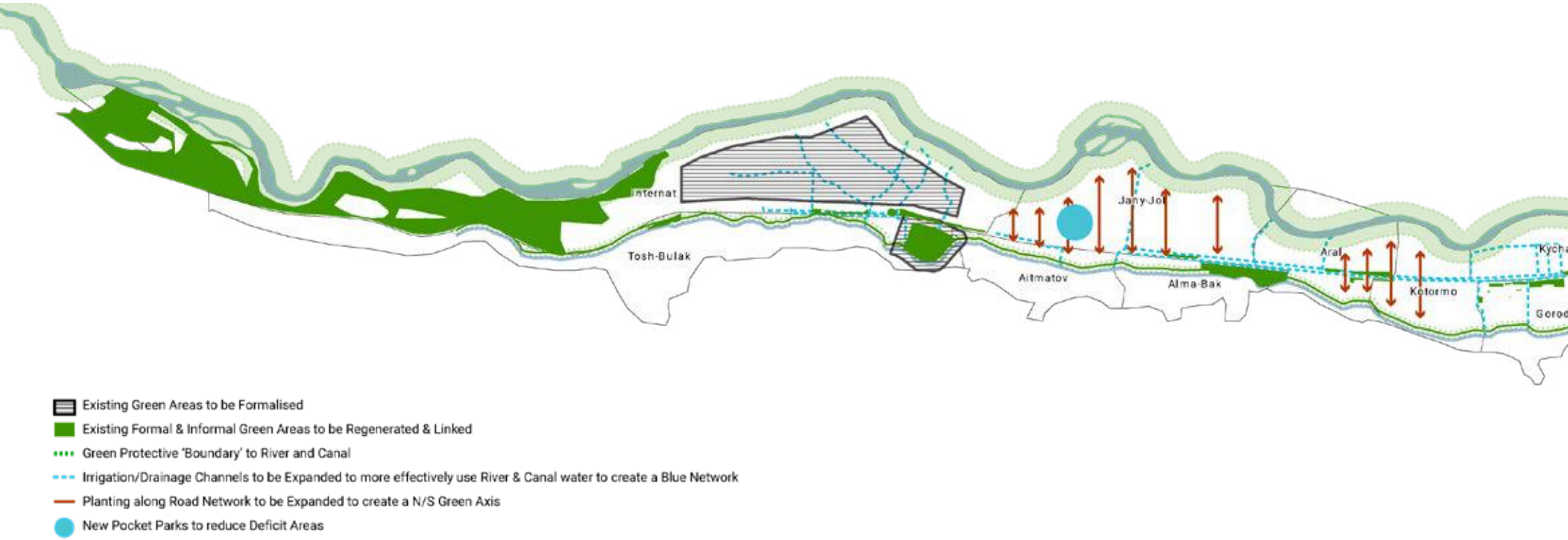


Map Highlighting Natural Features & Deficits in Naryn

Issue 3: Disintegrated Blue, Green and Grey Infrastructures

Although there are a number of green spaces in Naryn, their distribution does not always coincide with population densities, leaving some areas with a high number of people without sufficient access to open green spaces. Their designs also inhibit their full potential. In most cases, they are located in an isolated manner, far from economic corridors, and without any diversity of activity surrounding them. This means that there is insufficient programming within and around these green areas for them to draw people in. This is aggravated by poor access due to limited number of entrances, or restricted access (for example, through gates), making the parks or green areas less welcoming and approachable, which results in them being underused (for example, in the Jusaiev Park). In the case of the Botanical Gardens or the large swathes of green spaces belonging to private institutions (such as UCA) the opportunities are particularly lost due to them being closed off to public access. Access is currently also managed due to the risks of park and plant damage that is posed from lingering grazing cattle. Those 'informal' green areas in Naryn that are easy to access, for example along the riverside, larger irrigation channels, or on sloped areas, lack paths, benches or access points, and are not well maintained (watered or cleaned), reducing their high potential as green assets for the city, risking their use as waste deposit sites and worsening the quality of the built environment.

The Naryn river is one of its most defining features, and most valuable natural assets. However, the town does not currently interact with its riverfront, and development patterns and approaches instead faces away from it. Mayoral plans to initiate riverfront beautification projects will be an opportunity to address this.



Response 3: Leveraging and Linking Existing Natural Assets

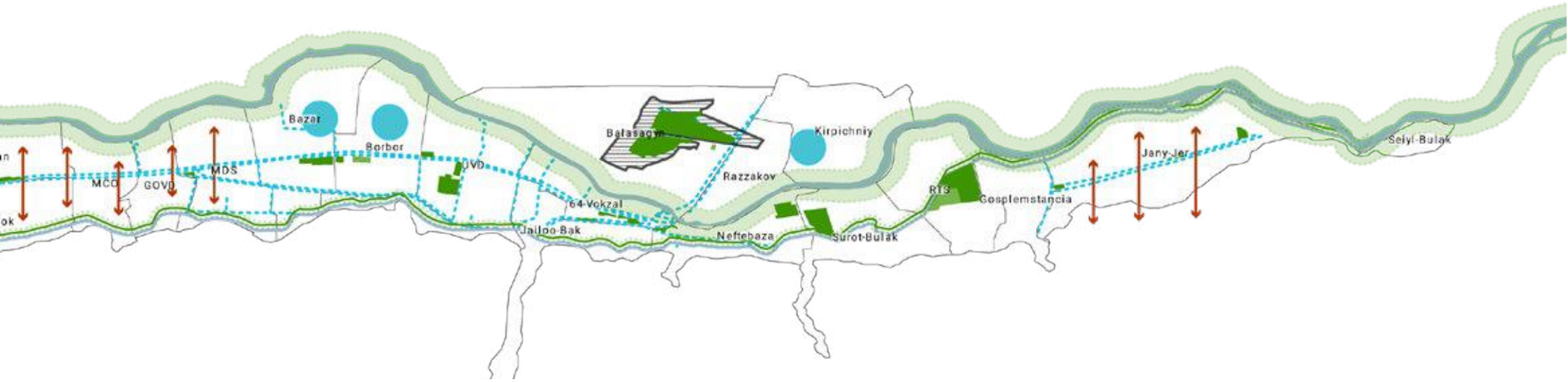
By improving access to green spaces through renovation, expansion and targeted development of green and blue networks

Creation, improvement and expansion of green and blue networks, and optimising land value of green spaces

This recommendation overlaps with a number of others. By providing strategies to promote a green network across the city there are subsequent links to promote improved mobility networks (through the creation of landscaped, pedestrian paths, by improving existing street designs by expanding planting between vehicular and pedestrian routes, etc.), hazard mitigation and developmental control measures. An efficient investment in promoting the use of existing green spaces would greatly impact the city's availability and use of green spaces, creating better value to the degree of landscaping that is already integrated into the city.

Examples of this are two large parks in Naryn – the Botanical Gardens and Jusaiev Park. Non-spatial measures, such as management and programming of the Botanical Gardens would allow access for the public and promote monitored activities within. This could support in drawing tourism and leverage the natural asset and learning potential of the park. Whilst the Jusaiev Park is not located within vibrant nodes of the city or in high pedestrian-flow areas, it's usage and potential could be improved by both increasing pedestrian access to the surrounding neighbourhood through crossing points at the river and Torugart Road (see also the mobility and recommendations below), and by design interventions that increase access points into the park, incorporate new learning and sports facilities, meeting places and formal and informal activities.

Another way of efficiently using the existing green spaces within Naryn, whilst mitigating hazards and improving connectivity links across the city, is through



Map Highlighting Strategies to Promote A Strengthened Green - Blue Network

targeted planting and regeneration of the riverside. Green pathways, reinforced riverbanks, seating, lighting and other design interventions can create a conducive pedestrian route through the city, and improve access to green public space within proximity of the city centre. Specific local and indigenous species can target both soil reinforcement, and reduce the effects of air pollution, flooding and erosion. They can also serve as natural water filtration systems by creating a natural barrier to waste that pollutes river, while also acting as a safety measure. When planning for such green improvements, it will be important to consider the surrounding communities and to ensure that social inclusion is centred in the development processes and plans.

Integrating the largest water body, the river within the green network and corridor will enhance its role as a natural asset and bring complementary benefits for the city.

Agricultural land to the West of the city can be leveraged through related agro-tourism and research facilities (see recommendation 7) and links the city to agricultural production, whilst preserving green spaces in Naryn.

There are currently sections of planting along Naryn's main road, Lenin Road. To optimise these, extending urban planting and greening to the north and south of the town (between the river and the southern boundary), can link this main corridor to other existing green and blue spaces, such as the river front green corridor, the two large parks and the agricultural land. In this way, the city can develop a green network, rather than separated pockets of green which improves their usage, accessibility and sustainable impact on the town. These north-south green links can also promote pedestrian mobility by extending tree planting and shrubs into neighbourhoods that are located to the North and South of the central Lenin Road. This supports in promoting a healthy and safe pedestrian environment, not only in the city centre (as is the current context), but also to the city's peripheries, and consequently, also improves the social inclusion of the city by improving the connectivity of different areas.

Identifying sites for new pocket parks can assist in reducing the deficit that is found in highly populated areas of the city. Pocket parks can fulfil a specific function of providing a temporary rest and pause place. It is useful, therefore to consider these small open public spaces alongside larger renovation projects such as Jusaiev Park. Pocket parks can be considered in Balasagyn, Bazaar and Jany Jol.

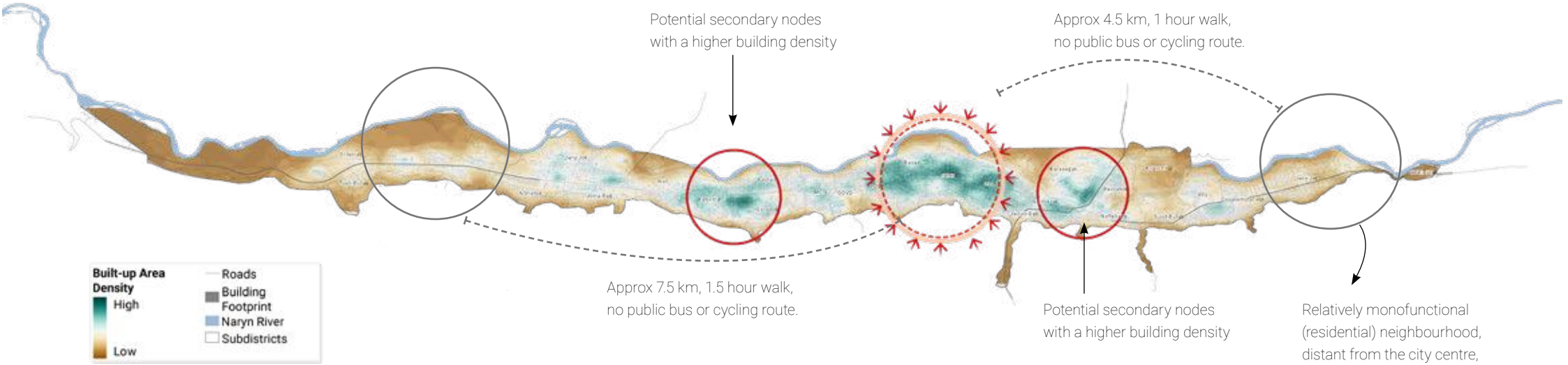
Sustainable expansion and improvement of basic services and urban management

A targeted expansion of irrigation channels can assist in ensuring that there is sufficient irrigation water accessible to households, as well as for watering of parks and green areas. A maintenance plan for irrigation channels must be addressed in order to ensure a complete network, and to make full use of existing infrastructure.

Recommendation 3: Leveraging and Linking Existing Natural Assets

Action items listed below are developed as an outcome of the recommendations. These will be further validated with stakeholders, then scored using a multi-criteria assessment (MCA) to evaluate in relation to the most impactful and important, aligning with the city's priorities and economic drivers. Further details of the interventions, including their location, will be developed in the forthcoming Capital Investment Planning phase of the project.

6. Riverside as Green Connector
7. Regenerating existing not-formalised green areas
8. Expanding irrigation channels to households and parks (including pumps and sprinklers/ irrigation systems)
9. New Green Spaces and pocket parks
10. Expanding planting along streets
11. Regeneration of Jusaiev and Botanical Gardens



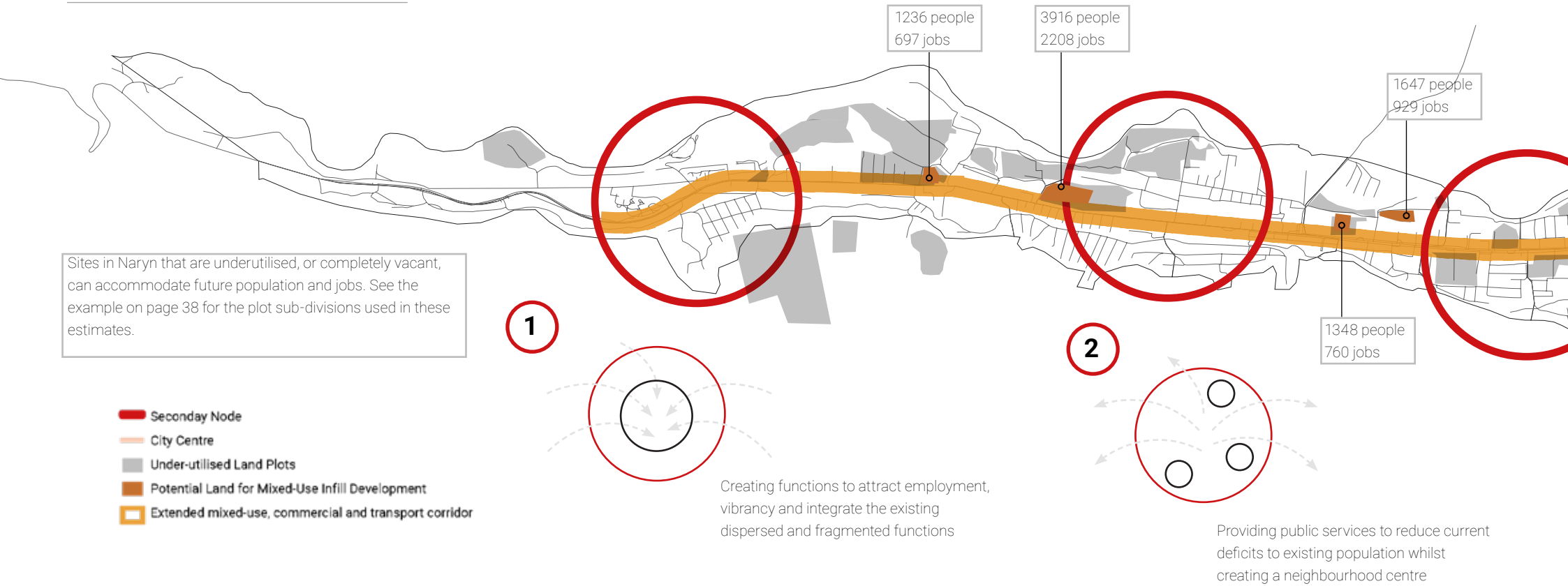
Map Highlighting the Current Densities, Centralities and Peripheries of Naryn

Issue 4: Monocentric Urban Development

The city has grown in a monocentric development pattern. Economic, administrative, and cultural activities are located in a central node. Over time, new pockets of higher density neighbourhoods have been developed, leaving areas of low-density, sparse and undeveloped land between these newer neighbourhoods and the city centre.

As parcels of land are privately owned in some areas, these low density areas are characterised by unused industrial sites, empty plots, and individual building units without road connections. The neighbourhoods themselves lack a 'focal point' or vibrant centre, there is a delay in provision of key services and utilities, and a high cost of implementation for utilities to reach these more peripheral areas.

As described in the previous issues, under-utilised land and monofunctional areas have an impact on the diversity of activities that happens around them, decreasing the vibrancy, resilience, and social inclusionary opportunities.



Sites in Naryn that are underutilised, or completely vacant, can accommodate future population and jobs. See the example on page 38 for the plot sub-divisions used in these estimates.

Creating functions to attract employment, vibrancy and integrate the existing dispersed and fragmented functions

Providing public services to reduce current deficits to existing population whilst creating a neighbourhood centre

Response 4: Revitalising and regenerating Naryn with a vibrant urban fabric

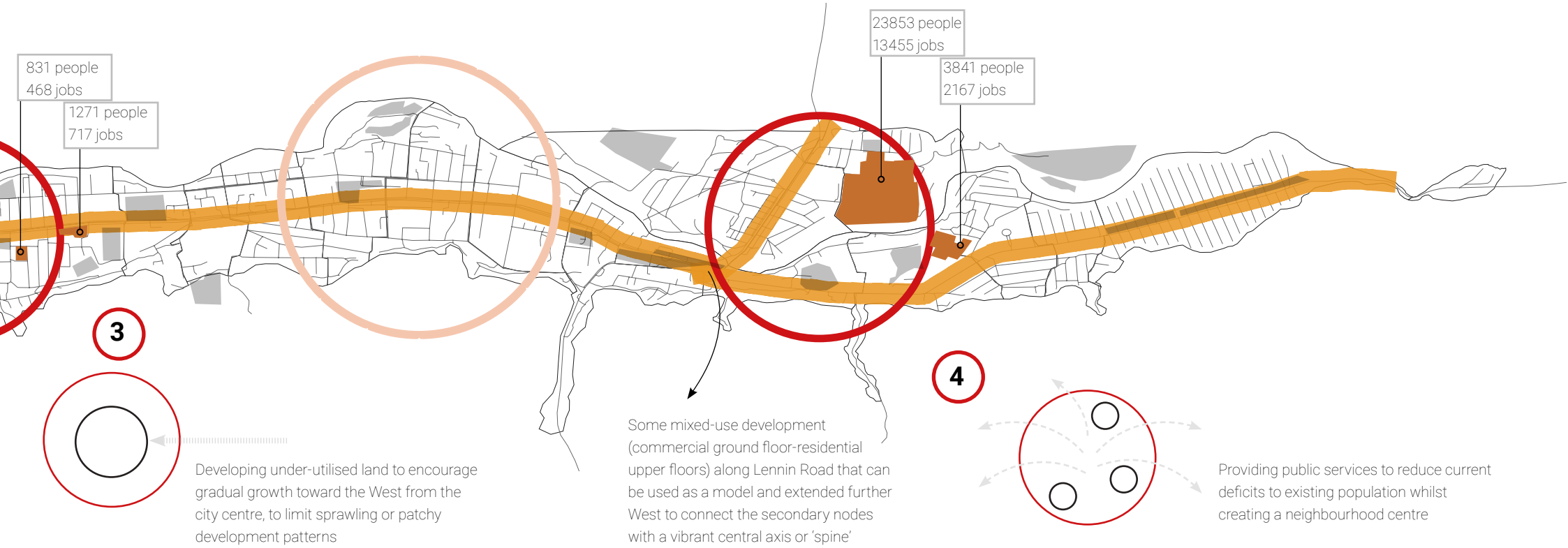
To promote planned growth, sustainable density, and the provision of facilities and vibrant neighbourhood centres

Creation of functional secondary nodes

Defining a series of secondary nodes can assist in the city's development in a number of ways. Each node performs as a focal point for its neighbourhood, giving structure and orientation for development while also connecting to a broader city-wide strategy of polycentricity. The recommendations for the functions and characteristic of the nodes are based on the spatial analyses undertaken and are outlined in detail under Recommendation 7. The nodes are linked via the central axis of Lenin Road. This linkage can be reinforced with an extended bus route and improved traffic management.

In addition, these nodes would benefit from reinforcing and expanding the central commercial axis that connects them. By gradually extending the number of mixed-use buildings along Lenin Road to the east and west of the city, adding to the existing ones, and connected by the nodal points of interest, vibrancy is generated all along the central route.

Identifying 'neighbourhood centres can help to encourage densification and growth in targeted areas. For example, in those areas that are lacking key services (see Node 4 and 2), or as a way to extend the city's densification away from the centre (Node 3) in a gradual and planned way, ensuring that key services support this growth. Node 4 aims to build a new neighbourhood centre, integrating existing facilities through better connectivity (bridges, pedestrian pathways and crossings – see the following recommendation regarding mobility) and new facilities. With potential new housing projects in Kirpichniy and Jany Jer, the increased population density in what are currently poorly connected neighbourhoods would greatly benefit from a vibrant and unifying secondary node, without having to depend on the city centre



for key services, employment, and centres for social interaction and support. In addition, this node would assist in integrating the city better across the Torugart Road and the river which could improve connectivity, rather than fragmenting movement and access in the city. Joint considerations for the Logistics and Tourism Town can be integrated in these responses. Promoting economic activities that will encourage long-distance drivers to stop in Naryn and use its services, along with improving the road networks by increasing planting, seating areas, lighting and crossing points, would support a safer pedestrian and more vibrant street environment.

Optimisation of land utilisation and management and improvement of connectivity

Node 3 attempts to consolidate a secondary node in an area that has existing networks. Using vacant land parcels to build new mixed-use developments, and extending economic activities toward the west of the town encourages sustainable growth. Coupled with the improvement of road and mobility networks, including pedestrian access and environments, this ensures that the growth of the city centre happens gradually and is supported with the appropriate design measures. Given that the market in the city centre is already extending in this direction, this node would be a way to manage and plan for the increase in development and activities.

Node 2 provides a centre for what is currently a low density area. Providing a purpose and character for this area would assist in providing a focal point for development and harmonise the city's structural layout between the city centre and UCA campus (see Recommendation 7). It would also provide a complementary 'meshing' together of grey, green and blue infrastructure with the agricultural land in Jany Jol and Internat, adjacent to the river. Node 1 would engage in the functions of UCA and assist in integrating the campus with Tosh Bulak and the rest of the city through research and development centres, linking students with employment.

Using existing structures that are no longer in use, for example old factory buildings, and renovating them to new functions can provide a sustainable and culturally significant approach to new development in Naryn. Old factory buildings that are located in Kotormo sub-district, adjacent to Lenin Road and within a large site the majority of which is a large expanse of open space, for example, could be restored and regenerated to create a cultural centre. Existing structures could be integrated with new building design and provide programming and activity within what is currently an empty and dis-used plot. Functions that could be considered within newly developed spaces on this site could include workshop spaces for local produce, particularly those run by women's groups, a library or co-working space that has free access, as well as cultural activities, gallery and museum spaces. Local industry has been a driving force behind the development of the city of Naryn. Now in disrepair, these sites could once again provide a significant attract and vibrant space for the city. Examples of this approach are numerous, however, these photos highlight the müze gazhane in Istanbul, Turkey. This was once an old gas works site but was renovated between 2014-2021 under the Istanbul Metropolitan Municipality (IMM) and is now a popular theatre, workshop space and cultural centre, bringing revenue to the city and an attraction for tourism and local residents.

Figure 18. Müze Gazhane in Istanbul, Turkey, an old gas works site renovated into a popular theatre between 2014-2021 (Source: https://muzegazhane.istanbul/https://muzegazhane.istanbul)

Case Study and Project idea

Using existing structures that are no longer in use, for example old factory buildings, and renovating them to new functions can provide a sustainable and culturally significant approach to new development in Naryn. Old factory buildings that are located in Kotormo sub-district, adjacent to Lenin Road and within a large site the majority of which is a large expanse of open space, for example, could be restored and regenerated to create a cultural centre. Existing structures could be integrated with new building design and provide programming and activity within what is currently an empty and dis-used plot. Functions that could be considered within newly developed spaces on this site could include workshop spaces for local produce, particularly those run by women's groups, a library or co-working space that has free access, as well as cultural activities, gallery and museum spaces. Local industry has been a driving force behind the development of the city of Naryn. Now in disrepair, these sites could once again provide a significant attract and vibrant space for the city. Examples of this approach are numerous, however, these photos highlight the müze gazhane in Istanbul, Turkey. This was once an old gas works site but was renovated between 2014-2021 under the Istanbul Metropolitan Municipality (IMM) and is now a popular theatre, workshop space and cultural centre, bringing revenue to the city and an attraction for tourism and local residents

Housing Strategy

One key strategy is for Naryn to use under-utilised land for housing and mixed-use infill development. Using land that is already integrated in the city means that the development can be less costly for the developer or government, due to existing utilities that may already be in place or require less extensive infrastructure to integrate (for example existing water, electricity, or sewage networks). In addition, pedestrian or vehicular flows are usually already established, which can be supported by linking existing routes through pathways through the site, both benefitting the site itself (for example to attract commercial activity through pedestrian traffic and footfall), as well as benefitting the city as a whole, by reducing fragmentation of areas. Unlike a city extension however, new development on existing sites must be in keeping with the city's functions, aesthetics, systems and dynamics.

New housing developments in Naryn could assist in maintaining a sustainable density in the city while considering the limitations required due to the risk of hazards. Supported by mechanisms of legislation that enforce certain development boundaries to guide development to low-risk areas and with appropriate sustainable structural and architectural design principles, new housing developments could assist in the growth and gradual densification of the city in a sustainable and safe way. If gradual relocation is necessary, these additional units, in some cases located adjacent to risk sites, could provide temporary or permanent housing.

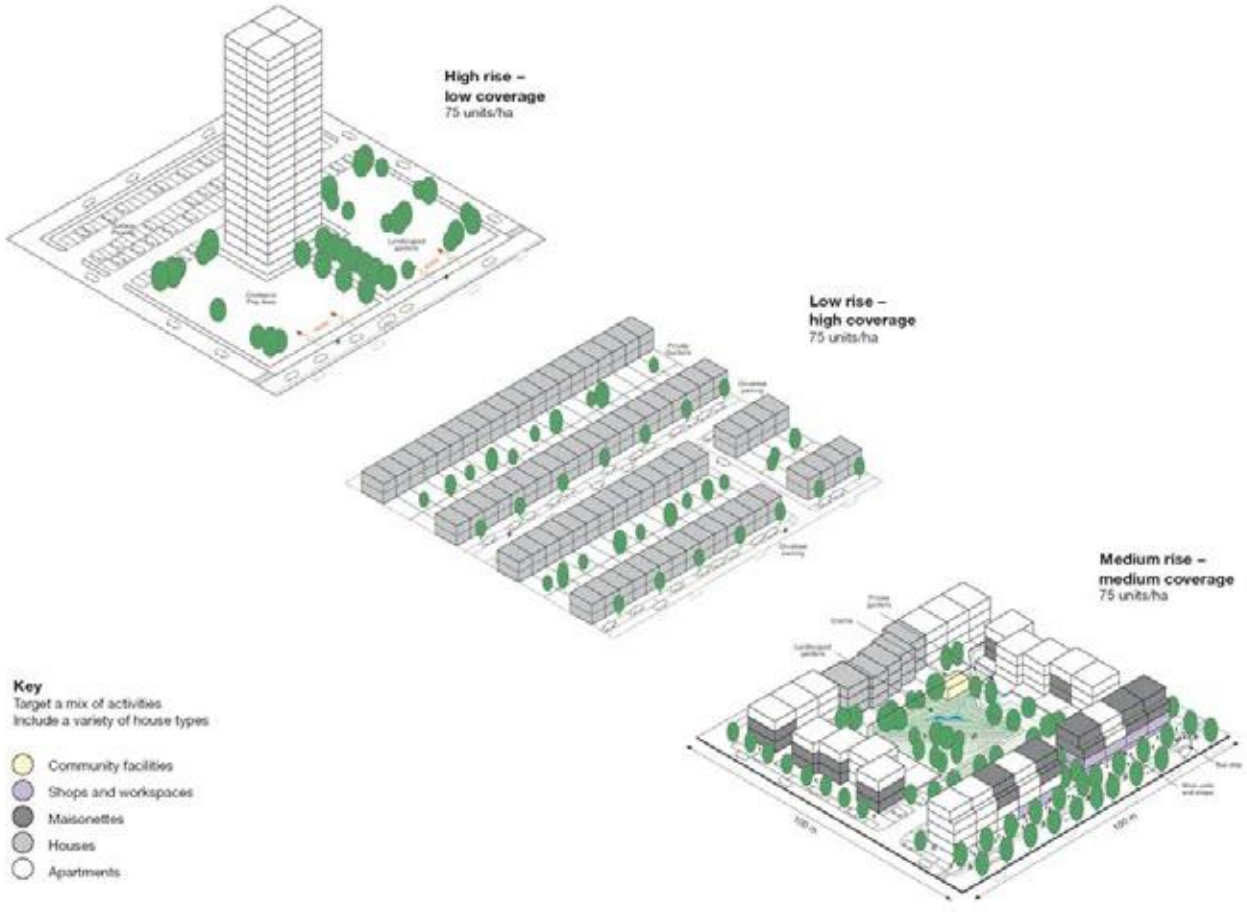


Figure 19. Image of housing density - in Naryn, a medium coverage is recommended, allowing for the same quantity of dwellings but without the negative impact on human-scale, pedestrian friendly environment. (Image source: https://urbiumetorbi.wordpress.com/2015/07/10/building-typologies-and-density-by-richard-rogers)

Under-utilised Land Plots

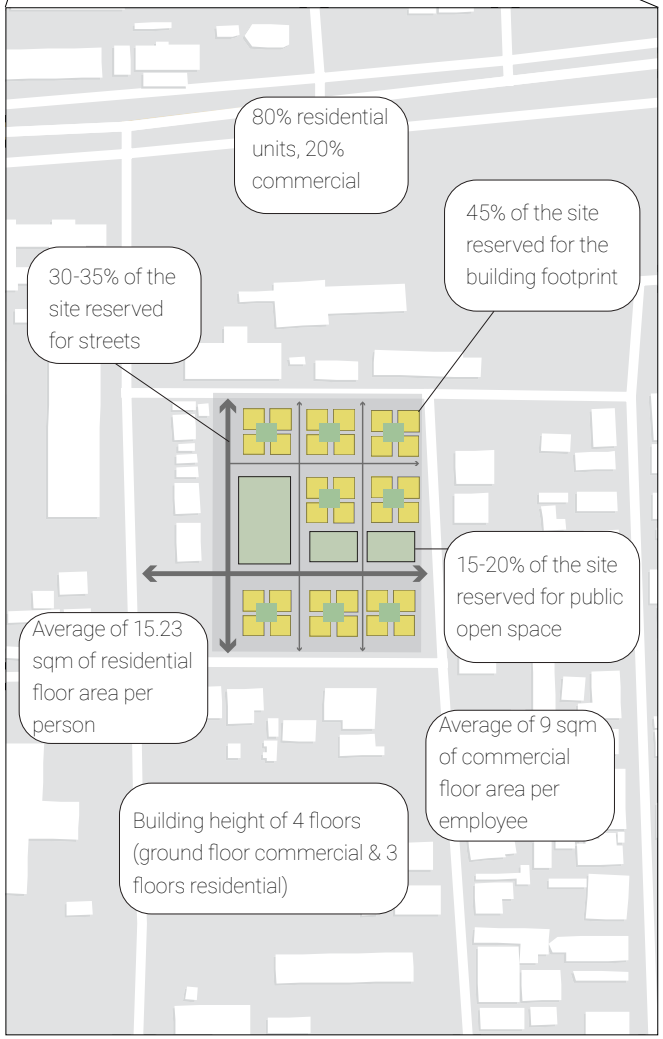
Potential Land for Mixed-Use Infill Development

New housing developments must be in keeping with existing residential typologies. Current limitations on building heights exist in Naryn due to the impact of seismic activity and capacity of local fire department equipment. Therefore, buildings with an average of four to five floors may be most appropriate for residential units. Shared gardens, inner courtyards, front gardens, internal communal areas, commercial and public spaces, including routes through the site can promote a diversity of private, public, semi-public spaces within the site which will support a vibrant and socially cohesive, safe area.

Using all proposed mixed-use infill development sites, and the current average of 15.23 square metre per person, Naryn has a potential to accommodate an additional 42,033 people within the existing fabric of the city, on land that is not at risk of hazards. There are currently a number of houses within hazard zones. Therefore, any gradual relocation intervention or incentivisation of relocation could be supported by new housing development on these sites.

Considering employment potential, using a base estimate of 9m2 commercial floor area per worker, these under-utilised sites could accommodate approximately 24,274 additional positions of employment if all ground floor units are used for commercial purposes.

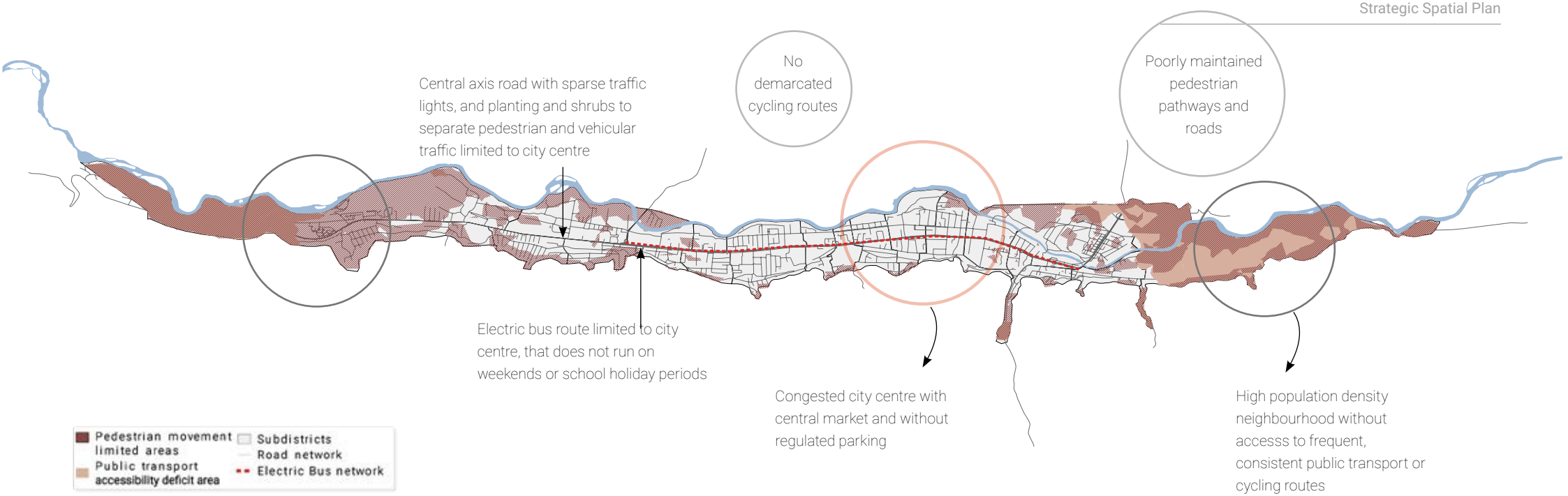
One vacant land site example is located within Gorodok. Using global benchmarks and existing building typologies within the city, this site could accommodate 831 people and 469 jobs.



Recommendation 4: Revitalising and regenerating Naryn with a vibrant urban fabric

Action items listed below are developed as an outcome of the recommendations. These will be further validated with stakeholders, then scored using a multi-criteria assessment (MCA) to evaluate in relation to the most impactful and important, aligning with the city's priorities andeconomic driver. Further details of the interventions, includingtheirlocation,willbedevelopedintheforthcoming Capital Investment Planning phase of the project.

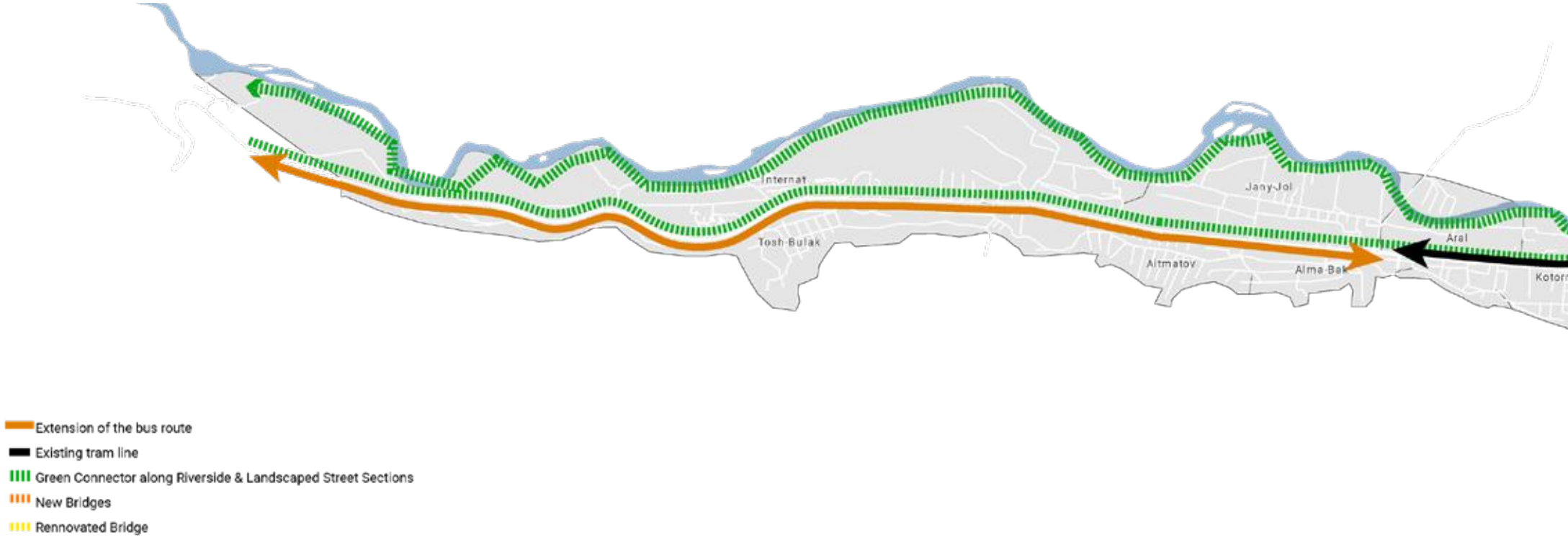
1. Mixed-use infill development
2. Renovation of old industrial uses as a heritage site and cultural centre
3. Extending facilities & developing or expanding new public services to close the current deficit gaps and accommodate population growth
4. Increasing mobility and transport connections through new pedestrian crossings, bridges and planting along the street
5. Developing a Research & Innovation centre connecting to UCA
6. Developing logistics & regional transport related facilities



Map Highlighting Deficits in Vehicular, Public Transport and Non-Motorised Transport Accessibility

Issue 5: Insufficient mobility infrastructure and limited mobility patterns

Naryn has a functioning trolley-bus line and less formal mini-busses and affordable taxis. Roads and pedestrian pathways are of a poor quality and not maintained. Roads with tree and shrub planting to protect pedestrians from traffic flow are limited to the central Lenin Road in the town centre. Traffic lights, road demarcation, and signage are also insufficient, resulting in unsafe pedestrian sidewalks and crossings, chaotic traffic flow and informal parking. The lack of quality and coverage of mobility infrastructure leads to many areas of the city being inaccessible, and burdens placed on the populations in these areas.

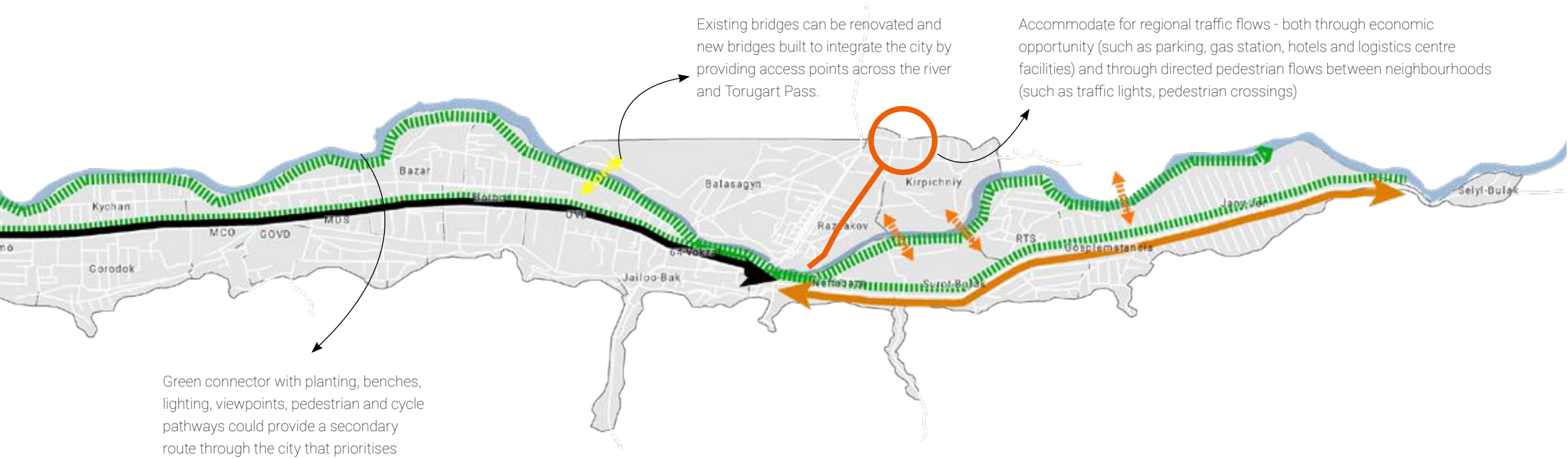


Response 5: Equitable Access to the City

Through expanded public transport networks, improved pedestrian environment and cycling infrastructure

Expansion of public transport networks

Naryn's existing bus system is an opportunity for the city to reconnect its east and west neighbourhoods to the centre. By expanding the services and network, UCA students and residents in Tosh Bulak and Jany Jer will have greater access to a higher diversity of services and activities. This will improve the town's distribution of services across all populations, enhancing the inclusion of its more vulnerable groups (households with a lower economic income and those at a higher risk of hazards) and making the town more equitable. The expansion of the existing electrical infrastructure on which the bus runs could be an effective project to undertake. This would improve the coverage of the system of the trolley-bus system, able to reach areas further along the central, Lenin Road route without a major overhaul of what is already existing and functioning. This intervention could be a cost-effective and sustainable option to upgrade and improve infrastructure, while incorporating it as a historically significant, cultural attraction to the city. There is another option to replace the existing network with battery-powered busses. These electric busses may reduce noise which could be beneficial for the city. However, to ensure feasibility and sustainability of such a system, bus batteries must be long-lasting and able to withstand the harsh climate in Naryn. Battery disposal, and other aspects of managing the system must be considered to avoid negative environmental impacts. Most importantly, the built system for a new electric bus route must equitably cover all areas to improve the accessibility of vulnerable groups and populations living on the edges of the town. The services should be affordable, frequent and able to efficiently connect people to places and opportunities.



Improvement of pedestrian environments and cycling infrastructure

Safe pedestrian walking areas especially in areas where there is a high flow of pedestrian movement, like the town centre, and around activity nodes in the city, are crucial for ensuring people can move safely and affordably. Designing these should also consider pedestrian movement in diverse weather conditions. Pedestrianisation is particularly needed at the central market area. This could be a potential for developing and showcasing new safe street guidelines for Naryn, emphasising pedestrian prioritisation through design interventions such as widened pedestrian pathways, street markings and signage to manage and slow traffic flow, and street planting.

Similarly, improving the connectivity of neighbourhoods east of the city centre will better integrate its people and activities. Where relevant, roads should be surfaced to reduce the amount of mud and dust, and should not be left unpaved. North-South improvements, connections across the river and across Torugart Road are all important to improve how people are able to move and access spaces, and will increase access to services and facilities for populations of Jany Jer, Balasagyn and Kirpichny. Pedestrian crossings, such as raised or painted road crossings with islands or traffic lights, as well as improved and new pedestrian and vehicular bridges would be a targeted investment to generate exponential improvements to accessibility in the city. Improvements to mobility, including way-finding would be a significant contribution to making the Tourism Town future viable. In addition to helping people move across the city, routes linking nodes, historical, cultural and other attractions can form part of the mobility network and the town's tourism strategy.

Prioritisation of urban management

It is crucial to maintain mobility infrastructure, to ensure safety in light of the harsh climatic conditions and shifting climate patterns, and to extend the life of the investments. Managing pedestrian sidewalks, keeping them well-maintained, protected, clean, well-lit and safe, and ensuring regular maintenance of roads must be planned for and included in the city's functional budgets.

Adoption of nature-based solutions

Where possible, nature-based solutions for the design and management of mobility infrastructure should be encouraged. This would reduce the negative impact such infrastructure could have on the environment, and reduce any impact extreme weather and climate change can have on the infrastructure itself. For example, planting of shrubs, trees and bioswales could be a good protective barrier along roads for pedestrians, while also providing a permeable surface to absorb excess water in the case of flooding.

Improvement of cycling infrastructure

Finally, minimal intervention is needed to encourage cycling in Naryn. Road markings, signage and, if funding is possible, re-design of road sections to include separated cycle lanes would greatly improve access and mobility in Naryn. This ties in closely with other recommendations around road maintenance, bus extension and traffic and parking management in the city centre, as obstructions to the cycling route (potholes, parked cars, informal 'pull-in' bus stopping points) would cause unsafe spaces for cyclists. Given the layout of the city, one bicycle path would provide a low-cost and healthy mobility option for people within a 15-minute walk from the central road. Extending additional cycling paths along the southern edge of the river could add more benefits and improvements to the connectivity of the town. This could support the Tourism Town by creating an attractive scenic, nature walk and green public space along the river's edge.

Case Study and Project idea

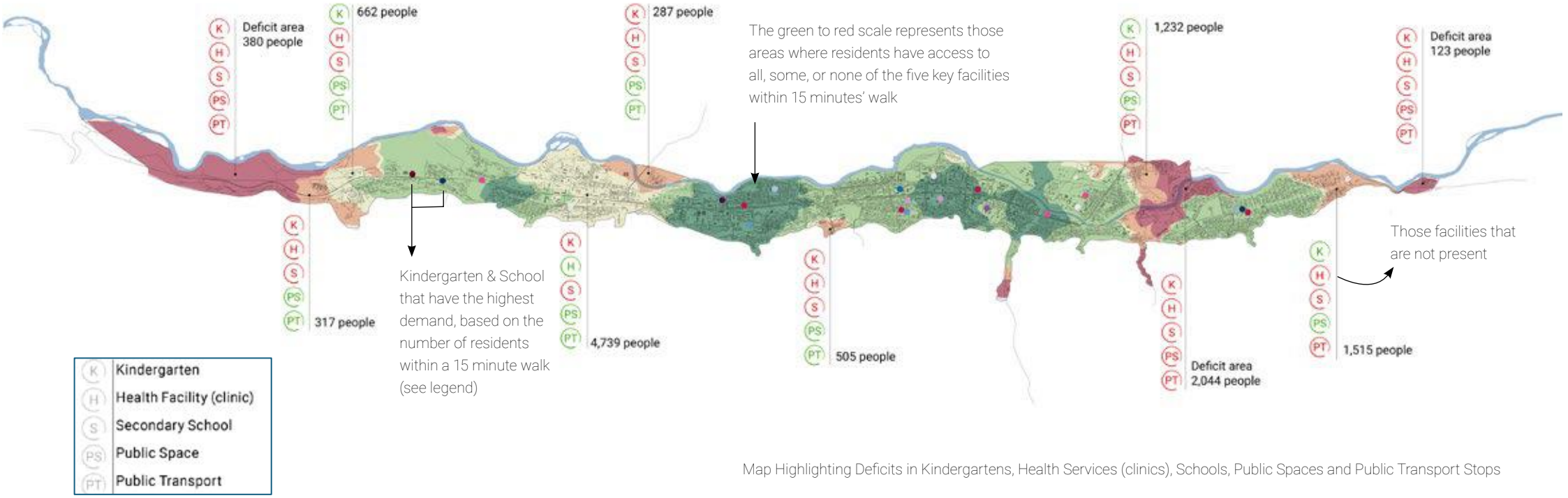
Trams represent a period in history where innovation and new technology was used to benefit public transport. Today, they similarly represent a forward looking, sustainable method of transport. Naryn could use examples from other cities to explore how best to manage this functional and tourist attracting public service., and how best to leveraged their existing system to improve access in more equitable way, while including historical information, associated tourist activities and way-finding.

Figure 20. Trams in Prague, Hungary

Recommendation 5: Equitable Access to the City

Action items listed below are developed as an outcome of the recommendations. These will be further validated with stakeholders, then scored using a multi-criteria assessment (MCA) to evaluate in relation to the most impactful and important, aligning with the city's priorities and economic drivers. Further details of the interventions, including their location, will be developed in the forthcoming Capital Investment Planning phase of the project.

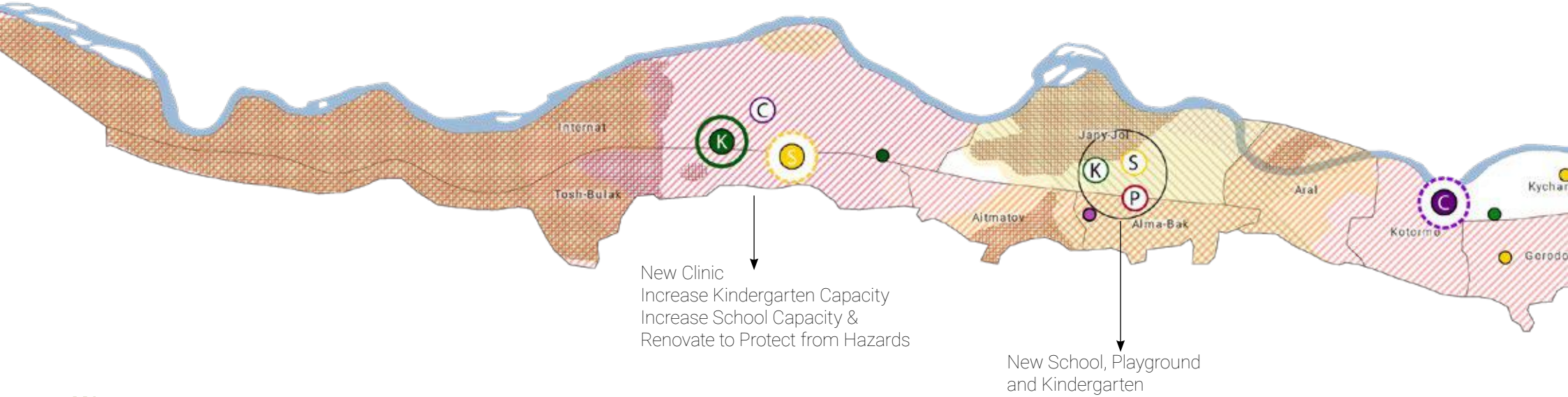
1. Implementing pedestrian crossings, lights, raised pedestrian crossings, painted road signs and management
2. Extending planting alongside roads, including bioswales, bushes, trees
3. Extending the bus access to the East and West (through electric tram extension or new buses to reach this catchment area)
4. Implement a cycle lane along Lenin Rd (and consider piloting along riverside, or other key streets e.g. Orozbek Street)
5. Additional paving of pedestrian paths, particularly those on key routes that are at risk of flooding, or without adequate drainage



Map Highlighting Deficits in Kindergartens, Health Services (clinics), Schools, Public Spaces and Public Transport Stops

Issue 6: Imbalanced service distribution

Currently, Naryn's social facilities and public services are not reaching all of its population. This is as a result of their locations, quantities and capacities, and the road network that connects people to them. One key area located in Razzakov and Neftebaza has poor access to public transport, public space, clinics, schools, and kindergartens. This area, considered as a potential site for a new residential neighbourhood, must address this shortage. Another area, in Jany Jol and Alma Bak, has low access to schools and kindergartens, and in Jany Jer, there is poor access to clinics, schools and public transport stops. There is already a high population living in these areas with expected growth from the town's growth, making its deficiency key to ensuring balanced and equitable service provision.



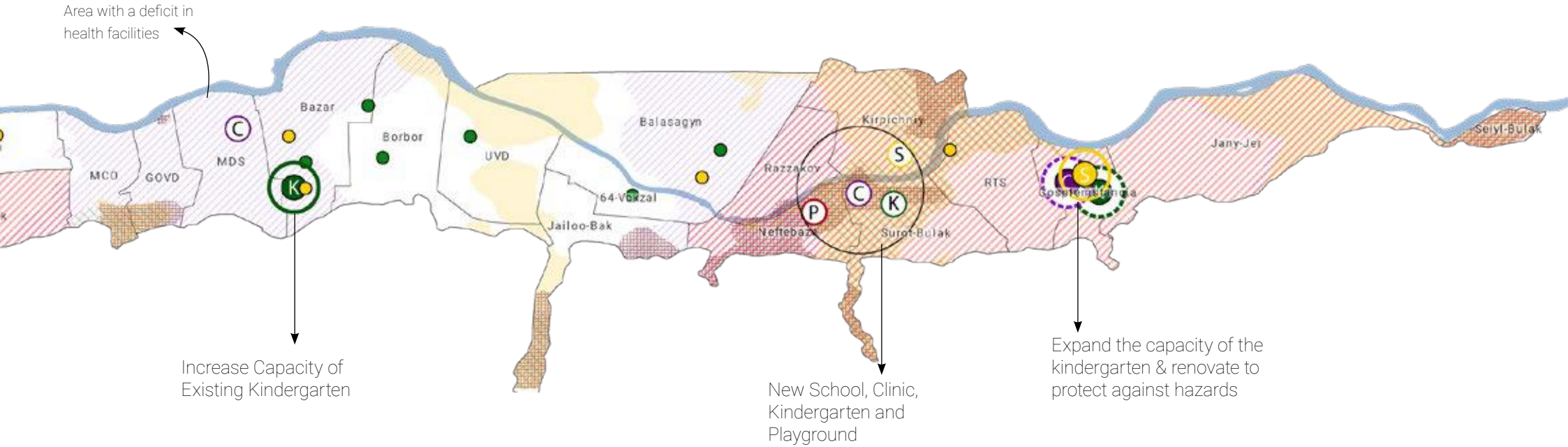
Response 6: Closing the Deficit Gaps in Service Provision

Through renovation and extension of existing facility or infrastructure, or construction of new facilities

Closing the gaps in services provided by secondary schools, kindergartens, clinics, green spaces, playgrounds, waste collection points and sewage networks can ensure equal access to basic and public services for populations located across the town. Aligning this strategy with other responses will ensure that services are used as efficiently as possible (to full capacity) for the existing population, whilst providing capacity for future population as the city grows in a planned and densified way. As described previously, integrating responses could enable multiple benefits, for example, renovations to existing facilities improves the number of people that are able to access essential services, and could also act as a safe assembly place in the case of emergency or hazardous events.

The Razzakov and Neftebaza area, and the Jany Jol and Alma Bak area, are highlighted as priority areas of intervention. The areas could benefit from the development of new facilities as well as improved connection to existing facilities (through new pedestrian bridges across the river). Also considered important would be the expansion of key facilities in the city's centre to support its high and growing population, renovation and expansion of facilities in the East and West to improve the access to services and mitigate conditions of facilities to withstand impact of hazards.

Finally, overalpping with a previous recommendation, maintaining and completing irrigation channel networks with measures to reduce blockages, such as permeable covers, will be necessary to ensure that drinking water is not used for irrigation, and is more consistently available to all residents.



Recommendation 6: Closing the Deficit Gaps in Service Provision

Action items listed below are developed as an outcome of the recommendations. These will be further validated with stakeholders, then scored using a multi-criteria assessment (MCA) to evaluate in relation to the most impactful and important, aligning with the city's priorities and economic drivers. Further details of the interventions, including their location, will be developed in the forthcoming Capital Investment Planning phase of the project.

1. Capacity increase and relocation of secondary school No.9
2. Reinforcement of secondary School No. 10 due to poor building quality
3. School No. 7 expansion and the development of new secondary schools
4. Capacity increase of Kindergarten No. 1, 14 and 4 and the development of new kindergartens with playgrounds
5. Increasing the capacity of Clinic No. 2, 4 and 5
6. Opening up of the Botanical Garden with facilities such as benches, wayfinding and toilets, new public spaces and the re-use of existing special use green spaces
7. Extension of the sewage network – including pipeline, pumps
8. Covering water irrigation channels

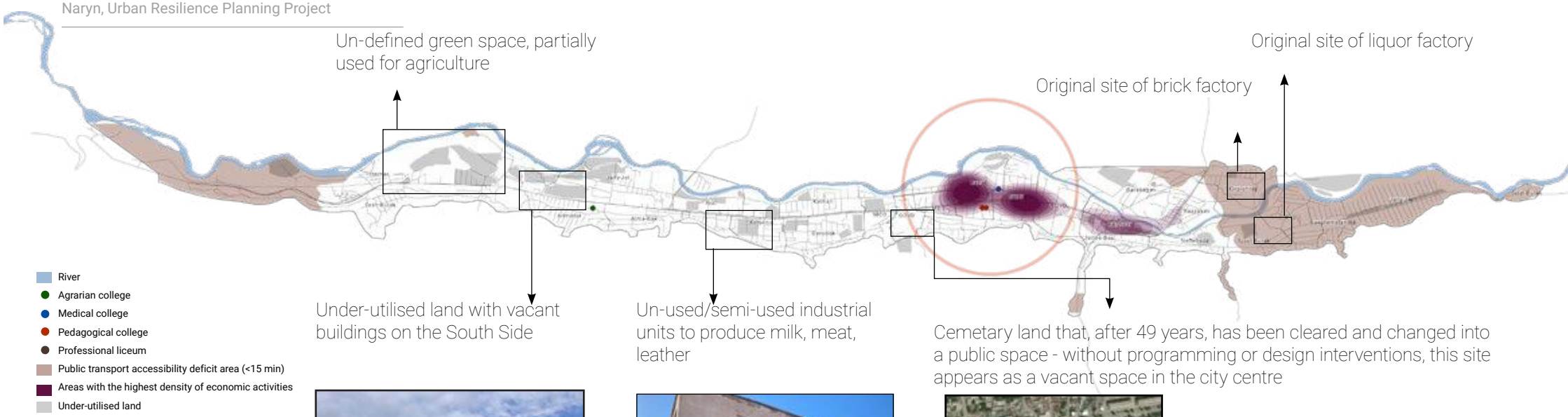


Figure 21. Photos © UN-Habitat; Google Earth

Map Highlighting Lack of Economic Activities in Naryn

Issue 7: Limited Livelihood Opportunities

Naryn's economic activities are located primarily in the city centre, with some, scattered industrial functions. Old industrial sites, for example the brick factory, milk, meat and leather factories are often disused or partially used, resulting in empty or derelict buildings within expansive compounds. These neglected areas fragment the town, disrupting its cohesion and making it less conducive for vibrancy and connectivity. Instead, these sites can be regenerated and contribute to the town's economy as it once did. For example, the Kirpichniy nieghbourhood was named after a brick factory that was once located in the neighbourhood (brick translated as kirpiç in Kyrgyz) that produced bricks and catalysing development in Naryn, increasing employment opportunities, and strengthening the city as a regional economic centre.

Central areas of economic activities and land use diversity do not overlap with residential neighbourhoods that have the lowest income levels. This means that it is most challenging for vulnerable households to access these opportunities, which significantly reduces their resilience.

While Naryn boasts numerous economic prospects, the lack of an integrated strategy to harness them stunts the city's growth, leading to frequent seasonal out-migration. Fostering employment growth and attracting a variety of industries are crucial steps toward revitalizing Naryn's economy.

Response 7: Leveraging Economic Drivers

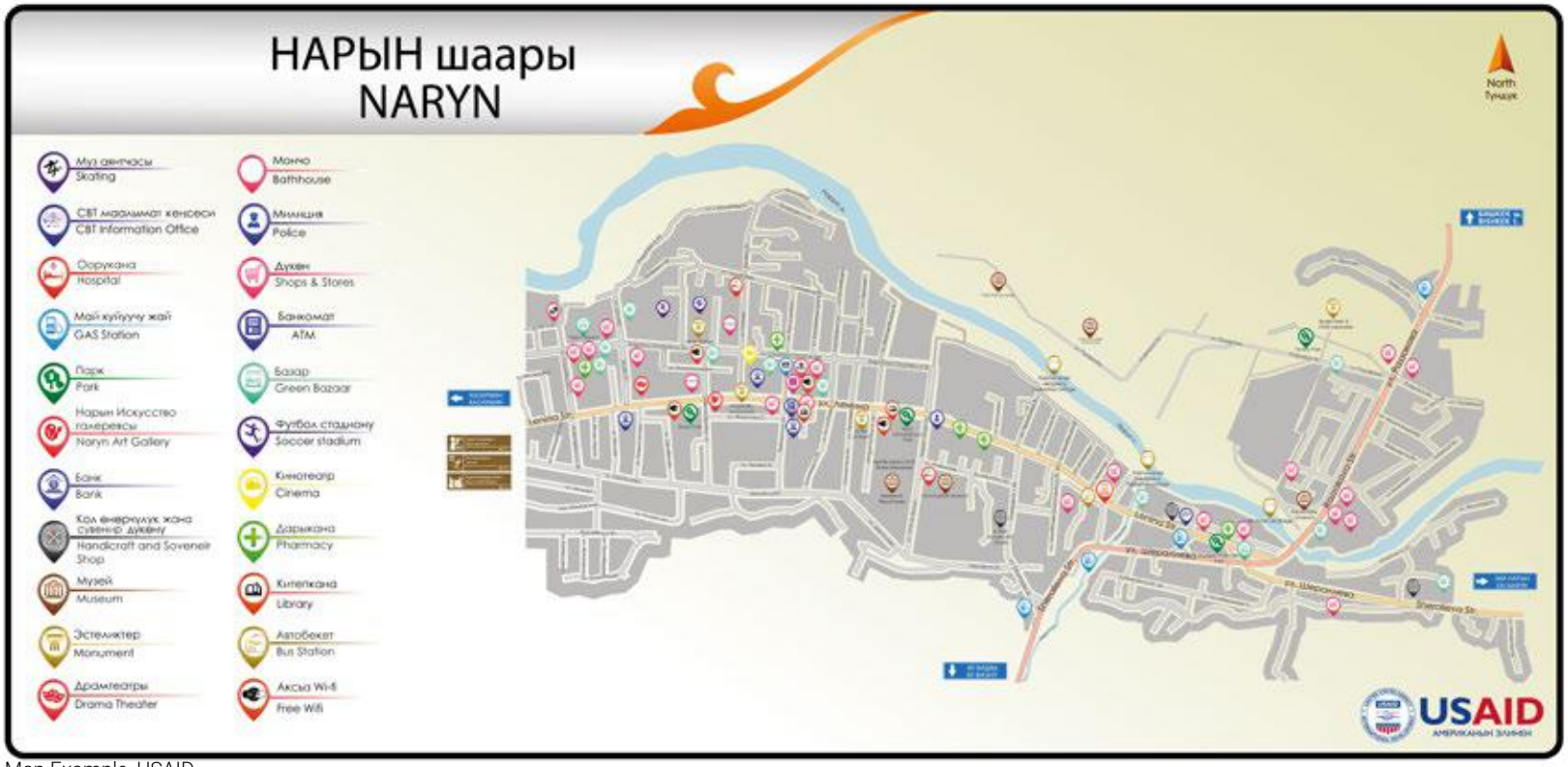


Figure 22. Tourism Map Example, USAID

Through the integrated spatial identification of economic drivers for Naryn

Recommendation 7 is an accumulation of recommendations as it provides details of the functions and interventions that together can stimulate economic development and improve livelihood opportunities. It encourages growth in certain areas to accommodate for increased population over time, whilst resolving current deficits. This recommendation aims to support the economic drivers that were set out by and for the city.

Regeneration of economic assets and activities

There are a number of abandoned former industrial sites across Naryn. These sites present opportunities to regenerate economic activities, create a more vibrant cityscape, and integrate the past into Naryn's future development.

Regenerating these old industrial sites for productive economic activities can boost Naryn's local economy by increasing production and creating jobs. Revitalising vacant plots will diversify land use, contributing to a denser, more vibrant, well-connected, and resilient city. By focusing growth on underutilised land, Naryn can leverage existing infrastructure—such as bus routes, utilities, schools, and health centres—for targeted, mixed-use development. This approach will also support the development of the town's four secondary nodes and reduce monofunctionality.

Currently, ta parking logistics unit exists in the north of the city, but given Naryn's strategic location, this can be expanded with additional parking, storage, sorting, and collection facilities. Complementary services for regional cargo traffic, such as restaurants and hotels along Torugart Road, would capture economic benefits and support the Logistics Town driver. Spatially, this could also aid in integrating Jany Jer and Balasagyn into the city by better managing regional and local traffic flows and pedestrian movement.

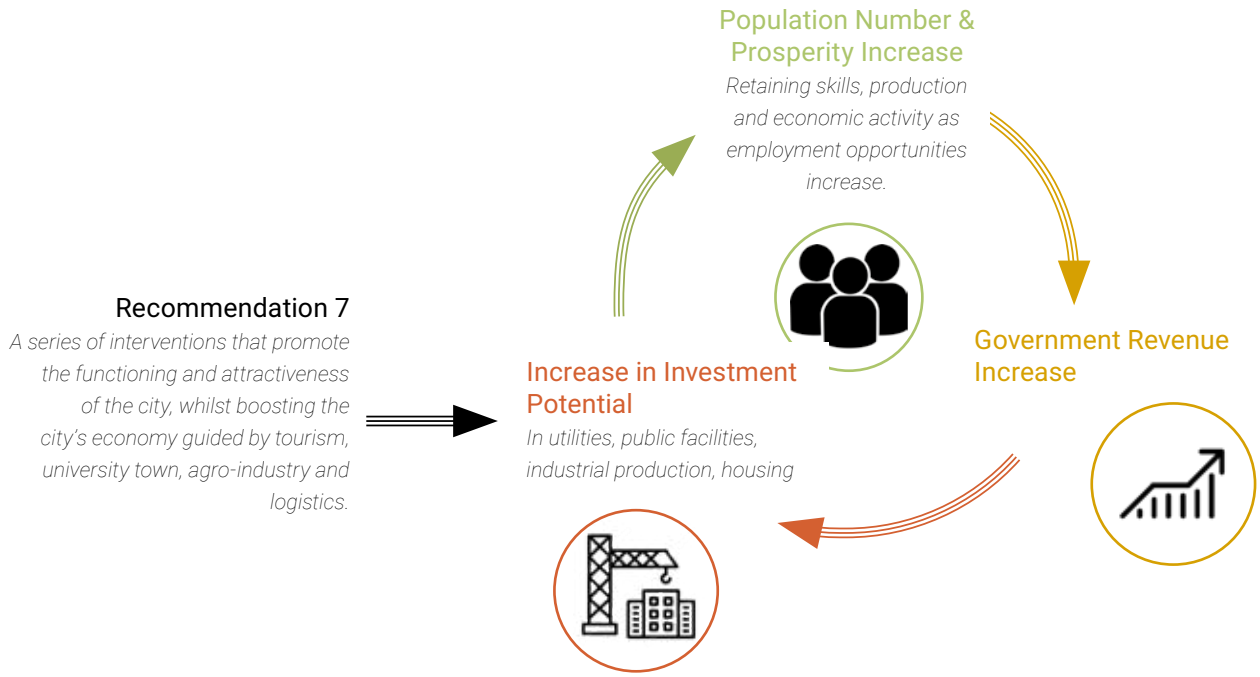
Optimising underutilised land parcels and extending mixed-use development along the central corridor will support planned, sustainable growth as the city densifies westward. One example is the regeneration of the currently underused industrial site (discussed in the

"Series of Secondary Nodes" recommendation) into a cultural hub, diversifying activities in this node.

To better leverage agricultural lands and integrate the UCA campus into the city, locating industrial units, such as processing and storage facilities, in the western area will enhance Naryn's position as a regional agricultural hub. These facilities could process local agricultural products like milk, meat, and bread, while their proximity to the city's transport axis streamlines distribution. Agro-tourism could further benefit through green space preservation, walking paths, and an agglomeration of tourism facilities like industrial parks, learning centres, craft workshops, cafés, and restaurants that showcase local agriculture.

Linking the university with agricultural production can drive an exchange between research and industry critical to the Education Town driver. A Centre of Research and Innovation near agricultural lands and the UCA campus could serve as a regional learning institute, building a skilled labour force and connecting students with employment opportunities in research and agriculture.

Finally, mapping and enhancing tourist sites will aid Naryn's tourism strategy. Promoting pedestrian routes with way-finding features and facilities—such as toilets, cycle parking, commercial units, and benches—will strengthen tourism. Connecting agro-tourism facilities, the Botanical Gardens, parks, museums, the Bazaar, Victory Park, and local eateries with pedestrian- and cycle-friendly routes will improve the city's "readability" for visitors. These improvements will attract private businesses along these routes and enhance infrastructure for residents.



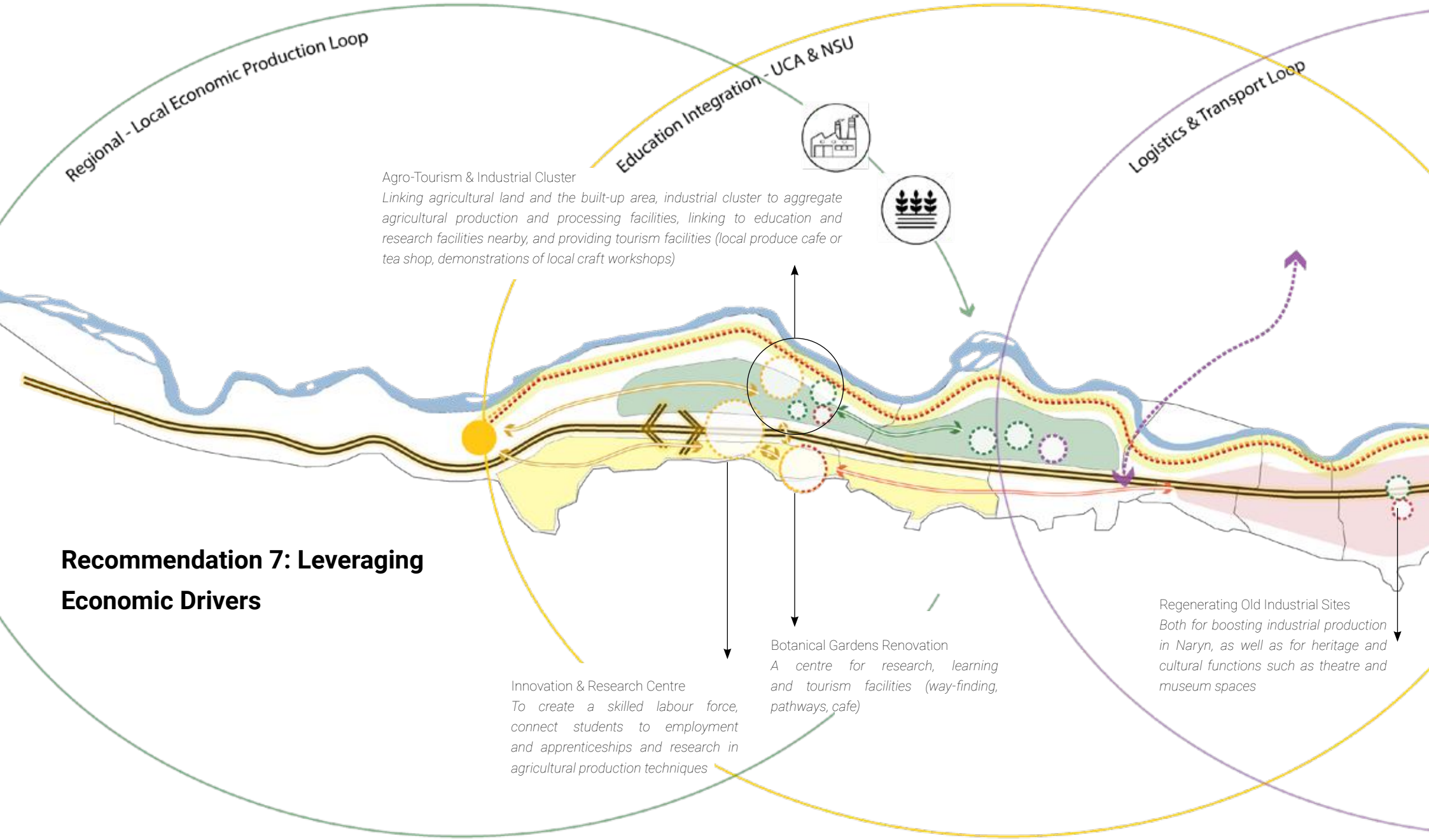
Overall Economic Impacts

As these spatial and economic recommendations are implemented and Naryn becomes a more attractive, economically vibrant city, prosperity and population are expected to grow. This growth will enable the government to collect increased revenue, which can be reinvested into public services and resilient infrastructure—further enhancing Naryn's appeal and prosperity and reinforcing the cycle of government investment and public benefit. With improved living standards, investment, and employment opportunities, Naryn can expect reduced out-migration and better retention of skills, knowledge, and labour.

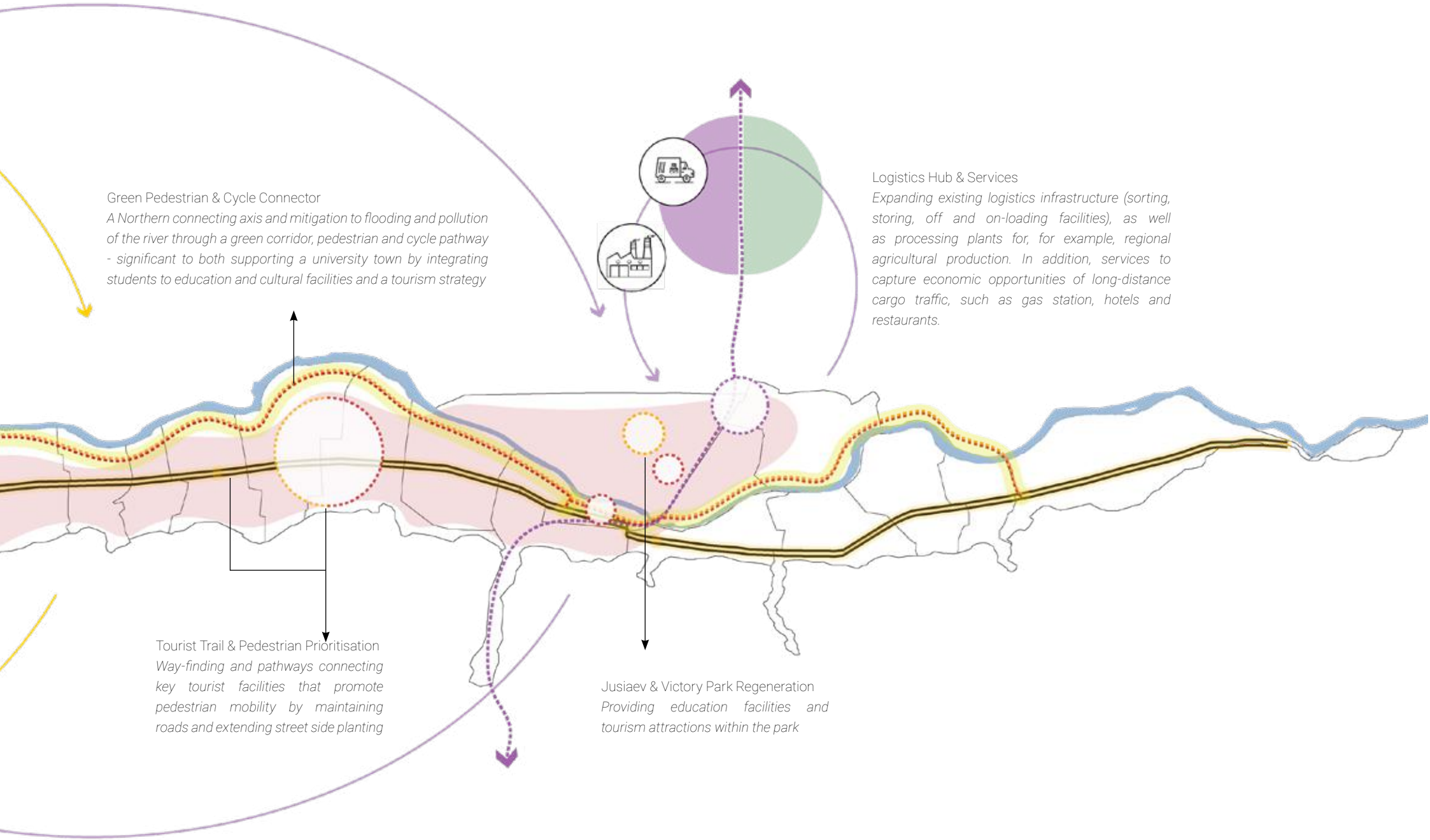
Recommendation 7: Leveraging Economic Drivers

Action items listed below are developed as an outcome of the recommendations. These will be further validated with stakeholders, then scored using a multi-criteria assessment (MCA) to evaluate in relation to the most impactful and important, aligning with the city's priorities and economic drivers. Further details of the interventions, including their location, will be developed in the forthcoming Capital Investment Planning phase of the project.

1. Expansion of the logistics centre, additional parking, storage, sorting and collecting facilities, hotels, restaurants
2. Infill mixed-use development, including both renovation of industrial units for industrial purposes, as well as renovation of industrial sites for heritage and cultural facilties
3. Processing units, production units, storage facilities
4. Development of an innovation & research centre
5. Agricultural land categorisation, agro-tourism facilities (including local crafts workshops, walking trails, cafes and restaurants)



Recommendation 7: Leveraging Economic Drivers



Green Pedestrian & Cycle Connector

A Northern connecting axis and mitigation to flooding and pollution of the river through a green corridor, pedestrian and cycle pathway - significant to both supporting a university town by integrating students to education and cultural facilities and a tourism strategy

Logistics Hub & Services

Expanding existing logistics infrastructure (sorting, storing, off and on-loading facilities), as well as processing plants for, for example, regional agricultural production. In addition, services to capture economic opportunities of long-distance cargo traffic, such as gas station, hotels and restaurants.

Tourist Trail & Pedestrian Prioritisation

Way-finding and pathways connecting key tourist facilities that promote pedestrian mobility by maintaining roads and extending street side planting

Jusiaev & Victory Park Regeneration

Providing education facilities and tourism attractions within the park

5. Implementing the Recommendations

Both financial and legal implications must be considered when operationalising these recommendations. The sections below consider the non-spatial barriers to implementation and potential reforms that are necessary to enable the City of Naryn to achieve its goals.

Finance Recommendations

To enact resilient planning recommendations and to finance economic development projects, the local government must be equipped with adequate financial resources. There are a number of areas the local government can work on improving their financial situation. Additionally, due to the centralised nature of the government, a number of reforms must be made at the national level. Recommendations requiring national attention are also provided below.

Local Finance Recommendations

Budgeting for Emergency Planning: Per conversations with municipal employees, a lack of saving for emergencies causes money to be diverted from other planned uses to cover the cost of hazard damage or other unexpected costs. In addition to minimising damage from hazards through resiliency planning, Naryn should analyse the historical municipal costs spent on this damage and allocate an appropriate amount of funds to a savings pool that can be allocated as needed for emergency responses in the city. This will prevent unplanned diversion of funds from other important areas, such as salaries or public services. This emergency savings fund should be supported by comprehensive guidance describing what types of hazards or emergencies and what specific type expenses the funds can cover.

Public Information on Taxation: When speaking with municipal employees, it became clear that the public is not aware of the costs and extent of work that go into public works projects, such as road renovation. This results in public impatience with government services and capital works projects and expectations of more than the government can provide with available funding. Similarly, municipal employees believe that if utility tariffs are increased, there is a feeling that the public will expect more services because they do not understand the current cost of existing services and the government deficit.

Naryn should ensure constituents are well-educated on the uses of their tax payments, user fee payments, and other government spending. Especially given the history of minimal individual taxation and user fee payments during the Soviet era, constituents need to better understand why they must now pay for services and utilities when they paid little, if at all in the past. The government should reconsider methods of public engagement and public information dissemination. Simple measures, such as installing signage on parks, can remind constituents that government funding from taxation pays for public services. More extensive public information campaigns through media can provide more details about the use of public funds. Municipal employees suggested that campaigns via Facebook, Instagram, and within bazaar advertisements could be helpful to increase public understanding of taxation and expenditure. Additionally, including a breakdown of the use of collected funds on customers' bills can also be an effective method to transmit information to the public.

User Fees: Naryn is not receiving sufficient revenue from utility payments to pay for the costs of service

Sign located on new park in Surot Bulak district. Photo: UN-Habitat

provision. Per municipal employees, waste collection rates have gradually been raised from 12 Som to 24 Som per person, but to achieve cost recovery, rates need to be raised to 51 Som, which is not possible in the immediate future due to public opposition. Water fees are currently charged on a per occupant basis. Through the EBRD project, 5,000 water meters are being installed, which is enough for approximately 51 percent of the 9,800 subscribers. Municipal employees agree that focusing on both compliance, and increasing tariff rates is important to increase utility revenue. Per conversations at the Naryn municipal Banya, access fees have not been increased for 5-10 years. This means that while costs are increasing, revenues are not. Additionally, the inability to increase tariff rates for water has led to Naryn requesting debt service payments to come from the national government, despite agreeing to pay at the outset of the project. This inability to pay debt service as a result of not increasing rates may detrimentally impact Naryn in the future. The national government may be hesitant to provide guarantees in the future for Naryn given this experience.

Recommendations to improve this situation include:

• Where possible, **user fees should be designed for cost recovery.** For publicly beneficial goods, such as water, this may not be desirable since pricing at cost recovery may prevent low-income users from using the good or service. In these cases, it may be best to price services at partial cost recovery where all operating and maintenance costs are recovered but 'sunk' costs, such as initial infrastructure is not. Under-pricing public services can result in over-consumption of a service by users, insufficient funds for maintenance of public investments, and misguided investments due to lack of accurate information about demand for services. Most importantly, it is necessary to price user fees so that the service is financially sustainable. Over-subsidising a service can lead to deterioration of quality or can put a drain on local budgets.

• **As the cost to provide a service increases, user charges should also increase.** Ideally, especially if a public service is non-essential, the cost of maintenance and renovation of public infrastructure should also be included in the costing scheme of user fees. Naryn should try to include these costs when sizing the entry fee for the banya and assess new fees when costs for operation and maintenance increase.

• **For utilities, it is important to update tariffs based on usage** rather than per household occupant. To do this, the municipality should invest in enough water meters for each house. The purchase of 5,000 meters through the EBRD project is a good start, but charging some based on usage and others based on occupancy promotes a feeling of unfairness amongst the public and may lead to delinquency. Once meters are installed, Increasing Block Rates (IBRs) can be utilized. This involves a lower tariff initially for basic consumption needs and an increased tariff once usage exceeds the predetermined level. This tariff methodology will be more socially equitable and redistributive than a flat per occupant rate. Additionally, Naryn should be strategic with its use of the 5,000 meters. If data exists on the largest water users or districts, those should be the first to receive existing water meters. A strategy to increase rates should be implemented. Conversations with Pamir Energy[13] suggest that a sensitivity campaign focused on collection transparency, building trust, educating users about the costs of alternative methods of utility usage, and the ability to turn off services for non-payment have worked in comparable contexts.

• **Enabling digital payments** could ease barriers and increase compliance. Currently, electricity is paid via phone application.

• In addition to increasing revenues, the Naryn government should work on **decreasing operating costs for municipal services** to decrease the gap between collected revenue and cost of providing the service. Can services be made more efficient and less costly? This goal of decreasing costs can also be messaged to constituents as a means to incentivise payment. If constituents do in fact want more services to justify paying, the government could decrease costs by a certain percentage, add or expand services, and use this to incentivise increased payments. There could still be a net positive increase in revenue, if done correctly.

13 Pamir Energy was founded by the Aga Khan Fund for Economic Development in 2002 as a Public-Private Partnership. It provides hydropower to 96% of households in East Tajikistan and has now expanded to Afghanistan and Pakistan. Their equity-focused energy policies ensure that even low-income residents can afford electricity.

Promising this cost reduction publicly will help ensure the government is accountable to it.

• **Using municipal land to its greatest potential** can be an incentive to spur economic development and be leveraged for public benefits. Municipal land is a valuable and limited asset that the city has at its disposal, and this should be appropriately used.

• Per conversations with municipal employees, **municipal land rental rates** are changed only every few years, most recently in 2021, and once a contract is signed, the rates are set to not escalate over time. This means that the latest property values are not being used, leading the city to miss out on potential income. Municipal land rental rates should be based on the market value for the 'highest and best use' of the land, meaning whatever the most profitable use of the land is. If the land will be rented for a publicly-beneficial purpose, such as a school, or if the lessee will redevelop a portion of the land for a public use, such as a park, this should be valued and factored into the rent. Where appropriate, contracts should include rental escalations meant to approximate increases in land value over time. Additionally, Naryn should review contract terms for municipal land agreements and ensure other provisions are in the city's favour. For example, if a renter changes the use of the property, does the city have the right to reclaim the land? Uses that are less publicly-beneficial, can have shorter terms than publicly-beneficial projects so that the city can re-evaluate whether the use is still appropriate for the site.

• Per the municipal land department, there is no **digital land cadastre** mapping the locations of city-owned land. This has led to private landowners encroaching on publicly-owned land without payment to the city. The land department does not have capacity to follow-up on each of these violations and thus, loses potential rental income. According to department employees, approximately 7 million additional Som could be collected from these encroachments annually. The digitalization would cost an estimated 7-8 million Som if performed by the national government. The accuracy of these numbers should be confirmed, but if true, the cost of digitalising the cadastre could be recouped in the first few years. Once digitalised, the public should be able to look up their properties and assess whether they are encroaching on city-owned land. Municipal departments should also increase collaboration for projects such as these. The municipal land department is unaware of whether the tax department has a digital cadastre. Merging their two systems and collaborating to share lessons learned from digitalising and property information is extremely important. Projects such as these can have positive impacts across municipal departments if collaborations are strengthened. It's possible that a digital cadastre such as this could track property sales and help Naryn move towards a market-value based property tax system.

• **Municipal land and buildings can be used to promote PPPs** where the land is rented to a private owner who develops both a publicly-beneficial project, such as a school or municipal office building, and a private project. This scheme can also work on currently existing municipal-owned buildings, such as the municipal land department. The private owner can redevelop these buildings so that the ground floor is a private business, such as a store or restaurant, and the upper floors are for government office space. Projects like this would not only provide discounted new office space for municipal workers, but will also serve to densify the city and increase commercial and pedestrian activity. The Kyrgyz PPP Centre can assist municipalities with finding investors for projects such as these. The local government can also seek out investors on their own. Often, according to the PPP Centre, these investors are local entrepreneurs and community members.

National Budget Recommendations

Immovable Property taxation

The property tax system is severely underleveraging the value of property across Kyrgyzstan and constraining the funding of local governments. According to Naryn officials, approximately 170 residential properties pay property tax out of 14,000 properties registered in the cadastre (1% of registered properties),[14] due to legal exemptions. A total of 407 non-residential properties out of an estimated 625 properties, per UNH analysis (65% of properties). These legal limitations are stipulated in the national Tax Code of the Kyrgyz Republic, which can

14 Out of an estimated total 15,942 properties, per UN-Habitat's analysis

be revised by:

• **Expanding the tax base** to include smaller properties (currently residential property tax only applies to apartments that are larger than 170 square meters or houses that are greater than 240 meters squared). The taxable size of the property is reduced by the non-taxable amount and property tax obligations can be reduced by the amount of land tax owed. Exemptions, which are under local purview, should be kept to a minimum. Not only will this increase revenue, but it will involve the public in the 'fiscal contract cycle' of taxation - as more of the public is included in the tax net, more people can demand new and improved services in exchange for their tax payments.

• **Aligning taxation with market values** to allow the government to recapture public investment in services and infrastructure. Much of the value of land and property is the result of government investment, not private investment. As the government invests in infrastructure improvements and improves the quality of services, economic development improves and the value of land in a city increases (See the graphic above for a visual depiction of this cycle). A well-designed property tax system should recapture this increase in value so that the government can reinvest in public services and infrastructure. The current property tax formula in the Kyrgyz Republic is not based on market value of property and thus does not allow for increases as property values increase.

Additionally, by aligning assessment values with the market values of properties, the government can capture increased revenue as economic development in Naryn increases and increases property values.

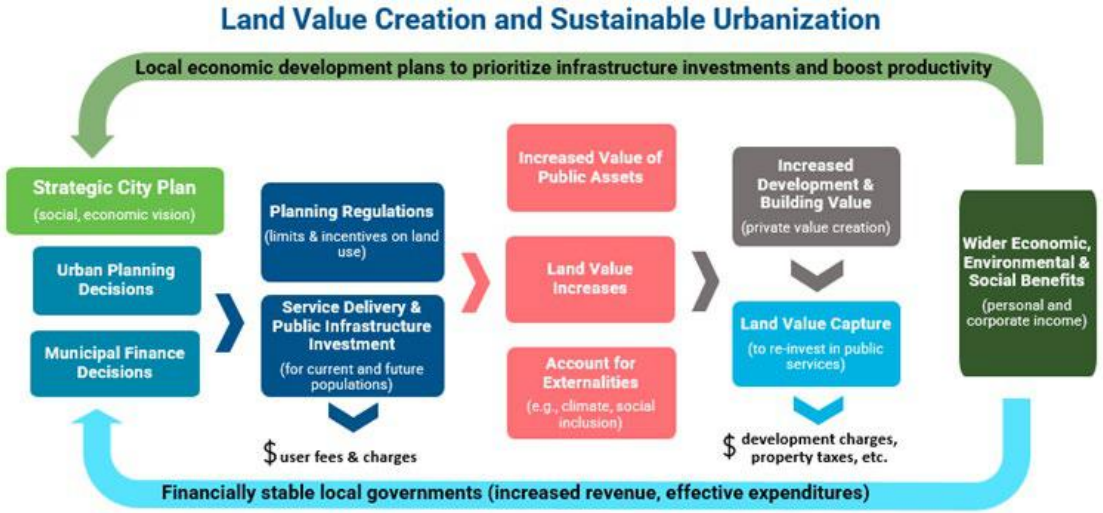


Figure 24. The cycle of land value creation (UN-Habitat)

• **Increasing equitability and redistribution** as a core tenant of property taxation so that it is both horizontally and vertically equitable. This means that properties that are more valuable are taxed more than properties of lower value, and properties that are of the same value are taxed the same. This promotes trust in the property tax system, which in turn promotes voluntary compliance. Because the current system lacks a meaningful connection to property value, this equity is lost. For example, property in a hard-to-reach area with poor access to amenities that is above 170 square meters will be charged property tax and a smaller property in a well-serviced area will not be, but the latter property may actually be more valuable.

• **Providing greater autonomy to local governments** in controlling the rate of property taxation as a means of providing a reliable resource for general expenditures. Because the administration is under the control of the local government, Naryn can control the collection and work on increasing profits, if equipped with enough administrative oversight and legal authority to do so. This will allow the city greater flexibility with funding its priorities. Local authority also promotes a fiscal contract between the local government and the public. By equipping the local government with the authority to set property tax rates and tax base, they are empowered

to respond to public demands for increased services.

Land taxation

In addition to the benefits mentioned above for property taxation, land taxation can incentivise productive use of the land. Implementing a significant land tax (or a vacant land tax) means that landowners can't simply hold onto vacant land without paying. This will incentivise either development of the land or its sale to a new owner that will develop it. The city of Naryn contains many vacant land plots. Increasing the land tax beyond the 'symbolic' current amount could help incentivise the productive use of this land, thus spurring economic development and increasing the taxable property base.

Strategies to assist with the implementation of new taxes

Phase-in payments

Phasing in new higher tax payments over time helps to avoid abrupt hikes for homeowners.

Deferred payments

To avoid negatively impacting homeowners with low incomes and low liquidity, increased payments can be deferred until the time a house is sold. Both Ireland and Denmark designed their property tax reforms to allow delayed payment, which helped encourage political support.[15] Denmark also designed reforms to decrease rates while aligning property values with their market value.

Connect payments to public benefits

As mentioned above, it is important the public understands the purpose of their tax payments and what these payments are being used for. This can be done through public information campaigns and physical signage on public infrastructure, among other methods.

Other types of Land Value Capture

The ability to implement new fees, such as the below, may help Naryn finance and incentivise new development.

Impact fees

These require the developer or owner of a new house to pay a fee that helps cover the cost of new infrastructure in an area.[16] This can unlock new buildable land and can be beneficial in the new neighbourhoods Naryn is developing, and can help prevent more expensive interventions paid for entirely by the government, such as the addition of sewage systems after houses are already constructed.

Land pooling

Land pooling involves private landowners contributing a portion of land to the government for infrastructure development. Typically, this contribution is for resale to finance the costs of the new infrastructure. In return, the private land increases in value as a result of the government improvements. This could be especially useful to spur development on abandoned land plots around Naryn. If the government can get private landowners to agree to give a portion of their land

15 Blöchliger, H., & Fatou Diagne, M. (2023, February 16). ECOSCOPE AN ECONOMIC LENS ON POLICIES FOR GROWTH AND WELLBEING. Property taxes in Central and Eastern Europe and Baltic countries: why and how to increase them? Retrieved May 8, 2024, from https://oecdecoscope.blog/2023/02/16/property-taxes-in-central-and-eastern-europe-and-baltic-countries

16 LAND VALUE CAPTURE. (n.d.). GFDRR. Retrieved May 20, 2024, from https://www.gfdrr.org/sites/default/files/publication/Land%20Value%20Capture.pdf

to the city, new infrastructure improvements, such as access roads, green space, or water connections, could incentivise redevelopment of the plots or resale to new owners that will develop.

Political caveats

Unlocking more revenue potential at the local government is important to equip Naryn with the ability to follow through on its service obligations and execute its economic drivers. The political context is also important to consider when assessing the right time for reforms and the specific approach. Although property tax was stipulated in the 1996 Tax Code, implementation only began in 2009 and to assuage public concerns, there have been two years of moratoriums on collection.[17] Since independence, Kyrgyz Republic has had two revolutions. The lack of long-term political stability and history of taxation makes increasing rates challenging. The Kyrgyz Republic could look to regional neighbours and other former soviet and CEE countries to chart a course forward for these reforms. Long-term taxpayer education on the necessity of government revenue collection is likely a sensible place to start.

Figure 25. Understanding Naryn's financial opportunities and barriers with local stakeholders (UN-Habitat)

17 Radvan, M., Franzsen, R., McCluskey, W., & Plimmer, F. (2021). Real property taxes and property markets in CEE countries and Central Asia. RADVAN, Michal, Riël FRANZSEN, William J. MCCLUSKEY a Franzes PLIMMER. Real Property Taxes and Property Markets in CEE Countries and Central Asia, 1.

Legislation and Governance Recommendations

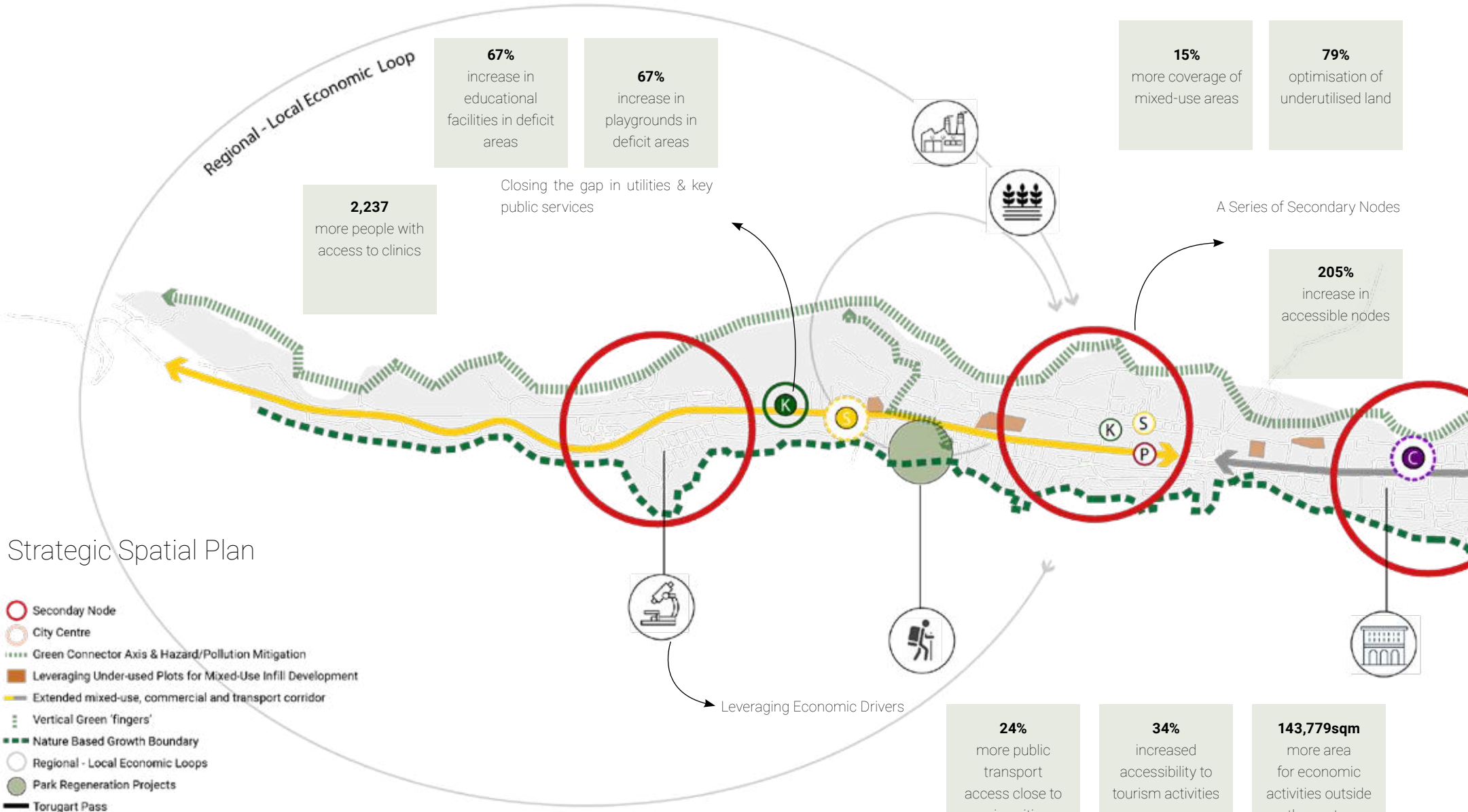
Existing legislative opportunities that can be leveraged include the decentralization of urban planning functions to the local level, empowering local authorities to tailor development strategies to Naryn's specific needs and aspirations. Enhanced capacity-building initiatives for local authorities can be implemented to effectively implement urban planning functions, focusing on areas such as urban and land use planning, infrastructure development, and community engagement. Encouraging diverse entities' engagement in urban planning instrument development promotes inclusivity and collaboration. Establishment of horizontal coordination mechanisms between local departments responsible for urban planning, housing, environment, and infrastructure ensures a more integrated approach to addressing local challenges. Empowering local self-governments with the powers to facilitate data collection and sharing processes within their respective jurisdictions ensures that urban planning efforts are grounded in localized data and tailored to community needs.

Establishing an umbrella climate change framework through the National Adaptation (Climate) Plan integrates climate adaptation goals into local legislation and urban planning frameworks, fortifying Naryn's infrastructure against future environmental risks. Mandatory assessments of greenhouse gas emissions into the urban planning process promote climate-friendly practices and sustainable urban development. Incorporating various urban planning solutions to mitigate the effects of climate change, including assessments of carbon sinks, pedestrian-focused interventions, and energy-efficient urban planning, is crucial. Empowering local authorities to conduct inspections during the construction process ensures adherence to regulations and promotes sustainable development practices.

Empowering local authorities with financial autonomy and flexibility to allocate funds effectively for sustainable projects aligned with local needs, including initiatives aimed at reducing emissions and energy consumption, is essential. Strengthening and expanding regulatory frameworks for green financing mobilizes investment capital for sustainable initiatives at the local level. Restructuring fossil fuel subsidies to encourage climate-friendly practices and support Naryn's transition towards a more sustainable development trajectory is vital. These measures collectively empower Naryn to take significant strides towards a greener and more resilient future.

Thus, leveraging existing legislative opportunities and implementing the recommended strategies can empower Naryn to navigate its urban development challenges effectively. It will pave the way for Naryn to emerge as a model for inclusive, resilient, and environmentally conscious urban development. By harnessing the potential of decentralized urban planning, enhancing local capacity, fostering collaboration, and integrating climate adaptation goals, Naryn can build a sustainable future. With empowered local authorities and robust legislative frameworks, Naryn can address its unique urban challenges while promoting economic growth, social equity, and environmental sustainability. Through these concerted efforts, Naryn can unlock its full potential and thrive as a vibrant, resilient, and sustainable city for generations to come.

Naryn River, Naryn, Kyrgyzstan Photo © UN-Habitat


Regional - Local Economic Loop
67% increase in educational facilities in deficit areas
67% increase in playgrounds in deficit areas
15% more coverage of mixed-use areas
79% optimisation of underutilised land
2,237 more people with access to clinics
Closing the gap in utilities & key public services
A Series of Secondary Nodes
205% increase in accessible nodes
K
S
P
C
Strategic Spatial Plan
Seconday Node
City Centre
Green Connector Axis & Hazard/Pollution Mitigation
Leveraging Under-used Plots for Mixed-Use Infill Development
Extended mixed-use, commercial and transport corridor
Vertical Green 'fingers'
Nature Based Growth Boundary
Regional - Local Economic Loops
Park Regeneration Projects
Torugart Pass
Leveraging Economic Drivers
24% more public transport access close to universities
34% increased accessibility to tourism activities
143,779sqm more area for economic activities outside the centre

11,722,433sqm
area of hazard mitigation

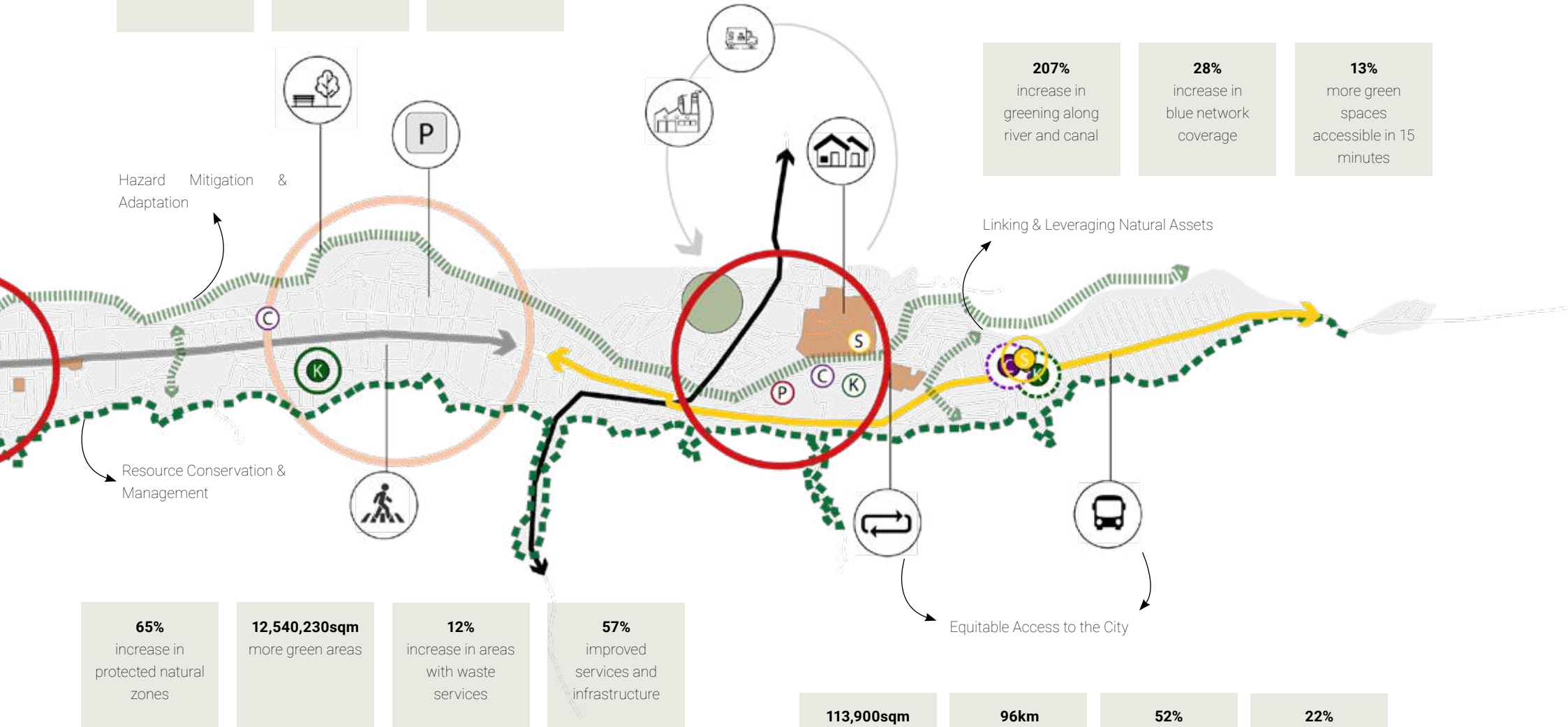
84%
increase in mud-flow channels

10
sub districts with safe havens

207%
increase in greening along river and canal

28%
increase in blue network coverage

13%
more green spaces accessible in 15 minutes



65%
increase in protected natural zones

12,540,230sqm
more green areas

12%
increase in areas with waste services

57%
improved services and infrastructure

113,900sqm
area with increased connectivity

96km
increase of non-motorised connectors

52%
increase in public transport coverage

22%
more vulnerable households with access to public transportation

The Strategic Plan and the Naryn Masterplan

As explained in section 4 of this report, the recommendations proposed by UN-Habitat are strategically aligned with the approved Naryn masterplan. Priorities correspond between the two for hazard mitigation, green spaces, densification, mixed use development and economic diversifications. However, due to the methodological differences, the structuring and urban development approach reveals some divergences. Two key city-wide strategies are worth noting-

Green areas in the masterplan are proposed as clustered spaces, particularly on the east and west sides of the town, and along the waterways. UN-Habitat's Strategic Plan proposes an integration with blue and grey networks using the main road and the natural river and canals as structuring elements. Protected green zones are aligned between the two plans.

While both plans recommend mixed use development, the masterplan proposes "microdistricts" or "territories" that emphasise densification in identified areas of the city. UN-Habitat's Strategic Plan addresses mixed use development by emphasising vibrancy in a polycentric development model. Based on the people-centred approach and population data, secondary nodes are proposed to address service deficits and improve equitable access for all neighbourhoods. These are reinforced through the main Lenin Street, where the Plan recommends mixed use development and densification along the connecting corridor. The Strategic Spatial Plan also includes recommendations to connect green spaces across the river which enhances the green network for the city and improves connectivity.

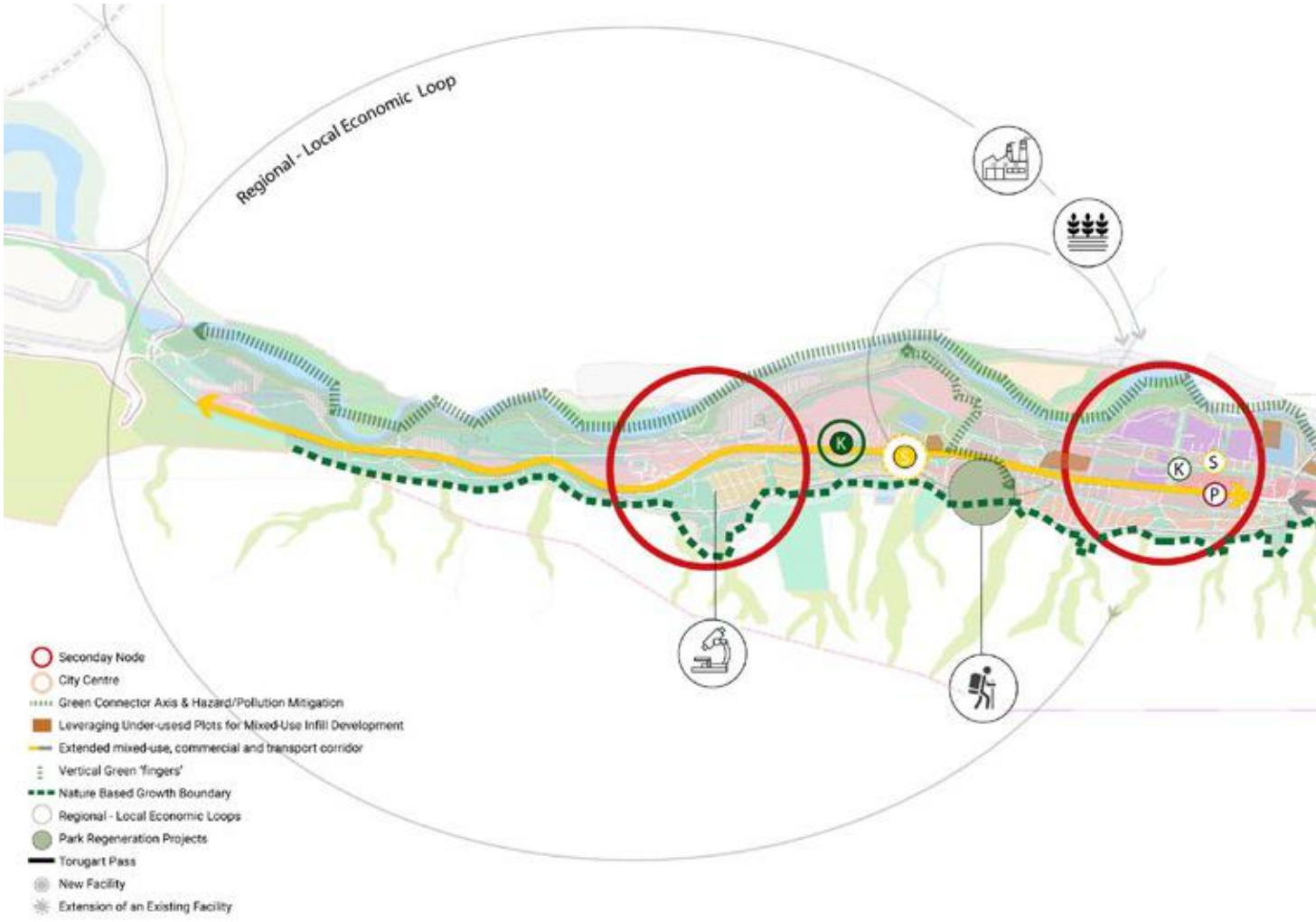


Figure 26. Map showing divergences between the Strategic Spatial Plan and the Naryn Masterplan for greening the city

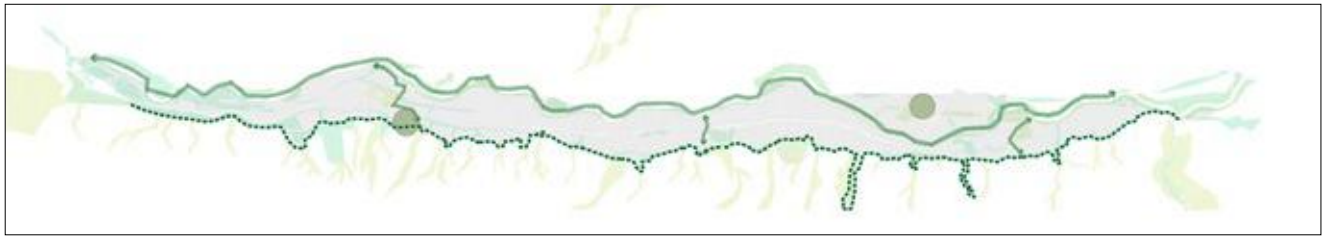


Figure 28. Map showing the alignment and divergences betwen the Strategic Spatial Plan and the Naryn Masterplan

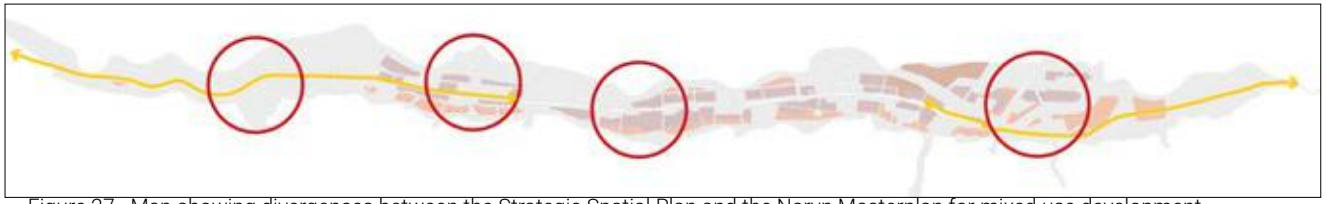


Figure 27. Map showing divergences between the Strategic Spatial Plan and the Naryn Masterplan for mixed use development

6. Conclusion

Spatial actions to achieve resilient, sustainable development in Naryn

This report outlines a set of spatial recommendations to address the obstacles that Naryn faces to achieve it's sustainable growth. Strategic in their description and intension, they provide a cumulation of economic drivers, immediate and future needs and goals, to guide investment in various forms - new development and densification, limitation on expansion and preservation of natural assets, and an integrated approach to each recommended intervention.

Next Steps

These interventions, or 'actions' will be developed further by the UN-Habitat team, by assessing their spatial compatibility, aligning them with existing development plans and on-going development projects in Naryn, and including proposals from local community groups. This project 'list' will be spatialised and validated with local stakeholders. Following that, a multi-criteria assessment will take place, to 'score' and prioritise each project, identfying those investments that would be the most transformative to Naryn. A budget fitting process will then take place, the outcome of which will be a series of investment cards that give spatial, financial and legislative detail to the most transformative investment projects.

Naryn Town Centre, Naryn, Kyrgyzstan Photo © UN-Habitat

Annexure 1

Summary Assessment of the Potential Resilience Impact of the Strategic Spatial Plan

1.	Response 1: Hazard Mitigation, Adaptation & Response Plan
Objective	Improved protection from natural hazards
Action	• Installation of rockfall protection nets and terracing • Installation of rockfall protection walls • Plantation and terracing • Plantation, terracing and gabion implementation • Reconstruction of BNC • Reforestation • Slope terracing
Expected Impact	Total area of mitigation
Related Economic Driver	Logistics Hubs, Tourism Hub, Agro-Industrial Centre
Indicator or Metric of Success	11,722,433sqm
Contribution to urban resilience	•Strengthens logistics and agro-industrial infrastructure for resilience •Supports adaptive urban planning for Logistics, Tourism and Agro-Industrial Hubs •Enhances resilience to disruptions in tourism and agricultural trade •Encourages sustainable practices across multiple sectors

2.	Response 1: Hazard Mitigation, Adaptation & Response Plan
Objective	Improved protection from natural hazards
Action	• Mud-flow eliminator or trap
Expected Impact	Number of mitigation points
Related Economic Driver	Education Town, Tourism Hub, Logistics Hub, Agro-Industrial Centre
Indicator or Metric of Success	11
Contribution to urban resilience	•Enhances resilience of infrastructure with protected critical points •Reduces service disruptions and reinforces economic resilience by protecting key infrastructure and areas from impacts of mud-flow hazards

Response 1: Hazard Mitigation, Adaptation & Response Plan

Objectives:
- Improved protection from natural hazards
- Improvement in preparedness and protection

3.	**Response 1: Hazard Mitigation, Adaptation & Response Plan**
Objective	Improved protection from natural hazards
Action	• Mud-flow or draiange channel
Expected Impact	Increase in total length of mud-flow channels
Related Economic Driver	Education Town, Tourism Hub, Logistics Hub, Agro-Industrial Centre
Indicator / Metric of Success	84%
Contribution to urban resilience	•Protects water flow and key infrastructure which is critical for the functioning of the town •Reduces vulnerability of built enviornment, roads and facilities with better management of mud-flow and drainage channels •Reduce service disruptions and reinforces economic resilience by protecting key infrastructure and areas from impacts of mud-flow hazards

4.	**Response 1: Hazard Mitigation, Adaptation & Response Plan**
Objective	Improvement in preparedness and protection
Action	• Equipping existing buildings as safe havens
Expected Impact	Number of indoor safe havens
Related Economic Driver	Education Town, Tourism Hub
Indicator or Metric of Success	9
Contribution to urban resilience	•Provides improved protection during a hazardous event through the provision of safe zones •Supports community safety and wellbeing during emergencies •Reduces risks in educational settings for local and visting populations •Promotes social cohesion through shared safe spaces

5.	Response 1: Hazard Mitigation, Adaptation & Response Plan
Objective	Improvement in preparedness
Action	• Adaptation of existing public space as outdoor safe haven
Expected Impact	Outdoor safe havens
Related Economic Driver	Education Town, Tourism Hub
Indicator or Metric of Success	162,160 sqm
Contribution to urban resilience	•Establishes accessible safe zones for the public in the case of emergencies or hazardous events •Enhances public awareness of resilence and preparedness •Promotes social cohesion through shared safe spaces

6.	Response 1: Hazard Mitigation, Adaptation & Response Plan
Objective	Improvement in preparedness
Action	• Provision of outdoor safe havens for populations who are exposed to hazards and their impacts
Expected Impact	Per capita outdoor safe havens
Related Economic Driver	Education Town, Tourism Hub
Indicator or Metric of Success	15 sqm
Contribution to urban resilience	•Strengthens preparedness for and protection of people during a hazardous event or emergency through the provsiion of safe spaces •Supports adaptive urban planning for the town •Encourages sustainable practices across multiple sectors alongside preparedness for hazards or risks

Response 1: Hazard Mitigation, Adaptation & Response Plan

Objectives:
- Improved protection from natural hazards
- Improvement in preparedness and protection

7.	**Response 1: Hazard Mitigation, Adaptation & Response Plan**
Objective	Improvement in preparedness
Related Economic Driver	Education Town, Tourism Hub
Expected Impact	Per capita indoor safe havens
Indicator / Metric of Success	9 sqm
Contribution to urban resilience	•Strengthen preparedness for and protection of people during a hazardous event or emergency through the provision of safe spaces •Supports adaptive urban planning and architecture for the town •Encourages sustainable practices across multiple sector alongside preparedness for hazards or emergencies
Details	• For populations who are exposed to hazards and their impacts

8.	**Response 1: Hazard Mitigation, Adaptation & Response Plan**
Objective	Improvement in preparedness
Action	Adaptation of existing space as a safe haven
Expected Impact	Number of sub districts with a safe haven
Related Economic Driver	Education Town, Tourism Hub
Indicator or Metric of Success	10
Contribution to urban resilience	•Improves the town's preparedness for a hazardous event or emergency by increasing the protection of people through safe zones •Reduces vulnerability by improving the access to a safe zone for people within a locality

9.	Response 2: Resource Conservation and Management
Objective	Improvement in natural areas
Action	•Plantation alongside BNC •Plantation and terracing •Plantation for green riverfront axis •Plantation, terracing and gabion implementation •Reforestation
Expected Impact	Total area of green areas
Related Economic Driver	Education Town, Tourism Hub
Indicator or Metric of Success	12,540,229 sqm
Contribution to urban resilience	•Improves protection of natural resources from pollution, waste and development in eco-sensitive areas •Enhances climate mitigation and adaptation through the expansion of green areas in strategic areas •Supports community health and wellbeing by protecting water from contamination, expanding green areas, and improving nature-based solutions to hazard mitigation

10.	Response 2: Resource Conservation and Management
Objective	Improvement in natural areas
Action	• Plantation alongside BNC • Plantation for green riverfront axis
Expected Impact	Increase in greening along Naryn River and Canals
Related Economic Driver	Education Town, Tourism Hub
Indicator or Metric of Success	207%
Contribution to urban resilience	•Improves protection of natural resources from pollution, waste and development in eco-sensitive areas •Enhances climate mitigation and adaptation through the expansion of green areas in strategic areas •Supports community health and wellbeing by protecting water from contamination, expanding green areas and increasing nature-based solutions

Response 2: Resource Conservation and Management

Objectives:
- Improvement in natural areas
- Improvement in resource management

11.	**Response 2: Resource Conservation and Management**
Objective	Improvement in natural areas
Action	• Greening along Naryn River and canals • Water protection zones
Expected Impact	Increase in protected zones
Related Economic Driver	Education Town, Tourism Hub
Indicator / Metric of Success	65%
Contribution to urban resilience	•Improves protection of natural resources from pollution, waste and development in eco-sensitive areas •Wnhances climate mitigation and adaptation through the expansion of green areas in strategic areas •Supports community health and wellbeing by protecting water from contamination, expanding green areas and increasing nature-based solutions

12.	**Response 2: Resource Conservation and Management**
Objective	Improvement in resource management
Action	Installation of new bins
Expected Impact	Increase in areas with waste services
Related Economic Driver	Education Town, Tourism Hub, Agro-Indsutrial Centre
Indicator or Metric of Success	12%
Contribution to urban resilience	•Expands and improves the provision of utilities and infrastructure so that all people have equitable access to key services •Enhances resilience of education, tourism, and agro-industrial sectors by providing required services for its functionality and stability •Improves health and wellbeing for the population by reducing waste pollution

13.	Response 2: Resource Conservation and Management
Objective	Improvement in resource management
Action	•Sewage infrastructure
Expected Impact	Increase of services and infrastructure expansion and improvement
Related Economic Driver	Education Town, Tourism Hub, Agro-Indsutrial Centre
Indicator or Metric of Success	57%
Contribution to urban resilience	•Expands and improves the provision of services and infrastructure so that all people and sectors have equitable access •Enhances resilience of education, tourism and agro-industrial sectors by providing required services for its functionality and stability •Improves health and wellbeing for the population by providing expanded basic services

14.	Response 3: Leveraging and Linking Existing Natural Assets
Objective	Improvement in green network coverage
Action	• Creation of green network with increased planting along riverfront and canals
Expected Impact	Increase in greening along Naryn River and Canals
Related Economic Driver	Tourism Hub
Indicator or Metric of Success	207%
Contribution to urban resilience	•Improves protection of natural resources from pollution, waste and development in eco-sensitive areas •Enhances climate mitigation and adaptation through the expansion of green areas in strategic areas •Supports community health and wellbeing by protecting water from contamination, expanding green areas and increasing nature-based solutions •Promotes green city principles by creating a network of green spaces throught the city and enhances public awareness thereof •Improves attractiveness of the town as a green tourist destination

Response 3: Leveraging and Linking Existing Natural Assets

Objectives:
- Improvement in green network coverage
- Improvement in blue network coverage

15.	Response 3: Leveraging and Linking Existing Natural Assets
Objective	Improvement in green network coverage
Action	• Plantation alongside BNC • Plantation and terracing • Plantation for green riverfront axes
Expected Impact	Increase in protected zones
Related Economic Driver	Tourism Hub
Indicator / Metric of Success	65%
Contribution to urban resilience	•Improves protection of natural resources from pollution, waste and development in eco-sensitive areas •Enhances climate mitigation and adaptation through the expansion of green areas in strategic areas •Supports community health and wellbeing by protecting water from contamination, expanding green areas and increasing nature-based solutions •Promotes green city principles by creating a network of green spaces throught the city and enhances public awareness thereof •Improves attractiveness of the town as a green tourist destination

16.	Response 3: Leveraging and Linking Existing Natural Assets
Objective	Improvement in green network coverage
Action	• Construction of a new public green space
Expected Impact	Increase in access to green spaces in a 15 minute radius
Related Economic Driver	Tourism Hub
Indicator or Metric of Success	13%
Contribution to urban resilience	•Improves protection of natural resources from pollution, waste, and development in eco-sensitive areas •Enhances climate mitigation and adaptation through the expansion of green areas in strategic areas •Improves equitable access of green spaces for the population within a 15min walking distance •Supports community health and wellbeing by protectin water from contamination, expanding green areas, and increasing nature-based solutions •Promotes green city principle by creating a network of green spaces throught the city and enhances public awareness thereof •Improves attractiveness of the town as a green tourist destination

17.	Response 2: Resource Conservation and Management
Objective	Improvement in green network coverage
Action	• Adaptation of existing "special use green space" to public space
Expected Impact	Increase of accessible green space
Related Economic Driver	Tourism Hub
Indicator or Metric of Success	14%
Contribution to urban resilience	•Enhances climate mitigation and adaptation through the expansion of green areas in strategic areas •Improves equitable access of green spaces for the population •Improves connectivity links across the city •Improves soil reinforcement with the use of local and indigenous species •Reduces effects of air pollution, flooding and erosion •Supports community health and wellbeing by protecting water from contamination, expanding green areas and increasing nature-based solutions •Promotes green city principles by creating a network of green spaces throughout the city and enhances public awareness thereof •Improves attractiveness of the town as a green tourist destination

18.	Response 3: Leveraging and Linking Existing Natural Assets
Objective	Improvement in blue network coverage
Action	• Length of blue network
Expected Impact	Improvement in length of blue network coverage
Related Economic Driver	Tourism Hub
Indicator or Metric of Success	28%
Contribution to urban resilience	•Promotes an enhanced role of natural water assets by integrating the water bodies within the green and grey networks •Improves the attractiveness of the town for tourism •Encourages sustainable practices and management of water resources

19.	**Response 4: Revitalising and Regenerating Naryn with a Vibant Urban Fabric**
Objective	Increase in vibrancy
Action	Mixed-use nodes/ development
Expected Impact	Increase in people that can access nodes/sub-centres
Related Economic Driver	Tourism Hub, Logistics Hub
Indicator / Metric of Success	205%
Contribution to urban resilience	•Improves connectivity, integration and vibrancy of the city through a polycentric city model which gives structure and orientation for development •Supports planning for a network of public transport and mobility by linking nodes to the central road •Promotes improved equitable access to mobility, services and facilities by including mixed-use development within a neighbourhood centre •Encourages densification and growth in targeted areas, reducing sprawl and fragmentation •Creates an enabling environment for viable housing projects in currently poor connected neighbourhoods by providing a vibrant and unifying secondary node and reducing the dependence on the city centre alone •Improves opportunities for people for key services, employment, social interaction and support within neighbourhoods •Promotes economic activities that will encourage long-distance drivers to stop in Naryn and use its services

Response 4: Revitalising & Regenerating Naryn with a Vibant Urban Fabric

Objectives:

- Increase in vibrancy
- Improvement in blue network coverage

20.	**Response 4: Revitalising and Regenerating Naryn with a Vibant Urban Fabric**
Objective	Increase in vibrancy
Action	Optimisation of land
Expected Impact	Underutilised lands that are optimised
Related Economic Driver	Tourism Hub, Logistics Hub
Indicator or Metric of Success	79%
Contribution to urban resilience	•Encourages sustainable growth by extending economic activities •Promotes sustainable and culturally-significant approaches to new developments •Enhances economic potential by increasing activities in regenerated buildings or areas •Supports the creation of attractive and virbant spaces in the city

21.	**Response 4: Revitalising and Regenerating Naryn with a Vibant Urban Fabric**
Objective	Increase in vibrancy
Action	• Mixed-use corridors
Expected Impact	Increase in mixed-use corridors
Related Economic Driver	Tourism Hub, Logistics Hub
Indicator or Metric of Success	13%
Contribution to urban resilience	•Improves connectivity, integration and vibrancy of the city by linking the extents of the city with a mixed-use, vibrant corridor •Enhances structure and orientation in the city for development •Supports planning for a network of public transport and mobility by linking existing routes •Encourages densification and growth in targeted areas, reducing sprawl and fragmentation •Improves opportunities for people for key services, employment, social interaction and support •Promotes economic activities that will encourage long-distance drivers to stop in Naryn and use its services

22.	**Response 4: Revitalising and Regenerating Naryn with a Vibant Urban Fabric**
Objective	Improvement in blue network coverage
Action	• Mixed-use areas
Expected Impact	Increase in vibrancy
Related Economic Driver	Tourism Hub, Logistics Hub
Indicator or Metric of Success	15%
Contribution to urban resilience	•Encourage densification and growth in targeted areas, reducing sprawl and fragmentation •Improves opportunities for people for key services, employment, social interaction and support •Promotes economic activities that will encourage long-distance drivers to stop in Naryn and use its services

Response 5: Equitable Access to the City

Objectives:

- Improvement of equitable access

23.	**Response 5: Equitable Access to the City**
Objective	Improvement of equitable access
Action	• Installation of new bus stop
Expected Impact	Increase in public transport coverage
Related Economic Driver	Education Town, Tourism Hub, Logistics Hub
Indicator / Metric of Success	52%
Contribution to urban resilience	•Improves the distribution of the town's services across all populations •Improves coverage of the transport systems to reach areas further along the main road/route •Promotes a cost-effective and sustainable improvement of infrastructure •Promotes historical significance and cultural attractiveness of the town by including existing infrastructure

24.	**Response 5: Equitable Access to the City**
Objective	Improvement of equitable access
Action	• Coverage of inaccessible areas
Expected Impact	Proportion of vulnerable households that are covered by improved public transportation
Related Economic Driver	Education Town, Tourism Hub, Logistics Hub
Indicator or Metric of Success	22%
Contribution to urban resilience	•Improves coverage of the transport systems to reach areas further along the main road/route •Improves access to a higher diversity of services and activities, especially for the population located further away from the town's centre •Enhances the inclusion of the town's vulnerable groups, such as those households with a lower income, or at a higher risk of exposure to hazards

25.	Response 5: Equitable Access to the City
Objective	Improvement of equitable access
Action	• Construction of new pedestrian bridge
Expected Impact	Increased connectivity
Related Economic Driver	Education Town, Tourism Hub, Logistics Hub
Indicator or Metric of Success	113,900 sqm
Contribution to urban resilience	•Improves coverage of the transport systems to reach areas further along the main road/route •Improves access to a higher diversity of services and activities, especially for the population located further away from the town's centre •Enhances the inclusion of the town's vulnerable groups, such as those households with a lower income, or at a higher risk of exposure to hazards

26.	Response 5: Equitable Access to the City
Objective	Improvement of equitable access
Action	• Construction of cycling path (centre loop) • Construction of cycling path (Lenin Street) • Construction of pedestrian-oriented street • Plantation for green riverfront axis • Renovation of street
Expected Impact	Total length of green connectors
Related Economic Driver	Education Town, Tourism Hub
Indicator / Metric of Success	43km
Contribution to urban resilience	•Improves safe pedestrian environments, especially in high-flow pedestrian areas like the town centre and around activity nodes •Enables safe and affordable movement across the city •Promotes new sustainable and safe streets design which can be showcased and developed as guidelines for the city •Improves the connectivity of neighbourhoods by integrating people and activities •Promotes better connection across the river and key roads •Supports the creation of a mobility network of safe movement which links nodes, historical, cultural and other attractions that enhances the town's tourism strategy

Response 5: Equitable Access to the City

Objectives:

- Improvement of equitable access

27.	**Response 5: Equitable Access to the City**
Objective	Improvement of equitable access
Action	•Construction of cycling path (centre loop) •Construction of cycling path (Lenin St.) •Construction of pedestrian oriented street •Plantation for green riverfront axes •Reconstruction of Lenin St. •Renovation of street
Expected Impact	Total length of green connectors
Related Economic Driver	Logistics Hub, Agro-Industrial Centre
Indicator or Metric of Success	53km
Contribution to urban resilience	•Enables safe and affordable movement across the city •Promotes new sustainable and safe streets design which can be showcased and developed as guidelines for the city •Improves the connectivity of neighbourhoods by integrating people and activities •Promotes better connection across the river and key roads •Supports the creation of a mobility network of safe movement which links nodes, historical, cultural and other attractions that enhances the town's tourism strategy

28.	**Response 5: Equitable Access to the City**
Objective	Improvement of equitable access
Action	•Ratio of green connectors to Lenin Road
Expected Impact	Increase in total length of green connectors
Related Economic Driver	Tourism Hub, Logistics Hub, Agro-Industrial Centre
Indicator or Metric of Success	318%
Contribution to urban resilience	•Improves coverage of the town's mobility systems to reach areas further along the main road/route, and across the north-south axes of the town •Enables safe and affordable movement across the city •Promotes new sustainable and safe streets design which can be showcased and developed as guidelines for the city •Improves the connectivity of neighbourhoods by integrating people and activities •Improves the connectivity of neighbourhoods by integrating people and activities

29.	Response 6: Closing the Deficit Gaps in Service Provision
Objective	Improvement in serviced population
Action	• Reconstruction and capacity increase of Clinics
Expected Impact	Gained access to clinics
Related Economic Driver	Education Town
Indicator or Metric of Success	2,237 persons; 6.5%
Contribution to urban resilience	•Improves qual access to public services for populations located across the town •Expands public service provision in the town

30.	Response 6: Closing the Deficit Gaps in Service Provision
Objective	Improvement in serviced population
Action	• Construction of new Kindergarten with playground • Construction of new secondary school
Expected Impact	Increase in accessibility to education facilities within 15 minutes
Related Economic Driver	Education Town
Indicator / Metric of Success	67%
Contribution to urban resilience	•Expands equitable access to educational services for populations within their locality •Reduces the burden of having to travel longer distances to access educational services, especially for vulnerable households such as those with a lower income •Improves the distribution of educational facilities and services across the town •Improves the potential for safe havens within a locality through adaptive planning

Response 6: Closing the Deficit Gaps in Service Provision

Objectives:

- Improvement in serviced population

31.	**Response 6: Closing the Deficit Gaps in Service Provision**
Objective	Improvement in serviced population
Action	• Kindergarten and secondary schools
Expected Impact	Increase in population that access education facilities within 15 minutes
Related Economic Driver	Education Town
Indicator or Metric of Success	27%
Contribution to urban resilience	•Expands equitable access to educational services for populations within their locality •Improves the population's access to education and potential for later employment and better life outcomes

32.	**Response 6: Closing the Deficit Gaps in Service Provision**
Objective	Improvement in serviced population
Action	• Construction of new Kindergarten with playground
Expected Impact	Increase in accessibility to playgrounds within 15 minutes
Related Economic Driver	Tourism Hub, Logistics Hub, Agro-Industrial Centre
Indicator or Metric of Success	67%
Contribution to urban resilience	•Expands equitable access to play and recreational facilities for populations within their locality •Reduces the burden of having to travel longer distances to access recreational services, especially for vulnerable households such as those with a lower income •Improves the distribution of recreational facilities and play areas across the town •Improves the potential for outdoor safe havens within a locality through adaptive planning

33.	Response 6: Closing the Deficit Gaps in Service Provision
Objective	Improvement in serviced population
Action	• Construction of new Kindergarten with playground
Expected Impact	Increase in population that access playgrouns in 15 minutes
Related Economic Driver	Education Town
Indicator or Metric of Success	5,633 persons; 10%
Contribution to urban resilience	•Expands equitable access to plauy and recereational spaces for populations within their locality •Improves opportunities for social cohesion, exchange and health and wellbeing outcome by providing better access to public recreational spaces

34.	Response 7: Leveraging Economic Visions
Objective	Increase contribution to economic development
Action	• Installation of new bus stop
Expected Impact	Increased public transport accessibility to universities
Related Economic Driver	Education Town, Agro-Industrial Centre
Indicator / Metric of Success	24%
Contribution to urban resilience	•Improves connection and integration between the universities and the rest of town by expanding the transport systems to reach further along the main road •Encourages an environment for innovation by integrating the universities and the town and providing more exchange opportunities between them •Strengthens economic resilience, development and viability by establishing a closer link between research and industry

Response 7: Leveraging Economic Drivers

Objectives:

- Increase contribution to economic development

35.	**Response 7: Leveraging Economic Visions**
Objective	Increase contribution to economic development
Action	• Regeneration of under-utilised industrial areas
Expected Impact	Regeneration of non-functional industrial areas that are under-utilised
Related Economic Driver	Tourism Hub, Agro-Industrial Centre
Indicator or Metric of Success	18%
Contribution to urban resilience	•Targets growth and economic development by returning use and function to under-utilised or non-functioning spaces/ buildings •Stimulates an increase in productive economic activities by regenerating old industrial areas •Promotes a more vibrant cityscape by adapting unused areas to new functions, while maintaining their historical relevance •Enhances opportunities for increased production and employment

36.	**Response 7: Leveraging Economic Visions**
Objective	Increase contribution to economic development
Action	• Cultural/community centre projects
Expected Impact	Increase in accessibility to tourism related activities
Related Economic Driver	Tourism Hub, Logistics Hub, Agro-Industrial Centre
Indicator or Metric of Success	34%
Contribution to urban resilience	•Improves the options for tourism-related activities •Promotes economic development through a sustainable tourism strategy that links cultural- and other attractions

Response 7: Leveraging Economic Drivers

Objectives:

- Increase contribution to economic development

37.	**Response 7: Leveraging Economic Visions**
Objective	Increase contribution to economic development
Action	• Business & Industry projects
Expected Impact	Increase in economic activity dense area
Related Economic Driver	Tourism Hub, Logistics Hub, Agro-Industrial Centre
Indicator or Metric of Success	143,779 sqm
Contribution to urban resilience	•Strengthens logistics and agri-industrial infrastructure for resilience •- Supports adaptive urban planning for Logistics, Tourism, and Agro-Industrial Hubs •- Enhances resilience to disruptions in tourism and agricultural trade •- Encourages sustainable practices across multiple sectors

Annexure

Rationale of Intervention and Project Location: Utilizing Suitability Models for Evidence-Based Decision Making

In the pursuit of evidence-based decision making for spatial policies, the utilization of suitability models stands as a cornerstone for rational location choices. These models not only support the capital investment plan by enhancing the efficiency of investment locations but also serve as vital tools for hazard mitigation, adaptation, and response planning.

Hazard Mitigation, Adaptation & Response Plan

For the relocation of exposed buildings and the implementation of hazard mitigation strategies such as planting, terracing, netting, and reforestation, a multi-faceted approach is adopted. Key indicators such as hazard zones, occupancy rate, and population density are meticulously evaluated within specified intervals to ensure optimal location choices. Priority is given to areas with higher occupancy rates and population densities, coupled with a stringent avoidance of hazard zones.

Relocation of exposed buildings

Indicator	*Intervals/ cutoffs*	*Preferred range*	*Weight*
Hazard Zones	Binary 0-1	1	1
Occupancy rate	5%	Higher values	1
Population density	0, 25, 50, 75, 100, 125, 150, 200, 250, 300, 338	Higher values	1

Planting, terracing, netting, reforestation

Indicator	*Intervals/ cutoffs*	*Preferred range*	*Weight*
Hazard Zones	Binary 0-1	1	1
Occupancy rate	5%	Lower values	1
Population density	0, 25, 50, 75, 100, 125, 150, 200, 250, 300, 338	0	1

Resource Conservation & Management

In efforts directed towards resource conservation and management, including the relocation of buildings, protection of river zones, and preservation of sewage-free areas, a similar approach is undertaken. Hazard zones, river protection zones, and areas free from sewage are considered imperative factors in decision making, with a clear preference for locations devoid of hazards and conducive to sustainable resource management practices.

Relocation of exposed buildings

Indicator	*Intervals/ cutoffs*	*Preferred range*	*Weight*
Hazard Zones	Binary 0-1	1	1
River protection zones	Binary 0-1	1	1
No sewage areas	Binary 0-1	1	1

A Series of Secondary Nodes

The establishment of secondary nodes through infill development necessitates a balanced assessment of various indicators. Factors such as occupancy rate, population density, activities interaction concentration, activities diversity provision, and hazard zones are all equally weighed to identify suitable locations for development. Preference is given to areas with lower occupancy rates and mid-range population densities, ensuring a harmonious integration of new nodes into existing urban fabric while mitigating potential hazards.

Infill development

Indicator	*Intervals/ cutoffs*	*Preferred range*	*Weight*
Occupancy rate	5%	Lower values	1
Activities interaction concentration (Gravity index)	9 natural breaks	Mid values	1
Activities diversity provision (Entropy index)	0.1 intervals, 9 breaks	Mid values	1
Hazard zones	Binary 0-1	0	1

Equitable Access to the City

Efforts towards promoting equitable access to the city, exemplified by public transport extensions, rely on an evaluation of population density, built-up density, and public transport stop accessibility. Higher population densities and built-up densities are favored, along with 15 minutes and more access times to public transport stops, to facilitate convenient and inclusive urban mobility options for all residents.

Public transport extension

Indicator	*Intervals/ cutoffs*	*Preferred range*	*Weight*
Population density	0, 25, 50, 75, 100, 125, 150, 200, 250, 300, 338	Higher values	1
Built-up density	500, 1000, 1750, 2500, 3000, 3750, 4500, 5750, 7250, 10038	Higher values	1
Public transport stops access	5 minutes	15+ minutes	1

Closing the Deficit Gaps in Service Provision

In addressing deficit gaps in service provision, such as the establishment of new kindergartens with playgrounds, a comprehensive approach is adopted. Indicators including population density, hazard zones, public space access, kindergarten access, occupancy rate, and children flow shortest path are meticulously evaluated. Priority is given to areas with higher population densities, safe from hazards, and with convenient access to public spaces and kindergartens, ensuring equitable access to essential services for all segments of the population.

New kindergarten with playground

Indicator	*Intervals/ cutoffs*	*Preferred range*	*Weight*
Population density	0, 25, 50, 75, 100, 125, 150, 200, 250, 300, 338	Higher values	1
Hazrd zones	Binary 0-1	15+ minutes	1
Public space access	5 minutes	15+ minutes	1
Kindergarten access	5 minutes	15+ minutes	1
Occupancy rate	5%	Lolwer values	1
Children flow shortest path (Netweeness index)	Geometric intervals, 10 breaks	HIgher values	

UN-HABITAT | URBAN LAB

Naryn

Kyrgyz Republic

2023-2024

Enhancing Resilience through Integrated Spatial and Investment Planning

Naryn Urban Design Proposals

UN-HABITAT

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

AKDN
AGA KHAN DEVELOPMENT NETWORK

НАРЫН

Enhancing Resilience through Integrated Spatial and Investment Planning

Naryn Urban Design Proposals

United Nations Human Settlements Programme
P.O. Box 30030, 00100 Nairobi GPO KENYA
Tel.: 254-020-7623120
www.unhabitat.org

UN-Habitat Urban Lab

Laura Petrella (Chief, Planning, Finance and Economy Section)
Herman Jean Pienaar (Technical Advisor)

Pinar Caglin (Project Manager, Planning and Design Technical Lead)
Lennart Fleck (Finance and Economy Team Lead)
Anne Amin (Governance and Legislation Team Lead)

Main Authors

Maia Smillie (Urban Planner)
Shaakira Chohan (Urban Planner)
Semiha Turgut (Spatial Analysis Expert, Urban Planner)
Anastasia Ignatova (Urban Designer)
Yassine Moustanjidi (Urban Designer)
Kate Cotty (Urban Finance and Economy Expert)
Omar Morales Lopes (Urban Economy Expert)
Anna Kvashuk (Urban Legislation Expert)
Samuel Njuguna (Urban Law and Governance Expert)

Layout Design & Graphics

Maia Smillie
Shaakira Chohan
Yassine Moustanjidi

AKDN, Project Mangement Unit

Surekha Ghogale (Senior Advisor)
Omurbek Ibraev (Project Manager)
Nurbek Omurzakov
Aizaada Bekboeva
Salamat Ismakeeva

Aga Khan Agency for Habitat

Aziz Husein (Head of Sustainable Built Environment and Capital Projects)
Kira Intrator (Head of Planning and Innovation)

And with thanks to all who participated in meetings, field trips and working sessions from the government, service providers, AKAH, AKDN, UCA and inhabitants of Naryn.

UN-HABITAT

AKDN
AGA KHAN DEVELOPMENT NETWORK

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

НАРЫН

Contents

1. Introduction

Purpose of this Document

The Naryn Urban Design Proposals serves as a comprehensive framework to translate the strategic vision for Naryn, developed under the NURP (Naryn Urban Regeneration Programme), into actionable urba n design projects. This document highlights an integr ated methodology that bridges strategic planning with tangible, transformative outcomes, ensuring alignment across scales, from neighborhood-level interventions to citywide initiatives.

The design proposals within this profile embody UN-Habitat's holistic approach, which combines spatial analysis, diagnostics, participatory planning, and implementation strategies. These proposals are not intended as finalized projects but as illustrative examples of how key design principles can be spatialized. Grounded in data analysis and enriched by robust stakeholder engagement, these concepts reflect the aspirations of the community while addressing the unique challenges of Naryn's urban landscape.

Through this profile, Naryn's leadership and stakehoders are equipped with adaptable and practical tools to bring the strategic plan to life. The proposals underscore the importance of integrating design thinking into urban regeneration, ensuring sustainable, inclusive, and resilient growth for the city's future.

Project Methodology

The first steps undertaken by the UN-Habitat team have included a detailed assessment of the spatial and non-spatial data-sets available in Naryn Town. This has involved a cleaning of the data sets, including translation and categorising of data sets as well as an assessment of the data validity and quality. In addition, a critical review of the Integrated Habitat Assessment has allowed the UN-Habitat team to identify ways in which the assessment can be strengthened.

Furthermore, the UN-Habitat team undertook a field mission to Naryn which enabled the validation of datasets, and a deeper understanding of the opportunities for increased resilience in Naryn Town that are based on both qualitative and quantitative data. During this time, UN-Habitat was able to introduce aspects of its cross-cutting approach of participatory planning using workshops, field visits and working sessions to substantiate the existing data sets, and draw a richer understanding of the local context. Meetings with city authorities, and oblast and national government officials contributed to a better understanding of town and oblast objectives and priorities. Furthermore, working sessions with sector specialists helped the team to collect additional data to inform the understanding and diagnosis of Naryn Town, and provided useful inputs where existing information was missing or inconsistent. This has enabled deeper insights to identify the analyses that are relevant to the context, and will enhance the overall profiling of Naryn and the corresponding future planning.

The town has a number of existing plans and planning activities ongoing, as well as a number of profiles and reports completed that describe the social, environmental, legal, economic and financial context of Naryn Town. Each sector has its own understanding of the needs and opportunities of the town as well as its own development plans, as Phase 1 and 2 of the masterplan have been completed. The Integrated Habitat Assessment, completed by Aga Khan Agency for Habitat also provides a spatial and non-spatial (survey-based) database.

This profile, therefore, builds upon the existing and ongoing work, and strengthens the understanding of the planning context by highlighting the strategic issues facing Naryn Town that emerge from the analyses. This provides an evidence base from which the strategic spatial planning and recommendations, and capital investment planning activities can be developed. This report is not a final understanding of the town and it's challenges. Instead, it attempts to provide a basis of understanding, from which additional, more detailed and nuanced challenges can be identified and investigated further in the next stage of the project. The challenges identified in this report will be further validated through a series of participation exercises and workshops to identify additional data gaps and potential future impactful projects and interventions.

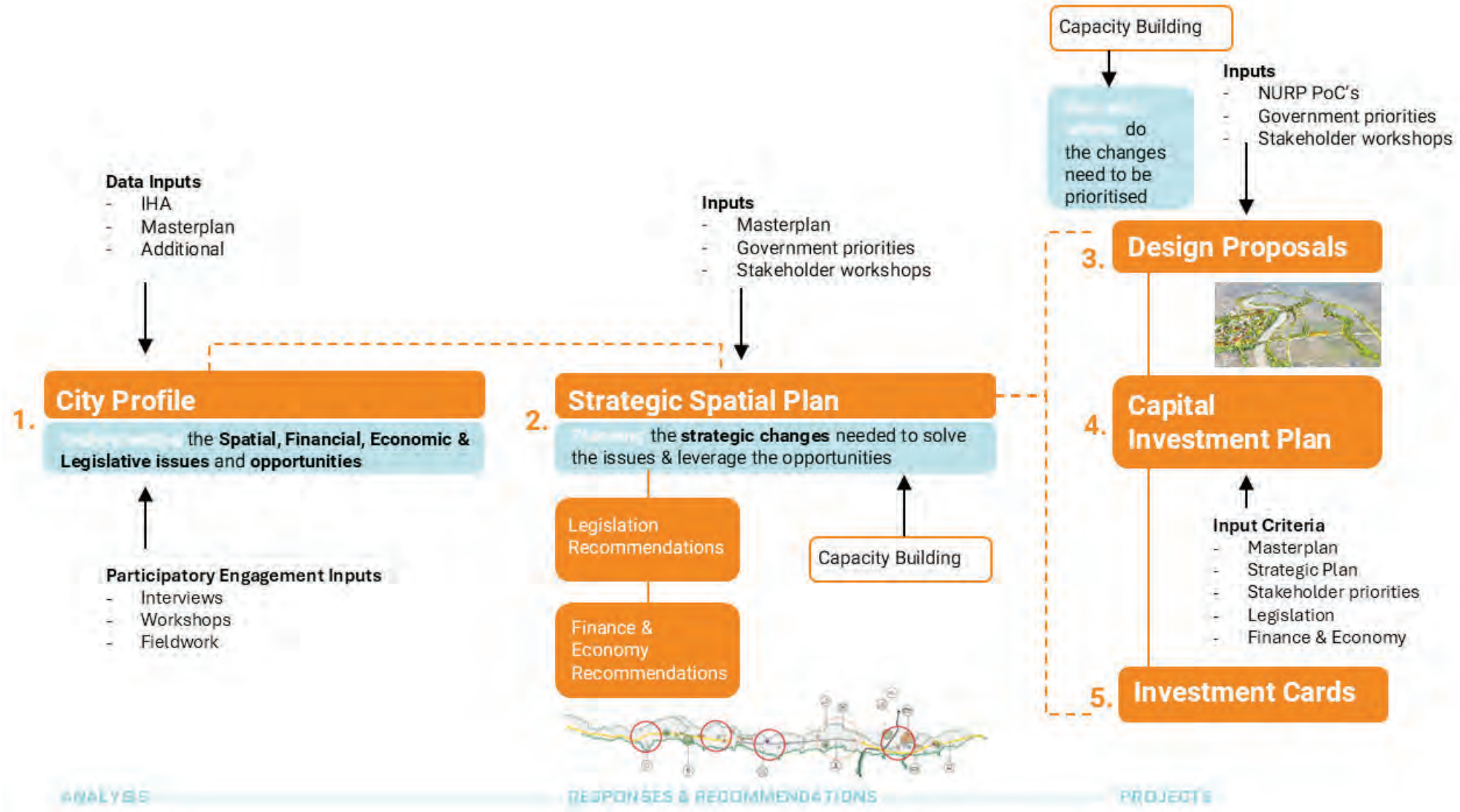


Figure 1. Project framework showing interrelation between phases, inputs, outputs, and outcomes

UN-Habitat's Project Approach and the Role of Resilience Indicators

UN-Habitat has developed a set of resilience criteria and indicators, which are formulated from international guidelines and the Sustainable Development Goals to support local actors in preparing plans for resilience-based urban development. These are used to drive the spatial analysis, the strategic planning recommendations, the investment plan and the participatory activities including training sessions and data collection. Resilience, and indicators of resilience, however, can vary between contexts and can link with a wide range of development indicators and strategies.

"Achieving a resilient city implies organizational and communities' capacity against immediate and chronic stresses within urban systems, the resources for facilitating in the recovery process, and preparation for future potential challenges. In addition to adapting to the changing dynamics of the world, resilient urban form may rectify existing social and economic structures, improving the overall well-being of the community". [5]

"Resilience is: the capacity of people, organizations and systems to prepare for, respond, recover from and thrive in the face of hazards, and to adjust to continual change." [6]

5 UN-Habitat's Five Objectives, MY Neighbourhood (2023)

6 Khan, M. Siravo, F. Notes on Resilient Planning in Naryn, 2021.

UN-Habitat adopts an Integrated Spatial Planning process, using spatial evidence to guide the urban planning process toward five objectives: **Compactness, Connectedness, Inclusiveness, Vibrancy, and Resilience**. These urban planning objectives provide a framework that informs the project assessments and analyses, spatial evidence production, and facilitates the integration of global frameworks, the New Urban Agenda (NUA) and Sustainable Development Goals (SDGs) into the project process and outcomes.

These five objectives are broad strategic goals of sustainable urban planning and are informed by the targets within the NUA and SDGs. Due to the numerous inputs that can inform UN-Habitat's Integrated Spatial Planning process and that must be coordinated between (sectors, scales, stakeholders), grouping information inputs under these five objectives helps to ensure that planning methods (participation exercises, data collection and analysis) are always integrated and considered in a holistic, rather than linear or siloed way.

Resilience, therefore, overlaps between categorisations of the SDGs, and includes environmental, economic, social, legislative and governance, infrastructure and basic services, housing and public facilities both spatial and non-spatial elements. UN-Habitat's integrated, evidence-based approach encourages a more robust and resilient planning process throughout by ensuring these linkages, considering planning in a holistic way (rather than a linear way) and facilitates a flexible, collaborative participatory approach.

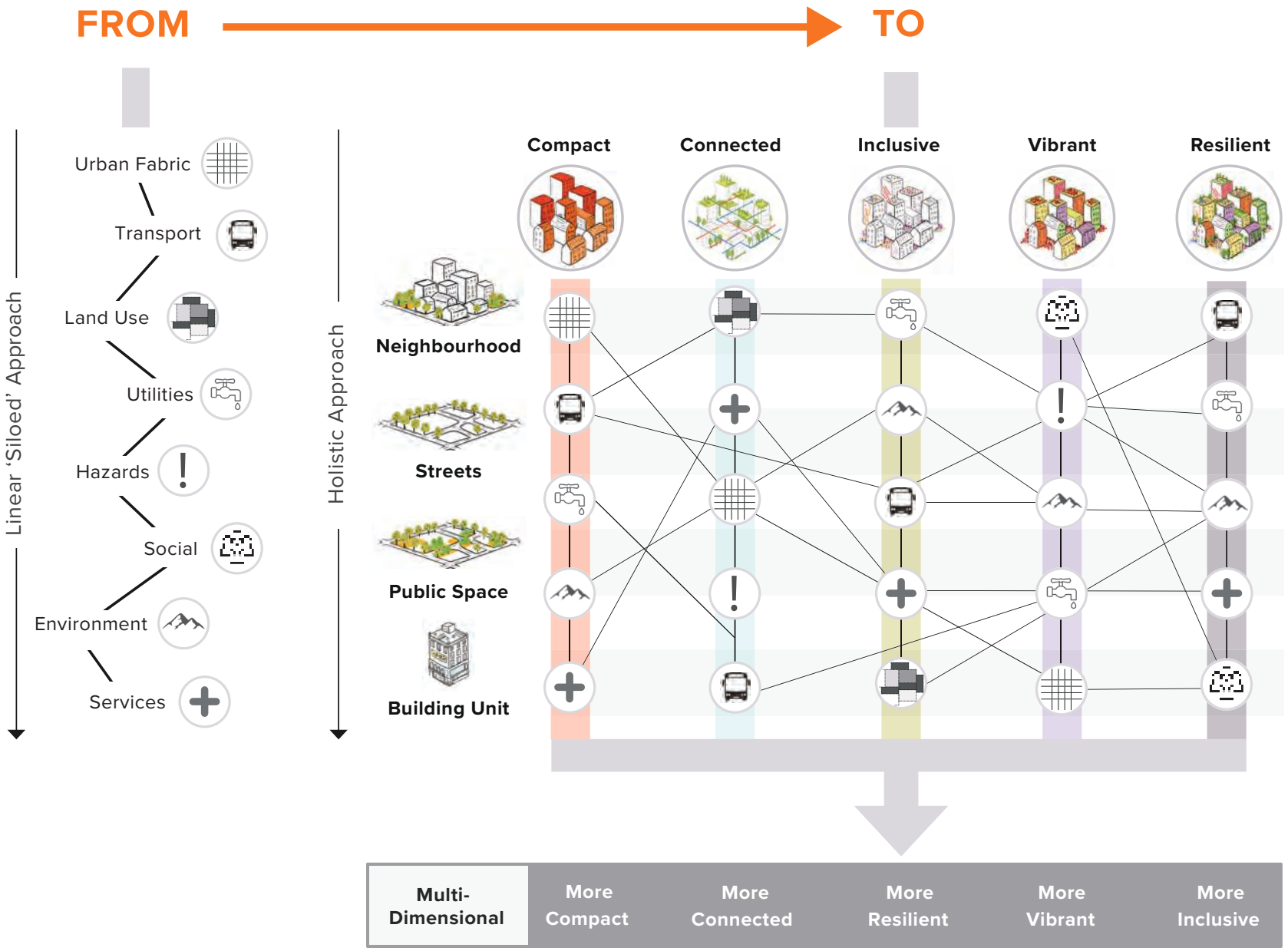


Figure 2. UN-Habitat's Integrated Planning Approach using the Five City Objectives

2. The city-wide design approach and urban systems to enhance urban transformation

Current spatial typologies

To ensure that design projects align with the consolidated design vision and city-wide strategies are translated into coherent, mutually beneficial design proposals, the overall design vision was developed in alignment with strategic recommendations. This approach was based on the definition and analysis of existing spatial typologies. The definition of current spatial patterns was conducted with the aim of providing the city with ideas and solutions on how to address urban fragmentation and perceive the city as a system of spaces, rather than a combination of scattered functions.

The six spatial typologies were defined based on the character and positioning of the built environment, the ratio of built areas to open and/or green spaces, the presence of under-utilized areas and/or structures, and the character of the natural environment.

Figure 3. Pedestrian boulevard of the Moskovskiy district

Typology A- Compact Urban Form

This typology is characterized by the high density of urban pattern with varying degrees of urban density and diverse urban layout. The typology is also characterised by the integration of green and open spaces within the built environment. The A typology is seen in the 3 major settings, the so-called sub-typologies.

The first typology A1 illustrates a densely built residential area characterized by a grid-like street pattern. The buildings are closely spaced with minimal space between structures, creating a compact urban fabric. Green spaces are scarce, with most of the area dominated by buildings and narrow streets. There are no visible under-utilized areas or structures; the space is fully utilized for residential purposes. The natural environment is almost entirely absent, limited to small patches of greenery between the buildings.

The second typology A2 presents a slightly less dense built environment compared to A1. The plots are irregularly shaped, and the street pattern is less defined, indicating a more informal development style. There are more visible open spaces and greenery than in the previous typology, although buildings still dominate the landscape. Some under-utilized or empty plots are present, suggesting potential for infill development. The natural environment is more noticeable in this typology, with small patches of vegetation scattered throughout the area.

The third typology, labeled A3, shows a more organized and spacious residential area. This area features larger buildings and a more structured layout typical for the central areas of Naryn. There is a significant presence of open and green spaces, with wide streets and landscaped areas surrounding the buildings. Unlike the previous typologies, there are no visible under-utilized areas, as the space appears well-maintained and fully utilized. The natural environment is well-integrated into the built environment, with open and green spaces, contributing to a more balanced urban landscape.

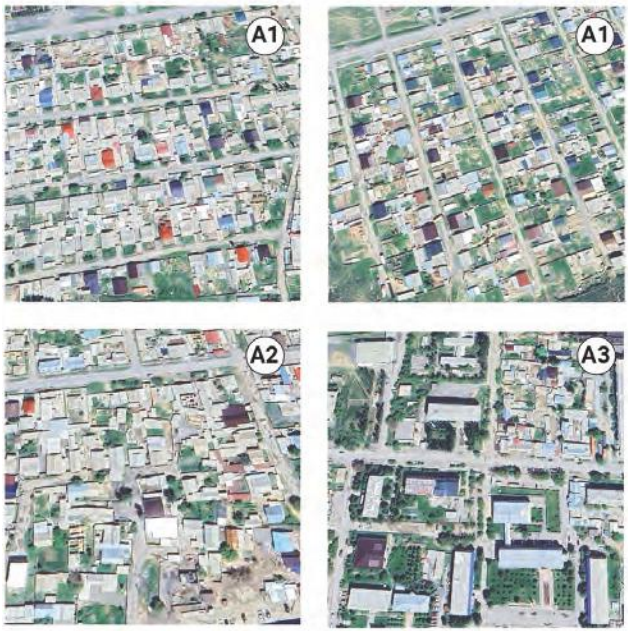


Figure 4. Diagram of the Compact Urban Form

A1 *Compact regular form*

A2 *Compact chaotic form*

A3 *Compact urban area*

Typology B- Frgamented urban form

This typology is represented by the less urbanized areas, with a mix between residential, agricultural uses and under-utilized plots of lands. While this typology appears to be less structured with patches urban development, it also highlights the significant potential for the targeted infill development.

The first typology B1 is a semi-urban residential area characterized by moderately spaced buildings with a mix of grid-like and irregular street patterns. The built environment is less dense than the previous typologies with some open spaces include among the buildings. These open spaces are partly utilized for small gardens and greenery. There are under-utilized areas that, in some cases, prevail in the urban footprint.

The second typology B2 is characterised by the large open and organized spaces dominating the landscape with few existing structures. The typology B3 represents an even less developed area with very sparse building distribution. The landscape is fully dominated by open and undeveloped land. In both B2 and B3 the street network is almost non-existent.

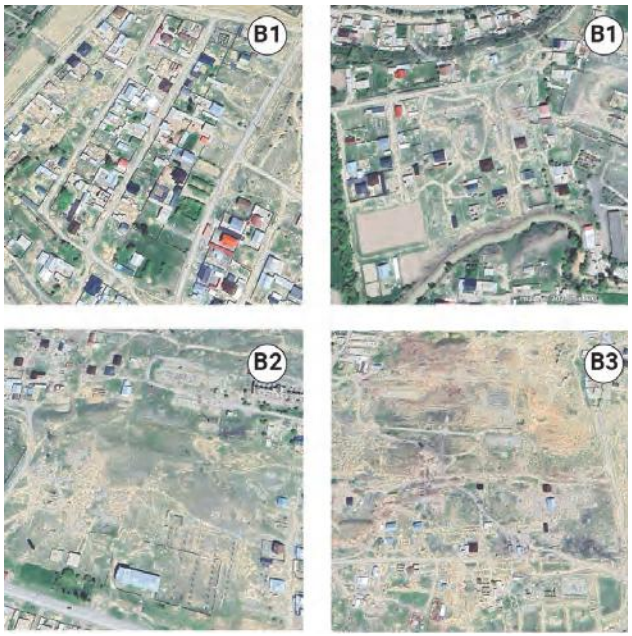


Figure 5. Diagram of the Fragmented Urban Form

B1 *Compact regular form*

B2 *Compact chaotic form*

B3 *Compact urban area*

Typology C- Linear green

The typology C illustrates different forms of linear green spaces, ranging from green strips and channels within the built environment to more natural and expansive waterfronts. Each typology has a potential for improvement to provide a better quality of the environment.

The typology C1 highlights a dense residential area that includes an irrigation channel accompanied by a green strip that intersects the built infrastructure (streets). Once the quality of the canal and design is improved, this green strip has a potential to provide continuous natural element within the urban fabric, creating a corridor that can connect a variety of urban elements.

The typology C2 features an irrigation channel similarly to C1, but running alongside the infrastructure, forming a parallel linear green strip. This green space extends along the edge of the built area, potentially providing a buffer between the urban and rural areas. The linear green space along the channel supports agricultural activities and may contributes to the area's semi-rural character by offering both functional and recreational functions.

The typology C3 showcases the waterfront in the urbanised area. Here, the linear green space is defined by the presence of a green riverfront within the residential area. The riverbanks once redesigned create a continuous natural corridor that integrates urban landscape and the natural environment by providing recreational spaces for residents.

Typology C4 represents a natural waterfront that is present in a predominantly natural landscape with minimal built structures. Such a natural riverfront offers substantial ecological and recreational value, preserving the natural landscape's integrity.

Figure 6. Diagram of the Linear Green

C1 *Irrigation channel, green strip that crosses infrastructure*

C2 *Irrigation channel, green strip along infrastructure*

C3 *Urban waterfront*

C4 *Natural waterfront*

Typology D-Parks

The typology D illustrates another type of green spaces rganized in maintained public parks. The typology varies from compact parks that fit into the dense urban fabric to extensive parks that provide large green areas.

The typology D1 illustrates areas featuring compact parks within an urban environment. These parks are relatively small and are integrated into the urban fabric, often surrounded by residential and commercial building. The compact parks often include maintained green spaces, trees, small playgrounds or seating areas.

The typology D2 highlights extensive parks cover larger areas and offer more substantial green spaces. These parks are often well-maintained and include sidewalks, street lighting, sitting areas and other elements of urban furniture.

Figure 7. Diagram of the Parks

D1 *Compact park*

D2 *Extensive park*

Typology E – Green pockets

The E typologies illustrate different forms of green patches within urban environments, from underutilized spaces with potential for future development to agricultural areas that actively contribute to the community.

The typology E1 illustrates underutilized area within an urban setting. These spaces are often relatively small and irregularly shaped, could be observed in between residential and commercial buildings. Sometimes these spaces include vegetation and trees. The areas appear to be non-maintained and are not used for recreational or productive purposes. These spaces provide a significant potential for developing a network of pocket public spaces.

The typology E2 highlights those green pockets/areas that are productive. These green spaces are more substantial in size and are actively used for purposes such as agriculture or community gardening. The productive green pockets are well-integrated into the urban fabric, often located near residential areas. These areas are often well-maintained, providing both ecological and social benefits.

Figure 8. Diagram of the Green Pockets

E1 *Green pocket/underutilised*

E2 *Green pocket/productive*

Typology F – Productive landscape

The typology F1 represents a productive landscape characterized by extensive agricultural fields. This area is predominantly used for agricultural purposes. The landscape is organized and managed to maximize agricultural output, with fields arranged in a manner that facilitates efficient farming practices. The presence of different types of crops and possibly some small patches of natural vegetation indicates a diverse and productive use of the land.

Figure 9. Diagram of the Productive Landscape

F1 *Agricultural fields*

Figure 10. View on the developed/urbanised riverfront

The city-wide scheme of spatial typologies

Below is a color-coded city-wide scheme of spatial typologies showing their distribution across the city. This analysis helps to understand the city in terms of spatial patterns and forms and promotes spatial integration among these typologies. Integrating the spatial typologies minimizes fragmentation and facilitates the creation of a spatially harmonious environment attractive to residents and tourists. Harmonizing the built environment and creating a network of pedestrian linkages and public spaces is particularly important for cities like Naryn, which have significant potential to become pedestrian and cycling-oriented due to their size, climate, and topography.

As seen on the map, compact forms are primarily concentrated in the central parts of the city and along major Lenin Street, indicating densely built urban areas with regular and chaotic patterns. This area, a vibrant central core, faces prevalent issues of connection. Primary actions in this typology should focus on urban regeneration and pedestrianization to leverage the concentration of services and dense built environment.

Urban voids and underutilized areas with few structures are scattered throughout the city, indicating areas where development is limited, absent, or in transition. These areas have potential for future development that could extend the central urban core or create conditions for vocational sub-centers, enabling Naryn to function as a polycentric model. Some of these spaces have great potential to be utilized as green, community spaces or areas for productive landscapes and other city-wide services.

Green strips, linear green spaces associated with irrigation channels, are crucial for providing continuous natural corridors within the urban fabric, enhancing ecological connectivity and recreational opportunities. Similarly, urban and natural waterfronts provide significant ecological, recreational, and aesthetic value to the city.

Parks, both compact and extensive, are distributed across the city, offering vital green spaces for recreation, social activities, and ecological benefits. The current network of green and open spaces can be significantly enhanced by transforming green pockets into organized public spaces or community gardens.

Lastly, the productive landscapes represented by agricultural fields are located on the outskirts of the city. Dedicated to agriculture, these areas support local food production and maintain the rural character at the city's edge. Being close to the UCA and the NSU's Agricultural and technical campuses, this spatial typology has significant potential for mutually beneficial functions with the university, such as agro-innovative research hubs and special experimental fields, creating an enabling environment for the area to function as an innovative agro-cluster in synergy with the university campus and the city.

Overall, the map should be read as a map of opportunities that each spatial typology can provide in order to function in synergy with neighboring spatial patterns.

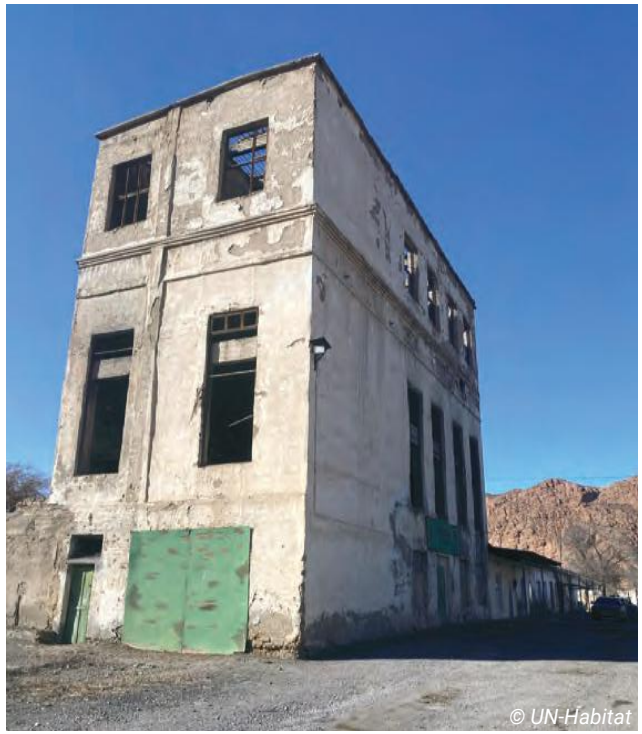


Figure 11. Remaining structure on under-utilised land

Figure 12. View on the housing blocks of the Moskovskiy district

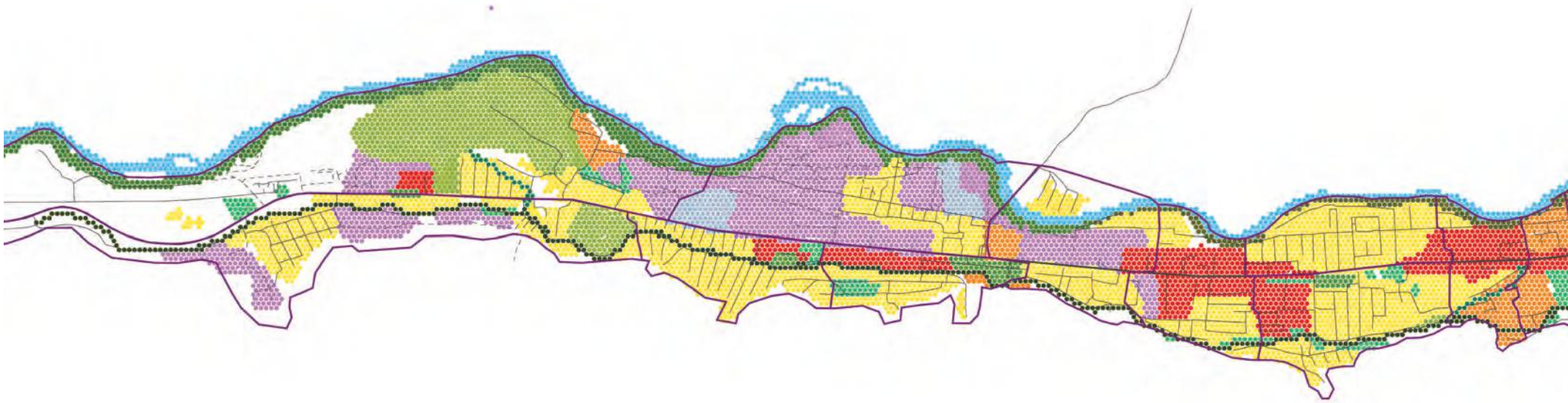
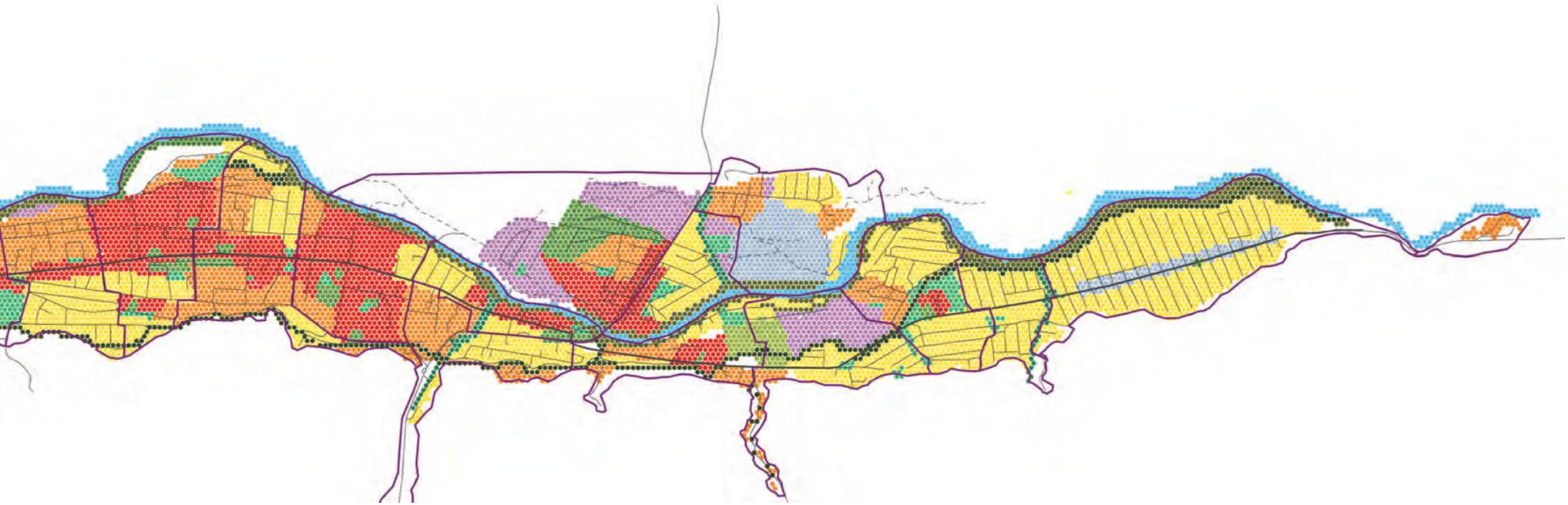


Figure 13. The City-wide scheme of spatial typologies

Legend

- **A1** Compact regular form
- **A2** Compact chaotic
- **A3** Compact urban area
- **B1** Urban void: void more that built-up area V>B
- **B2** Underutilised/greyfiled with few structures
- **B3** Underutilised/greyfiled
- **C1** Green strip that crosses infrastructure
- **C2** Green strip that along infrastructure
- **C3** Urban waterfront
- **C4** Natural waterfront
- **D1** Park (compact and extensive)
- **E1** Green pocket/underutilised and productive
- **F1** Agricultural fields



The analysis of spatial typologies is based on the characteristics of the built environment, thus instead of listing the areas with specific typologies, it is more accurate to refer to the map that provides an understanding of the location of these areas. The street network and the boundaries of administrative units are highlighted on the map to provide an orientation refernce for determinaton of spatial typologies within the city.

Actions for transformation of the spatial typologies

To enable the transformation of spatial typologies into a mutually beneficial spatial pattern, a specific set of actions and practices can be applied to each typology. A series of explanatory diagrams illustrates the nature of transformative actions that, if applied holistically, will facilitate the process of urban transformation. These diagrams serve as a visual guide to understanding how targeted interventions can lead to significant changes in the urban landscape, promoting integration and enhancing functionality across different urban typologies.

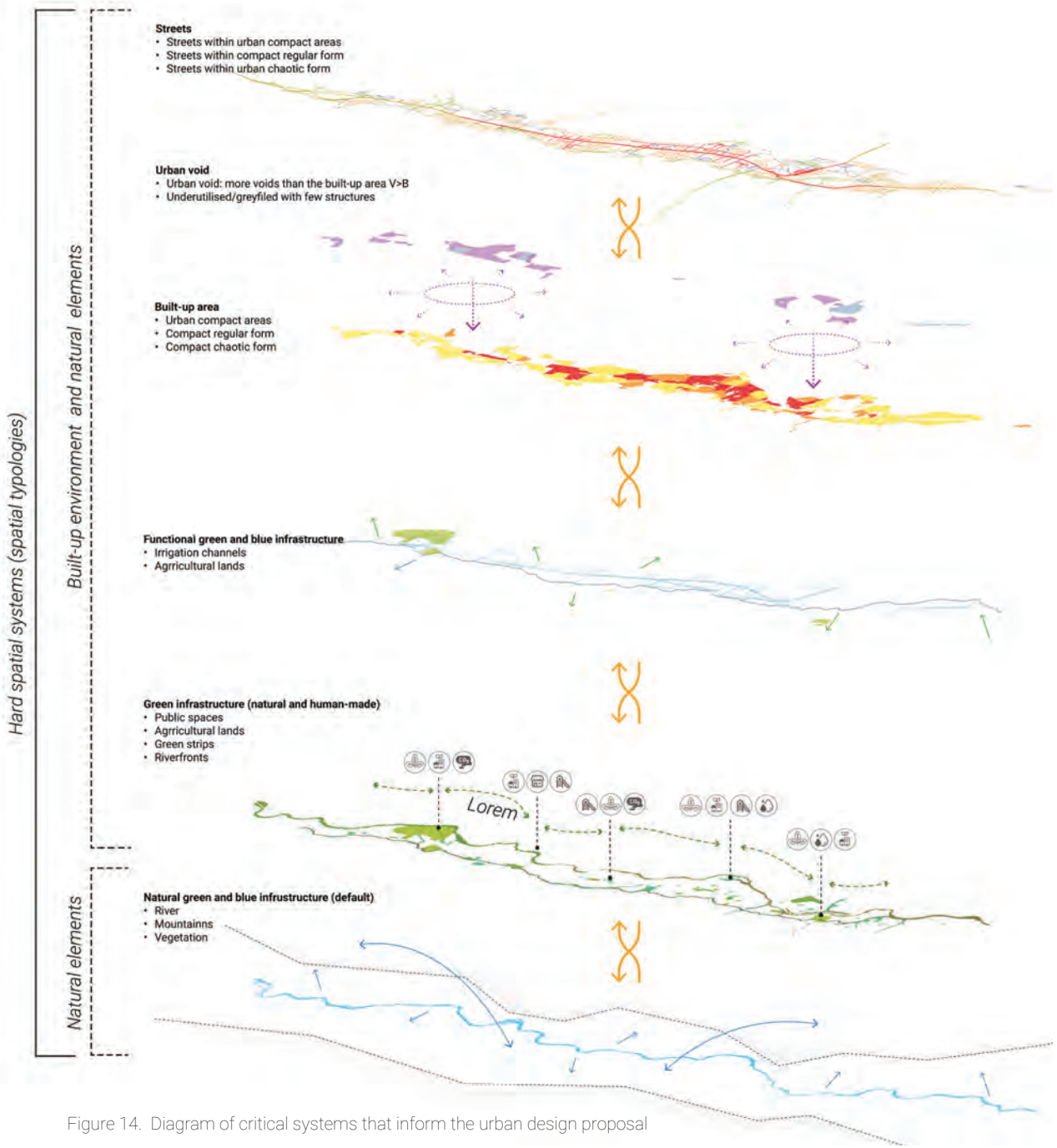


Figure 14. Diagram of critical systems that inform the urban design proposal

From compact Urban Form to Revitalised Urban Area

For example, to transform the compact urban form into a revitalized urban area, the process may involve a series of urban regeneration initiatives such as creating pedestrian-oriented spaces, developing open green spaces, and incorporating active street frontages to create an economically attractive environment for small businesses. Additional interventions may include the creation of playgrounds, widening the sidewalks, and enhancing street vegetation to promote walkability in the area, thereby enhancing the overall livability of densely populated areas. These measures collectively contribute to a more vibrant walkable and engaging urban environment.

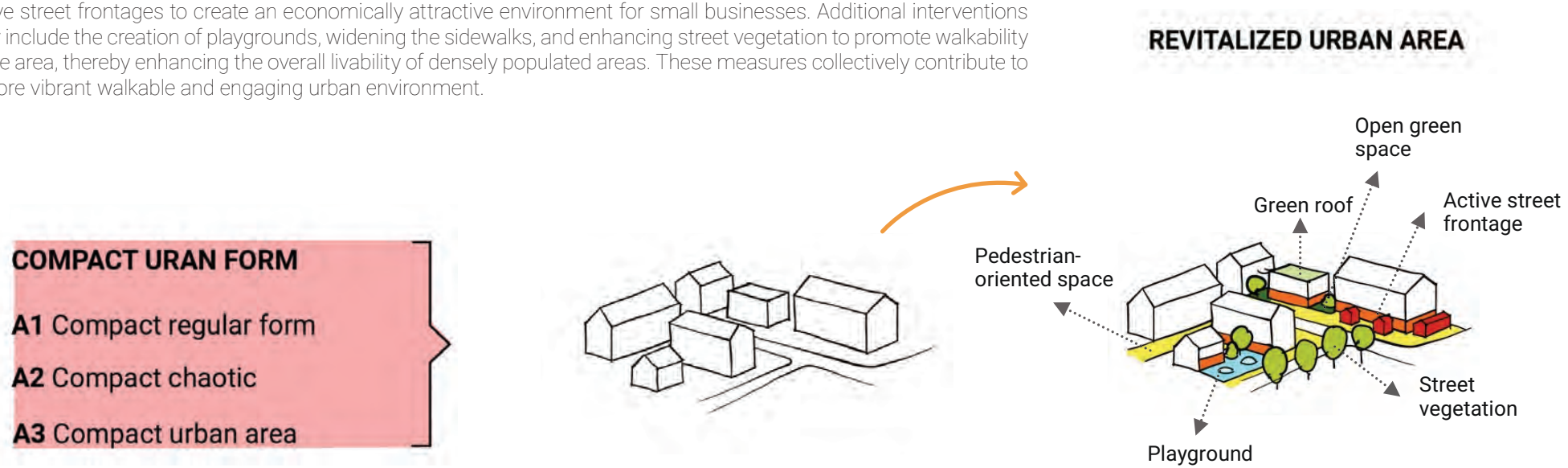


Figure 15. Diagram "Compact Urban From to Revitalized Urban Area"

From Fragmented Urban Form to Eco-Village

To transform a fragmented urban form into an eco-village, the process may involve expanding the natural spaces to have them integrated into the built environment through the incorporation of green open spaces, community gardens, increasing vegetation, etc. Creating pedestrian-oriented spaces, developing active street frontages, and incorporating playgrounds will bring community interaction and livability to the natural neighborhood. One the other hand, some of these areas can be the subject for densification strategy if located in proximity to the "activity nodes". It is important to consider contextually appropriate levels of densification that ensures ecological connectivity, a human-scale built environment to ensure a gradual transition from urban to rural areas.

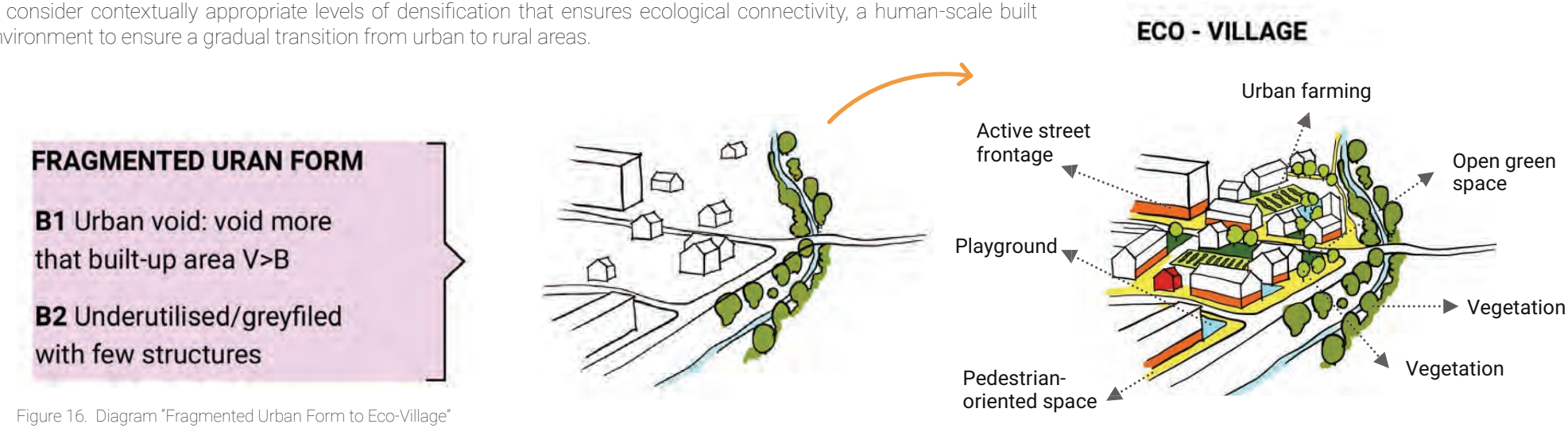


Figure 16. Diagram "Fragmented Urban Form to Eco-Village"

From Linear Green to the Green Connector

To transform a linear green space into a green connector that ensures functionality and connectivity between services and creates a more walkable experience throughout the area, the transformation process involves integrating various features as shown in the diagram. For example, the actions may include developing pedestrian paths along the river, upgraded green strips, integrating markets and commercial spaces to stimulate economic activity along the movements, and creating child-friendly spaces to enhance community interaction. Additionally, incorporating context-specific vegetation and nature-based solutions will improve the environmental and aesthetic value of the space.

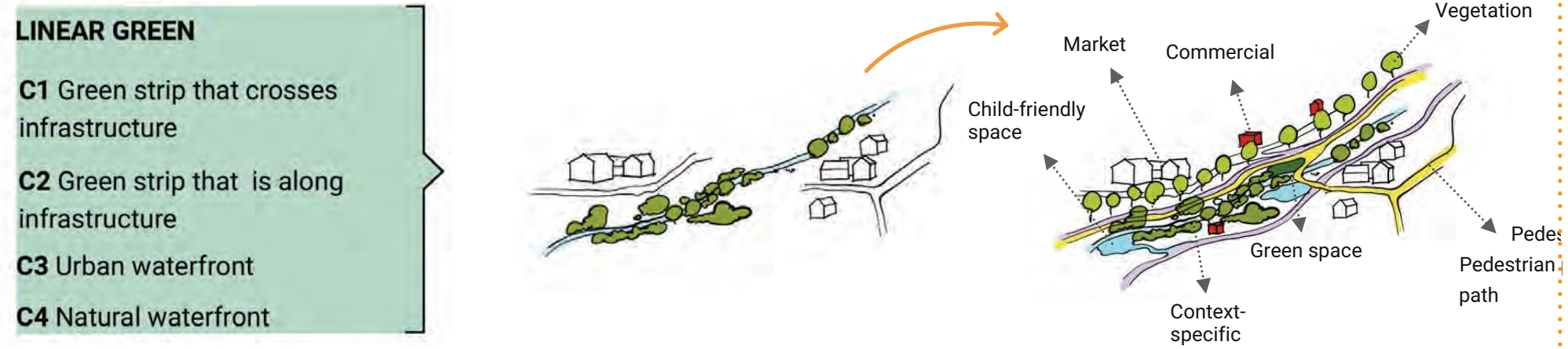


Figure 17. Fg. XX Diagram "Linear Green to Green Connector"

From Parks to Activated Parks

To transform a park into an activated park, the process involves a series of both soft (programming) and hard actions (physical improvements). For example, free activities for the community can bring a significant level of social interaction to the place, while structural improvements such as enhancing commercial uses at the edges of the park, incorporating playgrounds and pedestrian trails, adding elements of public art, and installing street lighting will ensure the vibrancy of the space in the long term. These efforts will make the park a landmark for local residents and an interesting destination for tourists.

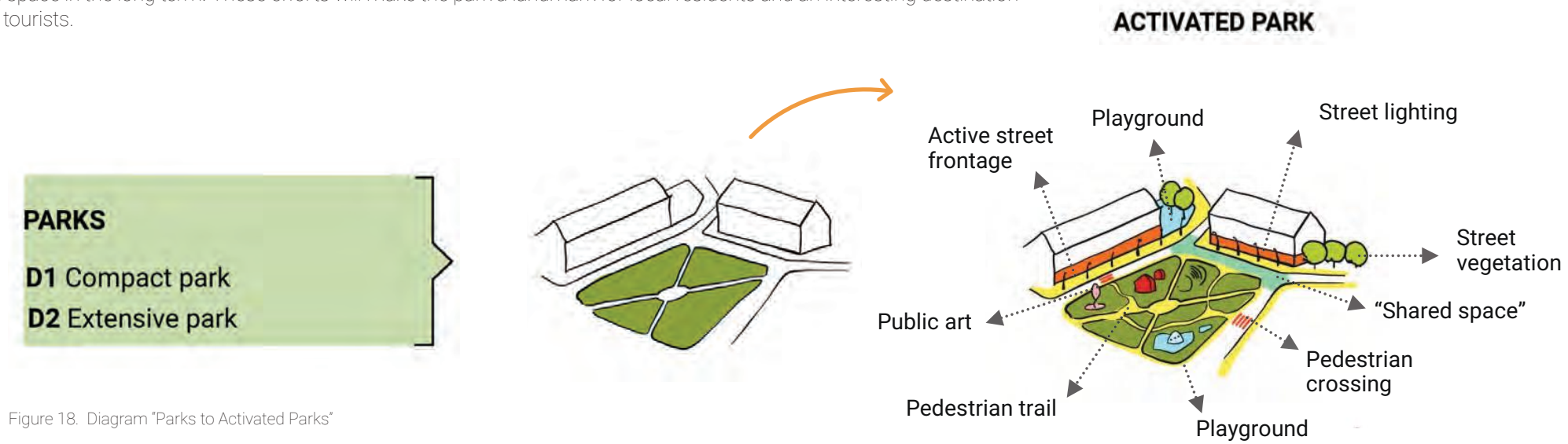


Figure 18. Diagram "Parks to Activated Parks"

From Green Pocket to Vibrant Public Space

Similarly with Activated Parks, green pockets have a significant potential to become vibrant public spaces through activation via programming and physical interventions. The city of Naryn has numerous green pockets within the built environment that can potentially contribute to the creation of a network of pocket public spaces.

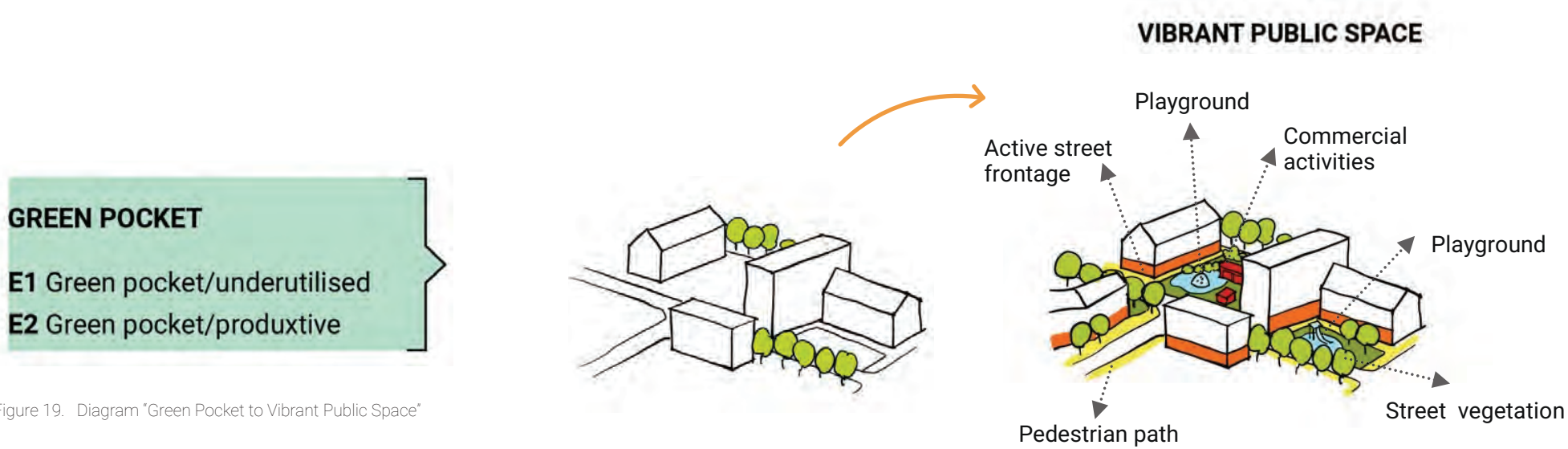


Figure 19. Diagram "Green Pocket to Vibrant Public Space"

From Productive Space to Productive Eco-Hub

Creating mutually beneficial functions for the agricultural fields will help achieve the combination of visions for Naryn such as Naryn as a tourist designation and agricultural hub. The process of transforming a productive space into a productive eco-hub involves diversifying the existing agricultural functions to include places for learning, experimentation and research, and community interaction. In the case of Naryn, enriching such fields with additional functions will create an enabling environment for creating a point of attraction as a productive eco-hub that will co-function with the neighboring UCA and NSU, benefitting the community and local economy.

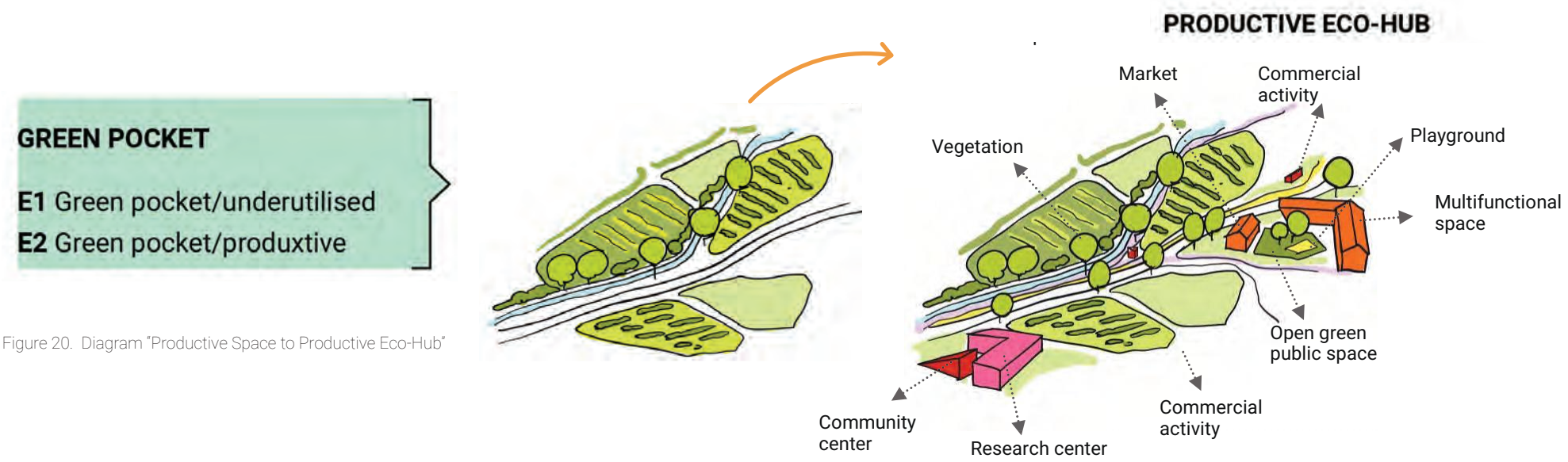


Figure 20. Diagram "Productive Space to Productive Eco-Hub"

Figure 21. Under-utilised land in Naryn

The example of potential actions per spatial typology

A1 Compact regular form

- *Diversication of urban form through tactical urbanism and regeneration strategy*
- *Promotion of pocket public spaces (public, semi-private)*
- *Street redesign to establsish clear street hierarchy*
- *Design of the character places with identity*

A2 Compact chaotic

- *Promotion of pocket public spaces (public, semi-private)*
- *Promotion of urban permeability, reducing the dead ends*
- *Preserving patches of vegetation*

A3 Compact urban area

- *Promotion of pocket public spaces (public, semi-private)*
- *Promotion of active street frontages*
- *Inegration of pedestrian-oriented spaces and street redesign to prioritise walking and cycling*

B1 Urban void: void more that built-up area V>B

- *Depending on the plot location - introducing a new mixed-use development pattern that links urban area to rural settings*
- *Promote targeted infill stratgy to activate the street edges throughvertical zoning*
- *Promote urban agriculture and integration with productive landcape*
- *Promote pocke public spaces to ensure a consolidated green network*

B2 Underutilised/greyfiled with few structures

- *Depending on the plot location - introducing a new mixed-use development*
- *Depending on the plot location - introducing a new mixed-use development pattern that links urban area to rural settings*
- *Promote urban agriculture and integration with productive landcape*
- *Promote pocke public spaces to ensure a consolidated green network*

C1 Green strip that crosses infrastructure
C2 Green strip that along infrastructure

- *Promotion of nature-based solutions where possible*
- *Integration pedestrian and cycling paths*

C3 Urban waterfront
C4 Natural waterfront

- *Regeneration, upgrading and revitalisation of the riverfronts*
- *Integration pedestrian and cycling paths*
- *For urnban waterfront -promotio of small-scale economic activities to create vibrant environment*
- *Promotion of green and recreational spaces for respite*

D1 Compact park
D2 Extensive park
E1 Green pocket/underutilised
E2 Green pocket/productive

- *Programming of public space*

F1 Agricultural fields

- *Promotion of compatible uses to increase the efficiency of productive landscapes (e.g. commercial activities, educational activities focus on sustainability)*

Example of the use of spatial typology coding

Following the provided analysis of the spatial typologies, below is an example of how to use this information to build a transformative vision for an area. Below on the figure 29 is a snapshot of an area in Surot-Bulak and Neftebaza. According to the earlier identified spatial typologies, an exemplary set of actions can be applied accordingly. For example, the green strip along the infrastructure can be accompanied by a pedestrian trail, small markets, and public spaces. The urban waterfront can be redesigned to have a system of parks and a walkable riverfront with pedestrian trails. The urban void and underutilized land, due to its proximity to services, can be transformed into a neighborhood connected to the surrounding environment via pedestrian network and a bridge. Current compact urban areas can be the subject of urban regeneration strategies that imply the integration of active street frontages with commercial functions, urban vegetation, and the creation of pocket public spaces as demonstrated in the fg. XX.

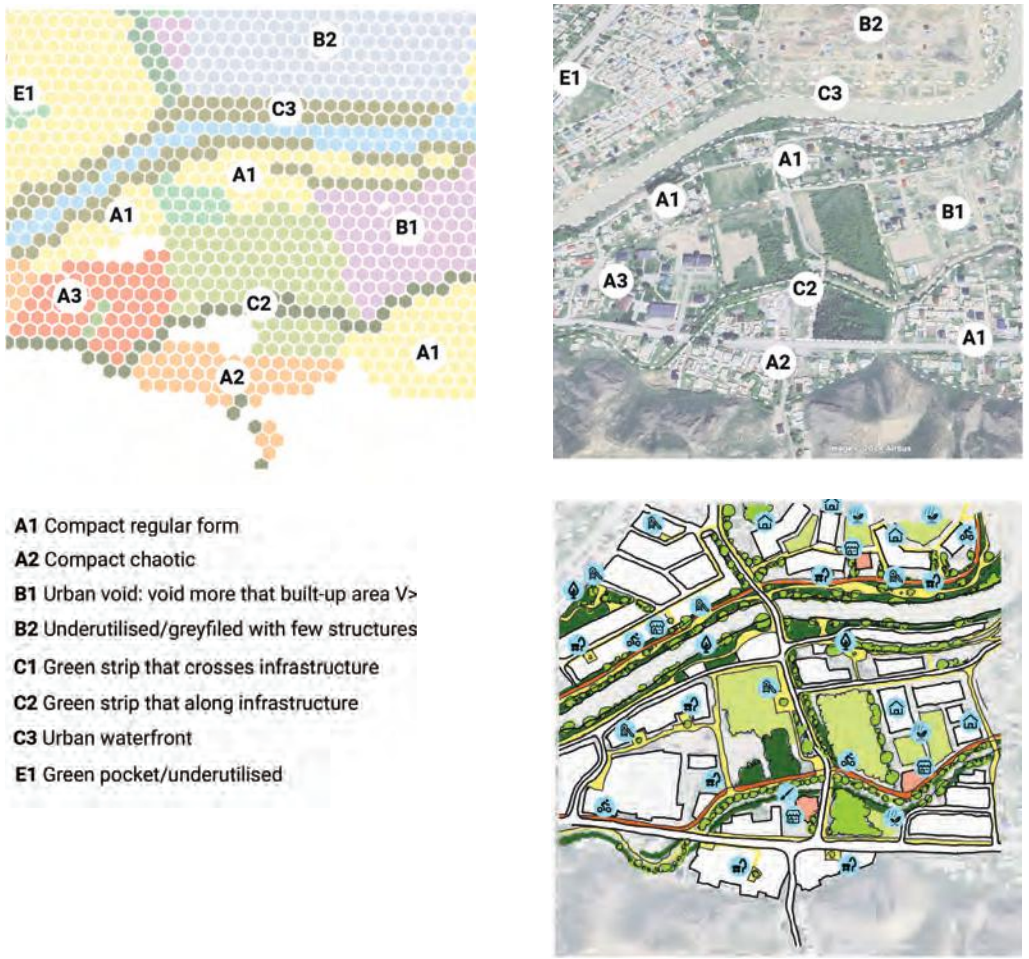


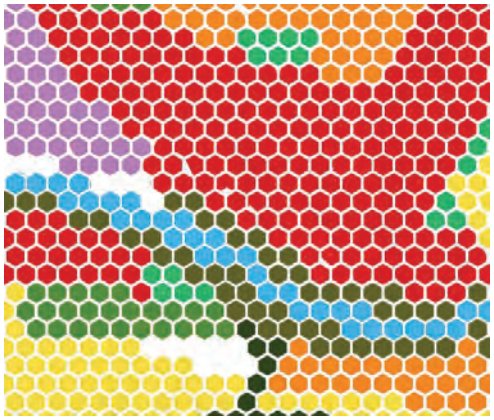
Figure 22. Diagram of practical applicability of spatial typology

Figure 23. Irrigation canal with a pedestrian bridge

Figure 24. Transformation of an area in Surot-Bulak and Neftebaza (before)

Figure 25. Transformation of an area in Surot-Bulak and Neftebaza (after)

Other examples of urban transformation



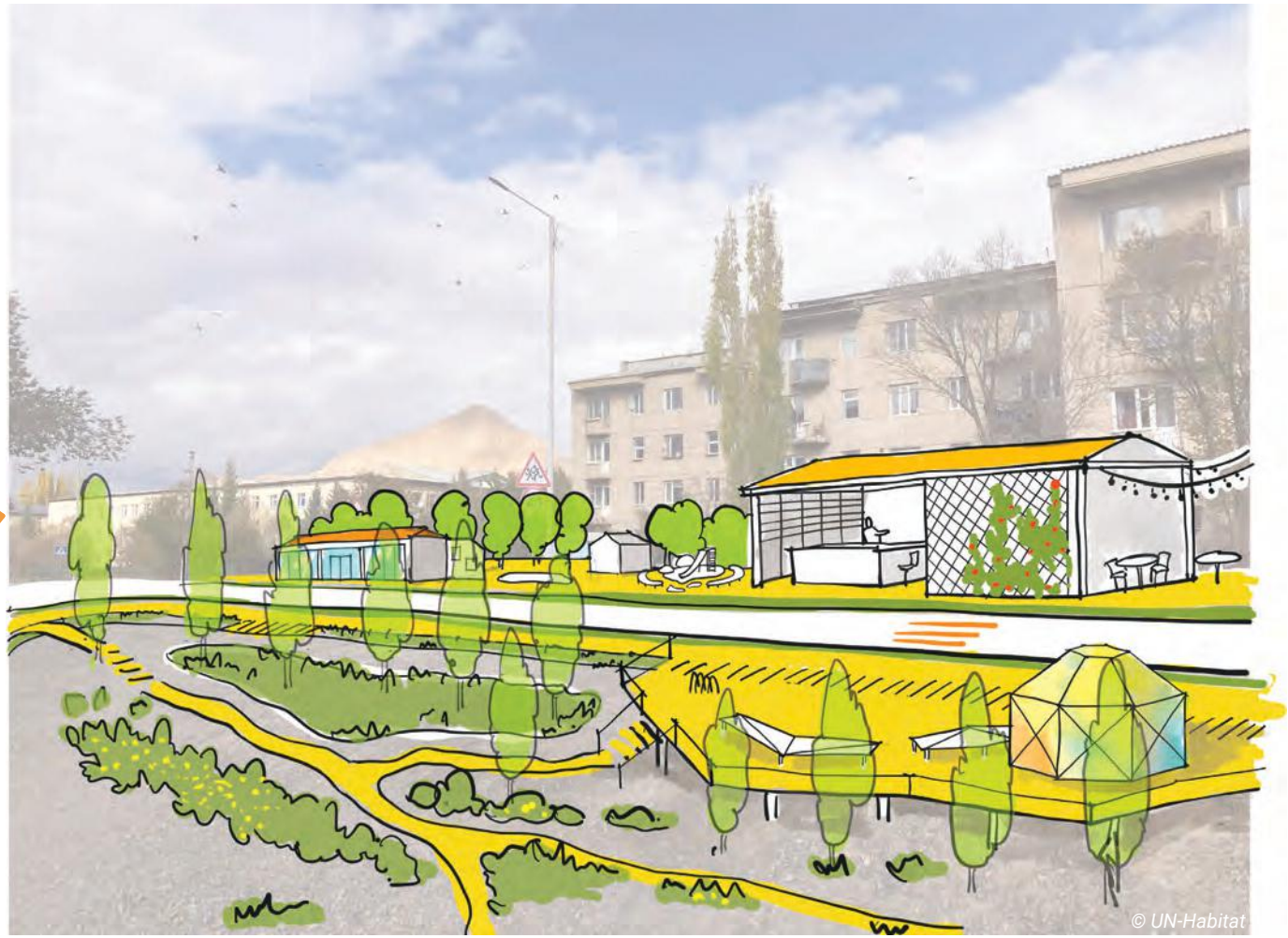


Figure 26. Transformation of the urban riverfront in Moskovskiy neighbourhood

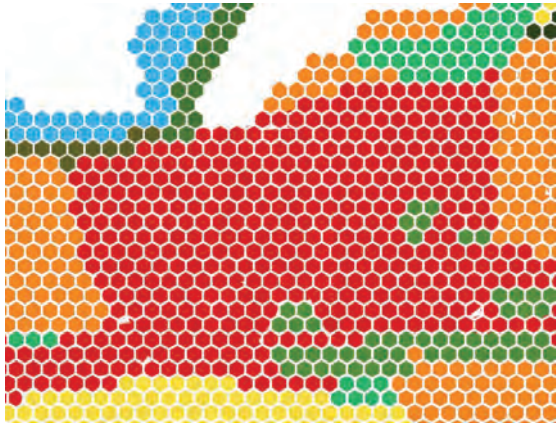


Figure 27. Transformation of the central area in Bazar

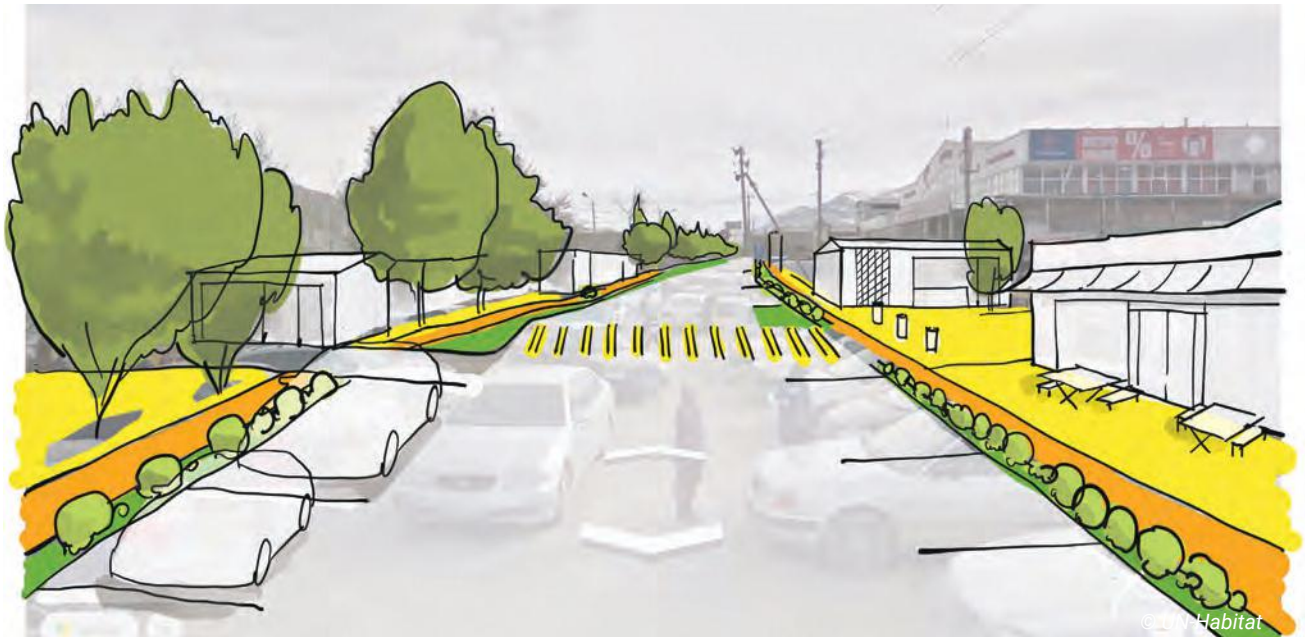


Figure 28. Transformation of the central Bazar street crossing

Figure 29. Traditional element (Yurt) made of concrete

Below, the diagram demonstrates the spatial transformation of an area in Jani-Jer using different density scenarios: high-rise development and mid-rise development, which is more contextually appropriate. UN-Habitat recommends an appropriate high level of density that is achieved with human-scale mixed-use development. This approach is more efficient in terms of economic activity, creates more secure semi-private spaces such as internal courtyards, and complies with local safety regulations regarding fire risks.

Figure 30. Examples of housing typologies

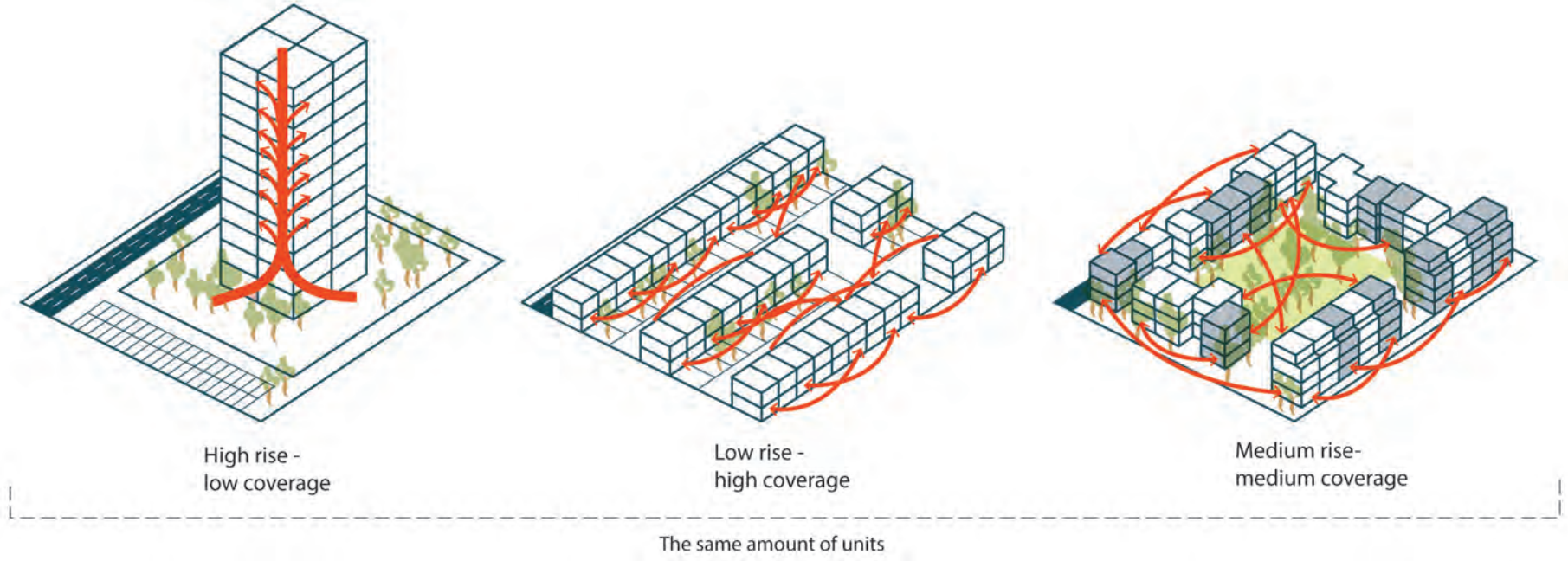


Figure 31. Diagram of three scenarios of spatial organisation

Figure 32. Murals on the side facades of the hosing blocks

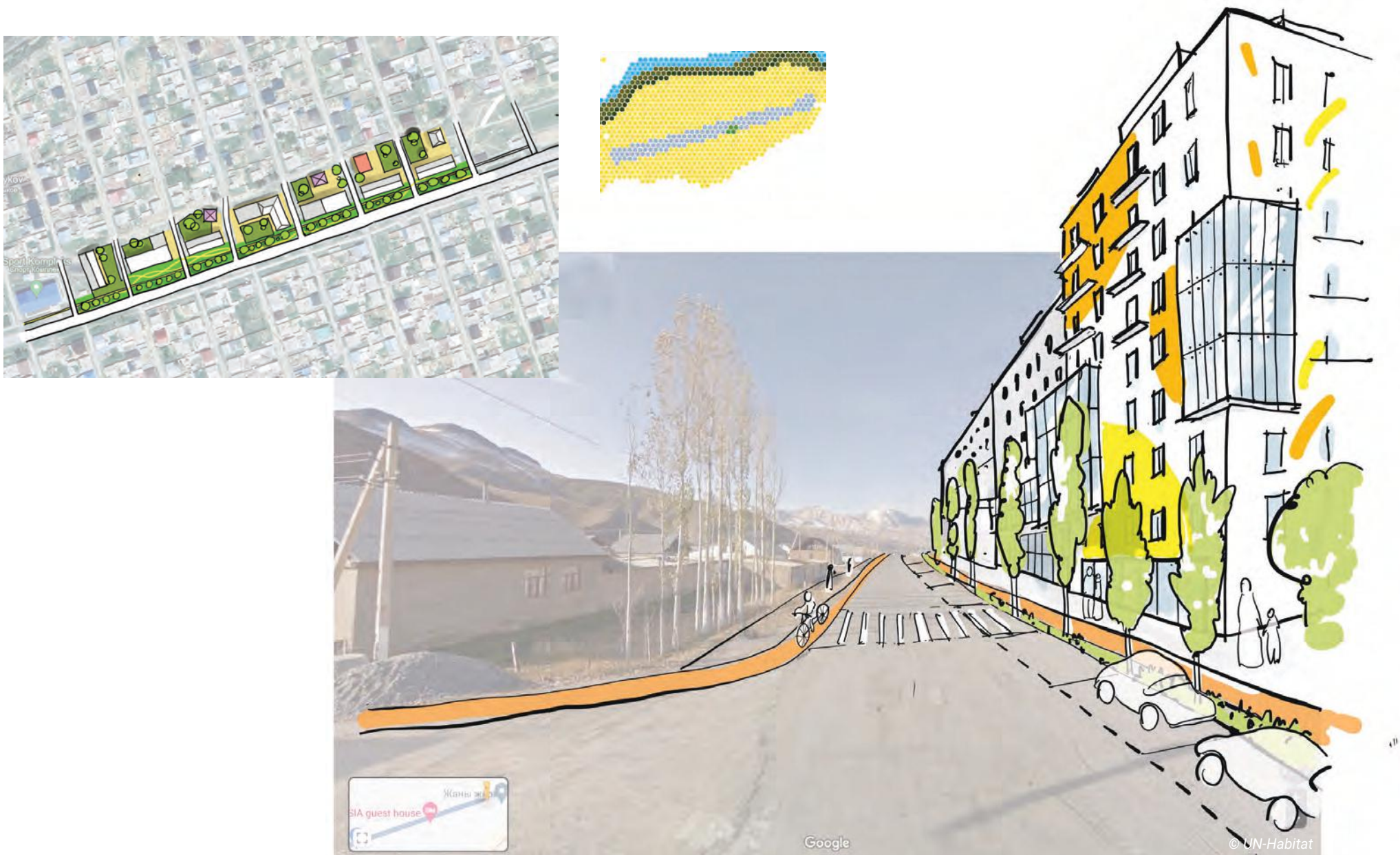


Figure 33. Scenarios of spatial transformation of an area in Jani-Jer (scenario with 9-storey buildings)

Figure 34. Scenarios of spatial transformation of an area in Jani-Jer (scenario with 4/5-storey buildings)

Capacity Building Box 1: Design Day

The graphic materials above served as a capacity building material for the design workshops aimed to engage diverse community members and Naryn officials to demonstrate the transformative urban design initiatives. The capacity building workshops and technical sessions also aimed to provide the stakeholders with necessary tools to conduct participatory sessions with communities to ensure their needs are addressed by the design proposals. UN-Habitat team carried out an "urban design day" that included of a variety of activities such as site visits and observatory walks, city-wide mapping exercise and collaborative mapping exercises for targeted sites selected for demonstration projects.

While the site visits and community consultations were conducted to collect qualitative data and understand the local way of living and traditions, the city-wide and neighbourhood mapping activities focused on development of design solutions to address community needs following the co-creative design process. For the city-wide mapping activity, the community members were asked to highlight the advantages and disadvantaged of the city using colorful stickers.

The community members were sharing their thoughts regarding both neighbourhood they are from and the whole city, so the final result, a consolidated "city-wide feedback map", included 2 scales for further discussions. According to the city-wide feedback map, some areas were defined as the ones of interest that require a more in-depth discussion. These areas were also highlighted by the project partners AKDN and were further developed by UN-Habitat as demonstration projects.

For the collaborative mapping activity at the neighbourhood scale, communities were devised into two groups to work on the two selected sites: The Jusaev Park and the area of the central market. Each group was given a set of icons to place on a prepared basemap. The icons included a diversity of amenities, such as a bench, cultural object, sport activity, bike lane, a tree, community garden and many others. In addition, participants were encouraged to suggest their own amenities by placing their own ion on the map. The activity highlighted the different perceptions of the area among the participants and facilitated the engaging process of idea generation. In the end of the collaborative mapping communities presented their suggestions which were further synthesized by UN-Habitat team and considered in the design proposals.

Figure 35. Activities of the design day: collaborative mapping and ideation activity

3. The identification of sites for demonstration projects

Rational for site selection

Following the identification of strategic issues and recommendations, several sites have been defined that demonstrate how to address the widespread issues in Naryn, such as the lack of a well-connected public space system, degradation of the built environment, and congestion in the city center.

The site selection was made in close consultation with project partners AKDN to align with government capacity and goals. In this manner, the UN-Habitat Urban Lab team has developed projects that not only demonstrate the transformative impact of the selected projects, like the Market area, but also show how projects can be executed sustainably and holistically, tackling multiple strategic responses, such as the Park.

Additionally, the design report includes snapshots of design interventions in targeted areas in accordance with the strategic recommendations. These interventions include the regeneration of central streets and the revitalization of post-industrial sites or underutilized areas.

The design interventions are based on the UN-Habitat principles for sustainable neighborhood planning, summarized in a thematic checklist according to the five city objectives outlined in "MY Neighborhood." The report exemplifies an approach to neighborhood planning that demonstrates how principles for sustainable planning can be contextualized to drive local urban development sustainably and in accordance with local traditions and culture.

The highlighted portions in the figures 5 and 6, indicate the strategic recommendations address many parts of the city, particularly impacting specific areas. As demonstrated in the CIP report, these recommendations have been developed into targeted, actionable projects. The design report illustrates how these projects are defined holistically to achieve a transformative effect in the city.

Figure 36. The residential block of the Moskovskiy district

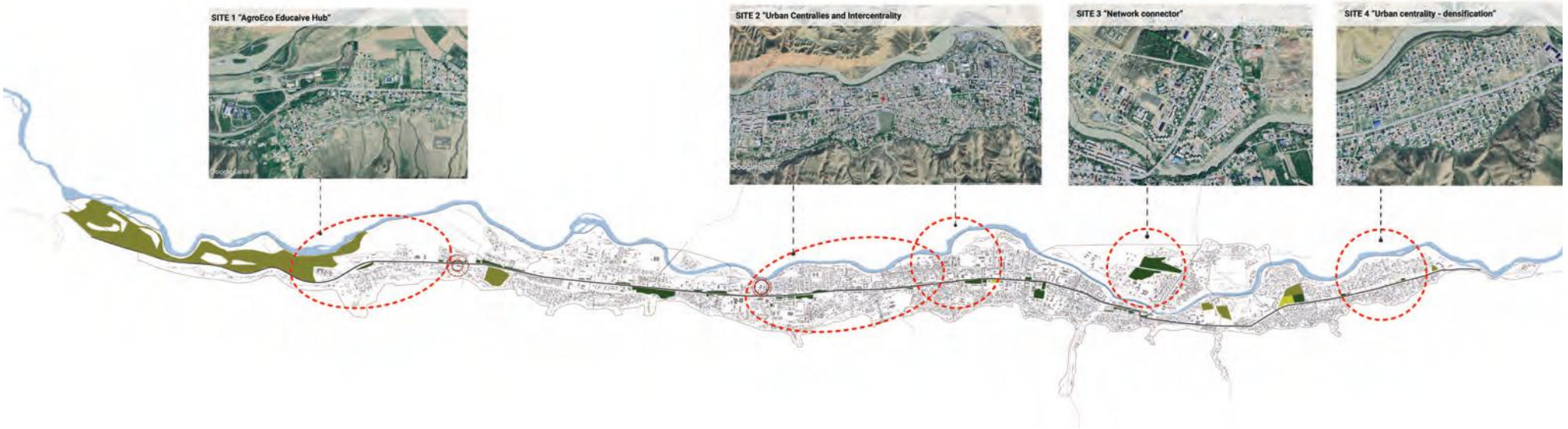


Figure 37. Map of the pre-selected sites

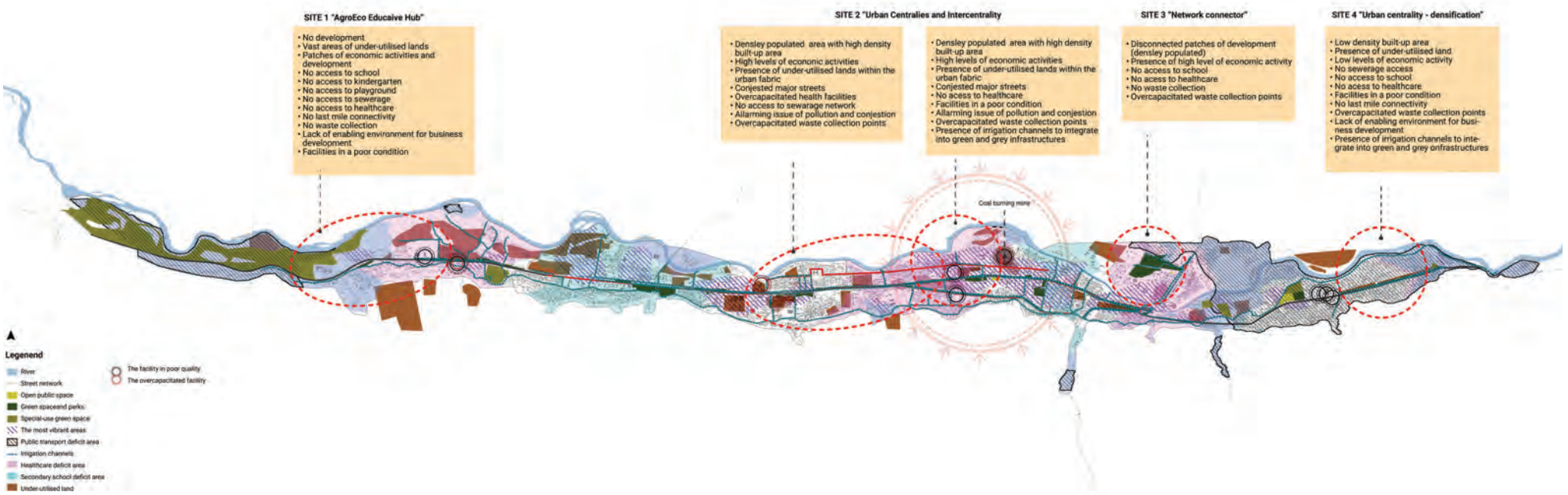


Figure 38. Map of the pre-selected sites with brief descriptions

The logic of design demonstrations

As illustrated in figure 7, the projects may be designed with varying functionalities. However, a project is considered transformative if it enhances other aspects of urban design and contributes to a variety of scale. Such projects contribute to creating a synergistic environment that fosters significant spatial transformation. For example, a park with only basic interventions without programming a per scenario A has fewer interactions with the surrounding environment. In contrast, a park that is coupled with nearby active street frontages, shared spaces, and a variety of activities as shown in the scenario C can become a point of attraction in the neighborhood, attracting more citizens and economic activities, thereby activating the public realm.

Following the demonstration of elements that contribute to the transformational effect of the project, the diagram above shows the process of translating strategic recommendations into implementable actions. Each action represents a project that contributes to achieving a strategic goal through either hard or soft components, ideally combined holistically within a project.

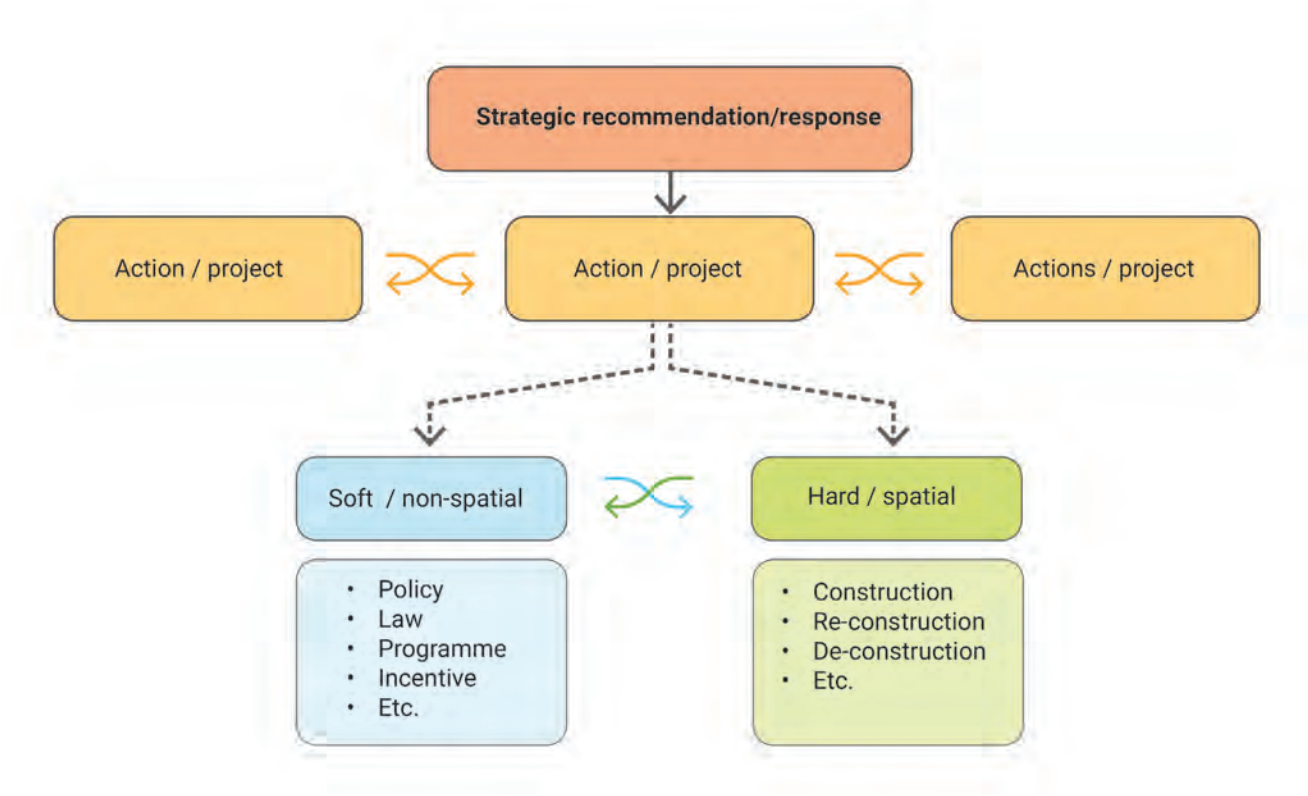


Figure 39. Necessary component for response translation into a transformative project

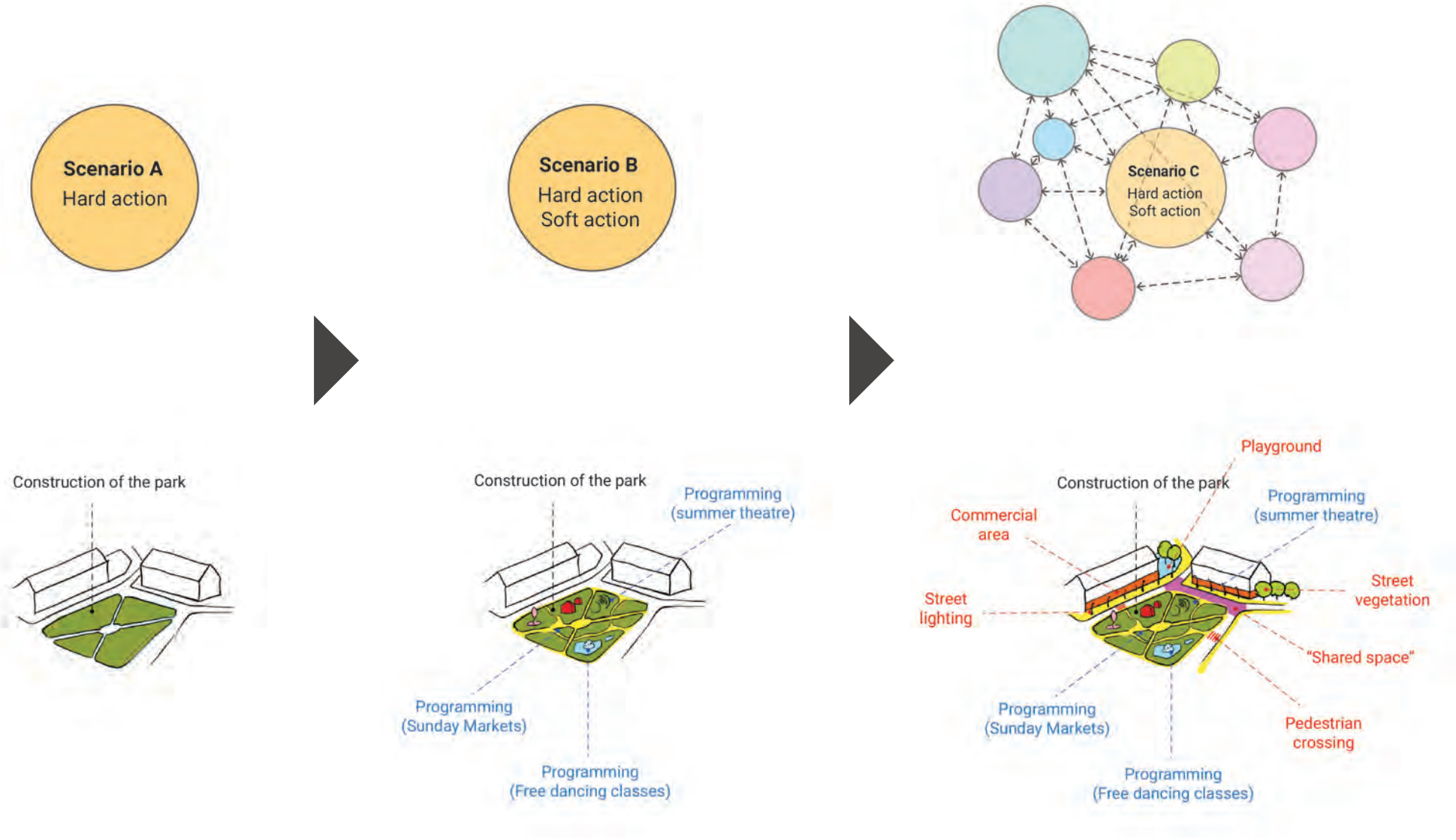


Figure 40. Diagram showing the logic of transformative design projects

Capacity Building Box 2: Theory and a role play

To practice and understand the logic and translation of spatial strategies into transformative projects, UN-Habitat team conducted the capacity building training focused on broad global benchmarks for sustainable development (SDGs, NUA), practical tools (Spatial Profiling, Masterplan Assessment Tool, MY Neighborhood) and examples of cases how the projects in different contexts were carried out following this rationale. The training was attended by a variety of stakeholders such as representatives from the national government, local planning authority, union of architects, municipality of Naryn, UCA and other entities.

After the theoretical introduction to the methodologies and tools, UN-Habitat conducted a practical simulation exercise, a role play with the participants that consisted of problem definition, understanding of roles and problem solving. The participants were divided into 4 groups. Each group was given an area in the city of Naryn and a scenario that included a specific theme, associated challenge and a set of roles for each member of the group. Each member of the group was given a separate card with base instructions, the specific role the participant should play and what to achieve from the negotiation process to solve a challenge. The roles included a diversity of characters to make the negotiating process more interesting such as the mayor, environmental activist, community member, entrepreneur, etc. depending on the specifics of the scenario and the theme The idea of the role play was not only to come up with design ideas that would solve a given issue, but also to show the complexity of the decision-making process, the importance of alliance building and a holistic approach to project identification and spatial interventions, and most importantly, how the design ideas can be implemented through the collaboration of all the stakeholders. After the engaging exercise the participants presented their design ideas sketched on the prepared basemaps, highlighting challenges that emerged during the debates and solutions to overcome them.

Figure 41. Activities of the simulation workshop

4. Demonstration projects

Market Area

Spatial pre-conditions for design proposals

The central market area is a crucial part of each city, providing vibrancy and attracting economic activities while serving as a hub for social interaction. When the market is well-designed and meets the needs of all residents, it transforms into a vibrant public space where people gather also to meet and exchange in addition to using the service that the market provides.

In Naryn, the central market area is vibrant and attracts a variety of residents, from the elderly to young children. It includes designated areas for organized unloading, where vans are parked, and goods are being unloaded and transferred to trading spots. The market is naturally organized and includes different zones for vending non-food items (such as souvenirs, clothes and shoes, furniture, etc.) and grocery items (such as fruits, vegetables, baking supplies, etc).

The central market consists of a main covered structure of decent quality and adjacent trading spots that are privately owned containers. Despite the naturally convenient and seemingly organized layout of the market, the area faces several challenges, such as overcrowding, lack of heating during the winter, and neighboring incompatible activities—for example, an open clothes store next to a welding station, which can potentially cause a fire risk.

Figure 42. Current condition of the Market in the project area

The market land is privately owned and belongs to various stakeholders. As such, the spatial reorganization should include participatory activities to explore different solutions for the market's functioning.

The map below highlights various key facilities that significantly influence pedestrian movements within the area. These facilities include markets, educational institutions, sports facilities such as the the stadium, swimming pool and opened sport grounds, and several administrative buildings.

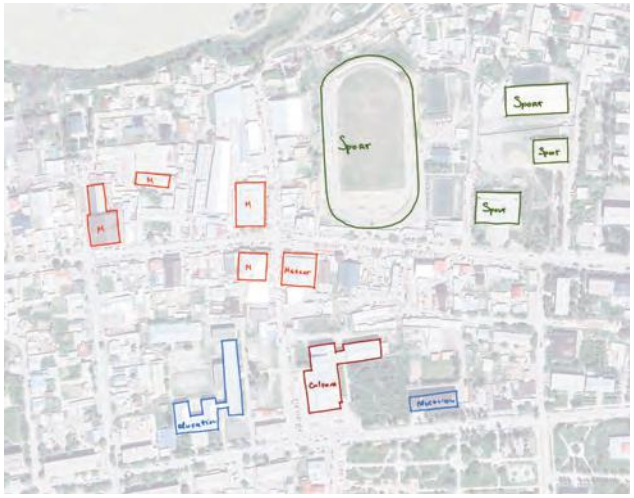


Figure 43. Diagram of the functional situation of the central area

These key facilities can be grouped into "functional clusters," that due to the concentration of diverse services ensure the continuous flow of people, contributing to the area's vibrancy but can also lead to congestion as each cluster is heavily relying on the major roads for access and connectivity.

To achieve a vibrant urban area, the functional clusters should interact and support each other through mutually beneficial functions that encourage pedestrian movements, social interactions, and exchanges. For example:

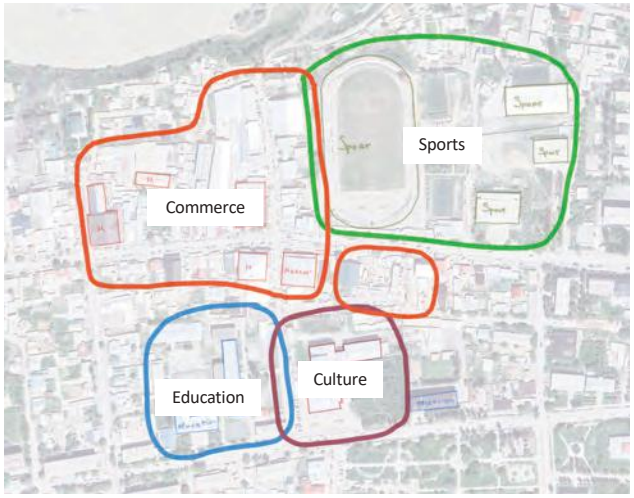


Figure 44. Functional clusters of the central project area

• The marketplace may include areas for rest and socialization, attracting visitors from the sports facilities after their session, students from nearby universities and schools and tourists to spend more time exploring the market,

• Playgrounds for families can enhance the market experience by providing entertainment for children while parents shop,

• Sports facilities can incorporate spaces for outdoor activities, which can be used by students from nearby educational institutions.

Such interventions create a cohesive urban environment where different functions complement each other, fostering a dynamic and engaging environment.

As shown in the diagram of assumed pedestrian flows, movements may increase in the area between the functional clusters once they are enriched with additional services and public spaces. To prevent further congestion on the main street, it is essential to create an attractive environment within the neighborhoods that encourages pedestrians to circulate within them, providing an engaging experience of exploring the city.

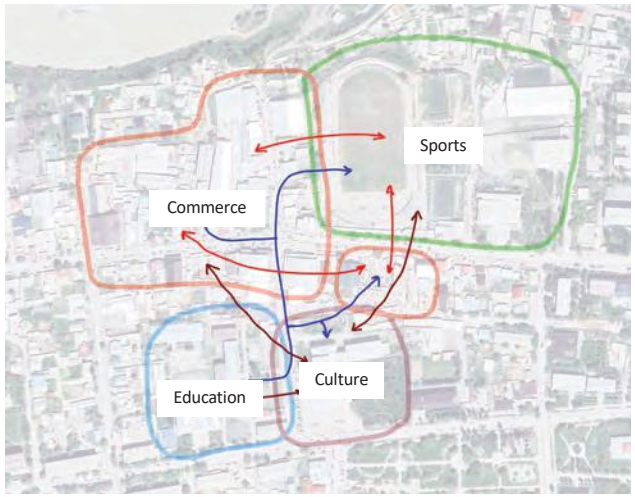


Figure 45. Diagram of the assumed pedestrian flows within the central project area

Currently, major streets such as Lenin Street and Sagynbai Orozbak Street within the central project area are experiencing congestion due to intense traffic flow, unregulated parking, and poor infrastructure for non-motorized and pedestrian movements.

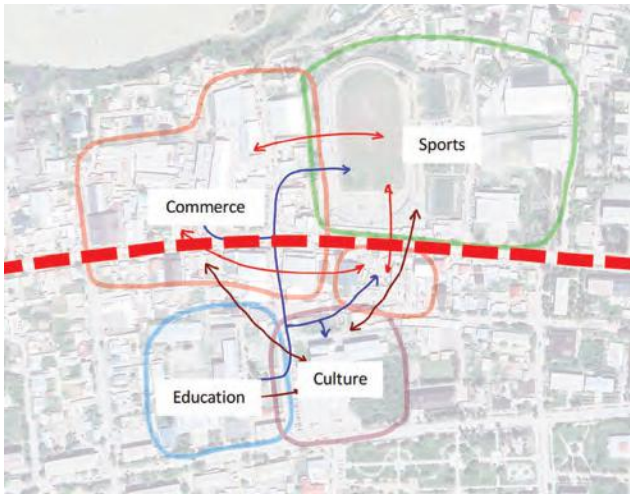


Figure 46. Diagram of the congested street

Figure 47. Current condition of the street adjacent to the market

Figure 48. Vending spots along the street

Planning proposals

Community engagement feedback

The conceptual proposal for the regeneration of the central market area has been significantly informed by comprehensive community feedback. Prior the development of the design proposal the UN-Habitat Urban Lab conducted a participatory session to get community's feedback. The area for the community session was selected based on the community's opinion as the central market area is a central attraction pint, widely used by all the residents.

The participatory session included a collective mapping exercise where residents were asked to place an amenity from the set of prepared ideas or to suggest their own intervention. The exercise highlighted the differences between the perceptions of the central area among the residents and the need for creating a comfortable and well-designed space for all. While the elderly community members were suggesting a more walkable environment with ramps and areas for sitting, younger generations were highlighting the need for wi-fi spots, spot and other activities, women were emphasizing the need for child-friendly spaces and green areas.

Engaging with diverse community groups, the Urban Lab provided opinions and suggestions to ensure the proposed development meets the needs and aspirations of the people. The map below illustrates the various amenities and features identified through the collaborative mapping, such as benches, small pocket parks and green public spaces align the riverbank, cycling lanes, community centers, and cafes and a Mosque. The common feedback points emphasized the need for more accessible parking, playgrounds, community gardens, and enhanced connectivity through cycling lanes and Wi-Fi spots.

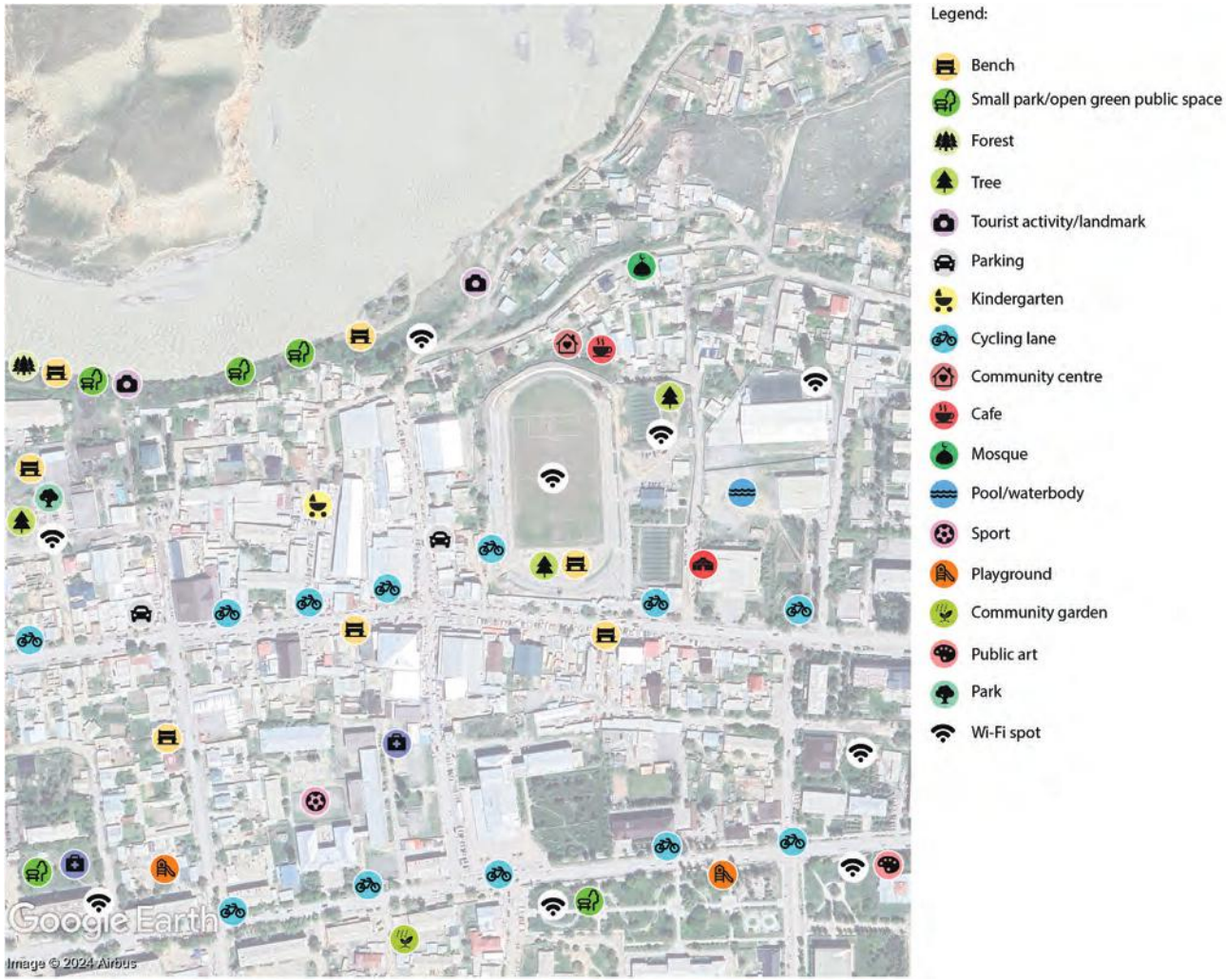


Figure 49. Map of outcomes from the community engagement session

Figure 50. Vending street next to the main market

Major concept proposal

The illustrated concept represents a comprehensive and strategic plan for regenerating the central market area, focusing on creating a vibrant and accessible urban environment. At the heart of this concept is the emphasis on pedestrian-friendly design. By prioritizing pedestrian spaces, shared streets the conceptual proposal aims to enhance walkability and create a safe, enjoyable environment for both residents and visitors. The design emphasizes wide sidewalks, dedicated pedestrian paths, and traffic-calming measures to ensure that non-motorized movements are prioritized.

The central area of the city is envisioned as a network of markets of different typologies:

- Two large markets as multifunctional hubs (the main market and the one to the south from the stadium), that incorporating a variety of uses such as market stalls, sports facilities, cultural centers, community gardens, and public spaces, where the mix of uses ensures continuous activity and vibrancy throughout the day, attracting diverse groups of people.

- And vending streets, that can offer a walking experience through the main streets of the city and enjoying a vibrant atmosphere. Vending streets are designed to be accessible and appealing, encouraging people to explore and interact with vendors, thereby supporting local businesses and creating a dynamic public space.

Enhanced connectivity is a key feature of the plan that includes redirection of traffic flows, and the introduction of supplementary shared routes to reduce congestion and enhance connectivity within the market areas. This includes creating links between the market and surrounding functional clusters, such as sports facilities and educational institutions, ensuring smooth and efficient movement of people and goods.

The design suggests several public amenities and services, including cafes, child-friendly spaces, artistic and creative spaces, and public restrooms, ensuring that that the market area is not only a place for shopping but also a destination for socializing, recreation, and cultural activities. In addition, the conceptual proposal suggests creating access to the river with pocket space to enhance the urban experience and provide residents with more recreational opportunity to enjoy the view on the river.

The transformation of the central market into a thriving hub of activity and interaction will not only boost the local economy but also enhance the quality of life for all residents through urban design interventions to improve public space, street network, promote vegetation etc. More precisely the interventions are unpacked below.

Figure 51. Current condition of the main market

Figure 52. Concept of spatial organisation of the central project area

Transport

Redirecting the traffic flow

To minimize congestion in the central project area, it is suggested to redirect the traffic flow along specific street segments by implementing one-way sectors. This approach will help ensure smoother movement and prevent bottlenecks caused by unregulated parking, event discharges, and other disruptions. Minimizing chaos along the major streets and enhancing street safety should be supported by interventions such as properly designed intersections with a priority for pedestrian movements, signage, parking and traffic lane markings, and traffic management/calming measures.

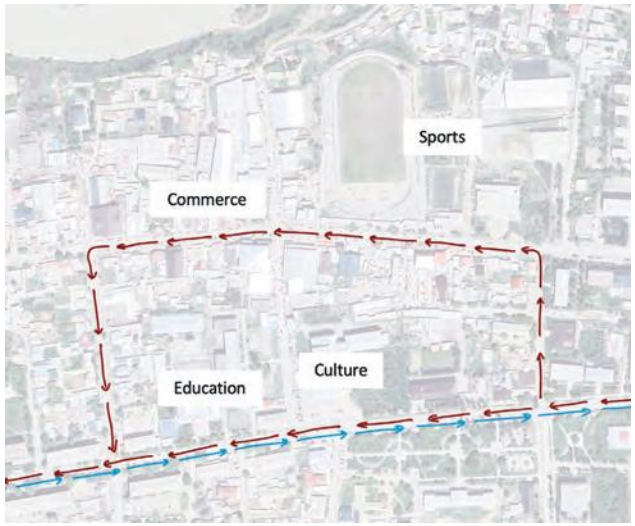


Figure 53. The diagram of the redirected traffic flow along the selected street segments

While introducing traffic management actions, there are key considerations that should be taken into account at the stage of implementation or testing:

Time Management:

• It is essential to understand the actual timing and schedules of the streets and adjacent markets. Identifying peak hours and the busiest periods can help in better planning, implementation, and management of traffic actions. The key street users related to the market area should be consulted during the implementation of the one-way direction to ensure their schedules can be easily adjusted.

Data Collection:

• Collecting data on traffic flows along the selected segments is important to gain specific insights into congestion points and to measure the impact of proposed changes. This data will provide evidence on whether the flow redirection should be implemented on a permanent basis.

Phased Interventions:

• After collecting data and consulting key stakeholders, it is important to consider the potential phasing of the interventions. For example, a smaller loop may be piloted for traffic redirection or implemented on specific days. Implementing changes gradually allows for careful monitoring and necessary adjustments along the way.

Increasing urban permeability

The central project area contains two major marketplaces that primarily rely on major streets for access. This reliance results in chaotic environments and conflicts between drivers and pedestrians. To address these issues, the project proposes increasing urban permeability within areas of high trading activity by introducing pedestrian-oriented streets. These streets are designed primarily for pedestrian movement, while also allowing for service and emergency vehicles to access and cross the area when necessary.

The supplementary shared routes shown on the proposed street network map cross privately owned land, though there are already unofficial paths used by cars for private purposes. Minor physical interventions, such as the removal of fences and physical barriers, are needed to make these routes functional as shared streets and to properly connect them to the major streets.

The proposal for the major marketplace suggests defining a link between the service road of the central market and Andabekova Street. This connection will expand the central market area, improve connectivity, and link the central market with the adjacent trading zone, which is currently inaccessible due to fencing. By creating this link, the proposal aims to enhance the flow of people and goods, fostering a more integrated and efficient marketplace environment.

Another significant proposal is the implementation of a supplementary shared route from the south of the stadium, connecting Sagynbai Orozbak Street to Shuller

Street adjacent to the theatre. This route will redirect pedestrian flows, attracting citizens to pass through the theatre area to the marketplace. The neighbourhood should include public spaces and a spatial reorganization of the market area to ensure a safe and attractive environment. The passage through the theatre and the aesthetic characteristics of the building will create an interesting and pleasant walking experience, while also improving the connectivity and accessibility of the city centre.

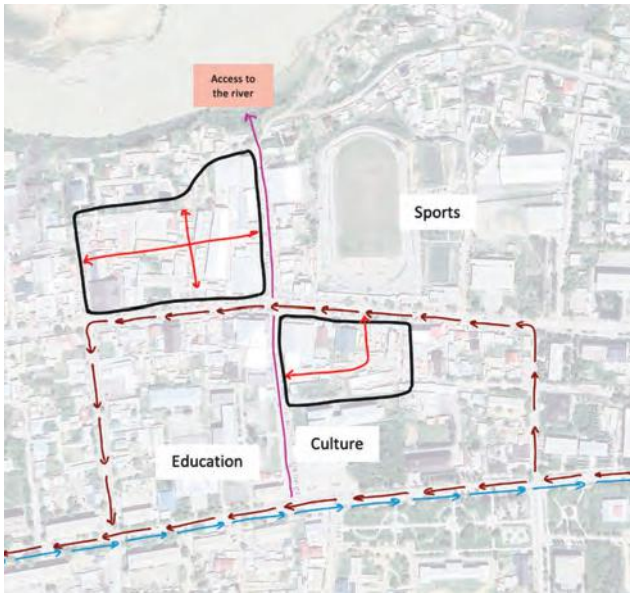


Figure 54. Diagram of increasing urban permeability

Figure 55. Main entrance to the stadium

Street redesign

In addition, it is important to consider redesigning the main street according to the principles of complete street design. This includes incorporating infrastructure for non-motorized and pedestrian movements such as wide sidewalks, cycling lanes, and green buffers that ensure safety and unobstructed movements for pedestrians and cyclists.

Parking areas

The well-distributed service parking in proximity to major attraction points will support the strategy by providing the necessary spaces for vehicles, thereby reducing on-street parking. The current situation offers a sufficient amount of land capacity to accommodate cars from the major street.

As highlighted on the map of the proposed street network, the project proposal suggests the reorganization and regularization of parking spaces along Sagynbai Orozbak Street, the creation of organized parking areas adjacent to key services and the establishment of large parking spaces within neighborhoods. These large parking areas will accommodate a significant number of cars, providing easy access to major trading spots while removing cars from the main transport arteries. The three parking areas (marked with a red icon) are strategically located as follows:

- **Adjacent to the Stadium:** This parking area is hidden from the major Sagynbai Orozbak Street and provides direct access to the stadium. It can be used by both visitors to the stadium during events and by market users when there are no activities at the stadium. This parking can accommodate approximately 20 cars.

- **Within the Sports Functional Cluster:** Located in proximity to the community center that is slated for reconstruction, this parking area can serve multiple users, similar to the previous parking area. It can accommodate approximately 22 cars.

- **South of the Stadium:** This parking area is located between Sagynbai Orozbak Street and Kommunalnaya Street, replacing the area currently occupied by containers. This location has significant land capacity and can accommodate approximately 51 cars. Covering an approximate area of 1000 m², it is recommended to consider practices that prevent the creation of vast parking surfaces to avoid the heat island effect and reduce the flow of water runoff. It is suggested to explore the use of permeable strategies to parking such as introducing potential gravel parking, the use of Porous Asphalt, Grass Pavers etc.

Figure 56. Current condition of the market passage

Figure 57. Shops along the Sagynbai Orozbak

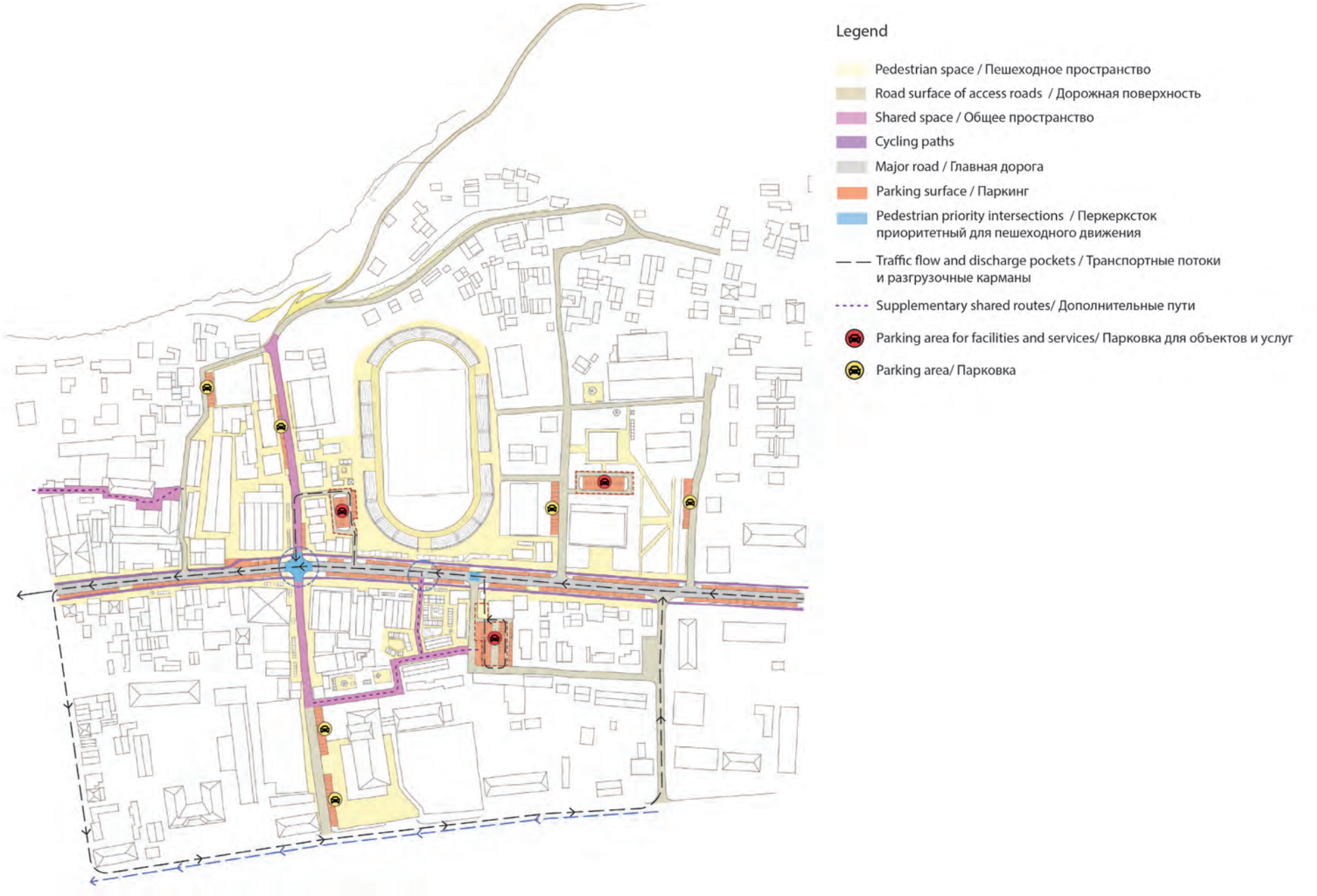


Figure 58. Map of mobility interventions

Open public space strategy

Redirecting the traffic flow

The map below demonstrates the approach to open public space in the central project area. As seen, the surfaces adjacent to key facilities such as marketplaces, the stadium, the sports cluster, and the theatre are suggested for the promotion of pedestrian-oriented spaces due to high pedestrian movement intensity and a wide range of activities. The pedestrian-oriented space emphasizes Safety, Accessibility, and Convenience for all residents. According to UN-Habitat's MY Neighbourhood, it is suggested to promote the following interventions:

- Maintaining wide sidewalks that allow pedestrians to walk comfortably and pass each other.

- Clearly demarcated intersections with traffic signals, lighting, and green safety buffers where necessary.

- Adequate street lighting to ensure safety during nighttime.

- Elements of universal design that adapt the space for people of all ages and abilities, including ramps, tactile paving, and audible signals for the visually impaired.

- Places for sitting and resting, including benches, should be distributed evenly considering the intensity of pedestrian flows, major points of attraction, and intervals.

- Appropriate Shade and Shelter, including both trees and physical structures that provide protection from the sun and rain.

- Traffic calming measures such as speed bumps and special tiles for shared spaces or intersections.

- User-friendly Signage and Wayfinding, including directions, maps, and information boards to help pedestrians navigate the area, which is particularly important for tourism development.

- Accessibility to the network of pedestrian paths to make it easy to navigate the area. A permeable urban environment prevents overcrowding and contributes to a more interesting environment by providing pedestrians with a choice of paths.

- Encouraging Active Transport, which implies integration of bike lanes and facilities for cyclists such as organized bike parking.

- Accessible and free-of-charge Public Restrooms.

- Public Art and places for expression such as murals, and other forms of art that add character and interest.

- Evenly distributed waste bins to support the maintenance of the public space

Shared space

UN-Habitat envisions a street as a public space that should be safe and attractive for all users. In the central project area, the concept of "shared space" is proposed for certain street segments, highlighted in purple on the map:

- From the theatre to the river access

- Within the market areas

The shared space concept prioritizes pedestrian-friendly design, creating a barrier-free environment for convenient pedestrian circulation. This transformation aims to turn the street into a vibrant pedestrian zone with commercial activities. Special surface tiles will act as traffic calming measures, ensuring the space feels primarily designed for pedestrians and creating a psychological barrier for drivers, discouraging speeding.

The street segment on Shuller Street, from the theatre to the river, already functions as a shared space with areas for trading. Enhancements are suggested to improve its safety and adaptation for pedestrian movement, service parking, and vending. Pilot interventions include the use of special tiles and surfaces for the street. These surfaces may incorporate traditional patterns and colors, which can be temporarily piloted based on the season or activity.

These interventions generally do not require structural changes to the street and can be implemented with relative ease. In addition, UN-Habitat suggests temporarily closing the street to vehicular traffic for special occasions or festive events, making it exclusively for pedestrian use during these times. Programming such as festivals and other community events can be organized to enhance the vibrancy and appeal of the area. By creating a dynamic, pedestrian-priority environment, these measures aim to foster a safer, more engaging, and commercially active public space that benefits all users.

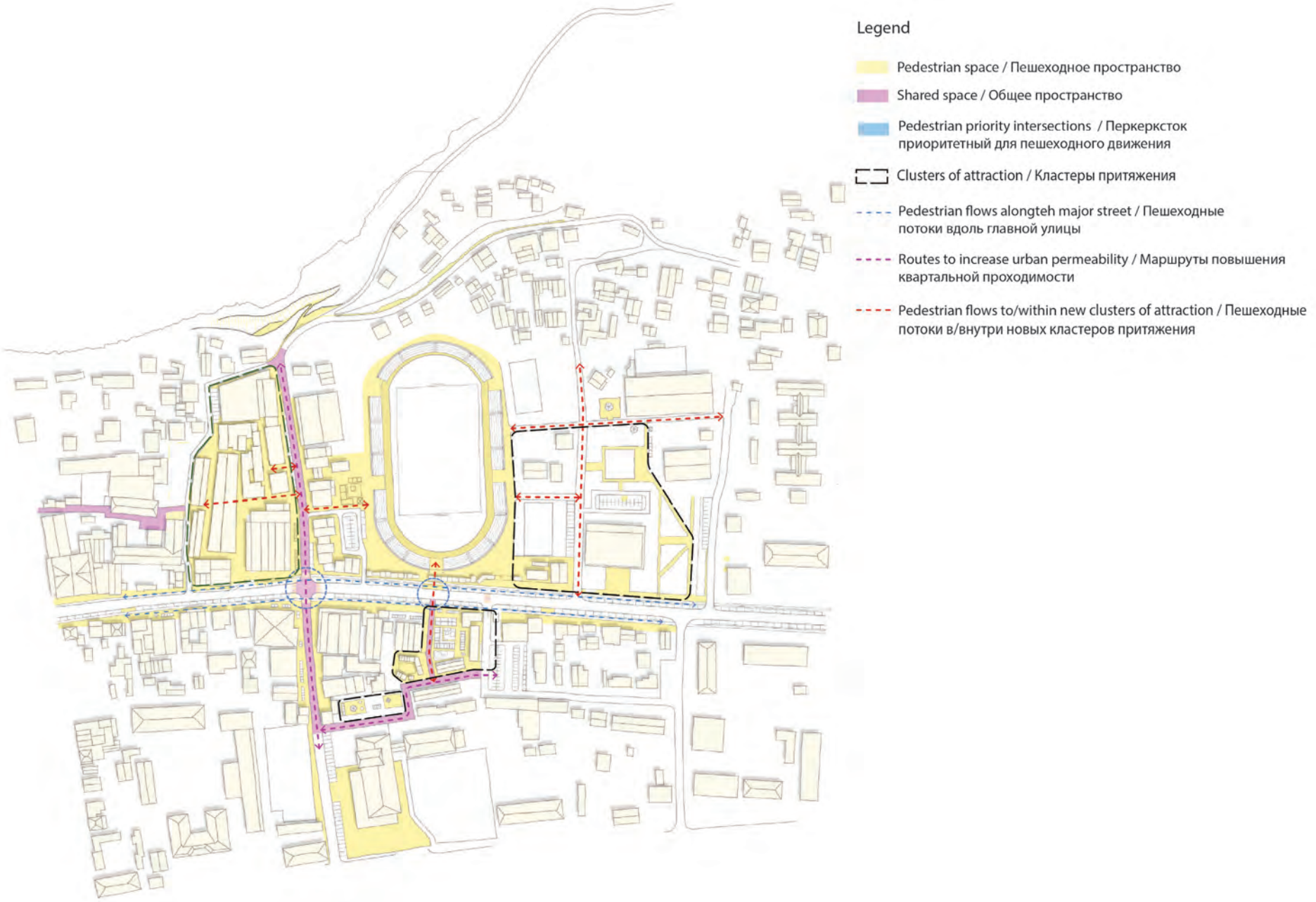


Figure 59. Map of proposed the street network, mobility patterns and interventions

Organized areas for vending

Currently the street segment on Shuller Street from the theatre to the river hosts a variety of street vending activities. However, access to kiosks is often inconvenient due to unregulated parking, forcing pedestrians to navigate between cars. It is suggested to redesign the vending space to ensure convenient access to the stalls and create an engaging environment. This redesign will encourage pedestrians to pass through the street more comfortably, enhancing the commercial activity. By organizing parking and clearly delineating vending areas, the space will become more pedestrian-friendly, promoting a vibrant public space that supports local vendors and attracts more visitors

The sidewalks of the street should include small kiosks and places to sit and rest, encouraging people to spend more time and perceive it as a vibrant public space. In the central area, it is also suggested to design pedestrian spaces that provide sufficient space for informal street vending. This may involve organized stalls that community members can temporarily occupy for specific periods free of charge or for minimal rent. This approach will enhance community cohesion by fostering interactions and relationships among residents as they engage in trading activities and share the designated space. Moreover, it will increase economic activity by providing opportunities for communities to test entrepreneurship skills and earn some income. These dynamic, multifunctional spaces will make the street more lively and attractive, benefiting the entire community.

Network of public spaces

By considering those actions the public spaces in the central project area will function as a system of public spaces that is convenient for circulation of residents and supports the urban facilities by providing convenient access and beneficial activities of the public space that improves the public realm and positively affects the economic activity of the area.

Applied interventions holistically for the entire area will change the pedestrian dynamics, creating walkable experiences in between the points of attractions (sports cluster with renovated facilities, upgraded marketplaces, theater, schools, colleges, and adjacent public spaces). The new supplementary shared streets will increase the urban permeability and will provide residents more options for navigation and thus create an enabling environment for the emergence of small businesses and street dynamics due to a more granular urban structure.

Urban resilience

Stormwater management is a critical concern in urban, sealed areas like the Market Area. The project will incorporate innovative techniques such as sponge city principles, including permeable pavements and green infrastructure, to manage stormwater on-site. These approaches will help reduce runoff, prevent flooding, and alleviate pressure on the existing drainage system. This initiative aligns with POC1 efforts that focus on improving stormwater and surface water drainage, ensuring a resilient urban environment.

Figure 60. Internal passage within the main market

Figure 61. View on the main market area

Capacity Building Box 3: “MY Neighbourhood” game with youth

During the visioning workshops, UN-Habitat team played a “MY Neighbourhood” game with the youth. “MY Neighbourhood” is an idea generating game aimed to engage participants into a co-creative process to think about the potential design solutions for their city. The game was moderated by UN-Habitat and lasted for about an hour.

Participants were divided into groups to select a card of a design idea (a principle) that would help achieving a specific city objective. Students selected a connected city as priority objective for Naryn. Participants highlighted barrier free environment, universal urban design and enhanced walkability and as a key principles that should be applied. Additionally, students were actively suggesting their own ideas emphasizing the importance of digital connectivity of the city.

Figure 62. My Neighbourhood activity with youth

Figure 63. Illustration of the segment on Shuller Street from the theatre to the river

Approach to the built environment

Regeneration and reconstruction of the character areas

The central area is different in terms of structures and their quality, requiring a different approach from a complete renovation of the building to visual upgrades and spatial reorganization. It is suggested to renovate and visually upgrade the buildings that are located within the character areas—areas that form a visual perception of space, constitute corner buildings that are visible from the street, buildings that are located at the end of visual corridors, and higher buildings that attract the attention of citizens. The buildings around the intersection of Saginbaya Orozbak Street and Shuller Street are iconic for the area due to their recognizable design and visibility.

More precisely:

1. The Youth Centre adjacent to Saginbaya Orozbak Street is suggested to be completely renovated due to the poor quality of the building. The significant setback from the major street provides an opportunity to incorporate a public space along the major trajectory of pedestrian movements. Due to the available land capacity, the new youth centre may include additional facilities related to culture and leisure that would benefit the nearby sports facilities.

2. The upgrading of the market buildings (especially the ones that are located around the intersection of Saginbaya Orozbak Street and Shuller Street) implies a few physical interventions related to visual and aesthetic appearance, such as removing unused and rusty structures and developing a coherent style of wall advertisement. This includes painting the exterior walls with vibrant, uniform colors that reflect the cultural heritage of the area, installing modern signage that complements the architectural style, and incorporating green spaces to enhance the visual appeal. The aim is to create a visually cohesive environment that attracts visitors and provides a pleasant shopping experience.

3. The rusty containers placed in the market areas should be renovated and reorganized to form cozy areas with internal courtyards, green spaces, and possibilities for community and demonstration gardens. Once reorganized, the market areas will attract diverse groups of residents and tourists. Some containers can be replaced by new ones or entirely new structures. The redesign of a private container can be a subject for a potential project where people learn how to renovate and repurpose these spaces. This project could include workshops and training sessions where community members and local artisans collaborate to transform old containers into functional and aesthetically pleasing units. The process would involve teaching skills such as welding, painting, carpentry, and sustainable gardening practices. This initiative not only improves the market area but also empowers the community with new skills and fosters a sense of ownership and pride in their local environment.

4. The central stadium is suggested for renovation. Despite the relatively decent quality of the stadium, it is recommended to consider a covered structure to ensure seasonality by making it adaptable to different weather conditions. To the west of the stadium, it is suggested to locate spaces that include changing rooms, restrooms, and any other facilities that support the operation of the stadium. In addition, it is suggested to promote a pedestrian-oriented and walkable environment that facilitates easy movement within the area of the stadium. Multiple accesses should also be considered, including from the major street, the west, and the east, to enhance its functioning during big events. Additional enhancements might include better lighting, clear signage for navigation, and public seating areas to improve the overall experience for visitors. Creating shaded walkways and integrating public art could further enhance the aesthetic and functional appeal of the stadium's surroundings.

Figure 64. Current condition of the market area to the south from the stadium

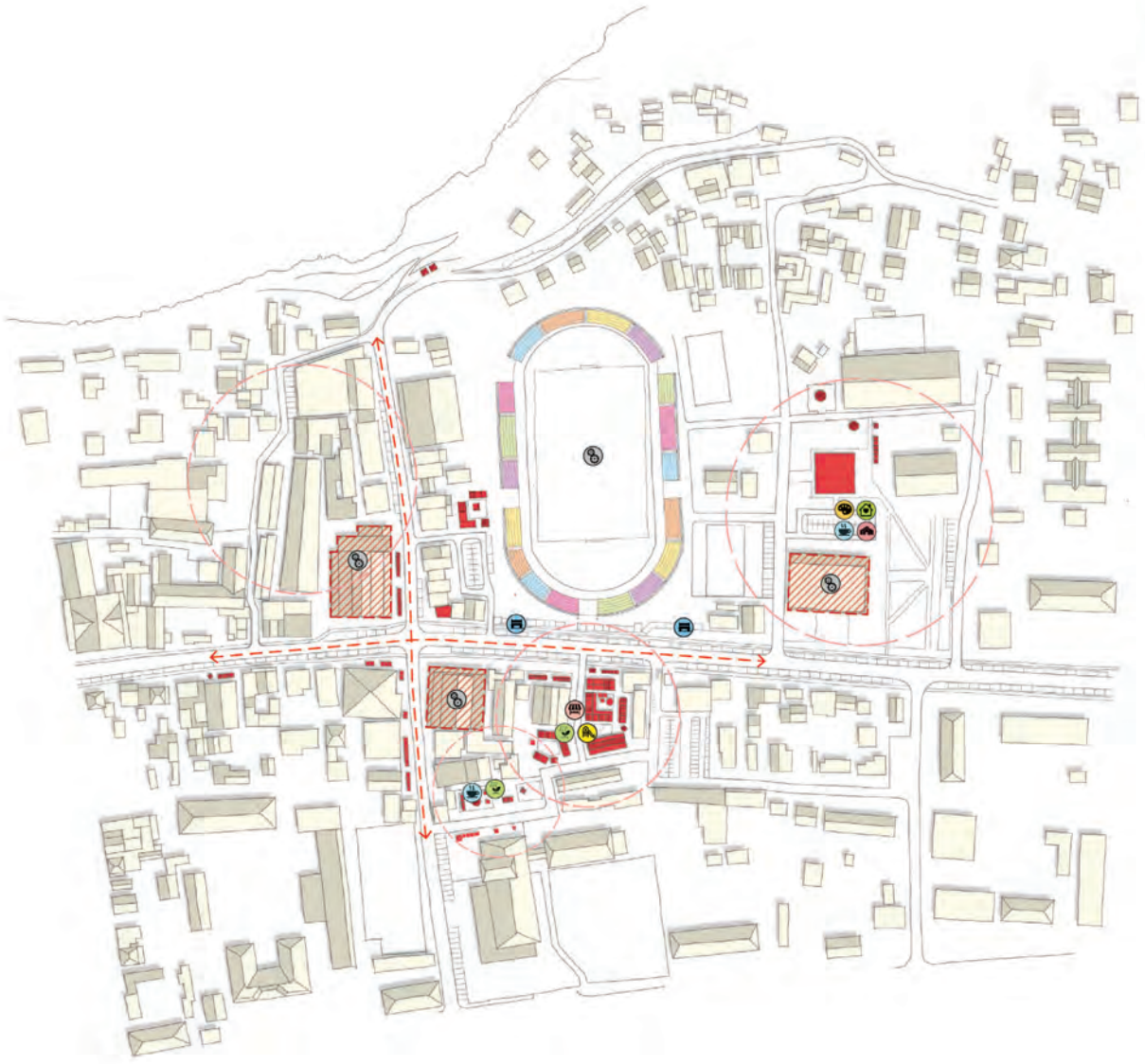


Figure 65. Map of the key interventions for the built environment

Figure 66. Potential design for the supplementary kiosks

Blue and green networks

The conceptual proposal suggests an integrated strategy for improving the urban environment through integrating blue and green networks. The green network is designed to create a clinked system of green spaces and pocket parks, recreational areas, sports surfaces, and vegetation along streets, forming a continuous ecological corridor where it is possible.

The blue network focuses on enhancing access to the river and integrating it into the urban fabric by creating pedestrian pathways and green spaces along the river, recreational opportunities and places to new the view on the river, connecting residents with natural features. The small urban design interventions can transform the perception the significant segments of the riverbank, making it appealing for communities and tourism.

The integration of blue and green networks happen though the design intervention related to greening, revitalization of natural environment, hazard mitigation project that follow nature based approach and promoting accesses and safe environment along the river.

Vegetation and greening

Enhancing green networks implies targeted interventions related to greening, planting, etc. More precisely, the conceptual proposal suggests:

• Considering existing Green Spaces as part of the green network that should be linked through clear signage and walking paths. These areas (highlighted in light green) represent parks, recreational areas, and other public green spaces that already exist in Naryn. Though some of these areas require upgrades and landscaping, particularly the open spaces adjacent to the northern side of the theatre. The open green spaces can be linked into one system through street vegetation and small pocket public spaces. Landscaping and defining a network of pocket public spaces from the theatre to the market area on the southern side of the stadium will bring the most significant impact as it will create a walkable link that will connect culture, theatre, and the marketplace, creating a point of attraction and a pedestrian-oriented space.

• Considering Sports Surfaces as part of the open public space network. Additional vegetation and small parks close to sports grounds will provide a pleasant environment for visitors, necessary for active lifestyles and community sports events.

• Promoting Community Gardens for local agricultural practices and demonstration. Indicated by green circles with a plant icon, these areas (within the market area if possible, and along the green link from the theatre to the market area on the southern side of the stadium) can be designated for community gardening. The community gardens within the central area of the city can serve as demonstration gardens to promote different species, educate youth, and showcase types of plants and agricultural practices. The community gardens can be very compact not to take a lot of space and can also be temporary.

• Promoting Vegetation along Major Streets. Indicated by green lines, this will improve the quality of the environment by creating green buffers (that can act as safety buffers if placed between different modes of transport), minimizing paved surfaces, and increasing the visual appeal of the streetscape.

• Due to the vast parking surfaces that are recommended considering the number of cars to accommodate, it is strongly suggested to use Parking Permeable Surfaces. Marked with dashed lines, these parking areas utilize permeable materials to allow water infiltration, reducing runoff and mitigating the heat island effect. This environmentally friendly approach supports sustainable urban design.

• In addition, Tactical Vegetation will help in the overall regenerative process of the central area and may include temporary flower beds, pocket parks, or just a few plants planted in specific places where they can bring maximum impact.

Access to the River

In the city of Naryn, the approach to the river is not homogeneous due to the different typologies of the riverbank. In some areas, the river flows through actively urbanized zones on both banks, creating an enabling environment for upgrading the riverbank and creating a walkable and lively segment of the bank, which can be used as public space. On the other hand, those banks located in purely natural environments can offer another experience with natural trails, etc.

The conceptual proposal includes two approaches to the riverbank to some extent. On one hand, the northern bank is not urbanized, but on the other, the central area is the core of the city that should offer an experience of all city elements, including the river. Additionally, access to the river and a walkable stretch can offer a "place of respite" from the busy center full of activities. More precisely, the approach to the river includes:

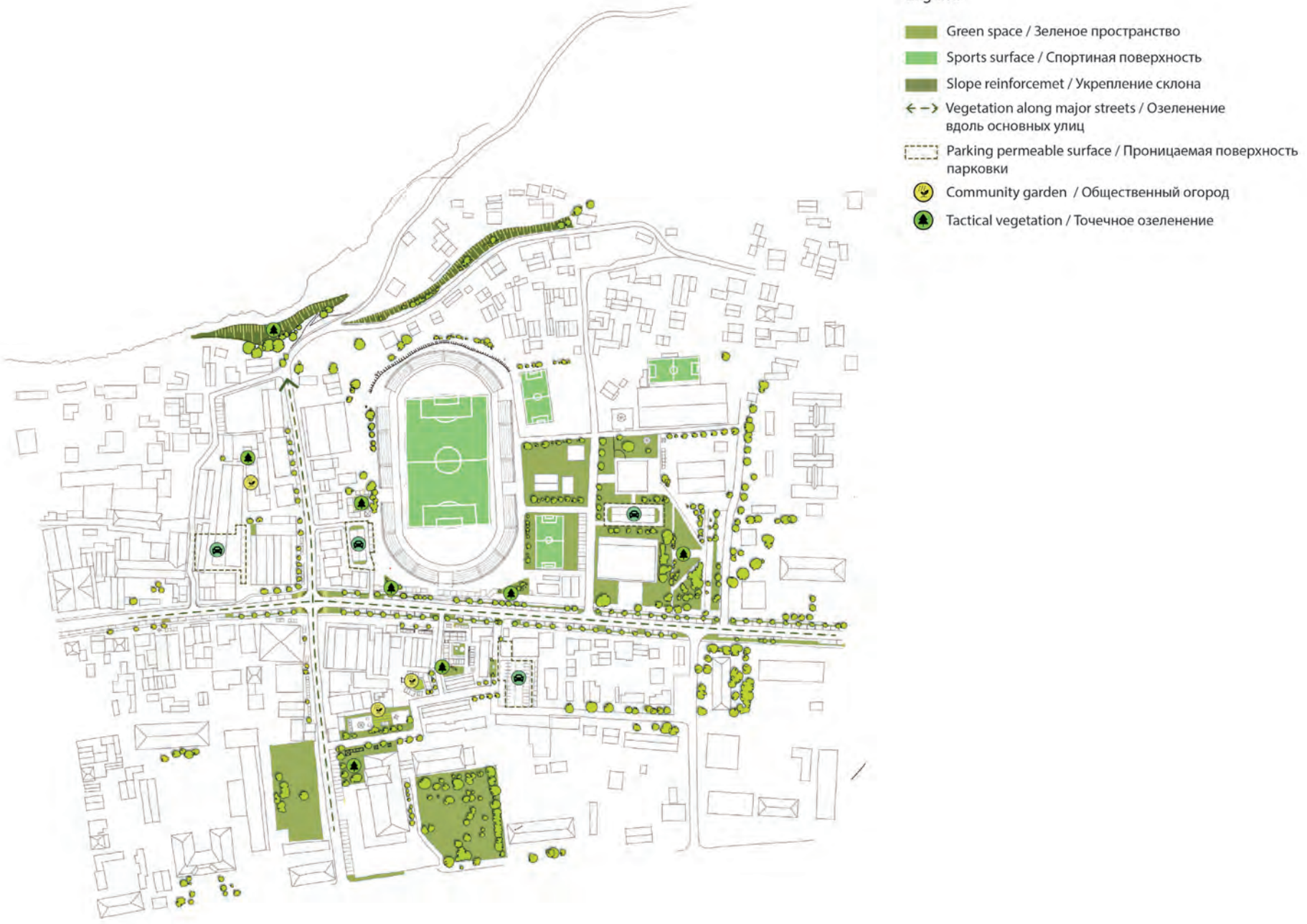


Figure 67. Map of open green spaces

• The creation of a walkable pathway (where possible) along some of the streets in proximity to the river that will facilitate pedestrian movements.

• The creation of pocket public spaces at the end of certain streets that will open the view to the river and create a public space that addresses safety concerns by allocating space for vending.

Hazard Mitigation

Since the area is just a few meters above the water, it is important to consider hazard mitigation initiatives while implementing the regeneration strategy for the market area. More precisely, the hazard mitigation strategy includes:

• Slope Reinforcement applied to all the slopes within the area. Highlighted in dark green, these areas indicate efforts to stabilize slopes, likely to prevent erosion and maintain landscape integrity. This could involve planting vegetation that helps secure the soil.

• Reinforcement of the riverbank applied to segments that suffer from erosion. This involves structural measures to protect the riverbank and prevent further erosion.

• Elevations or levees to temporarily mitigate flooding. Although it is unclear to what extent the area floods, this can be a temporary option until a consolidated approach is developed for these areas. Currently, the area adjacent to the river already has a levee created by placing earth with an excavator from a nearby site. It is suggested to keep this informal levee and reinforce it.

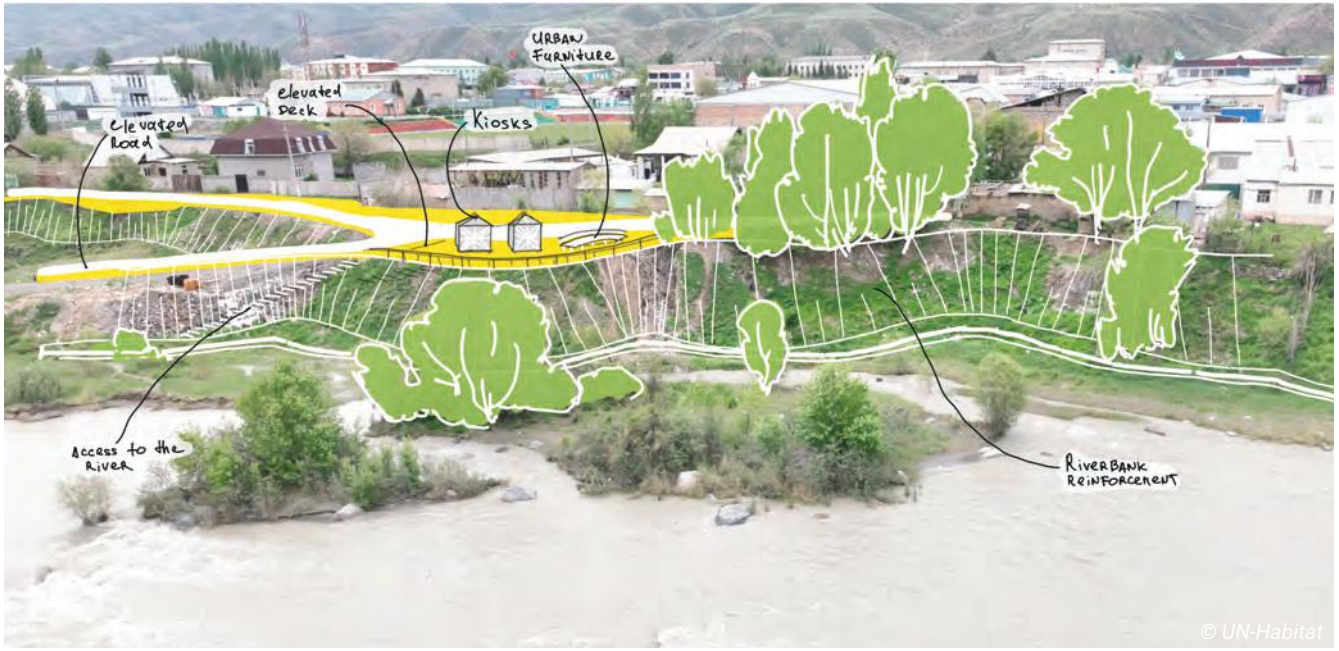


Figure 68. Conceptual proposal for the access to the river

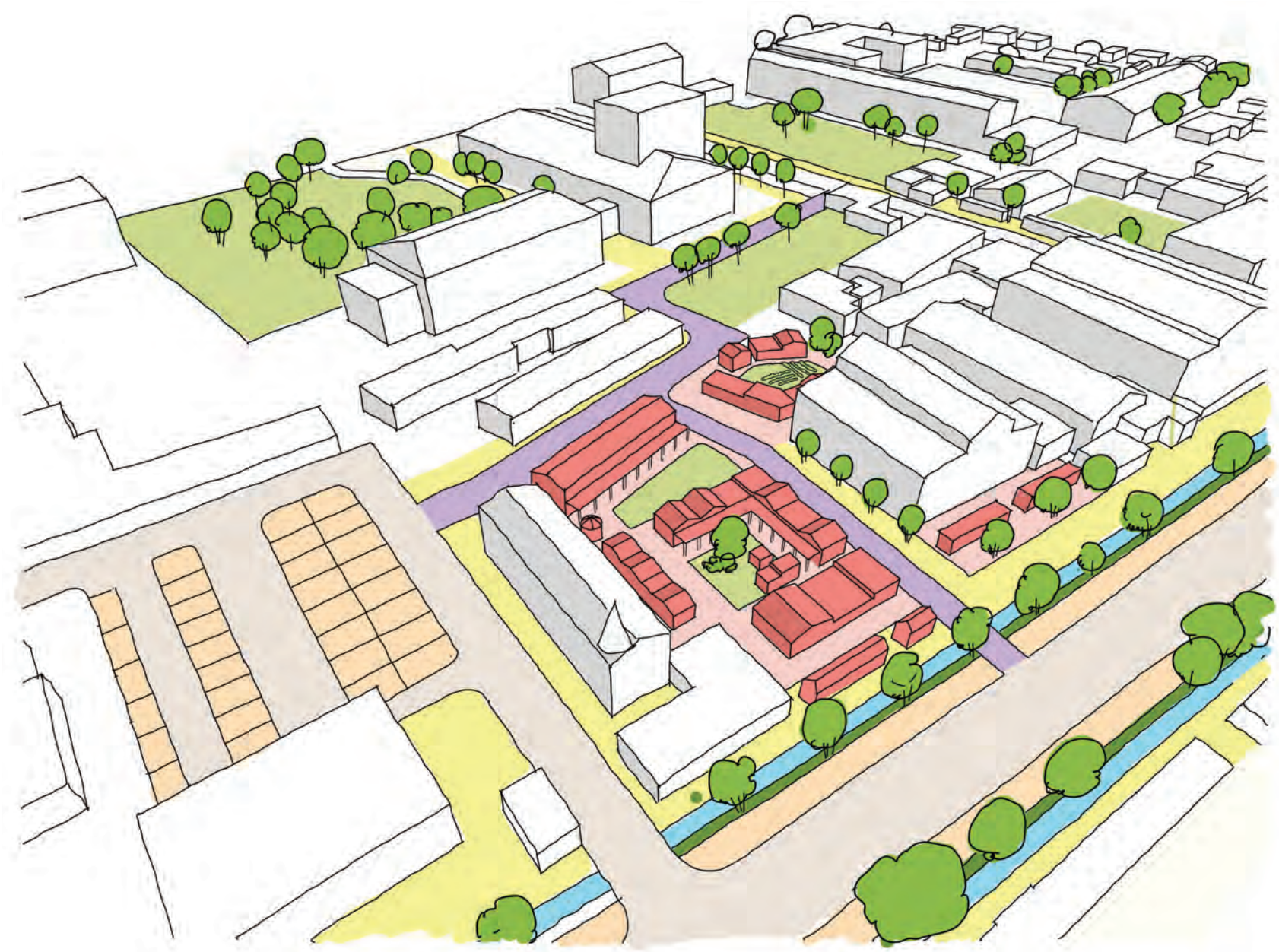


Figure 69. View on the market area to the south from the stadium

Financial consideration for the market operation

The central market area plays a vital role in the economic vibrancy and social fabric of cities. Effective regeneration of such markets can rejuvenate local economies, create employment opportunities, and enhance social interactions. Currently, the central markets in Naryn are privately owned, which limits the extent to which spatial modification can occur. However, the transformative process is possible with engagement from private owners and incentives from the government. The mutual benefits of market regeneration should be clear to all stakeholders involved. Several financial considerations should be taken into account:

1. Initial Investment and Funding Sources for Regeneration:

• Public Incentives: Government incentives, grants, and subsidies can play a significant role in the initial phases of transformation before the visible impact. Engaging municipal funding sources ensures financial backing for infrastructure and public space improvements. Specific grants can address the needs of vendors (private owners of trading spots) and focus on upgrading and renovating trading spots to comply with a pre-developed design code.

• Private Investment: Private stakeholders, including local businesses and investors, can be encouraged to participate in initiatives such as reorganizing stalls, creating internal courtyards, and installing heating and public toilets within market areas through public-private partnerships (PPPs). Offering incentives like tax breaks or subsidized loans can attract private capital.

2. Comprehensive Cost Management and Understanding the Implications of Regeneration:

• Comprehensive Budgeting: A detailed budget that includes all aspects of the regeneration project, such as construction, landscaping, and maintenance, should be established to prevent cost overruns. Capital Investment Planning (with mechanisms provided by UN-Habitat) can help in understanding the sustainability side of projects.

• Phased Development: Breaking down the project into phases can help spread costs over time, making it easier to secure continuous funding and avoid financial risks. In complex regeneration projects, starting with a few easy interventions, like adding kiosks or regenerating street segments, can test the feasibility.

3. Operational Costs and Revenue Generation:

• Maintenance and Upkeep: Allocating funds for ongoing maintenance of market infrastructure, public spaces, and services is crucial for long-term sustainability. Establishing a dedicated maintenance fund can ensure consistent quality.

• Revenue Streams: Diversifying income sources is essential for regenerating the local economy. The regenerated spatial layout also provides pre-conditions for economic diversification. Potential opportunities for revenue streams include:

o Rental Fees for Market Stalls: The spatial reorganization and efficient use of space will increase the number of stalls and create better conditions for traders.

o Parking Fees: Parking facilities can be a significant revenue stream, especially in busy market areas where parking space is in high demand. Spatial organization and regularization of parking spaces will create an enabling environment to implement such fees (Hourly/Daily Parking Rates, Monthly Parking Permits, or Reserved Parking Spaces).

o Event Hosting and Advertising: Adapted spaces can unlock opportunities for hosting various events that generate revenue, such as market fairs, festivals, corporate functions, weddings, or community gatherings. Utilizing the market space for advertising and sponsorship can generate additional revenue through well-designed billboards and sponsored workshops or festivals.

o Increased revenues due to tourism development: Increased tourist flow will positively affect the revenue generation of the central Market. Spatially adapted market area will insure larger presence of new customers.

o Additional Services: The well-organized market will have the potential to include more storage facilities, which can be used for revenue generation. This includes renting storage facilities for goods overnight or during off-hours and small community or demonstration gardens where communities or vendors can rent a piece of land.

Recommendations for Economic Regeneration

To achieve smooth diversification of economic streams, it is vital to ensure access to services and infrastructure such as efficient waste management systems, stable energy sources, and heating/cooling systems. Upgrading the market facilities is important to create a comfortable environment for both consumers and vendors. Enhancing the physical environment with amenities such as public restrooms, seating areas, playgrounds, and social spaces can improve the overall market experience, increasing foot traffic and vendor satisfaction. This will increase visits to the market and positively impact the economic dynamics of the area.

Involving local residents, vendors, and businesses in the planning process ensures that the market meets the community's needs and expectations. Regular consultations and feedback mechanisms can foster a sense of community ownership. Special programs, such as upgrading vendor spaces, can be piloted. These small projects can have a big impact by addressing some of the safety concerns caused by old stalls or containers.

The market is a place that contributes to the local identity of the city. Developing a strong market identity through urban design, branding, and promotional campaigns can attract both locals and tourists. Highlighting the market's unique offerings, cultural significance, and potential sustainability initiatives can help the market become a major attraction and a calling card of the city.

The economic impact of revenue generation in a market is multifaceted, contributing significantly to various aspects of the local economy and community. Revenue from these sources can ensure the market's sustainability by funding ongoing maintenance, upgrades, and operational costs. Regular maintenance ensures the market remains an attractive and safe place for vendors and customers, thereby maintaining high foot traffic and sales. Additionally, the generated revenue allows for the enhancement of market services, such as security, sanitation, and marketing. These improvements further attract more vendors and customers, boosting overall economic activity.

Moreover, the revenue can be reinvested into community development projects, such as local schools, healthcare facilities, and public amenities. This reinvestment enhances the quality of life for the surrounding community and fosters goodwill and support for the market. Furthermore, the increased economic activity within the market can have a multiplier effect on the local economy. This effect creates jobs, boosts local businesses, and increases overall economic output in the area. Thus, the revenue generation in a market not only sustains its operations but also drives broader economic and community development.

Figure 70. Shop along the Shuller street

Jusaev Park

Naryn's city administration has prioritized the regeneration and improvement of its parks, with Jusaev, one of the largest green spaces in Naryn, playing a central role in this strategy. The park is integral to the city's efforts to enhance resilience, provide quality public spaces, and promote tourism. As a key project within the Naryn Urban Resilience Program (NURP), Jusaev Park serves as a demonstrative initiative to showcase resilience and sustainable urban transformation. The project selection was guided by the recommendations of the Integrated Habitat Assessment (IHA), the city's strategic priorities, and the needs of the local communities.

Spatial pre-conditions of the site

Situated in the rapidly developing M. Sydykov district, the park is bordered by Victory Park to the north, and by private properties, M. Sydykov school, and a maternity hospital on other sides. Besides a mix of new and mature trees, there is wild undergrowth and a few deteriorated pathways across the otherwise open site. Water is supplied via an irrigation channel along the northern boundary. With its elevated position, the park offers striking, unobstructed views of the mountains to the south.

Spanning approximately 4.5 hectares, the park has the capacity to host a variety of amenities including educational, recreational, and social spaces. It also presents opportunities for landscaping and showcases sustainable nature-based solutions such as hazard mitigation, micro-forest, and public facilities.

Figure 71. Current state of the park area

The site features a gently sloping terrain, with the northern side of the park being 6 meters higher than the lowest point in the southwest. This natural gradient offers significant advantages for implementing a sustainable gravity-based irrigation and drainage system throughout the park.

General context:

The task of proposing an innovative and context-sensitive design for Jusaev park began with a full analysis and understanding of its potential transformative role vis-à-vis its wider spatial and socio-economic context. Therefore, the park was designed to be integrated in the multi-scalar development of the fast-growing M. Sydykov district, serving as a binding element of the contiguous neighbourhood components, but also contributing to the strengthening of the vibrancy and resilience of the Naryn as a whole and in alignment with the new urban development strategy. This takes into consideration the improvement of the area's connectivity by integrating future road infrastructure (roads, bridges), adequate amenities, and proposed urban renewal projects that could benefit from the spillover effect of the Jusaev park.

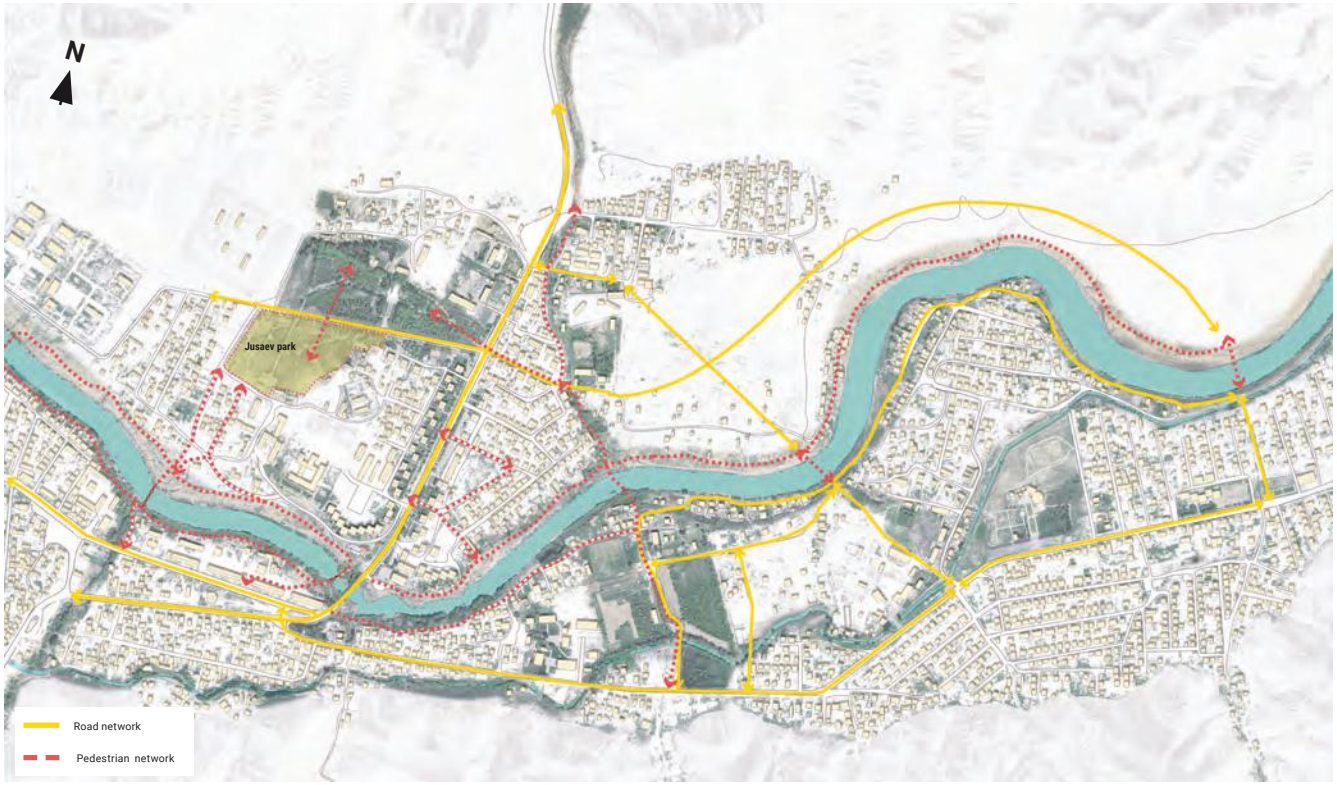


Figure 72. Proposed spatial dynamics

Design concept

Objectives

The renovation of Jusaev Park is intended to achieve several key objectives.

• Firstly, the park aims to serve as a model for resilient, multifunctional, and inclusive green infrastructure, having a significant transformative impact on the city of Naryn. It will showcase smart design solutions that promote sustainability in spatial configuration, technical innovations, and park management. This includes advanced irrigation systems, rainwater harvesting, renewable energy sources, and other sustainable practices.

• It creates complementarity with its surrounding environment, which ensures the blending of activities, facilities and services in and around the park. The edges of the park are as important as the park itself. In this sense, the park design acts as a catalyst for the activation of the areas and facilities around it.

• The park's design focuses on enhancing the blue-green network of Naryn. This involved the creation of a cohesive network of green spaces, incorporating fragmented green spaces and linear green spaces such as streets and water streams.

• Jusaev Park is envisioned to become an attraction point within a touristic path that links it to the riverfront. By positioning itself as a vital component of this scenic route, the park not only enhances its own appeal but also contributes to the overall attractiveness of the area's natural landscape.

• The park is a recreational hotspot, designed to be vibrant and active throughout all seasons, providing safe access and ease of use for all age groups, including women, children, and people with disabilities. Beyond recreation, the park is envisioned as a space for expression, events, and social encounters. Most importantly, it serves as an educational space that introduces the local community to the world-renowned ecological wonders of their country, showcasing its flora, fauna, geology, history, and ecological heritage.

• The park's master plan ensures financial sustainability by integrating phased development and revenue-generating activities and facilities into its spatial design. Key elements such as the Pavilion, Yurt restaurant, kiosks, and the amphitheater can be leased, co-financed or co-managed through public-private partnerships (PPP). These revenue streams will provide a consistent flow of funds, which can be reinvested in the park's maintenance and further development. This approach is intended to guarantee the park's economic viability and enhance its offerings and services for the community.

Figure 73. Razzakov street, separating Jusaev Park and Victory Park

Design principles

Sustainability and resilience

The new master plan for Jusaev Park promotes sustainable and resilient practices, transforming it into a fertile field for demonstrating innovative landscape and architectural design approaches.

Designed as a green infrastructure, the park incorporates various nature-based solutions to address environmental issues. It employs the sponge-city concept to manage snow and stormwater, ensuring efficient water absorption and reducing flooding risks. Gravity irrigation systems are utilized to minimize energy consumption, and diverse plantings enhance biodiversity, creating a robust ecosystem.

The park also functions as an educational platform, informing the local population about Naryn's strategies to reduce vulnerability to natural hazards and climate change challenges. The Resilience Hub, housed within the park's pavilion (see Fig. 106), features educational exhibits and interactive displays designed to engage the community and enhance their preparedness for natural disasters and climate-related challenges.

Moreover, the pavilion is designed to serve as a safe haven. In case of emergencies, it can be transformed into a well-equipped shelter, providing essential resources and a secure environment for those in need.

Inclusivity

Jusaev Park is conceived as an inclusive public space that actively engages the community in its design, implementation, and ongoing management. The design process was deeply rooted in responding to the diverse needs and aspirations of the community, which played an active role in voicing its desires for high-quality, multifunctional, and attractive facilities to address existing gaps.

This collaborative approach has been translated into a master plan that guarantees a safe and accessible space for all age groups. The park provides a variety of spaces designed to facilitate encounters, expression, and community engagement. These include areas for social interaction, creative expression, and cultural events, ensuring that the park serves as a vibrant community hub.

The inclusive design features of Jusaev Park are:

1. **Accessibility:** Pathways, entrances, and facilities are designed to be accessible to people of all ages and abilities, including those with disabilities.

2. **Diverse Amenities:** The park offers a range of amenities, including playgrounds, sports courts, open-air gyms, and serene natural spaces, catering to the recreational needs of children, youth, adults, and the elderly.

3. **Community Spaces:** Designated areas for gatherings, events, and social activities encourage community interaction and engagement.

4. **Safety:** The park incorporates safety features such as adequate lighting, clear sightlines, and safe play equipment, ensuring a secure environment for all visitors.

By involving the community throughout the process, Jusaev Park embodies a shared vision, creating a public space that reflects the collective identity and spirit of the local population. This inclusive approach ensures that the park remains a cherished and well-utilized resource, fostering a sense of ownership and pride among its users.

Community engagement feedback

During the collaborative mapping activity, which was part of capacity building efforts, UN-Habitat team collected the suggestions from the diverse community groups on how to redesign the Jusaev Park to make it more accessible and enjoyable public space. Community members emphasized the importance of the Jusaev Park for the entire city and the need for its renovation. Below is the summary map highlighting the proposed interventions such as vegetation and cycling lane along the Razzakov street, open green public spaces within the Moskovskiy neighbourhood, a set of playgrounds and child-friendly spaces, a community garden and interventions that can help creating business opportunities. Additionally, community members emphasized the need for a library and some engaging activities within the park and a Mosque in the neighborhood.

Figure 74. Community engagement activity

Figure 75. Map of outcomes from the community engagement session

Context-sensitivity: all-seasons designs, use of local flora, local identity and culture

The design decisions for Jusaev Park are deeply rooted in the local context, including its location, climate, urban surroundings, natural risks, and the unique features of the site such as topography, viewpoints, and natural elements. The park also integrates aspects of local identity, including cultural traditions and native flora, to create a space that is adaptive, culturally significant, and ecologically rich.

1. Adaptability and Year-Round Enjoyment

Jusaev Park is designed to be functional and enjoyable throughout the year, with facilities that adapt to the region's drastic seasonal changes between winter and summer. The design embraces these changes, ensuring that the park remains a vibrant and active space regardless of the weather. For example, in winter, the park's lake transforms into an ice-skating rink, while in summer, it serves as a serene water feature.

2. Historical and Cultural Integration

The design respects and emphasizes the park's historical evolution by preserving its initial spatial structure. New layers are added to reflect local cultural patterns, ensuring that the park remains a living part of Naryn's heritage.

3. Nature and Community Connection

Jusaev Park provides spaces that revive the connection between people and nature, encouraging practices like family picnics and gatherings. By creating inviting, natural spaces, the park fosters a sense of community and well-being. The use of local flora, including native trees, plants, and meadows, helps the park become a haven for biodiversity. This not only supports local wildlife but also exposes both residents and visitors to the rich ecological heritage of Naryn.

4. Biodiversity and Ecological Heritage

The incorporation of local flora allows Jusaiev Park to become a showcase for the region's biodiversity. The diverse plant life attracts a variety of wildlife, creating an ecosystem that visitors can explore and learn from. Educational signage and programs can further enhance understanding and appreciation of the local environment, promoting conservation efforts and environmental stewardship.

In summary, Jusaev Park's design is deeply rooted in the local context and identity, creating a space that is adaptive, culturally significant, and ecologically rich. It offers a blend of historical preservation and modern enhancements, ensuring that it serves as a cherished community resource and a model of sustainable park design.

Multifunctionality and flexibility: versatility, events, possibilities, activities (daily, weekly, monthly, seasonal)

The goal of the master plan for Jusaev Park is not to impose a rigid design, but rather to establish the conditions for creative use and adaptability of the spaces to meet the evolving needs of the local community. This philosophy is reflected in the multifunctionality and versatility of the various spaces and amenities proposed in the plan, which are designed to accommodate a wide range of functions and uses.

Vibrancy

Jusaev Park is envisioned as a vibrant, dynamic space that caters to a multitude of activities, making it a cornerstone of community life in Naryn. As a hub for recreation, celebration, socializing, playing, relaxation, and engagement, the park offers a wide array of services and amenities. This ensures that the park remains active throughout the day, week, month, and year, serving as a testament to community engagement, cultural celebration, and environmental stewardship.

Figure 77. View from the Jusaev Park

Design proposal

The park is defined by two main axes: a vertical axis running from north to south and a diagonal axis connecting the eastern entrance to the vertical axis. Additionally, a short horizontal pathway connects two small squares to the east and west of the vertical axis. This geometric structure provides the foundation that the new design concept aims to preserve and enhance, strengthening the park's identity, highlighting the historical dimension of its transformation over time, and ensuring optimal accessibility for all visitors.

The existing diagonal axis is extended to the southwestern corner of the park, creating the longest possible path that crosses the park. This extension offers a rich experience of diverse spaces and activities as it traverses the park. It also gains importance as it becomes the connector of the two main entrances of the park.

The existing squares are preserved and integrated into the new design as "social condensers," offering multifunctional spaces for resting, socializing, and engaging in various activities.

Alongside the original geometric elements of the park, the design introduces a new organic layer in the form of curvilinear pathways along the main axes. This organic layer is inspired by the renowned weaving culture of Kyrgyzstan and provides a smart landscape design solution to create edges and contained spaces throughout the park.

Edges are key to successful public spaces. They serve as transitional places where one space or landscape becomes part of another, making every edge a gateway and a point of transition. Often neglected in design, edges are considered primary structural components of landscapes due to their integration and social functions. They are places where people socialize, contemplate, relax, and enjoy the park's scenery, offering not only physical transitions but also emotional and psychological ones.

In this regard, the spaces resulting from the overlap of the geometric and organic layers become public stages for activities, creative landscaping, events, artistic expression, and various types of seating possibilities. These areas are designed for people to play, celebrate, learn, meet, relax, meditate, and enjoy multi-sensory experiences.

What follows will provide a detailed insight into the conceptualization of the park's master plan, as well as how the different components interact and complement each other to make Jusaev Park a harmonious, multifunctional, and creative public green space.

Figure 78. Current state of the park

Figure 79. Diagram of the park accessibility

Jusaev Park is designed to complement the existing Victory Park while preserving their unique identity and character. The project proposes the creation of direct connection points to facilitate seamless pedestrian access from one park to the other. It also includes the redesign of Razzakov street into a vibrant public space that acts as a connector of both parks (see page 108). This improved spatial connectivity sets the conditions for future integration of both parks.

Existing pathways

Extension of the exising pathways

Addition of curvilinear pathways

Definition of park areas

Figure 80. Diagram of the concept development

Figure 81. Main scheme of spatial organisation

Accessibility and Pathways

As mentioned earlier, the park features two primary axes:

1. A diagonal axis linking the main entrances of the park and a vertical axis connecting the pavilion to Victory Park. The southwestern entrance is strategically added to serve as a gateway to and from the riverfront promenade, enhancing pedestrian connectivity of the city's green network and leveraging the park's spillover effect on the riverfront development.

This integrated approach ensures that the park, the riverfront promenade, and Lenin Street become part of a cohesive system of urban green spaces. These interconnected green spaces provide continuous, scenic routes for walking, cycling, and exploring, fostering a deeper connection between the community and the natural environment. This allows for enhanced local accessibility and recreational opportunities, as well as the creation of tourist routes, thereby boosting tourism and promoting sustainable urban development.

On the northeastern end of the diagonal axis, the existing entrance is maintained, affirming its role as the primary access point from Razzakov Street. Its convenient location near the main road ensures this entrance is highly accessible for visitors arriving by car or public transport. To support the accessibility, a parking area is planned adjacent to the entrance, providing ample space for cars and ensuring a smooth transition for visitors from their vehicles into the park.

2. A vertical axis extends from the pavilion towards the northern border of the park. This axis is significant as it establishes a link between Jusaev Park and Victory Park through a secondary entrance. By aligning with a corresponding path in Victory Park, it creates a seamless visual and physical continuity between the two parks, allowing visitors to easily navigate and enjoy both parks. The continuity of this axis emphasizes the integrated nature of the park system, promoting a unified green network within the city.

These axes not only connect key points but also provide clear sightlines, ensuring visual continuity and a harmonious atmosphere throughout the park. Their thoughtful design and material choices underscore their significance, as they traverse diverse park spaces with varying features, offering visitors a rich tapestry of sensory and spatial experiences. The two axes are the widest and only paved pathways in the park, emphasizing their significance. They feature several key elements:

1. Water Elements: Incorporating irrigation and drainage channels, these pathways manage water effectively, ensuring proper hydration for plants and efficient stormwater management.

2. Water Fountains: Strategically placed along the axes, these fountains enhance the visual appeal and provide a refreshing ambiance.

3. Aligned Trees: Rows of trees line the pathways, creating a shaded, aesthetically pleasing environment while contributing to the park's green infrastructure.

4. Lighting: Adequate lighting ensures safety and usability of the pathways during the evening and night, enhancing the overall visitor experience.

5. Seating Benches: Various seating options are provided along the pathways, offering visitors places to rest, socialize, and enjoy the park's scenery (see section of seating).

Figure 82. Plan of the conceptual proposal

The section below on the figure 84 shows the proposed dimensions of the pathways and their different components. It is crucial to plan for a clear zone along the pathways to facilitate snow removal during winter, ensuring unobstructed access for visitors. Additionally, the pathways are equipped with irrigation and drainage channels, particularly designed for managing stormwater and snowmelt.

The curvilinear pathways offer a distinct contrast to the two main axes, differing both in shape and materiality. Unlike the paved main axes, these pathways are constructed with permeable surfaces such as stone dust or gravel. This choice of material ensures quick infiltration of stormwater, promoting efficient water management and reducing the risk of flooding.

The permeable surface of these pathways also contributes to a more natural and rustic aesthetic, blending seamlessly with the park's landscape. Additionally, these pathways provide a softer, more organic route through the park, guiding visitors through a variety of natural spaces and creating a serene and immersive experience. The combination of permeable surfaces and natural aesthetics makes these pathways a vital component of the park's overall design, enhancing both its functionality and ecological value.

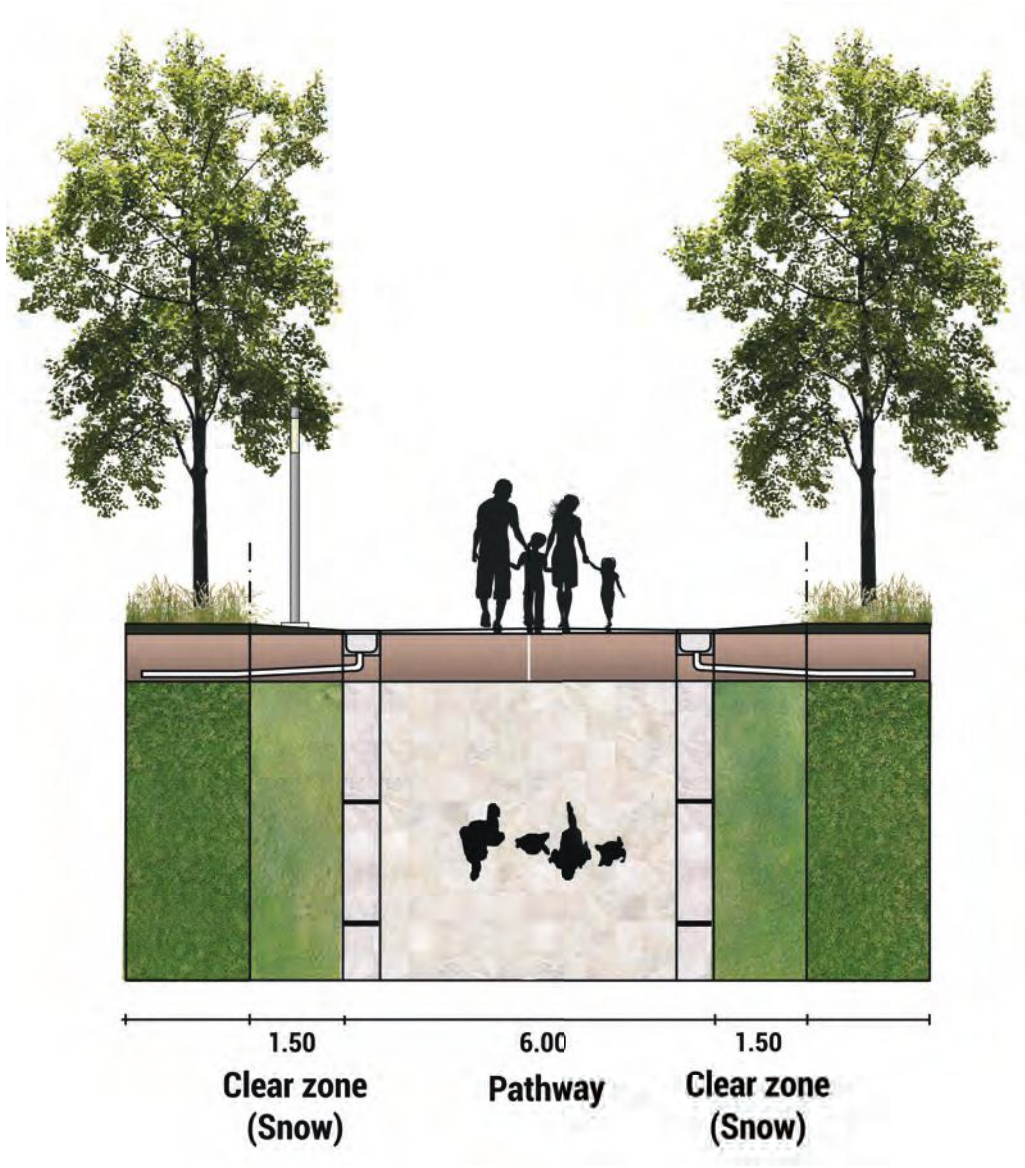


Figure 83. Section of the main pathway

Figure 84. Vusalisation of the park 1 (Diagonal axis)

Sport facilities and active leisure

One of the major objectives of the park's master plan is to promote healthy lifestyle through active leisure opportunities. The park design seemlessly integrates multiple choices of sports that fit to a variety of age groups. This includes:

Jogging path

The jogging path is designed in the shape of a loop that surrounds the park, providing a rich and pleasant sensory experience for users. This loop takes joggers through a variety of meticulously designed elements, enhancing their exercise routine with diverse natural and recreational features. The path leads over the lake, incorporating a water element that adds a refreshing visual and auditory experience. It then winds through aromatic gardens, stimulating the senses with fragrant plants, and passes by the biotope micro-forest, offering a glimpse into a thriving, biodiverse ecosystem.

As the loop continues, joggers come close to the sports courts, allowing them to feel the vibrant energy of athletic activities, and then move under tree canopies, providing shade and a tranquil atmosphere. This thoughtful design ensures that users can fully enjoy the park's landscapes while exercising, without conflicting with other park activities and users. The path's varied environment not only promotes physical fitness but also encourages a deeper appreciation of the park's natural beauty and recreational offerings.

Figure 87 illustrates a section of the jogging path with the proposed dimensions. The planned width allows for three tracks, accommodating both joggers and walkers simultaneously. This design ensures that multiple users can enjoy the path without overcrowding, promoting a more pleasant and efficient experience.

To enhance comfort and safety, recycled rubber flooring is suggested for the jogging path. This material provides a cushioned surface that reduces impact on joints, making it ideal for jogging and walking. Additionally, recycled rubber is durable and eco-friendly, contributing to the park's sustainability goals.

For optimal lighting, it is recommended to use pathway-specific lighting, such as bollard lights. These fixtures provide focused, ground-level illumination, ensuring the path is well-lit without causing light pollution. Bollard lights enhance visibility and safety for users, while also complementing the park's aesthetic.

This combination of thoughtful design, sustainable materials, and efficient lighting ensures that the jogging path will be a safe, comfortable, and enjoyable feature of the park.

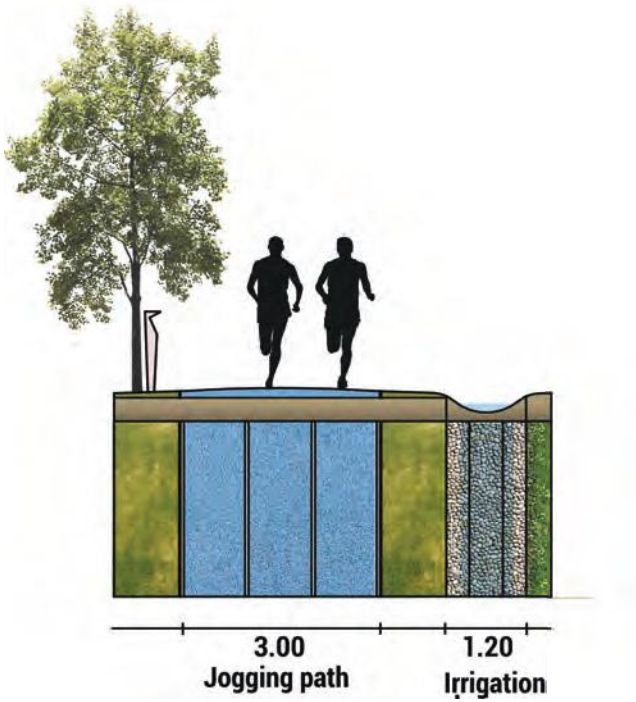


Figure 86. Section of the jogging path

Figure 85. Plan of the jogging path

Figure 87. Vusalisation of the park 2 (vertical axis)

Multi-sports courts

To optimize the use of space while providing maximum sports opportunities and choices, the master plan proposes two multi-sports courts. Each of these courts is designed to accommodate football, basketball, and volleyball. This versatility is crucial for encouraging participation in various sports disciplines without requiring excessive space. The courts are surrounded by a protective fence to ensure the safety of park users and to prevent balls from interfering with other activities. Additionally, the sports courts are serviced by changing rooms and public washrooms, enhancing convenience for the users.

Adjacent to the courts is an open-air gym, designed to cater to different age groups, including the elderly. Open-air gyms have proven to be essential in promoting physical activity in public spaces. They offer accessible fitness options for all community members, encouraging a healthy and active lifestyle.

By integrating these multi-functional sports courts and the open-air gym, the master plan ensures that the park provides diverse recreational opportunities while making efficient use of space. This thoughtful design fosters a vibrant, inclusive environment where people of all ages can engage in physical activity and enjoy the benefits of outdoor exercise.

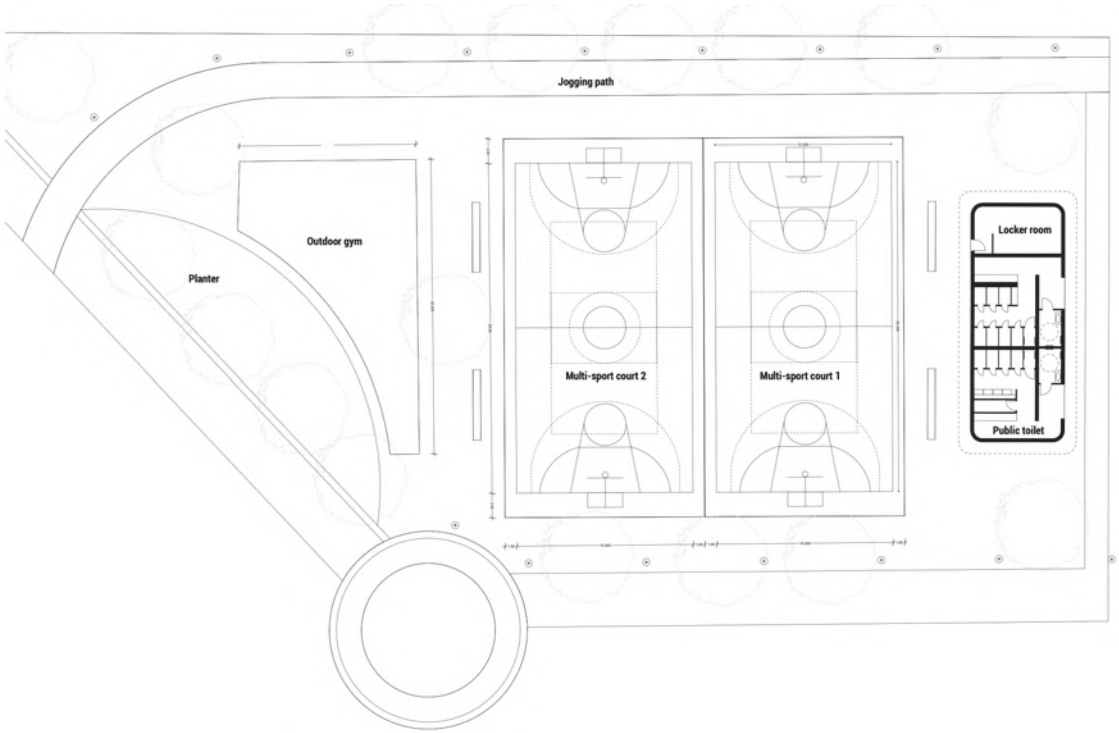


Figure 88. Plan of the sports facilities

Playground

The entire park should be seen as an open-air playground and learning ground for children. Spaces such as the lake, the biotope forest, the irrigation channels and or the pavilion offer ample opportunities for play, exploration, socialization, and learning about biodiversity, sustainability, and resilience. In addition to these features, the park also includes a specially designed playground.

The playground is designed to be an all-season space where children can enjoy and play throughout the year, regardless of weather conditions. Versatility is key to this design. The playground features an artificial hill, created from on-site excavation work necessary for landscaping and ground preparation. This hill serves as a sliding platform for children during snowy weather and as a climbing structure with metal slides attached to it during dry weather.

The top of the artificial hill is connected to an elevated platform, which leads to various games and serves as a protective roof against rain, snow, or strong sun. This design ensures that the playground is functional and enjoyable in all weather conditions.

The playground includes traditional play elements such as seesaws, swings, trampolines, and slides, as well as creative games that support social and mental skills. The games should be designed to cater to different age groups, from toddlers to older children, with safety as a top priority.

Seating areas are provided around the playground, allowing parents and caregivers to comfortably watch over the children as they play. This thoughtful integration of play and learning spaces ensures that the park offers a dynamic and engaging environment for children to develop physically, socially, and mentally.

Figure 89. Visualisation of the playground in summer

Figure 90. Visualisation of the playground in winter

Ecology & Nature-based solutions

Biotop micro-forest

The biotope micro-forest is a vital green infrastructure component of Jusaev Park. Embracing the sponge city concept, the biotope forest primarily functions as a retention basin for stormwater and snowmelt. The park's drainage system directs excess water towards this artificial land depression, significantly reducing the risk of flooding and easing the burden on both the park's and the city's drainage systems. This can be complemented by the integration of an underground stormwater retention system, which would store water for use in irrigating the park during dry seasons, substantially reducing reliance on potable water sources.

Modular underground tanks present an efficient and cost-effective solution for this purpose. Their modular design, ease of installation, high water retention capacity (up to 95%), and durability make them an excellent alternative to traditional basins and concrete storage tanks. However, it is important to install the modules below Naryn's frostline level to prevent the stored water from freezing during winter.

This water management system provides optimal conditions for the development of biodiversity and the flourishing of vegetation. The dense plantation of trees and local plants in this area is designed to create a micro-forest with a thriving ecosystem. This micro-forest not only enhances the park's ecological value but also serves as an educational resource, offering visitors the opportunity to learn about local fauna and flora in a living, dynamic environment.

Source: water.phila.gov/gsi/tools/wetland/

Figure 91. The conceptual representation of the rain garden/biotope forest area

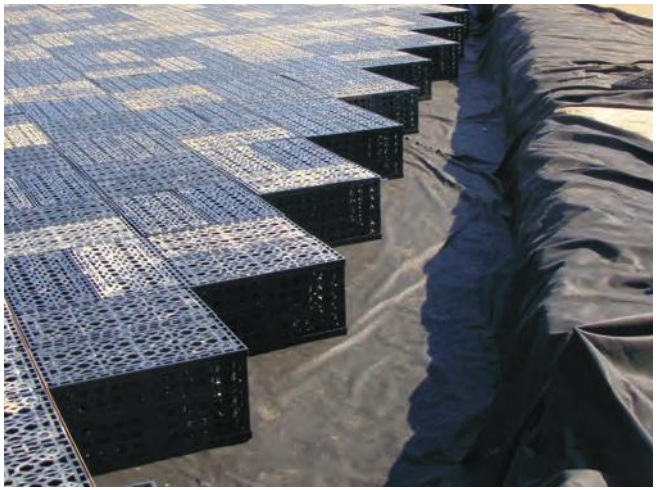


Figure 92. Modular stormwater retention tanks
Source: https://titanenviro.com

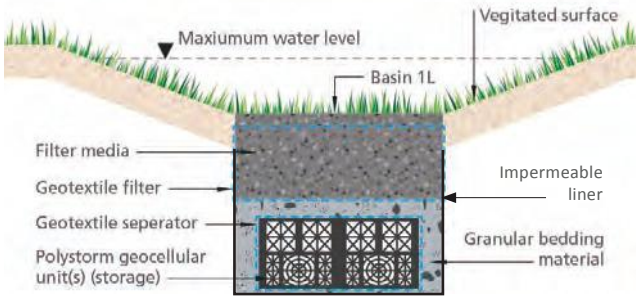


Figure 93. Section of the stormwater retention system/swale
Source: https://www.polypipe.com/civils/gi/swales-technical-information

Water reservoir (lake)

The water reservoir in Jusaev Park serves two main functions:

a. Irrigation reservoir: This water feature serves as a reservoir, temporarily storing water primarily pumped from the underground stormwater tank in the biotope garden for irrigation purposes. It is also connected to a borehole for supplemental water supply if needed. Situated at the highest point in the park, the reservoir facilitates gravity irrigation (refer to the irrigation and drainage section).

b. Scenic and Recreational Feature: As a landscape feature, the reservoir is designed in the form of a lake, enhancing the visual and sensory experience for visitors. The serene presence of the lake adds to the park's aesthetic appeal, creating a tranquil environment for relaxation and enjoyment. During winter, when temperatures drop and the lake freezes, it transforms into an ice-skating rink, providing a new and exciting recreational activity for park visitors. This seasonal adaptability makes the lake a versatile and cherished element of the park, catering to a variety of interests and enhancing the overall visitor experience.

Figure 94. Visualisation of the park 3 (Lake/water reservoir)

Vegetation

The landscaping of the park primarily utilizes native trees and vegetation, focusing on species that require minimal maintenance and irrigation. This approach is crucial for enhancing local biodiversity and creating a green space that reflects the local identity. The selection of vegetation is designed to enrich the sensory experience of visitors, offering a dynamic array of colors, smells, textures, and atmospheres with each season. In addition to these native plantings, the masterplan proposes the inclusion of aromatic gardens. These gardens will engage the senses through fragrant plants and herbs, providing an immersive experience for visitors. These sensory gardens aim to enhance the aesthetic appeal of the park, but also serve as educational spaces where visitors can learn about local flora and the importance of biodiversity.

Therefore, native trees that provide shade, bolster biodiversity, and are well-suited to the local climate are prioritized. Lawn areas are minimized in favor of wild plants and meadows, which become the main types of vegetation in the park. This not only reduces maintenance requirements but also fosters a more natural and sustainable ecosystem within Jusaev Park.

Irrigation and drainage

The irrigation system for Jusaev Park was chosen based on critical factors such as construction and maintenance costs, sustainability, and compatibility with the local climate. A thorough site analysis identified a surface, gravity-fed irrigation system as the most efficient and sustainable option. This system leverages the park's natural topography to distribute water efficiently across its expanse, reducing the need

Figure 95. Example of meadows and native aromatic plants used for landscaping

for energy-intensive mechanical pumps and thereby lowering both operational and maintenance costs. Water is sourced from a central reservoir and channeled through a network of irrigation canals that divide the park into three independently irrigated sections. Strategically placed water gates within these canals provide precise control over water distribution, ensuring that each area receives the appropriate amount of water.

When feasible, alternative irrigation methods can be explored to complement gravity-fed systems. One effective approach is sub-surface irrigation for trees, which enhances water use efficiency and targets root zones more precisely. This can be achieved by connecting surface irrigation canals to underground irrigation tubes that deliver water directly to the tree roots. By reducing evaporation, this method minimizes water loss and decreases the frequency of irrigation needed, making it a highly sustainable option.

To maximize efficiency, the irrigation system is integrated with the park's stormwater drainage system. During winter and rainy seasons, stormwater and snowmelt are directed into a rain garden, where the water is harvested, and gradually infiltrates the soil, nourishing the park's biotope micro-forest. This method aims to reduce pressure on the city's drainage infrastructure, but also aids in aquifer recharge and supports the local ecosystem.

It is recommended that the canals are constructed using natural stones to make them blend seamlessly into the landscape, maintaining both functionality and aesthetic appeal.

Figure 96. Example of subsurface irrigation system

Figure 97. Natural stone irrigation/drainage canal

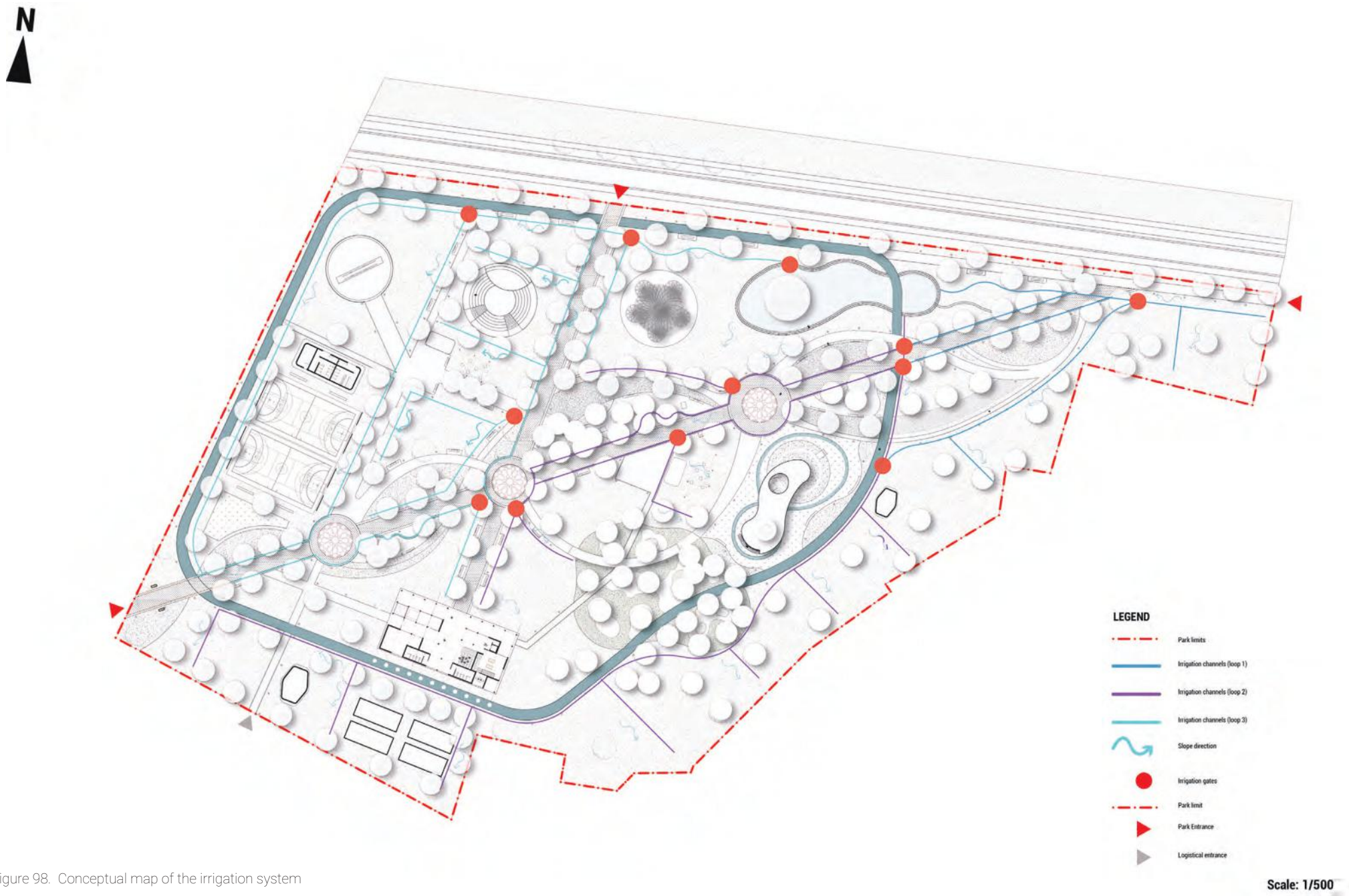


Figure 98. Conceptual map of the irrigation system

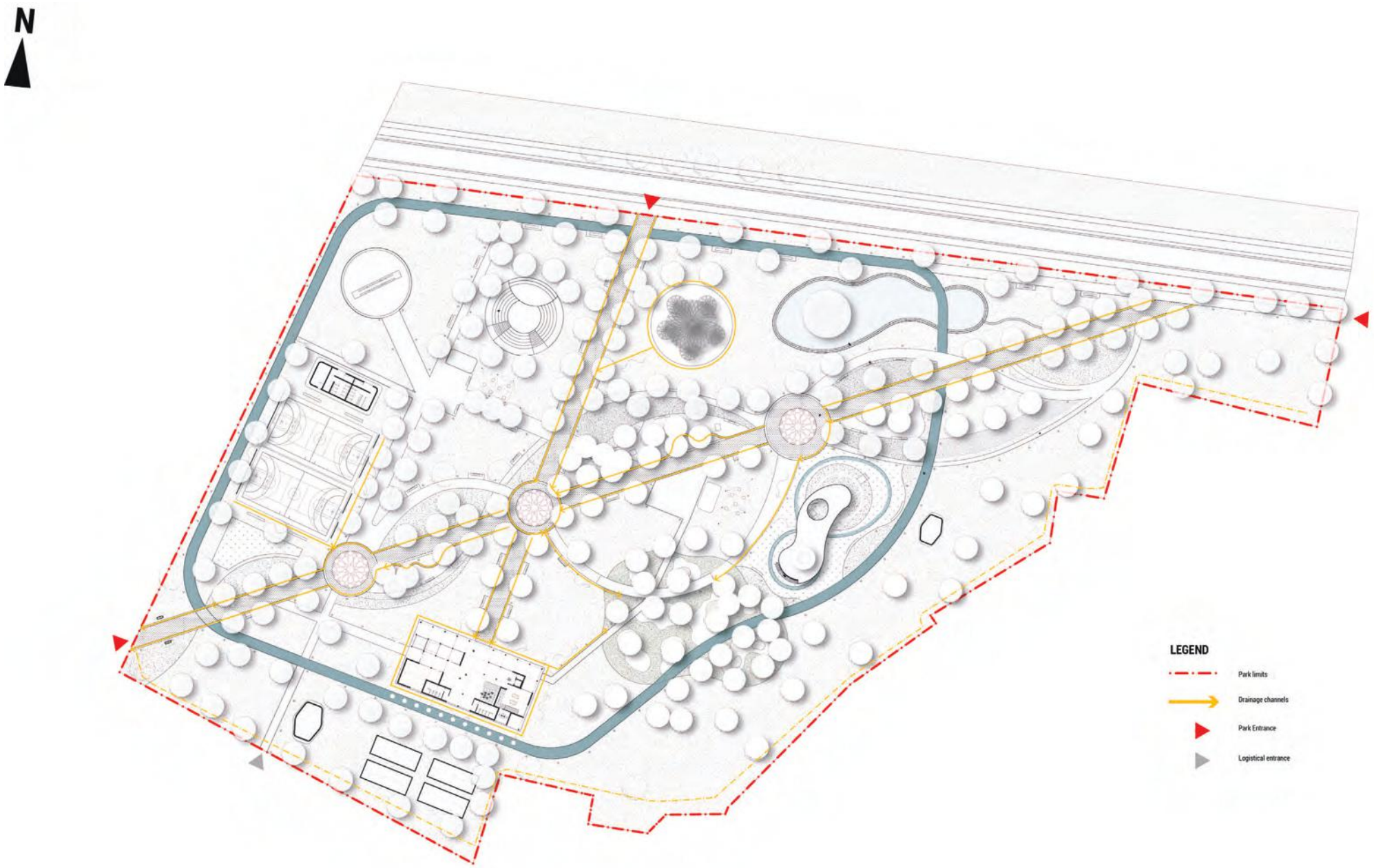


Figure 99. Conceptual map of the drainage system

Events and Recreation

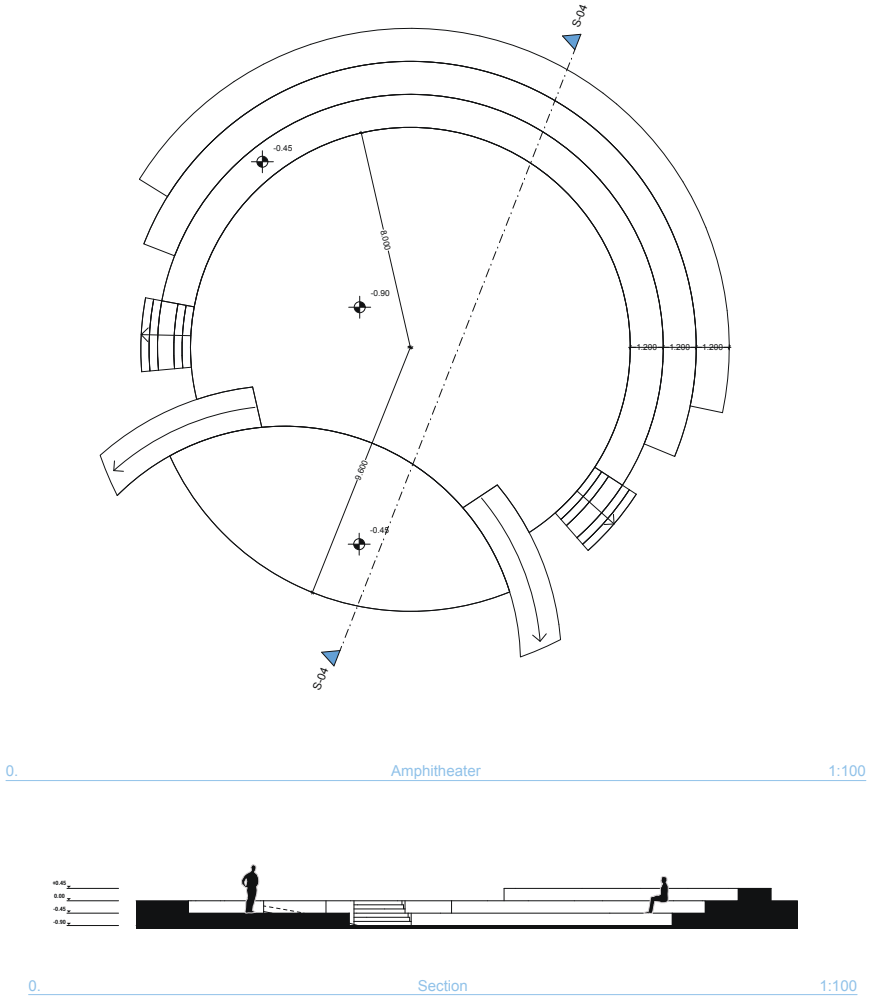
Amphitheatre

The open-air amphitheater is strategically located to attract users from both Jusaev and Victory Parks, serving as a vibrant space for both spontaneous and organized performances. Designed with simplicity and functionality in mind, the amphitheater minimizes excavation and construction work, while maximizing accessibility and creating a pleasant, cozy atmosphere. The bleachers can accommodate around 100 spectators, with additional space on the surrounding lawn for more visitors to sit and enjoy the shows. Trees planted around the amphitheater create a contained space and are positioned to support a canopy shader, providing protection from the sun, rain, or snow.

Additionally, the amphitheater is oriented to take advantage of the stunning mountainous background of Naryn, enhancing the visual experience of art performances.

Ferris wheel

The Ferris wheel is a key recreational feature of the park, introduced in response to the community's request for enhanced recreational facilities. Beyond its recreational value, the Ferris wheel is poised to become an iconic tourist attraction, offering panoramic views of the park, the city, and the breathtaking mountain backdrop. This addition is set to transform the park into a vibrant focal point, drawing both locals and tourists to enjoy its unique vistas and dynamic atmosphere.



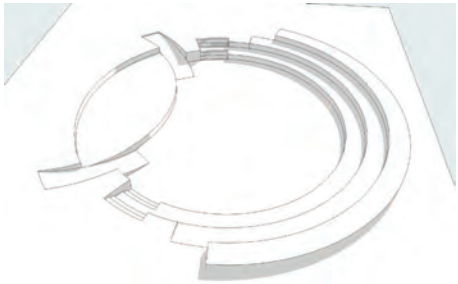


Figure 100. Plan and a section of the amphitheatre

Figure 101. Visualisation of the amphitheatre

Amenities

Adequate amenities and public facilities are integral to the park's master plan, enhancing its functionality and cohesion. The park features several strategically placed amenities that unify its various spatial components and cater to diverse visitor needs.

Kiosks/Outdoor Cafés:

a. Eastern Kiosk/Outdoor Café: Positioned on the eastern square adjacent to the playground, this kiosk offers a relaxing space for parents and caregivers. It provides a convenient spot for socializing while keeping an eye on children playing.

b. Western Kiosk/Outdoor Café: Located on the western square, near the open-air amphitheater, the Ferris wheel, and the sports area, this kiosk serves as a central hub for visitors engaging in events, recreational activities, or enjoying the Ferris wheel.

c. Pavilion Kiosk: Integrated into the pavilion, this kiosk serves both pavilion users and park visitors, covering the southern section of Jusaev Park. It enhances the pavilion's functionality and provides additional refreshment options for the park's southern area.

These kiosks are designed to maximize accessibility and comfort, making the park a more engaging and convenient destination for all visitors.

Yurt restaurant

The park features a yurt restaurant, a nod to local identity and gastronomy. Constructed with a light structure, the yurt seamlessly integrates into the park's landscape and complements the lake design, providing a scenic and relaxing view of the water. Beyond serving as a dining venue, the yurt can host celebrations and events, making it a versatile space that generates additional revenue for the park.

Public toilets

Toilets in the park are distributed to ensure easy accessibility from all areas of the park, especially the most frequented spaces. They should be designed with universal standards, with dedicated cabines to people with reduced mobility, changing tables for babies, etc.

There are three projected toilets in the park; one adjacent to the playground and serves the north and eastern side of the park. Another toilet is adjacent to the sports courts and shares the same structure with the changing room.

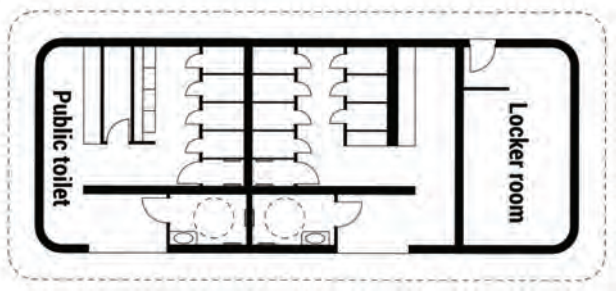


Figure 102. Public toilet layout

A third toilet is integrated in the pavilion, and caters for the pavilion users as well as the visitors of the southern part of the park.

Nursery

A nursery is planned behind the pavilion, conveniently located near the service entrance. This nursery will feature four greenhouses dedicated to growing plants and testing new species for potential integration into the park's landscape. These greenhouses will serve as a hub for horticultural innovation and sustainability, ensuring the park remains a vibrant and evolving green space.

In case of emergencies or natural disasters, these greenhouses can also be repurposed to grow vegetables, providing a vital food source for the affected community. This dual functionality underscores the park's commitment to resilience and community support, making it not only a place of beauty and recreation but also a resource for sustainability and disaster preparedness.

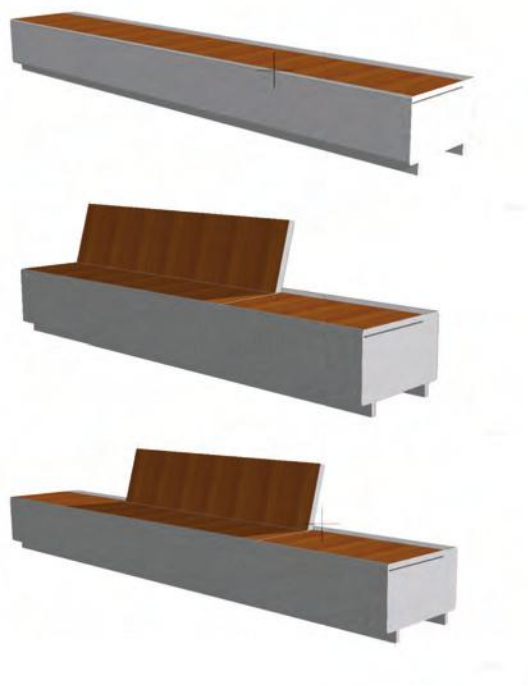
Seating

Seating in the park is designed to be modular, aesthetic, flexible, and convivial. The seating options are carefully selected based on the atmosphere and intended usage of the spaces, catering to a variety of potential needs such as relaxing, meeting, and watching performances or enjoying landscapes. They should be crafted to be durable and adaptable to changing weather conditions, ensuring comfort and ease of cleaning. The placement of these benches is thoughtfully coordinated with trees and adequate lighting to enhance the overall experience.

Modular benches allow for various configurations, such as two-sided seating, back support, or a combination of both, depending on the location and activities they accommodate. This versatility ensures that seating meets the diverse needs of park visitors.

Additionally, moveable chairs are considered to provide flexibility and contribute to creating dynamic social spaces. These chairs give visitors the freedom to shape the space according to their needs, fostering a sense of ownership and community engagement.

The park design also includes ample opportunities for picnicking, encouraging the revival of traditional local practices. Designated picnic areas with shaded spots invite families and friends to gather, relax, and enjoy the natural surroundings, promoting a sense of community and connection to the park.



Modular Benches

Moveable chairs

Convivial

Flexible

Seasonal

Figure 103. Example of seating possibilities in the park

Parking and streets

The surrounding of the park is as important as the park itself. Jusaev park is designed to create a continuity between the spaces and facilities inside the park and the areas around it. The streets bordering the park are part of the open space system and should carry the same principles and design language as the park.

The masterplan proposes a prototype for street design along Razzakov Street, which currently cuts through and separates Jusaev Park and Victory Park. This street lacks sidewalks, lighting, and landscape features, creating a barrier rather than a connector. The objective is to transform this street into a vital component of the park, making it a seamless connector and an integral public space. It could also host periodic activities such as weekly markets that would benefit from the attraction of Jusaev Park.

The redesign includes wide sidewalks, bicycle lanes, landscaped planters, and trees, integrating nature into the urban fabric. Stormwater drainage will be managed using nature-based solutions such as bio-swales and permeable surfaces. These are low-cost, low-maintenance solutions that enhance the city's resilience, reduce pressure on the city's drainage system while providing a pleasant green space. These solutions can be applied in other areas of the city where infrastructure provision is limited.

The eastern section of the street features a parking area, designed to provide easy and safe access to the park. The remaining section will be narrower, designed as a pleasant public space with benches and landscape elements that follow the same design language as the park.

Figure 104. Transformation of the main street through the park

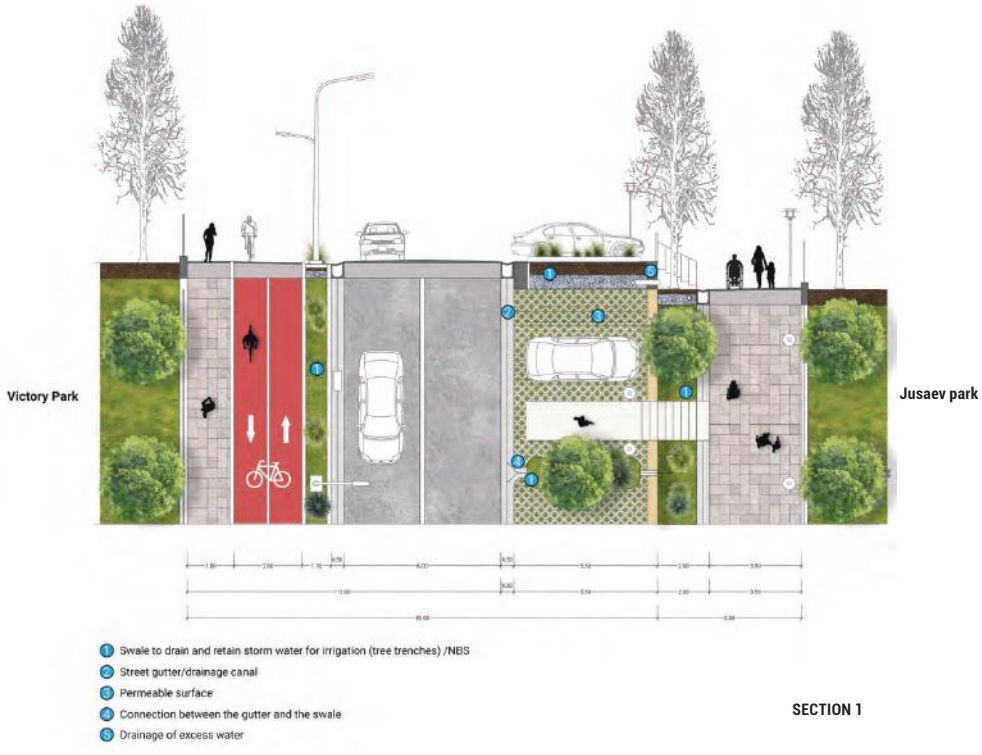


Figure 105. Street sections of Razzakov Street (UN-Habitat)

Other considerations

Information and signage:

Clear and informative signage plays a crucial role in enhancing the user experience in the park. The park's signage should be visually appealing, with a cohesive visual identity, and should also be accessible and informative to ensure that all visitors can easily navigate and enjoy the park.Orientation signage:

Orientation Signage

• Wayfinding: Signage will help users orient themselves within the park, providing clear directions to different spaces and amenities. Strategically placed at key intersections and entrances, these signs should be visible without obstructing movement. Maps highlighting the main features of the park will be located at each entrance to assist visitors in planning their route.

• Informational Panels: These will include details about the history of the park, guidelines for permitted and non-permitted behaviors, and designated areas for community announcements, such as posters for events and organized activities.

Educational Signage

The park presents a valuable opportunity to educate visitors about local biodiversity and the park's role in promoting sustainability and resilience in Naryn. Educational panels will provide engaging information about native plants, ecosystems, and nature-based solutions like drainage and irrigation systems. These signs will be designed to be interactive, encouraging visitors to spot specific elements—such as plants, animals, or technical features—during their visit.

Figure 106. Examples of signage designs

Design for People with Additional Sensory Needs

The signage design should be inclusive, and should prioritize accessibility for visitors with sensory impairments, such as vision or hearing disabilities. Tactile maps and signage must be provided, along with auditory options to ensure that all visitors can navigate the park independently and confidently.

This approach to park signage ensures that all visitors can fully engage with and enjoy the space, making the park a welcoming and educational environment for everyone.

Lighting

Adequate lighting in Jusaev Park is crucial for ensuring the safety, comfort, and overall enjoyment of all visitors. The lighting design is tailored to meet the specific needs of different areas within the park, emphasizing efficiency, aesthetics, durability, and energy-saving.

Location:

Key areas such as pathways, entrances, and gathering spots should be well-illuminated to ensure maximum visibility and safety. Light poles should be strategically spaced to provide consistent, even lighting across pathways and seating areas. The lighting must be carefully directed downward to minimize light pollution, preserving the park's natural ambiance while ensuring sufficient illumination for night time activities.

Types of Lighting:

• *Smart Lighting Poles:*

Smart lighting solutions can be utilized to enhance both energy efficiency and safety. These poles can be equipped with sensors and IoT technology to adjust brightness based on occupancy, activity, and time of day. Motion-activated lights can be installed in less frequented areas, ensuring energy savings while maintaining a secure environment.

• *Bollard Lights:*

Bollard lights offer subtle, non-intrusive ground-level lighting, ideal for the jogging path and low-traffic areas where taller poles are unnecessary. These lights effectively reduce light pollution while enhancing safety and maintaining the park's tranquil atmosphere.

• *Decorative Lighting:*

When used, decorative lighting should be carefully and sensitively integrated to enhance the park's aesthetics without contributing to light pollution or glare. This includes ground-level lighting, as well as illumination around water features and at park entrances. Decorative lighting is primarily used during peak times, ensuring it complements the park's design without overwhelming it.

• *High-Mast Poles:*

High-mast poles are reserved for the sports area, providing powerful illumination necessary for night-time activities. These poles are used only when the sports area is in use, minimizing unnecessary light exposure.

By combining these different types of lighting, Jusaev Park ensures a well-lit, safe, and visually appealing environment that enhances the overall experience for visitors while being mindful of energy use and light pollution.

Waste management:

Implementing sustainable waste management in Jusaev Park involves a comprehensive approach that combines strategies to minimize waste generation, promote recycling, and ensure efficient disposal. Key initiatives include:

• Multiple Bin System: Install a multi-bin system for waste separation (e.g., recyclables, compostables, and general waste) across the park, with a focus on high-traffic areas such as entrances, picnic spots, and seating zones.

• Optimized Collection Schedules: Implement waste collection schedules that are adapted to the park's activity levels, ensuring timely and efficient waste removal.

• On-Site Composting: Establish a composting station near the nursery to process organic waste, biodegradable materials, mulched leaves, and grass clippings, which will be used as natural fertilizers for the park.

• Waste Reduction Initiatives: Collaborate with park vendors to reduce packaging and promote the use of reusable or biodegradable materials, significantly cutting down on waste.

• Circular Economy Partnerships: Partner with local businesses and organizations to create a circular economy, where waste materials from the park are reused or repurposed within the community.

• Zero Waste Events: Promote zero-waste events by establishing guidelines that minimize waste, such as banning single-use plastics, requiring waste separation, and encouraging the use of eco-friendly materials.

• Community Engagement: Involve the community through volunteer programs focused on park clean-ups and waste management education, fostering a sense of ownership and responsibility.

• Visitor Feedback Mechanisms: Provide visitors with opportunities to offer feedback on waste management systems and suggest improvements, ensuring that the park's waste management strategies remain effective and responsive to user needs.

These measures can help Jusaev Park maintain a clean and sustainable environment, while also encouraging visitors and the local community to participate in responsible waste management practices.

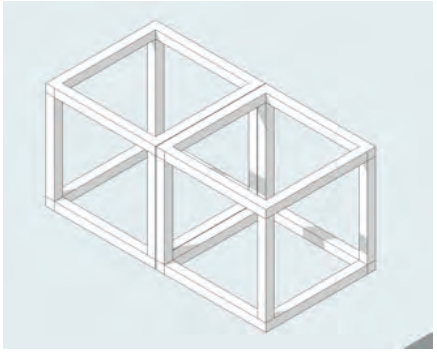
Figure 107. Visualisation of the pavilion

The pavilion (resilience hub)

The pavilion is a major component of Jusaev Park, embodying the key concepts of modularity, flexibility, adaptability, sustainability, and inclusiveness. Serving as a social and multifunctional space, the pavilion acts as a "Resilience Hub," reflecting the idea that resilience extends beyond technical solutions to include social resilience. This involves engaging the community and providing spaces for education, participation, and collaboration.

Architectural Design

The pavilion's design is based on a modular wooden structure with dimensions of 4m by 4m. This lightweight and flexible structure allows for easy expansion or remodelling of the building's spaces according to the needs and available resources.



One of the stand-out features of the pavilion's design is its ability to be easily converted from a recreational space into a shelter in case of emergencies. Each module can become an independent room using light separation walls that can be quickly mounted to the structure. This adaptability is complemented by an underground emergency storage area, which can be utilized to support the surrounding community during disasters. This capability underscores the important role Jusaev Park can play in enhancing the resilience of Naryn.

@abt.eu

Figure 109. Modular design of the pavilion

Furthermore, the pavilion incorporates sustainable practices, utilizing local materials and energy-efficient systems. Its adaptable nature ensures that it can serve various functions, from hosting community events and educational workshops to providing a safe haven during emergencies. The pavilion's design includes large windows and open spaces to facilitate natural light and ventilation, reducing the need for artificial lighting and air conditioning.

Energy efficiency:

The pavilion's design incorporates sustainable practices, utilizing local materials and energy-efficient systems such as rooftop solar panels and rainwater harvesting systems. It is designed to maximize daylight, reducing the need for artificial lighting and further conserving energy. This approach embodies the park's commitment to sustainability and social resilience, making the pavilion a key feature in transforming Naryn into a more resilient and connected community.

Figure 108. Section of the pavilion

Accessibility:

The pavilion spaces are designed to be fully accessible, particularly for the elderly and individuals with limited mobility. The pavilion is equipped with an elevator, ensuring easy access to the second floor. Toilets adhere to universal access standards, featuring dedicated cabins for people with reduced mobility. This commitment to accessibility ensures that everyone can comfortably use and enjoy the pavilion's facilities.

Resilience hub spaces:

Spaces in the pavilion are designed to be versatile and multifunctional, giving the community the ability to shape it in a collaborative way.

Multi-purpose courtyard

The pavilion features an open courtyard, which gives an open and welcoming atmosphere. The courtyard itself can be used as a space for events, conferences, panel discussions, or for exhibitions. It is also designed to offer visual continuity from the main entrance to the park through a glass wall.

On the side of the courtyard, there are bleachers that can be used by visitors as a sitting area to attend the different events (Figure 112).

Interactive Resilience hub

The Interactive Resilience Hub is a flagship component of the pavilion, serving as an information, educational, and participatory space dedicated to showcasing Naryn's strategies for strengthening resilience. It provides visitors, community members, and students with crucial information about disaster-prone areas, Naryn's mitigation and adaptation strategies, as well as methods to build social resilience and preparedness.

The hub features a control room for monitoring hazards and an early warning system that can be managed by the community, fostering a sense of ownership and involvement. Additionally, the Resilience Hub is connected to an underground emergency storage facility, equipped with essential supplies that can be mobilized during disaster situations, further enhancing the community's preparedness and response capabilities (Figure 109).

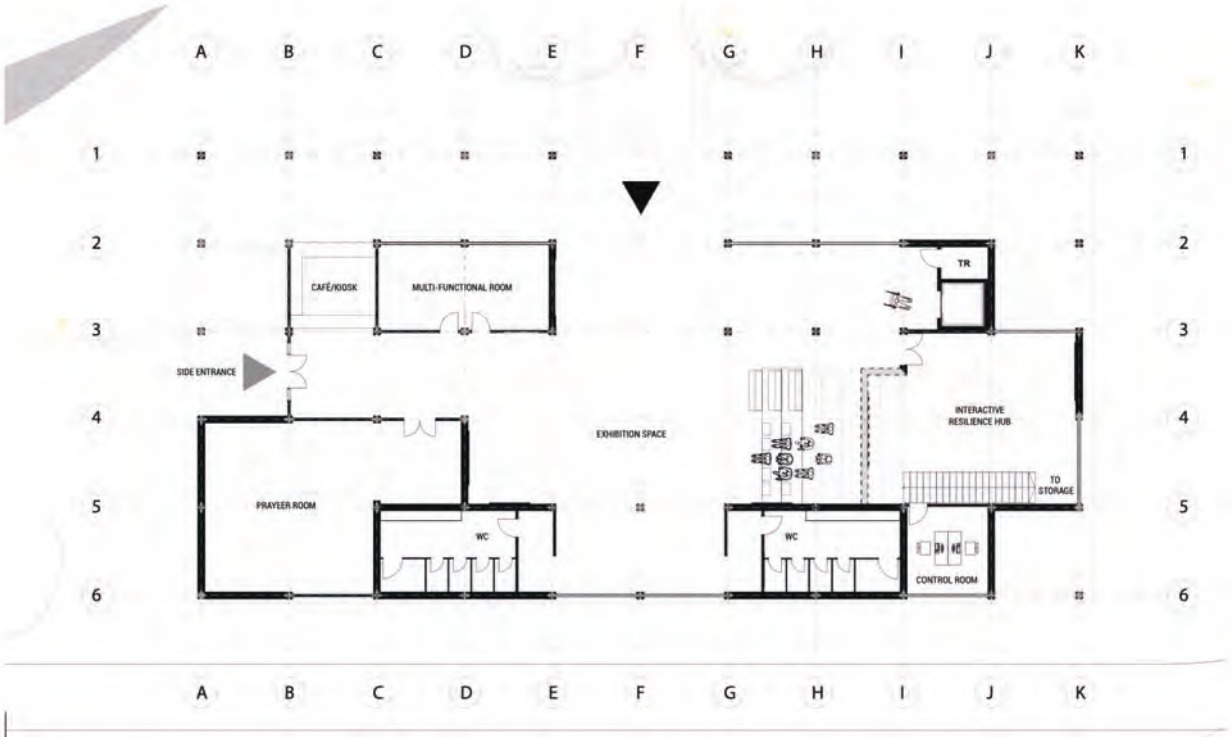


Figure 110. Plan of the ground floor

Figure 111. Visualisation of the multi-purpose hall

Figure 112. Visualisation of the community area (library)

Other spaces:

The ground floor features a prayer room catering to park visitors, alongside a multi-functional space available for workshops, meetings, or events. Additionally, public toilets are conveniently located, complemented by a small kiosk/café serving both interior users and those enjoying the park's outdoor areas..

The first floor is designed as a dynamic social condenser, fostering inclusive and productive community engagement. The left wing features a community lounge equipped with a library, serving as a space for reading, relaxation, and social interactions. Its openness allows users to maintain a view of the courtyard and engage with events happening on the ground floor (Figure 113).

The right wing houses a co-working space offering an outstanding view of the park, creating an inspiring environment for work and collaboration. Additionally, this wing includes a unit dedicated to social support for victims of violence, addressing a primary request from the local community. This safe space facilitates meetings and group discussions, providing the necessary psychological support to those in need.

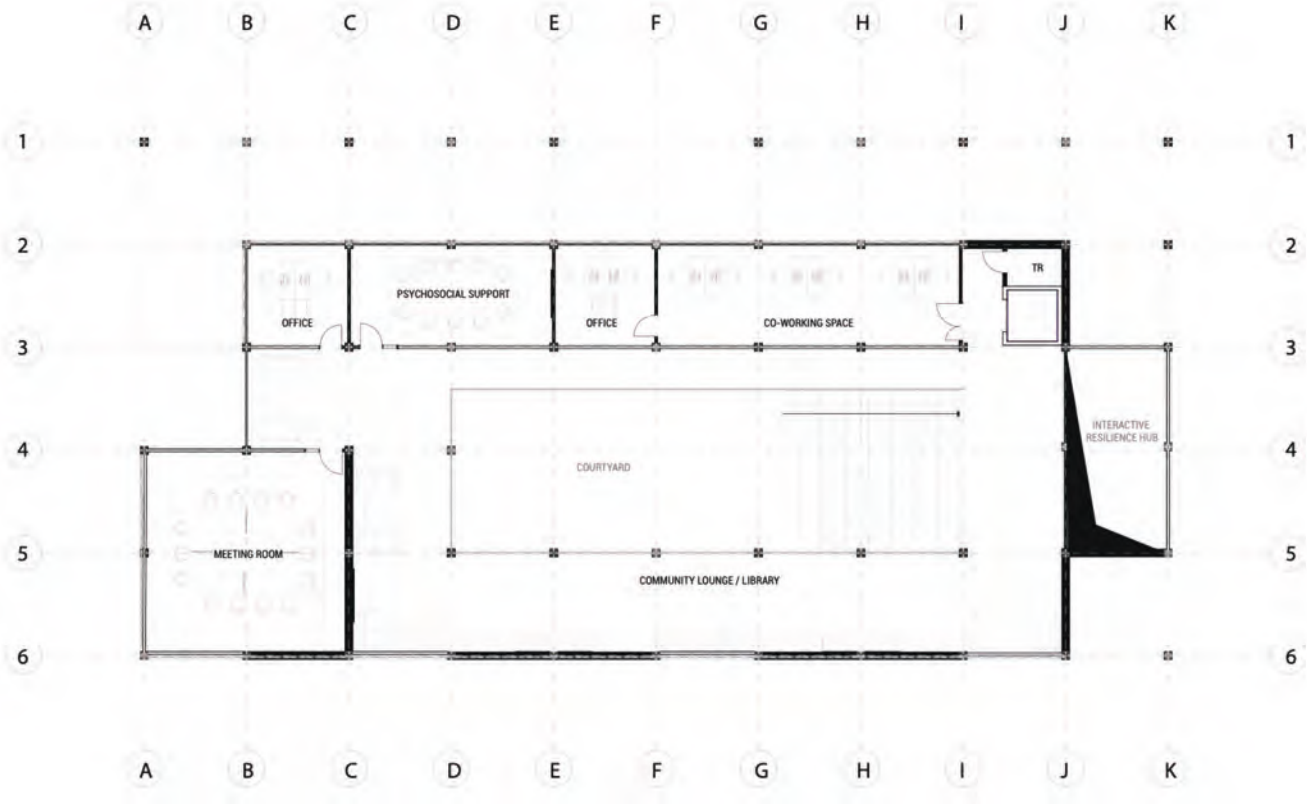


Figure 113. Plan of the first floor

Figure 114. Visualisation of the interactive resilience and monitoring hub

Phasing

The masterplan carefully considers the phasing of the project to ensure efficient implementation while acknowledging financial constraints. Most project components are designed to be implemented incrementally while remaining functional throughout the process.

For instance, the playground can be developed in two stages. The first stage involves constructing the artificial hill and installing some initial play equipment. The second stage includes adding the shading structure and platform to extend the playground's capacity.

Similarly, the pavilion's modular structure allows for phased construction. Initial phases can establish core spaces, with subsequent phases expanding the structure as needed and as financial resources permit.

The table below outlines the proposed phasing for the park's implementation.

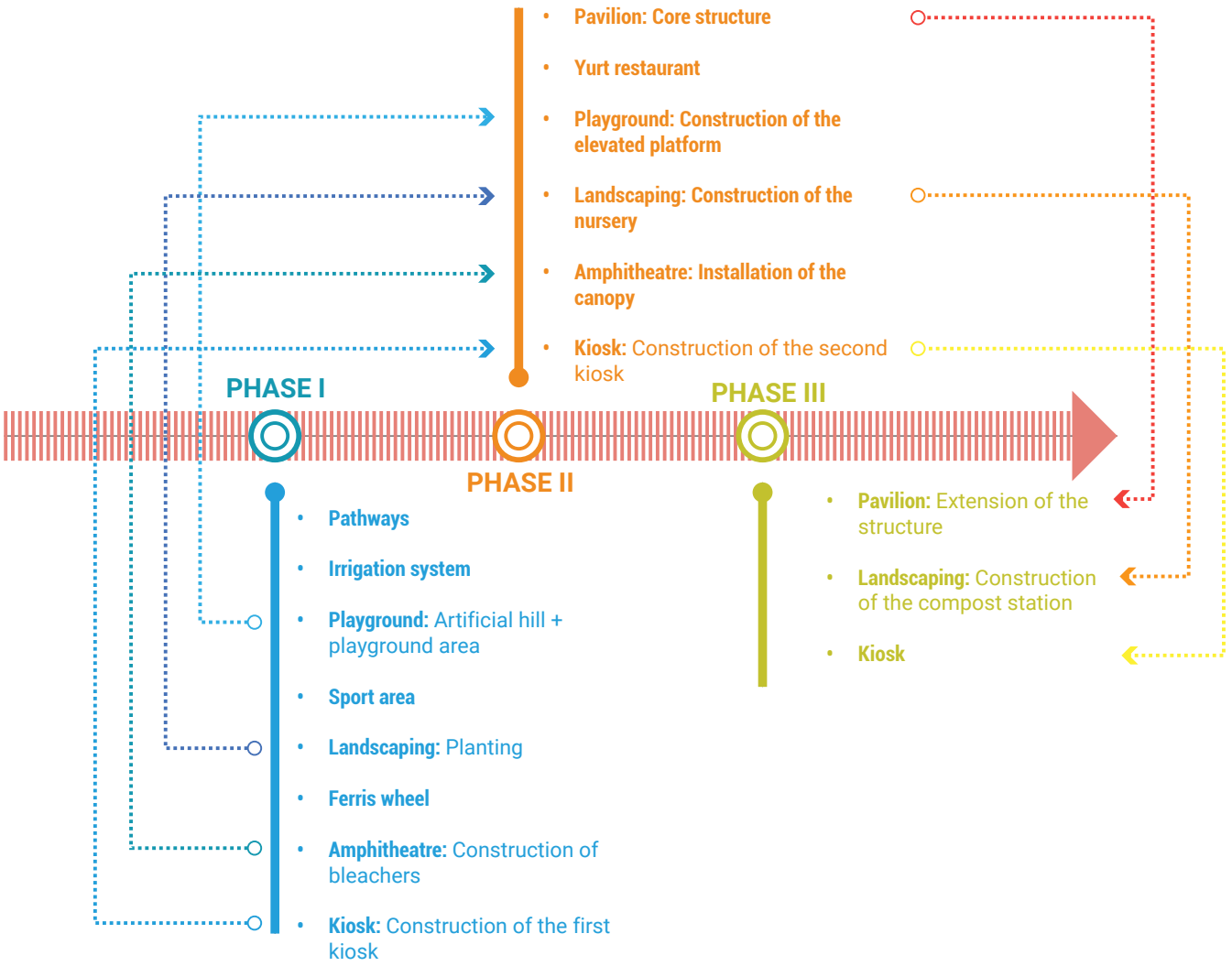


Figure 115. Implementation phases of Jusaev Park

Figure 116. Visualisation of Jusaev park

Revenue generation

A park's viability depends not only on its design and aesthetics but also on its ability to sustain itself economically. For Jusaev Park, this means integrating a revenue generation strategy into the spatial design that supports ongoing maintenance and improvements. This approach ensures that the park remains a vibrant and well-maintained space for the community while also contributing to the city's broader economic ecosystem.

a) Event Hosting and Venue Rentals

• Pavilion Spaces: The pavilion's modular and flexible design makes it ideal for hosting a variety of events, from corporate gatherings to workshops and community meetings. The co-working spaces within the pavilion can generate consistent revenue through daily usage fees and membership plans.

• Open-Air Amphitheater: The park's amphitheater is perfect for hosting concerts, theater performances, and film screenings. Revenue can be generated through ticket sales, while local businesses can be invited to sponsor these events, adding to the park's income.

• Seasonal Festivals: Hosting seasonal festivals focused on art, music, gardening, and other themes can attract large crowds, generating revenue through advertising, sponsorships, and ticket sales.

• Pop-up Markets: Regular farmers' markets featuring local produce, crafts, and food can be organized within the park. Vendor fees from these markets contribute directly to park revenue.

b) Cafés and Restaurants

• Yurt Restaurant: The park's yurt-style restaurant offers a unique dining experience, appealing to both locals and tourists. Special events such as weddings, themed dinners or cooking classes can further enhance its attraction and revenue potential.

• Kiosks and Food Trucks: Leasing spaces to food vendors or seasonal food trucks, particularly near high-traffic areas like playgrounds and entrances, can provide a steady income stream while enhancing the park's culinary offerings.

c) Educational Programs

• School Partnerships: Collaborating with schools and educational institutions to offer paid programs like field trips, environmental science classes, and tours on resilience and sustainable landscaping can generate revenue while educating the community.

• Workshops and Training Sessions: Organizing paid workshops on topics such as gardening, composting, or sustainable living can attract participants and contribute to the park's income.

d) Membership Programs

• Adopt-a-Tree or Bench Programs: Visitors can sponsor trees, benches, or other park features, with commemorative plaques acknowledging their contributions. This can generate revenue, but also foster a sense of ownership and connection within the community.

e) Sponsorship and Advertising

• Corporate Sponsorships: Local businesses and larger corporations can sponsor park events, amenities, or specific features such as playgrounds or gardens. These sponsorships can be a significant source of funding.

• Advertising Space: Offering discreet advertising opportunities on park signage, maps, or digital platforms can generate additional revenue while ensuring that the park's aesthetic and values are maintained.

Conclusion

The proposed design of Jusaev Park reflects a holistic approach that goes beyond simply creating an isolated green space. Instead, it integrates seamlessly into Naryn's urban landscape, embedding the core principles of sustainability, resilience, and inclusivity. This makes it a model for how a green space can act as catalyst for positive change, encouraging investment and urban renewal in the area.

Furthermore, the park plays a vital role in the city's efforts to strengthen urban resilience as it incorporates a variety of innovative solutions for storm water management, energy-efficiency, ecosystem services, and strengthening of local biodiversity, all while offering an attractive and welcoming space for gathering, recreation, and education.

The park's design is intentionally open-ended, offering a flexible framework that invites creativity and collaboration among the city, the community, and other stakeholders. Rather than imposing a fixed vision, it allows the space to evolve in response to the community's needs and aspirations, creating a dynamic, adaptable environment that the people of Naryn can truly identify with and take pride in.

Figure 117. Winter river in Naryn

General conclusion

Urban regeneration is a crucial strategy for achieving socio-economic resilience, especially in towns like Naryn, where underutilized land, vacant post-industrial sites, and deteriorated urban infrastructure have hindered the city's development and increased its vulnerability.

In Naryn, the regeneration of the central market and Jusaev Park stands as a prime example of UN-Habitat's approach to integrated urban planning, serving as cornerstone projects within a broader strategy to transform the town into a vibrant, attractive, and resilient urban center.

These projects are designed to be catalysts for multi-dimensional change, driving urban renewal and bolstering the city's overall resilience. By aligning with a network of city-wide initiatives, the market and park contribute to a cohesive set of actions aimed at enhancing the quality of life and improving the socio-economic conditions in Naryn.

Beyond offering design and technical solutions, these two demonstration projects showcase a multi-scalar and integrated planning methodology that connects city-wide development strategies with specific, impactful interventions.

The participatory approach throughout the design process has been exemplary, involving an iterative process that engaged a diverse range of stakeholders—including youth, women, the elderly, city representatives, the private sector, and civil society—all of whom should continue to be engaged in the implementation phase of these projects.

In addition to the demonstration projects, the comprehensive methodology how to "read and approach the built-environment" assists in ensuring a holistic approach to spatial transformation. The systematic approach through the spatial typologies can be further integrated in local design guidelines or/and form-based codes.

The city-wide design approach and the demonstration of it's application provide a comprehensive overview how to translate the strategic recommendations into concrete and implementable actions ensuring a transformative effect in the city.

List of figures

UN HABITAT
FOR A BETTER URBAN FUTURE

UN-HABITAT | URBAN LAB