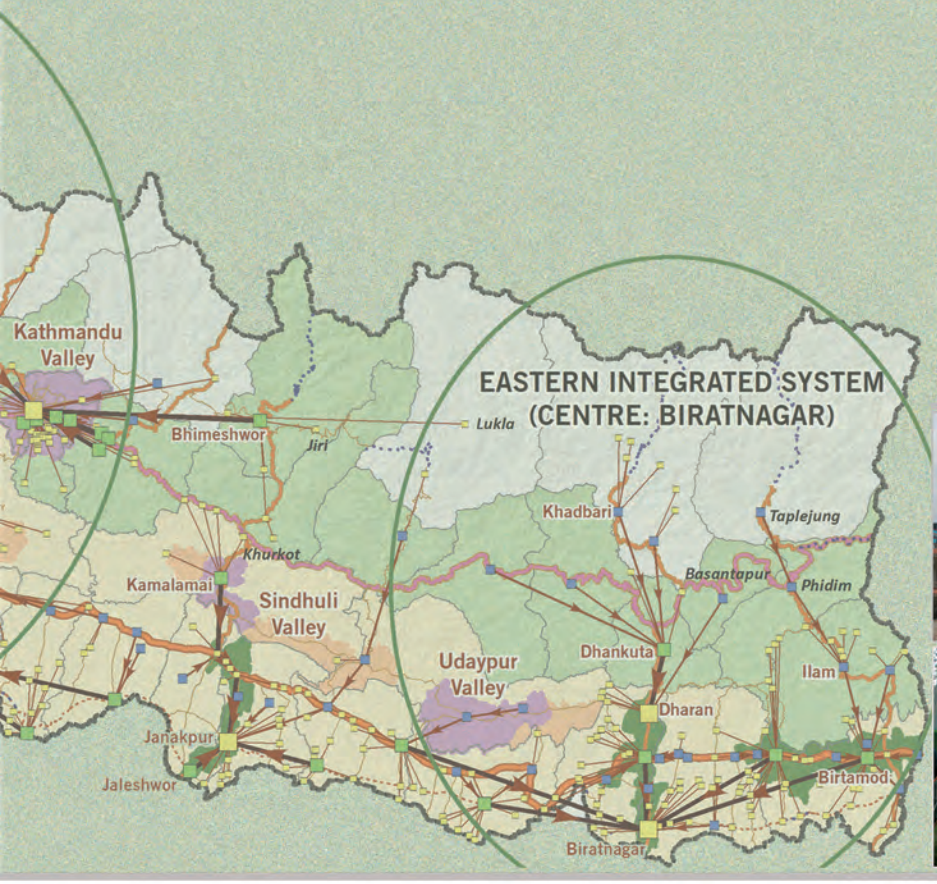
Final Draft



NATIONAL URBAN DEVELOPMENT STRATEGY 2015

GOVERNMENT OF NEPAL, MINISTRY OF URBAN DEVELOPMENT

National Urban Development Strategy (NUDS), 2015

Government of Nepal, Ministry of Urban Development

Ministry of Urban Development (MoUD), February 2015

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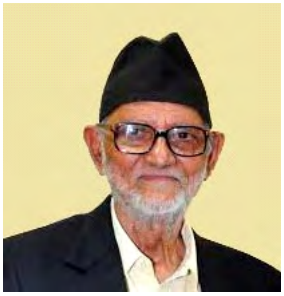
FOREWORD



Nepal is urbanizing in a faster pace, and this transformation is irreversible. However, in the absence of coordinated planning and investment in urban sector, it is observing lower level of innovation, impact, and outcomes. The reflection is pronounced in sprawled urban form, haphazard land use with environment degradation, congestion, deficit in water supply and basic services.

With six decades of planning experience, it is a high time to exercise coordinated, focused and strategic investments that promote harmonized development to fulfill our urban intentions. The preparation of National Urban Development Strategy -NUDS is significant in this direction.

The implementation of NUDS is a stepping stone and I believe that it will guide all the stakeholders related to urban development for a coordinated inter-sectoral approach, with an aim of achieving a modern country, that is equitable, prosperous and just.

Rt. Honorable Sushil Koirala
Prime Minister

FOREWORD

As the world is entering the era of rapid urbanization, where more than half of the world population is living in the cities, Nepal cannot escape from this phenomenon. With more than one fourth of its population living in the urban areas, Nepal has reached at a critical point to guide its urban development through a holistic approach. Accepting the fact that the future of the nation relies in its urban development, the Ministry of Urban Development (MoUD) has rightly formulated National Urban Development Strategy (NUDS) to lead the process of urbanization by integrating actions of important urban sectors through strategies that will help in shaping the future of the urban areas.

With the vision for next 15 years, I believe that NUDS will be fundamental in paving the way for MoUD and its related agencies to thrust development of the urban areas. Similarly, it will be vital in guiding inter-sectoral and inter-ministerial collaborations for coordinated approach to transform words into action.

Lastly, I would like to thank the team at MoUD, consultants, institutions, and individuals, who were involved directly and/or indirectly for the preparation of NUDS, with a belief that this collaboration will continue during implementation of this document.

Honorable Dr. Narayan Khadka
Minister, Ministry of Urban Development

FOREWORD

Since the past three decades, Nepal is encountering rapid pace of urbanization. The current level of urbanization is around 38 percent, which is projected to grow with declaration of new municipalities and migrations as two major factors. In contrary to the increase in urban population, and contribution of the urban sector to national GDP, data show inadequate effort and investment in urban development sector. Realizing the need for a strategic approach towards urban development, Ministry of Urban Development has prepared National Urban Development Strategy (NUDS) that addresses critical issues related to urban development sectors such as system, infrastructure, environment and economy. NUDS also deals with mechanisms vital in realizing the desirable condition of the four development sectors, namely investment, finance, governance and land management.

With a vision of balanced and prosperous national urban system, it provides desirable conditions and strategies for its realization in next 15 years. I am sure that NUDS will be a fundamental document that guides any urban development endeavors.

NUDS has been prepared through rigorous process of workshops, meetings and consultations with various stakeholders, experts and consultants. Hence, I would like to express gratitude to the team at MoUD, consultants, institutions, and individuals, who have contributed directly or indirectly in its preparation process and I hope the cooperation will sustain during its implementation in the future.

Arjun Kumar Karki
Secretary, Ministry of Urban Development

FOREWORD

Nepal is facing rapid urbanization growth with more than one third population already residing in the urban areas. The growth has led to increased demand for efficient infrastructures, well structured urban system and strong economy. Laying the foundation to urban sector, National Urban Policy (NUP) 2007 has provided guidance for urban development. Similarly, National Urban Development Strategy (NUDS) is in line with NUP to address the critical issues and challenges of urbanization and unleash the potential it holds in driving forward the national development.

I hope that NUDS will fulfill the existing necessity of a systematic approach for urban development. It provides strategies for urban development for next fifteen years (up to 2030 AD) by covering various sectors of urban area such as infrastructure, environment, system, finance, economy, investment, land and governance. It provides clear pictures of existing urban situation and proposes intended urban system in next fifteen years.

National Urban Development Strategy has been prepared by a systematic process through various thematic workshops, meetings and consultations with different experts and stakeholders. Hence, I would like to express my gratitude to my team at MoUD, working group and steering committee members, institutions, and individuals who have contributed in the formation of the document.

Er. Kishore Thapa
Former Secretary, Ministry of Urban Development

ACKNOWLEDGEMENT

National Urban Development Strategy (NUDS) has been prepared with a great care and deliberation. Its need was long felt with the en-action of National urban Policy in 2007. The Policy was instrumental to make us aware of different dimensions of urban development in the country and the policy choices that make us better off. Despite clarity in intent of the Policy, action was less forthcoming owing to the lack of concrete operational strategies. Moreover, the need of strategic direction to shape the work of the newly born ministry—that is Ministry of Urban Development (MoUD) was also overdue. These underlying factors are the overarching reasons behind the formulation of NUDS.

Dilemma was confronted during the NUDS preparation—especially in its scope in terms of the content, planning horizon, and methods. We could not avoid eight thematic areas. *Urban system* gives an overview of emerging settlements hierarchy and relationships. On *Urban infrastructure*, we believe—this is the backbone of city's functioning and foundation for national economic growth. Water and sanitation, solid waste management, housing, transportation and energy prominently feature in urban infrastructures. *Urban environment* which among others includes open space and parks is emphasized because this enriches our quality of life. *Urban economy* is stressed as this is the essence of an existence of a city. *Urban investment* has been deemed important—because this guides to where and how much investment have to be channeled. *Urban financing* reveals the ways to generate investments. *Urban governance* enables greater understanding on the present institutional arrangement and paves the ways for optimizing coordination. Last of all, *urban land* directs the ways to overcome the present hurdles on provisioning land for urban development.

After much deliberation, the planning horizon of NUDS has been limited to fifteen year, as this would allow a fair amount of predictability for the turn of events. This scenario made us comfortable. Similarly, we felt that the NUDS preparation method has to be fairly robust; yet not an academic exercise. Therefore, we were careful to listen and include the practitioner's experiential accounts and judgments besides the experts' insights and scientific investigation. The formation of steering committee and the working group committee—which include the sectoral ministries and agencies proved to be a valuable pursuit. Several thematic workshops that we conducted also proved to be enriching experiences—from where we were able to acquire valuable feedbacks and suggestions. All these efforts took about a year that culminated in producing this draft document of NUDS.

However, this document would not have been possible without the vision of outstanding personalities. Mr. Kishore Thapa, Former Secretary of Ministry of Urban Development, who also chaired the NUDS Steering Committee, has been a constant source of inspiration in preparation of NUDS. My sincere appreciation goes to him. Similarly, I cannot remain without appreciating all senior government

representatives of the Steering Committee and the Working Group—who passionately passed valuable suggestions and shared useful experiences for NUDS. The long process of visioning, conceptualization, articulation, and deliberation on ideas—which marks the NUDS preparation, has become possible only due to the presence of revered Dr. Pitamber Sharma. He as the Team Leader of the consulting team has been instrumental in providing the valuable guidance in NUDS preparation. I on behalf of MoUD and in my individual capacity extend sincere gratitude to him. The consultant experts namely Saroj Basnet and Yogesh Shrestha also made valuable contributions on the themes of urban infrastructure including investment and system respectively. Despite poor heath in the middle of the process, Mr. Basnet never gave up his dedication in the work. Kumar Dhamala, who briefly filled in for Mr. Basnet's absence, did not let us down either for marking necessary progress in the work. They all deserve my sincere thanks. My thanks also go to economist Dr. Kiran Bhatta who contributed to the theme of urban economy.

My due appreciation also goes to numerous eminent personalities who presented valuable papers in series of thematic workshops as well as to the participants whose feedbacks helped us to understand and conceptualize several previously unexplored themes such as urban energy. My appreciation also goes to my fellow colleague Under Secretary Padam Mainalee, who works with me in the Physical Planning and Urban Development Division and NUDS Secretariat in the Ministry. And of course, my joy knows no bounds, when I take names of Pragya Pradhan, Kesha Shrestha and Arun Poudyal—without whom the NUDS secretariat and the NUDS preparation would have been incomplete. Samjhana Shah helped patiently to format the document in the present form, while Barsha Chitrakar helped to translate the executive summary into Nepali. These young people through their hard work and dedication really surprised me. And I enjoyed working with them. They deserve my sincere appreciation. Last but not least, my sincere appreciation also goes to Dr. Horst Matthaeus and GIZ who helped us generously with quick logistics when it was needed most. I must also thank the World Bank collaborated Urban Governance and Development Program-Emerging Town Project (UGDP-ETP) for the programmatic support in the preparation of NUDS. Similarly, I thank Department of Urban Development and Building Construction (DUDBC) and Resources Himalaya Foundation for their patience in providing us with their office space to conduct rounds of workshops and meetings.

Mahendra Subba, Ph.D.
Joint Secretary
Physical Planning and Urban Development Division, Ministry of Urban Development
Coordinator,
NUDS Secretariat

ABBREVIATIONS

ADB	Asian Development Bank
CBO	Community Based Organisation
CBS	Central Bureau of Statistics
CCTV	Closed-Circuit TeleVision
CDR	Central Development Region
CEOs	Chief Executive Officers
CRV	Control Room Vehicle
DDC	District Development Committee
DoLIDAR	Department of Local Infrastructure and District Agriculture Road
DoTM	Department of Transport Management
DRMP	Disaster Risk Management Plan
DUDBC	Department of Urban Development and Building Construction
DWSS	Department of Water Supply and Sewerage
EIA	Environmental Impact Assessment
ENPHO	Environment and Public Health Organization
EWS	Economically Weak Strata
FAO	Food and Agriculture Organization
FWDR	Far Western Development Region
GDP	Gross Domestic Product
HH	Household
IAP	Integrated Action Plans
IEE	Initial Environmental Examination
IGFT	Inter Governmental Fiscal Transfer
IPT	Integrated Property Taxation
IUDP	Integrated Urban Development Project
Km	Kilometer
KSUTP	Kathmandu Sustainable Urban Transport Project
KUKL	Kathmandu Upatyaka Khanepani Limited
KVDA	Kathmandu Valley Development Authority
KVWSMB	Kavre Valley Water Supply Management Board
KWh	Kilo Watt Hour
LBFC	Local Body Fiscal Commission
LDTA	Local Development Training Academy
LED	Local Economic Development
LGCDP	Local Governance and Community Development Programme
LIS	Land Information System
lpcd	Litres per capita per day
LQ	Locational Quotient
LRN	Local Road Network
LRT	Light Rail Transit
LSGA	Local Self Governance Act
MCPM	Minimum Conditions and Performance Measures
MLD	Million Liters per Day
MoA	Ministry of Agriculture
MoE	Ministry of Energy
MoF	Ministry of Finance

MoFALD	Ministry of Federal Affairs and Local Development
MoHP	Ministry of Health and Population
MoI	Ministry of Industry
MoPPW	Ministry of Physical Planning and Works
MoUD	Ministry of Urban Development
MoYS	Ministry of Youth and Sports
MRT	Mass Rapid Transit
MWDR	Mid Western Development Region
NBC	National Building Code
NDWQS	National Drinking Water Quality Standards
NEA	Nepal Electricity Authority
NLFS	Nepal Labour Force Survey
NLSS	Nepal Living Standard Survey
NMT	Non Motorised Transport
NPHC	National Population and Housing Census
NPR	Nepalese Rupees
NRB	Nepal Rastra Bank
NUDS	National Urban Development Strategy
NUP	National Urban Policy
NWSC	Nepal Water Supply Corporation
ODB	Other District Born
OSR	Own Source Revenues
PCC	Per Capita Consumption
PID	Project Implementation Director
PLANS	PLAnning Norms and Standards
Pph	Person per hectare
PPP	Public Private Partnership
PPUDD	Physical Planning and Urban Development Division
SEZ	Special Economic Zones
SRN	Strategic Road Network
STUEIP	Secondary Towns Urban Environment Improvement Project
STWSSSP	Small Towns Water Supply and Sanitation Sector Project
SWM	Solid Waste Management
SWMTSC	Solid Waste Management Technical Support Center
TDF	Town Development Fund
TLO	Tole Lane Organization
UEIP	Urban and Environmental Improvement Program
UEMG	Urban Environment Management Guideline
UGDP	Urban Governance and Development Program
UNDP	United Nations Development Programme
USD	United States Dollar
VDC	Village Development Committee
WB	World Bank
WCF	Ward Citizen Forum
WDR	Western Development Region
WHO	World Health Organization

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कार्यकारी सारांश

राष्ट्रिय शहरी विकास रणनीति :
उद्देश्यहरू र तर्जुमा प्रक्रिया

१. राष्ट्रिय शहरी विकास रणनीतिको उद्देश्य विद्यमान शहरीकरण र क्षेत्रीय स्रोतका संभाव्यताका आधारमा अपेक्षित राष्ट्रिय/क्षेत्रीय शहरी प्रणालीको मध्य र दीर्घकालीन रणनीतिक सोचको विकास गर्नु हो । यसले शहरी भौतिक पूर्वाधार, वातावरण, अर्थतन्त्र र शासनको वर्तमान अवस्थाको आंकलन गर्नुका साथै अपेक्षित मानक (वेञ्चमार्क) र स्तरहरु स्थापित गरि शहरी क्षेत्रका तुलनात्मक लाभको फाइदा लिन आवश्यक पूर्वाधार र वातावरणमा लगानीका लागि प्राथमिकताका पहलहरुको पहिचान गरेको छ । साथै यसले राष्ट्रिय शहरी नीति (२०६४) र प्रस्तावित शहरी विकास रणनीतिको कार्यान्वयन र अनुगमन सहज गर्नका लागि आवश्यक संस्थागत ढांचाको पुनरावलोकन समेत गरेको छ । राष्ट्रिय शहरी विकास रणनीतिको कार्यान्वयनले अति कम विकसित देशबाट विकासोन्मुख देशको स्थितिमा पुग्ने नेपालको प्रतिबद्धतालाई समेत टेवा पुर्याउने अपेक्षा गरिएको छ ।

२. राष्ट्रिय शहरी विकास रणनीतिको तर्जुमा अन्तरक्रियात्मक र सहभागितामूलक प्रक्रियाको उपज हो । यो प्रक्रियामा शहरी विकास मन्त्रालय र सम्बन्धित क्षेत्र/निकायका अधिकारीहरुको ज्ञान, अनुभव र सुझावका साथै विषयगत विज्ञहरु र प्राज्ञिक एवं नीति निर्माण तथा कार्यान्वयनसँग सम्बन्धित सरोकारवालाहरूसँग गरिएको गहन परामर्श र छलफल समाहित छ । यो रणनीतिलाई सरकारको अनुमोदनका लागि प्रस्तुत गर्नु अघि सुझावका लागि क्षेत्रीय र राष्ट्रिय कार्यशालाहरु आयोजना गरिएका छन् ।

शहरी सिंहावलोकन

३. नेपाल एशियाकै कम शहरीकरण भएको देशहरूमध्ये एक भए तापनि बिगत दशकहरुमा देशको स्थलीय (स्पासियल), जनसांख्यिक र आर्थिक क्षेत्रमा भइरहेको परिवर्तनले शहरीकरणको गति तीब्र रहेको र रहिरहने अपेक्षा गरिएको छ । सन् २०११मा देशको ५८ नगरपालिकामा समग्र जनसंख्याको १९% ले वसोवास गरेको थियो । विगत दशकमा शहरी जनसंख्या वृध्दिदर ३.४३% रहेको थियो । यसमा नयाँ शहरी क्षेत्रहरू र विद्दमान नगरपालिकाको सीमा बाहिरको विस्तारित क्षेत्र समावेश छैन ।

४. राष्ट्रिय शहरी जनसंख्याको २४% रहेको काठमाडौं उपत्यका नेपालको शहरीकरणको मुख्य केन्द्र हो । शहरीकरणको प्रादेशिक स्तरमा ठूलो भिन्नता छ । प्रशस्त आर्थिक सम्भावना रहेको तराईका तुलनामा उपत्यकाहरु र भित्री मधेशमा शहरीकरणको क्रम उच्च छ । त्यसैगरी पहाडी क्षेत्रका केही ठूला र मध्यम शहरहरुमा शहरीकरण तीब्र देखिन्छ । ५८ नगरपालिकहरुमध्ये एक लाखभन्दा बढी जनसंख्या रहेका चौध शहरी क्षेत्रहरुले राष्ट्रिय शहरी जनसंख्याको ४३.५१% ओगट्छन्। यद्दपि, जनसंख्याबीचको तुलना भरपर्दो नहुन सक्छ किनभने नगरपालिकाको निर्धारण राजनीतिक निर्णय हो जसले प्राय कार्यात्मक (फंग्सनल) मापदण्डलाई बेवास्ता गरेको छ । सन् २०१४ मा शहर हुनका निम्ति आवश्यक ठानिएका कार्यात्मक मापदण्डहरुको मनन बिना १३३ नयाँ नगरपालिकाहरुको घोषणा गरियो। यसले नेपालको नगरपालिकाको संख्या १९१ र शहरी (नगरपालिका) जनसंख्या ३८.२६% पुगेको छ ।

५. राष्ट्रको एक मात्र दस लाखभन्दा बढी जनसंख्या रहेको काठमाडौं महानगरमा राष्ट्रिय शहरी जनसंख्याको ९.७२% जनसंख्या बसोबास गर्छन् । यसको तुलनामा देशको दोस्रो ठूलो नगरपालिका पोखरामा ३.१३% शहरी जनसंख्या बसोबास गर्छन् । कुल जनघनत्व पनि धेरै नगरपालिकाहरुमा कम रहेको छ । ५८ नगरपालिकाहरुमध्ये ३१ नगरपालिकाहरुको र थपिएका १३३ नगरपालिकाहरुमध्ये ११३ नगरपालिकाको जनघनत्व १० व्यक्ति प्रति हेक्टर भन्दा कम रहेको छ, जुन राष्ट्रिय शहरी नीतिको न्यूनतम मापदण्ड भन्दा कम हो । शहरी विकास उच्च (४% भन्दा बढी) रहेका स्थानहरूमा काठमाडौं र पोखरा उपत्यका, भित्री मधेश र प्रमुख राजमार्ग वरपरका क्षेत्रहरु पर्दछन् । पछिल्लो दशकमा मात्र ७ नगरपालिकाको (दमक, इटहरी, भरतपुर, थिमी, पोखरा, कीर्तिपुर, बीरेन्द्रनगर) वृद्धि दर ५% भन्दा माथि थियो। यस हिसाबले भौगोलिक अवस्थिति र यातायात संजाल शहरीकरणका महत्वपूर्ण निर्धारक देखिन्छन् ।

६. बसाइसराइको शहरीकरणमा सबैभन्दा बढी योगदान छ । शहरी जनसंख्यामा ३७.७% अन्य जिल्लामा जन्मेका वा विदेशमा जन्मेका देखिन्छन् । शहर बसाइ सर्ने मध्ये ७७% ग्रामिण भेगबाट रहेका छन् ।

७. राष्ट्रिय कुल गार्हस्थ्य उत्पादनमा शहरी क्षेत्रको योगदानको अनुमानमा ठूलो भिन्नता देखिन्छ । यी अनुमानहरु ३३.१% (केन्द्रीय तथ्यांक विभाग) देखि ६५% (विश्व

बैंक/अर्थ मंत्रालय) सम्म रहेका छन् । यसबाट शहरी आर्थिक क्षेत्रको विस्तृत लेखाजोखा अत्यावश्यक भएको देखिन्छ । राष्ट्रिय कुल गार्हस्थ्य उत्पादनमा काठमाडौं उपत्यकाको योगदान २३.४% रहेको राष्ट्र बैंकको अनुमान छ।

८. अनवरत रुपले भइरहेको शहरीकरण र शहरी विकास संगै नेपालका शहरी क्षेत्रहरुमा यसको नकारात्मक प्रभाव पनि वृद्धि भइरहेको छ । शहरी तथ्याङ्कको संकलन र उपलब्धता सीमित छ । शहरी प्रणाली असन्तुलित हुनुका साथै एकीकृत छैन । अव्यबस्थित शहरी विस्तार र अनौपचारिक शहरी विकास अपवाद नभएर नियमकै रूपमा बढिरहेको छ । शहरी पूर्वाधारमा ठूलो घाटा (डेफिसिट) रहेको छ भने कुनै पनि मापदण्डहरु स्थापित छैनन् । शहरी वातावरण संकटापन्न छ । त्यसैगरी गैर-कृषिजन्य रोजगारीका अवसरहरु अवरुध्द छन् । शहरी गरिबी बढ्दो छ र अझै बढने आशंका गरिएको छ । शहरी योजना र व्यवस्थापनको संस्थागत क्षमता कमजोर छ र लगानीका आवश्यकता, वित्तीय उपलब्धता र कार्यान्वयन क्षमताबीच ठूलो अंतर रहेको छ ।

९. यातायात, कृषि, उद्योग, भू-उपयोग र शहरी क्षेत्रसँग संबन्धित राष्ट्रिय नीतिहरु शहरी विकासकै पक्षमा देखिन्छन्। तथापि एकीकृत र आर्थिक हिसाबले समुन्नत तथा सन्तुलित शहरीकरणको प्रक्रियाका निम्ति आवश्यक समन्वित नीतिगत प्रतिक्रियाको अभाव भने देखिन्छ ।

बर्तमान शहरी अवस्था

१०. भूमि र पूर्वाधारका सम्बन्धमा शहरी तथ्याङ्कको आधार अव्यबस्थित र अपुग छ। जग्गा विखण्डन, अनियमित र अनौपचारिक शहरी भूमि बजार, झन्झटिलो भूमि अधिकरण र क्षतिपूर्ति संयन्त्र तथा विस्तृत क्षेत्रीयकरण (जोनिङ) सम्बन्धि नियमहरू तथा भूमि प्रयोग नियन्त्रणको अभाव शहरी भूमि व्यबस्थापनमा व्याप्त समस्याहरू हुन्। आधारभूत पूर्वाधारहरु भएका जग्गाहरुको आपूर्ति सीमित छ र कृषि भूमिमा अव्यबस्थित शहरी विकास तीव्र गतिले भइरहेको छ। हाल विकसित भइरहेको शहरी स्वरुप झनझनै अव्यबस्थित हुँदैछ र अपुग सुविधाहरु र वातावरणको गिर्दो स्तर जस्ता समस्याले ग्रस्त हुँदै गइरहेको छ।

११. पानी आपूर्ति, सरसफाई, फोहोर व्यवस्थापन, आवास, यातायात र ऊर्जाको स्थितिले शहरी पूर्वाधारको कमीलाई इंगित गर्छ । शहरी पूर्वाधारका सम्बन्धमा भौगोलिक प्रदेशका बीच पनि निकै असमानता छ । पहाडका शहरी क्षेत्रमा ८१.२% घरधुरीको पाइप पानी आपूर्तिमा पहुँच छ भने शहरी तराईमा यो मात्र ३२.९% छ । पिउने पानीको गुणस्तर र मात्रा सबै शहरी क्षेत्रमा अपर्याप्त छ । २०१७ सम्ममा सबैका लागि पानीको सहश्राब्दि विकास लक्ष्य पूरा गर्न प्रतिवर्ष रु ७.५ अर्ब लगानी गर्न आवश्यक छ । सरसफाई प्रणाली र फोहोर व्यबस्थापनको स्थिति पनि नाजुक छ । शहरी घरपरिवारमा ५६.१% को मात्र सरसफाई प्रणालीमा पहुँच छ भने ८८.२% घरपरिवारको शौचालय रहेको तथ्यांक छ । त्यसैगरी, ५८ नगरपालिकामध्ये केवल ६ को हकमा व्यबस्थित ल्यान्डफिल साइटहरु रहेको छ भने केवल पाँचले फोहोर नियन्त्रणको व्यबस्थापन गर्छन्।

१२. आय अनुसार पुगिसक्दो आवासको अभाव र अस्वस्थकर तथा अव्यबस्थित बस्तीमा भइरहेको वृद्धि शहरी आवास क्षेत्रका प्रमुख मुद्दाहरु हुन्। कुल शहरी जनसंख्याको १०% यस्ता बस्ती बस्ने परिवारहरुले ओगटेको अनुमान गरिएको छ । अझ धरान जस्ता केही शहरी क्षेत्रमा यिनको संख्या तीनगुना बढी छ ।

१३. शहरी यातायातको एक महत्वपूर्ण विषय अपुग र अकुशल शहरी परिवहन हो । शहरी क्षेत्रमा औसत सडक घनत्व ३.२६ कि.मी./वर्ग कि.मी. छ जुन कुशल शहरी परिवहनका साथै शहरी-ग्रामीण संबन्धहरुको प्रवर्द्धन गर्न एकदमै न्यून हो। त्यसैगरी राष्ट्रिय ऊर्जा संकटको अवस्था शहरी क्षेत्रमा अझै टड्कारोको रुपमा छ । बिजुलीको माग शहरी र औद्योगिक करिडोरहरुमा उच्चतम छ र ९% को वार्षिक दरले वृद्धि भइरहेको छ । शहरी क्षेत्रमा बिजुलीको माग आपूर्तिभन्दा धेरै बढी छ ।

१४. विभिन्न नगरपालिकाको पूर्वाधार स्थिति आकलन गर्न ५८ नगरपालिकाका लागि शहरी पूर्वाधार स्थिति सूचकांकको निर्माण गरिएको छ । यो सूचकांकले नगरपालिकाहरु बीचको पूर्वाधारको अवस्था तुलना गर्न मद्दत गर्छ । काठमाडौं महानगरपालिकाको सूचकांक मान सबैभन्दा उच्च छ भने गुलरियाको सबैभन्दा कम छ ।

१५. शहरी वातावरणीय अवस्थाको विश्लेषणले शहरी क्षेत्रहरुको भौतिक, प्राकृतिक र सामाजिक वातावरणीय क्षेत्रको नाजुक परिस्थितिलाई प्रस्ट पार्छ । शहरी वातावरण व्यवस्थापन अन्तर्गत विपद व्यबस्थापन, प्रकोपको उचित तवरले सामना गर्नु, सुरक्षा प्रदान गर्नु, सामाजिक-सांस्कृतिक वातावरणको प्रबर्धन तथा खुला स्थानको संरक्षण जस्ता गतिविधिहरु पर्दछन् । तर नगरपालिकाहरुमा यी कार्यक्रमहरु अघि बढाउनका लागि चाहिने संस्थागत क्षमता, उचित योजना र आर्थिक स्रोतको अभाव छ । अनियन्त्रित अतिक्रमणले गर्दा शहरी खुला

क्षेत्र तीव्र गतिमा घटदो र साँघुरिदो छ । खुला क्षेत्रको अनुपात काठमाडौंमा मात्र ०.४८% र ललितपुरमा ०.०६% छ। शहरी वातावरण व्यवस्थापन निर्देशिका (अर्वन इन्भायरन्मेन्ट म्यानेजमेन्ट गाइडलाइन्स) शहरी क्षेत्रमा विद्यमान वातावरणीय समस्याहरूको सम्बोधन गर्ने एक सशक्त माध्यम हुनसक्छ, तर शहरी व्यवस्थापनका अन्य क्षेत्रमा जस्तै यसको पनि कार्यान्वयनमा कमी देखिन्छ ।

१६. शहरी क्षेत्रहरु आर्थिक विकासको इन्जिन मानिन्छन् । हालैको तथ्याङ्क अनुसार राष्ट्रिय कुल गार्हस्थ्य उत्पादनमा ३३.१% (राष्ट्रिय योजना आयोग/यूएनडीपी २०१४) योगदान शहरी क्षेत्रहरुको रहेको छ भने शहरी क्षेत्र निकट र शहरी क्षेत्रको सेवा लिने गाविसहरुको योगदान ३०% रहेको छ । कुल गार्हस्थ्य उत्पादनमा शहरी क्षेत्रहरुको योगदानले सो क्षेत्रका पूर्वाधारमा लगानीको बढ्दो उपादेयतालाई स्थापित गर्छ । यस्तो लगानीले एकातिर पुंजी र रोजगारी श्रृजना गर्न मद्दत गर्छ भने अर्कातिर आर्थिक बृध्दि दरलाई बढावा दिन्छ ।

१७. कृषि तथा संबद्ध गतिविधिहरुले शहरी क्षेत्रमा रोजगारीको एक-तिहाइ भाग ओगटेको छ । थोक तथा खुद्रा व्यापार र उत्पादनले शहरी रोजगारीमा १७% र १४% योगदान दिएका छन् । तथापि शहरी रोजगारीको क्षेत्रगत संरचना (सेक्टोरल कम्पोजिसन)शहर क्षेत्रअनुसार भिन्न रहेको देखिन्छ ।

१८. शहरी क्षेत्रमा गरिबी बढेको छ । सन् २००३/०४ मा शहरी जनसंख्याको झन्डै १०% गरिबी रेखा मुनी रहेको थियो भने २०१०/११ को तथ्यांक अनुसार शहरी जनसंख्याको १५% गरिबी रेखा तल छ । तर शहरी क्षेत्रहरुबीच गरिबीको तथ्याङ्कमा ठूलो अन्तर रहेको छ । गुलरियामा ५०% जनसंख्या गरिबीको रेखामुनी रहेको छ भने पोखरामा यो मात्र १.३% छ ।

१९. शहरी घरपरिवारले प्राप्त गर्ने विप्रेषण कुल विप्रेषण आयको करिब १५% रहेको छ । काठमाडौं सबैभन्दा ठूलो विप्रेषण प्राप्त गर्ने क्षेत्र हो । रामग्राम, विराटनगर र जनकपुरले तराईमा सबैभन्दा बढी विप्रेषण प्राप्त गर्छन् ।

२०. उत्पादन (म्यानुफ्याक्चरीङ) उद्योग काठमाण्डौ उपत्यका, विराटनगर तथा वीरगञ्ज आसपास क्षेत्रमा सीमित छन् । काठमाडौं उपत्यकाले शहरी उत्पादन क्षेत्रको ४०% रोजगारी प्रदान गरेको छ भने विराटनगर तथा आसपासका क्षेत्रले र वीरगञ्ज तथा वरपरका क्षेत्रले क्रमश १७% र १५% रोजगारी प्रदान गरेका छन् । त्यसैगरी काठमाडौं उपत्यका (२५%), पूर्वी तराई (१५%) र केन्द्रीय तराई (१९%) शहरी गैर-कृषि रोजगारीका तीन मुख्य क्षेत्रहरु हुन्। सेवा क्षेत्रले शहरी गैर-कृषि रोजगारीको ७०% ओगटेको छ ।

२१. कुल उत्पादन रोजगारीमा झण्डै आधा जति गैर-नगरपालिका क्षेत्रमा पर्छन् । कुल औद्योगिक उत्पादनको ६०% श्रममा आधारित उत्पादनले (हस्तशिल्प) ओगटेको छ। शहरी उत्पादन रोजगारीको संरचना यस प्रकारको रहेको छ - ३०% कागज, खनिज, प्लास्टिक, रसायन र काठ, १९% कपडा (गार्मेन्ट), १८% वस्त्र, १९% कृषि-प्रशोधन र १४% मेशीनरी उपकरण ।

२२. शहरी क्षेत्रहरुमा रहेका उत्पादन उद्योगको सापेक्षिक लाभको स्थिति बुझ्न लोकेसन कोसिएन्ट विधिको प्रयोग गरिएको छ । यसका आधारमा काठमाडौं उपत्यकाको सापेक्षिक लाभ रेडियो, टेलिभिजन, सञ्चार उपकरण र प्रकाशन तथा मुद्रण रहेको देखिन्छ । विराटनगर-धरान करिडोरको हकमा भने बिद्युतीय मेशीनरी उपकरण र वस्त्र सापेक्षिक लाभका क्षेत्र अन्तर्गत पर्छन् । त्यस्तै वीरगञ्ज करिडोरको हकमा छाला र छालाका उत्पादनहरु, आधारभूत धातु र रसायन उत्पादन, तथा नेपालगंज करिडोरको लागि रसायन र रासायनिक उत्पादन, र धातुका उत्पादनहरु रहेका छन् । उत्पादन उद्योगमा सामान्यतया साना उद्योगहरुको बाहुल्य भएता पनि यी उद्योगको स्थिति गिर्दो छ ।

२३. ५८ नगरपालिकाको पूर्वाधारमा रहेको विद्दमान घाटा पुर्ति गर्न रु ३७२ अर्बको लगानीको आवश्यकता रहेको अनुमान छ । यो राशि नगरपालिकाको विद्यमान र अपेक्षित पूर्वाधारको अवस्थामा आधारित छ । तर, वर्तमान आर्थिक वर्षमा पूर्वाधार विकासका लागि नगरपालिकालाई विनियोजन गरेको अनुमानित लगानी मात्र रु २०.०७ अर्ब छ जुन राष्ट्रिय कुल गार्हस्थ्य उत्पादनको मात्र १% बराबर छ । शहरी क्षेत्रहरुले कुल गार्हस्थ्य उत्पादनमा गर्ने योगदानको तुलनामा यो एकदमै न्यून रहेको छ ।

२४. वर्तमान अवस्थामा नगरपालिकाको राजस्वको आधार धेरै कमजोर छ र राजस्व क्षमता पूर्णतया परिचालित गरिएको छैन । नगरपालिकाको आफ्नै स्रोतको राजस्व (ओन सोर्स रेभेन्यु) कुल राजस्वको मात्र ३०% रहेको छ, जबकि ७०% राजस्व सरकारी अनुदानबाट प्राप्त गर्ने गरेका छन् ।

२५. सुशासन नगरपालिकाको एकदमै महत्वपूर्ण सवालका रूपमा देखिन्छ। अहिले शहरी योजना र भौतिक पूर्वाधार विकासलाई शहरी विकास मन्त्रालय अन्तर्गत राखिएको छ, जबकी शहरी सुशासन र प्रशासन संघीय मामिला र स्थानीय विकास मंत्रालय अन्तर्गत छ । खण्डित (फ्रागमेन्टेड) संस्थागत व्यवस्था, स्थानीय विकास र शहरी विकास मन्त्रालय बीच रहेको कमजोर समन्वयको अवस्था र

प्राविधिक विशेषज्ञता तथा क्षमताको अभाव शहरी शासनका प्रमुख विषयहरु हुन् ।

अपेक्षित शहरी प्रणाली र कोशेढुङ्गाहरू (माइलस्टोन)

२६. पहिचान गरिएका शहरी विकासका समस्याहरूलाई सम्बोधन गर्न तथा अपेक्षित अवस्था हासिल गर्न दीर्घकालीन रणनीतिको विकास गर्नु र मानक (बेन्चमार्क) स्थापित गर्नु यो रणनीतिको उद्देश्य हो । यी रणनीतिहरु भौतिक विकासमा मात्र सीमित रहेका छैनन्, यिनले नेपालको भावी शहरी विकासको गुणात्मक पक्ष पनि समेटेका छन् । यो रणनीति बिषेशत पाँचवटा आधारभूत सिद्धान्तद्वारा निर्देशित छ – दिगोपना, समावेशिता, लचकता (रिजिलिएन्स), हरित विकास र कुशलता ।

२७. शहर (नगरपालिका) को निर्धारण गर्ने वर्तमान प्रणाली युक्तिसंगत नभएकाले कार्यात्मक (फङ्सनल) मापदण्डका आधारमा नयाँ प्रणाली संस्थागत गर्नु आवश्यक छ । स्थापित मापदण्डका आधारमा "जनगणना शहर" (सेन्सस टाउन) को पहिचान र निगरानी गर्ने काम केन्द्रीय तथ्याङ्क विभागलाई सुम्पिनुपर्छ । नगरपालिकाको घोषणा गर्ने निर्णय राजनीतिक निर्णय रहे तापनि "जनगणना शहर"लाई मात्र नगरपालिका घोषणा गर्ने प्रावधान भविष्यमा हुनुपर्छ ।

२८. सेवा र वस्तुको प्रवाहका आधारमा राष्ट्रिय र क्षेत्रीय शहरी प्रणाली छुट्याउन सकिन्छ । देशको मध्य र पुर्वभागमा दुई सापेक्षिक रुपले एकीकृत शहरी प्रणाली विद्दमान छन् । मध्य र सुदूर पश्चिम भागमा शहरी प्रणाली बिस्तारै गतिशील हुँदैछ, यद्दपि पृष्ठभेग (हिन्टरल्याण्ड) संगको यसको सापेक्षिक सम्बन्ध अझै कमजोर छ ।

२९. राष्ट्रिय शहरी विकासको उद्देश्य भनेको सन्तुलित राष्ट्रिय र क्षेत्रीय शहरी प्रणाली विकसित गर्नु हो जसले सुदृढ अन्तर-शहरी र शहरी-ग्रामीण सम्बन्धका माध्यमबाट शहरी केन्द्रहरुको आर्थिक र कार्यात्मक आधारलाइ दरिलो बनाउछ, कुशल र प्रभावकारी पूर्वाधार वितरण प्रणाली स्थापना गर्छ, र स्वस्थ भौतिक, प्राकृतिक र सामाजिक वातावरण कायम गर्छ । यसैगरी शहरी प्रणाली, शहरी पूर्वाधार र शहरी वातावरणका लागि सूचक (इन्डिकेटर) र मापक (मेजर) सहित कोशेढुङ्गाहरू निर्धारण गरिएका छन् ।

३०. सन् २०३१ सम्मका लागि निर्धारित प्रमुख कोशेढुङ्गाहरूमा अन्य कुराका अतिरिक्त निम्न कुराहरु समावेश छन् - शहरी पूर्वाधार विकासमा कुल गार्हस्थ उत्पादनको २ प्रतिशतको वार्षिक लगानी, शहरी वडाहरुमा १०० लिटर/व्यक्ति/दिन पिउन योग्य खाने पानीको पहुँच, सबै मूल शहरी क्षेत्रहरुमा ढल व्यबस्थापन, सबै शहरी घरहरुमा विद्युतीकरण, वैकल्पिक उर्जा स्रोतहरुको उपयोग, शहरी क्षेत्रमा कम्तीमा ७.५ कि.मि./वर्ग कि.मिको सडक घनत्व, विद्दमान नगरपालिकामा ८०% पक्की सडक, भूमि समायोजनका माध्यमबाट ५०% नयाँ आवासको सुबिधा, शहरी क्षेत्रमा १००% फोहोर सङ्कलन, सबै ठूला र मध्यम शहरमा उच्च गतिको इंटरनेट उपलब्धता, पुराना शहरमा वडा स्तरमा कम्तीमा २.५% जग्गा (र नयाँ शहरमा ५%) पार्क, मनोरंजन आदिका लागि खुला क्षेत्र, र कुल गार्हस्थ्य उत्पादनमा शहरी क्षेत्रको योगदान ७०% पुर्याउने आदि ।

३१. सन् २०११-२०३१ सम्ममा विद्यमान ५८ नगरपालिकाहरुको जनसंख्या प्रक्षेपण मध्यम गतिमा (वृद्धि दर प्रतिवर्ष २.८%) रहने अनुमान गरिएको छ । यद्दपि, शहरीकरण उच्च भएका नगरपालिकाहरुको वृद्धि दर ३.५% रहने र यिनले शहरी जनसंख्याको लगभग ६०% हिस्सा ओगट्ने अनुमान गरिएको छ । २०३१ सम्ममा विद्यमान ५८ नगरपालिकाहरुको अनुमानित जनसंख्या ९०.३ लाख हुनेछ भने थप १३१ नगरपालिकाहरुको जनसंख्या ८८.७ लाख सहित कुल शहरी जनसंख्या १ करोड ७९ लाख पुग्ने अनुमान गरिएको छ ।

३२. ५८ नगरपालिकाको वर्तमान अवस्था हेर्ने हो भने शहरी पूर्वाधारको घाटा (डेफिसिट) ठूलो छ । आधारभूत पूर्वाधारको अभाव छ वा ज्यादै न्यून छ । शहरी पूर्वाधार घाटा कम गर्न र २०३१ सम्ममा १९१ नगरपालिकाहरुको थप माग पूरा गर्न रू २२.२४ खर्व लगानी आवश्यक छ । शहरहरुको जनसंख्याको आधारमा लगानी प्राथमिकता निर्धारण गरिएको छ । विद्यमान शहरी क्षेत्रमा लगानीको ६७% सडक विस्तार र स्तरोन्नतिका लागि छुट्याइएको छ ।

३३. आवश्यक लगानीका लागि प्रमुख स्रोतहरु मध्ये सरकार र विकास साझेदारबाट ६५%, नगरपालिकाबाट १९%, समुदायको ६% र निजी क्षेत्रको १०% रहने अनुमान छ ।

३४. उत्पादन र जीवनस्तर वृद्धिमा शहरी लगानीको योगदानलाई दृष्टिगत गर्दा यसमा गरिने लगानी औचित्यपूर्ण हुनेछ । शहरी पूर्वाधारमा लगानीको फाइदा प्रत्यक्ष आय आर्जन र पूँजीगत लाभका साथै शहरी बासिन्दाले तिर्ने बढ्दो करबाट हुने अपेक्षा गरिएको छ ।

राष्ट्रिय शहरी विकास रणनीतिहरु

३५. राष्ट्रिय शहरी विकास रणनीति १५ वर्षको समय सीमा राखी तर्जुमा गरिएको छ । शहरी प्रणाली, पूर्वाधार,

वातावरण र अर्थतन्त्र रणनीतिका प्रमुख विषयहरु रहेका छन्। हरेक बिषयमा अपेक्षित अवस्था प्राप्त गर्ने उद्देश्यले रणनीति तर्जुमा गरिएको छ जसमा उच्च सामाजिक मूल्यहरुलाई प्रतिबिम्बित गर्ने शहरी क्षेत्रका सामाजिक, आर्थिक र सांस्कृतिक पक्षहरु समाहित छन् । प्रत्येक रणनीति सरकारी, गैर सरकारी र निजी क्षेत्रका मुख्य र सहयोगी निकायले विभिन्न तहमा गर्न सिफारिस गरिएका क्रियाकलापद्वारा समर्थित छ ।

३६. शहरी प्रणाली: शहरी प्रणालीको उद्देश्य राष्ट्रिय र क्षेत्रीय शहरी प्रणालीलाई सुदृढ गर्नु रहेको छ । यसमा समावेश गरिएका रणनीतिहरुमा शहरी-ग्रामीण अन्तरसम्बन्धको सबलीकरण, क्षेत्रीय तथा अन्तर-क्षेत्रीय सडक स्तरोन्नति, प्रमुख क्षेत्रीय शहरी केन्द्रहरुमा उच्चतहका कार्यहरुको सहजीकरण, प्रमुख तराई शहरी केन्द्रहरुमा सडक पूर्वाधार सुधार, साना शहरहरुलाई तुलनात्मक लाभ लिन सक्षम बनाउन सहजीकरण, प्राथमिकता प्राप्त स्थानहरुमा "स्मार्ट" शहरहरुको परिकल्पना अनुरुप पूर्वाधार निर्माण, काठमाडौं उपत्यकामा वातावरण, सम्पदा र पर्यटन अनुकूल आर्थिक गतिबिधिहरुलाई बढावा र भावी प्रान्तीय केन्द्रहरुलाई क्षेत्रीय तथा राष्ट्रिय शहरी प्रणालीमा आबद्ध गराउने रहेका छन् ।

३७. शहरी पूर्वाधार: यसमा समावेश गरिएका रणनीतिहरुमा शहरी पूर्वाधार विकास, संभार र सेवा प्रदानका लागि राष्ट्रिय स्रोतको विनियोजनमा वृद्धि गर्ने, आधारभूत सेवाहरु तथा उच्च पूर्वाधार निर्माणमा निजी क्षेत्रको लगानी आकर्षित गर्ने, शहर समूहको अवधारणा (क्लस्टर सिटि अप्रोच) अनुसार त्यस्ता शहरी क्षेत्रहरुलाई साझा पूर्वाधार उपयोग गर्न आकर्षित गर्दै रणनीतिक लगानी प्रोत्साहित गर्ने, पूर्वाधार विकास र सेवा वितरणका लागि राष्ट्रिय/स्थानीय संस्थागत क्षमता अभिवृध्दि गर्ने जस्ता गतिविधिहरु रहेका छन् ।

३८. खानेपानी तथा सरसफाई: यस अन्तर्गत प्रमुख रुपमा न्यूनतम पानी आपुर्तिको प्रावधान, पानी सुरक्षा तथा सरसफाई लगायतका बिषयहरु उल्लेख गरिएको छ । पानीको उचित स्रोत संरक्षण र व्यवस्थापन गर्ने, भवन निर्माण अनुमतिमा वर्षातको पानी संकलन तथा व्यवस्थापन प्रक्रियालाइ समन्वय गर्ने, सार्वजनिक खाली तथा खुला क्षेत्रहरुमा पानी संकलनको प्रावधानलाई संस्थागत गर्ने, सुरक्षित पानी उत्पादन तथा वितरण प्रणाली सुदृढ गर्ने, पानीको गुणस्तर मापन तथा अनुगमन नियमित गर्ने, सामुदायिक पानी भण्डारण सुविधालाइ प्रोत्साहन गर्ने, पानी आपूर्ति तथा वितरणमा निजी क्षेत्रलाइ प्रोत्साहन दिने र फोहोर पानी प्रसोधन प्रणालीमा लगानी बढाउने जस्ता रणनीतिहरु रहेका छन् ।

३९. फोहरमैला व्यवस्थापन: शहरी क्षेत्रमा पूर्ण फोहोर सङ्कलन प्रस्तावित गरीएको छ । रणनीतिहरु निम्न छन्: फोहर संकलन तथा व्यवस्थापनमा सामुदायिक तथा निजी-सार्वजनिक साझेदारी र सहभागिता, घर/समुदाय स्तरको फोहोर व्यवस्थापनमा हालको स्यानिटरी ल्याण्डफिल साइटको अवधारणालाई संक्रमणकालीन व्यबस्थाका रुपमा मात्र लिने र ३ आर (रिड्युस, रियुज, रिसाइकल अर्थात फोहर कम गर्ने, पुनप्रयोग गर्ने र पुनः काममा ल्याउने) लाई प्रोत्साहित गर्दै सबै नगरपालिकाहरुमा समर्पित तथा सक्षम फोहर व्यवस्थापन एकाई स्थापित गर्ने ।

४०. सडक/परिवहन: शहरी यातायात संबन्धमा एउटा फराकिलो दृष्टिकोण राखिएको छ । यस अन्तर्गत प्रमुख रुपमा भूउपयोग र यातायात/परिवहनलाई शहरी तथा क्षेत्रीय योजना तर्जुमा प्रकृयामा एकीकृत गर्दै तत्सम्बन्धी संस्थागत संयन्त्र र क्षमताको विकास गर्ने, तहगत र सन्तुलित शहरी सडक पूर्वाधारको प्राबधान गर्ने, दिगो शहरी सार्वजनिक परिवहनको प्रबन्ध गर्ने, शहरी यातायात व्यवस्थापनका लागि मानकहरुका साथै बिस्तृत योजना तयार/कार्यान्वयन गर्ने, र प्राथमिकता प्राप्त प्रदेशहरुमा उच्च-गति अन्तर-शहरी यातायात पूर्वाधारको प्रावधान गर्ने जस्ता रणनीतिहरु रहेका छन् ।

४१. आवास: पहुँच पुग्ने, यथेष्ट र सुरक्षित आवासको प्रावधान शहरी आवास क्षेत्रको उद्देश्य हो । समाविष्ट रणनीतिहरु निम्न छन्: आर्थिक रुपमा कमजोर वर्गहरुका लागि आवासको प्रावधान गर्न निजी क्षेत्रको लगानी प्रोत्साहन गर्ने, समूह आवासको स्तरलाई नियमन गर्ने, वातावरण अनुकुल, किफायती र सृजनशील भवन निर्माणलाई प्रोत्साहन गर्ने, अस्वस्थकर र अब्यबस्थित बस्ती विस्तार तथा अतिक्रमणलाई निरुत्साहित गर्ने रणनीति तयार गर्ने, आर्थिक रुपमा कमजोर वर्गहरुका लागि आवास निर्माण तथा बिस्तारमा सहकारी संयन्त्रलाई प्रोत्साहन गर्ने, सार्वजनिक-निजी/सामुदायिक साझेदारीको माध्यमद्वारा आधारभूत पूर्वाधारयुक्त जग्गा विकास गर्न प्रोत्साहन गर्ने।

४२. ऊर्जा: यथेष्ट, कुशल र हरित उर्जाको प्रावधान उर्जा क्षेत्रको प्रमुख उद्देश्य रहेको छ । यसका लागि प्रस्तावित रणनीतिहरु निम्न छन्: शहरी स्थानहरूमा आपुर्ति लक्षित गरी जलविद्युत् आयोजनाहरूको विकास गर्ने, सौर्य ऊर्जाको समुचित उपयोगलाई बढावा दिने, उर्जा किफायती/कुशल भवन डिजाइन र निर्माणलाई प्रोत्साहित गर्ने ।

४३. शहरी वातावरण: शहरी बातावरणमा प्राकृतिक तथा सामाजिक-सांस्कृतिक पक्षहरु अन्तर्गत शहरी सुरक्षा, लचकता (रिजिलियन्स), संस्कृति, कृषि, वनका साथै भूमि र वातावरणीय प्रदूषणका समस्याहरु समावेश गरिएको छ । प्रमुख रणनीतिहरुमा : शहरी क्षेत्रमा प्रदूषणको स्तर नियमन तथा अनुगमन गर्ने, प्रकोप तथा जलवायु परिवर्तनका संबन्धमा वहु-प्रकोप पद्दति (मल्टि हजार्ड अप्रोच) अवलम्बन गर्ने; भुउपयोग नियम तथा भवन संहिता र नियमहरुलाइ सम्बन्धित निकायहरुले लचकताको परिप्रेक्षमा लागू गर्ने; प्रकोप जोखिम तथा असुरक्षाको सामना गर्न सरकारी तह, स्थानीय समुदाय र नागरिक समाजमा उच्च जागरूकता र पूर्वतयारी गर्ने; खाद्यान्न, तरकारी र फलफूल उत्पादनहरुको लागि शहरी कृषि प्रवर्द्धन गर्ने; शहरी क्षेत्रमा न्यूनतम बन तथा खुला क्षेत्रहरु निर्धारण गर्ने; स्थानीय अर्थतन्त्रसँग जोडिएका सङ्ग्रहालयहरु तथा सांस्कृतिक सम्पदा क्षेत्रहरुको संरक्षण गर्दै सृजनशील र नविन कला, वास्तुकला र संस्कृति प्रवर्धन गर्ने; यूवा लक्षित सामुदायिक र नागरिक समाज संगठनहरुलाई सहजीकरण र प्रोत्साहित गर्ने र सामुदायिक सुरक्षा संयन्त्र विकसित गर्ने रहेका छन् ।

४४. शहरी अर्थतन्त्र: यसका रणनीतिहरु कुल गार्हस्थ्य उत्पादनमा शहरी क्षेत्रको योगदानमा वृद्धि, शहरी क्षेत्रको आर्थिक आधार सुदृढ गर्ने र मुलतः आर्थिक विकास र वित्तीय स्थिति र लगानीमा वृद्धि गर्ने तर्फ उन्मुख छन् । शहरी अर्थतन्त्रको प्रमुख रणनीतिहरुमा प्रतिस्पर्धामा आधारित स्थानीय र प्रादेशिक तहका तुलनात्मक लाभका क्षेत्रहरु पहिचान गरि शहरी क्षेत्रका लागि स्थानीय र क्षेत्रीय आर्थिक विकास योजनाहरुको तर्जुमा तथा कार्यान्वयन गर्ने, शहरका मुख्य ऐतिहासिक क्षेत्रहरुमा शहरी पुनर्उत्थान (अर्वन रीजेनरेसन) कार्यक्रमहरुलाई बढावा दिने तथा अनौपचारिक शहरी अर्थतन्त्र र शहरी गरिबी निवारणका समस्याहरूलाई मूलधारमा ल्याउने रहेका छन् ।

४५. शहरी लगानी: कुल गार्हस्थ उत्पादनको कम्तीमा २% सार्वजनिक शहरी पूर्वाधारमा लगानीका लागि विनियोजन गरिने धारणामा यो रणनीति आधारित छ । निम्न कुराहरू रणनीतिमा समाहित छन् – निजी क्षेत्र तथा क्षेत्रगत (सेक्टोरल) निकायहरूले शहरी क्षेत्रमा समन्वित लगानी गर्ने; सबै नगरपालिकाहरुमा आधारभूत पूर्वाधार सेवा सुधारका लागि चरणबद्ध लगानी गर्ने; रणनितिक पूर्वाधार योजना अन्तर्गत समूह (क्लस्टरड) शहरी प्रदेश तथा शहरी करिडरहरुमा लगानी बढाउने; मध्य, सुदूर पश्चिम, भित्री मधेश र दक्षिणी तराईको अल्पविकसित भेगभित्र रहेका शहरी क्षेत्रमा लगानी प्रत्साहित गर्ने; शहरी विकास र आधारभूत सेवाहरूको प्रावधानलाई प्राथमिकता दिंदै रणनीतिक हिसाबले महत्वपूर्ण साना शहरहरू, बजार केन्द्रहरु, प्रशासनिक केन्द्रहरु तथा नयाँ शहरहरूमा प्राथमिकताका साथ लगानी बढाउने आदि ।

४६. शहरी वित्त: आत्मनिर्भर र आर्थिक रुपमा समृद्ध शहरी क्षेत्रको विकास नै शहरी वित्त रणनीतिको मुख्य उदेश्य रहेको छ । प्रमुख रणनीतिहरुमा अन्तर-सरकारी वित्तीय हस्तान्तरण (इन्टर गवर्मेन्टल फिस्कल ट्रान्सफर) प्रणालीको विकास, नगरपालिकाहरुको आफ्नै-स्रोत राजस्वको परिचालन, सबल आर्थिक मध्यस्थ संस्था मार्फत ऋण वित्तको पहुँचमा सुधार तथा वैकल्पिक वित्तीय माध्यमहरुद्वारा लगानी परिचालन गर्ने रहेका छन् ।

४७. शहरी शासन: शहरी व्यवस्थापन र सेवा वितरणको लागि प्रभावकारी सुशासनको पूर्वाधार सिर्जना गर्नु प्रमुख उद्देश्य रहेको छ । प्रमुख रणनीतिहरुमा शहरी विकास मन्त्रालय र संघीय मामिला तथा स्थानीय विकास मन्त्रालय बीच संस्थागत समन्वयमा सुधार; शहरी योजनालाई दीर्घकालीन विकासको एकमात्र आधार मान्ने परिपाटिको स्थापना; शहर समूहको अवधारणा (क्लस्टर सिटि) अन्तर्गत पर्ने ठूला शहरी प्रदेशहरु र शहरी करिडरको व्यवस्थापनका लागि कानुनी आधारहरुमा सुधार; अनुसन्धानमा आधारित नीति तथा कार्यक्रमहरुको सहजीकरण र प्रोत्साहन तथा शहरी शासनमा सामाजिक जवाफदेहिता संयन्त्रलाई संस्थागत गर्ने रहेका छन् ।

४८. शहरी भूमि व्यवस्थापन: शहरी भूमि व्यवस्थापन रणनीतिहरु भूमि अधिग्रहण, क्षतिपूर्ति संयन्त्र र शहरी भूमि बजारको नियमन तथा विकासतर्फ़ उन्मुख छन् । प्रमुख रणनीतिहरुमा न्यायसंगत भूमि मूल्यांकन र क्षतिपूर्ति संयन्त्रको निर्माण, जनहितका निम्ति भूमि प्राप्त गर्ने सरकारको मनसाय रहेका खण्डमा भूमि मूल्य स्थिर गराउन सक्ने प्रावधान, भूमि सूचना प्रणालीको स्थापना, पूर्वाधार र वातावरणमा आधारित भएर भूमि प्रयोग नियन्त्रण गर्ने, महत्वपूर्ण कृषि भूमि संरक्षणको लागि प्रोत्साहन गर्ने, शहरी तथा ग्रामीण जग्गा वर्गीकरणको आवधिक संशोधन सहित कानुनी आधारको व्यवस्था गर्ने रहेका छन् ।

EXECUTIVE SUMMARY

National Urban Development Strategy (NUDS): Objectives and Process

1. The objective of National Urban Development Strategy (NUDS) is to develop medium and long term strategic vision of a desirable national/regional urban system based on existing trends and regional resource potentialities. It assesses existing conditions of infrastructure, environment, economy and governance, establishes benchmarks and desirable standards and identifies prioritized strategic initiatives for investment in infrastructure and environment to realize the comparative advantages of urban areas. It also reviews the institutional framework to facilitate implementation and monitoring of National Urban Policy (2007) and proposed urban development strategies. The implementation of NUDS is also expected to complement Nepal's effort to graduate from Least Developed Country (LDC) to Developing Country (DC).

2. NUDS is the outcome of an interactive, participatory process involving consultations on specific themes, expert input, and the experience, opinions and perceptions of MoUD officials, relevant sectoral agencies, and stakeholders from academia and policy fraternity. Regional and national workshops are planned before the final strategy is presented for approval by the government.

The Urban Scene

3. Nepal is one of the least urbanized countries of Asia but the pace of urbanization in the last decades has been faster and is likely to remain so as a result of multiple transitions - spatial, demographic and economic – that are underway. In 2011 the 58 municipalities harbored 19% of Nepal's population. Inter-censal urban growth rate of 3.43% excludes newly graduating urban areas and expansion outside municipal limits.

4. Kathmandu Valley is the hub of Nepal's urbanization with nearly 24% of national urban population. Regional levels of urbanization vary markedly with high levels of urbanization in valleys and inner Tarai relative to the more economically potential Tarai. Urbanization is dominated by few large and medium cities in the hills. Among the 58 municipalities, 14 urban centres with over 1 lakh population make up nearly 43.51% of national urban population. However, population comparisons can be misleading because municipal designation is a political decision which often ignores functional criteria. In 2014, 133 new municipalities irrespective of their functional attributes have been added to the municipal category bringing the number of municipalities to 191 and urban (municipal) population to 38.26% of the total.

5. Kathmandu Metropolitan City, the only million plus city in the country, has 9.72% of national urban population as per the 2011 census data. In comparison, Pokhara Sub-Metropolitan City which is the second largest municipality of the country has 3.13% of urban population. Gross population density is also low in most municipalities. With addition of new municipalities and sub-metro cities, 31 existing municipalities and 113 new municipalities have population densities less than 10 ppha, a minimum criterion for declaration of urban center as proposed in the national urban policy. High urban growth (over 4%) locations characterize Kathmandu and Pokhara valleys, Inner Tarai valleys and locations along major road corridors. In the last decade, only 7 municipalities (Damak, Itahari, Bharatpur, Thimi, Pokhara, Kirtipur, Birendranagar) had growth rates above 5%. It is seen that physiography and connectivity are important determinants of urbanization.

6. Migration is the largest contributor to urban growth with 37.7% of urban population either born in other district or foreign born. Seventy-seven percent of urban migrants are born in rural areas.

7. Estimate of the contribution of urban areas to national GDP vary a great deal and remains a matter of conjecture indicating the need for a more comprehensive accounting of urban economic activities. The estimates range from 65 percent (WB/MoF) to 33.1% (CBS/NHDR). The contribution of Kathmandu Valley to the national GDP has been estimated by the Central Bank to be of the order of 23.4% of the national GDP.

8. As increased urbanization and urban growth remain inevitable, urban areas in Nepal are beset with a host of critical issues. The urban database is poor. The urban system is unbalanced and far from integrated. Urban sprawl and informal urban growth is the norm rather than the exception. There are wide deficits in urban infrastructure and no standards are in place. Urban environmental concerns are reaching critical levels. Non-farm employment opportunities remain constrained. Urban poverty is rising and anticipated to rise further. The institutional capacity for urban planning and management is poor and there is a wide gap between urban investment needs, financing and implementation capability.

9. National policies in transportation, agriculture, industry, land use and the urban sector have, for the most part, favoured urban growth. Coordinated policy response to an integrated and economically vibrant and balanced urbanization process has however been lacking.

Current Urban Conditions

10. Urban database on land and infrastructure is poor and far from comprehensive. Land fragmentation, unregulated and informal urban land market, cumbersome land acquisition and compensation mechanism and lack of comprehensive zoning regulations and land use controls characterize the prevailing conditions of urban land. The supply of serviced land is limited and urban sprawl is at the expense of productive agricultural land. The evolving urban form is becoming increasingly disorganized with incompatible land uses and declining level of amenities and neighborhood environment.

11. Deficiency of urban infrastructures is highlighted by the situation of water supply, sanitation, solid waste management, housing, transport and energy. There is also considerable disparity among ecological regions. Only 32.9% of households have access to piped water supply in urban Tarai as compared to 81.2% of households in urban hill. The quality and quantity of drinking water is insufficient in all urban regions. To meet the MDG target of water for all by 2017, substantial investment to the tune of Rs 7.5 billion per annum is required to be spent. Conditions of sanitation system and solid waste management are also critical. Only 56.1% of urban households have access to sanitation system with 88.2% households having access to toilets. Likewise, out of 58 municipalities, only 6 have sanitary landfill sites and only 5 practice controlled waste dumping.

12. Lack of affordable housing and increasing squatter settlements are major concerns in the urban housing sector, which is evident in the growing housing deficit and increasing percentage of squatter settlements in urban areas. Squatters comprise an estimated 10% of the urban population, but some urban areas like Dharan have three times as much.

13. Inadequate and inefficient transport infrastructure is a critical concern in urban transport. The average road density of urban areas is 3.26 km/sq km, which is inadequate for the efficient urban mobility as well as to promote urban-rural linkages. The national energy crisis is apparent and exaggerated in the urban area. The demand of electricity is the highest in urban and industrial corridors with an annual rate of increment of 9%. Demand for electricity far exceeds the supply in urban areas.

14. To assess the infrastructural status of various municipalities, an Urban Infrastructure Condition Index (UICI) was computed for 58 municipalities. UICI provides a tool for comparison of infrastructural condition of municipalities. Kathmandu Metropolitan City has the highest value of UICI whereas Gulariya remains at the bottom of the index list.

15. Analysis of urban environmental conditions highlights the dire situation of urban areas in terms of physical, natural and social environment. The municipalities lack institutional capacity, proper planning and funding mechanisms to manage urban environment that includes coping with disasters, providing safety and security, enhancing socio-cultural environment, preservation of open spaces etc. There has been a rapid loss of open spaces in urban areas due to unmonitored encroachment. The proportion of open space is only 0.48% in Kathmandu and 0.06% in Lalitpur. The existing Urban Environment Management Guidelines could be a strong document to address environment issues in urban areas, but like other documents related to urban management, it falls short in implementation.

16. Urban areas are regarded as the engines of economic growth. The recent GDP data by CBS shows that urban areas directly contributed 33.1% to the national GDP (NPC/ UNDP 2014) and another 30% comes from the VDCs at proximity to or served by the urban centers. The contribution of urban areas to the GDP provides stronger justification for investing in urban infrastructure because it facilitates in the generation of wealth and employment opportunities and boosts the rate of economic growth.

17. Agriculture and allied activities account for one-third of the employment in the urban sector. Wholesale and retail trade and manufacturing contribute 17% and 14% of urban employment. Sectoral composition in urban employment differs significantly by urban areas.

18. Poverty in urban areas is on the rise. In 2003/04 about 10% of urban population was below the poverty line. The 2010/11 NLSS shows that population below poverty line comprises 15% of the urban population. There are enormous differences between urban areas – Pokhara has only 1.3% below poverty line while in Gulariya it is 50%.

19. Remittance received by urban households is around 15% of national remittance income. Kathmandu is the largest recipient. Ramgram, Biratnagar and Janakpur are the other large recipients of remittance income in the Tarai.

20. There are mainly three clusters of manufacturing industries. Kathmandu Valley accounts for 40% of urban manufacturing employment while Biratnagar and vicinity and Birganj and vicinity account for 17% and 15% respectively. There are also three main clusters of urban non-farm employment – Kathmandu Valley (25%), eastern Tarai (15%) and central Tarai (19%). Service sector makes up 70% of urban non-farm employment.

21. Nearly half of the total manufacturing employment is located in non-municipal, rural areas. Labour intensive manufacturing (handicrafts) account for 60% of total industrial production. The composition of urban manufacturing employment is 30% paper, mineral, plastics, chemicals and wood, 19% garment, 18% textile and 19% agro-processing and 14% machinery equipment.

22. Computation of location quotients reveals the relative advantage in manufacturing in urban areas/regions. Accordingly, the relative advantage of Kathmandu Valley is radio, television, communication equipment and publishing, printing. Similar advantages for Biratnagar- Dharan corridor is electrical machinery apparatus and textiles, Birganj corridor – tanning and leather products, basic metal and chemical products, and Nepalganj corridor – chemical and chemical products, fabricated metal products. Manufacturing is generally characterized by small scale industries which show a declining trend.

23. To meet the infrastructural deficit in 58 municipalities, the investment requirement is estimated to be NRs 372 billion. The amount is calculated based on existing and desirable state of municipalities. However, approximate investment channeled to the municipalities for infrastructure development in the current fiscal year is NRs 20.07 billion only. This amounts to only 1% of national GDP, which is low compared to the GDP contribution of urban areas.

24. In the present context, the revenue base of the municipalities is very weak and revenue potential has not been fully mobilized. Own source revenue of the municipality on average accounts for only 30% of the total revenue and nearly 70% of municipal revenue accrues from government grants.

25. Governance emerges as a critical issue in municipalities. The current arrangement has put urban planning and infrastructure development under one ministry umbrella (MoUD), while urban governance and administration in another (MoFALD). Fragmented institutional arrangement, uncoordinated mechanisms between MoFALD and MoUD and lack of technical expertise and capacity are issues of major concern in urban governance.

Intended Urban System and Milestones

26. NUDS aims to develop strategic vision for key urban sectors, establish benchmarks and formulate strategies to help in addressing the identified issues and attain the desirable condition. The strategy is not limited to physical development alone, but aspires to attain a qualitative vision for future urban growth in Nepal. NUDS is guided by five basic principles, namely that urban centres should be sustainable, inclusive, resilient, green and efficient.

27. The present system of designation of urban centres has to be based on better functional criteria and institutionalized. The CBS should be entrusted with the task of recognizing and monitoring “census towns” on the basis of established criteria. While the decision to provide municipal status will remain a political one, only settlements with the status of census towns should be designated as municipalities in the future.

28. The existing national and regional urban system comprises of two relatively integrated systems in the centre and in the east based on flow of goods and services. However, the urban system in the mid and far west is nascent with relatively weak links with their hinterlands.

29. The objective of national urban development is to achieve a balanced national and regional urban system that strengthens economic and functional base of urban centres through enhanced inter-urban and urban-rural linkages, establish effective and efficient infrastructure delivery system and maintain a healthy physical, natural and social environment. Milestones comprising of indicators and measures have been determined for the urban system, urban infrastructure and urban environment.

30. Major milestones by 2031 include annual investment of 2 percent of GDP in urban infrastructure development, access to piped water and 100 lpcd in urban wards, sewerage in all urban core areas, total electrification in all urban areas with 80% of households with alternative sources, road density of 7.5km/sq.km and 80% paved road in existing municipalities, 50% of new residential housing through land readjustment, 100% solid waste collection, high speed internet availability in all large and medium towns, at least 2.5% of land as open space at ward level in old and 5% in new municipalities, disaster risk management plan and capability in all municipalities, and 70% contribution to GDP from urban areas.

31. A medium growth rate is estimated for population projection for the existing 58 municipalities during 2011-31. The growth rate is taken 2.8% per annum. However, briskly urbanizing municipalities are expected to have a growth rate of 3.5% and an urban population share of about 60%. By 2031, the projected population in existing 58 municipalities and 133 new municipalities is expected to reach 9.03 million and 8.87 million respectively, bringing the total urban population of the country to 17.9 million.

32. Urban infrastructure deficit at present is significant. Basic infrastructure is lacking or very poor. Total investment required to meet the urban infrastructure deficit and additional demand of 191 municipalities by 2031 comes to

a total of NRs 2,223,946 million. Investment priority is determined by population size of cities. About 67% of the cost in existing urban areas is earmarked for upgradation and extension of roads.

33. The major contributors to the required investment are expected to be the government and development partners (60%), municipalities (19%), private sector (10%) and community (6%).

34.Urban investment will be justified because of its contribution to increase production and enhance living standards. The economic return of investments in infrastructure is expected to be substantial through direct income and capital gains and increases in taxes from urban residents.

National Urban Development Strategies

35. National urban development strategy is formulated with a time horizon of 15 years. Strategies have been conceived to achieve desirable condition in each major theme – infrastructure, environment, economy and finance – but also indicate the social, economic and cultural vision of urban areas reflecting the highest values of society. Each strategy is backed by a number of activities recommended for each lead and supportive agencies within the different levels of the government, NGOs and the private sector.

36. Urban System: National objective is to strengthen the national and regional urban system. Strategies include – strengthening urban-rural linkages, upgrading inter and intra-regional road connectivity standards, facilitating higher level functions in major regional urban centres, improving connectivity infrastructure in key Tarai urban centres, facilitating small towns in realizing their comparative advantages, creating infrastructure for "smart" towns in priority locations, promoting environment, heritage and tourism friendly economic functions in the Kathmandu Valley, and integrating future provincial capitals in the regional, national urban system.

37. Urban Infrastructure: For the infrastructure sector in general the strategies seek to increase national resource allocation in urban infrastructure development, maintenance and service delivery; promote private sector investment on basic services as well as higher order infrastructure; orient strategic investment for shared infrastructure in urban regions through a cluster city approach; and build national/local institutional capacities for infrastructure development and service delivery. Specific strategies have been proposed in each major theme within urban infrastructure

38. Water Supply and Sanitation: Minimum water provisioning, water security, safety and sanitation coverage are proposed. The strategies include protection and management of fresh water sources; integration of rain water harvesting within the building permit system; institutionalize water recharge provisions in public spaces; strengthen system to produce and deliver safe water; internalize regular monitoring system to assure water quality standard; promote community water storage facilities; facilitate private sector investment in water supply, and augment investment in waste water treatment systems.

39 .Solid Waste Management: Complete waste collection coverage is proposed for urban areas. The strategies include focus on community-led waste segregation and collection; public-private partnership in waste collection and management; adopt sanitary landfill sites as a transitional strategy with the aim of promoting and mandating 3R (reduce, reuse, recycle solid waste at household/community level; and establish dedicated and capacitated SWM unit in all municipalities.

40. Transportation: A broader perspective on urban transportation is proposed. The strategies include the integration of land use and transportation in urban as well as regional planning and development of related institutional mechanisms and capacity; provision of hierarchically balanced urban road infrastructure; promotion of sustainable urban public transport, and preparation and implementation of comprehensive transport management standards and plans for urban areas. In prioritized regions the provision of high-speed inter-urban transport infrastructure is also proposed.

41. Housing: Provision of affordable, adequate and safe housing is the objective in the urban housing sector. Strategies include facilitation of the private sector to provide housing to the economically weaker sections; regularize standards of groups housing; and promotion of innovative, economic and environment friendly building. Strategies to discourage squatter settlements and encroachment; encourage cooperative mechanisms for the production of housing for the economically weaker sections; and facilitate the production of service land through public-private/ community partnership have been proposed.

42 .Energy: Provision of adequate, reliable, efficient and green energy is the major objective in the energy sector. The strategies include development of hydro-power projects in consideration of the urban locations; promotion of the optimal use of solar energy, promotion of passive design and energy efficient building materials.

43. Urban Environment: Urban environment incorporates natural as well as the socio-cultural environment bringing in issues of urban safety, resilience, culture, agriculture, forest as well as the problems of land and environmental pollution. Major strategies include compliance with set standards of pollution in urban areas, promotion of multi-hazard approach

to dealing with disasters and climate change; internalization of resilience perspective in land use regulations and building codes and by-laws; and enhanced awareness and preparedness to deal with disaster risk and vulnerability at both the levels of government as well as local communities and civic bodies. Promotion of urban agriculture for food, vegetables and horticultural products; maintenance of minimum forest cover in urban areas; maintenance of minimum stipulated open space in urban areas; preservation of heritage sites as well as museums tied with local economy in old urban areas and promotion of innovative art, architecture and culture in new urban areas; facilitation of community and civil society organizations particularly oriented towards the youth; and development of community security mechanisms are among the other strategies proposed related to urban environment.

44. Urban Economy: Strategies related to urban economy are geared towards enhancing the contribution of urban areas to the GDP and strengthening the economic base of urban areas. These strategies cover the aspects of economic development, investment and finance. The strategies include support in the formulation and implementation of local and regional economic development plan for urban areas in order to build competitiveness based local and regional comparative advantages; promotion of urban regeneration programmes in historic core areas; mainstreaming informal urban economy and alleviation of urban poverty.

45. Urban Investment: The investment strategy is based on the assumption that at least 2% of GDP will be allocated for public investment on urban infrastructure. Strategies include coordinated investment in urban areas involving all sectoral agencies including the private sector; phased investment for improving basic infrastructure services in all municipalities; focused investment for strategic infrastructure projects in clustered urban regions and urban corridors; increased investment in urban areas of mid and far west and underdeveloped regions of inner Tarai and southern Tarai; prioritized investment in strategic small towns, market centres, administrative centres and new towns for promoting urban growth and provision of basic services.

46. Urban Finance: Creation of self-reliant and financially solvent urban areas is the objective of strategies in urban finance. Major strategies include the development of an optimized inter-governmental fiscal transfer system; enhanced mobilization of own-source revenue of municipalities; improved access to debt financing through strong financial intermediary institutions; and investment mobilization through alternative financing instruments.

47. Urban Governance: In the area of urban governance the objective is to create an efficient and effective governance infrastructure for urban management and service delivery. Strategies include the improvement in institutional coordination between MoUD and MoFALD; make town plans the basis for long-term development of urban areas; improve the legal basis for managing large urban regions and urban corridors; facilitate research based policies and programmes; and institutionalize social accountability mechanisms in urban governance.

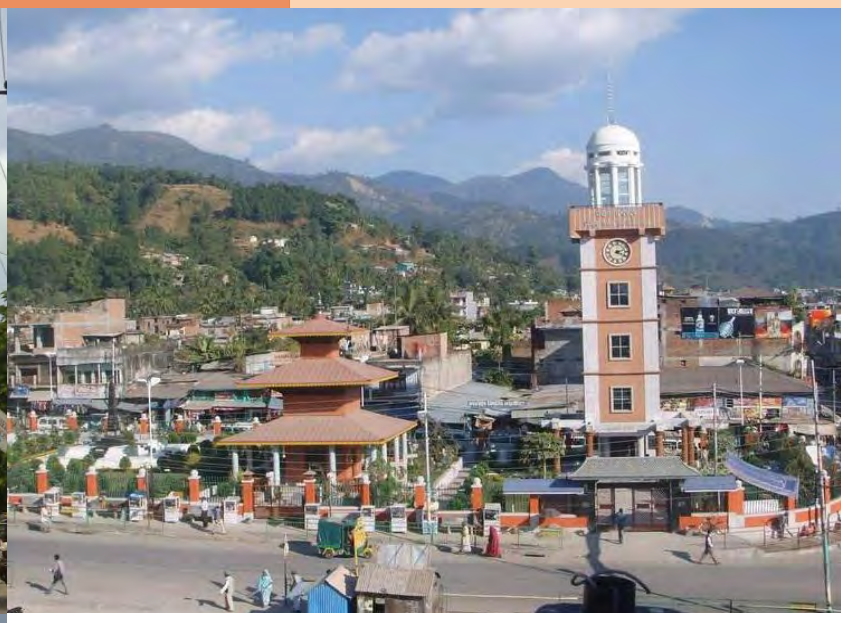
48.Urban Land Management: Urban land management strategies are oriented towards the development of an efficient land acquisition and compensation mechanism and regularization of the urban land market. The strategies include the creation of a judicious land valuation and compensation mechanism; price freezing upon the government's intent to acquire land; establishment of a land information system; land use controls through infrastructure and environment thresholds; build incentives for preserving critical agricultural land; and provision of a legal basis for urban/rural land classification with periodic revisions based on improvements in related standards.

Key Points

- Analysis of existing and new municipalities portrays a grey picture of urban growth which is associated with critical issues and deep rooted problems.
- Unbalanced growth, environmental concerns, deficit of basic infrastructures, unplanned physical growth, increasing urban poverty, weak financial and institutional capacity are some of the common features of these urban centres that are aggravated by insufficient investment in urban sector development.
- The existing urban form and function overshadows over technical rationale in declaring municipal status.
- 133 new municipalities have recently been added, most of which lag essential attributes to become municipalities.

Chapter 1
INTRODUCTION

From top left in clockwise direction: Birgunj Ghantaghar (Photo source: flickr.com, 2015). Clock Tower of Dharan (Photo source: flickr.com, 2015). Urban landscape of Kathmandu (Photo credit: Arun Poudyal, 2014). Urban landscape of Tansen Bazar (Photo source: flickr.com, 2015).



1.1 Urbanization Trends and Implications

Three mutually reinforcing transitions are underway in Nepal. A demographic transition that is resulting in more people entering the labor force than are leaving it, a spatial transition that is resulting from increased migration from the countryside to towns and cities, and an economic transition resulting from the demise of the traditional subsistence economy, declining contribution of agriculture to the GDP, and the search for new livelihood options. While increasing urban growth and urbanization is a consequence of these transitions, the strategies pursued in the planning and management of urbanization will determine the direction and pace of Nepal's economic transformation.

1.1.1 Urbanization Trends

The level of urbanization[1] in Nepal remains low but the pace of urbanization has remained faster and is likely to remain so in the future. Only 17.1% of Nepal's population resided in 58 designated urban areas according to the 2011 census. However, with the addition of 131 municipalities in 2014, 38.26% of Nepal's population reside in 191 designated urban areas.There have been fluctuations in inter-censal urban growth rates. Although the growth rate in the inter-censal decade was 3.43%, the average annual growth between 1981-2011 has remained at a high rate of 5.3%[2]. Urban rural growth differential in 2011 is 2.4%.

Kathmandu valley is the hub of Nepal's urbanization. Over half of Nepal's urban population reside in the hills and the rest in the Tarai. The Central Development Region (CDR) including the capital region of Kathmandu harbors half of Nepal's urban population. The EDR and WDR share 17-18% of urban population each. Regional levels of urbanization differ markedly across ecological and development regions. The level of urbanization is highest in the hill region (21.7%) compared to the Tarai (15.1%) and the mountains (2.8%). Among development regions,CDR has higest urbanization level of 23.5% (Table 1.1). Distribution of urban population as well as the level of urbanization is relatively low in the MWDR and FWDR.

Physiographic and connectivity characteristics are important determinants of urbanization which result wide variation in the regional levels of urbanization. The level of urbanization in the Kathmandu valley (three districts) and Pokhara valley (Kaski district) comes to 96.97% and 79.52% respectively, while it is only 18.28% for the rest of the hills. Similarly, inner Tarai valleys[3] have a level of urbanization of 41.97% compared to 38.94% for the rest of the Tarai.

Urbanization picture is dominated by few large and medium cities. Kathmandu is the only city with over a million people. In terms of size class of urban centres, 14 urban centres (4 in the hills, 10 in the Tarai) in 58 municipalities, and 2 urban centres (in the hills) in recently added 131 municipalities with over 100,000 population have 33.53% of Nepal's urban population. The rest 66.47% inhabit in 175 municipalities.This distribution reveals an urban hierarchy that is truncated towards the lower end notwithstanding the fact that urban boundaries are notorious both for including large rural tracts on the one hand, and ignoring urban sprawl beyond municipal boundaries, on the other.

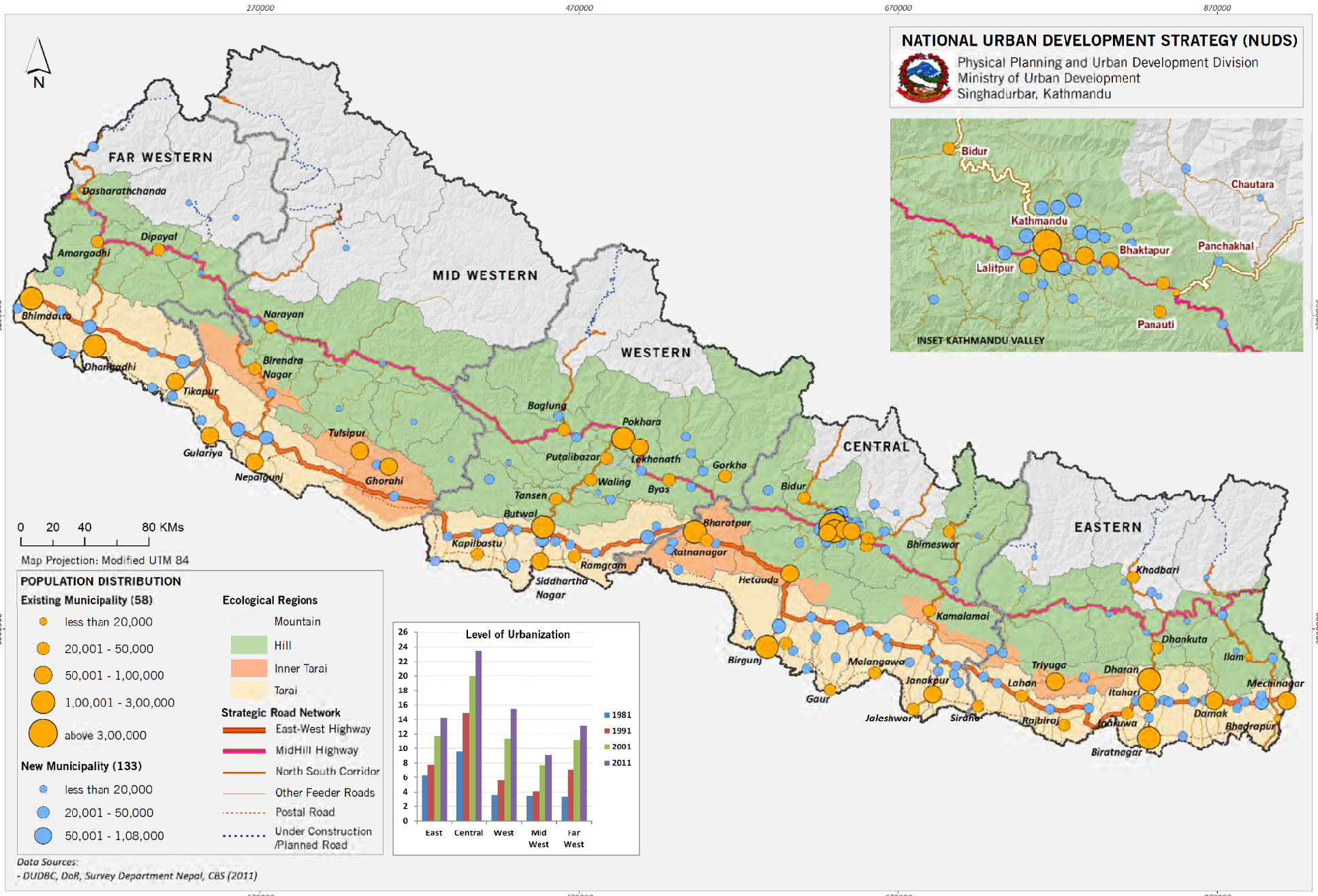
The fact that municipal status is a political decision rather than a technical one has also contributed to this picture. Between 1991 and 2011 the number of municipal areas

Table 1.1 Nepal:Urbanization Trends 1981-2011

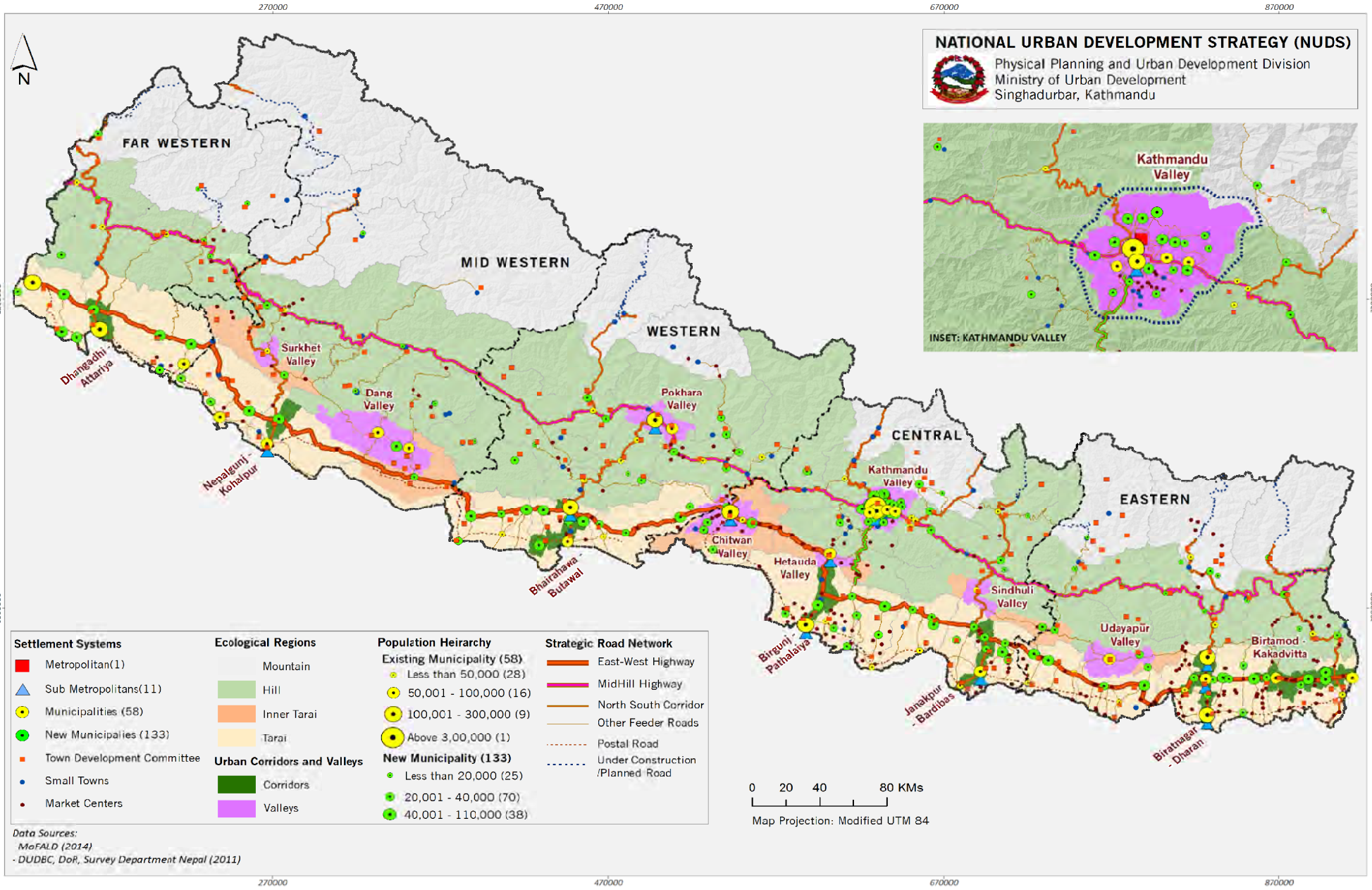
	Urban Places				Distribution of Urban Population (%)				Level of urbanization				Annual growth rates		
Regions	1981	1991	2001	2011	1981	1991	2001	2011	1981	1991	2001	2011	1981-91	1991-01	2001-11
Mountain	0	0	2	2	0	0	1.4	1.1	0	0	2.6	2.8			1.4
Hill	9	13	27	27	51.7	51.2	53.2	54.6	6.9	10.3	16.7	21.7	5.8	7.1	3.7
Tarai	14	20	29	29	48.3	48.8	45.5	44.3	7.0	9.6	13.1	15.1	6.0	5.9	3.2
Nepal	23	33	58	58	100	100	100	100	6.4	9.2	13.9	17.1	5.9	6.6	3.4
EDR	7	9	14	14	20.8	20.3	19.4	18.3	6.3	7.8	11.7	14.3	5.6	6.1	2.9
CDR	7	13	20	20	52.7	54.4	49.7	50.2	9.6	14.9	20	23.5	6.2	5.7	3.5
WDR	4	5	12	12	11.9	12.4	16.1	16.9	3.6	5.6	11.4	15.5	6.3	9.5	3.9
MWDR	3	3	6	6	7.2	5.9	7.2	7.1	3.5	4.1	7.7	9.1	3.8	8.8	3.4
FWDR	2	3	6	6	7.4	7.0	7.6	7.4	3.4	7.1	11.2	13.1	5.3	7.5	3.1

[1] Level of Urbanization is the ratio of urban population to the total population of that region.
[2]The declared 72 municipalities included in the urban category makes Nepal's total urban population 7.095 million, i.e. 26.8% of the national population, on the basis of 2011 census data. And the recent addition of 61 municipalities in the urban picture has increased Nepal's total urban population at a level of 38.26%.
[3] Inner Tarai includes districts of Udaypur, Sindhuli, Makwanpur, Chitwan, Dang and Surkhet.

MAP: 1.1 POPULATION DISTRIBUTION OF URBAN SETTLEMENTS



MAP:1.2 DISTRIBUTION OF MUNICIPALITITES AND TDCS



Map 1.2 shows distribution of urban centres as municipalities, Town Development Committee, small towns and market centres. Corridors represent agglomeration of contiguous urban settlements along the north-south road and E-W highway, while valleys have been identified based on the catchment area of urban centres that lie in the hill and inner tarai regions. The overall distribution of urban settlements indicates larger concentration of settlements in the central region and along the proximity of E-W highway. Eastern region comparatively has more urban centres with high concentration of municipalities along E-W highway and larger distribution of TDCs

Table 1.2 Distribution of urban population by size class of urban centres and growth rates (58 Municipalities)1991 -2011

Size class	1991	Percent	2001	Percent	2011	Percent	Growth rate 1991-2001	Growth rate 2001-2011
> 200,000	421,258 (1)	18.4	671,846 (1)	20.8	1,699,954 (4)	37.6	4.78	9.73
100-200,000	245,253 (2)	10.7	598,461 (4)	18.5	738,455 (6)	16.3	9.33	2.12
50-100,000	517,419 (8)	22.6	788,937 (11)	24.4	1,182,522 (17)	26.1	4.31	4.13
20-50,000	746,551 (25)	32.6	1,032,245 (34)	32.0	831,127 (27)	18.4	3.29	-2.14
<20,000	357,006 (22)	15.6	136,390 (8)	4.2	71,763 (4)	1.6	-9.17	-6.22
Total	**2,287,487 (58)**	**100.0**	**3,227,879 (58)**	**100.0**	**4,523,821 (58)**	**100.0**	**3.50**	**3.43**

with less than 20,000 population has decreased from 22 to 4 while those with 50-100,000 population has increased from 8 to 17 (Map 1.1). While the growth rate of urban centers with over 200,000 population has jumped from 4.78 to 9.73 in the last two inter-censal decades, the growth rate of small towns in particular has significantly declined (Table 1.2).

A characteristic feature of Nepal's urbanization is high level of urban primacy. Both 2-city and 4-city indices show some decline in 2011 compared to 2001 but the level of primacy remains high (Table 1.3). This is indicative of an inordinate concentration of population in the primary city, Kathmandu. City primacy computed for the development regions (with major east-west and north-south highways connecting the regional urban centres) shows that with the exception of the central development region focused on Kathmandu, the primacy index (both 2-city and 4-city) in all other regions has been steadily declining or relatively stable. In spite of the national dominance of Kathmandu the regional pattern of primacy remains more subdued and in a state of flux.

Table 1.3 Urban primacy (58 Municipalities) 1981-2011

Year	Two city index	Four city index
1981	2.51	1.06
1991	3.26	1.24
2001	4.03	1.38
2011	3.79	1.19

High urban growth locations characterize Kathmandu valley, Pokhara valley, Inner Tarai valleys and locations along major road corridors. The primary centre of Nepal's urbanization is the Kathmandu valley which harbors 29% of Nepal's total urban population while Kathmandu city alone harbors 22.2 %. However, the recent addition of 72 and 61 municipalities makes the urban population of Kathmandu Valley 24.04% of total urban population and the urban population of Kathmandu city alone 9.72%. 2011 census data reveals that 23 municipal areas in general and 15 in particular have experienced relatively rapid urban growth in the past decade.

In the last decade, 23 of the 58 municipalities experienced growth rates of above 3%. Among the major urban centres, Bharatpur and Pokhara experienced over 5% average annual growth, Kathmandu, Dhangadhi and Butwal had growth rate of between 4-5% and Lalitpur and Lekhnath with above 3% (Table 1.4). Many of the fast growing areas seen from the census are mostly medium and small towns.

Table 1.4 High growth urban areas (58 Municipalities) 2001-2011

Growth rate 2001-2011	Tarai	Hills	Total
> 5%	Damak, Itahari, **Bharatpur**	Thimi, **Pokhara**, Kirtipur, Birendranagar	7
4-5%	Butwal, **Dhangadhi**, Tulsipur, Ghorahi	Banepa,Byas, Tansen, **Kathmandu**	8
> 3-4%	Tikapur, Gaur, Malangwa	Kalika, Lekhnath, Dhulikhel, **Lalitpur**, Dhankuta	8
Total	10	13	23

*Municipalities with over 100,000 population shown in bold.

Established urban centres like Biratnagar, Birgunj, Dharan, Janakpur, Nepalgunj, Hetauda, and Sidhdharthanagar show growth rates of between 2-3% (Map 1.3) (Annex 1). Urban densities are highest in Kathmandu valley and old Tarai towns. Only three municipalities of the Kathmandu valley (Kathmandu, Lalitpur and Bhaktapur) have urban densities above 10000 per sq. km.Another two Kathmandu Valley towns Madhyapur Thimi and Tokha have densities between 5-10,000. Another 12, including Kirtipur and Banepa in the hills and Birgunj, Biratnagar in the Tarai, have densities 2-5,000. A total of 29 urban areas have densities between 1-2,000 while a total of 145 urban areas have densities below 1,000.

Urban densities display the nature and character of urban areas and have a bearing on urban services and infrastructure.

Map 1.3 POPULATION GROWTH RATE OF URBAN SETTLEMENTS (58 MUNICIPALITIES)

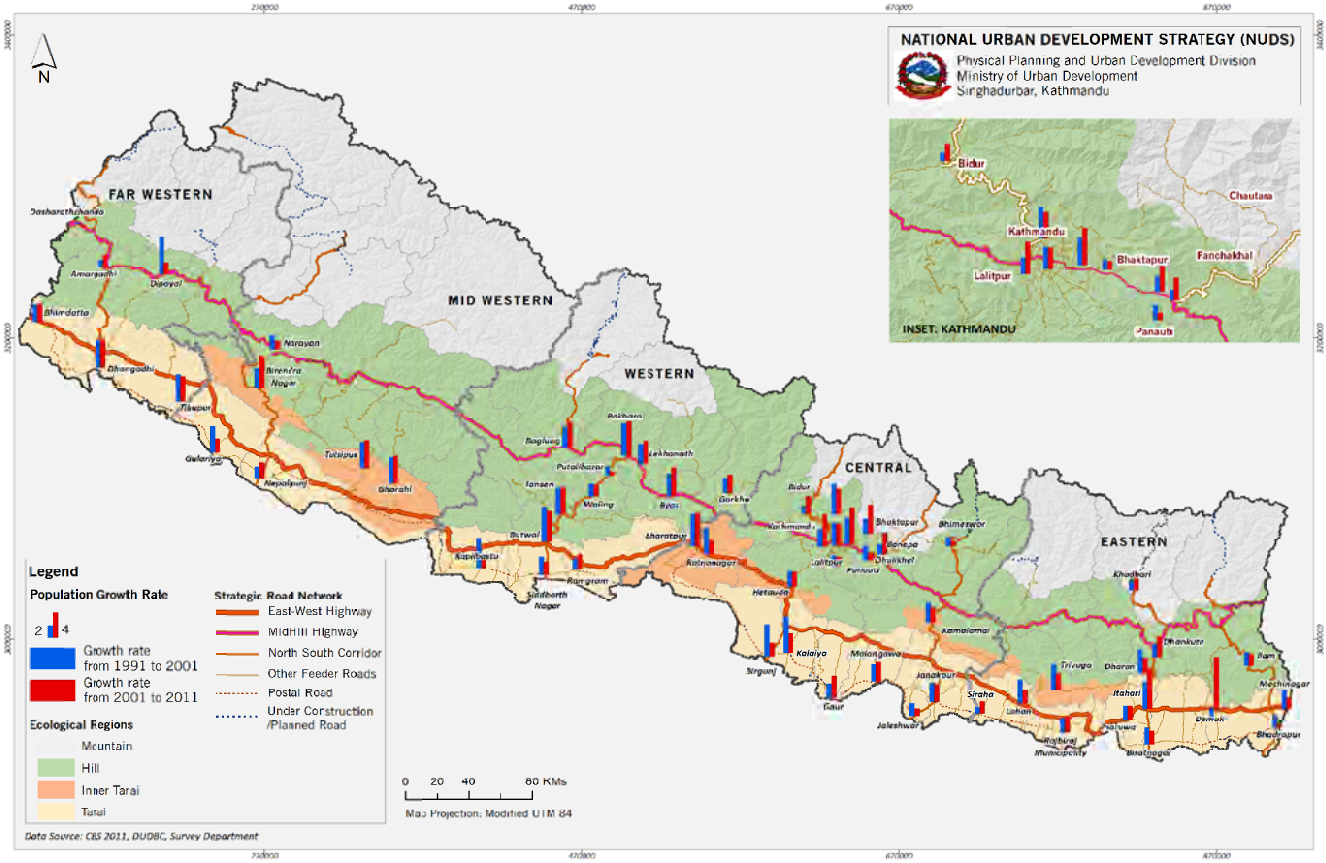


Table 1.5 Urban densities of 191 Muncipalities

Density/Sq KM	Tarai	Hill	Mountain	Total
Less than 500	36	49	11	96
500 – 1,000	36	13	0	49
1,000 – 2,000	20	9	0	29
2,000 – 5,000	4	8	0	12
5,000 – 10,000	0	2	0	2
Above 10,000	0	3	0	3
Grand Total	96	84	11	191

Migration is the largest contributor to urban growth and is likely to remain so in the future. Contributors of urban growth are (i) natural increase of population, (ii) reclassification of urban areas resulting in change in urban boundaries and population, and (iii) migration. In fast growing urban areas in-migration is often the major contributor.

Migration to urban areas can be approximated by the district level data on population in urban and rural areas by place of birth from the 2011 census. Accordingly, in 58 urban areas in 2011 those born in other districts (ODB) accounted for 34 percent of the native born population. A total of 3.7% of the urban population was foreign born. (Table 1.6).

Not accounting for migrants to urban areas from the same district (which could be significant), a total of 37.7% were migrants to urban areas. In 2001, with the same number of urban areas, ODB and foreign-born made up 30% (25.6% ODB and 4.4 foreign born) of the total urban population. While other-district born urban migrants numbered around 8.3 lakh in 2001, they numbered 15 lakh in 2011.

Nearly 77 percent of these migrants were from rural areas. The proportion as well as volume of migrants to urban areas has clearly accelerated. The proportion of migrants is highest in the Kathmandu valley districts in general and Kathmandu in particular. In 2001 lifetime migrants made up 38.4% of the urban population. The valley districts in 2011 had a total of 46% inter-district migrant population, 74% of which were born in rural areas. Kathmandu district had the highest percent (54.2%) of life-time migrants in Nepal. If intra-district migration to urban areas were to be accounted migrants would contribute over 60 percent of urban growth. Reclassification could contribute an additional 10-15%.

The major reasons for migration in the Kathmandu valley districts are study (26.4%), service (21.5%), dependent (15.8%) and marriage (15.6%). Also, 56 percent of life time migrants had been in the valley districts for over 6 years.

This rate is 59% for urban areas in general. Districts with major urban areas have relatively high percent of inter-district life-time migrants compared to other districts. Districts with over 25% of life-time migrants include Chitwan, Kanchanpur, Kaski and Jhapa. Morang, Sunsari, Kailali, Rupandehi, Banke, Nawal Parasi have between 20-25% inter-district life-time migrants.

Contribution of urban areas to national GDP is significant.There are varying estimates of the contribution of the urban economy to the country's GDP. The World Bank, AusAid study in 2012 quoting MoF credited the urban economy of contributing 65% to the GDP. However, recently released GDP data for 2010/11 by the CBS shows a much more subdued picture. The urban GDP made up 33.1% of the national GDP (NPC/UNDP 2014). Eighteen districts with 32 urban places and 81% of the total urban population made up 55.9% of the country's GDP. The share of the three valley districts in the GDP is 20%. In India, urban sector is estimated to contribute 62 to 63% to the GDP.

There is an inordinate concentration of economic and financial activities in the Kathmandu Valley. A 2012 Survey by the Nepal Rastra Bank estimated the value of economic activities of Kathmandu valley under two scenarios, based on an expenditure approach. The reference scenario (based on NLSS III and 2011 census) put the share of Kathmandu valley to national GDP at 23.4%. Final consumption expenditure in the valley was estimated to be 26.1% of national expenditure. The second 'alternate' scenario took into account field survey information as well as the estimated population of the valley. It estimated the valley's contribution to the national GDP to be 31%.

The final consumption expenditure of the valley was estimated to be 34.2% of the national and its share in capital formation was 15% of the national. The valley's share in exports of goods and tourism services was 26% and 47% of the national and its share in total imports was 19%.

Thirty-five percent of bank branches, 60% of bank deposits and 44% of credit were also concentrated in the valley. According to MoF, the three districts of the Kathmandu valley accounted for 42.6% of the total government revenue collected under different headings in 2009/10. The valley has roughly 10% of Nepal's population and about 0.5% of the land area. The picture that emerges is one of a highly centralized urban system with an inordinate concentration of economic and financial activities in the Kathmandu valley.

1.2 Planning and Policy Context

Urbanization and urban development is influenced and oriented by key policies of the state in sectors such as transport, agriculture, tourism, industry etc in addition to the policy pursued in the urban sector. A brief review of the extant policies provides the context for the national urban development strategy.

1.2.1 National Transport Policy 2001 aims for development of sustainable urban transport system to improve social and economic development of the country. At the broad national level, the Policy emphasizes on North-South connectivity linking China and India—that may also serve as an important trade and transit corridor between China and India in the future. Apart from the present East-West Highway, the Policy proposes Mid-Hill Highway in the Hills and Hulaki Marg in the Southern Plains of Tarai connecting east and west of the country. The Policy prioritizes connectivity to all 75 districts of the country, and stresses on social and administrative parameters despite low density and lagging economic justification of connectivity investment in many hinterland districts. The Policy conceives central and local road system. The central road system includes national highways and strategic roads consisting primarily of feeder roads—linking district headquarters, towns, and cities including its hinterland with the national highways.

Table 1.6 Migration to urban areas, and Kathmandu Valley 2011

Areas/Districts	Other district born (ODB) as % of Native born	Rural born as % of ODB	Urban born as % of ODB	Foreign born % of Total Population	Not stated
Nepal Total	14.8	80.1	6.4	1.8	13.5
Total Urban	34.0	76.5	10.3	3.7	13.2
Total Rural	11.1	82.3	4.0	1.5	13.7
Lalitpur	34.9	68.1	16.4	2.1	16.3
Bhaktapur	32.5	71.3	14.0	0.6	15.6
Kathmandu	51.5	75.6	9.8	2.7	15.2
Valley districts	46.0	74.2	11.1	2.3	15.4

(Source : CBS 2012)

This falls under the ambit of the government. On the other hand, the local road system, which falls under the ambit of local bodies, includes district or arterial roads along with the collector and neighborhood roads. The national highways and strategic roads are instrumental for establishing regional or inter-city connectivity vis-à-vis these have also led to spontaneous growth of cross-road towns and settlements along their alignments.

1.2.2 National Agricultural Policy 2004 seeks to achieve sustainable agricultural development by transforming current subsistence agriculture system to commercial and competitive agriculture system. The policy emphasis is on increasing agriculture productivity, creating the foundation for commercial and competitive agriculture, and conservation of natural resources. Apart from prioritizing technological input, research, institution building, and the policy discourages non-agricultural activities in fertile agricultural land and aims to promote high value agriculture development pockets along the feasible locations of NorthSouth Highway and Feeder roads and in the remote areas.To develop such pockets, it seeks to promote integrated agriculture infrastructure services through private sector participation. Well equipped modern whole-sale market facilities are envisaged in and near the cities— where large number of consumers reside. The Policy stresses on government purchase of the locally grown food grains in the food deficit hilly regions. Fragmentation of agricultural land is also discouraged. Special programs are envisaged for marginal farmers having land less than half a hectare.

The Policy also seeks establishment of agricultural land bank. For which, it aims to create land information system to facilitate buyers and sellers of agricultural land including making avail of credit facility to needy ones to purchase agricultural land. It further aims for leasing of marginal public land for community farming. These policies are expected to have positive implications on preserving urban agricultural land as well as promoting urban agriculture.

1.2.3 National Urban Policy 2007 (NUP) is the principal document for guiding urban development in Nepal. The policy among other things aims for (i) balanced urban structure by channeling investment to backward regions—especially to regional cities and intermediate towns (ii) development of safe and prosperous urban centres by increasing resiliency against environmental shocks and stresses as well as by harnessing local economic development potentials including mobilization of local resources and mainstreaming informal sector and (iii) effective urban management through capacity development of local bodies, realizing appropriate legal and institutional arrangements and fostering integrated approach in urban development.The policy became the cornerstone in guiding the subsequent urban environment and governance programs such as Secondary Towns Urban Environment Improvement Project (STUEIP), Integrated Urban Development Project (IUDP), and Urban Governance and Development Program (UGDP)—especially in terms of prioritizing project municipalities and channeling the investment.Already these three projects include 16 municipalities and investment of about USD 230 million. STUEIP and IUDP have concentrated investment mainly on key regional cities of each development region, while UGDP is instrumental in channeling investment to the intermediate towns connected to these regional cities by North-South Highways.These strategic investments to secondary cities and intermediate townsare expected to promote economic growth in the development region by creating and fostering exchange of trade, services and human resources between regional and intermediate urban hubs.Despite these efforts, overall implementation of NUP remains weak. This is attributed among other things to the lack of comprehensive investment plans, inadequate investment on urban development; weak technical and financial management capabilities of the local bodies;and ineffective institutional arrangements (fragmented organization structure of central urban development agencies and local bodies in the separate line ministries and lack of clarity regarding roles and responsibilities).The NUP has not been able to link with the various sectoral plans and programs, and is deemed inadequate in terms of establishing and promoting inter-urban economic linkages on the one hand and between the cities and the surrounding hinterland on the other.

1.2.4 Industrial Policy 2011 aims for sustainable and broad based industrial development by fostering among other things industrial productivity, local human and material resources, competitiveness and comparative advantages. The policy has prioritized agro-forest industry, construction industry, energy oriented industry, export promotion industry, and tourism industry. The policy has also emphasized on establishment of Special Economic Zones (SEZ), Industrial Village comprising of micro enterprises, cottage and small industries that support larger industry, and Industrial Land Use Plan that contains industrial district, industrial corridor, industrial cluster and industrial village. The policy proposes incentives for industrial investment along the Karnali Corridor. Especially micro-enterprises are waived of all forms of taxes.Income taxes are exempted to industries that are established in the least-developed, un-developed and underdeveloped classified districts. In addition, small, medium and large industries which employ natives in their work force arefurther exempted from income taxes. This exemption is

increased if women, Dalit and disabled constitute 50 percent of the work force. Investment on urban infrastructures is also exempted of income taxes for a designated period of time. Industrial policy is expected to have ramification on influencing especially regional urban system—as it encourages private investment to be channeled to underdeveloped regions in lieu of tax incentives.

1.2.5 Tourism Policy 2008 seeks to establish Nepal as a premier tourism destination through conservation and promotion of natural, cultural, religious and historical heritages. The policy takes tourism as a basic industry. By linking eco-tourism and trekking with the rural-cultural tourism, it aims to contribute to rural economy and reduce poverty. It stresses on identifying new tourism sites and investment on increasing accessibility (comprising of air, surface and water transportation) and partnerships with private sector fordeveloping facilities and amenities (such as hotels, restaurants, shops, travel, tours, and information and communication). Urban heritage, environment and infrastructure have direct implications for tourism, while tourism can provide the basis for urban employment and income opportunities.

1.2.6 National Land Use Policy 2012 seeks optimum utilization of land while preserving natural resources and cultural heritages, through classification of land and enforcement of land use control accordingly. The Policy encourages land consolidation as opposed to land fragmentation and it also emphasizes on the legislative basis for incentives and dis-incentive to preserve agricultural land. Settlements are encouraged in the safer locations—which are hazard free and where infrastructure provisions become viable and compact settlements are prioritized as opposed to scattered development.

1.3 NUDS: Rationale & Objectives

1.3.1 Rationale

The economic, spatial and mobility trends in Nepal point towards the inevitability of increased urbanization and urban growth in favored locations and regions. While urbanization and urban growth appear inevitable, urban areas are beset with a host of critical issues related to urban development, management and institutions. Both a national/regional and urban/municipal perspectives need to be brought to bear in dealing with urbanization and urban growth issues. The urban challenges that face Nepal provide the rationale for the NUDS:

- The system and hierarchy of urban areas is unbalanced both in population and resource terms. The spatial frameworkfor urban development from a national and regional perspective is not sufficiently articulated in the infrastructure and resource development context.
- Urban development is manifest through unplanned informal urban growth and urban sprawl.
- There are wide deficits in basic urban infrastructure (roads, water supply, sewage & drainage, solid waste, energy, urban open space, basic physical amenities, housing etc) and quality benchmarking.
- Urban environmental concerns are growing to critical levels due to air, land, noise pollution; urban transport issues, high fossil fuel consumption, land use incompatibility, public space encroachment and growth of squatter settlements, disregard for cultural heritage and aesthetics, and environmental risk mitigation and disaster resilience
- Non-farm employment opportunities remain constrained in the rural sector while they are expanding in and around the vicinity of urban areas (World Bank 2012). There is a growing concern regarding urban employment generation and RLED strategies.
- Anticipated and rising poverty in urban areas as migration gathers momentum ag gravating the problem of housing andinfrastructure to cater to this population.
- Weak institutional and legal framework and institutional and human resource capability for urban planning and management.
- Precarious urban finance and revenue base and capability to mobilize resources in existing urban areas, and wide gap between urban investment needs, sources of financing and capability for implementation. Lack of coordinated national, regional, municipal urban investment vision and plan.
- Poor urban data base and monitoring of urban developments.

NUDS is expected to:

- Complement the national urban policy vision and facilitate periodic review and appropriate changes.
- Provide strategic directions for the newly formed Ministry of Urban Development.
- Define the scope of urbanization and urban development and to that extent indicate the areas that logically come under the ambit of the Ministry.
- Inform and facilitate sectoral activities of other agencies of the government that bear on urban development including inter alia transport, agriculture, industry, trade, education and health, environment, water and sanitation services, culture, tourism, local development etc.

With the impending new constitution, Nepal is poised to move towards a federal system of governance which will have significant implications for urban growth and development. NUDS can be a guide to orient regional urban development processes and associated investment decisions in the new federal structure of governance.

1.3.2 Objectives

(a) Develop and elaborate the medium/long term strategic vision of a desirable and realistic national/regional urban system based on existing trends and resource potentialities, and proposed strategic initiatives.

(b) Establish benchmarks and standards for urban infrastructure, urban environment, urban planning and management, and urban governance.

(c) Identify key issues and prioritized initiatives and investment (projects) required with regard to:

- Urban infrastructure
- Urban environment
- Realizing comparative advantages based on resource potentials

(d) Identify key issues with respect to investments for urban development and strategies to augment urban financing and implementation.

(e) Suggest institutional framework and legal instruments to facilitate implementation and monitoring of NUP and proposed urban development strategies.

(f) Suggest new approaches to urbanization and urban development in light of existing and emerging challenges of sustainability, increased resiliency and mitigation and adaptation to the effects of climate change.

1.4 Methodology

The NUDS is an outcome of an interactive, participatory process that sought to combine both the knowledge acquired through the thematic consultants, and opinion and suggestions from MoUD, other sectoral ministries-agencies, civil societies including academic institutions as well as aspirations of policy makers, political leadership and above all, citizens. A series of thematic workshops were organized to review current conditions, policy and programme initiatives, and critical issues that need to be addressed with respect to the theme. Chapter Two of this report draws mainly from the outcome of these workshops. Similarly, urban development strategies were formulated through an intensive participatory workshop focusing on key issues, strategies to address the issues, and key activities that form part of the strategies. The effort has been to encourage and facilitate the ownership of the urban development strategy by concerned stakeholders. A series of regional and national workshops are planned as the document goes through the government approval process. Overall policy guidance was provided by the Steering Committee formed within the Ministry under the convenership of the Secretary of MoUD. The Steering Committee also facilitated inter-ministry and interagency coordination in the strategy preparation process. The Working Group serving as the advisory body to the Physical Planning and Urban Development Division (PPUDD) was headed by the Joint Secretary of the Ministry. The PPUDD is the main division within the Ministry that is entrusted with the task of NUDS preparation. The PPUDD is further supported by the technical secretariat—created within the Division. The Working Group comprises of the officials from the thematic sections of the MoUD and other agencies.

The thematic consultants were guided and coordinated by the Team Leader—who in turn is liaised and coordinated by the Joint Secretary of PPUD Division.

1.5 Organization of the Report

This report is organized in four chapters:

Chapter 1 sets the stage for the national urban development strategy focusing on national urbanization trend and sectoral policies that have direct implications on urban development. It elaborates the rationale and objective of NUDS including the process and methods employed in the preparation of the strategies.

Chapter 2 presents the current status of urban development, with respect to urban land, form and density, infrastructure, environment, economy, investment, finance, governance and national and regional urban system. Major issues related to each theme are identified and a summary of status of representative municipalities is presented by population size class. Urban Infrastructure Condition Index has been computed, which attempts to evaluate the infrastructure condition of 58 existing municipalities.

Chapter 3 presents guiding principles and values adhered for formulation of strategies. It picturizes intended national and regional urban systems. It sets out desirable conditions and standards/milestones with respect to the intended regional and national urban system as well as thematic sectors and subsectors in urban development.

Current deficits in the broad urban infrastructure sectors are assessed, future demand of the urban population is projected and the total investment required to unleash the urban potential till the year 2030 is presented. NUDS has prioritized the investment based upon city population size to attain achievable investment goal.

Chapter 4 presents desirable conditions, associated indicators, the urban development strategies and key activities for the sectors and subsectors presented in Chapter 2, to attain the desirable condition. The strategies are comprehended by a master strategic framework that sets outcomes and outputs for next 5, 10 and 15 years.

Summary

Nepal is one of the least urbanized countries of Asia, however its spatial, demographic and economic transition point towards inevitable future urbanization. Level of urbanization has remained low, but the pace of urbanization has been in rise, with inter-censal urban growth rate of 3.43%, 2.4% higher than that of rural areas. The urbanization trend of the country between 1981-2011 shows that Central Development Region (CDR), including Kathmandu valley, contains 50% of the total urban population. Across the ecological regions, urban population is concentrated in hill with 54.6% of total urban population, though Tarai has more numbers of urban centres. Both CDR and hill region show high level of urbanization of 23.5 and 21.7 respectively, while MWDR, FWDR and mountain region have despairingly low level of urbanization.

Inordinate concentration of urban population is depicted by the level of primacy with Kathmandu city, harboring 9.72% of total urban population, as the city of national dominance. However, primacy index in other development regions is steadily declining and relatively stable. Growth rate of urban population has declined from 5.3% in 1991-2001 to 3.43% in 2001-2011, which is mainly due to addition of new municipalities between 1991 - 2001.

Nonetheless, existing growth rate is still more than 5% in major urban centres like Bharatpur and Pokhara, with 15 municipalities having more than 4% growth rate. Migration is a major source of population influx, with 37.7% of urban population either born in other district or foreign born, of which 77% are born in rural areas. Increasing population has not influenced density significantly or has lead to desirable urban form, as out of 191 total municipalities, only 3 municipalities have density more than 100 ppha, and 145 municipalities still have density less than 10 ppha,a minimum criteria for declaration of municipality as proposed by NUP.

The existing urban form and function depicts political overshadow over technical rational in declaring municipal status. As in 2014, 72 new municipalities have been added, which do not fulfill the criteria of achieving the municipal status.Following the same trend, 61 new municipalities were added later that year.Analysis of existing and new municipalities portrays a grey picture of urban growth, which is associated with critical issues and deep rooted problems. Unbalanced growth, environmental concerns, deficit of basic infrastructures, unplanned physical growth, increasing urban poverty, weak financial and institutional capacity are some of the common feature of these urban centres that is aggravated by insufficient investment in urban sector development.

Key Points

- The existing urban conditions are reflected through available basic data on urban infrastructure, environment, economy, governance, finance and investment and through analysis of current nature and characteristics of urban land, densities and form.
- Fragmented institutional arrangement, uncoordinated mechanisms between MoFALD and MoUD and lack of technical expertise and capacity are the major concern of urban governance.
- Two relatively integrated regional urban systems can be observed in the centre and in the east based on the flow of goods and services. However, the urban system in the mid and far-west is fragmented with weak links with their hinterlands.

Chapter 2

EXISITNG URBAN DEVELOPMENT CONDITIONS

Housing condition in urban areas.
▼ Photo source: www.flickr.com, 2014

2. CURRENT URBAN CONDITIONS

Municipalities in Nepal are de facto urban areas. The municipal database is poor and a system of regular data update and monitoring is yet to be institutionalized. Current urban conditions are reflected through available basic data on urban infrastructure, environment, economy, governance, finance and investment. Attempts have been made to give a sense of these conditions for selected municipalities representative of Nepal's ecological regions by population size categories. This admittedly provides only a partial picture of the conditions in Nepal's urban areas but raises a number of pertinent issues with respect to urban development.

The nature and characteristics of urban land, urban densities and urban form provide a background to urban conditions in Nepal.

2.1 Urban Land

Existing Condition

Land Tenureship

Broad categories of land tenureship in Nepal are private land, institutional (guthi) land, government/public land. Private land is the most dominant form of tenureship. The full fledged concept of private land in Nepal was introduced with the enactment of Land Act 1964 (2021)—which requires land owners to duly register the land in the state's land ownership records and pay taxes to the state to acquire the rightful ownership. However, the Act does not define what constitutes the private property rights. Inferences from the law and practices indicate that the landownership rights include the right to acquire, sale, donate, mortgage, exchange, inherit, lease, use, and subdivide. Prior to the 1950s, land primarily belonged to the state; for which the state possessed the right to sell or lease or grant the land. Guthi land on the other hand is managed by the government created institution namely Guthi Sansthan.

Land Acquisition and Compensation

In 1961, for the first time, the law required due compensation to be paid for the acquisition of privately held raikar land by the state. Since then, compensation has been a major issue in any government undertaking necessitating acquisition of private land. The compensation mechanism has been faulted for inadequate valuation of land (much lower than the market price), slow payment often requiring several years, and fear of total displacement.

As a result, land acquisition for any urban development initiative has been increasingly difficult. Land acquisition negotiations with the landowners often falter owing to speculative price demanded by the landowners, absentee landlords, and indecision on the part of family members. The tendency to speculate land price is rampant as the prevalent Land Acquisition Act 1977 has no provision to freeze the price of land once the government expresses the intent for acquisition. Enforcement of time bound moratorium in the project areas of Town Development Committees (sanctioned by Town Development Act 1988) is the only instrument that is currently available to the planning authorities.

Urban Land Market

Urban land market is largely unregulated—except for provisions of building permit and to some extent enforcement of physical plans, building regulations, planning bye-laws, and sub-division control in some municipalities. Land market is informal—where landowners incrementally fragment and sell land. The potential land buyers and sellers meet mainly through a mediator or the network of mediators. There is no formal land information system. Tendencies to keep land as an alternative investment and a hedge against inflation also add to land speculation. There is also a tendency to keep prime urban land fallow for a long period of time for purely speculative purposes. In many instances, information in land-ownership records and cadastral maps do not match. As a result information of land transaction is often dubious. Further, the government does not guarantee the deeds of the land transaction process—putting the investment of land buyers at risk. These factors add uncertainty to the land market to such an extent that the location decisions of the buyers often do not reconcile with rational choices.

Land Fragmentation

Incessant land fragmentation is triggered by various factors: traditional inheritance, dual ownership of land, increasing multiple uses of land, and land subdivision regulation allowing for very small plot size in places like Kathmandu Valley. This makes agriculture economically less attractive or profitable. Urban form is marked by residential sprawl in the outlying areas—causing fast conversion of agricultural land of the periphery for urban, mainly built-up use. The conversion is further accelerated by unhindered infrastructure extension. Demand of peripheral land, apart from its relatively cheaper price, is also pushed by limited supply of serviced land from the state sponsored land development projects. In most urban centers, there is no provision of serviced land by the state. Private sector involvement in land and housing development

accounts for a very small percentage of urban land use. Organized housing and apartment housing are limited to a few large cities only. Private land development initiatives suffer from difficult negotiation with multiple landowners to consolidate land parcels and the constraints of the government ceiling on private land holdings. As a result land developers often resort to small area development with small lots and narrow access—without planning approval from the relevant authorities.

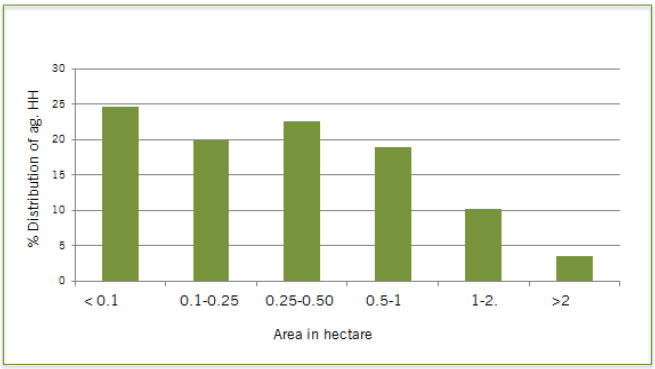


Fig 2.1 : % Distribution of agriculture households with land by land size in urban areas Source:CBS,2011

Zoning Regulations

Comprehensive Zoning regulations and controls —which regulate building bulk (length, breadth and height), density and land use in conjunction – are lacking. The current Building Regulations regulate building bulk only and ignore density and land use. Environmental Standards such as Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) are limited to primarily larger projects such as apartment housings. Standards which can regulate activities such as waste disposal at the neighborhood level are not enforced. Violations of building regulations and planning bye-laws are rampant. As a result, river systems are polluted, public land is encroached and squatted with illegal settlements. Even cultural sites within the built-up core are found to be encroached in various ways. The built settings are becoming deprived of public open spaces and play grounds. The imperatives of encroachment upon public land and open space in urban areas continue to mount for various reasons, including migration. Efforts to address the issues are neither systemic nor adequate.

Major Issues Related to Land

- Absence of the notion of 'eminent domain' in which land can be acquired for general good of the public.
- 'Ownership over land' understood as the 'right to use land' for particular purposes resulting in enforcement hurdles.
- Price speculation even before project is initiated—tedious negotiation with unclear process of land acquisition.
- Compensation for land acquisition inadequate and not timely.
- Informal urban land market with no land information system.
- Land fragmentation and encroachment on public land.
- Limited land development projects and inadequate supply of serviced land.
- Absence of Land Use Controls and accompanying environmental standards.
- Weak regulatory and enforcement mechanisms including the enforcement of bye laws.
- Gradual disappearance of agricultural land.
- Absence of capital gains tax mechanism that captures the real value of infrastructure development and promotes benefit sharing of urban development.

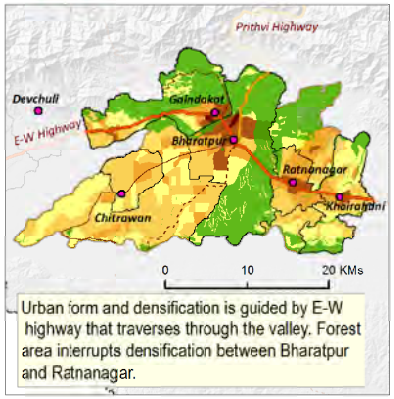
2.2 Urban Densities

Urban densities have a bearing on the provision, distribution and standards of urban infrastructure, facilities and services. Wardwise densities in urban areas give an idea of the concentration and dispersal of urban population. Average wardwise density (ppha, persons per hectare) shows that 18 out of the 58 municipalities have densities below 10 ppha. These include municipalities that incorporate large tracts of rural areas such as Kamalamai, Dasarathchanda, Dipayal, Bhimdatta etc. 15 municipalities have densities between 10-20 ppha, 14 have between 20-50 ppha, and only 11 (including old established urban centres) have densities above 50 ppha. Bhaktapur and Kathmandu are the only two municipalities with ward-wise densities in excess of 200 ppha. Most of the new municipalities will have densities below 10 ppha.

In the 58 old municipalities average wardwise density increases with the population size of the municipality. The density is 16.56 ppha for municipalities with population size of less than 20,000. It increases to 66.66 ppha for municipalities with over 1 lakh population size. The density is highest for Kathmandu with 362.24 ppha and lowest for Kamalamai with 2.57 ppha. The current urban growth pattern and form do not contain desirable density.It is reflected by prevalent urban sprawal and haphazard development in agriculture land. Also, prioritizing infrastructural development in low density municipalities remains fraught with difficulties.(Annex 2.a and 2.b)

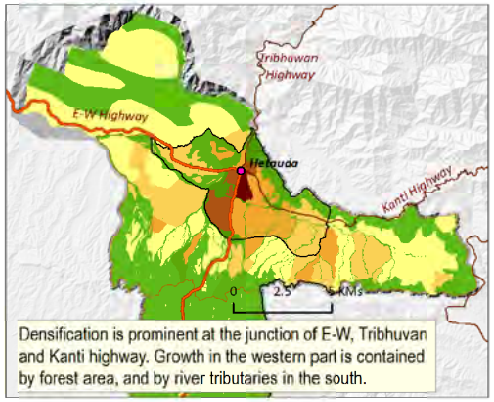
MAP 2.1 POPULATION DENSITY DISTRIBUTION (VALLEY)

Chitwan Valley



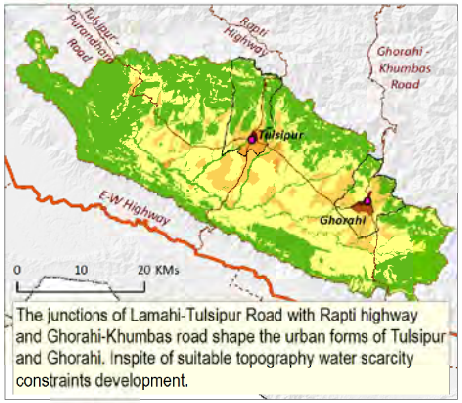
Urban form and densification is guided by E-W highway that traverses through the valley. Forest area interrupts densification between Bharatpur and Ratnanagar.

Hetauda Valley



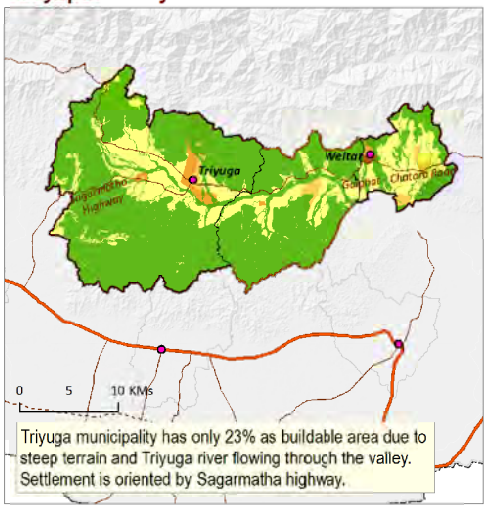
Densification is prominent at the junction of E-W, Tribhuvan and Kanti highway. Growth in the western part is contained by forest area, and by river tributaries in the south.

Dang Valley



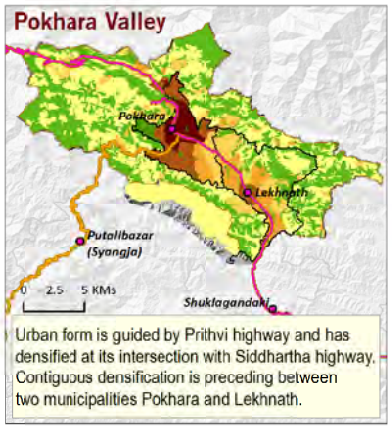
The junctions of Lamahi-Tulsipur Road with Rapti highway and Ghorahi-Khumbas road shape the urban forms of Tulsipur and Ghorahi. Inspite of suitable topography water scarcity constraints development.

Udayapur Valley



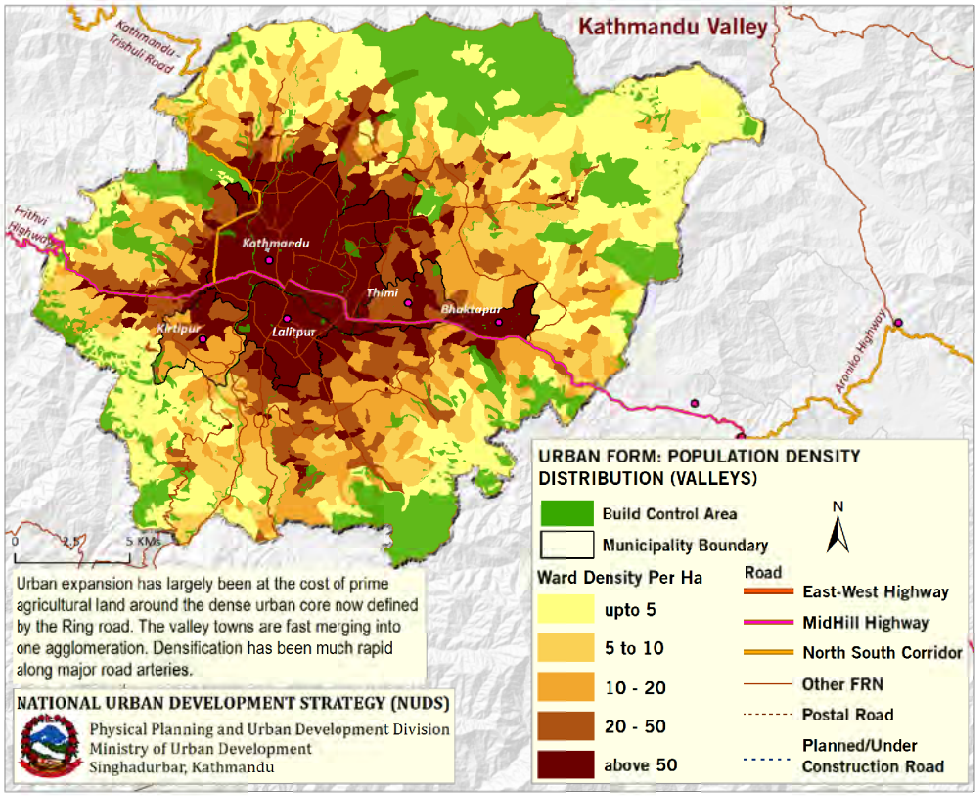
Triyuga municipality has only 23% as buildable area due to steep terrain and Triyuga river flowing through the valley. Settlement is oriented by Sagarmatha highway.

Pokhara Valley



Urban form is guided by Prithvi highway and has densified at its intersection with Siddhartha highway. Contiguous densification is preceding between two municipalities Pokhara and Lekhnath.

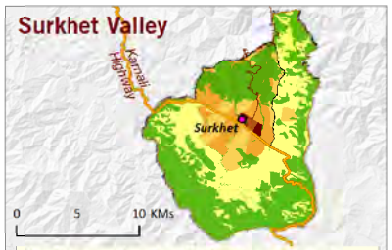
Kathmandu Valley



Urban expansion has largely been at the cost of prime agricultural land around the dense urban core now defined by the Ring road. The valley towns are fast merging into one agglomeration. Densification has been much rapid along major road arteries.

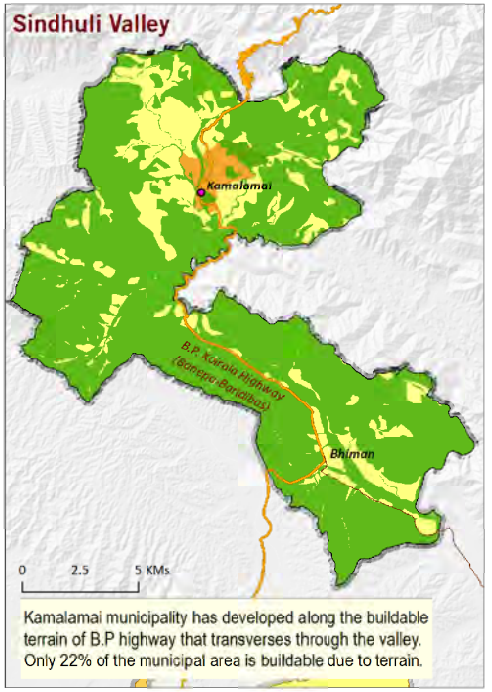
NATIONAL URBAN DEVELOPMENT STRATEGY (NUDS)
Physical Planning and Urban Development Division
Ministry of Urban Development
Singhadurbar, Kathmandu

Surkhet Valley



Birendranagar has densified at the road junction along the Karnali and Ratna highway. Only 40% of the municipal area is buildable, urban expansion has been oriented to the south.

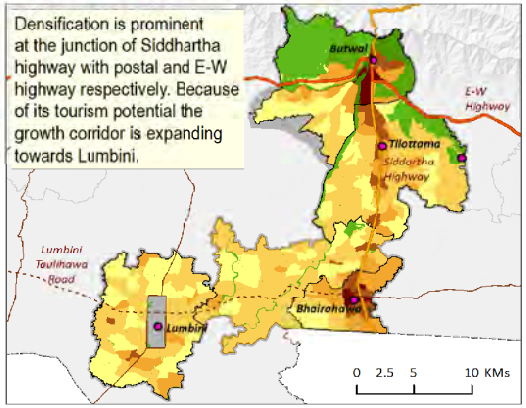
Sindhuli Valley



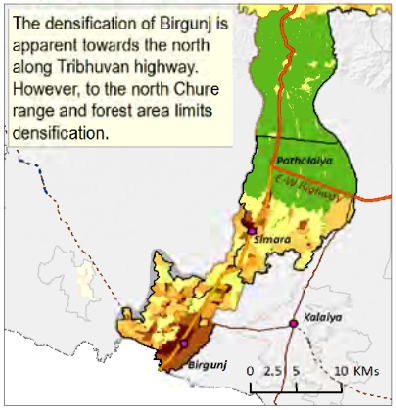
Kamalamai municipality has developed along the buildable terrain of B.P highway that transverses through the valley. Only 22% of the municipal area is buildable due to terrain.

MAP 2.2 POPULATION DENSITY DISTRIBUTION (CORRIDORS)

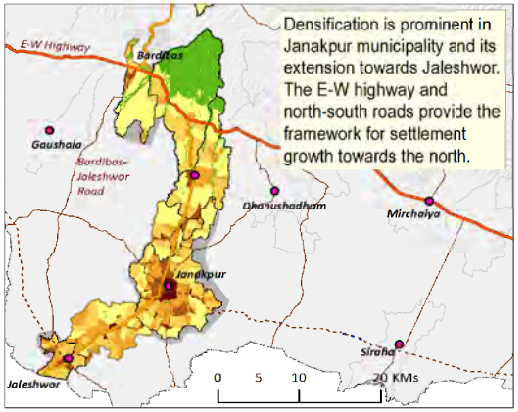
Butwal - Bhairahawa



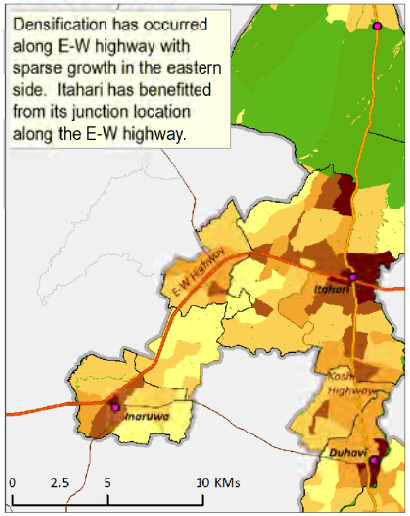
Birgunj- Hetauda



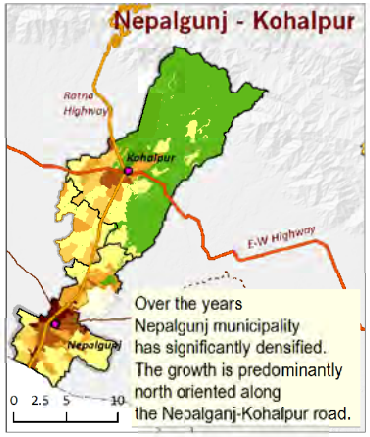
Janakpur - Bardibas



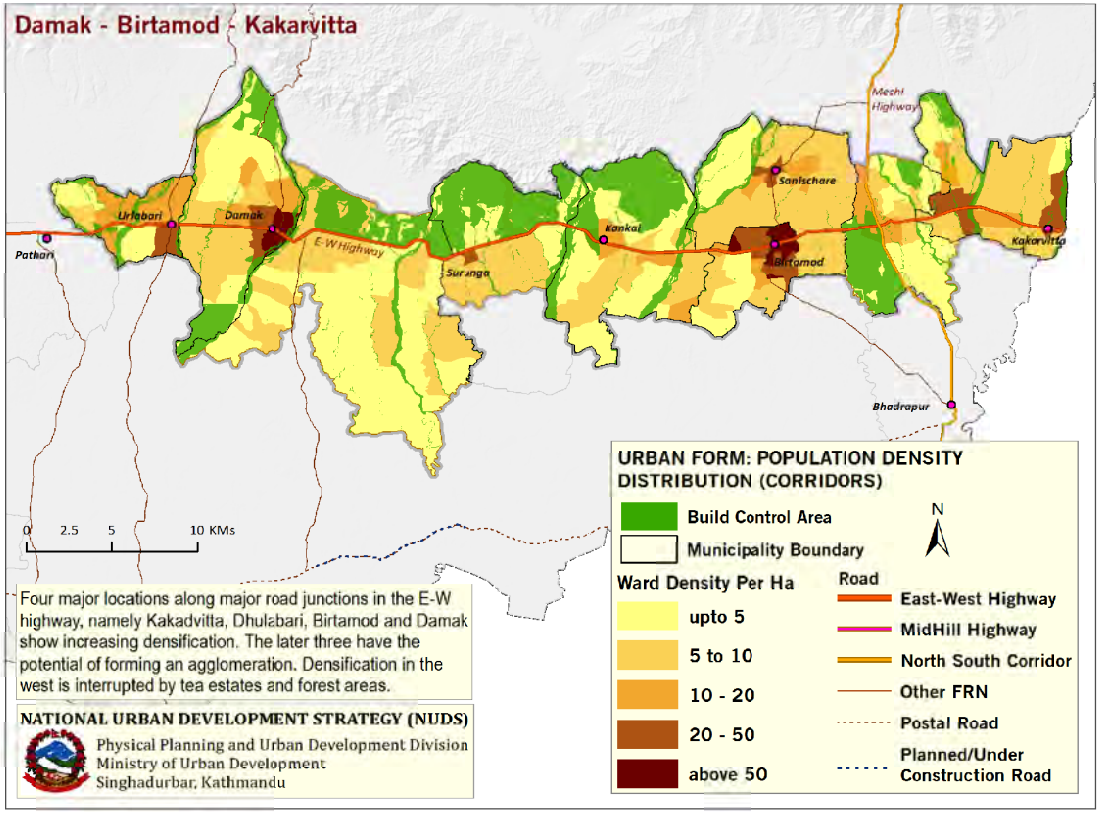
Inaruwa - Itahari



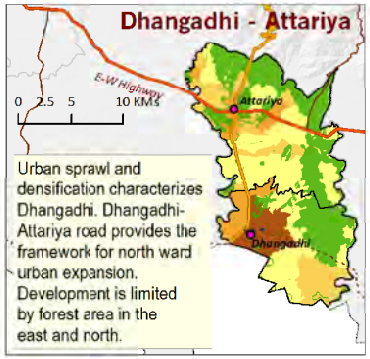
Nepalgunj - Kohalpur



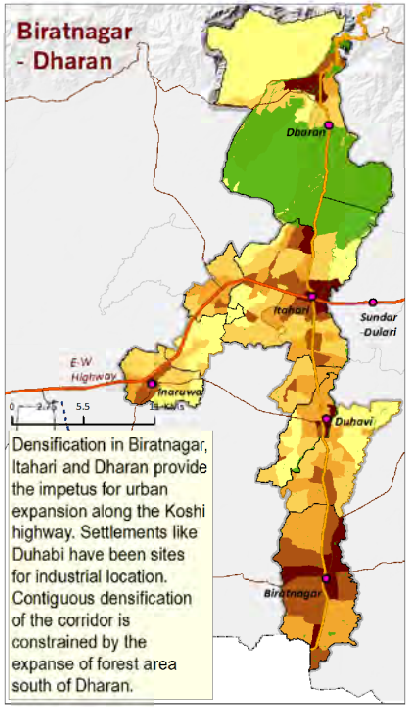
Damak - Birtamod - Kakarvitta



Dhangadhi - Attariya



Biratnagar - Dharan



URBAN FORM: POPULATION DENSITY DISTRIBUTION (CORRIDORS)

- Build Control Area
- Municipality Boundary

N

Ward Density Per Ha

- upto 5
- 5 to 10
- 10 - 20
- 20 - 50
- above 50

Road

- East-West Highway
- MidHill Highway
- North South Corridor
- Other FRN
- Postal Road
- Planned/Under Construction Road

NATIONAL URBAN DEVELOPMENT STRATEGY (NUDS)

Physical Planning and Urban Development Division
Ministry of Urban Development
Singhadurbar, Kathmandu

Data Sources: DUDBC, DoR, Survey Department Nepal (2011)

Table 2.1 Average Ward-wise density of cities of different size-class (58 Municipalities)

Population size	Average Ward-wise Density (PPHA) 2011
Below 20,000	16.56
20,000 - 50,000	24.88
50,000 - 1,00,000	39.02
Above 1,00,000	66.66

2.3 Urban Form

Evolving urban forms are becoming increasingly disorganized. It is mixed with incompatible land uses, and declining level of amenities such as open-spaces and parks as well as infrastructure services. Neighborhood environment both social and cultural have come to be affected as a result.

In towns and cities, which were evolving throughout the history, the traditional core consisted of a densely built area comprising of narrow streets and traditional load bearing masonry buildings. In newly emerging townships, however, such cores are found to be either small or non-existent. In townships which are spontaneously built along the highways, the cores are marked by a dense ribbon development. The urban expansion is then usually found to radiate from the center to periphery along the arterial road or along the connector road that has branched out from the highways. Most towns are generally found to have single core. However, a large urban agglomeration such as the Kathmandu Valley and emerging urban corridor along the major highway corridor of tarai has multiple cores. These large urban region and corridor are found to extend in a radius of more than 15-20 km. The high density of the core is found to gradually decline towards periphery surrounded by a vast expanse of agriculture dominated rural area.

The traditional cores in many instances are however found to be quickly gentrifying with the newly built reinforced concrete buildings that tend to be systematically replacing the traditionally built masonry structures of wood, brick and stones. In ascending tendency, tall buildings occupied either by multiple families or by businesses and offices have become the land use norm. In the large city like Kathmandu, the land use functions are becoming specific and specialized. Banks and financial institutions have now come to locate at the center, while businesses have come to locate in its surrounding—especially along the key arterial roads. Consequently, parking and congestion have come to be critical concerns at the core.

In contrast, the periphery is usually found to consist of single family detached residential buildings. This low-density residential sprawl to the periphery, which is becoming a regular sight, is gradually diminishing the stock of valuable agricultural land. And the provision of infrastructure services is also limited and sub-standard. The access is found to be irregular with small right of way and piped water supply is generally lagging.

2.4 Urban Infrastructure

2.4.1. Water Supply

Coverage

According to the water, sanitation and hygiene status report 2011 basic water supply coverage is 80% nationally, 94% in urban areas and 72% in rural areas.

However, 2011 NLSS data shows that only 49.3% of urban households have access to piped water (Fig 2.2), compared to 45% for the country as a whole. Other sources of water are covered and open wells and other unreliable sources. The provision of piped water in urban areas varies considerably by regions. In Kathmandu Valley 72% of households have access to piped water, and 10.1% have access to other sources (Fig 2.3). In other urban areas in the Hill region 81.2% of households have access to piped water. In urban Tarai 32.9% of households have access to piped water and 66% use covered wells. The access to piped water decreases drastically for the poorest quintile, where only 6.6% have access to piped water in their house.

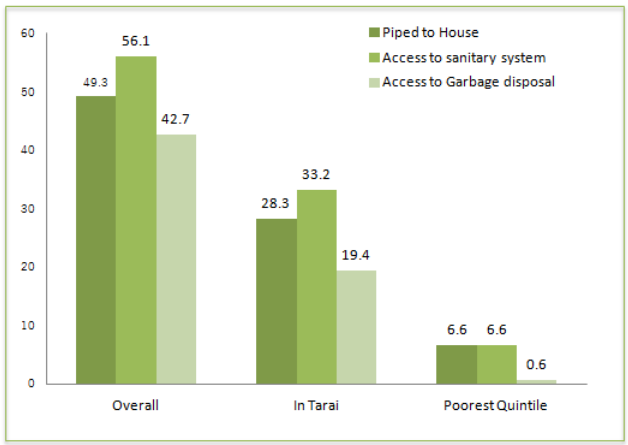


Fig 2.2: % Access to basic services in urban households, Source CBS 2011

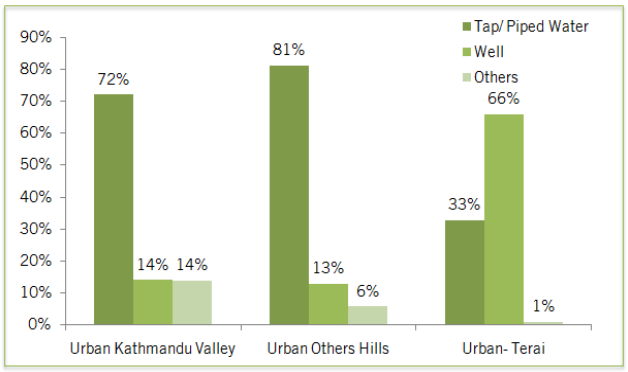


Fig 2.3: Sources of drinking water in urban areas Source: CBS,2011

Quantity

Water supply data for all urban areas is not available. The situation of Kathmandu valley illustrates well the issues of quantity. In Kathmandu, the water demand is 350 million liters per day (MLD), but KUKL is supplying only 90 MLD in dry season and 150 MLD in the wet season (Table 2.2). People are forced to seek for private vendors, deep boring and well as alternative sources, which is supplying 50 MLD (MoUD, 2013). Average water consumption is estimated at 35 lpd from various sources including piped water. Per capita water requirement according to WHO Standards, is 112 to 150 liters per capita per day (lpd).

Households consuming 45 lpd or more accounted for only 18 per cent in Kathmandu. Households consuming 25 to 44 lpd is thirty six per cent (36%) and forty six per cent (46%) consume less than 25 lpd (CBS, 2005).Only 17.9% of the piped-water supply systems are in well functioning condition, others either need minor or major repair, rehabilitation or reconstruction (source: KUKL). Water supply situation varies widely by municipalities but remains largely unsatisfactory. In the Tarai wells and tubewells are a major source of drinking water.

Table 2.2 Water Supply in Kathmandu Valley

Water Demand (in million lpd)	350
Supply from KUKL	150
Supply - deep boring	40
Supply - private tankers	10

Quality

NDWQS has not been implemented in the urban areas (MoPPW, 2011). Water supply in general is characterized by unreliable and inconsistent quality of distributed water and contamination either at source, outlet or transmission level.For example, sample survey of source, reservoirs and taps in 28 municipalities reveal E-coli bacteria in 80% of the samples. Of the 174 water sources, 68.9 % were found to have microbial risks. In addition, 64.8 % reservoirs and 58.6 % of taps were also highly contaminated (ENPHO, 2009). In Kathmandu, 33% of deep tube-well and 44% shallow tube wells were contaminated with Coliforms.

Current real per capita budget allocation for drinking water is about Rs, 1,700. In order to provide the basic water and sanitation services and meet the national goal of universal access to water by the year 2017, a per capita expenditure of about Rs. 3,500 is required. This is equal to Rs.7.5 billion of investment per annum nationally. (MoPPW, 2011).

Institutions

The institutional arrangement of water supply in urban areas has been undergoing restructuring for the last one decade.Nepal Water Supply Corporation (NWSC) which is the current owner and operator of the water supply system in many urban areas of Nepal has gradually been substituted by independentwater supply management board in the specific municipality or in a cluster of municipalities. For example : Kathmandu Upatyaka Khanepani Ltd. (KUKL) is entrusted for the operation and maintenance of system under lease contract for 30 years by Kathmandu Valley Water Supply Management Board which has taken over the ownership from NWSC few years back. A separate Nepal Water Tariff Fixation Commission has also been established to monitor and regulatethe water tariff in the country. Similarly, Kavre Valley Water Supply Management Board (KVWSMB) has been established to manage water supply system for Dhulikhel, Banepa and Panauti Municipalities.

The expansion, upgradation and integration works are being carried out in these municipalities through ADB's financial assistance. Once the system comes into operation KVWSM will take over its ownership and management from NWSC. Similar Water Supply Management Boards have been established in Bharatpur and Hetauda and proposed in Dharan municipalities.

Besides, Small Towns Water Supply and Sanitation Sector Project (STWSSSP) under ADB's assistance has been providing financial assistance to the emerging and small towns since 2000. Birendranagar and Itahari are also among the beneficiaries. These water supply systems are being managed by local Water Users' Committees.

Major Issues

- Insufficient access and quantity, and unacceptable and unreliable quality of water supply
- Poor coverage of piped water supply with huge gap in Tarai towns

Table 2.3 Water supply situation in selected municipalites by population size

	Less than 50,000 Pop (Small)			50-100,000 Pop (Medium)			More than 100,000 Pop (Large)		
Indicators	**Dhulikhel**	**Ratnanagar**	**Lahan**	**Hetauda**	**Triyuga**	**Nepalgunj**	**Dharan**	**Bhimdatta**	**Kathmandu**
Access to piped water supply	48%	34%	12.1%	66.4%	23.1%	29%	98.9%	21.9%	85%
Water treatment system	F	F	F	NF	F	F	NF	NF	F
Water consumption per capita	N/A	62.3 lpcd	N/A	73.8 lpcd	N/A	128 lpcd	107.6 lpcd	N/A	35 lpcd

F – functional, NF – non-functional (See Annex 3)

- Lack of long term perspective and planning for sustainable water supply in light of the standards set by the government
- Lack of an integrated institutional system for water supply
- Gap between policy and standards, provision and implementation.
- Achieving cost recovery in urban water supply systems

2.4.2 Sanitation

According to WSHSR 2011 sanitation coverage is 78% in urban and 37% in rural areas. However, recent data (CBS, 2011) show that only 56.1% of urban households are covered by sanitation system compared to 8.5% in rural areas. In urban areas, 88.2% have toilets in their households, compared to 47.4% in rural areas.

Access

In Kathmandu Valley, 98.1% of household have access to sanitary system and 99.3% have toilet (Table 2.4). In urban Other Hills, sanitary system coverage is 41.6% and 81.2% households have toilets. In Urban Tarai, sanitation coverage drops to 33.2% and 79.3% of households have toilets. Access to sanitary system for the poorest quintile is a mere 6.6% and only 22.8% have toilets in their household (NLSS, 2011).Drainage is a major problem in low-lying Tarai towns in particular Nepalgunj, Siddharthanagar, Janakpur, Biratnagar and Birgunj municipalities.

In general, there is no segregation between domestic and industrial waste, which are directly connected to storm water drains.

Treatment Facilities

None of the municipalities have properly functioning waste water treatment system. Only Kathmandu has five municipal waste water treatment plants of which three are non-functional and one is partially functional. The operating one at Guheshwori has high operating cost and doesn't operate during load shedding hours. There is a wide difference in the sanitation situation among municipalities. Larger municipalities have better access to toilets but access to sewerage is very low in most municipalities. Waste water treatment systems are non-existent or non-functional.

Institutions

In 28 large municipalities Nepal Water Supply Corporation (NWSC) is responsible for sanitation. In smaller towns, Department of Water Supply and Sanitation (DWSS) is the responsible agency. In others the responsibility rests on the municipalities. There is little coordination between NWSC and the municipalities. The major institutional problem in water supply and sanitation is weak and fragmented planning and programming among inter and intra ministerial agencies and consequent lack of clear responsibilities and coordination.

Table 2.4 Sanitation situation in selected municipalities by population size

	Less than 50,000 Pop (Small)			50-100,000 Pop (Medium)			More than 100,000 Pop (Large)		
Indicators	**Dhulikhel**	**Ratnanagar**	**Lahan**	**Hetauda**	**Triyuga**	**Nepalgunj**	**Dharan**	**Bhimdatta**	**Ktm**
Access to toilet	63%	94%	25%	96.6%	64.7%	92%	90.1%	67%	95.1%
Access to sewerage system	25.9%	1.2%	0	15 %	0	23%	0	5.7%	98.1%
Waste water treatment system	Y	Y	N	Y	N	N	N	N	Y

Fig 2.4: Drainage problem in Janakpur and Siddharthanagar Source: DUDBC

Major Issues

• Households without private toilets, with problems acute in Terai towns.

• Sewerage system is present in few towns, mostly combined with surface drain.

• Waste water treatment plants are either not in place or not functional; resulting in direct discharge of sewer to river.

• Lack of surface drainage in urban areas, existing are limited to the core market area.

2.4.3 Solid Waste Management

Solid Waste Management (SWM) is a major challenge faced by all urban areas of Nepal. The challenges are institutional, financial as well as technical.

Waste as Source

The potential for using solid waste as a resource is high, as 66% of the waste generated is organic (ADB, 2013). Composting of this waste can significantly reduce the cost and environmental impacts of waste management.

The household waste composition survey revealed that more than 25% of household waste and a much higher proportion of institutional and commercial waste (excluding organic waste) could be either reused or recycled (ADB, 2013). There is a greater potential to reduce waste at source in the municipalities.

Collection

In 2012 the average municipal solid waste generation in 58 municipalities was 0.317 kg per capita per day. This is 1,435 tons per day or 524,000 tons per year of municipal solid waste generation in Nepal. In terms of accessibility, 42.7%of urban household have access to garbage disposal system, which drops to 19.4% in Urban Tarai areas and plummets to 0.6% in the poorest quintile (CBS, 2011). In terms of collection efficiency, it ranges between 70% and 90% in major towns and is below 50% in several smaller municipalities. On average, the collection efficiency among the municipalities is estimated to be 62% (ADB, 2013).

Box 2.1: Urban Solid Waste Generation

- Average Household Waste Generation Rate 0.16 kg/person/day
- School Waste: 1.4 kg/school/day
- Office Waste: 2.5 kg/office/day
- Hotel/Restaurant Waste: 5.7 kg/hotel/day
- Shop Waste: 1.4 kg/shop/day

Source: (SWMTSC,2012)

Fig 2.5: Openly dumped solid waste in Nepalgunj . Source: DUDBC

Disposal

The collected waste is mostly dumped in crude form in open spaces and dumping sites. Forty-five out of 58 municipalities still dump their waste in open spaces that include river side and roadside areas. Six municipalities (Kathmandu, Pokhara, Lalitpur, Dhankuta, Ghorahi and Tansen) have constructed sanitary landfill sites, and 5 (Ratnanagar, Madhyapur Thimi, Itahari, Bhaktapur and Gorkha) are practicing controlled waste dumping. Site for construction of treatment facilities and sanitary landfills are yet to be identified by many municipalities, and 14 municipalities have no landfill site planned to date. Open dumping, which includes riverside and roadside dumping, is practiced by 45 municipalities (ADB, 2013).

Table 2.5 Solid waste collection in selected municipalities by population size

	Less than 50,000 Pop (Small)			50-100,000 Pop (Medium)			More than 100,000 Pop (Large)		
Indicators	**Dhulikhel**	**Ratnanagar**	**Lahan**	**Hetauda**	**Triyuga**	**Nepalgunj**	**Dharan**	**Bhimdatta**	**Ktm**
Solid Waste Collection	45%	62.5%	26%	40.9%	N/A	39.7%	25.6%	5.1%	90.5%
Sanitary Land Fill Site	0	0	0	0	0	0	0	0	1
Municipal waste section	Y	Y	Y	Y	0	Y	Y	N/A	Y

Solid waste collection rate varies significantly among municipalities. Some do not even have municipal waste management section.

Financing

All municipalities are involved in managing solid waste on a daily basis, although their level of involvement and their institutional capacity vary significantly. Well-established municipalities such as Kathmandu, Lalitpur and Bhaktapur have separate sections dealing with waste management and have invested substantial resources in SWM, while smaller and newer municipalities such as Madhyapur Thimi and Kirtipur have very limited operations and until recently they did not have any unit within their organization to deal with SWM. Kathmandu Metropolitan City and Bhaktapur Municipality spend about Rs 200 per resident per year for SWM services but smaller municipalities such as Madhyapur Thimi and Kirtipur spend less than Rs. 10 per resident per year on SWM. Kathmandu and Bhaktapur collect more than 75 percent of the waste generated in their cities, while Madhyapur Thimi and Kirtipur collect less than 40 percent.

In general, about 10% of the total municipal budget is spent on SWM. "The municipalities spend nearly 60–70% of the total SWM budget on collection and street sweeping, 20–30% on transport, and the rest on final disposal. These figures show the need for reducing collection and street sweeping costs through more efficient management, and allocating more for safe and effective final disposal" (ADB, 2013).

Institution

Although SWM is a very important service that requires substantial human and financial resources, many municipalities are not able to provide adequate resources due to financial constraints. Furthermore, often due to technical and managerial limitations, the available resources are not efficiently utilized. Many municipalities still lack SWM Section. Of the 58 municipalities 17 do not have designatedsection to look after SWM (ADB, 2013).

At the Ministry level, the task of SWM falls under Ministry of Urban Development, however the governing body that is the council is under the Ministry of Federal Affairs and Local Development. There are training programs for SWM staffs in less than 50% municipalities. Among these only 7% municipalities provide regular capacity building training to their SWM staffs, and 75% do so occasionally. Only 55% of municipalities reported that they have annual plan for SWM.Only 33% and 38% municipalities have formulated short-term and mid-term/periodic plan for MSWM (ADB, 2013).

Initiatives

Some municipalities have introduced innovative approaches (private sector participation in Biratnagar, household recycling in Hetauda and composting in Bhaktapur). In Kathmandu Valley as well several good initiatives such as door-to-door collection through community organizations has been introduced. The challenge is to sustainably replicate these best practices, build institutional capacity and develop simple and cost effective systems to ensure that SWM systems are financially sustainable.

Policy Context

The main legislation under which municipalities function is the Local Self-Governance Act, 2055 BS (1998) & Regulations, 2056 BS (1999). Solid waste management specifically is governed by the Solid Waste Management Act 2068 (2011) which seeks to arrange for the systematic and effective management of solid waste by minimizing the solid waste at source and reusing, processing or proper disposing of the solid waste with the objective of minimizing the adverse effects of solid waste on public health and environment. The act mandates the local body for constructing landfill sites, monitoring the compliance of specified standards and carrying out environmental protection activities.

According to the Local Self-Governance Act and its regulations, municipalities can however develop by-laws to suit their needs. Four municipalities have developed Municipal by-laws and two municipalities (Dharan and Itahari) have developed separate guidelines for waste management. The guidelines describe the municipal waste management strategy, clarify responsibilities and list fines to be collected for various types of wrongful acts.

Issues and Opportunities

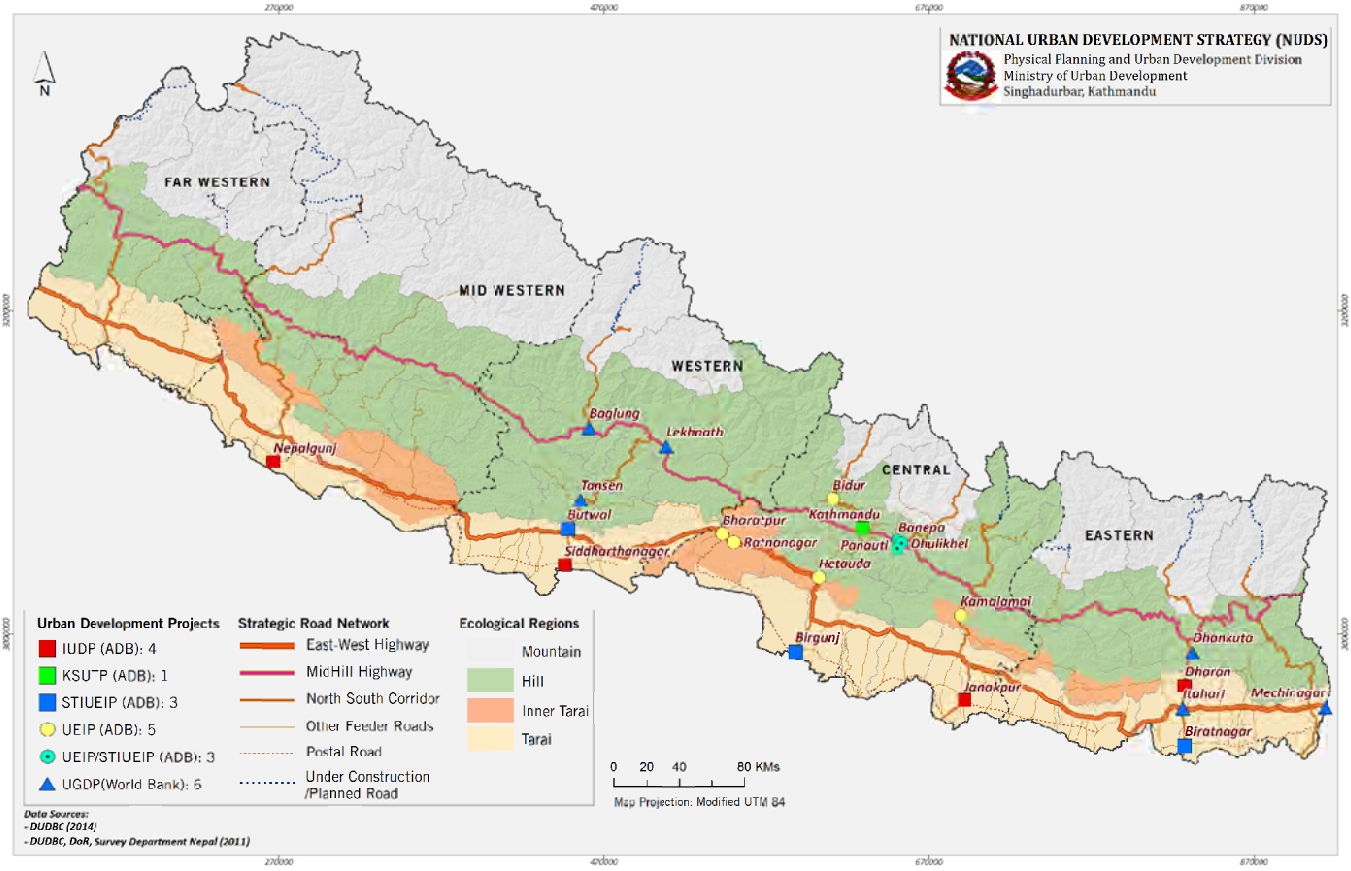
A comprehensive assessment of the state of solid waste management in urban areas (ADB 2013) reveals the following issues and opportunities:

- Policies, strategies to guide local bodies for effective SWM, and technical guidelines on issues such as organic composting and landfill operations.
- Promote reduce, reuse, recycle, refuse.
- Strengthen institutional and technical capacity of local bodies.
- Enhance public awareness, participation, consultation and consensus building.
- Cost recovery of SWM through improved level of services.
- Seek integrated solid waste management and stop open dumping and burning.
- Seek public-private partnership, and
- Focus on management, monitoring, updates and dissemination of basic data.

Box 2.2: Urban Development Projects

Map 2.3 Illustrates projects implemented at municipality level to improve environment and living condition of the urban centres. These projects are completely or partially funded by the donor agencies like ADB and World Bank in the form of grants and loans. The map shows concentration of projects in the Central, Western and Eastern development regions. Mid-western region has only one project implemented under ADB grant, which is in Nepalgunj municipality while Far-western region is still void of any urban development projects.

MAP 2.3 LOCATION OF URBAN DEVELOPMENT PROJECT



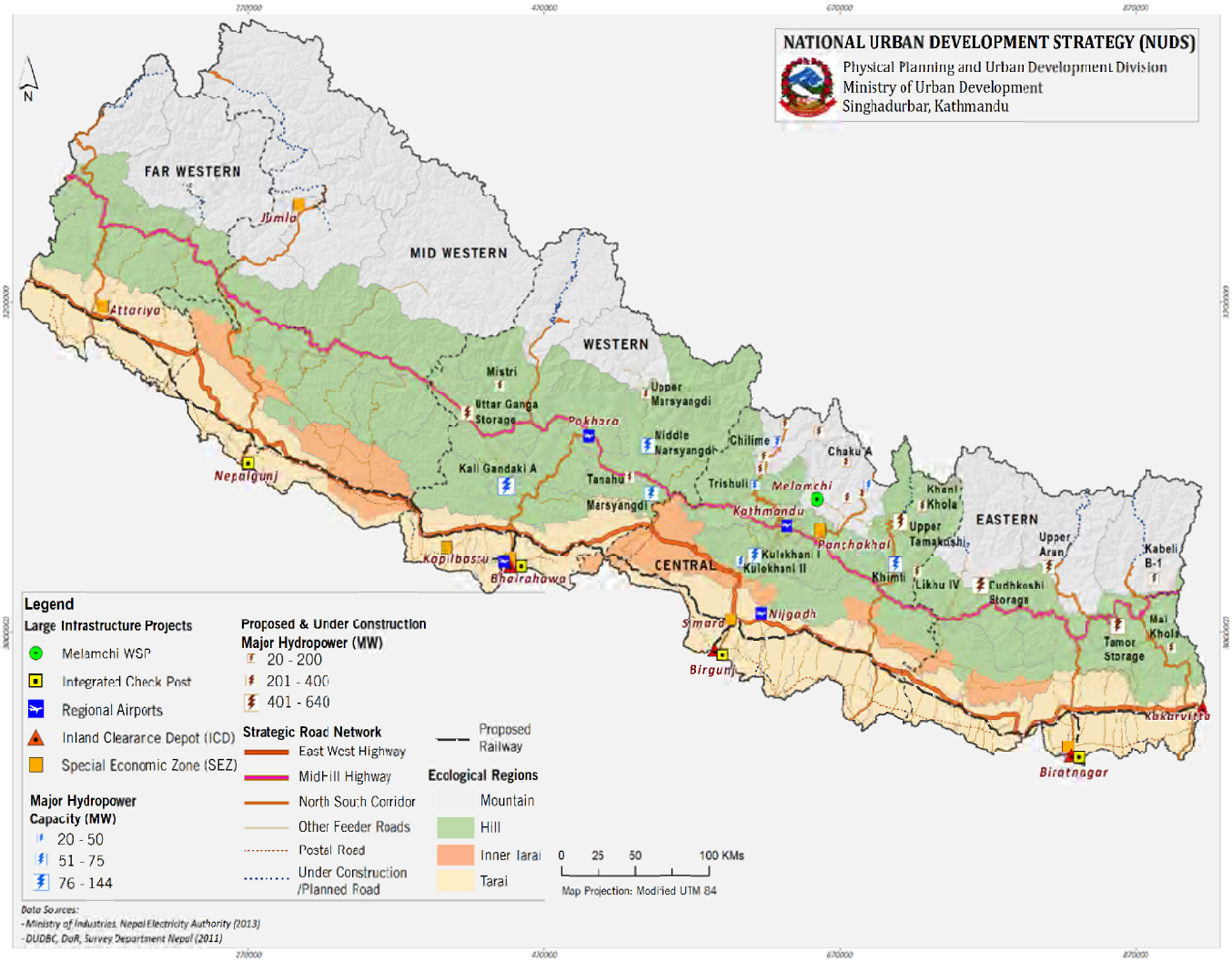
Box 2.3: Large Scale Infrastructures

The map identifies projects that influence regional and local development of the areas in its vicinity. It comprises of Special Economic Zones (SEZ) (7), Inland Clearance Depots (ICD) (4), Integrated Check Posts (ICP) (4), Regional International Airports (4), Melamchi Water Supply Projects and major hydropower projects.

SEZ refers to the commercial areas specially established for the promotion of foreign trade. Moreover, SEZs are specifically delineated enclaves treated as foreign territory for the purpose of industrial, service and trade operations, with relaxation incustoms duties and a more liberal regime in respect to levies, foreign investments and other transactions. Feasibility study of 7 out of 13 proposed SEZ locations have been completed,of which Bhairahawa and Simara are in construction phase. Most of the indentified SEZs are located at the proximity of the major urban areas along Nepal-India border. With SEZ in place, it is meant to attract private sector investment in industrial and business sector, which will contribute to increased promotion of export. Likewise, NepalIntermodal Transport Development Broad has operationalized four ICDs in Birgunj (rail based), Bhairahawa, Biratnagar and Kakadvitta (road based). It aims to reduce transport cost, increase competitiveness in imports and exports through reduced overhead costs and open opportunities to private sector operators.

Similarly, there are four ICPs identified along Nepal-India border at Birgunj, Biratnagar, Bhairahawa and Nepalgunj. Also, four regional international airports have been proposed in the Central and Western region, of which Pokhara, Bharahawa and Nijgadh are in the process of being materialized.The concentration of these existing and proposed infrastructures in the Central and Western development regions depicts possible future urban growth in the regions. It is quite evident that the Far and Mid Western Regions require more investments in future for balanced growth as envisaged by NUP.

MAP 2.4 LOCATION OF LARGE INFRASTRUCTURES PROJECT



2.4.4 Housing

Ownership

The ownership of housing units has been broadly classified into four types: owned, rented, rent free and others based on NLSS 2010/11. The housing occupancy status in 2010/11 shows that nearly 90 percent of households reside in their own house. However, only 69 percent reside in their own house in urban areas, a decline of 3 percent from 2003/04. The situation in Kathmandu valley shows that there has been 14 percent decline in owner households between 2003/04 and 2010/11. Rental households meanwhile have increased by 15% (Table 2.6)

According to the National Housing Plan 2013/14 out of the 10.45 lakh households in urban areas only 56.8% had own houses and 40.2% of housing units were rented.

Dwelling Size

According to NLSS 2010/11 average dwelling size in urban area has decreased from 584 sq ft to 571 sq ft since 2003/04. In case of Kathmandu Valley it has decreased from 589 to 555 sq ft. Average dwelling size in Kathmandu Valley is slightly lower than that of other urban areas. However, the average area of housing plot has increased from 1162 sq ft to 1224 sq ft in case of Kathmandu Valley. (Table 2.8)

Demand

As per National Shelter Plan 2013/14, the projected number of housing units required in urban area is around 1,364,000 with around 900,000 new construction required by 2023. (Table 2.9)

Housing Trend

In the last one and a half decade the private sector has emerged as an active player in the urban housing. Around 62 housing projects (Group Housing and Apartments) with 6113 housing units are being implemented within Kathmandu Valley since 2012. The involvement of private sector in housing in other urban areas remains limited. (MoUD, 2013).

Land Servicing and Development

Shelter situation is selected municipalities shows that large municipalities such as Dharan and Bhimdatta, and small municipalities like Lahan have a high proportion of population in squatter settlements.

Land pooling has flourished as an efficient tool for land development in the last one and half decade . However, it has not been able to fulfill the demand of the housing plots in the urban areas. Twelve land pooling projects have been implemented within Kathmandu valley with 5,098 ropanies of land generating 12,160 housing plots. Ongoing 11 projects involves 7,961 ropanis of land to manage additional 10,000 housing plots. Apart from Kathamandu Valley, land pooling projects are ongoing in Nepalgunj, Bharatpur, Dharan, Kamalamai, Dhulikhel, etc. (MoUD, 2013)

Table 2.6 Table Distribution of Households by Occupancy Status

	2010/11				2003/04			
	Owner	Renter	Rent free	Other	Owner	Renter	Rent free	Other
Nepal	89.7%	7.8%	2.2%	0.3%	91.6%	5.4%	2.5%	0.5%
Urban	69.2%	26.5%	3.9%	0.4%	72.0%	23.5%	3.8%	0.7%
Urban Kathmandu Valley	48.1%	48.5%	2.9%	0.5%	62.5%	33.1%	3.0%	1.4%
Urban Others Hills	77.3%	17.9%	4.0%	0.8%	77.2%	18.2%	4.3%	0.4%
Urban- Terai	80.7%	14.6%	4.7%	0.1%				

Source: (CBS, 2004) (CBS, 2011)

Table 2.7 Ownership of Housing Units, 2013/14

	Households	Ownership			
		Own	Rented	Institutional	Other
Nepal	54,23,297	85.3	12.8	0.6	1.3
Urban	10,45,575	56.8	40.2	1.7	1.3
Rural	43,77,722	92.1	6.3	0.4	1.3

Table 2.8 Average number of rooms and average size of Dwelling

	2010/11			2003/04		
	Average Number of rooms	Average size of dwelling (sqft)	Average area of housing plot (sqft)	Average Number of rooms	Average size of dwelling (sqft)	Average area of housing plot (sqft)
Nepal	4.6	605	1625.4	3.7	531	1473
Urban	5	571	1472	4.5	584	1448
Urban Kathmandu Valley	4.8	555	1224	4.8	589	1162
Urban Other Hills	5.3	558	1627	4.3	581	1606
Urban Tarai	5	589	1572			

Box 2.4: Land Pooling Projects

Land pooling is a participatory planning model executed with the participation of the consumers and with technical assistance from the government and other related agencies. The concept of land pooling can be explained by two key words: unification and partnership. **Unification** indicates the consolidation of undeveloped or underdeveloped land parcels of irregular size and shape, to provide sub divided regular parcels with access, services and amenities, which is done through proportionate land contribution from each landowner of the project area. **Partnership** indicates the partnership between government, private and community for urban land development (Oli, 2005). As a guideline, land pooling allocates around 22 % of the total land for road and 5 % as open space (Dhakal, 2012).

This technique helps to improve quality of life with well serviced housing plots and increased land value. It promotes self financing mechanism, where the users pay for development; it helps in community mobilization for local development thus resulting in community empowerment; saves the investment of government; and as a vital output it contributes in improving the environment of the area with development of planned communities.

There are 23 land pooling projects (12 completed and 11 under construction) within Kathmandu Valley.(MoUD, 2013). The land pooling projects has been carried out in other part of the country as well.

Table 2.9 Required Housing Unit by 2023

Description	Total	In Urban Area
Total number of shelter required	2,000,000	1,300,000
30% is achieved by constructing additional floor or rooms in case of urban area	500,000	400,000
New construction required	1,500,000	900,000

Table 2.10 Shelter situation in selected Municipalities by Population Size

	Less than 50,000 Pop (Small)			50-100,000 Pop (Medium)		More than 100,000 Pop (Large)			
Indicators	**Dhulikhel**	**Ratnanagar**	**Lahan**	**Hetauda**	**Triyuga**	**Nepalgunj**	**Dharan**	**Bhimdatta**	**Ktm**
Access to shelter (% living in squatter)	2.5% (temporary str)	5.3%	26.8%	1.6%	N/A	2.2%	18 %	13. 4%	2. 3%
Ownership of house (%living in own house)	63.7%	78%	83%	63.5%	83.9%	61.5%	55%	83. 8%	32. 4%
RCC structure (roof)	42.6%	38%	14%	62.7%	18%	80.4%	49.2%	60. 1%	80.6%

Source: (CBS, 2004) (CBS, 2011)

Squatter Settlements

It is estimated that about 10% of urban population comprises of squatters. A 2012 survey in Kathmandu revealed that there were 29 riverside squatter settlements with 2031 households. Seventeen settlements in other locations had 467 households. Squatter settlements encroaching riversides, roadsides and public open space is already a serious problem in many urban areas including Dharan, Birganj, Bharatpur, Pokhara.

Major Issues and Opportunities

- Need for increasing urban densities for better service provision and efficiency
- Increasing the supply of rental housing units for different economic classes
- Review of existing legal provisions, regulations and standards for group housing and apartments
- Identification of buildable land in urban areas and encouragement for eventual development
- Increasing trends of squatter settlements in urban areas

2.4.5. Urban Transport

The national road network is mainly classified into two categories- Strategic Road Network (SRN) and Local Road Network (LRN). The SRN are the main national arteries providing inter-regional connections and links to regional and district headquarters, international borders, key economic centers, touristic centers and the major urban roads. It constitutes around 20% of total national road network (Map 2.5)

Road Density

As of 2011, total SRN consist of 21 National Highways and 208 Feeder roads totaling 11636 km, and LRN is 50943 km. Hence, total road density of SRN is 7.90km/100 sq km and that of all roads is 42.51 km/100 sq km. Similarly, the total population served by SRN is 2,288 population/km and that of total roads (SRN and LRN) is 425 persons/km as of 2011. The road length, road density and population influenced in urban area in five development region is shown in (Table 2.11)

Road Coverage

Even though Kathmandu has a relatively high road density, the road covers only 7.72% of total municipal area which is quite low. The percent of urban area covered by roads in other megacities in the world vary from 7% to 25%. Setting up of standards and planning for roads as the city expands is therefore of critical importance. Established cities with road space below 10 % cannot aspire to reach 25%. Road space of 12% to 13% is just good enough to serve basic mobility with some degree of congestions (Morichi and Acharya, 2013). In land pooled sites such as Gongabu and Saibu the road coverage is 17.5% and 22.8% respectively.

Road density is quite low in many municipalities irrespective of size. Less than a third of municipal road are blacktopped, and very few municipalities have intra-city bus service.

Vehicle Registration

The total number of vehicles registered in FY 2013/14 in the country is 1,98,343 out which of two wheelers comprise about 82.7 %, light vehicles such as car, jeep and pickup 8.6%, and the public utility vehicles such as bus, mini bus and microbus share 2.2%. Annex 24.a (DoTMa, 2014). The vehicle composition of Kathmandu valley also shows the similar picture. Around 75% of vehicles registered in Bagmati Zone are assumed to be operating within the Valley. In case of Bagmati zone, 79.8% of vehicles registered are motorcycle (DoTM, 2014). However, the modal split travel share in Kathmandu is 26% by motorcycle, 28% by bus, 41% by walk, 4% by car and 1 % by bicycle (KSUTP, 2010).

Fig 2.6: Traffic Jam in Kathmandu

Table 2.11 Road length and road density in urban area by Development Regions

Description	Total Road Length, km	Road Density, km/ sq km	Population Influenced per km road
Urban EDR	2,601	2.866	319.06
Urban CDR	3,555	4.39	639.31
Urban WDR	2,367	4.115	323.15
Urban MWDR	1,007	2.674	320.18
Urban FWDR	1,157	1.892	288.49

Source:(DoR 2011)

The average road density of all urban areas in Nepal is 3.26 km/sq km which basically show the rural extent of most municipalities. Kathmandu Municipality has the highest density of 19.15km/sq km.

MAP 2.5 TRANSPORTATION LINKAGE

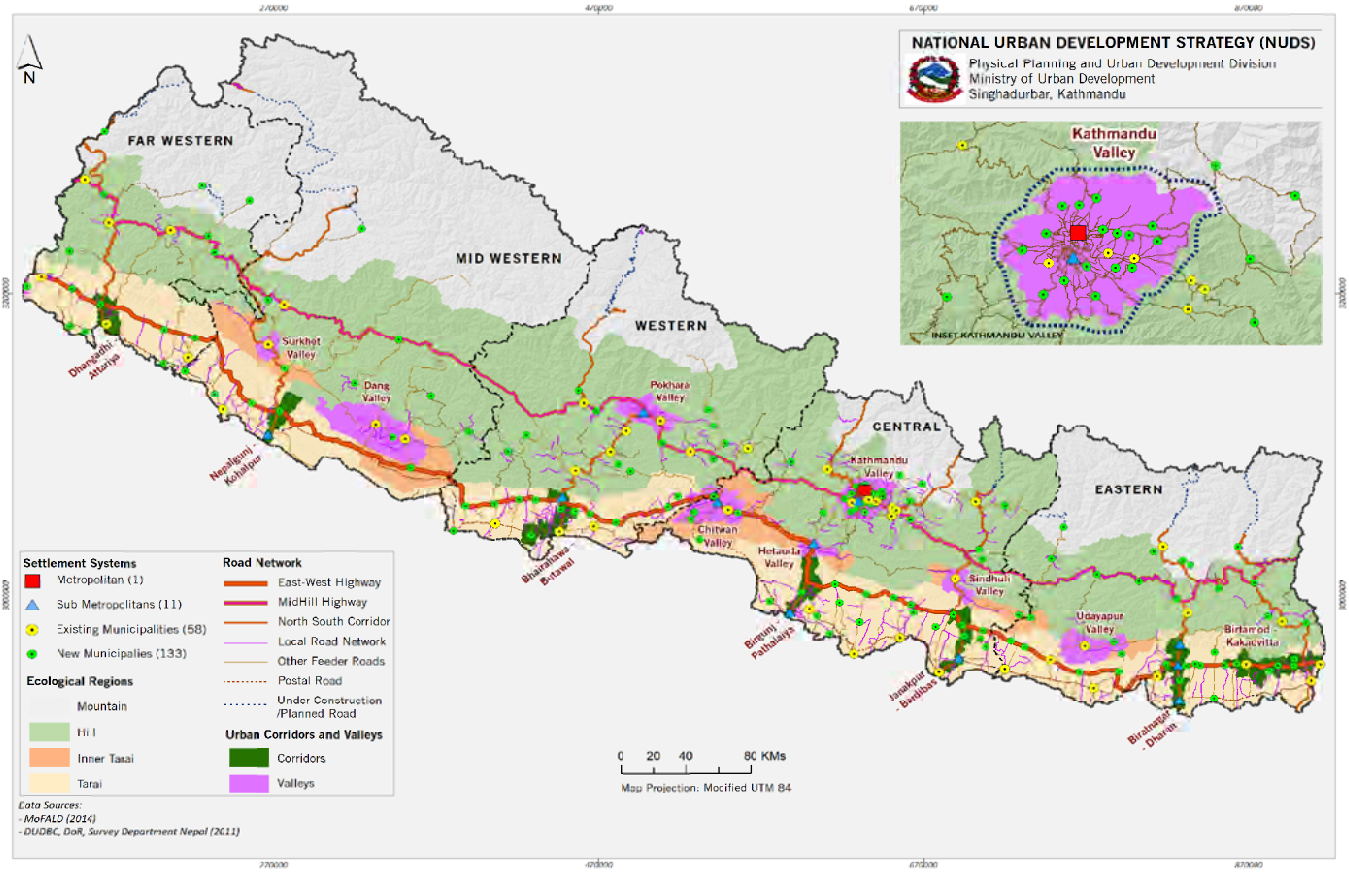


Table 2.12 Road and transportation characteristics in selected Municipalities by Population Size

	Less than 50,000 Pop (Small)			50-100,000 Pop (Medium)			More than 100,000 Pop (Large)		
Indicators	**Dhulikhel**	**Ratnanagar**	**Lahan**	**Hetauda**	**Triyuga**	**Nepalgunj**	**Dharan**	**Bhimdatta**	**Kathmandu**
Road density (km/sq.km. of buildable area)	6.1	13.67	5.20	4.52	2.13	10.60	8.6	1.5	19.7
% of black topped road to total road length	11%	33%	17%	35%	12%	23%	38.4%	9%	70.1%
Intra City Bus Service	N	N/A	N	N	N	N	N/A	N	Y
Bus Park	Y	Y	Y	Y	N/A	Y	Y	Y	Y

Road Safety

The national statistics on road accidents shows that the number of traffic accidents in the fiscal year 2012-13 was 13,582 (Traffic Directorate, Nepal Police, 2013). This has resulted in 1816 number of fatalities, 3986 serious injuries and 8000 slight injuries, although the fatality ratio show a decline to 11.75 from 17.08 per 10,000 vehicles in 2009-10 (Annex 24.b). About half of all the road traffic accidents nationwide occur in the Kathmandu Valley alone. Among other things, lagging pedestrian friendly features, non-compliance of traffic rules, unruly driving behavior, poor road and vehicular conditions, and lack of traffic infrastructures such as street lights, traffic signals and signage are the factors behind the road traffic accidents. The recent study (Nepal Road Safety Action Plan 2013-2020, MoPIT, 2013) indicates that estimated economic loss from the road accidents in Nepal is at least NRs 2.7 billion (USD 41.2 million) annually or 0.4 % of GNP at 2007 price. When under-reported accidents are accounted, the adjusted economic loss stands at 0.8 % of GNP annually.

Freight Movements

The freight movements especially to and from the large urban region such as the Kathmandu Valley is significant. As for the Valley, most freight is carried by large trucks via Nagdhunga Entry Point in the West. Average number of trucks and tankers that entered into the Valley daily from Nagdhunga during the month of Mangasir 2071 (Nov-Dec 2014) was 592 and 59 respectively, while 605 trucks and 137 tankers left the Valley daily (Annex 24.c). In addition, 641 buses entered, while 665 buses left the Valley daily from Nagdhunga. In comparison, freight movement from the Bhaktapur Entry Point in the East is small. Average number of trucks and tankers that entered into the Valley daily from Bhaktapur was just 41 and 13 respectively, while those leaving were 39 and 11 respectively. In addition, 435 buses are found to enter, compared to 440 buses that were leaving Bhaktapur Entry Point daily. At present, most of these freight vehicles and buses are found to be parked in the public land illegally.Goods on the other hand are stored in the residential buildings in the scattered manner rather than in proper warehouses

Major Issues:

- Road density and standards: More than 30 km per square km road networks is generally sought in order to have reasonable accessibility to every parts of the town. Kathmandu Metropolitan City has still about 20 km per square km of road network only. Similarly, the road network in terms of the number of users also has the significance in measuring the level of adequacy. More than 15 km per thousand road users is considered as a desirable standard. Planning of urban roads with these standards in mind particularly in new and growing urban areas is needed.

- Maintenance of urban transport infrastructure: The maintenance of urban roads has always been a major issue in urban management. The municipality generally does not have adequate fund to regularly maintain the roads or ensure proper drainage. The poor construction quality also has significant bearing on the increased road maintenance requirement.

- Share of public transport: Public transport accounts only 28% in case of Kathmandu Metropolitan City. The vehicle registration shows a high percentage of two wheelers about 82.7% in the country. It is desirable to increase the share of public transport to reduce traffic congestion and pollution and to discourage the use of private vehicles particularly to the central business areas.

- Road Safety and freight movements: Increasing road traffic accidents have become a serious concern. Inadequate pedestrian safety features including its design, standards, quality and enforcement remain a critical issue. Similarly, rising freight movement and its detrimental impact on urban air quality while necessitating increased parking facilities and warehouses need attention.

- Walkability: Better and safer facilities and possibilities should be provisioned for walking and cycling. Walkability is particularly important for the city centres. It is emerging as a major issue in historic urban areas such as Kathmandu, as much of the circulation space is taken over by vehicular roads and road widening often takes place at the cost of adequate provision for footpaths.

- Inter – urban Connectivity: Quality of inter-urban connectivity not yet defined.

2.4.6 Urban Energy

National Scene

Of the total national energy consumption, 90% is consumed in residential sector, 4% in industrial and transport sector separately, 1% in Commercial and Agriculture sector separately. Total energy consumption of the nation in terms of oil equivalent was 10155 tons of oil in 2010/11, which increased by 2.8% from the 9876 tons in 2009/10.

Consumption by Fuel Type

Based on fuel type, traditional fuel wood still accounts for 71.1% of the total energy consumed, Grid electricity contributes 2.8% and Alternative energy supplies 1.2% of the total energy consumption. Rest is supplied by Coal and Petroleum products.

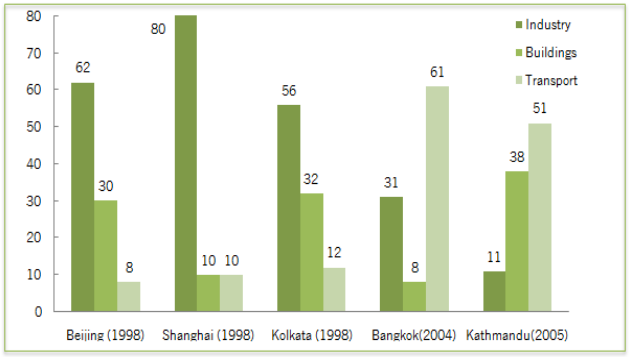


Fig 2.7: Energy Consumption in Urban Areas Source: UNHABITAT, 2008

The UNHABITAT data shows that in Kathmandu, transportation sector consumes the major portion of the total commercial energy, which is followed by building and then industry sectors. In case of rapidly developing countries, the share of Industry sector is higher than the other two sectors.

Petroleum Consumption by Sectors

Of the total imported fuel, 63.2% is consumed in transportation sector, while residential sector consumes 16.6%, followed by agriculture at 10.5%. Hydropower utilization is currently less than 1% of the proven potential.

Consumption of Electricity

Of the total electricity produced, 42.5 % is consumed by the residential sector, and industrial sector consumes 37.7% (MoF, 2012). A major portion of residential energy is consumed in urban areas. Per capita electricity consumption in Nepal in 2010 was 90 KWh, compared to 566 KWh in India and 719 KWh for Asia.

Kathmandu valley alone consumes 29.23% (or over 200 MW) of the total electricity distributed by NEA (NRB, 2012). The share of Kathmandu Municipality is 76.01%.

Power Demand Forecast

The demand for electricity is highest in urban areas and industrial corridors. The demand for electricity increases at a rate of approximately 9% per year, according to Nepal Electricity Authority (NEA). However, the urban and industrialized areas account for the bulk of electricity demand.If urban areas are the engines of growth, electricity is the fuel. For example, Singapore with similar size as of Kathmandu and population of 5.3 million, consumes 41.2 billion KWh electricity per year, which in case of Kathmandu with population of 2.9 million is 1.16 billion KWh.

Fig 2.8 : Electricity Supply and Demand in Nepal (MOF, 2012)

Planning Considerations:

- Urban locations as important considerations for hydro-power generation (resilient cities)
- Planning considerations (such as land for installing transmission plants, buffer areas between power lines and residential areas) for energy infrastructure
- Energy conservation considerations (promotion of self-sustaining passive buildings, alternative, mainly solar energy.)
- Land use as a medium to reduce energy consumption through denser mixed-use settlements, new technologies and improvement of transportation system.
- Considerations of urban transportation based on alternate energy

2.5 Urban Environment

2.5.1 Physical Environment

2.5.1.1 Safety and Resilience

Resilience is the capacity of urban areas and systems to tolerate, cope and withstand natural, social, economic and technical shocks and rebuild.

A resilient city is adaptable, diverse with the capacity to anticipate and plan for future vulnerabilities. Resilience involves planning and designing strategies and institutions to meet the challenges of the future.

The concept of resiliency in Nepal is limited to natural disaster management frameworks and policies. The concept is still to be integrated in the urban planning process.

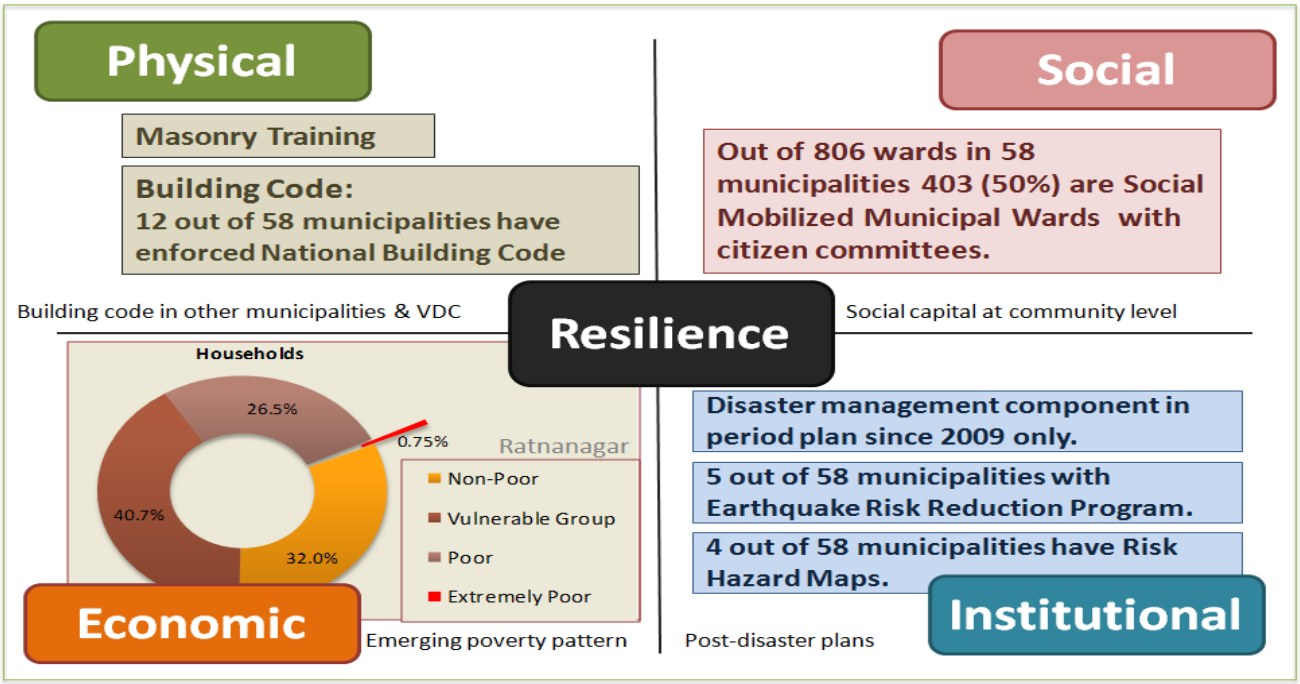


Fig 2.9 : Vulnerability and Resilience

There are, however, a number of existing policies, acts, regulations, standards that have a bearing on urban resilience. These include:

- Town Development Act, 1988 and Regulations, 2004
- National Shelter Policy, 1997 (revised on 2011);
- Building Act, 1998 and Regulation, 2009, which is the legal basis for enforcing NBC and regulate building construction,
- National Urban Policy, 2007, which seeks DRM Plan for all local bodies and inter-alia community mobilization for its implementation
- Guideline for Urban Environment Management, 2010
- Local Self Governance Act, 1998, which mandates local bodies to implement DRM activities, • Apartment Act, 1997 and Regulation, 2003;
- Development Manual, 1998;
- Planning Norms and Standards (Infrastructure), 2012;
- Road and Drainage Standards, 2011;
- GESI Guidelines, 2013;
- Urban Drinking Water Supply and Sanitation, 2009;
- Solid Waste Management Act and Regulation, 2011 etc.

These provisions have to be integrated into a comprehensive urban resiliency plan and strategy. There is also a need to revisit the approach to disaster management in Nepal from the perspective of resilience.

In general the four basic elements of resiliency are:

Physical Status: It deals with physical planning such as building codes, land use zoning, etc. based on hazard maps and geological feature of the area to minimize the effects of natural disasters.

Social Status: Social capital of the community, which has direct implication on their preparedness to and response during disasters, is a critical factor of vulnerability.

Economic Status: Vulnerability is directly proportional to levels of poverty. The economic condition of people is also critical in determining their vulnerability.

Institutional Status: The strength of local and national governments, and institutions both in the government and non-government sectors to plan, prepare, respond and recover from the disaster is vital in reducing vulnerability of the people.

Existing Situation

Physical Status: Out of 58 municipalities, only 12 have been able to enforce building code for construction work within the municipality boundary. The municipalities also conduct training programs for engineers, masons, small-contractors. The issue is to strictly implement National Building Code in all municipalities, including VDCs that are rapidly urbanizing. There is no land use zoning enforced in municipalities. The existing assessment and preparedness efforts have been concentrated basically on earthquake, while other but more potential disasters, like flooding, land subsidence and slides as well as the much broader issue of climate change remain to be addressed.

Social Status: At present, out of 806 wards in 58 municipalities, 403 have Ward Citizen Forum, which is a group with legal status, whose members are the local people residing in the particular ward. These forums remain for the most part inactive. While there is the scope for preparing targeted community based disaster management plans for both pre and post disaster situations, no such efforts have been undertaken in earnest.

Economic Status: Based on the data of CBS (2012), the percent of people below the poverty line in the urban areas of Nepal increased from 9.55 in 2004/05 to 15.46 in 2010/11. The rise of poverty in urban area is an indicator of decrease in resiliency of urban population to disasters. A survey in Ratnanagar Municipality in Chitwan elucidated that while 27% are below poverty level; nearly 41 percent of the population are vulnerable and can easily be pushed into poverty. This shows low level of resiliency in majority of population with weak economic status in many urban areas in Nepal.

Institutional Status: Disaster Management component has been included in the periodic plan of municipalities since 2009 AD. The Earthquake Vulnerability Maps have been prepared for 5 municipalities by Earthquake Risk Reduction and Recovery Preparedness Program for Nepal. Further, Risk Hazard Maps have been prepared for 4 municipalities as of 2011/12. This shows that the lack of preparation to deal disasters. Even in cases where the maps have been prepared there is no readiness in the application of the plans and maps for reducing risk to the people. Most of the municipalities do not have a disaster management section within their institutional framework.

Related Issues:

- Even though DRM has been incorporated in Periodic Plans of the municipalities, the support system is inadequate and the internalization of Disaster Risk management activities in municipal planning is quite slow.
- DRM framework lags the linkage with other sectors and the relationship between mapping, planning, land use and building code is not established prominently. There is no national seismic standard for lifeline facilities such as bridges, water supply etc.

- Rapid depletion of open spaces in urban area with urban expansion in marginal lands such as steep slopes, flood plains and other hazardous areas has increased vulnerability of the people.

- The local governing bodies lack post disaster preparedness plans, such as reconstruction and debris management, which is critical for speedy recovery to the society from a disaster.

- Local level efforts in disaster preparedness and management are not enough. To facilitate a coordinated effort at the national level a National Disaster Risk Management Authority may be needed.

- The Periodic Planning Guidelines should be updated linking risk sensitivity with land use planning.

- Operational Guidelines for code compliance and monitoring of apartment, hospital, schools and other institutional buildings need to be prepared and operationalised.

- A multi-hazard approach that deals with different types of disasters through physical, social, economic and institutional perspectives needs to be pursued

2.5.1.2 Urban Pollution

Urban development has meaning only when the urban environment is healthy, i.e., free of pollutions of all kind. Urban Environment Management Guideline (UEMG) categorizes pollution as air, water, land, sound and visual. However, these guidelines are still inactive amidst degrading urban environment.

Existing condition

Air Pollution

The state of air pollution in urban areas, especially in major cities provides cause for concern. Concentration of Total Suspension Particulate (TSP) and Particulate matter less than 10 micrometer (PM_{10}), two major indicators of urban pollution, is higher than the permissible standards in most urban areas (CBS, 2013). According to WHO standards, the level of TSP and PM_{10} for ambient air quality is up to 230 $\mu g/m^3$ and 70 $\mu g/m^3$ respectively. However, data show that the level of TSP in Nepalgunj is 2222.5 $\mu g/m^3$, followed by Janakpur with 2019.5 $\mu g/m^3$. For Biratnagar, it is 1024.3 $\mu g/m^3$ and Pokhara is with 118.5 $\mu g/m^3$. Similarly, the level of PM_{10} for Janakpur is 1820.9 $\mu g/m^3$, for Biratnagar is 961.4 $\mu g/m^3$ and Pokhara is 90.2 $\mu g/m^3$ (Annex 4).The major sources of TSP and PM_{10} are identified as vehicle exhaust, road dust re-suspension and brick kiln factories. Situation in medium and large Tarai municipalities seems worse.

Water Pollution

The major indicator of water pollution in urban areas is the state of its rivers. Dissolved oxygen (DO) and BOD (Biochemical oxygen demand) are the quantitative indicators, while its color, smell and condition are the visual indicators. According to WHO standards, the level of DO and pH should be more than 5 mg/l and between 6.5 and 8.5 respectively. Data shows that Mahakali River at Pancheswor has DO of 5 mg/l and pH of 8.8.Bagmati River in Kathmandu is aggravated by nauseous smell and sludgy brown water. The major causes of water pollution is direct disposal of household sewerage pipeline to the river, dumping of solid waste in the river banks, and disposal of hospital and industrial waste without any detoxification treatments.

Land Pollution

Land pollution in urban areas is a result of un-systematic dumping of solid waste in open spaces and river banks. As only six out of 58 municipalities have sanitary landfill site, dumping in available open spaces and river banks is sought as alternatives.

Visual Pollution

Visual pollution in urban areas is caused by hoarding boards and dangling wires, which is an eyesore. Huge advertisement boards on the roof top of the houses, and dangling cluster of wires along the streets not only hampers aesthetics of the city but also pose danger to the people.

Major Issues

- Unchecked vehicle exhaustion level.
- Brick kilns and other industries in/around urban areas.
- Direct disposal of sewerage pipeline into the rivers.
- Direct disposal of hospital and industrial waste in the river.
- Haphazard disposal of solid waste along roads, river banks and open space.
- Management of electric, telephone and cable wires
- Coordination of concerned agencies and municipalities

2.5.2 Natural Environment

The sustainability of urban environment depends on the extent to which elements of the natural environment such as greenery, agriculture and forestry are promoted and planned within the cities so that water and energy footprint is reduced, pollution and its health effects are minimized, there is a respect for the social scale, and the diseconomies of scale are kept within manageable limits.

Unfortunately, urban development in Nepal has played havoc with the natural environment, and urban planning and management has largely ignored the historical experience of agropolitan cities where natural environment was very much a part of the urban scheme of things.

2.5.2.1 Urban Agriculture

Urban agriculture has not been regarded as a legitimate concern of urban planning in Nepal but this field has been gaining increasing attention in both developed and developing countries in recent decades (Mougeot, 2005, Gupta et. al., 2014). Urban and peri-urban agriculture (UPA) is seen as an element of ecologically sustainable urbanization as food security is increasingly recognized as a concern in urban planning. Urbanization is leading to loss of cropped area and the need for importing food to urban areas from outside. Promotion of urban and peri-urban agriculture can ensure some degree of food security; reduce transport costs of food imports and hence the food price; help convert urban waste into resource for food production; provide livelihood for the urban poor; lead to savings in land, energy and water resources; better public health due to greenery, and help improve land and urban management. Urban and peri-urban agriculture can be promoted in rooftops, vacant lots, peripheral areas of public buildings, parks, garbage landfills, etc. Peri-urban agriculture has been a major provider of vegetable and horticultural products in major urban regions in the United States as well as China.

Existing Situation

Agriculture provides direct and indirect employment to 32.2% of total employed economically active population in the urban areas in Nepal. The importance of agriculture in urban areas can be reckoned by the fact that in 2001 agriculture was the major occupation of 46% of urban population in the hills and mountains, 38% in the Inner Tarai urban areas, 29% in the Tarai and 13% in the Kathmandu valley.

The early urban growth of Kathmandu was based on its agricultural surplus, and the agricultural potential remains considerable even today. Kathmandu Valley, one of the most urbanized regions in Nepal, produces 4.6% of the total vegetables and 3.5% of total potato produced in the country (MoA, 2012). Also, the valley contributes 1.9% of national paddy, 3.3% of maize, 2.3% of wheat and 4.5% of total national soybean production. In 2001, 17% of the municipalities including Kathmandu were food deficit areas. Agriculture land in urban areas is decreasing at an alarming rate. The agricultural area in the Kathmandu valley is reported to have declined from 58.4% to 47.4% between 1990 and 2012, i.e., an average loss of 0.5% or 400 ha in terms of area of the valley annually (Genesis, 2013).

Based on the NLSS 2011 data, agricultural land fragmentation is evident in urban areas where the percent of agricultural households with less than 0.1 ha make up nearly a quarter of such households. Moreover, agricultural land in peri-urban areas are converted into buildable plots, leading to urban sprawl and loss of agricultural land that can fulfill food requirements of the city.

Major Issues

- Policies supporting urban and peri-urban agriculture and institutions to promote such developments.
- Land encroachment along the rivers and public open space by informal settlements.
- Integration of urban agriculture into urban land use planning and management concepts (green areas and green building codes, urban agriculture land banking, etc.).
- Partnership between local/regional governments and the private sector, citizen's forum, etc. for promotion of UPA.
- Support services for possible agriculture crops, information system, markets to facilitate urban agriculture.
- Promote UPA in urban fringe areas associated with recycling city waste, flood control, and delimitation of city boundaries.

2.5.2.2 Urban Forest

Urban forest has not been adequately integrated into the urban land use and planning process in Nepal. Urban forests provide greenery, reduce pollution and balance CO2 level, help control erosion, moderate temperature, preserve natural diversity, add to beautification and aesthetics of the city, provide open and social recreational space for public, add value to the place and attract tourists. (Sharma, 2013).

Existing Situation

In hill and Tarai municipalities, forests cover an average of 22% and 17% of total municipal area. Similarly, it covers 30% of total municipal area in mountain region. In case of Kathmandu and Pokhara valley, the coverage is 3% and 10% respectively.

Urban forests and greenery, however, have to be important elements of each individual urban area. Studies on urban forest of Pokhara and Bharatpur show an estimated 285,500 and 213,250 trees respectively. (D & B, 2011) The most common species are the religious tree species-Ficus bengalensis and Ficus religiosa but they are hazardous. People's preference was for small, less branchy and attractive species. Urban greenery and forestry requires coordination between municipal authorities and other related organizations Most municipalities do not have any specific plans, programs

and activities to address the issue of urban forests in spite of the fact that people's perception on urban forestry as a way of improving urban environment is encouraging (D & B, 2011).

Major Issues

• Lack of urban forest management policy and regulations. Major policies of forest conservation are focused on rural areas.

• An integrated approach is lacking to promote and support urban forest promotion and conservation programs.

• Haphazard urban growth, encroachment of land and lack of enforcement of land use policies is an impediment in the process.

• Role of the municipalities in promotion and preservation of urban forest not well clarified.

• Lack of mechanisms and incentives to encourage people to plant trees in private land.

2.5.3 Social Environment

2.5.3.1 Urban Amenities: Open Spaces

Open spaces and parks in urban areas serve three major purposes – they are the lungs of the city and provide breathing spaces, they improve the physical, social and psychological health of the city as they enhance not only the city's aesthetics and beauty but provide spaces for social interaction and recreation and contribute to the livability of a city, and they also serve critical purposes of evacuation during disasters particularly during earthquakes. Parks and open spaces are integral components of the urban landscape, and the larger the proportion of parks and open spaces the better the prospects of a city. Equitable access to open spaces by all must be the prime guiding principle in urban planning. Indeed, the form of the urban landscape must evolve from this concern. However, in Nepal the issues of open spaces in urban areas has largely remained ignored in both in the policy discourse as well as the practice of urban development.

Existing Situation

The proportion of open space in major municipalities shows a bleak picture. In Kathmandu and Lalitpur 0.48% and 0.06% of municipal area can be categorized as open space. The situation is similar in Terai municipalities. Area under open space is clearly insignificant and needs priority attention.

Box 2.5: Open Spaces- Definition

Open spaces as understood as parks and gardens at the neighborhood scale that have dual role of social and environmental purposes. They are basically un-built land at city and ward level that provides breathing space through the presence of nature within the concrete jungle. However, these parks and gardens themselves can be a combination of green and grey space that have specific design components to cater multiple functions for different age groups. These spaces need to be at a walkable distance from the neighborhood and of adequate size depending upon the density and size of the neighborhood.

Their major function can be play area for children and adults. It can serve as an area for relaxation and informal activities with a level to reclusion, however with presence of formal or informal supervision to maintain safety in the area. It can cater to community functions or can be a place for learning. Apart from physical activities, these areas should be designed to encourage and maintain homogeneity in the community through social interactions, hence increasing the quality of life both physically and socially.

Table 2.13 %designated open space coverage in municipalities

Municipality	Areas Coverage (%)
Birgunj	0.33
Kathmandu	0.48
Lalitpur	0.06
Biratnagar	1.49

Source: Periodic Plans of Municipalities

In neighboring India, Delhi has 20 % of its area as open space. Planned city of Chandigarh has 35%, and even congested Mumbai has 2.5 % (Express, 2011). In Kathmandu 0.48% of open space is insignificant to serve the city.

WHO and FAO recommend a minimum availability of 9 meter^2 per person of green open space for the city dweller. Based on the Periodic Plan of the municipalities, in Kathmandu the availability is 0.25 meter^2 per person and it is 4.34 meter^2 per person in Dharan.

Existing Policies

In By-laws of Kathmandu Valley, community open space is reserved as an integral part of any land measuring 0.25 hectare or more for the use of the community.

Existing by-laws have the following provision for community open space for planned residential zone:

a. For 5 to10 ropanies 5% of total land area
b. For 10 to 25 ropanies 4% of total land area

c. For 25 to 100 ropanies 3.5% of total land area
d. For >100 ropanies 2.5% of total land areas
(19.97 ropani = 1 hectare)

In terms of open spaces within the plots, the Building by-laws for construction within municipalities and urbanizing VDC of Kathmandu Valley (2008) makes the following provision: Apartment plots need to provide 50% of its total land as open space, of which 20% area is for open land surface and 30% are other open spaces. In residential plots, the ground coverage of the building ranges from 50 to 80% depending upon the size of the plot and its location in the prescribed zones. For institutional buildings, the ground coverage of the building ranges from 40 to 50% depending upon the type of institutions. The rest shall be allocated as open space.The Planning Norms and Standards set by the DUDBC (2013), suggests the minimum area of designated open space to be 2.5% of the Sub-metro city area and 5% of the Metro-city area in Sub-metropolitan and Metropolitan cities respectively.

The land allocated for open spaces in the land pooling projects in Kathmandu Valley is as follows:

Table 2.14 % of open space allocated in land pooling projects

Sn.	Project	Total Land (ha)	Open Space (ha)	% of open spaces
1	Gongabu	14.33	0.72	5.0
2	Lubhu	13.5	0.58	4.3
3	Liwali	33.45	1.17	3.5
4	Sainbu	24.58	3.18	12.9
5	Nayabazar	44.25	1.6	3.6
6	Dallu	20	1.4	7.0

(Periodic Plans of the Municipalities)

Major issues

- At the national level, there is no clear and unambiguous policy regarding urban open spaces and parks. The existing provisions are fragmented and embedded within other policies and regulations.

- There is no inventory and monitoring of open space. Encroachment of open spaces is a major issue. Decline in open spaces in Kathmandu valley and other major cities owes largely to unmonitored encroachment, a reflection of poor governance.

- The types and hierarchies of open spaces within cities and time distance with respect to residential areas are other critical factors that should also be defined and designed to facilitate the planning process.

2.5.3.2 Urban Art, Architecture and Culture

Cities through history have been the harbingers of civilization and reflect the artistic and cultural achievements of its citizens.

Art and culture are also indicators of the well-being of the society. The distinctiveness the civilization of the Kathmandu valley is reflected in its culture, art, architecture and the traditional organization and usage of space. Rapid urbanization and urban sprawl, increasing migration, increasing congestion and traffic within the city core, loss of cultural symbolism and rising consumerism have all contributed to the erosion of the values which led to the unprecedented achievements of the Kathmandu valley.

While the heritage, art and architecture of older cities (such as Kathmandu, Lalitpur, Bhaktapur, Janakpur etc) has to be appreciated as integral part of urban development, the new cities have to be facilitated to contribute to the development of culture, art and architecture. Preservation of heritage sites, promotion of museums, art galleries, theatres, music, cultural events both traditional and modern are an integral part of the development of cities.

Major Issues

- Integrate art, architecture and culture as a part of urban development, in both existing and new urban areas.

- Encroachment of heritage sites and historic monuments due to urban development projects and commercial complexes road expansion and other infrastructure development projects.

- Weakening of institutions for the preservation of historic tangible and intangible culture due to change in *guthi* system.

- Link economic incentives (such as tourism) with the preservation of heritage and culture in urban areas.

- Support innovation of art, architecture and culture in new urban areas.

2.5.3.3 Community Organization and Youth

The notions of "inclusive cities", 'just cities' and 'right to the cities' emphasize not only the role of people in shaping their cities but also the increased ownership of cities by the communities, and particularly the youth. Inclusive participatory planning is advocated as a mechanism to internalize this ownership.

Existing situation

Under Local Governance and Community Development Program (LGCDP), municipalities are supported to create Ward Citizen Forum (WCF) and Integrated Plan Formulation Committee to empower the role of citizens in formulating annual plans, programs and budget. WCF is a group with legal status, whose members are the local people residing in the particular ward. There are other organizations at community level like Tole Lead Organization (TLO) and Community Based Organizations (CBO), who work closely with the municipality to address the issues of the community. At

present, out of 806 wards in 58 municipalities, 403 have Ward Citizen Forum, However, these forums remain for the most part inactive.

National Youth Policy 2009 has defined youth as population group between 16 years to 40 years (MoYS, 2009). Youth population comprises nearly half (48.7%) of total urban population. Based on National Youth Policy 2066, Ministry of Youth and Sports is implementing programs in 17 sectors such as in education, social security, health, human trafficking control, youth empowerment, employment and leadership development etc focused on youths. However, the existing cities are not youth friendly in terms of availability of open spaces, sports facilities and entertainment (Sharma, 2013).

Some efforts have been make cities more youth friendly. Sports infrastructure are planned for all the 58 municipalities. Similarly, various national sports competition, Special and Para-sports are being organized. But mobilizing the communities and the youth in urban planning and development process remains a daunting task.

Major Issues

- Employment creation in urban areas remains a major challenge. The prevailing political situation of Nepal has led youth to migrate for employment abroad. About 15% of the total absentee population in 2011 originated from urban areas of which 77% were in the age group 15-34.
- Need to encourage participation of community in urban planning, so that their needs and issues are incorporated in the process of development with their participation in the decision-making process.
- Lack of youth friendly orientation in urban planning

2.5.3.4 Urban Security

Urban security deals with multi dimensional challenges. It includes physical, financial, political, and social security as well as security of the public. In case of urban planning, providing a sense of security in public spaces and neighborhood is a major concern.

Existing Situation

Nepal Police provides security through its various arms such as metropolitan police, traffic police, tourist police and community police. Metropolitan police is functioning only in Kathmandu. In Kathmandu Valley for security considerations CCTV has been installed at 102 major junctions and additional 1000 installation is in process (Sharma, 2013). The CRVS (Control Room Vehicle) are stationed around the crime prone areas. There are 50 CRVs in Kathmandu Metropolitan Police Range and 10 each in Lalitpur and Bhaktapur Ranges. Toll free telephone numbers and free SMS system are also functional. The police personnel have been mobilized in proportion to the population. The average standard is 1:200 populations but in case of Kathmandu Valley, the rate is 1:500 (Nepal Police, 2011). Traffic police deals with managing traffic flow and minimizing traffic accidents.

A total of 964 traffic police are mobilized in Kathmandu valley (Nepal Police, 2011). Tourist Police is a special unit of Nepal Police, established in 1979 AD working Ministry of Culture, Tourism and Civil Aviation, Tourism Industry Division. The main responsibility is to look after the welfare of tourists while they are in Nepal. The tourist police are mobilized in major tourist areas. Community police came into existence from 2051 BS (1994) as a pilot project in Kathmandu Valley. Currently, they are mobilized in 141 different places in 75 districts (Nepal Police, 2011).

Street lighting is an important aspect of urban security, as well as vehicular and pedestrian traffic at night. This consideration is absent from most urban areas due mainly to inadequate energy supply and management.

Major Issues

- Lack of integration of urban security in urban planning.
- Major focus on policing of public spaces, lack of urban design considerations.
- Lack of appropriate street lighting.

2.6 Urban Economy

The demographic and economic characteristics of urban areas provide a picture of the urban economy.

2.6.1 Economically Active Population, Employment, and Occupational Structure

Economically active population above 10 years make up 36% of urban population. But only 34% is usually active (23% male and 11% female). Around 44% are economically inactive, of which males account for 16% and females 28%.

Agriculture, forestry and fishing accounted for almost a third of the total urban employment. Wholesale, retail trade (17%) and manufacturing (14%) are the other two important employment sectors (Fig 2.10). But the urban sectoral employment varies a great deal among urban areas. In larger urban areas trade and services are the prominent sectors of employment followed by manufacturing.

Based on the available data on occupation structure, 41% of population in Dhankuta municipality still depend on

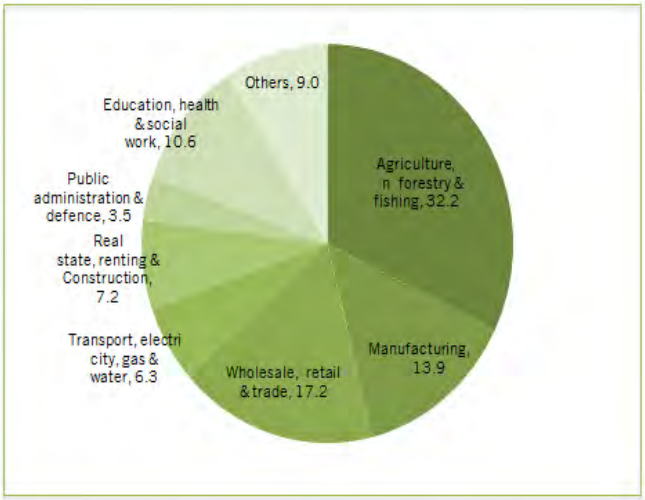


Fig 2.10: Currently employed population aged 15+ by industries in urban areas

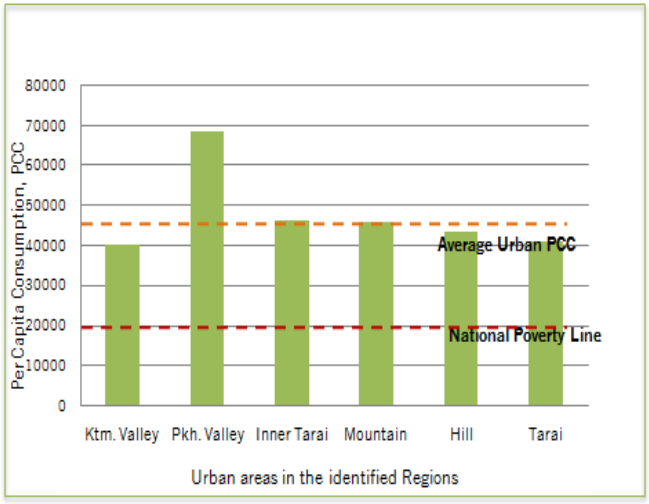


Fig 2.11: Per Capita Consumption of the defined urban regions

agriculture and nearly 24% undertake wholesale trade as their occupation, 9% have migrated for foreign employment and 11% are in public administration. Likewise, agriculture holds the highest percent of occupation in Panauti (42%), Ratnanagar (37%) and Lekhnath (71.5%) municipalities as well.

In Panauti, 34% are labor workers and 20% are engaged in trade. However, in Kathmandu Metropolitan city, services and manufacturing are major occupations that comprise of 42% and 42.9% respectively, while agriculture holds only 0.1%.

2.6.2 Household Savings and Borrowings

Urban areas account for 46% of all bank deposits. Kathmandu and Pokhara valleys together account for 80% of all urban savings. Urban areas contribute around 40-42% of the total national lending. Kathmandu valley accounts for 70% of total urban lending. Small urban areas such as Dasharathchand, Dipayal, Jaleshwor, Amargadhi, Malangawa have very low levels of borrowings whereas Kathmandu, Pokhara, and Lalitpur have the highest.

2.6.3 Consumption and Poverty

Nepal Living Standards Survey (2010/11) showed that 15.5% of urban population is below the poverty line compared to 25.2% nationally. However, poverty trend in urban areas is on the rise. The percent of population below the poverty line in urban areas was 10% in 2003/04. The average per capita consumption in urban area is NPR 43,578. But there is a wide difference in per capita consumption among urban areas with the lowest NPR 25,069 in Siraha and the highest NPR 76,924 in Pokhara. There is also a wide difference in poverty level by urban areas. Pokhara has 1.3% of population below poverty level compared to 50% in Gulariya.

2.6.4 Remittance

Nepal Living Standard Survey (CBS, 2011) estimated that around 56% of the households receive one or other form of remittance and it comprises of 31% of household income

among recipient households with average remittance of around NPR 80,000 per household (NPR 9,245 per capita for all Nepalese household).

The amount of remittance received by the urban households is just around 15% of the national remittance income. Kathmandu city is the highest recipient of the remittance income (around NPR 4 billion in 2013). The average sum of remittance received by the municipalities comes out to be around NPR 1.1 billion.

Kathmandu Metropolitan City with 6.3% of total urban oriented remittance is the single largest recipient. However, in terms of urban regions Tarai municipalities (such as Biratnagar, Ramgram, Janakpur) combined together are the largest recipients.

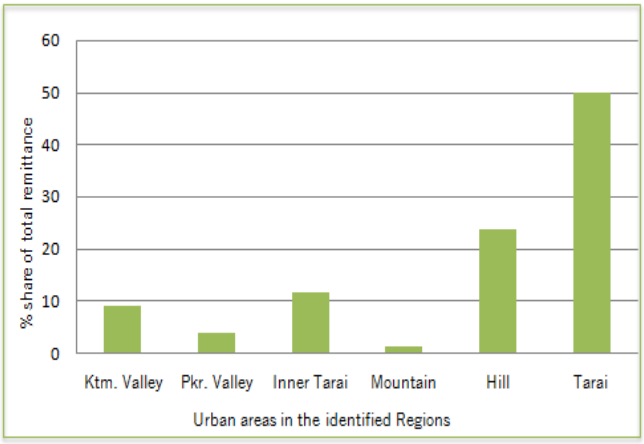


Fig 2.12: % Share of total remittance received by urban areas

2.6.5 Competitive advantages of the urban regions in terms of manufacturing establishments

Locational Quotient (LQ) Analysis:

Locational quotient is a measure that quantifies the relative concentration of an industry or a cluster of industries in a region relative to the national average. LQ value greater than 1 is normally taken as an indicator of such concentration. A higher LQ is generally taken to be indicative of (i) relative advantage of the industry in that region, and (ii) potential regional export orientation of that industry. LQ is derived on the basis of total value of output and employment reported in the district level data from the Census of Manufacturing Establishments 2006/07.

Based on LQ of Kathmandu Valley, the maximum value of output is generated from 'Radio, television and communication equipment' and 'Publishing, printing and reproducing media' industry, which is 9.87 and 6.68 respectively. It means, total value of output of Communication industry is almost 10 times more than the national average. Highest LQ based on employment also falls under same industries that are 4.13 and 3.19 respectively. '

Textile' industry provides highest number of employment that is twice the national average. In Hetauda, highest LQ basedon value of output and employment fall under 'Chemical and chemical products', which is 6.57 and 3.96 respectively, and 'Other non-metallic mineral products' industry provides highest number of employment.

Similarly, along Biratnagar-Dharan corridor, highest LQ based on output and employment is in 'Electrical, machinery and apparatus' industry, which is 4.58 and 5.38 respectively. Along the Birgunj corridor, highest LQ based on output and employment fall under 'Tanning and leather products' that is 2.39 and 3.12 respectively. In both Biratnagar and Birgunj corridor, 'Textile' industry provides maximum number of employments.

Along Nepalgunj corridor, two highest LQs based on output fall under 'Basic metal' and 'Chemical and chemical products' industries, which is 1.54 and 2.29 respectively. 'Other non-metallic mineral products' provides highest number of employment, whose LQ based on employment is 1.67. In Pokhara, 'Wood and products of woods except furniture' industry has highest LQ value based on output that is 6.02, which is followed by 'Furniture, jewellery, sports goods and other NEC' products with LQ value of 5.04. 'Machinery and equipment' provides maximum number of employment.

2.6.6 Non-farm Activities and Manufacturing Employment in Urban Areas

Analysis of non-farm activities (NFA) and manufacturing employment in urban areas (WB/AusAid 2012) based on Labor Force Survey 2008 and Census of Manufacturing Industries (2007) shows the following:

- Share of NFA relative to overall employment in urban areas is 60%, for Kathmandu valley it is 80%.

Table 2.15 Locational Quotient value of the industries with relative advantage in Region/Urban areas.

Region/Urban area	LQ values	Industry with relative advantage
Kathmandu	(i) Output – 9.87 Employment – 4.13 (ii) Output- 6.68 Employment – 3.19	(i) Radio, television and communication equipment (ii) Publishing, printing and reproducing media
Pokhara	(i) Output – 6.02 Employment – 5.73 (ii) Output – 5.04 (iii) Employment – 6.15	(i) Wood and products of wood and straw and cork except furniture (ii) Furniture, jewellery, sports goods other NEC (iii) Machinery and equipment
Hetauda	(i) Output – 6.57 Employment – 3.96 (ii) Output - 3.26 (iii) Employment – 3.13	(i) Chemical and chemical products (ii) Rubber and plastic products (iii) Paper and paper products
Chitwan	(i) Output – 4.97 (ii) Output – 4.56 (iii) Employment – 2.39 (iv) Employment- 1.23	(i) Furniture, jewelry, sport goods and other NEC (ii) Wood and wood products (iii) Other non-metallic mineral products (iv) Paper and paper products

Biratnagar-Dharan Corridor	(i) Output – 4.58 Employment – 5.38 (ii) Output – 2.03 Employment- 1.79	(i) Electrical, machinery and apparatus (ii) Textile
Birgunj Corridor	(i) Output – 2.39 Employment – 3.12 (ii) Output – 1.4 (iii) Employment – 2.66	(i) Tanning and leather products (ii) Basic metal (iii) Chemical and chemical products
Nepalgunj Corridor	(i) Output – 1.54 Employment – 2.52 (ii) Output – 2.29 (iii) Employment – 1.92	(i) Basic metal (ii) Chemical and chemical products (iii) Fabricated metal products, except machinery
Dhangadi Corridor	(i) Output – 2.43 (ii) Output – 2.19 (iii) Employment – 2.17	(i) Wood and wood products (ii) Furniture, jewelry, sport goods and other NEC (iii) Other non-metallic mineral products
Eastern Tarai	(i) Output – 7.65 Employment – 3.23 (ii) Output – 4.56	(i) Wearing apparel, dressing and dying fur (ii) Wood and wood products
Central Tarai	(i) Output – 2.79 Employment – 2.94 (ii) Output – 2.27 (iii) Employment – 3.09	(i) Coke, refined petroleum products and nuclear fuel (ii) Tobacco (iii) Basic Metal
Western Tarai	(i) Output – 3.63 Employment – 2.52 (ii) Output – 2.86	(i) Paper and paper products (ii) Other non-metallic mineral products
Mid and Far west Tarai	(i) Output – 6.34 (ii) Output – 3.62 Employment – 2.32	(i) Wood and wood products (ii) Other non-metallic mineral products

• Three main clusters of urban NFA including urban centres surrounded by hinterland of small towns, rural areas :

(i) Kathmandu valley (25% of urban NFA) estimated employment 632,000,

(ii) Eastern Tarai (15%) comprising of Biratnagar and hinterland, estimated employment 446,000,

(iii) Central Tarai (19%) comprising of Birgunj and hinterland, estimated employment 478,000.

• Service sector is the largest contributor to GDP and accounts for 70% of NFA. Urban core plays the role of service centre for an extended economic region. Service sector is dominated by small wholesale and retail trade (over 50%). Public administration and social service accounts for 25% of service employment. Financial services and tourism account of 9 and 12% respectively.

• Service sector employment in urban areas is also concentrated in 3 clusters similar to NFA (ie., Kathmandu valley, Central Tarai and Eastern Tarai). Proportion of service employees is higher in Kathmandu valley than in other regions.

• Manufacturing is characterized by small scale industries which mostly show a declining trend. There is complimentarity of manufacturing and NFA.

• There are three main clusters of manufacturing industries: Kathmandu valley accounts for 40% of manufacturing employment; vicinity of Birgunj in the Central Tarai, 17%; and vicinity of Biratnagar in Eastern Tarai 15%.

• Overall, nearly half of manufacturing employment is located in non-municipal, rural areas. Also, labour intensive (handicrafts) manufacturing accounts for about 60% of total industrial production. The composition of urban manufacturing employment is 14% machinery equipment; 30% paper, mineral, plastics, chemicals and wood; 19%.garment; 18% textiles; and 19% agro-processing. Compared to other urban areas, Kathmandu valley has a much smaller share of agro-processing and larger share of garment, and textiles. Pokhara in comparison has a larger share of agro-processing employment (37%).

2.6.7 Major Considerations

In view of increasing rural-urban migration, the role of urban areas in the generation and expansion of employment opportunities and in increasing productivity and creation of wealth is going to be critical in Nepal's development efforts. That would also provide the major justification for the increased amount of infrastructural investment required in urban areas. Regional resource specific strategies are called for to build on the comparative and competitive advantage of urban areas. Urban economies also need to be inclusive particularly in the context of increasing poverty trends in urban areas and the likelihood of increased refugees to urban areas for reasons of disaster and climate change.

2.7 Urban Investment and Finance

Municipalities are under tremendous financial strains to keep pace with increasing infrastructural needs and upgrade their quality and improve overall service delivery. The potential resources in the municipalities are yet to be mobilized to address the financing need of the cities. Besides, the institutional capacity of municipalities to mobilize potential resources remains limited.

2.7.1 Existing Scenario

Investment - Demand Analysis

The investment needed to fulfill the existing infrastructure deficit in 58 municipalities is calculated to be a staggering NRs 372 billion.The investment need has been calculated for the infrastructure deficit based on existing and desirable state of municipalities (Annex 5). The infrastructure investment includes cost for new roads construction, up gradation of existing roads, piped water supply connection, construction of toilets, electricity connection, solid waste collection and management, storm drainage construction and sewerage connection (Table 2.17) The prevailing rates are referred for calculations. It shows that of major portion of investment,67% is required for new road construction and existing road up gradation.

Investment need has been forecasted by TDF for urban area based on sampling of periodic plan of few municipalities. The total investment need is calculated to be NPR 45-50 billion.

The approximate investment in urban infrastructure in the municipalities in the current fiscal year is NRs 20.07 billion. (Table 2.18) The key contributor is Municipality's own source revenues and IGFT (37.9%). The total DUDBC contribution is 23.2%.This amounts to only 1% of national GDP, which is quite low in comparison to its GDP contributions.

Box 2.6: Foreign Direct Investment

Based on the data of FY 2011/12, in total 2335 numbers of industries in 54 districts of Nepal have Foreign Direct Investment. The total foreign investment in various sectors mounts to NRs 75,150 millions. They include industrial production, service, tourism, construction, energy, agro based and mining. Based on the data of MoI (2011/12), 'Service' sector has the highest number of FDI funded industries, which is followed by 'Industrial Production' and 'Tourism' Sector. In addition, only 2% of the total industries with FDI are in 'Energy' sector. Nevertheless, in terms of investment, the highest flow is in 'Industrial Production' sector, which is followed by 'Energy' sector. 'Energy' sector has the least number of industries with FDI; however the amount of investment is quite high.

FDI has provided major employment opportunity in 'Industrial Production' sector, which is 80,180 (49% of total FDI employment) in numbers. It is followed by 'Service' (22%) and 'Tourism' industry (16%).

As per MOI 2011/12, Kathmandu district has the highest

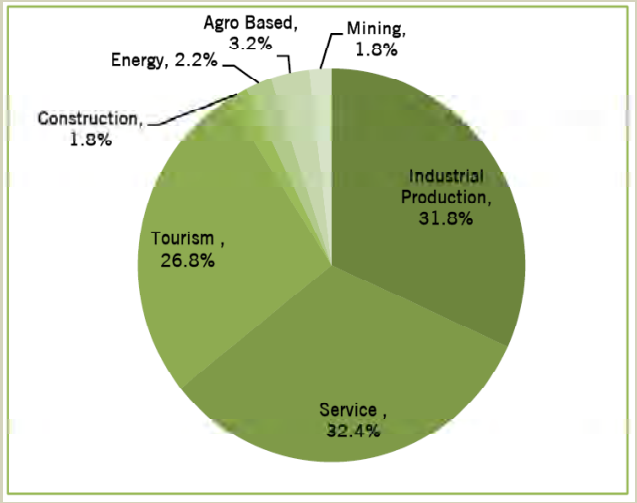
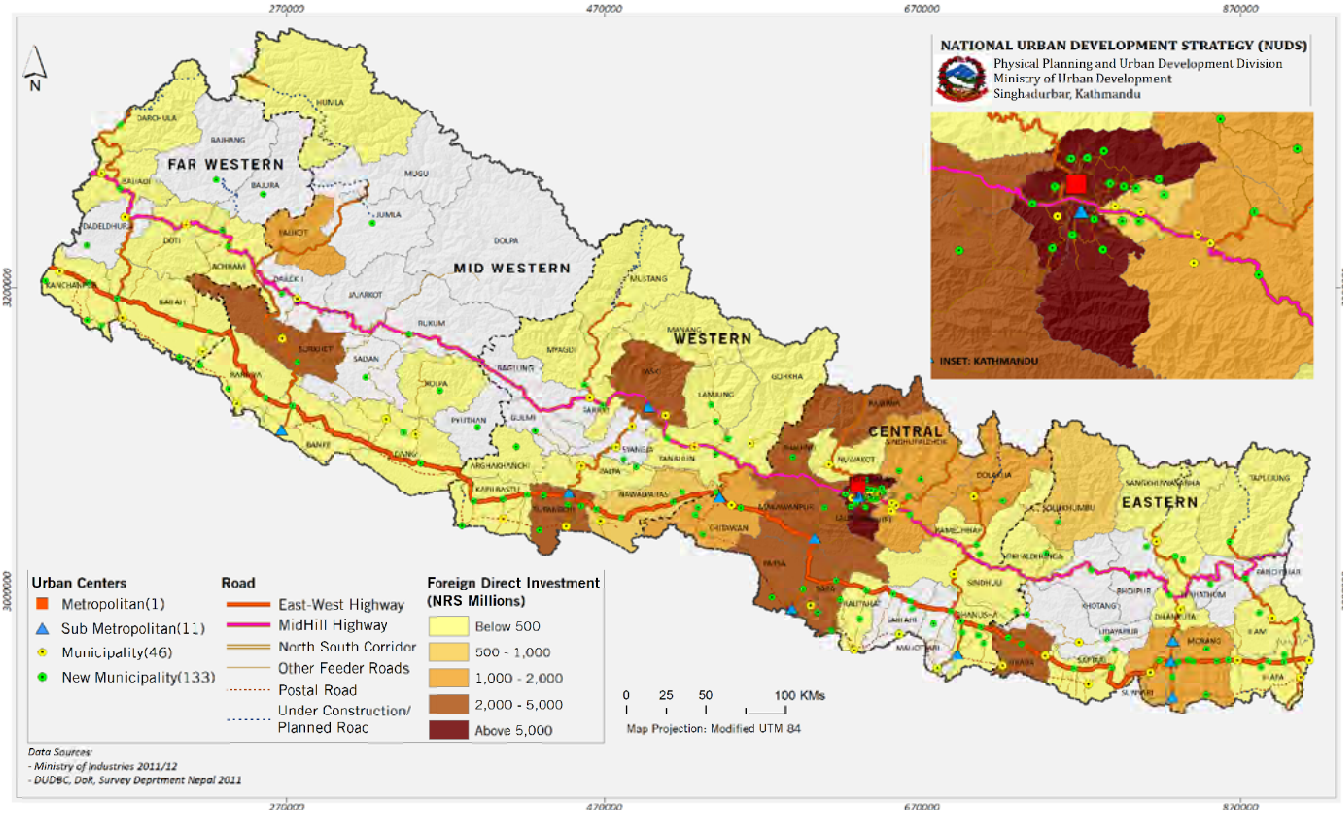


Fig 2.13 : Sectoral Composition of FDI (% share)

FDI with NRs 27,279 millions followed by Lalitpur and Kaskidistrict. Districts such as Dhankuta, Parbat, and Darchula received least FDI, which is mostly concentrated in central and western regions. Disparity in FDI also reflects the imbalance in the overall development of the nation.(Map 2.6)

MAP 2.6 DISTRICTWISE DISTRIBUTION OF INDUSTRIES WITH DIRECT FOREIGN INVESTMENT



The above map indicates that there is a significant investment deficit for maintaining and upgrading urban infrastructure. The outlay by the central government has been much less than the contribution of the urban sector to the GDP. Further, there is no rational distribution of investment which has exacerbated regional imbalances in resource allocation. Private sector investment in urban infrastructure development has not been forthcoming and policies to encourage such investment have not been explicit.

Table 2.16 Investment- For Infrastructure Deficit for 58 municipalities

Urban Infrastructures	Unit	Rate in Rs.	Investment Required (Mil)	Percent	Per Capita Cost (in Rs.)
New Roads	km	20,000,000	151,973	41%	29,652
Upgradation	km	10,000,000	96,146	26%	18,759
Water Supply	HH	30,000	9,019	2%	1,760
Toilet	HH	10,000	1,731	0.5%	338
HH having Elecricity	HH	5,000	652	0.2%	127
Landfill Site	HH	1,000	743	0.2%	145
Storm Drainage	km	10,000,000	75,129	20%	14,658
Sewerage	km	15,000,000	37,502	10%	7,317
Total			**372,895**	**100%**	**72,756**

Table 2.17 Investment in Urban Infrastructures

Financial Sources	Amount (bil)	% Share
Municipality and Inter Governmental Fiscal Transfer, IGFT[1]	7.6	37.9%
DUDBC (Urban development)[2]	1.5	7.5%
DUDBC projects	3.16	15.7%
Department of Roads[3]	2.05	10.2%
Kathmandu Valley Water Supply Management Board, KVWSMB[4]	2.00	10.0%
Melamchi Project[5]	1.88	9.4%
Project Implementation Director, PID[6]	0.56	2.8%
Integrated Development of The Bagmati Civilization	0.26	1.3%
Kathmandu Valley Development Authority, KVDA	0.25	1.2%
DoLIDAR[7]	0.26	1.3%
Roads Board Nepal[8]	0.226	1.1%
LGCDP[9]	0.112	0.6%
Nepal Water Supply Corporation	0.21	1.0%
Total	20.07 billion	

Revenue Analysis

The revenue base of the municipalities is very weak. Out of total local income (2.25 billion), taxes and service charges together make up around 83% (Annex 6). The largest share of revenue is provided by service charges (around 41% of total income) levied by the municipalities to provide different kinds of services. Second major source of local income is property tax which contributes around 18% to the total municipal income. Land and housing tax and property tax also contributes 8% and 6% respectively. Due to low revenue base, the capacity of the municipalities for development activities is limited. Municipal expenses are highly dependent on grant. In 2011/12 nearly 70% of municipal revenue accrued from grants (5.3 billion out of 7.6 billion) (Annex 7).

Some municipalities have started mobilizing resources under partnership with people i.e. cost sharing in infrastructure projects especially urban roads, toilets and drains. Dharan and Butwal municipalities were the first to champion the idea.

Central government often select cities for implementation of relatively large size projects under donor support and are executed mainly by government departments and its regional/ district offices. Biratnagar storm water drainage and sewerage project financed by ADB is one such example. The overall revenue growth trend is positive, though the trend of internal revenue growth is not satisfactory. The growth of conditional grant is relatively higher, which is indicative of declining fiscal choice of municipalities.

Expenditure Analysis

A significant share of municipal expenditure of 4.8 billion is incurred as capital investment (about 72% of total expenditure) and current expenditure is only 28 % of total expenditure as of FY 2011/12. The detail of expenditure is shown in Annex 8. However, the trend in expenditure is inflated by ADB line of investment in few selected cities.

There is a long list of municipal functions, which are actually considered as unfunded responsibilities. Sharing of functions

[1] (LBFC, 2013)

[2] DUDBC Annual Program FY 20 13/14 [3] DOR Annual Program FY 2013/14 within Kathmandu Valley [4] KVWSM Annual Program FY 2013/14 [5] Melamchi Project Annual Program FY 2013/14 [6] PID Annual Program FY 2013/14 [7] Annual Budget of LRBP and RTISWAP Project DoLIDAR FY 2013/14 [8] Annual Budget of Roads Board Nepal FY 2013/14 [9] Annual Budget of LGCDP FY 2013/14

among central and municipal governments should be fully based on sharing of funding sources based on the principle of subsidiary.

Under Local Self Governance Act (LSGA), taxing authorities are assigned to these local bodies but limited for setting the tax rate on themselves. LSGA, however, initially was still in contradiction with 23 other Acts of which 10 minor ones were harmonized later.

2.7.2 Investment and Financing Mechanism

Intergovernmental Fiscal Transfer

Currently, municipalities receive conditional and unconditional grants from central governments**.** A clear and objective oriented intergovernmental transfer system has many benefits including a) providing predictability that helps cities plan long term investments; b) providing a creditworthy base of cash flows which can be leveraged, c) balancing differences in financial capacities of different cities and d) ability to design credible incentives to encourage cities to meet policy goals. In reality, these results were found to be unsatisfactory.

The ever-growing volume of conditional grants (38% of total revenue) puts municipalities in a dilemma while preparing budget and programs. Currently, municipalities get only 9% revenue through central transfer as unconditional grant, which actually gives them a choice in investment decision. The volume of unconditional grant should be increased, which contributes in enhancing the leverage of decision making by municipalities themselves for investment plan.

Urban Infrastructure Development using Debt Financing Tool

Debt financing for expansion of urban facilities is developing in a slow pace but with growing prospects. It is obvious that financing need is always bigger than the present investment need of any city. Here, debt financing is a good option, which makes municipalities able to finance beyond the limit of their present revenue stream by designing the project in such a way that investment will be recovered from service - fees from facility users depending on their future cash flows. Town Development Fund (TDF) is the only organization in public sector for financing urban infrastructure development through loans and grants. It has financed several urban infrastructure projects ranging from urban roads to city bus terminals for long term financing schemes -about 20 years. Despite this effort, the practice and volume of debt financing at city level is extremely low. The borrowing capacity of municipalities is still very low although overall debt financing contribution to total revenue is only 1%.

Total borrowing capacity of 58 municipalities as of the last fiscal year financial data is 795.4 million only. Municipal borrowing capacity can be enhanced if all municipalities enhance their existing recurrent revenue, which is less likely.

Alternative Financing

A couple of municipalities have initiated alternative financing tools like PPP in development of infrastructures and O & M contract for operation of urban facilities. At present, there is lack of clear policy and legislation about PPP framework conditions that ensures proper risk allocation, benefit sharing, and responsibility allocation of force- majeure cases.

Box 2.7: Auto Village-Butwal

Auto Village-Butwal has been in operation since 15 years, which is currently being improved through STIUEIP project as Model Auto Service Center in Nepal. It spreads in 9.5 hectares with nearly 400 plots, out of which 368 plots have already been leased for establishment of 75 Auto Workshop, 13 Battery Services, 72 Motor Parts Workshop and others.

The project plans to improve infrastructure of the area such as water supply, electricity, roads, public toilets, solid waste management, storm water management, management of reusable liquid waste, waste water management, vehicle pay parking facility and others. The total estimated cost of the project is NRs 277 million. Public Private Partnership (PPP) modality has been undertaken for its implementation (STIUEIP, 2014).

The PPP model undertaken for the project is in Develop-Operate and Transfer (DOT) model. The auto unit operators in the village are the private partner, with registered and legally recognized company under the Company Act 2006. Butwal Municipality is the public partner of the project. Under the DOT model, the private partners co-invest on building, developing and improving the infrastructures facilities. The co-investment of other sources shall be grant assistance, loan, and/or share investments. Further, the private partner shares, operates and maintains the developed infrastructures /facilities and shares the revenue and benefits as per their levels of co-investments. After the end of partnership contract period, the auto village will be automatically transferred to the local government. The project is intended to be completed by December 2015 and the contract will end by 2041 after 25 years of operation. Though it is in the initial stage, the outcomes of such project will be lessons for the future PPP projects as well.

2.7.3. Key Issues in Urban Financing

Deviation between Policies and Practices

Taxing authority assigned to municipalities under LSGA 1999 and regulation 2000 is poorly implemented and adopted. As indicated above, the LSGA contradicts existing acts. The MoFALD initiated transfer of performance based grants by implementing Minimum Conditions and Performance Measures-MCPM. This has created logical base for providinggrants based on municipalities' performance. However, many municipalities could not perform well after several years of MCPM practice. Besides the performance based transfer system, ministry continued with other unconditional grants from reserve fund. This has undermined MCPM compliance by municipalities.

Growing Gap of Financing and Funding

Municipalities are facing ever increasing funding and financing gap due to following reasons:

a. low volume of fiscal transfer systems from the central government,

b. very low level of municipal revenues from taxes and fees,

c. burden of unfunded responsibilities; and

d. Limited access to loans and other forms of debt financing.

In most cities and towns, the tax base of urban authorities is very small and the tax revenue is quite inadequate to meet their expenses. While most cities depend largely on incomes derived from Integrated Property Taxation (IPT) and service charges, the central government controls the more lucrative revenue sources such as income taxes, VAT and business taxes. Most cities, therefore, have no choice but to depend, to a large extent, on allocations from the central government, which are generally inadequate.

On the other hand, many key urban revenue sources do not have the capacity to yield additional revenue in proportion to the rate of inflation, the rise in personal incomes and the growth of the urban population. In some cases, property taxes are regressive and, hence, they may not be effective instruments for redistribution and attainment of equity.

Low Institutional Capacity/Framework Conditions

In spite of investment made in capacity development for municipalities, the following weaknesses remain on the path of sustainable financing. These include:

- Shortage of qualified staff and lack of technical and administrative capacities to plan, implement, operate and maintain urban infrastructure facilities;
- Inefficient delivery due to overlapping/unclear implementation mandates of implementing agencies;
- Insufficient legal and administrative frameworks for PPP;
- Lack of capacity for transparent and reliable planning and procurement processes, and improved/accrual accounting system in municipalities; and
- Eroded accountability image due to lack of elected council in municipalities.

Limitations and Contingent Factors

The impediments to improving urban infrastructure financing are:

a. Large number of municipalities and towns are small and financially weak;

b. Lack of strong domestic capital markets, undeveloped municipal credit institutions

c. Asymmetrical decentralization and possible retrenchment of central transfers once federal restructuring is undertaken.

Table 2.18 Debt Analysis of 58 Municipalities

Description of debt analysis	Amount in Nepalese Rupees
A) Total Recurrent Revenue	4640.86 million/annum
B) Total Recurrent Expenditure	1459.26 million/annum
C) Net Operating Surplus	3181.60 million/annum
D) Total Borrowing Capacity (BC) : 25% of Net Operating Surplus	795.40 million/annum (Potential Loan for 20 Years = 15 Billion)
• Class A Borrowers	24 nos. with BC more than 10 million/annum
• Class B Borrowers	27 nos. with BC in between 5 million to 10 million/annum
• Class C Borrowers	7 nos. with BC less than 5 million/annum

d. Institutional and policy impediments to the development of municipal credit institutions.

f. Lack of mechanisms and instruments to finance urban infrastructure projects.

g. Poorly developed mechanism for mobilizing funds for maintenance of existing infrastructures.

Assessing Implementation Capacity

In spite of financing needs for infrastructure development, only few municipalities have capacity to mobilize more funds and implement the projects. Only 29 small towns and 4 IUDP municipalities are receiving financing from GoN under ADB line of financing to implement water and sanitation projects.

Possible financing for urban infrastructure could be to the tune of 800 Million NRs per annum at 25% of Net Operating Surplus. Debt financing in municipalities for 20 years is possible for up to NRS 15 billion only.

Pooled financing provides a mechanism, which leverages financing and makes citizens of small municipalities able to have access to bigger facilities, for examples, shared sanitary land fill site.

Fiscal Federalism and Revenue Sharing

Nepal is in the midst of an intense debate on federal restructuring and decentralization. The outcome of this debate will have a strong impact on how urban infrastructure can and should be financed in Nepal. There is also fear that the new provinces might compete with municipal governments for resource sharing. Thus, the infrastructure financing policy is likely to be impacted by several higher order considerations.

2.7.4 Key Strategic Concerns in Urban Financing and Implication on Urban Development

- Identification of urban infrastructure investments that can be **sustainably financed** through a mix of

a. Taxes and user charges from local citizens,

b. Transfers from higher levels of Government and

c. Unlocking land values that arise out of increasing urbanization.

- Sources of upfront financing through a mix of

a. loans from different sources including Development Partners, intermediaries such as TDF and markets,

b. investments from private sector, and

c. current revenue streams (capital grants from Government, revenue surplus, sale of assets etc)

- Enhancement of institutional capacity of central level institutions and ministries, as well as municipalities to:

a. increase own source revenues at local level;

b. design transparent, effective and performance based fiscal transfer systems;

c. mobilize resources; and

d. Prepare budget and make transparent, effective and efficient use of financial resources.

2.7.5 Some Innovative Financing Strategy & Tools to be Considered

(i) Value capture: The investments made by the state creates enhanced land value in certain parts of city, however the neighborhood residents pay integrated property taxes like residents of other parts pay. The existing integrated property tax- IPT captures the value to a minimum level only. Hence, betterment levies and sale of public land adjacent to an infrastructure, and land development schemes need to be used as tool to capture the value in parts of cities, where the state has made relatively huge investment.

(ii) Harmonize and streamline subsidy policy/strategy:No state subsidy to purely commercial urban infrastructure projects where projects are bankable or PPP is possible. However, partial subsidy to utilities like drinking water, city hall where income generation is partly possible

Viability Gap Funding (VGF) from public fund in PPP projects, wherever private SPV brings money, knowledge and technology into the project/s is highly recommendable. In addition to this, a full PPP enhancement policy and legislation is urgently needed.

Full Subsidy to purely social projects can be financed by public agency from taxpayers' money (state responsibility).

(iii) Mobilization of fund from capital market like through **c**onsortium financing, PPP financing, and bond issue need to be provisioned in the strategy.

(iv) National priority to cities

Articulating the role of cities in economic growth is vital because it determines the priority accorded to urban development in policy formulation.

(v) Focus on identified cities and urban agglomerations

It is essential to identify clear priority regions and sectors for urban development. Priority can be indicated in terms of urban growth regions (such as Kathmandu valley or specific north-south corridors in east-west highway) or sectors such as water and sanitation and urban transport

(vi) Service delivery and accountability framework

Even as the government puts in place a comprehensive financing policy, it should also put in place a framework that encourages cities to meet service standards and holds them accountable for non-compliance. A strong accountability framework also makes cities realistic in projecting its investment needs.

(vii) Inter Governmental fiscal system

The inter Governmental fiscal system in Nepal is already being revamped with support from development partners. The fiscal arrangements between the different levels of the Government play an important role in mobilizing additional resources.

(viii) Potential of new funding sources

Commercial borrowing, PPP and use of land as a resource, together provide a strong framework to finance capital investments. The policy should not only explore their full potential, but should also set up supporting mechanisms to ensure that the potential is realized. For example, a municipal bankruptcy framework provides a good foundation for leveraging commercial finance. Changes in urban planning and a transparent framework for land conversions provide a foundation in which urban land can be used as a financing instrument.

(ix) Mobilizing long-term debt financing

There were never sufficient budget resources available from government and donors to expand urban infrastructure coverage at a pace that keeps up with rapid urbanization in Nepal. There is need to follow common loan - grant policy by all donors and government of Nepal that sets one of the basic rules of the game in debt financing. Local governmentsneed to implement sound and transparent financial management practices and demonstrate the creditworthiness of their proposed investments.

Currently, TDF has been able to provide long term loans for up to 20 years, which are unavailable in the local market. Nepalese commercial banks generally lend up to 5 years, where as TDF has been able to provide municipalities long term loans up to 20 years at rates well below the market rate. TDF has also taken significant credit risk that the commercial banks would not have able to take. Loan repayment rate was 83%% in March 2014. However, this type of over risk needs to be safeguarded by financing and investment strategy.

In principle, municipalities can borrow on longer-term basis from capital market and banks. However, problems lie in the low level of eligibility to guarantee the payback. Thus, financing institutions like TDF tend to finance the bankable projects in general.

The revenue mobilization effort of municipalities helps to increase the number of bankable projects and revenue mobilization can be realized through property taxes. However, they may still not materialize until the capacity of the local bodies is raised to a higher level. Although user charges can be levied upon, there is still the need to raise awareness among the people that they cannot have the civic facilities for free. The only way to achieve this is to promote and regulate “users to pay” principle, which will reduce the gap between revenue and expenditure.

(x) Local revenue enhancement strategy

The potential for revenue generation from efficient management of local sources often gets underestimated. It is not uncommon to see vast differences in per capita revenues of cities, which are similar in size and in their economic base. Rather than improving the efficiency of local revenue generation, support from national Government is often seen as an easy alternative. The financing policy should fully explore how local revenue sources (taxes as well as user charges) can be maximized and should set benchmarks that cities should meet. A proper mix of financing approach strategically utilizes own-source revenue, grants, borrowing (loans and bonds), and equity. By leveraging these varied financing sources and tools against one another, municipalities will be in a better position to finance their priority projects to a larger extent.

2.8 Urban Governance

2.8.1 Fragmented Institutional Arrangement

Urban Governance and ensuing service delivery is marked by fragmentation in the **institutional arrangement.** The current arrangement has put urban planning and infrastructure development under one umbrella, while urban governance and administration in another.

Ministry of Federal Affairs and Local Development (MoFALD) is the central agency for **governance and administration** oversight of local bodies. Minimum Conditions and Performance Measures (MCPM) is a popular score-based monitoring instrument used by MoFALD to monitor local bodies. Municipalities are also required to create Ward Citizen Forum and Integrated Plan Formulation Committee to empower the role of citizens in formulating annual plans, programs and budget.

MoFALD is responsible among other things—for issues related to federal (re) structure, delineation of boundaries of local bodies, decentralization and devolution, intergovernmental fiscal transfer, human resource development of local bodies including deputation of Chief Executive Officers (CEOs), and rural development. MoFALD undertakes its functions through 75 District Development Committees (DDCs), 191 municipalities and 3276 village development committees.It also keeps oversight on Local Body Fiscal Commission (LBFC), Department of Local Infrastructure and District Agriculture Road (DOLIDAR), human resource training centres such as LDTA. MoFALD has a pool of local governance experts and engineers and it channels about NPR 8 billion of budget to Municipalities annually.

On the other hand, Ministry of Urban Development (MoUD) deals with the same urban space including municipalities, small towns and market centres, but undertakes functions of developing and managing basic urban infrastructure services such as water supply, sanitation, solid waste management, and housing. MoUD also carries out specialized functions such as urban and regional planning, urban development, new towns and government buildings. Generally, MoUD performs these unctions collaborating with the local bodies. MoUD operates through its implementing arms comprising namely Department of Water Supply and Sewerage (DWSS), Department of Urban Development and Building Construction (DUDBC), and about 16 other different organizational entities including Town Development Fund (TDF). MoUD furthermore keeps oversight on regionalplanning authority like Kathmandu Valley Development Authority (KVDA) and 197 Town Development Committees(TDCs). In some cases, TDCs tend to be influential stakeholder within the municipal space as they own and control substantial amount of land. MoUD has a pool of engineers, architects, and planners specialized in different urban disciplines, and channels NPR 9 billion annually for provisioning of various urban infrastructure services within the municipal space. Thus, two ministries MoFALD and MoUD tend to undertake complementing functions in the same urban space but institutional coordination mechanisms linking these two ministries remain lacking.

2.8.2 Problem of Coordination

In 2011, when MoUD was formed, the aim was among other things to foster planned urbanization and development, manage urban growth and issues, improve urban environment and increase urban productivity and opportunities. These objectives were to be achieved by mainstreaming urban planning, plan implementation, and financing under one umbrella as stipulated by National Urban Policy 2007—that is through MoUD. However, a municipality still being aligned under MoFALD, the very objectives with which MoUD was created, remains defeated.

Because limitations of the fragmented institutional arrangement still prevail. As a result, operationalization of plans and policies vis-à-vis implementation of programs within municipalities has become tedious with the bureaucratic processes and limitations of voluntary cooperation and coordination. Moreover, human and capital resources of MoFALD and Municipalities on the one hand and MoUD and its sectoral departments on the other hand remain divided. In tandem, these institutional resources can bring greater synergy: improve municipal technical capability, performance and service delivery. Consequently, these limitations have caused urban institutional resources to remain underutilized, despite the prospect of its greater potential.

Despite these, efforts are on to forge coordination at the project level. MoUD has been undertaking some large scale urban infrastructure development and municipal capacity building projects in several municipalities. These include Urban Environment Improvement Program (UEIP) and Urban Governance and Development Program (UGDP). The institutional coordination mechanism includes Steering Committee at the centre—which is chaired by MoUD secretary and represented by among others officials from other central agencies including MoFALD and the project local body. The Project Coordination Office (PCO) remains attached to DUDBC, while Municipality is entrusted with the task of project implementation. Town Development Fund (TDF) remains the debt managing intermediary agency. The limitation of the project level coordination mechanism however is that the coordination disappears after the completion of the project.

2.8.3 Technical Capability

Municipalities in general lack the technical expertise and capacity to confront the complex urban dynamics and pursue urban planning and development works. On the contrary, MoUD employs the man-power capable of doing these works, and it carries out much needed urban planning and development works through its implementing arm namely DUDBC. DUDBC has been providing technical and financial support to municipalities since the 1990s to prepare municipal integrated action plans (IAP), and periodic plans. But, much of the plan implementation suffers from weak municipal organization and capability. Several municipalities still lack basic organizational structure to manage works such as solid waste or deal with issues such as disaster risk management. Enforcement of building regulations, planning-bye-laws, building code, urban planning norms and standards are non-existent or have become forced measures in most municipalities rather than pre-empted responses. Except for few municipalities, most continue to rely on the central government for revenue. Municipalities are further handicapped in undertaking major development decisions due to the absence of political representation for more than a decade.

2.8.4 Problem of Planning and Managing Urban Agglomerations and Corridors

Legal basis is also inadequate to manage and govern large urban regions comprising of urban agglomerations, clustered city region and urban industrial corridors involving several local bodies, although Town Development Act 1988 may provide necessary legal basis. Kathmandu Valley Development Authority (KVDA) Act 1988 is limited to the Valley and it enables the Valley to be viewed as one planning unit. However, the present relations between KVDA and local bodies tends to be loose, as local bodies are not obliged to comply with the KVDA plan and regulations. This voluntary nature of cooperative planning and non-compliance of regional planning goals and regulations by the local bodies is one of the reasons behind weak implementation of region-wide plans such as the Long Term Development Plan of the Kathmandu Valley and other regional plans. The past efforts to have legislation backed conjoint planning—in which regional plan and standards are complied in the local (municipal) plans or vice versa in a mandatory manner—through Kathmandu Valley Physical Planning Act has failed, as this legislation could not get the parliamentary approval. The Physical Planning Act which would in general define the roles of regional planning authority, local bodies as well as their relations—to manage larger urban space also has not received government approval and remains in a limbo. The new federal setup of governance, once it is finalized, is expected to redefine the role of the central government in local affairs. International practices indicate that local urban affairs generally come under the purview of the state or provincial government; the role of the central government is limited to preparation and enforcement of policies and standards in the areas of critical concern, facilitating coordination and undertaking large scale specialized urban infrastructure investment. This means that the existing institutional and legal arrangements between the central government and the municipalities will have to be thoroughly reviewed.

Town Development Act 1988 has been activated to form regional planning authorities like Pokhara Valley Town Development Committee and Surkhet Valley Town Development Committee. Both these TDCs keep valley wide planning oversight encompassing administrative boundaries of several local bodies. Elsewhere TDCs are formed to provide planning needs as well as manage growth of small towns and market centres. All these TDCs have DUDBC Division Chief or its technical representative as the member secretary—and through DUDBC Division Office, TDCs derive required technical support. At present, only a few of the TDCs among 197 are active and have their permanent income sources. These TDCs have managed to employ their own human resources.

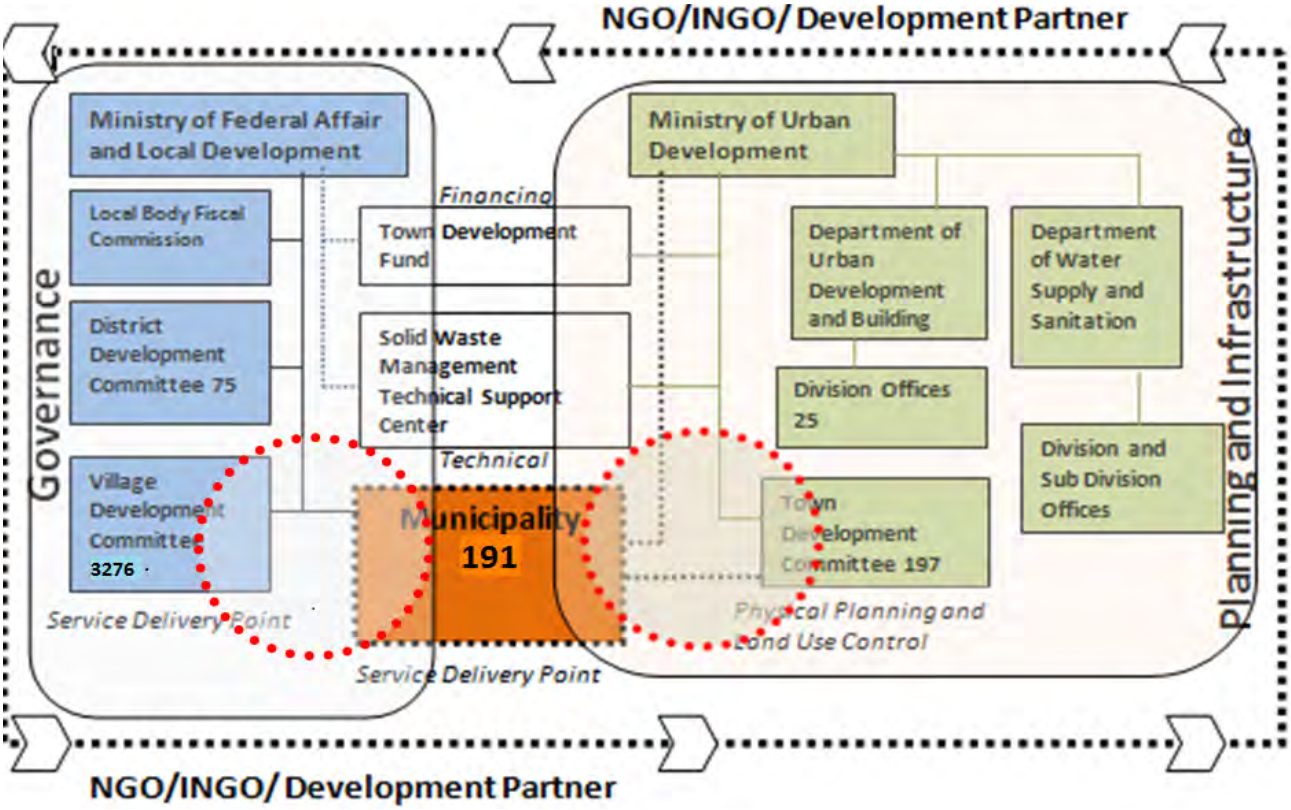


Fig 2.14: Urban Institutional Arrangement , Credit: P.K.Mainalee

But rest of the TDCs are inactive and ineffective due mainly to lack of resources in pursuing their objectives. These problems notwithstanding, the DUDBC flagship project such as New Town Development rely on TDCs for much needed legal basis to control land use, enforce building regulations, and facilitate project implementation. The current TDC organizational structure—which relies on a more administrative, coordinative and regulatory role—is inadequate to deal with volatility and specialized knowledge of land market needed in the context of new town development. The relevance of TDCs have also been questioned where municipalities have been created or exist. The role of TDCs is often looked with skepticism by the local bodies—as TDCs are feared to interfere in the local affairs

2.8.5 Major Issues

- Fragmented institutional arrangement—urban planning and infrastructure development supported by MoUD, while urban governance and administration through MoFALD.
- No coordination mechanisms between MoFALD and MoUD though they share same urban space. Temporary coordination at the project level. Lack of technical expertise and capacity.
- Legal basis inadequate to manage and govern large urban region such as clustered city region and urban industrial corridor comprising several local bodies.
- Inadequacyof KVDA Act 1988—voluntary nature of cooperative planning.
- Town Development Act 1988—inadequacy to deal with issues of New town Development.
- Federal (re) structuring and its implications for urban governance, particularly the relations between the central government and the municipalities

2.9 Urban Infrastructure Condition Index

As a preliminary attempt and for the sake of comparison of urban character and infrastructure conditions of municipalities an Urban Infrastructure Condition Index (UICI) has been created.

The urban infrastructure indicator includes road density, hard topped road, water supply coverage, electricity connection, sanitation condition, housing type and solid waste management in municipality. While urban character includes percentage of urban area within municipality (i.e. ward density > 10 ppha density).

Computing UICI

Each indicator is given certain weightage based on their importance in urban development (Table 2.20). Water supply coverage and road condition (linkage) of the municipality are the basic indicators of development, thus are assigned with highest weightage i.e. 0.20 each. They are followed by other basic services such as electricity connection, sanitation and solid waste management indicators with 0.15 weightage each. These indicators show the existing condition of basic services and infrastructures in the municipality. Similarly, 0.10 weightage is assigned for urban character and 0.05 is allocated for housing type indicator.(Annex 9.a)

Table 2.19 Urban Infrastructure Condition Index

Indicator		Measure	Weightage
Urban character		% of wards with >10ppha density	0.10
Urban infrastructure	Road Density	Ratio of length of road in Km. to the buildable area in Sq. Km	0.15
	Hard Topped Road	% of length of black topped road to the total length of road in the municipality	0.05
	Water Supply Coverage	% of HH with access to piped water supply	0.20
	Electricity Connection	% of HH using electricity as the source of lighting	0.15
	Sanitation	% of HH with access to flush or ordinary toilet	0.15
	Housing Type	% of HH with RCC roof	0.05
	Solid Waste Management	% of waste collected by the municipality	0.15

Urban character is the percentage of number of wards within the municipality with population density more than 10 ppha. The value for municipality with all wards having density more than 10ppha (i.e. 100%) is set as 100. Similarly, the value for national urban average 63% is set as 50 and for municipality without any wards with density more than 10ppha is set as 0. (Annex 9.b)

Road density is computed as ratio of length of road in km to buildable area in sq km of the municipality. The value for 15 km/sq km road density and for 0 km/sq km is set as 100 and 0 respectively.(Annex 9.c) Similarly, condition of hard topped road is calculated as percentage of length of black topped road to the total length of road in the municipality. The value for 100% hard topped road and for national urban average (i.e. 25%) is set as 100 and 50 respectively. (Annex 9.d)

Water supply coverage is calculated as percentage of HH with access to tap and piped water within a municipality. The value for 100% and 25 % coverage is set as 100 and50 respectively (Annex 9.e). Similarly, electricity connection is calculated as percentage of HH using electricity as the source of lightning. The value for 100 % and 75 % electricity coverage in the municipality is set as 100 and 0 respectively (Annex 9.f). Likewise, sanitation is computed by percentage of HH with access to flush or ordinary toilets in the municipality. The value for 100% access and 75% access is set as 100 and 0 respectively (Annex 9.g). Further, housing type is calculated by percentage of households with RCC roof in the municipality. The value for municipality with 100% households with RCC roof and National Urban Average (i.e. 45%) is set as 100 and 25 respectively (Annex 9.h). Finally, solid waste management is measured as percentage of waste collected by the municipality. The value for 100% and 0% collection of waste is set as 100 and 0 respectively (Annex 9.i). The values for all municipalities is computed by interpolation for all indicators based on the set values.

The UICI is far from comprehensive and as data on water supply and consumption per capita, electricity consumption per capita and availability of public open space per capita become available these can be incorporated in the index. The index can be expanded by including indicators for occupational structure and other measures of production.

The UICI for 58 municipalities is shown in Annex 10. Kathmandu has the highest value (Table 2.21), followed by Butwal and Bhaktapur. Gulariya stands last in the list with only 8 points. Further, productivity has not been considered for the time being. The four municipalities Rajbiraj, Khadbari, Dipayal Silgadhi and Triyuga are not included in the ranking as the data regarding solid waste collection is not available.

Data Sources: The data sources include CBS for households (HHs) data such as Access to piped water supply, Number of HH connected to gridline, Number of household with access to toilet, Number of HHs with pakki roof and ward level population density in municipalities. Other data sources are Department of Roads (DoR) for road density and % of hard topped road in municipalities and SWMTSC for % of solid waste collected by municipalities

2.10 Regional and National Urban System

An urban system is a network of different order urban settlements and their hinterlands functionally inter-linked with one another and contributing to the efficient and integrated functioning of the space economy in terms of production, distribution and consumption, and movement of people,

Table 2.20 UICI for Kathmandu Metropolitan City

Indicator	Computed Value	Weightage	Index value of Indicator	UICI (out of 100)
Urban Character	100	0.10	10	91
Road Density	100	0.15	15	
% of hard topped road	80.1	0.05	4	
Water Supply Coverage	80	0.20	16	
Electricity Connection	93.2	0.15	14	
Sanitation	95.7	0.15	14.4	
% of Pakki House (RCC roof)	73.5	0.05	3.7	
Waste Collection	90.8	0.15	13.6	

goods and services, capital and technology. The factors that affect the growth of the urban system are (i) network and quality of road infrastructure that links major settlements, and areas of production potential (ii) the complimentarily in the flow of people, goods and services, (iii) regional resources and the extent to which these resources are mobilized, and (iv) the policy environment that facilitates the development of economic activities in potential areas. The interest in urban systems derives from the fact that a regionally and nationally integrated system is economically efficient, spatially articulate and contributes to the effective mobilization of productive resources and dissemination of innovations and technology.

Historically Kathmandu valley exemplified the only autonomous urban system based on productive agriculture and long-distance entrepot trade in Nepal. The orientation of Nepal's urban system in the post 1950 period was influenced by:

(i) Border towns thriving on trade, services and industrialization (Biratnagar, Janakpur, Birgunj, Bhairahawa, Nepalgunj)

(ii) Break-of bulk towns along the foothills (Dharan, Hetauda, Butwal)

(iii) Trade and service centres along major north-south trails often thriving on administrative functions.

Since the 1970s construction of East West highway, major north-south roads, and other highways in the hills provided the impetus for the growth of trade and service centres in favorable locations. However, the urban potential of the hill region remain much less developed compared to the Tarai as the production potential and the demographic shift continues to favor the latter.

The settlement hierarchy in Nepal (Map) shows a south-north orientation. With the exception of Kathmandu valley and Pokhara all major urban economic centres are in the south, along the border with India, the foothills and cross-road locations in the east-west highway. A 2007 study (NPC/ADB 2007) identified eight economic regions based on the hinterland of major urban economic centres in Nepal, namely, Dhangadhi, Nepalgunj, Siddharthanagar-Butwal, Pokhara, Kathmandu, Birgunj-Bharatpur, Nepalgunj, and Biratnagar. Kathmandu and Pokhara are the only meaningful economic regions in the hills. The dynamism and the level of integration of the economic regions vary considerably but the core urban centres of the six economic regions are based in Tarai. Based on road linkages and the flow of goods and service there are two relatively integrated regional urban systems in Nepal. The first takes into account the central region comprising of Kathmandu-Pokhara-Butwal/Bhairahawa-Bharatpur/Hetauda-Birgunj rectangle.

The second is the eastern urban-system focused on Biratnagar which functionally links Biratnagar-Itahari-Dharan-Inaruwa-Damak-Kakadbhitta and the smaller urban centres in the hills and Tarai. In terms of functional importance for respective economic regions Nepalgunj and Dhangadhi constitute the core of two nascent regional urban systems encompassing the entire mid-western and far-western hill regions. But the level of integration in terms of production, consumption and distribution and the complementary flow of goods and services is still very weak. This is contributed by poor quality of road infrastructure linking towns and market centres into the hill hinterland, relatively low population density, and lack of identification and mobilization of regional resources to induce investment and promote economic activities both through public and private sectors.

A major objective of NUDS is to promote an efficient and integrated national and regional urban system. This means enhanced production, consumption and distribution linkages in the regional urban systems of the east (Biratnagar centred) and the centre (Kathmandu, Pokhara, Butwal, Bharatpur, Birgunj centred) on the one hand and strengthened urban systems centred on Nepalgunj and Dhangadhi in the mid and far west, on the other.

It is possible to discern a generalized functional hierarchy of settlements based on the major urban/economic centres in Nepal. Each tier of settlements has an important role to play in the development and the mobilization of hinterland resources. The hierarchy extends from the major economic centres of the Tarai and the hills to second and third tier settlements in the Tarai, hills and on to the mountains. There is also significant overlap in the hinterland of the settlements. The status of settlement is determined by road access, locational advantages and commensurate bulking, distribution and service and often administrative functions. The implications of promoting an integrated national and regional urban system are that the advantages of settlements in the hierarchy need to be strengthened by focusing on critical infrastructural investments with the potentiality to unleash the comparative and competitive advantages. Where there are evident gaps in the hierarchy, it may also be essential to promote selected settlements to perform the requisite functions.

Table 2.22 and Map 2.7 presents a summary of the settlement hierarchy based on major economic centres and is based on 2007 NPC/ADB study and small towns and market centres identified along major road networks (source: DUDBC, 2011 and DWSS, 2009).

Major Issues

Two distinct relatively integrated regional urban systems – in the centre and the east - are discernible on the basis of the flow of goods and services. The urban system in the mid and far west is fragmented with relatively weak links with the hinterland. The major challenge is to facilitate and strengthen the integration of the urban system in the mid and the far west with the central urban system comprising Kathmandu-Pokhara-Butwal/Sidhdharthanagar- Bharatpur- Birgunj. This can contribute to the development of a regionally balanced urban system, and the integration of the economy of the mid and far west with that of the rest of Nepal.

There are some positive trends in the development of the regional urban system in the mid and the far west. First, as a result of hill-Tarai migration the urban potential of the mid and the far western Tarai is enhanced mainly due to the increase in population density. Second, the process of urban corridor development (Nepalgunj-Kohalpur; Dhangadhi-Atariya) is picking pace with potential for the development of non-farm and small-medium scale industrial development. To build on these trends the major issues for consideration are as follows:

- Mobilization of regional resources with comparative and competitive advantages for strengthening regional urban systems
- Quality road access with the hinterland
- Strengthening inter-urban road linkages
- Promoting higher order service functions in regional economic centres to generate agglomeration economies.
- Strengthening urban planning and governance mechanisms.

Table 2.21 **Planning Norms and Standards, 2013 has categorized urban area into five classes based on the population. (MoUD, 2013)**

Category	Class	Population
Metro City	Class 1	> 300,000
Sub-Metro City	Class 2	100,000 - 300,000
City (Municipality)	Class 3	40,000 - 100,000
Sub-City (Small Town)	Class 4	10,000 - 40,000
Market Center	Class 5	50 Shops @ 100m from centre

MAP 2.7 SETTLEMENT SYSTEM RELATIONSHIP

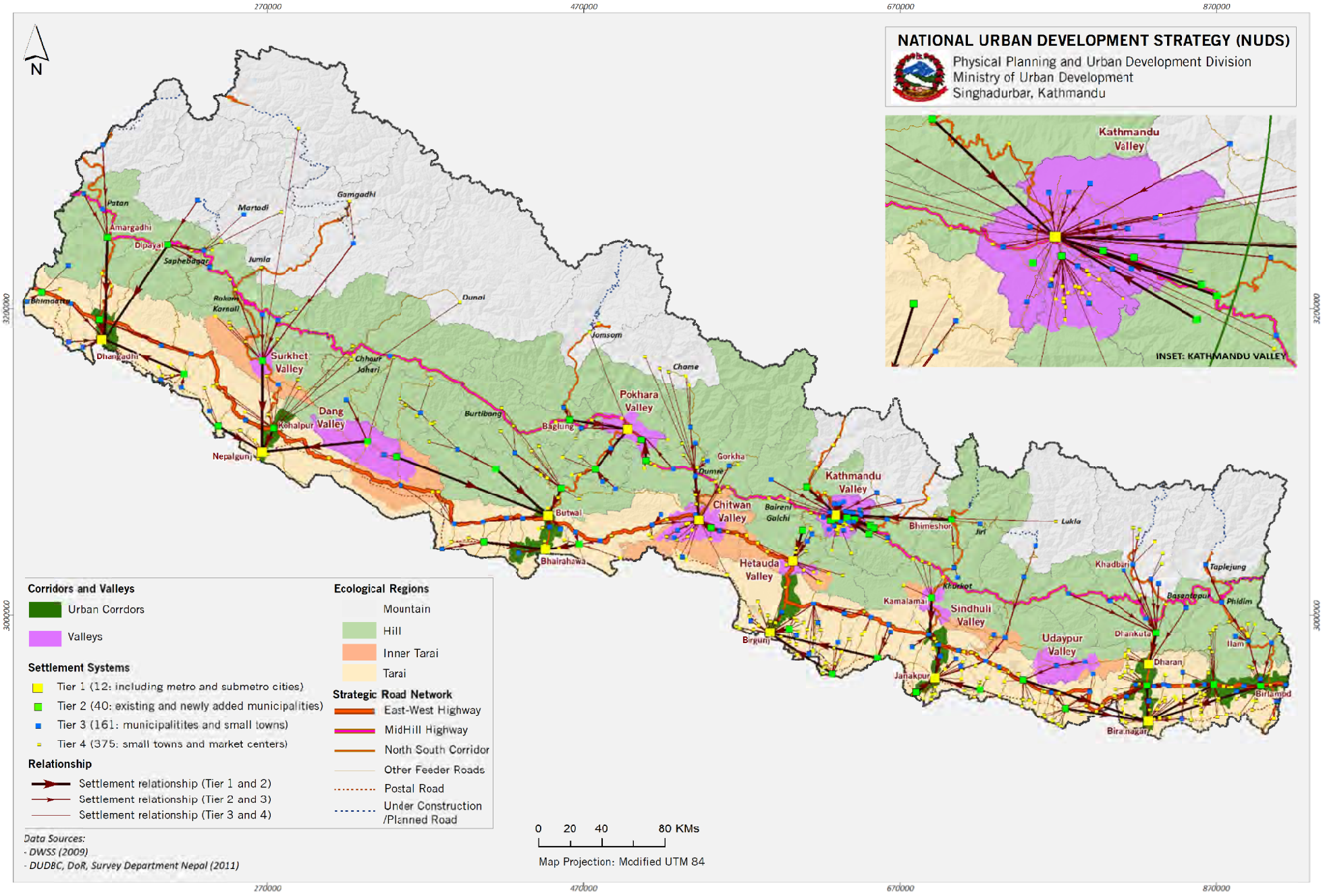


Table 2.22 Urban Centre Hierarchy

Sn. No.	Major urban area (criteria: pop size, % urban using 10pph criteria, functions: economic-commercial. administrative, industrial)	Second tier urban centres directly connected to major urban area and mainly or partly served by it	Third tier urban centres directly connected to second tier or major urban centres	Small towns/ market centres served by second or third tier centres
1	Dhangadhi (T)	Amargadhi (H), Dipayal (H), Attaria (T), Tikapur (T), [4]	Mangalsen (H), Jayprithivi (M), Api (M), Sanphebagar (H), Dasharathchanda (H), Rajapur (T), Belauri (T), Punarbas (T), Lamki Chuha (T) [9]	Martadi (M), Phulbari (T), Bhajani (T), Pahalwanpur (T), Narayanpur (T), Kolti (M), Nawagau (H), Thadi (H), Markhu (H), Patan (H), Budar (H), Shahajupur (T), Sukhunda (T) [13]
2	Nepalgunj (T)	Gulariya (T), Birendranagar (IT), Tulsipur (IT), Kohalpur (T) [4]	Narayan (H), Sharada (H), Jumla (M) (Chandannath), Dullu (H) [4]	Kusumba (T), Noulapur (T), Kusumba bazaar (Sanoshree) (T), Dunai (M), Manma (M), Simikot (M), Gamgadhi (M), Musikot (H), Jajarkot Khalanga (H), Bhuregon (T), Chhinchu (IT), Khajura (T), Chaurjahari (H), Kusum (T), Maina Pokhar (T), Basgadhi (T), Gumi (IT), Basapani (T), Puraine (T), Jaisapur (T), Toli (H), Naumule (H), Tribeni (H), Grute (IT), Bidhapur (IT), Babiyachaur (IT), Bandichour (IT), Abalparajal (H), Ramghat (IT), Mehelkuna (IT), Tarigaun (IT), Rakam Karnali (H) [32]
3	Butwal (T)	Tansen (H), Sandhikharaka (H), Ghorahi (IT) [3]	Pyuthan (H), Liwang (H), Sainamaina (T), Shivaraj (T), Tilottama (T), Devdaha (T), Resunga (H) [7]	Lamahi (IT), Bhaluwang (IT), Lalmatiya (IT), Santipur (H), Ridhibazar (H), Pyuthan Khalanga (H), Jhadewa (H), Sauraha-Farsatikar (T), Pharsatikar (T), Dovan (H), Dumre (H), Argali (H), Baletaksar (H), Turang (H), Marichour (H), Khudi (H), Darligau (H), Thwang (H), Mijhing (H), Sulichaur (H), Bhingrikot (H), Narayanpur (IT), Balewa (H), Ghamir (H), Burtibang (H) [25]
4	Siddharthanagar (T)	Kapilbastu (T), Ramgram (T) [2]	Krishnanagar (T), Bardaghat (T), Sunawal (T), Lumbini Sanskritik (T) [4]	Maharajgunj (T), Bahadurgunj (T), Konihawa (T), Shankarpur (T), Amurwa (T), Dhakdahi (T), Dumkibas (T), Tripeni Susta (T) [8]
5	Bharatpur (IT)	Ratnanagar (IT), Dumre (H) [2]	Kawasoti (T), Khairahani (IT), Chitrawan (IT), Gaindakot (T), Gorkha (H), Bandipur (H), Beshisahar (H), Devchuli (T) [8]	Abukhaireni (H), Chame (M), Pisang (M), Dharapani (M), Tal (M), Manang (M), Kuncha (H), Sundarbazar (H), Turture (H), Bhansar (H), Karmohariya (H), Arughat (H), Kuringhat (IT), Phaksin (IT), Mugling (IT), Devghat (H), Kaphal (H), Meghauli (IT), Gitanagar (IT), Jagatpur (IT), Partihani (IT), Baruwa (IT), Parsadhap (T), Basantapur (H), Mangalpur (IT), Rampur (IT), Gautamnagar (T), Khurkhure (IT), Lothar (IT), Tandi (IT), Galtari (T), Madanpur (T), Rajahar (T) [33]

6	Pokhara valley (H)	Baglung (H), Waling (H), Shuklagandaki (H) [3]	Kushma (H), Putali bazaar (H), Byas(H), Beni (H), Chapakot (H), Rampur (H) [6]	Jomsom (M), Hemja (H), Kagbeni (M), Mallaj (H), Rampur-Bihunkot (H), Falebas (H), Tilahar (H), Bhorletar (H), Bharatpokhari (H), Partighat (H), Ganapar (H), Jamune Bhanjhyang (H), Ganadhi (H), Bhimad (H), Hawas (H), Jagatradevi (H), Galyang (H) [17]
7	**Birgunj (T)**	Kalaiya (T), Gaur (T), Malangawa (T) [3]	Nijghad (T), Jitpur (T), Chandranigahapur (T), Hariwon (T), Lalbandi (T), Ishwarpur (T) [6]	Amalekhaganj (T), Auraiya (T), Barathawa (T), Baiyarpur (T), Rangapur (T), Gunjbhawanipur (T), Karmaiya (T), Kolhabi (T), Vijaypur (T), Murtiya (T), Pokhariya (T), Rajpur Farhadwa (T), Samanpur (T), Kathariya (T), Vishwa (T), Baluwa (T), Basantapur (T), Belauni (T), Dumarbana (T), Dumriya (T), Gangapripra (T), Garuda (T), Jagatpur (T), Jaimangalpur (T), Jaitpur (T), Kachaurba (T), Katariya (T), Kolvi (T), Maghopur (T), Majhariya (T), Mangalpur (T), Matihani (T), Parawanipur (T), Parsauni (T), Phulbariya (T), Piparadhikot (T), Rampur (T), Simraunghad (T), Sivanagar (T), Umjan (T) [40]
8	**Hetauda (IT)**	Thaha (IT) [1]	Kulekhani (IT), Bhimphedi (IT) [2]	Bhaise (IT), Harnamadi (IT), Hatisude (IT), Hatiya (IT), Jureli (IT), Jyameri (IT), Manahari (IT), Markhu (IT), Phapharbari (IT), Phedi Belghari (IT), Ratemate (IT), Shreedhur Chatiwan (IT), Padampokhari (IT) [13]
9	**Kathmandu Valley (H)**	Banepa (H), Dhulikhel (H), Panauti (H), Bidur (H), Bhimeshwor (M) [5]	Panchkhal (H), Nilkantha (H), Chautara (M) [3]	Barhabese (M), Lele (H), Chapagau (H), Bungamati (H), Kharalthok (H), Dhunche (H), Gajuri (H), Betrabati (M), Jiri (H), Lukla (H), Ranipauwa (H), Lubhu (H), Manthali (H), Bhakundebesi (H), Naubise (H), Ramechap (H), Sainbu (H), Pharping (H), Shyaphrubesi (H), Thankot (H), Bajrabarahi (H), Nala (H), Bhatta Danda (H), Chandanpur (H), Dhapakhel (H), Godamchour (H), Harishiddhi (H), Imadol (H), Lamatar (H), Nigale (H), Ratamati (H), Siddhipur (H), Sunakothi (H), Taukhel (H), Thecho (H), Thiba (H), Tikathali (H), Baireni Galchi (H) [38]
10	**Janakpur (T)**	Jaleshwor (T), Siraha (T), Kamalamai (IT) [3]	Mirchaiya (T), Dhanushadham (T), Chhireshwarnath (T), Gaushala (T), Katari (IT), Siddhicharan (H) [6]	Badabela (T), Bandipur (T), Belha (T), Chaharwa (T), Devpura (T), Godar (T), Karjunha (T), Khajuri Chanha (T), Kuleshwor Dumja (IT), Laxmi Niwas (T), Madar (T), Nagaraien (T), Raghunathpur (T), Ratamata (IT), Sarashowr (T), Sarpahi (T), Satosar (T), Tarapatti (T), Yadukuwa (T), Gol Bazar (T), Bandipur (T), Vishnupur (T), Dudhouli (IT), Kapilakot (T), Khairmara (T), Dumja (IT), Matihani (T), Fulgama (T), Sabaila (T), Sallusaleri (M), Khurkot (IT) [31]

11	Dharan (T)	Dhankuta (H) (1)	Myanglung (H), Bhojpur (H), Diktel (H), Khadbari (M), Chainpur (M) (5)	Basantapur (H), Chatara Ghat (T), Baraha Chetra (T), Ankhibhui (M), Kharang (M), Bayarvan (T), Bhlayatar (T), Pokhari (M), Num (M), Hedangna (M), Saiduwa (M), Bahrabise bazaar (M), Madirambeni (M) [13]
12	Biratnagar (T)	Itahari (T), Damak (T), Birtamod (T), Rajbiraj (T), Lahan (T) [5]	Inaruwa (T), Mechinagar (T), Bhadrapur (T), Sani-Arjun (T), Kankai (T), Suryodaya (H), Ilam (H), Phidim (H), Taplejung (M), Pathari-Sanischare (T), Urlabari (T), Rangeli (T), Belabari (T), Koshi-Haraicha (T), Sundar-Dulari (T), Duhavi-Bhaluwa (T), Kanchan-Rup (T), Shambhunath (T), Triyuga (IT), Weltar-Bashaha (IT) [20]	Guruwa Sitan (T), Sukrabare (T), Sibagaj (T), Dargabari (T), Goldhap (T), Rajghad (T), Jhapa (T), Bagan (T), Banibagi (T), Budhabare (T), Charali (T), Garamani (T), Himalichok (T), Pashupatinagar (H), Rake (H), Jamuna (H), Deurali Bajar (H), Nepaltar (H), Puwakhola (H), Bipalate (H), Nayabajar (H), Chisapani (H), Panchami (H), Dasami (H), Dhurbese Pachami (H), Purano Panchami (H), Kanpokhari (T), Kerkha (T), Jhiljhile (T), Dudhe (T), Durgapur (T),Karkichok (T),Bhedmadiya (T),Amardaha (T),Itahara (T),Demravitta (T),Sijawa (T), Campabajar (T),Gauriganj (T),Khajurgachi (T),Tetariya (T),Banigram (T),Haricha (T),Dagohat (T),Bahuni (T),Dainiya (T),Nayabajar (T),Ramnagar (T),Ghusko (T),Chimando (T),Koshi barrage (T),Mokraha (T),Madhuban (T),Jhanjharpur (T),Kalbanjar (T),Chakraghatti (T),Rajabas (T),Jankaspur (T),Pato (T),Phatepur (T),Narghau (T),Bhardaha (T),Kusaha (T),Katauna (T),Malahaniya (T),Thandi (T),Babiya (T), Asanpur (T), Bastipur (T), Bayerban (T), Jhumka (T), Bhagwanpur (T), Mohanpur (T), Gobindapur (T), Dewanganj (T), Dhangadhi (T), Gauradaha (T), Hanumannagar (T), Harinagar (T), Bhantabari (T), Jhorahat (T), Kalyanpur (T), Katahari (T), Keraun Bazar (T), Laukahi (T), Letang (T), Madhumalla (T), Chakragatti (T), Pakali (T), Fatepur (T), Rajghat (T), Rupani (T), Sukhipur (T), Karsiya Bazar (T), Tankisnuwari (T), Kerkha Bajar (T) [96]
12	36		80	359

M - Mountain, H- Hill, IT- Inner Tarai, T- Tarai
Source: NPC/ADB (2007), DUDBC, DWSS (2009)

Table 2.23 Major Economic Centres: Locational Advantages, Economic Base and Regional Potential

Economic Centres/Region	Locational Advantages	Economic Base	Regional Potential
Kathmandu valley Pop. 1,426,641	Capital region; highways linking major economic centres and hinterland, international air connection	Tourism, trade, foot loose manufacturing, handicraft	Nature, adventure tourism; high value horticultural crops; high value low bulk and low environmental impact industries; educational and health services
Pokhara valley Pop. 314,281	Valley location in the mid hills commanding a large service hinterland; road connection to Kathmandu and Tarai	Regional service/trade; tourism	Tourism hub, cultural centre; high value crops (fruits, off-season, vegetables etc.); handicrafts and small manufacturing enterprises in tourist related industries.
Dhangadhi Pop. 101,970	Nearness to the Indian border and road connection to the east-west highway	Emerging manufacturing and services centre	Wildlife and adventure tourism; high value crops, non timber forest products; agro based small manufacturing enterprises.
Nepalgunj Pop. 72,503	Nearness to the railhead along the Indian border; road connection to the east-west highway and the mid western hills	Trade/services centre	High value crops; herbs and rare medicinal species, non timber forest products; agro based small manufacturing enterprises; wildlife and remote location tourism
Butwal Pop. 118,462	Foothill cross-road location along the east-west highway and Siddhartha highway commanding the western hills	Trade/services and emerging manufacturing base	High value crops (ginger and coffee); citrus fruits; off season vegetables; transportation hub;
Siddharthanagar Pop. 63,483	Nearness to the railhead along the Indian border; road connection to the foothills and beyond	Trade/services; potential tourism	Religious tourism; export based industries; trade related activity;

Bharatpur Pop. 143,836	Foothills in the Inner Tarai; located along the east-west highway; road connection to Kathmandu and western hills; large productive agricultural base	Trade and services; emerging manufacturing sector; potential tourism	Recreational (tourism); Service (health and education) hub
Hetauda Pop. 84,671	Foothills in the inner Tarai; cross-road location along the east-west highway and the hills	Trade, manufacturing	Transportation hub; export based industries
Janakpur Pop. 97,776	Nearness to the railhead along the Indian border; road connection to east-west highway	Trade/service but has a limited hinterland	High value crops (vegetables, Fruits); agro processing industries; cross border activities and industries; tourism (cultural)
Dharan Pop. 116,181	Foothill location commanding the eastern hills; road connection to east-west highway and Biratnagar	Services/trade	Tourism ; service hub (education and health)
Biratnagar Pop. 201,125	Traditional industrial region; nearness to the railhead in the Indian border; agriculturally productive hinterland, air connection to Kathmandu and eastern hills	Trade/services and manufacturing	Industrial and trading centre; bulk manufacturing, high value crops (tea, herbs etc).

Adapted from NPC/ADB (2007)

Summary

The existing urban conditions are reflected through available basic data on urban infrastructure, environment, economy, governance, finance and investment and through analysis of current nature and characteristics of urban land, densities and form. Land fragmentation, unregulated urban land market, faulted land acquisition and compensation and incomprehensive zoning regulations characterize the current urban land. The present ward density of municipalities is distributed in a wide range with 362.4 ppha as highest in Kathmandu and 2.57 ppha as lowest in Kamalamai municipality. Further, it is observed that the density increases with the population size of municipality. The evolving urban form is becoming increasingly disorganized, mixed with incompatible land uses, declining level of amenities and neighborhood environment.

Deficiency of urban infrastructures is highlighted by the situation of water supply, sanitation, solid waste management, housing, transport and energy. Ecological disparity is evident in case of access to piped water supply. Only 32.9% of households have access to piped water supply in urban Tarai as compared to 81.2% of households in urban hill. However, quality and quantity of drinking water is insufficient in all urban regions. In order, to improve the situation of water supply and sanitation by 2017AD, per capita expenditure of NRs 3500 is required, amounting to 75 billion per annum annually. The condition of sanitation system and solid waste management are also critical. Only 56.1% of urban households have access to sanitation system with 88.2% households having access to toilets. Likewise, out of 58 municipalities, only 6 have sanitary landfill sites and only 5 practice controlled waste dumping. Increasing squatter settlements and lack of affordable housing is the major concern for urban housing sector, which is evident in the growing percentage of squatter settlements in urban areas.

Inadequate and inefficient transport infrastructure is the key concern of urban transport. The average road density of urban areas is 3.26 km/sq km, which is quite low and relatively low road coverage show the rural extent of most municipalities. The present condition of national energy crisis is apparent and exaggerated in the urban area. The demand of electricity is the highest in urban and industrial corridors, with annual rate of increment of 9%. However, the rate of production cannot meet the bulk electricity demand of urban areas. In the process of determining the infrastructural status of various municipalities, Urban Infrastructure Condition Index (UICI) has been formulated and computed for 58 municipalities. UICI provides a tool for comparison of infrastructural condition of municipalities. Kathmandu Metropolitan city has the highest value of UICI whereas Gulariya stands at the bottom of the index list.

Analysis of urban environmental condition also highlights the critical condition of urban areas in terms of physical, natural, and social environment. The existing Urban Environment Management Guidelines can be a strong document to address environment issues in urban areas, but like any other documents it falls short in implementation. The municipalities lack institutional capacity, proper planning and funding mechanisms to manage urban environment that includes coping with disasters, providing safety and security, enhancing socio-cultural like, preservation of open spaces, etc. Rapid depletion of open spaces in urban areas is a key indicator. The proportion of open space in major municipalities shows a bleak picture with only 0.48% in Kathmandu and 0.06% in Lalitpur.

Urban areas are regarded as the engines of growth and economy. Its contribution in the national GDP is quite significant. The recent GDP data by CBS shows urban GDP made up 33.1% of national GDP (NPC/ UNDP 2014) and 30% comes from the VDCs at proximity to or served by the urban centers. Therefore, it provides stronger justification to invest in economic development of urban areas that helps in generating wealth and employment opportunities and boost its GDP growth rate. In order to meet the infrastructural deficit in 58 municipalities, staggering NRs 372.89 billion investment is estimated, while for 133 new municipalities NRs 881 billion is estimated.The amount is calculated based on existing and desirable state of municipalities. However, approximate investment allocated for the municipalities for infrastructure development in the current fiscal year is NRs 20.07 billion only. This amounts to only 1% of national GDP, which is very low when compared with its GDP contribution and highlights significant investment deficit for maintaining and upgrading urban infrastructure.

In the present context, the revenue base of the municipalities is also very weak and revenue potential has not been fully mobilized. Own source revenue of the municipality in average accounts to only 30% of the total revenue and nearly 70% of municipal revenue is accrued from grants.

Apart from infrastructure, environmental, investment and financial conditions, issue of governance in municipalities is also vital. The current arrangement has put urban planning and infrastructure development under one umbrella (MoUD), while urban governance and administration in another (MoFALD). Fragmented institutional arrangement, uncoordinated mechanisms between MoFALD and MoUD and lack of technical expertise and capacity are the major concern of urban governance.

Regarding the existing national and regional urban system, two relatively integrated systems can be observed in the centre and in the east based on flow of goods and services. However, the urban system in the mid and far west is fragmented with relatively weak links with their hinterlands.

Key Points

- NUDS is not limited to physical development, but aspires to attain a qualitative vision for future cities that reflects highest values of a society.
- NUDS has set milestones which also serve as development indicators within each theme.
- NUDS also attempts to estimate investment required to achieve the desirable conditions set in terms of infrastructure and service delivery.
- The total estimated investment required for all the municipalities in projected period of 15 years is beyond the capacity of the local body. Hence, the possible sources of funding have been identified. These include the central government, municipality, community, private sector and development partners, each with different share of contribution.

Chapter 3

INTENDED URBAN SYSTEM AND MILESTONES

▼ Baneshwar - Babarmahal road section in Kathmandu.
Photo credit: Angad Dhakal, 2014

3.1 Guiding Principles

The conditions in Nepal's urban areas presented in Chapter 2 reveal a concern with basic conditions of infrastructure, environment, economy and finance of municipalities. These conditions fail to convey the qualitative aspects of urban life and living. National Urban Development Strategy should necessarily be guided by the need to improve current physical conditions, but more than that it has to articulate a qualitative vision of urbanization and urban development for the future so that cities and towns also reflect the highest values of a society.

The five underlying and interconnected guiding principles for the National Urban Development Strategy are:

3.1.1 Sustainability: The strategies outlined should seek to promote environment, social and economic sustainability of urban development. This means that urban development initiatives should be environmentally sustainable, i.e, should not have negative externalities and should not over-stretch the capacity of the environment to sustain itself. Social sustainability refers to the nurturing and development of social capital which minimizes alienation and contributes to vibrant social life in the city. Economic sustainability refers to the promotion of environment friendly economic activities that can be sustained with minimal support from outside.

3.1.2 Inclusivity: Cities have to be socially inclusive both in terms of ethnicity/caste and gender, and in terms of economic class. Inclusion should be reflected in the space the city provides for the nurturing and celebration of social and cultural diversity and the sensitivity particularly to disadvantaged and marginalized, and minority groups, and the poor and the youth in general. Inclusivity promotes social justice and contributes to equity and balanced development. The increasing poverty trend in urban areas means that cities also need to be pro-poor in terms of attending to the needs of the poor and addressing their basic concerns of education, health, housing and transportation etc.

3.1.3 Resilience: Resilience refers to both physical and social resilience so that cities are safer and adaptable to changes, both environmental and economic. The major focus of the strategy should be on physical, social, economical and institutional resiliency that is pivotal for mitigating short or long term vulnerability resulting from disaster or the regional/global impacts of climate change. Planning and urban development should enhance capacity to cope with different types of hazards and absorb shocks and risks.

3.1.4 Green: Strategies for urban development should be guided by three key considerations, namely, keeping the city green, cool, and wet. The thrust should be in saving, protecting, promoting greenery – green parks, green open spaces, urban agriculture, forestry and so forth. Cities should promote land use, technology and material that would contribute to low carbon emission, increase the use of alternative energy, reduce the effects of urban heat islands and lower ambient temperatures. Similarly cities should promote and protect clean water bodies – ponds, wells, rivers, canals that contribute to blue convection and survival of aquatic life, and urban biodiversity and contribute to recharge ground water.

3.1.5 Efficient: A sustainable, inclusive, resilient and green city can only be one that is efficient, well governed and effectively managed with swift mobility, communication and service delivery system. Urban development strategy should therefore be guided by three basic concerns of governance: enhanced capability and technical competence of local bodies, institutionalization of a system of transparency and accountability in the urban planning and development process, and a citizen oriented delivery of services and development outcomes.

3.2 Intended National and Regional Urban System

Achieving a balanced and prosperous national and regional urban system should be the long term vision for Nepal. This implies (i) strengthening the regional and national hierarchy of urban centres based upon the regional potential of population and the mobilization of regional resources, and (ii) investment in the provision and quality of infrastructure and services in consonance with resource potentialities. A balanced and integrated national and regional urban system would contribute to:

- Diversification and specialization of the regional economy in terms of production and employment opportunities.
- Effective and efficient distribution of social and economic infrastructure, services and human resources.
- Effective articulation of political, community, civil society organizations with respect to their economic, social, cultural and environmental aspirations and the quality of urban living.
- Strengthened production-distribution-consumption linkages between urban and rural areas.

Addressing the gaps in the hierarchy of regional urban

systems, and strengthening regional flow of goods and services through the realization of the resource advantages of the hinterland would be the major tasks in working towards a balanced national urban system.

A tentative projection of population in the hierarchy of economic centres for the medium and long term is presented in Table 3.1. This shows that while the regional urban systems in the east and the centre will remain dominant, the urban system in the mid and far west will be more established and regionally integrated.

The policy focus would be on

(i) strengthening the functional base of major economic centres,

(ii) improved infrastructural linkages with the regional hinterland,

(iii) regional resource mobilization and facilitation for the growth of small towns.

This will help achieve the goal of a balanced and integrated national urban system.

3.2.1 Defining Urban Areas

A major conceptual and operational problem is with respect to the definition of urban areas. The criteria taken for urban or municipal designation do not take into account the more relevant functional characteristics such as density, contiguity, occupational structure. It has become imperative to establish a system (such as the proposed Census Towns) where market centres and small towns are monitored and an objective basis for upgrading settlements to municipal status is institutionalized.

3.2.2 Federalization and Regional Urban System

The federal restructuring of the country will have implications for the regional and national urban system for basically three reasons: first, the urban centres designated to be provincial capitals will attract priority investments in infrastructure and urban development in general. The political and administrative functions of these centres will most likely promote economic functions including the location of small and medium enterprises based on the mobilization of regional/ provincial resources. Second, the provincial strategy of the development and prioritization of basic intra-province road infrastructure can affect the existing urban hierarchy in so far as it would redefine the locational advantages of small towns and market centres. Third, the policies of provincial government with respect to the development of agriculture, industries, bio-diversity and hydro-power (in the hills) will also impact the functional role of provincial urban centres and to that extent influence the regional urban system.

Box 3.1: Census Town

There is no formal process of monitoring the growth of settlements to functional urban status in Nepal. The municipalities are statutory towns granted such a status by the central government on the basis of political decision. The population size criteria of municipalities is prone to manipulation as a number of VDCs can be clubbed together to fulfill the requisite criteria. The result has been that most newly declared municipalities tend to reflect a predominantly rural character in terms of density and occupational structure of population.

While municipal status will always remain a political decision, it seems necessary to develop an objective system of monitoring the growth of functional urban areas which in due course can attain the status of statutory towns or municipalities.

The advantage of such a system would be that the growth of such settlements can be monitored and preliminary planning for eventual development of roads and infrastructure such as water supply, sanitation, street lighting, bus parks, etc. can be initiated.

The designation of "census towns" (CT) may be appropriate for settlements that do not have a municipal status but fulfill designated urban functional criteria. To be declared a "census town" the settlement has to fulfill three criteria: (i) locality with a population of 5000 or more, (ii) a population density of 500 persons per square km, and (iii) 50% of economically active population engaged in non-agricultural activities. The CT will be designated by the Central Bureau of Statistics on the basis of census information. The lowest unit for the designation of CT will be the VDC. The CT will be a dynamic classification as the settlement can be reclassified from urban to rural. The advantage of the CT will be that municipal status can only be provided to settlements that already have a CT status. This would require appropriate changes in the acts concerning local self-governance.

Table 3.1 Intended Urban Population Projection (2011-2031)[1]

SN.	Major center	Population of major city (10 ppha ward density)					Second tier centre (10 ppha ward density)					Third tier centres (10 ppha ward density)				
		2011		2021		2031	2011		2021		2031	2011		2021		2031
	Growth Rate		GR		GR			GR		GR			GR		GR	
1	Bhimdatta	40,648	4.00	60,169	4.00	89,065	-		-		-	9,530	3.50	13,443	3.50	18,963
2	Dhangadhi	70,183	6.00	125,687	6.00	225,086	59,813	5.00	97,429	5.00	158,702	38,268	5.00	62,335	5.00	101,536
3	Nepalgunj	72,503	5.50	123,846	5.50	211,546	115,890	4.50	179,974	4.50	279,494	4,814	4.50	7,476	4.50	11,610
4	Butwal	110,940	4.50	172,286	4.50	267,556	60,021	3.43	84,095	3.43	117,824	92,433	3.43	129,507	3.43	181,450
5	Siddhartha Nagar	55,159	4.50	85,660	4.50	133,028	20,279	3.43	28,413	3.43	39,809	58,620	3.43	82,132	3.43	115,074
6	Birgunj	135,904	3.43	190,413	3.43	266,786	93,767	3.43	131,376	3.43	184,059	102,753	3.43	143,966	3.43	201,709
7	Bharatpur	112,081	4.00	165,907	4.00	245,583	37,610	3.43	52,695	3.43	73,830	115,411	3.43	161,701	3.43	226,557
8	Hetauda	71,197	3.43	99,753	3.43	139,763	1,825	3.43	2,557	3.43	3,583	1,591	3.43	2,229	3.43	3,123
9	Pokhara valley	284,210	4.00	420,700	4.00	622,739	45,648	3.50	64,391	3.50	90,830	57,366	3.50	80,920	3.50	114,146
10	Kathmandu Valley	1,426,541	3.00	1,917,286	2.70	2,502,600	78,094	3.00	104,952	2.70	136,992	471,449	3.00	633,588	2.70	827,011
11	Janakpur	97,776	4.00	144,732	4.00	214,239	42,637	3.43	59,738	3.43	83,698	79,360	3.43	111,190	3.43	155,787
12	Dharan	63,572	3.00	85,435	3.00	114,818	7,289	3.00	9,796	3.00	13,165	4,621	3.00	6,210	3.00	8,346
13	Biratnagar	201,125	3.00	270,295	3.00	363,254	216,337	3.00	290,739	3.00	390,729	306,451	3.00	411,845	3.00	553,485
	TOTAL Urban Population	2,741,939		3,862,172		5,396,063	779,210		1,106,153		1,572,723	1,342,667		1,846,541		2,518,798

[1] The accounted population in Table 3.1 is the ward population in a municipality with density of 10ppha and above. In Small Towns and Market Centres, the wards with density of 5ppha and above are taken into account. Population growth rate of 2011, i.e. urban growth rate of 3.43 and national of 1.35 is taken as the base to project population for 2031 in order to achieve a balanced national urban system. The urban population projected for calculation of 'future investment need' till 2031 is the total population of the municipality, thus is greater (about 25%) than the projected intended urban population.

SN	Major center	Small towns/Market centres (5 ppha ward density)					Total 2011		Total 2021		Total 2031	% of urban	% of urban pop in cluster
		2011		2021		2031		% of urban		% of urban			
	Growth Rate		GR		GR								
1	Bhimdatta	-		-		-	50,178	0.79	73,612	0.86	108,027	0.94	12
2	Dhangadhi	61,201	1.50	71,026	1.50	82,429	229,465	3.59	356,477	4.16	567,753	4.93	
3	Nepalgunj	110,835	1.50	128,629	1.50	149,279	304,042	4.76	439,924	5.14	651,928	5.67	
4	Butwal	63,058	1.50	73,181	1.50	84,930	326,452	5.11	459,069	5.36	651,760	5.66	9
5	Siddharthanagar	48,956	1.50	56,815	1.50	65,937	183,014	2.87	253,020	2.95	353,847	3.08	
6	Birgunj	222,058	1.50	257,707	1.50	299,080	554,482	8.68	723,462	8.44	951,644	8.27	16
7	Bharatpur	125,795	1.50	145,990	1.50	169,428	390,897	6.12	526,293	6.14	715,398	6.22	
8	Hetauda	23,957	1.50	27,803	1.50	32,267	98,570	1.54	132,342	1.54	178,735	1.55	
9	Pokhara valley	43,393	1.50	50,359	1.50	58,444	430,617	6.74	616,371	7.19	886,159	7.70	8
10	Kathmandu Valley	179,042	1.25	202,724	1.25	229,539	2,155,226	33.76	2,858,550	33.37	3,696,141	32.12	32
11	Janakpur	167,030	1.50	193,845	1.50	224,965	386,803	6.06	509,506	5.95	678,690	5.90	6
12	Dharan	5,779	1.35	6,608	1.35	7,557	81,261	1.27	108,050	1.26	143,886	1.25	18
13	Biratnagar	469,911	1.35	537,345	1.35	614,456	1,193,824	18.70	1,510,223	17.63	1,921,923	16.70	
	TOTAL Urban Population	1,521,015		1,752,034		2,018,309	6,384,831	100.00	8,566,900	100.00	11,505,892	100.00	100.00
	Total National Population						26,494,504		30,296,560		34,644,225		
	% of Urban Population						24.10		28.28		33.21		

3.2.3 Database and Research

Paucity of comprehensive urban database and results of research on key urban development issues has been an important limitation in the assessment of current urban conditions and in the formulation of urban development strategies. The first task of National Urban Development Strategy would be to develop a comprehensive urban data base. Such a database should include: urban spatial demography and population characteristics, functional characteristics – number and spatial distribution of wholesale, retail trade, hotels and restaurants; education, health and specialized services –, land use and utilization, road and traffic characteristics; drainage, sewerage; solid waste generation and collection; open space and greenery; utility services; number and distribution of production and manufacturing units; housing characteristics; squatter and informal settlements and characteristics; historic and cultural heritage; the state of urban development and governance institutions including resiliency and disaster preparedness. Updating and monitoring of data particularly with respect to changes in land use and utilization and spatial development trends and their drivers are tools that can be used to formulate policies to influence urban development. Also, this will facilitate the formulation of evidence based policies and programmes. This requires periodic research on key themes of urban policy and programme development. It should be made mandatory to maintain, monitor and update the data base periodically and make it accessible on both the municipality specific as well as ministry websites. This also is a way of making the urban governance transparent and accountable to its constituents.

3.2.4. Intended Urban System

Based on the transportation network (Map 2.5), bus flow (Map 3.1), air flow (Map 3.2), trade flow (Map 3.3) and settlement system relationship (Map 2.7), the concept of polycentric and integrated regions can be envisaged. Based on the analysis, two matured urban systems have been identified as CENTRAL INTEGRATED SYSTEM covering urban centers like Kathmandu, Pokhara, Bharatpur, Butwal, Bhairahawa, Hetauda and Birgunj and EASTERN INTEGRATED SYSTEM covering Biratanagar, Itahari, Dharan, Dhankuta, Birtamod, Rajbiraj and Lahan. Two sub-systems namely Western Sub-System 1 with Dhangadhi as center and Western Sub-System 2 with Nepalgunj as center have been identified as the maturing urban systems of Mid and Far west regions respectively (Map 3.4).

3.3 Milestone for Urban Development Sector:

"Vision 2030: Balanced and Prosperous National Urban System" is a singular—consolidated milestone for the urban development sector. This incorporates (i) achievement of set milestones regarding physical and institutional development within each thematic area, and (ii) enhancement in the quality of urban living which includes urban environment, provision and quality of infrastructural, economic and social services, and citizen's perception of the quality of urban living. The achievement of a balanced and prosperous national urban system hinges on the coordinated and integrated efforts of the key agencies of the government dealing with transport infrastructure, environment, health, education, commerce and industries, agriculture and biodiversity resources, energy in addition to the Ministry of Urban Development.

Five years milestone

Policies, plans, guidelines and regulations in place for improved investment and systemic planning for urban development.

Ten years milestone

Plans, projects and programs operationalized with increased investment in urban development with strengthened inter-urban and urban rural linkages.

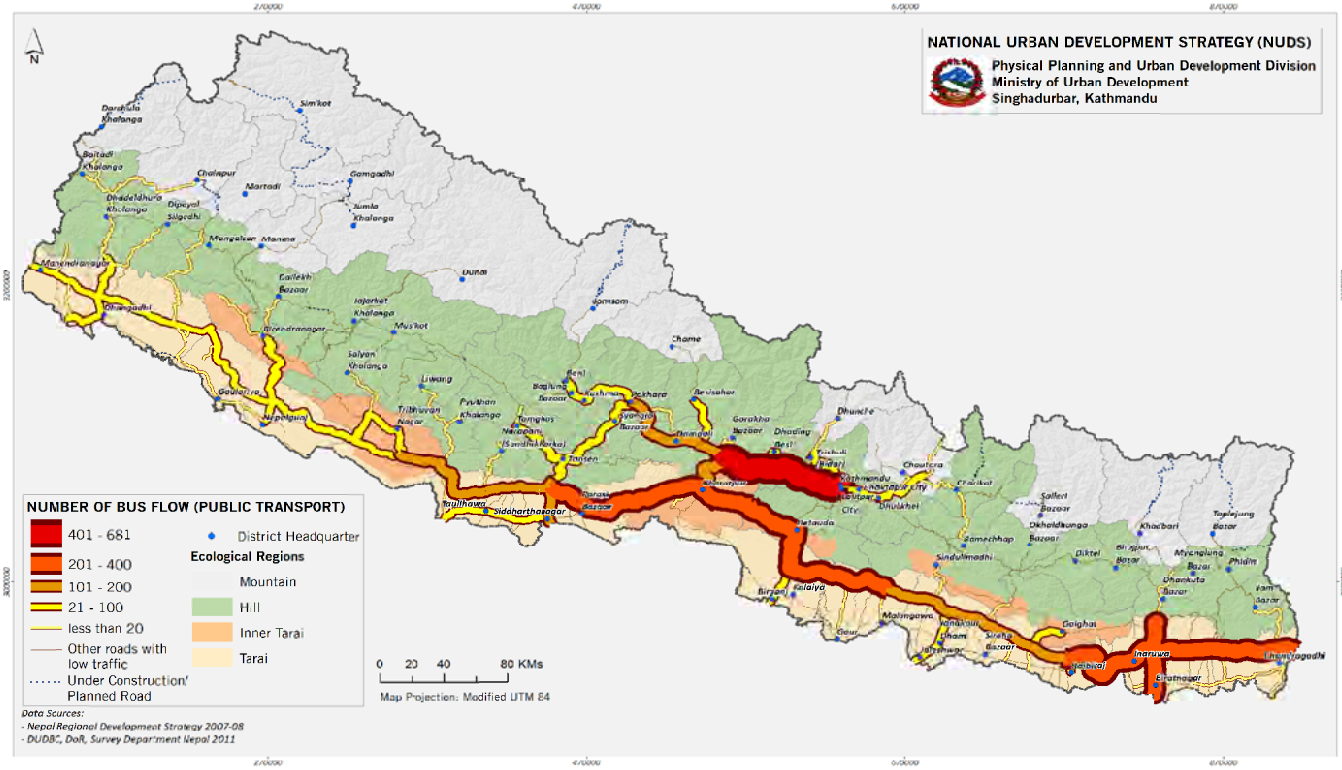
Fifteen years milestone

Urban centers with improved infrastructure, healthy environment, efficient management and vibrant economy.

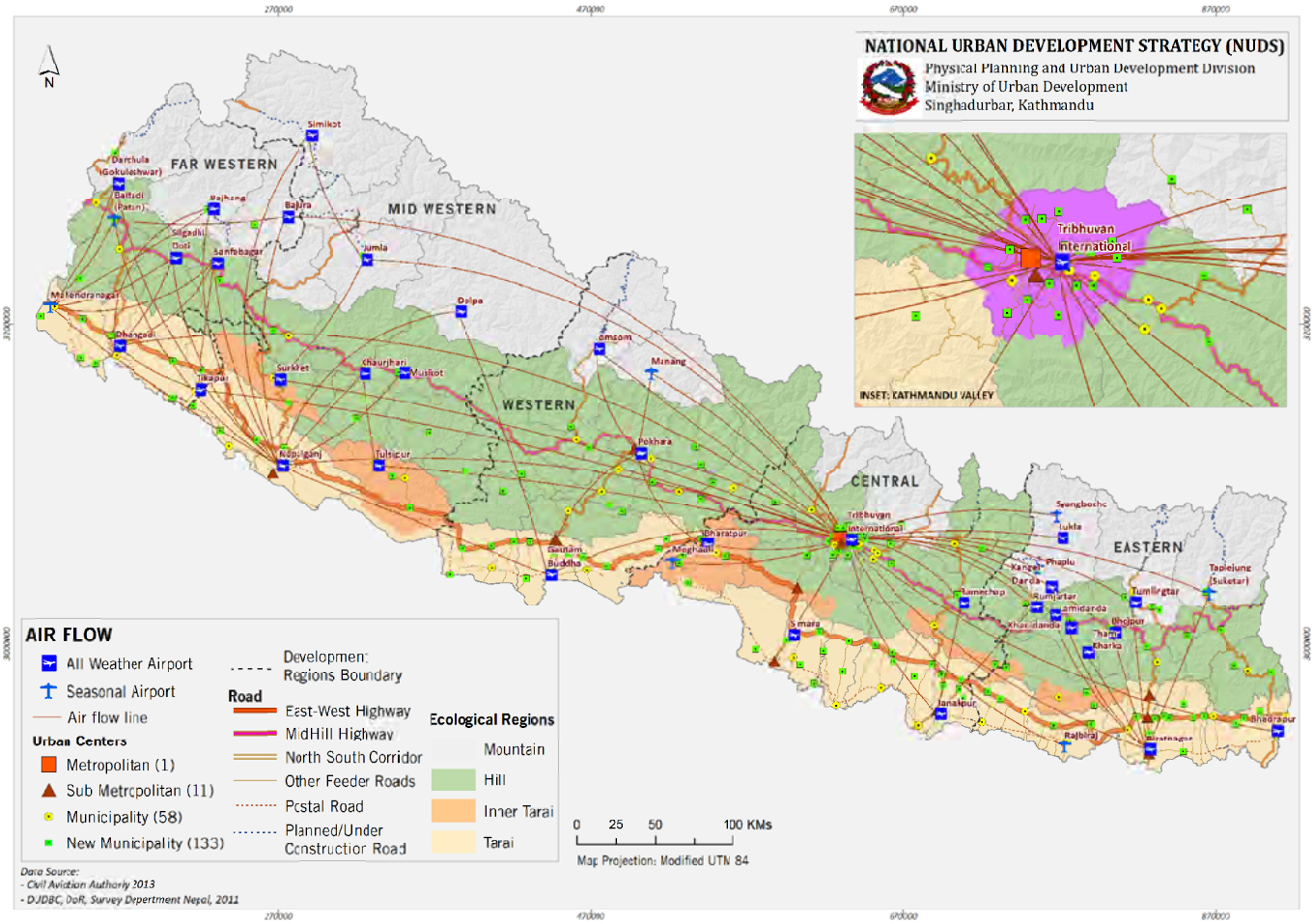
Indicators for a Balanced and Prosperous Urban System

a. national and regional urban primacy index (two City and four city index)
b. regional level of urbanization
c. number of settlements of each hierarchy
d. population and area served by each settlement
e. inter-regional, and regional rural-urban migration
f. growth of regional and urban-rural GDP
g. growth rate of small, medium and large urban areas
h. number and growth of higher and specialized social and economic functions in large urban areas
i. number and growth of large and small and medium enterprise (output, employment)
j. number, mileage and standard of intra-regional highways
k. number, mileage and standard of inter-regional highways
l. volume of the flow of intra-regional and inter-regional trade and services
m. citizen report card for cities.

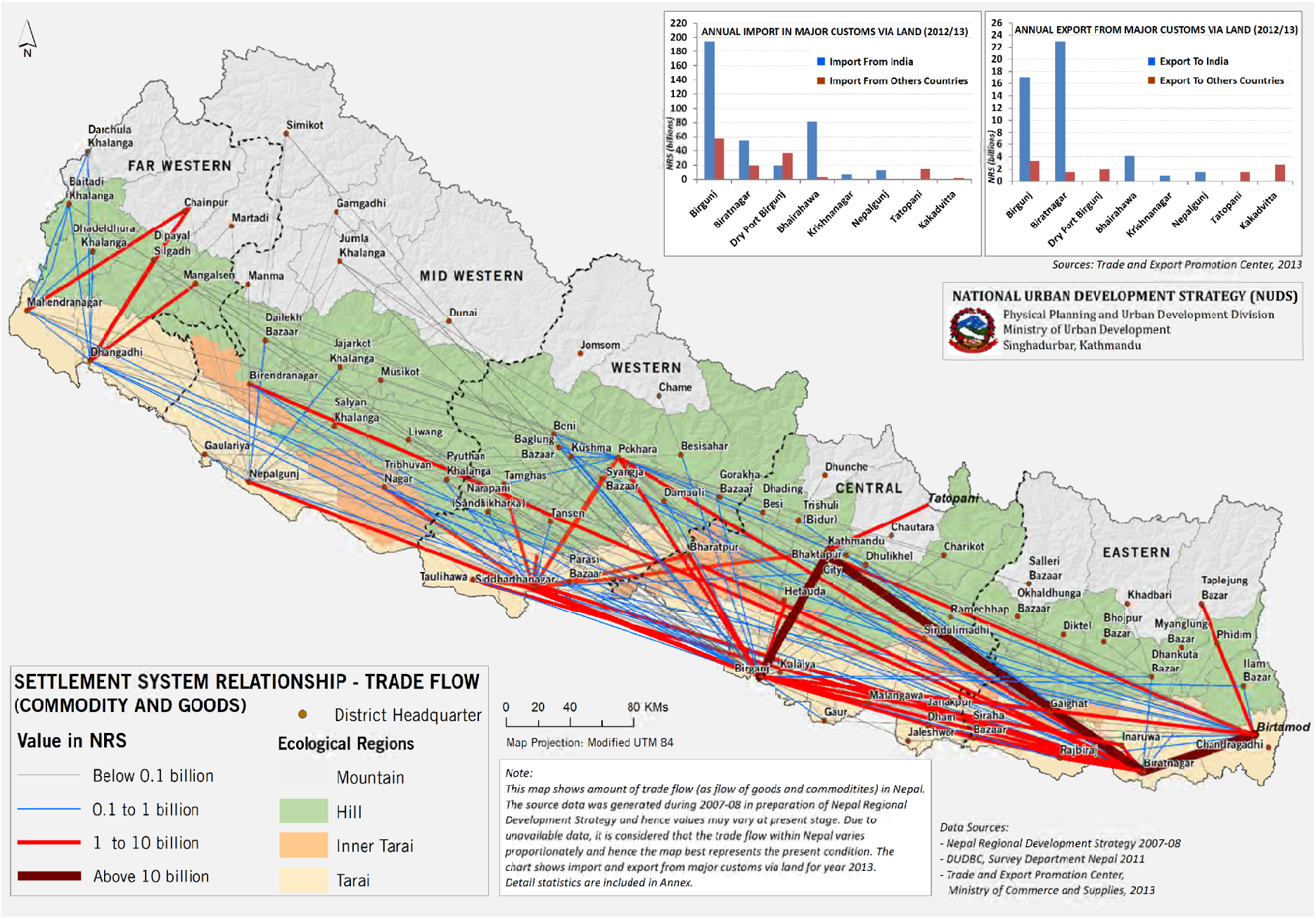
Map 3.1 SETTLEMENT SYSTEM RELATIONSHIP - BUS FLOW



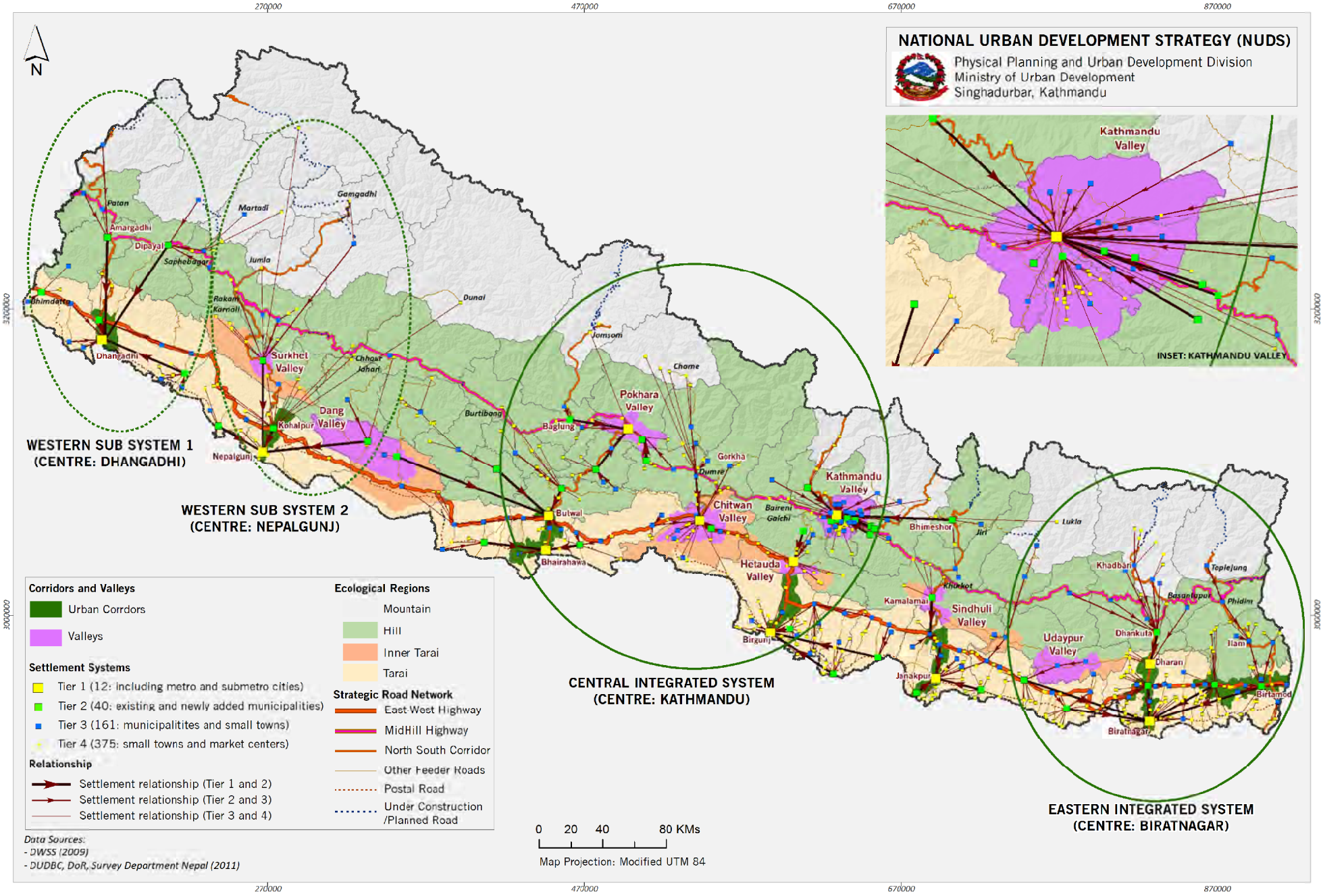
Map 3.2 SETTLEMENT SYSTEM RELATIONSHIP - AIR FLOW



Map 3.3 SETTLEMENT SYSTEM RELATIONSHIP - TRADE FLOW



Map 3.4 INTENDED URBAN SYSTEMS



3.4 Milestones for the Sub-Sectors:

3.4.1 Urban Infrastructure Investment Milestone

- 2 % of annual GDP investment in the development of basic urban infrastructure

A. Water Supply and Sanitation

- 100 % of household with access to piped water
- 100 lpcd in urban ward, 65 lpcd in rural ward
- Sewerage (20% of total road length) in the urban core of the city
- Storm water drainage in 60% of total road length
- 100 % HH with own toilets
- 50 % of existing houses and 100 % of new constructions with in-built rainwater harvesting system and with equal emphasis on the provision of groundwater recharge

B. Transportation

- 7.5 km/sq.km of road density for existing municipalities and 5 km/ sq km for new municipalities .
- 80% of roads in existing municipalities and 50% in new municipalities to be paved.
- 50% of population using public vehicles as main mode of transportation
- 80 Km/hour travel speed in inter-urban connectivity
- Transport facilitation standards (like bus park)

C. Housing

- 50% of new residential area to be developed through land readjustment process
- 15% of the total requirement of housing through organized housing (both private and public sector)
- Private/cooperative sector supplying housing for the poor in large towns
- Housing price/Annual income ratio =10 to 15
- Stop informal and squatter housing
- 0 % of squatter settlement in urban areas

D. Solid Waste Management

- 100 % HH waste collected in urban areas
- 100 % municipalities with own or shared sanitary landfill site
- 100 % municipalities with SWM unit

E. Energy

- 100% HH connected to reliable provision of electricity
- Diversified sources of electricity other than hydropower wherever possible

F. Information Technology Connectivity

- Fiber optics IT connectivity and use of "smart" concepts, in terms of use of technology and planning, in new planned towns
- High speed internet availability at competitive prices in 80% of large and medium towns
- Computerized information and service provision with respect to all utilities in all urban areas
- Operational land information system

3.4.2 Urban Environment

A. Circulation

- Assured walkability in core urban areas and business districts
- Provision of cycle lanes along major intra-urban transport arteries

B. Open Space

- 2.5% of land as public open green space at ward level (maintained, monitored) in existing urban area
- 5% of land as public open green space at ward level (maintained, monitored) in new urban area

C. Safety, Resiliency

- 100 % municipalities with Disaster Risk Management Plan (DRMP) to increase resilience and preparedness for possible risks
- Community based safety oversight in all urban core areas

D. Art, culture and Architecture

- Historic and evolving cultural heritage preservation and promotion plans in all urban areas
- Designated public spaces for museums, theatre, arts in medium and large urban areas

3.4.3 Urban Economy

- 70% contribution of urban areas to national GDP
- 75% of population engaged in non-agriculture activity in large and medium urban areas

Box 3.2: The Concept of a "Smart City"

"Smart city" has been interpreted in various ways but is generally associated with the use of information, communication technology (ICT) to better deliver public utilities, improve transport and mobility, reduce carbon footprint, and enhance public participation in government. In the European Union "smart cities" are seen as having 6 characteristics: **smart economy** (innovation, entrepreneurship, competitiveness, productivity, flexibility of labour market, integration with inter/national economy), **smart mobility** (local, international accessibility, availability of ICT, sustainable transport systems that reduce pollution, improve traffic and enhance mobility), **smart environment** (attractive natural conditions, climate, greenery, minimal pollution and carbon footprint, sustainable resource management, environmental protection), **smart people (**qualified, educated citizenry, quality of social interaction and integration in public life, social/ethnic plurality, open to the outside world), **smart living** (social cohesion, quality of life- culture, health, safety, resiliency, housing, tourism), and **smart governance** (political participation, transparency, service for citizens and functioning of administration). To assess and rank "smartness" a total of 34 factors and 74 indicators have been developed and applied to 70 medium-sized cities in Europe (Centre for Regional Science, Viena UT 2007).High investment in information and communication technology to improve efficiency, focus in augmenting human and social capital to promote innovation, and wise management of natural resources to ensure sustainability are some of the key features of smart cities. Smartness comprises of finding smart (efficient, cost-effective, sustainable) solutions to problems.However, smartness can be as much part of the design of a city as of the elements that make a city. A green city is a smart city because it reduces ambient temperature, protects and preserves the natural environment, allows for the protection of biodiversity, helps reduce carbon footprint, mitigates the impact of climate change and contributes to the environmental resiliency of communities. Natural cities (integrating farming into the urban fabric, with enough green area –parklands, forest, orchards-, water recharge systems, energy conserving building designs, non-polluting public transport, bi-cycle lanes integrated in the city road network, design of built up areas to minimized travel, mix of jobs and social groups) are also smart cities in so far as they minimize environmental costs and contribute to better lives and livelihoods. Smartness can also be incorporated in elements of a city. Smart houses collect/harvest rainwater, harness solar electricity, use solar heaters. Smart roads, in addition to good road design, use technology to manage traffic and regulate pollution and so on.Smart city concept has also been critiqued for its focus on the middle class, gated communities and exclusive, privileged enclave-centric development that disregards the urban dispossessed and the multitude of rural poor who migrate to urban areas in search of opportunities. Smart cities have fundamentally to be inclusive and equitable places to live in.

Case Studies of Smart Cities

The Smart City Council has identified following nine sectors that help in making cities smart, namely: economy, environment, energy, health, payment, public safety and security, telecommunication, transportation, and water and waste water. Urban development in Nepal needs to explore opportunities to infuse components of smart cities in its new towns and emerging urban areas. Some enlisted case studies are the examples of smarter and simple ways of planning for efficient cities that can be translated in the context of Nepal.

Hong Kong's Octopus Card that encourages mass transit In 1997, Hong Kong launched the Octopus Card, a reusable stored-value smart card for making electronic payments in online or offline systems. The main objective was to adopted convenient and innovative payment system to encourage use of mass transit. It was initially designed to collect fares for local mass transit systems, which was later used in supermarkets, restaurants, parking meters, service stations, etc. Today, more than 20 million Octopus cards are in circulation, nearly three times the population of Hong Kong. Roughly 95 percent of Hong Kong's population aged 16 to 65 uses the cards that generate 12 million daily transactions. With success of Octopus Card, it has been replicated in other nations also.

Portal to enhance and revitalize local tourism The city of Luxor in Egypt has tourism industry as one of the most important segments of its economy as it welcomes approximately 12,000 daily visitors. The city wanted to maximize opportunities of its visitors to experience the city by making it easy to find tour guides, hotels, restaurants, transportation, and other services. In 2012, the Luxor Mobile Portal was launched, which helped the visitors to use a single mobile application to take virtual tours of historical sites and locate services in Luxor. With this portal, Luxor is out-reaching new travelers, which has enhanced the city's ability to serve visitors and local businesses.

Nice grid project for an energy efficient city In the town of Carros, France smart grids and smart cities has led to a new business model that replaces centralized one-way system and its production-heavy method of load management. It introduces an open, interconnected system in which balance is achieved through interchange of new distributed energy resources. Traditionally, networks were designed to transmit electricity in one direction to the consumer. Smart grids make it possible to transmit energy in two directions that give space to inject renewable energy into the grid from a multiple local production sources (individual homes, co-housing, industry, transport, etc.). In this new "de-compartmentalised" model, consumers are an integral part of the system, who play central role by consuming most when energy is abundantly available and reduce demand during winter time.

Existing and Evolving Urban System of Nepal and its Regional Setting (Schematic Map 3.5)

Regional setting of Nepal places it between two giant nations, India and China. Bilateral relationship and physical linkage between the two countries has significant implications for national development of Nepal, if it is able to harness the benefits. China is preparing to extend its rail network from Shigatse to Kerung, near the Nepal-China border in Kodari. The road under construction between 'Rasuwagadhi and Baireni Galchi', significantly reduces travel time from border town to Prithvi Highway. It also opens doors to enhance tourism due to easier linkage with Lumbini.

Kodari and Rasuwagadhi transit points can serve as dependable all-weather linkage between India and China. Rasuwagadhi is at an altitude of 2000m as compared to the border pass of Nathu la in Sikkim, India, which is at an altitude of more than 4300m. Nathu la operates only between April and October. Opening of Rasuwagadhi can spur the development of Baireni Galchi, Bharatpur, Hetauda, Butwal and Lumbini which can develop as a hub for Chinese tourists and benefit from increasing regional trade.

Based on connectivity with India, five regional cities namely Birgunj, Biratnagar, Bhairahawa, Nepalgunj, and Dhangadhi have emerged as major urban hubs along the southern belt. These cities not only serve as major trade centers of the country, but have emerged as centres of higher order urban functions like major transportation and communication hubs.

These urban hubs have triggered development of industrial and residential towns along north-south highways that have evolved as urban growth corridors. Of these corridors, Biratnagar-Dharan, Birgunj-Hetauda and Bhairahawa-Butwal have significantly grown as mature urban sub-systems. Also, proposed Kathmandu - Tarai fast track connecting the proposed international airport at Nijgadh with Kathmandu can strengthen the urban system of the central region. Evolving urban centres in the inner tarai region have greater potential for development as they serve the large northern hinterland.

The evolving urban system of Nepal also highlights locations for strategic investments which can create development ripples (multiplier effects) in respective regions.For the purpose of NUDS, infrastructure is broadly classified into 3 categories, namely basic services, higher order (social, economic and large scale infrastructure that can be shared)and strategic infrastructure, which help to unleash the development potential of the region. Investment is prioritized to urban corridors and valley regions that play pivotal role in promoting development of a regional urban system in addition to its economic development.Also, investment for basic services has been streamed for all urban areas. Investment especially in strategic infrastructure is prioritized for the north-south road corridor linking India and China to optimize investment outcomes.

3.5 Investment Requirements for Urban Infrastructures

The need of investment for future development extends beyond fulfilling current deficit in infrastructure, but should capture infrastructure demand of the future population. Investment is needed to unleash the potential of the urban area and its hinterland, based on its comparative advantages, to increase its economic productivity. Therefore, future investment required for urban development is a sum of the investment needed to meet current deficit, as well as investment needed to realize the potential and consequent future demand.

3.5.1 Population Growth and Future Projection

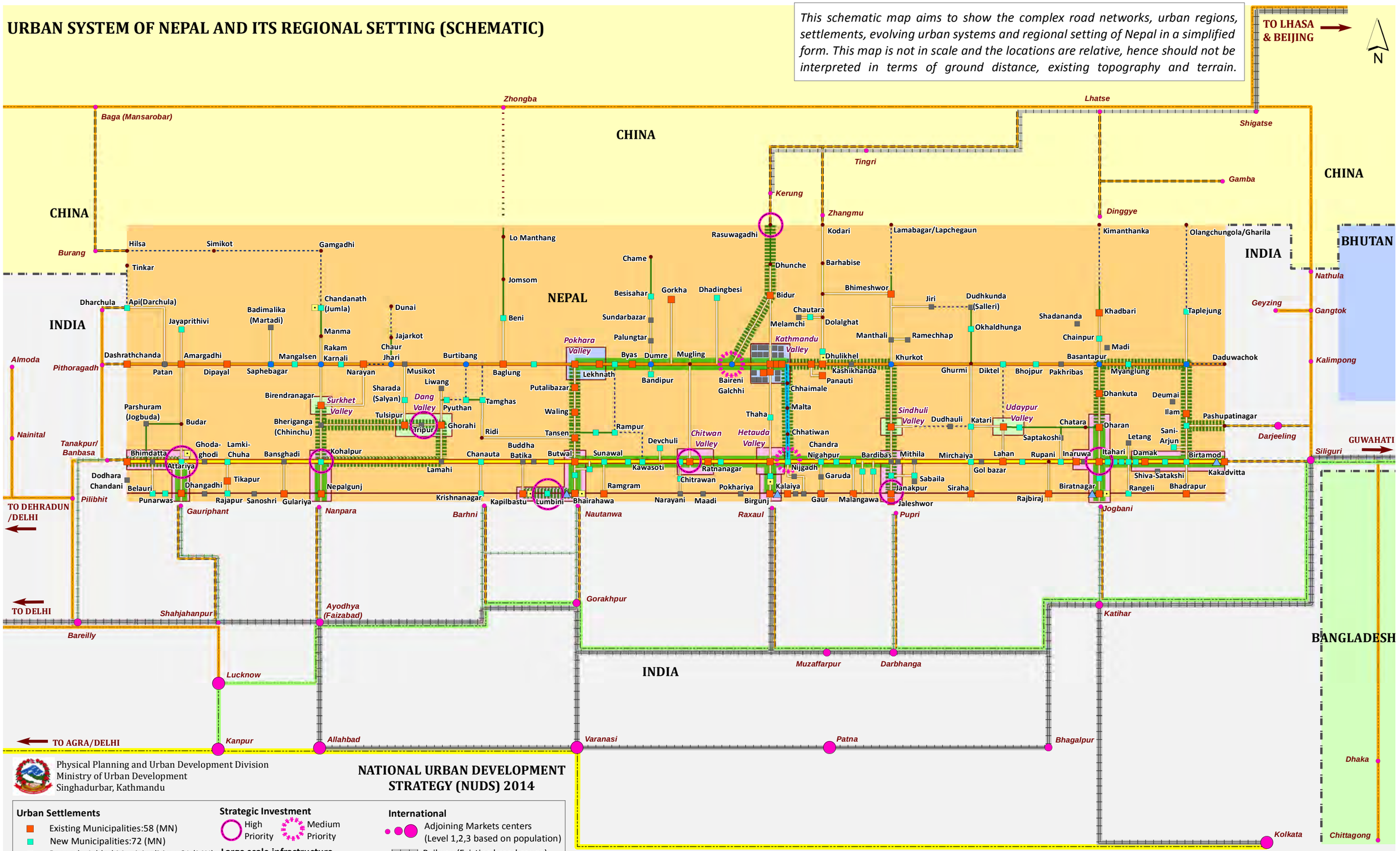
During 2001 to 2011, Nepal witnessed 3.43% growth in urban population. There was an addition of 1.18 million in the population of the 58 municipalities. On average, the municipalities experienced a growth of 2.6% within designated municipal boundaries. One-third of the growth was in the five municipalities of the Kathmandu valley alone.

Urban population projection is a difficult task because of a number of factors - conditions and constraints in the availability of infrastructural facilities and services, employment prospects and economic opportunities, educational and health facilities, the security situation, etc. – that influence the dynamics of urban growth. However, based on present prospects some cities like Kathmandu (valley as a whole), Pokhara, Itahari, Bharatpur, Butwal are likely to continue to attract population.

For purposes of population projection for the next two decades existing municipalities have been categorized into four different growth bands. The municipalities having current growth rate of more than 3% are in the high band and an average annual growth of 3.5% is expected in these towns. In the medium band are municipalities with expected growth rate of 2.5%. Similarly, municipalities in the low growth band are expected to grow at a rate of 1.5% growth. (Table 3.3)

URBAN SYSTEM OF NEPAL AND ITS REGIONAL SETTING (SCHEMATIC)

This schematic map aims to show the complex road networks, urban regions, settlements, evolving urban systems and regional setting of Nepal in a simplified form. This map is not in scale and the locations are relative, hence should not be interpreted in terms of ground distance, existing topography and terrain.



Physical Planning and Urban Development Division
Ministry of Urban Development
Singhadurbar, Kathmandu

NATIONAL URBAN DEVELOPMENT STRATEGY (NUDS) 2014

Urban Settlements
- Existing Municipalities:58 (MN)
- New Municipalities:72 (MN)
- Recently Added Municipalitites:61 (MN)
- New Towns (NT)
- Other Urban Centers and Border Towns (UC/BT)

Urban Regions
- Evolving Urban Regions (EUR)
- Identified Urban Valleys and Corridors
- Matured Urban Regions (MUR)
- Evolving/Future Urban Corridors (EC)
- Maturing/Matured Urban Corridors (MC)

Strategic Investment
- High Priority
- Medium Priority

Large scale infrastructure
- Inland Clearance Deport (ICD)
- Special Economic Zone (SEZ)

Road (Nepal)
- EW Highway
- Proposed MidHill Highway
- Postal Road
- KTM-Tarai FastTrack
- Other Road
- Earthen/Under Construction
- Planned Road

International
- Adjoining Markets centers (Level 1,2,3 based on population)
- Railway (Existing broad gauge)
- Railway (Metre Gauge)
- Railway (Proposed)

Road (International)
- Border Connection Road
- Border Connection Non Motorable
- India East-West Corridor
- Other Highways
- India Golden Quadrilateral

LEGEND	SETTLEMENT	TYPE OF INFRASTRUCTURE
	NT, MN, UC,BT	Basic Services
	EC	Basic Services
	EUR	Basic Services & Higher Order Shared Infrastructure
	MC	Basic Services & Higher Order Shared Infrastructure
	MUR	Strategic Infrastr.

INFRASTRUCTURE ORDER		
BASIC	HIGHER ORDER	STRATEGIC
Water Supply	Intra-City Connectivity	Mass Transit System
Sanitation	Urban Transport System—City Bus, Parking Facility	Inter-City Connectivity
Drainage and Sewerage	Urban Energy	Regional Bus and Freight Parking Facility and Terminals
Solid Waste Management	City Hall, Exhibition center	Airport
Housing	Recreation—stadium	Information and Communication Technology Facility
Paved Urban Road	City Parks and play grounds	University and Research Centers—Knowledge Hub
Power		Specialized Medical Centers
Tele-communication		International Convention and Exposition Center
		Integrated Urban Energy System
		Inland Clearance Deport/ Dry Port

Table 3.2 Municipalities in different Population Growth bands[2] during 2001-11

>5%	Damak, Itahari, Madhyapur Thimi, Pokhara
4 to 5%	Bharatpur, Kirtipur, Butwal, Banepa, Birendranagar, Tulsipur, Byas, Dhangadhi
3 to 4%	Ghorahi, Kathmandu, Tikapur, Tansen, Lekhnath, Baglung, Gaur, Malangawa, Lalitpur
2 to 3%	Kalaiya, Janakpur, Bhimdatta, Dhankuta, Triyuga, Bidur, Nepalgunj, Gorkha, Rajbiraj, Dhulikhel, Hetauda, Ratnanagar, Inaruwa, Dharan, Lahan
1 to 2%	Gulariya, Birgung, Siddharthanagar, Khadbari, Biratnagar, Kamalamai, Siraha, Waling, Mechinagar, Amargadhi, Ramgram, Ilam, Bhaktapur, Kapilbastu,
0 to 1%	Narayan, Panauti, Jaleshwor, Diapayal Silgadhi, Putalibazar, Bhimeswor, Bhadrapur
<0%	Dasahrathchanda

Table 3.3 Population Projection for Different Growth Bands

Growth Type	Growth		Population			Population Ratio		
	Existing	Proposed	Existing	Projected				
	2001-11	2011-31	2011	2021	2031	2011	2021	2031
High	3.0%	3.50%	2,873,535	3,596,119	5,046,177	56%	53%	56%
Medium	2.0%	2.50%	967,689	1,131,523	1,529,818	19%	17%	17%
Low	1.0%	1.50%	1,062,703	1,608,381	2,199,038	21%	24%	24%
Zero	0%	0%	221,369	440,983	251,805	4%	7%	3%
Total	3.2%	2.8%	5,125,296	6,777,005	9,026,837	100%	100%	100%

Table 3.4 Urban Population including New Municipalities

	Existing	Projected	
	2011	2021	2031
Nepal Population	26,620,809	30,789,678	35,919,562
Growth Rate	1.41%	1.47%	1.55%
Urban Population	10,034,577	13,374,668	17,893,545
Existing Municipalites (58)	5,125,296	6,777,005	9,026,837
New Municipalities (133)	4,909,281	6,597,663	8,866,708
Rural Population	16,586,232	17,415,010	18,026,017
Urban Population	38%	43%	50%
Existing Municipalites (58)	19%	22%	25%
New Municipalities (133)	18%	21%	25%
Rural Population	62%	57%	50%

The net population gain in the next two decades is expected to be 2.8% per annum. The total population of 58 municipalities in Nepal is expected to reach about 6.78 million in 2021 and 9.03 million in 2031.The municipalities falling in high growth band would take up about 60% of the total urban population. It is likely that in future quite a number of adjoining VDCs will either merge with the existing municipalities or will obtain separate municipal status. For example, the entire area of Kathmandu valley will ultimately be designated as urban area though there may be several municipalities. Similar situation may prevail in Pokhara Valley or Dang Valley in future.

Besides, the government has announced 72 new municipalities and the population in these settlements is 2.69 million in 2011. Furthermore, 61 municipalities have been recently added and the population in these settlements is 2.2 million in 2011. If both the existing municipalities and new municipalities are considered, the total urban population by 2031 is expected to reach 17.9 million or 50% of the total population. (Table 3.4)

[2] Population based on the 2011 census excluding institutional population

[3]Details of existing population and future projection of existing and proposed municipalities appear in Annex 17a & 17b

3.5.2 Population Density

Population density is not taken as a criteria in municipal designation although National Urban Policy has suggested 10 ppha as criteria for urban areas. This is particularly relevant with respect to provision of infrastructure.

Population density[4] in the municipalities varies significantly, ranging from 205 ppha in Kathmandu Metropolitan City to 4.5 ppha in Khadbari Municipality. Out of 58 old municipalities, 20 municipalities have densities less than 10 ppha. Based on 10 ppha criteria over a third of present municipal population is not urban (Table 3.5).

3.5.3 Existing State of Urban Infrastructure

The existing state of urban infrastructure in general is assessed through nine different parameters.The road density is still less than the minimum required and only less than one third of these roads are blacktopped. Provision of storm drainage is available on only 13% of the roads. The sewerage provision is even less with only 9% of the road length.

Similarly, only 55% of the households have the access to piped water supply. However, the situation of water supply in terms of quality and quantity is far below stipulated levels. About 20% of the households still lack toilet facilities in their house and 10% of households are still not connected with the electricity. The percentage of permanent buildings, having RCC roof, is about 45%. The similar situation is observed in the case of solid waste collection covering only 44% of the households (Table 3.6).

The analysis of 58 municipalities is based on the existing infrastructure condition. For the 133 municipalities which were declared on 2014, the assumptions for analysis are derived based on population density criteria (see annex 25). The same assumptions have been used for the analysis of recently added area of 58 municipalities that were updated with additional VDCs on December 14, 2014.

Table 3.5 Municipalities having different population density in 2011 (58 municipalities)

>200 ppha	Kathmandu
100 to 200 ppha	Bhaktapur, Lalitpur
50 to 100 ppha	Banepa, Madhyapur Thimi
25 to 50 ppha	Biratnagar, Birgunj, Butwal, Dharan, Kirtipur, Rajbiraj
10 to 25 ppha	Baglung, Bharatpur, Bhimdutta, Birendranagar, Damak, Dhangadhi, Dhulikhel, Gaur, Ghorahi, Hetauda, Ilam, Inaruwa, Itahari, Jaleshwor, Janakpur, Kalaiya, Malangawa, Mechinagar, Nepalgunj, Panauti, Pokhara, Ratnanagar, Siddharth Nagar, Siraha, Tansen, Tikapur, Triyog
<10 ppha	Amargadhi, Bhadrapur, Bhimeshwor, Bidur, Byas, Dasharathchanda, Dhankuta, Dipayal, Gorkha, Gulariya, Kamalamai, Kapilbastu, Khadbari, Lahan, Lekhnath, Narayan, Putalibazar, Ramgram, Tulsipur, Waling

Table 3.6 Existing state of urban infrastructure* (58 municipalities)

	Urban Area	Road Density	HH with Piped WS	HH with Toilet	HH with Electricity	RCC Roof Building	SW Collection	Storm Drainage	Sewerage
Max	100%	35.27	96%	99%	99%	84%	100%	70%	87%
Min	0%	1.58	9%	40%	58%	2%	1%	0%	0%
Average	63%	6.24	55%	81%	90%	45%	44%	13%	9%
Class Interval (Total Class: 5)	20%	6.74	17%	12%	8%	16%	20%	14%	17%

*details in Annex 18a & 18a1

[4]Persons per hectare of the buildable area excluding steep slope (>45%), river/ pond and forests. Population based on the 2011 census

3.5.4 Desired Level of Urban Infrastructure

Minimum desirable state of urban infrastructure for existing municipalities and new towns are envisaged on the basis of the norms prepared by DUDBC and a review of the norms suggested for the small Indian cities. Details are provided in Annex 19a, 19a1 & 19b.

3.5.5 Funding Requirement (Existing State)

A tentative cost estimate required for bringing all the existing municipalities to the minimum desired level of infrastructure has been made. The cost is based on the conditions and parameters prevailing in 2011. Accordingly NRs. 372,895 million (or NRs. 72,756 per capita) would be required for bringing infrastructural standards to desired levels in 58 municipalities. About 67% of the cost would be required for the upgradation of existing roads and the extension of new roads. Municipality wise details are given in Annex 5 & 20.

Table 3.7 Desired Level of Urban Infrastructure

Urban Infrastructure	Existing 58 Municipalities		New 133 Municipalities	
	Parameters	Unit Cost	Parameters	Unit Cost in M
Population Density	10 ppha		10 ppha	
Road Density	7.5 km/Sq Km		5 km/ Sq Km	
New Roads		Rs. 20 M		Rs. 20 M
Upgradation		Rs. 10 M		Rs. 10 M
Piped WS	80% of HH	Rs. 30,000	80% of HH	Rs. 30,000
Toilet	100% of HH	Rs. 10,000	100% of HH	Rs. 10,000
Electricity	100% of HH	Rs. 5,000	100% of HH	Rs. 5,000
Landfill Site	Must have	Rs. 1000	Must have	Rs. 1000
Storm Drainage	60% of Road	Rs. 10M	60% of Road	Rs. 10 M
Sewerage	Core City (20% of road length)	Rs. 15 M	Core City (20% of road length)	Rs. 15 M

Table 3.8 Requirement to meet existing deficit of 2011

	Existing Municipalities (58)			New Municipalities (133)		
	Investment Required (Mil)	Percent	Per Capita Cost (in Rs.)	Investment Required (Mil)	Percent	Per Capita Cost (in Rs.)
New Roads	151,973	41%	29,652	345,560	39.2%	70,389
Upgradation	96,146	26%	18,759	173,460	19.7%	35,333
Water Supply	9,019	2%	1,760	10,169	1.2%	2,071
Toilet	1,731	0.5%	338	4,371	0.5%	890
Electricity	652	0.2%	127	1,917	0.2%	390
Landfill Site	743	0.2%	145	683	0.1%	139
Storm Drainage	75,129	20%	14,658	188,886	21.4%	38,475
Sewerage	37,502	10%	7,317	155,910	17.7%	31,758
Total	**372,895**	**100%**	**72,756**	**880,956**	**100%**	**179,447**

3.5.6 Funding Requirement (Including Future Requirement)

Besides above municipal infrastructure, every municipality should have their office premises and the city bus parks. Most of the existing municipalities have their own office complex, but most of these buildings require major renovation works; and some may require to be completely rebuilt. Regarding bus parks, 32 out of 58 municipalities have their own but only 14 of them are in good and 6 in moderate condition. 38 municipalities therefore either require a new bus parks or complete renovation.The requirement of total funding including future increase in population and for the municipal buildings and bus parks are shown in Table 3.9. (Annex 21a & 21b)

3.5.7 Priority Investment

The priority investment for the next 15 years i.e. till 2031 has been set according to the type of the city on the basis of population. Priority level is kept at increasing trend according to the size of the city owing to the fact that the demand of urban infrastructure is high in the large cities. Moreover, all urban infrastructure may not be viable in small towns in terms of capital investment and O & M requirement. The infrastructure often becomes underutilized in the low population density areas. The existing municipalities with the population greater than 200,000 is targeted to achieve 100% of the requirement while the towns having less than 20,000 population shall have the target of 60% only. The medium towns shall have the targets that range between 70% to 90%. Similarly, for the new towns the maximum target for the next 15 years has been set at 60% only and the minimum target set is 20% for the population of less than 20,000. Since the new towns do not fall into A and B category, the maximum target shall hence be 40% only.

This means, the investment requirement of Type A towns is expected to achieve 100% whereas the same for the small

Table 3.9 Total investment required to meet deficit and demand of municipalities by 2031

	Existing Municipalites (58)	New Municipalities (133)	Total
Municipal Infrastructure (2031)	621,811	1,591,104	2,212,915
Municipal Buildings	1,353	1,741	3,094
Bus Parks	2,962	4,975	7,937
Total (Rs. in Million)	**626,126**	**1,597,820**	**2,223,946**

Table 3.10 City Type and Priority Level

Population	City Type	Existing Municipalities (58)	New Municipalities (133)
< 20,000	E	60%	20%
20,000 to 50,000	D	70%	30%
50,000 to 100,000	C	80%	40%
100,000 to 200,000	B	90%	50%
>200,000	A	100%	60%

On the basis of above, the fund requirement at the interval of 5 years shall be as followed : (Refer Annex 22a, 22b)

Table 3.11 Priority fund requirement for municipalities from year 2016 to 2031

	2016-21	2021-26	2016-31	Total
Existing Municipalities (58)	81,099	120,571	197,355	399,025
New Municipalities (133)	100,552	149,149	242,985	492,687
Total (Rs. In Million)	181,651	269,720	440,340	891,711
Percent to Total Requirement	8%	12%	20%	40%
Percent to 20 Years' Priority	20%	30%	50%	100%

3.5.8 Sources of Funding

The required investment for infrastructure needs to come from multiple sources. The sources may include government grant and other fiscal transfer, and contributions of local bodies, beneficiary communities and donor partners. Assessment of these sources is critical—especially that of local bodies. Because, financing of urban infrastructures depends largely on mobilization of local resources.

For the purpose of this analysis, it is assumed that the optimum matching fund that may be viable for the local bodies to augment is total capital budget minus budget that would be required for maintenance of existing infrastructures as well as social development programs. Each of these maintenance and social development budgets is taken to be 15% of total capital budget respectively. Given a fairly good feel of the built environment and infrastructure condition, Dharan Sub-Metropolitan City has been considered as a case example to arrive at a reasonable expenditure threshold for the maintenance of municipal infrastructures. The threshold amounts to NRs 180 per capita by earmarking maintenance expenditure at 15% of the capital budget. And this threshold is kept uniform for all municipalities. The average contribution of the municipalities then is calculated by using the weighted average method—whereby municipalities are classified according to population size and their frequencies are factored in. Annual contribution of each municipality is then aggregated to calculate potential ability of the municipalities to augment infrastructure development budget for the next 15 years. This aggregate municipal contribution is then compared with total investment need for 15 years to estimate percentage share of municipality for financing infrastructure projects. The analysis reveals that 50% of municipalities can contribute more than 9% of the total needed investment. Using weighted average (Annex 26), average contribution of the municipality is calculated as 19%.

Similarly, contribution from communities/beneficiaries in Small Town Water Supply, Sanitation and Sewerage (STWSSS) project is about 5 to 15%. However, this share might decrease in infrastructure projects other than water. Therefore, the contributing capacity of community is assumed to be between 5 to 10% considering the weak financial capacity of some communities. Using weighted average method, contribution of the community is then calculated as 6% (Annex 26). Likewise, successful examples of private sector involvement in basic urban infrastructures are limited. However, there are possibilities of significant involvement of private sector in projects with substantial economic returns. Therefore, the contribution of private sector in urban infrastructures is assumed to be 10%, which is limited to selected projects with substantial economic returns such as bus parks. Government and development partners combined are required to contribute the remaining 65% of the total fund needed.

This analysis is based on the total expenses incurred by 58 old municipalities. The contribution of municipalities, calculated as 19%, presents the average scenario of the municipalities. However, some large municipalities with population exceeding 200,000 tend to have higher contribution capacity (75% in case of Kathmandu, 100% in Lalitpur, 30% in Biratnagar). In comparison, most newly formed 133 municipalities, which fall under City type D (population 20,000-50,000), have contribution ability of just about 13 % due to their small population size and lower revenue base. Therefore, the government's contribution for new 133 municipalities is expected to be greater than 65% to achieve the desirable condition. Nevertheless, in future, share of government and development partners for municipal infrastructures needs to gradually decrease and be substituted significantly by the contribution of local bodies, beneficiaries and private sector.

Table 3.12 Sources of fund for the first five year of planning

	GoN/Dev. Partners	Municipality	Community	Private Sector	Total
Existing Municipalities (58)	52,714	15,409	4,866	8,110	81,099
New Municipalities (133)	65,359	19,105	6,033	10,055	100,552
Total (Rs. In Million)	118,073	34,514	10,899	18,165	181,651
Percent to 20 Years' Priority	13%	4%	1%	2%	20%
Percent to Sources of Fund	65%	19%	6%	10%	100%

Following the above annual government outlay to meet infrastructure development and upgrading, distribution of government fund source for first five year of planning is expected as follows:

Table 3.13 Sources of fund under government source for the first five year of planning

	2016-17	2017-18	2018-19	2019-20	2020-21	Total
Existing Municipalities (58)	5,271	7,907	10,543	13,179	15,814	52,714
New Municipalities (133)	6,536	9,804	13,072	16,340	19,608	65,359
Total	11,807	17,711	23,615	29,518	35,422	118,073
Percent to Requirement for 2016-21	7%	10%	13%	16%	20%	65%
Percent to Government's Fund Source	10%	15%	20%	25%	30%	100%

3.5.9 Investment for Unleashing Potential

Investment required for unleashing the potential of the urban areas is based on the comparative advantages of its hinterland. Five significant sectors namely agriculture, manufacturing, non-timber forest product (NTFP), tourism and hydropower were considered and available data were segregated at the district level to identify potential of the districts in the respective sectors. The analysis is based on assumption that potential of the district is the potential of the hinterland of the urban centers, where these sectors are either concentrated or dependent on. Also, if a district has more than one urban center, then they require same percent of investment to meet the demand to unleash potential.

For agriculture, data on agriculture output of 2013 from Ministry of Agriculture Development was used to calculate the Locational Quotient to determine surplus agricultural products of the districts. Similarly, Census of Manufacturing Established 2008 data was used to calculate the Locational Quotient to determine surplus manufacturing output of the districts. One District One Product (ODOP) was used to identify the potential of districts in its NTFP products.Tourism potential was based on various sources, like tourism board, ODOP that also includes personal experiences. Hydropower potential is based on the data of Nepal Electricity Authority that has identified and proposed potential major hydropower project locations in various parts of the country.

Weightage for calculation of potential is based on the contribution of five identified sectors to the national GDP, such that sector with more than 5% contribution to GDP is given 10%, while less than 5% contribution is given 5% score. For Agriculture= 10%, Manufacturing= 10%, NTFP= 5%, Tourism= 5%, Hydropower= 5% is allocated, that totals to 35%. It means maximum of 35% of the sum of investment required to meet deficit and demand of an urban center should be added to the total investment to meet its actual future investment need. As investment required for fulfilling existing deficit and demand is high, investment for unleashing the potential is limited to less than 40% of their sum in order to get a realistic figure. Accepting limitation of data in the process of calculation, districts that show no potential in the sectors have been allocated minimum 2% and 4% out of 5% and 10% respectively, for the possibility of the existence of unidentified potential.

The results show that Khadbari municipality (35%) has the highest potential in all five sectors, hence require major investment to unleash its potential, which is followed by Tikapur (32%) and Dhangadhi (32%). The municipalities that have low potential are Triyuga (18%), Kamalamai (18%) and Jaleshwor (18%). The total investment required to unleash the potential of 58 old municipalities is NRs 162,792.76 Millions. (Refer to Annex 23).

3.5.10 Justification of Investment on Urban Infrastructure

The current status of urban areas is associated with lack of basic urban infrastructures, amenities and degrading urban environment. In the absence of prioritized investment on basic services, private investment for high end functions such as business, health, and education has largely fallen behind, thus leading to decline in overall quality of life of most urban areas. Consequently, urban centers have failed to create desired economic and employment opportunities and live up to expectations of becoming "engines of growth"— with increasing dependency on the central government. The failing economic growth of urban areas has also become disincentives for growth of surrounding hinterland and unleashing their development potential. As a result, poverty, marginalization and growing social divide have also come to prevail in most urban areas. These distortions, if allowed to continue, are likely to trigger more social conflict and insecurities. This only means setback in pursuing our vision of a balanced and prosperous national urban system. Therefore, judicious investment on urban infrastructure is crucial. This will also have positive ramification for achieving national development goals—which among other things include Millennium Development Goal like Water for All by 2017, Sustainable Development Goals—which are being formulated for the post MDG stage, and national desire of graduating Nepal from a Least Developed Country (LDC) to a Developing Country (DC) by 2022. Moreover, it is only the prosperity of urban settlement which, by virtue of being a transactive and transformative space for living, production, consumption, recreation and innovation, can contribute to the growth of other critical sectors namely hydro-power, tourism and agriculture.

Investment on infrastructures increases productivity and living standards. Improved infrastructures such as water supply, sanitation may increase labor productivity by mitigating incidence of diseases. Improved road condition reduces the transportation cost and manufacturing cost as well. Investment on infrastructure provides the economic stimulus for the manufacturing sector and the creation of employment opportunities. Urban areas with better infrastructure also have better economic growth prospects. At present public investment on urban infrastructures such as water supply, sanitation, solid waste management, housing, and urban roads amounts to only 1% of GDP while about 35% of GDP is generated from the municipalities and about 30% come from the VDCs that are in proximity to and serviced by these municipalities. Only about 35% of GDP comes from the agricultural sector which dominates the rural hinterland.

Economic return of infrastructure investment is substantial through direct income and capital gains. Although magnitude of return may be affected by a host of factors such as overall economic conditions and policies, political stability, work environment and labor productivity, rate of return is found to be 23% in the World Bank supported

urban development projects (1974-92). Similarly, financial rate of return of investment on water and sanitation is found to be 9%, water supply 6%, and sewerage 8%.

Tax income is mainly generated in the urban areas. According to the economic survey of 2011-12, the total tax revenue was 13.2 % of GDP, compared to total government expenditure of 23.5 % of GDP. This reveals that more than half of the government expenditure is raised through taxation—which is mainly generated in urban areas. With increased productivity and living standards resulting from increased urban infrastructure investment, tax revenue is likely to increase further.

Role of NUDS in graduation of Nepal from LDC to DC by 2022. Graduation of Nepal to a Developing Country from the Least Developed Country status by 2022 is an aspiration of national importance. Three vital criteria that determine this graduation are: i) Gross National Income (GNI), which needs to ascend from $547 as of 2012 (based on the average of past three years) to $1502 by 2021 (NPC, 2014); ii) Human Asset Index (HAI) that includes, among other indicators, percentage of nourished population and adult literacy rate; and iii) Economic Vulnerability Index (EVI) measured by, among other indicators, access to international market, share of agriculture in GDP and coping capacity to natural disasters. Nepal has already met EVI and is likely to meet HAI by 2022. However, it lags behind attaining the required GNI threshold (NPC, 2014).

Given the limited time and resources, the national economy needs to grow at a formidable rate of 9.2%—which means need to bolster investment on strategic and catalytic sectors to meet the graduation goal (NPC, 2014). It is for accelerating the national economy and contributing to the graduation goal that adoption and enforcement of NUDS can be instrumental. Emphasis by NUDS on provisioning and improving the quality of basic urban infrastructure services in all urban centers including investment on high end social and economic infrastructures especially in the large regional cities and on high speed inter-urban connectivity that also links hinterland is expected to provide an important foundation to stimulate both the service and industrial sectors—two important pillars of the Graduation Plan. Indeed, basic service is the fundamental input to the city's functioning and productivity. Only the productive places based on efficient and accessible infrastructure services hold greater potential to transform their comparative advantages and become competitive. Furthermore, improved governance and capacities of local bodies including management of urban land, which are expected to ensue with the enforcement of NUDS, will have positive ramification for both improving service delivery and creating enabling environment for urban economic activities to thrive on. Such competitive urban areas in turn can entice both private as well as foreign investment and turn into engines of growth. Therefore, investment in basic infrastructure as well as enforcement of NUDS is critical and it is a major catalyst in the graduation effort. NUDS has estimated investment requirement of NRs 2385 billion in basic infrastructures by 2030 to achieve more improved conditions. It means an investment of NRs 890 billion by 2021—which is just about 10 % of the total investment of NRs 8,683 billion required in the service and industrial sectors in the same period (NPC, 2014) for the graduation plan to succeed. Thus, NUDS is expected to serve as a critical complementing instrument for the Graduation Plan.

Summary

Existing urban landscape shows Central and Eastern integrated system as matured and Mid and Far western regions with maturing urban system. However, analysis of existing condition of urban centres raises concerns over the path of urbanization in Nepal. It underscores critical issues that need to be addressed by NUDS. NUDS aims to develop strategic vision for key urban sectors, establish benchmarks and formulate strategies to help in addressing the identified issues and attain the desirable condition. NUDS is not limited to physical development, but aspires to attain a qualitative vision for future cities that reflect highest value of a society. Guided by five principles, namely sustainability, inclusivity, resilience, green and efficient; the strategies reflect and capture these values in the urban development efforts.

However, designation of urban centres is in itself a critical issue that needs to be institutionalized in a formal system so that delineation is based on urban characteristics and graduation rather than an ad-hoc political decision, for which census town can be a way forward. Urban development intends to achieve a balanced and prosperous nation and regional urban system that strengthens economic and functional base of these urban centres with strengthened inter-urban and urban-rural linkages, establish effective and efficient infrastructure delivery system and maintain ambient physical, natural and social environment. NUDS thus has set milestones, which also serve as development indicators, within each thematic sectors and milestones that measure enhancement of quality of urban life that encompasses urban environment, quality of infrastructure, economic productivity and social services.

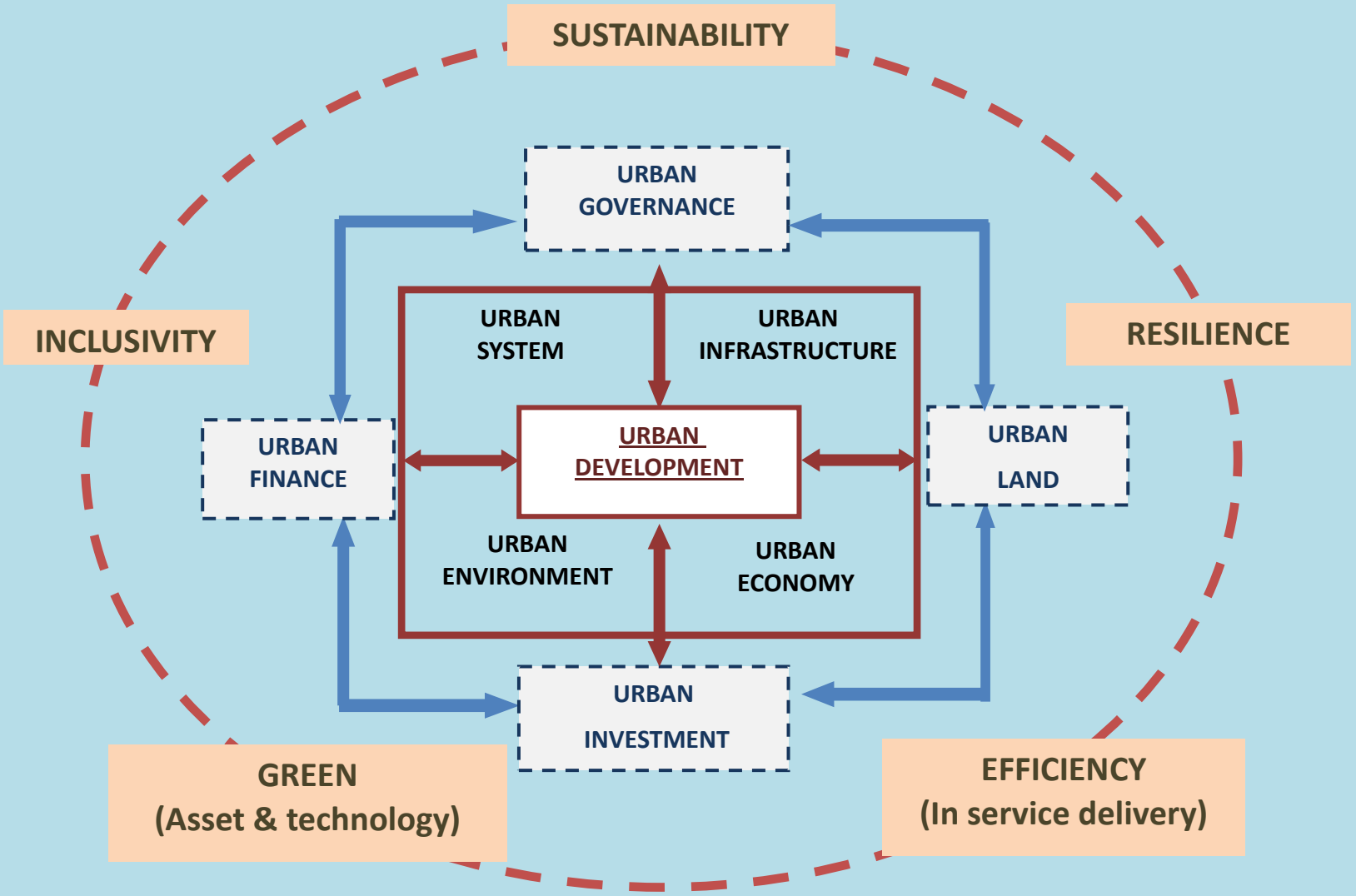
NUDS also attempts to estimate investment required to achieve the desirable conditions set in terms infrastructure and service delivery. Investment is a key to achieve the aspiration of intended urban system, which extends beyond fulfill existing infrastructure deficit, to positively attain future demands of growing population and unleash the development potential. The total estimated investment required for all the municipalities, both old and new, by 2031 is staggering NRs. 2,223,946 million. As it extends beyond the capacity of the local body to meet the investment requirement in projected period of 15 years, the possible sources of funding has been identified as the central government, municipality, community, private sector and development partners, each with different share of contribution.

Key Points

- National urban development strategy is formulated with a time horizon of 15 years.
- To improve the urban system, strategies include strengthening urban-rural linkages; upgrading inter and intra-regional road connectivity standards; facilitating small towns in realizing their comparative advantages; and creating infrastructure for "smart" towns in priority locations.
- To upgrade urban infrastructure, the strategies seek to increase national resource allocation on urban infrastructure development; promote private sector investment; orient strategic investment for shared infrastructure; and build national/local institutional capacities for infrastructure development and service delivery.
- Major strategies for improving urban environment include promotion of multi-hazard approach to deal with disasters and climate change; promotion of urban agriculture; promotion of innovative art, architecture and culture in new urban areas; facilitation of community and civil society organizations.
- Strategies related to urban economy are geared towards enhancing the contribution of urban areas to the GDP and strengthening the economic base of urban areas so as to cover aspects of economic development, investment and finance.

Chapter 4

URBAN DEVELOPMENT STRATEGIES AND ACTIVITIES



▼ Urban development strategies guided by five basic principles – sustainability, inclusivity, resilience, green and efficiency. Diagram source: NUDS, 2014

4. National Urban Development Strategy

Urban development is the spatial manifestation of the process of national and regional economic development. The strategies pursued in the urban sector influence urban development to the extent that they make an impact on the spatial patterns of production, distribution and consumption. It is in this context that the critical themes considered in the development of the national urban strategy are urban infrastructure, environment, economy,investment and finance, and governance. The purpose of the strategy is to indicate the desirable conditions within each theme, and the coordinated policy directions that need to be pursued to address major issues and achieve the desirable conditions. While this approach places emphasis on the physical planning aspects, there is also an appreciation of the fact that an urban area is not merely a physical construct, it is as much a political, social and cultural construct. The physical space by itself has no meaning unless it is comprehended in terms of the political, social and cultural space it provides for the dynamic articulation of the heritage, ideas and values of society.

4.1 Urban System

• Unbalanced (all urban area do not serve the surrounding area, tier distribution issue) and fragmented (disintegrated) national and regional urban systems

• Weak inter and intra-regional linkages particularly in the mid-west and far west

• Mobilizing regional resource potential for urban growth (location specific niche agriculture potential, bio-diversity)

• Urban primacy and impending federal re-structuring

Desirable Condition	Indicators
Strengthened national and regional urban system	Growth of regional cities (with higher order socio-economic functions: health, education, wholesale, manufacturing, etc.)
	Intra-regional and inter-regional flow of goods and services
	Regional and national hierarchy of urban centres
	Quality of connectivity standards (intra-regional and inter-regional)
	National and regional urban primacy

Strategies	Activities/Inputs	Lead/Supportive Agency
S1.Strengthen urban-rural linkage	Identify resource potential of hinterland	LA: DDC/Sectoral agencies (agriculture, forestry, tourism, industry, energy, etc.)
	Prioritize and invest on critical infrastructure to realize the identified resource potential of the hinterland.	MoUD, DoR, sectoral agencies and TDC
	Promote and facilitate rural-urban value chain	Sectoral agencies, DDC and Municipality
S2. Upgrade connectivity standards	Establish intra-regional and inter-regional connectivity (road, cable cars, water ways, etc.) standards and prioritize investment in upgrading through district (provincial), or central government	MoPIT/DoR, MoUD, provincial /local bodies
	Establish digital connectivity standards and prioritize investments to upgrade connectivity in urban/rural corridors.	MoI, Nepal Telecom, Private service providers

Urban System Strategies

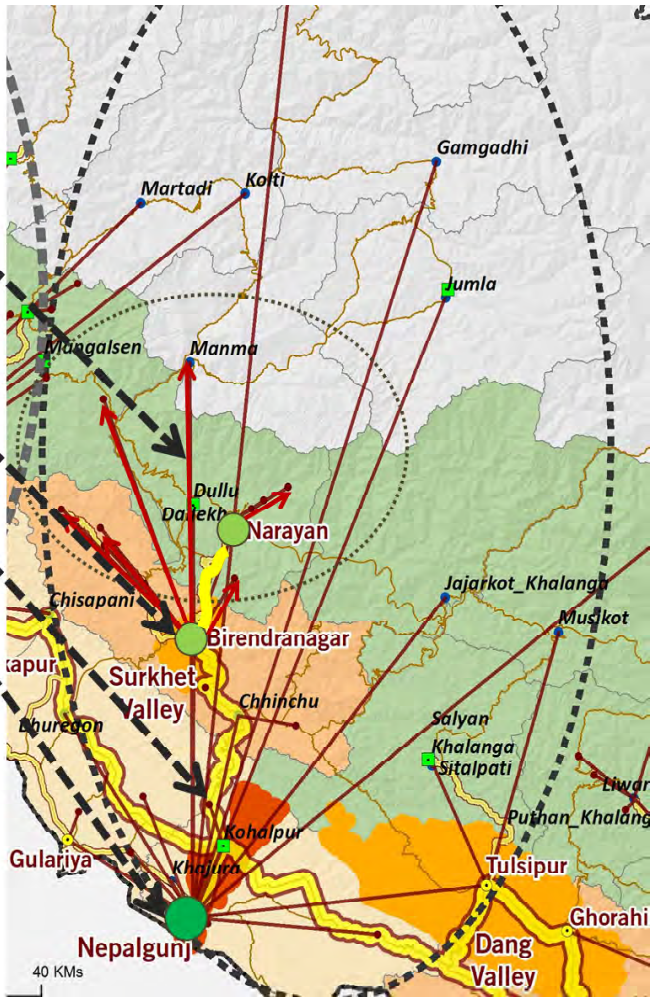
S1: Strengthen urban-rural linkage through identification and mobilization of regional resource potential

S5: Facilitate small towns to realize their potential

S2: Upgrade regional and inter-urban road connectivity standard

S3: Indentify and facilitate higher level functions and services in major regional urban centres

S6: Create infrastructure for smart cities/towns



Strategies	Activities/Inputs	Lead/Supportive Agency
S3. Identify and facilitate higher level functions and services in major regional urban centres.	Identify gap in major regional urban centers with respect to the demand and supply of higher order/specialized education and health institutions.	MoHP, MoSTE, MoE, MoFALD , MoLR, Private sector
	Prioritize infrastructural investment through the government and/or provide incentives to the private sector to invest in the development of infrastructure and institutions.	MoUD, MoIC, Nepal Investment Board, FNCCI/CNI
S4.Improve connectivity (Hulaki Marga) and infrastructure standards in southern Tarai towns like Janakpur and Rajbiraj as the major catalytic urban centres, to help revive and realize comparative advantages and potentials	Identify, facilitate and support southern Tarai town to identify their local comparative/ competitive advantages and develop local economic development plans in participation with the private sector in towns.	MoUD, MoFALD, TDC, Local bodies.
S5. Facilitate small towns to realize their comparative advantages and potentials	Facilitate and support small towns to identify their local comparative/ competitive advantages and develop local economic development plans in participation with the private sector.	Local bodies, MoUD and sectoral agencies in participation with the private sector

Strategies	Activities/Inputs	Lead/Supportive Agency
S6. Create infrastructure for "smart" towns/cities (cost effective, efficient, technology driven energy, transportation, infrastructure and information system)	Develop the operational concept of "smart" towns/cities in identified ten mid-hill towns and towns along the east-west highway and major tourism potential areas to prioritize the development of requisite infrastructure and physical development plans.	MoUD in association with relevant sectoral agencies and private sectors
S7. Promote environment, heritage and tourism friendly economic functions in the Kathmandu Valley and de-concentrate incompatible functions outside the valley	Review, formulate, institutionalize and operationalize the concept of Kathmandu valley as one urban region	KVDA, MoUD, MoFALD
	Develop priority areas of de-concentrating specialized functions outside Kathmandu valley	MoUD and KVDA in association with relevant agencies
	Develop and operationalize incentives/disincentives for de-concentration	MoUD and KVDA in association with relevant agencies
S8. Integrate future provincial capitals with the development of regional and national urban system.	Plan and prioritize infrastructure development in proposed provincial capitals with focus on strengthening intra-provincial linkages.	MoUD, proposed provincial and local bodies

4.2 Urban Infrastructures

Each thematic area in urban infrastructure has specific issues. But there are some common issues related to the infrastructure sector as a whole that need to be addressed.

Major Issues:

- Inadequate government **investment** on urban infrastructure
- Limited **private sector investment** on urban infrastructure
- System based periodic **maintenance** of infrastructures
- Lagging **institutional coordination** in infrastructure planning and implementation; focus on individual settlement rather than a regional view with multiple settlements
- Weak **institutional capacity** to deliver infrastructure services
- **Infrastructure coverage and accessibility** (in all urban areas and for all economic classes)

Desirable Condition	Indicators
Basic quality infrastructure and service provision in all urban areas	Urban Infrastructure Condition Index
	Citizen Report Card

Strategies	Activities/Inputs	Lead/Supportive Agency
S9. Increase national resource allocation on urban infrastructure development, maintenance and service delivery	Devise and operationalize policies for the allocation of budgetary resources for urban infrastructure development	NPC/MoF, MoUD
S10. Promote private sector investment on both basic services and higher order infrastructures	Provide incentives for the private sector for investment on urban infrastructure	MoF with MoUD, FNCCI/CNI, Nepal Investment Board
S11. Basic infrastructure services for all urban areas	Define standards and quality of basic infrastructure and plan for provision in all urban areas	MoUD, local bodies and relevant agencies
	Monitoring, updating and reporting the state of basic infrastructure	
S12. Strategic investment on higher order/shared infrastructures in large urban region and corridor through cluster city approach	Identify urban regions and corridors and city clusters	MoUD, local bodies and relevant agencies
	Specify the nature of strategic investment in higher order/shared infrastructure	
	Develop and prioritize the nature of higher order/shared infrastructure and time-bound plan	
S13. Facilitate integrated and inclusive urban infrastructure planning and development	Identify inclusive concerns in infrastructure planning (by geographic locations, disadvantaged groups/classes) and integrate in the planning process	MoUD and relevant agencies
S14. Build national/local institutional capacities for infrastructure development and service delivery	Review and map institutional capacities and gaps in infrastructure and service delivery Formulate proposals to fill in the gaps	MoUD and local bodies

4.2.1 Water Supply and Sanitation

Major Issue:

- Poor coverage of piped water with sub-standard water quality
- HHs without toilet and sanitation facilities
- Waste water treatment plants not in place or not functional

Desirable Condition	Indicators
Water Provisioning	
Per capita consumption (100 lpcd in urban ward, 65 lpcd in rural ward)	Per capita Consumption
Access to piped water supply (100% in urban wards; Community/ Neighborhood water supply system in rural wards)	% of HH with access to piped water supply in urban ward % of HH with access to public taps
Water Security	
Protected and sustainably managed fresh water sources	Status of watershed – extent of afforestation, deforestation, encroachment
Promotion of rain water harvesting and recharge	All municipal building permit system tied to provision of water harvesting
Water Safety	
Compliance of Nepal Water Standard	NQDWS monitoring
Sanitation	
100 % HH having own toilet	% HH with toilets
Sewerage system where feasible and rest on-site treatment	Functional waste water treatment facility
Storm water drainage along black topped urban road	Ratio of black topped with storm water drainage

Strategies	Activities/Inputs	Lead/Supporting agency
Water Security		
S15. Protection and management of fresh water sources	Delineation of sources and legal basis for protection and management of water sources	MoUD with MoFSC
S16. In-built rain water harvesting in the building permit system	Building permit system for provision of rain water harvesting at household and community level with local incentives	MoUD and municipalities
S17. Institutionalize water recharge provisions in public spaces	Provide incentives to allow water recharge in public spaces.	MoUD, MoFSC and municipalities
	Identify and facilitate ecologically strategic locations for water recharge	
Water Safety		
S18. Strengthen system to produce and deliver safe water	Functional water treatment plants and monitoring system in place	MoUD
S19. Internalize regular monitoring system to assure Nepal Water Standard in place	Water samples are regularly tested and rectified where necessary	MoUD and relevant agencies
	Public awareness and reporting system on water quality from consumer in place	
S20. Community water storage facilities in place for emergency purposes	Plan and build community water storage facilities for emergency purposes	Local bodies

Strategies	Activities/Inputs	Lead/Supporting agency
Water Provisioning		
S21. Augment investment in increasing coverage and quantity of water supply	Tariff to be based on the depreciation, operation and maintenance cost; also to cover the cost of assets in case of loan components	MoUD and relevant agencies
S22.Facilitate and encourage private sector involvement in water supply	Unbundling production and distribution of water wherever feasible Water purchase agreement	MoUD and private sector
Sanitation		
S23. Enhance awareness and incentives for building toilets	Link incentives with building HH toilets. Special cases – community toilets for landless people	MoUD and municipalities
S24. Augment investment in building waste water treatment system	Co-financing mechanism involving government and beneficiaries and community participation	MoUD, local bodies

4.2.2 Solid Waste Management

Major Issues:

- Poor collection of solid waste and open dumping practice
- Sustainable long term approach to solid waste management

Desirable Condition	Indicators
100% HH waste collection in urban areas (10ppha)	% of HH waste collected in municipalities
Sanitary landfill site provisioned by the municipality or cluster of municipalities	Provision of sanitary landfill sites
3R (Reduce, Reuse, Recycle) system practiced in all municipalities	System practiced. Proportion of potential waste reduced, reused and recycled
SWM Unit/ Capacity development in all	Functional SWM Units in municipalities

Strategies	Activities/Inputs	Lead/Supporting agency
Solid waste collection		
S25. Encourage community led waste segregation and collection (entity/HH)	Encourage/facilitate segregation of waste at HH level	Municipalities, ward level committees/TLO
S26. Promote public-private partnership in waste collection and management	Create model of waste reuse and recycle at HH level that can be replicated	MoUD (SWMTSC), /Municipalities, Civic groups, private sector
Sanitary land fill Site		
S27. Adopt sanitary landfill site as transitional strategy to reach condition of 3R.	Identify feasible location for land-fill site Construct model landfill sites that exemplify standards for its operation and management for three ecological regions.	MoUD (SWMTSC), and municipalities
3R: Reduce, Reuse, Recycle		
S28. Promote/mandate 3R at household and community level.	Create full-fledged operating model of 3R including composting at HH/community level	MoUD (SWMTSC), Municipalities, TLO, WCF

Strategies	Activities/Inputs	Lead/Supporting agency
S29. Incentivize private sector to reuse and recycle waste through appropriate technology	Establish institutional and legal basis for reuse, recycling	Municipalities, MoUD (SWMTSC), private sector
SWM unit in municipalities		
S30. Establish dedicated and capacitated SWM unit in all municipalities	Establish SWM unit in all municipalities	Municipalities with MoUD (SWMTSC) support
S31. Delineate institutional responsibility and accountability at central level with respect to SWM	Review existing framework and introduce appropriate reforms.	MoUD, MoFALD

4.2.3 Transportation

Major Issues:

- Internalization of road density and standards in urban land use planning
- Sustainable urban public transport system not in place
- Standards and quality of inter-urban connectivity not yet established.

Desirable condition	Indicators
Intra-Urban	
Adequate road infrastructure (7.5km/sq.km in core and higher in urban expansion areas)	Road density in urban core and expanding areas % coverage of road per sq. km.
Provision of sustainable urban public transport services in cities with population more than 100,000.	Population served by sustainable urban public transport services
Inter- Urban	
Provision of better quality inter-urban connectivity	Average design and travel speed (connectivity to major urban areas)

Strategies	Activities/Inputs	Lead/Supporting agency
Intra-Urban		
S32. Integration of land use and transportation in town and regional planning	Encourage land use based transport development in urban areas	MoUD and DoR
	Formulate supportive building by-laws in coherence with town and city plans (high FAR near public transport route, land use which generates/attracts more visitors and traffic in higher accessible locations)	Municipalities MoUD, MoPIT
	Periodic monitoring of land use and transportation interface	
S33. Develop institutional mechanism and capacity to address issues related to urban transport and land use	Develop sectoral coordination mechanism between MoPIT and MoUD.	MoPIT and MoUD.
	Build transportation orientation within MoUD	
S34.Provision of hierarchically balanced urban road infrastructure.	Identify roads of different hierarchy based on traffic volume/ridership within urban limits.	DoR, Municipalities
	Expand/upgrade roads to meet the standards	

Strategies	Activities/Inputs	Lead/Supporting agency
S35. Promotion of sustainable urban public transport	Improve existing public transport through provision of high capacity, people centric design	MoUD, DoTM
	Review to empower institutional mechanism to regulate public transportation	DoTM
	Conduct study and route planning for LRT and MRT in SMC and/or Metropolitan city	DoTM, MoUD, municipalities
S36 Prepare transportation management plan	Promotion of non-motorized transport and pedestrianization through NMT guidelines and standards (cycle tracks, walkways also for differently able people)	MoUD, Municipalities
	Prepare local parking management plan Traffic management and road safety	
Inter Urban		
S37. Provision of high speed inter-urban infrastructure in prioritized regions	Conduct feasibility study of inter-urban transportation infrastructure in prioritized regions and urban centres	DoR, MoUD
	Align inter-city transportation strategy (including proposed railway) to promote urban development objectives	MoUD, DoR, DoRailways
	Regulate land use along inter-city trunk corridor to manage ribbon development with service tracks and alternative urban form.	DoR, MoUD

4.2.4 Housing

Major Issues:

- Lack of affordable, adequate and safe housing (including economic weaker sections) in urban areas.
- Increasing % of squatter settlements in urban areas

Desirable Condition	Indicators
Housing that is: i) affordable,	Income and housing price ratio
ii) adequate and	floor area per capita
iii) safe housing	adoption of building codes
Reduced/regulated informal settlements	Number of squatter settlements, and % of squatter population

Strategies	Activities/Inputs	Lead/Supporting agency
S38. Encourage private sector to provide housing to the EWS (economically weaker strata)	Review and develop relevant incentive and facility package: land/infrastructure provisioning etc. to encourage private sectors	MoUD, MLR and relevant agencies
S39. Regulate standards of group housings	Review, update and monitor group housing standards and regulations	MoUD/Municipalities, private sector
S40. Promote innovative, economic and environment friendly buildings	Research for innovative, economic and environment friendly building design	MoUD, IoE/TU
	Develop model and promote practices of ecologically sensitive and vernacular construction technology and building material	

Strategies	Activities/Inputs	Lead/Supporting agency
S41. Discourage squatter settlements and encroachment on public land	Facilitate private sector for affordable rental housing through provision of **incentives** and **facilities** **(Incentives**: easier permit process, facilitation in land consolidation, taxation abatement **Facilities**: facilitating development and access to infrastructure provisions such as roads, utility lines, etc.	Relevant government agencies, MoUD
	Prepare inventory and map of public land and ensure its monitoring and protection	Municipalities, TDC, adjacent VDCs and relevant agencies
S42. Encourage co-operative mechanism for the production of housing for EWS.	Create institutional and legal basis and incentives for facilitating the cooperative sector	MoCPR, MoUD
S43. Encourage and facilitate production of serviced land through public-private/community partnership	Review existing policies, law and create institutional and legal basis to facilitate and encourage schemes such as land pooling through community/private sectors	MoUD, municipalities, private sector

4.2.5 Energy

Major Issues

- Inadequate and unreliable energy supply for urban needs.
- Increasing energy efficiency and green energy

Desirable Condition	Indicators
100% access to reliable power supply (electricity) for all urban activities	% households with access to reliable power supply including alternative energy sources
Energy efficient building design and construction	Percent of new construction complying with energy efficient design

Strategies	Activities/Inputs	Lead/Supporting agency
S44. Promote optimal use of solar energy for all purposes	Develop incentives to promote solar energy in urban areas	MoE, Nepal Electricity Authority (NEA)
	Establish mechanisms to sell/share surplus power to the national grid	
S45. Develop pricing mechanisms for large institutions	Differential pricing at peak and lean hours for large institutions	MoE, NEA
S46. Promote passive design, and use of energy efficient building materials	Prepare models and guidelines, and disseminate designs for energy efficient construction for all ecological regions	MoUD, IoE/TU
S47. Promote hydro-power development that is oriented towards urban centers	Prioritize hydropower projects in consideration of urban locations	Ministry of Energy/NEA

4.3 Urban Environment

Urban environment encompasses not merely the built-up environment of urban areas but also the natural and socio-cultural environment. The extent to which the socio-cultural and natural environment is enhanced by the built-up environment determines the livability of an urban area.

Desirable Condition	Indicators
Physically aesthetic, socio-culturally vibrant, inclusive and ecologically sensitive urban environment	Citizen report card on the physical, socio-cultural and ecological aspects of urban areas
	Urban environmental indices (to be developed)

4.3.1 Urban Safety and Resilience

Major Issue:

- Internalization of safety and resilience issues in urban development and management
- Building codes not in place or not enforced in all municipalities
- Low level of resilience to different types of hazards
- Lack of information on climate change in urban areas of different ecological region

Desirable condition	Indicator
Physically, socially, economically, environmentally and culturally safe and resilient urban areas.	Urban areas with operating fire brigade, number and distribution of designated evacuation areas and safe community shelters, water reservoir tank, enforcement of building code,
	Data availability (hydrological data, water source, etc.) and early warning systems in place
	Numbers and distribution of community buildings like hospitals and schools.
	Operating guidelines that guide/prohibit location of settlements
	Monitoring system that checks status of defined indicators.

Strategies	Activities	Lead/Supporting agency
S48. Promote multi-hazard approach in dealing with disasters including climate change	Identify high-risk areas in all urban areas based on available information.	MoUD and Municipalities
	Develop rapid hazard appraisal technique to identify hazards and prepare multi-hazard map of all urban areas.	
	Incorporate disaster risk management component in urban development plans	
	Generate information on climate change in urban areas of different ecological regions	

Strategies	Activities	Lead/Supporting agency
S49. Prepare land use regulations, and review building code and by-laws in all urban areas from resilience perspective	Prepare land use regulations from resilience perspective	Municipalities and MoUD
	Facilitate mandatory enforcement of land use regulation, by-laws and building code in all urban areas	
S50. Enhance preparedness and adaptive capacity of the government and local bodies.	Develop capacity building tools and training programs	MoUD ,MoHA, municipalities and Relevant agencies,
	Enhance human resource and institutional capacity of the government and local bodies.	
S51. Build awareness and capability of the community and civic bodies based on volunteerism to reduce vulnerability.	Prepare awareness material, educative tools and infrastructure and capacity building tools for communities and civic bodies.	MoUD, MoHA, Civic bodies, TLO, WCF, and Municipalities
	Plan and implement appropriate periodic drills through community organizations and civic bodies.	

4.3.2 Urban Land, Air, Visual,and Water Pollution

Major Issues:

- Increased level of pollution and lack of control mechanisms

Desirable condition	Indicator
Improvement of urban environment in meeting existing set standards of air, water, noise and land pollution	Monitoring of pollution levels to comply with set standards
	Budget allocated to projects guided by UEMG

Strategy	Activities/Inputs	Lead/Supporting agency
S52. Compliance with set standards of pollution in all urban areas	Review, update and implement Urban Environment Management Guideline (UEMG), 2068 and Planning Norms and Standards	MoUD, MoSTE and Municipalities
	Facilitate and encourage local bodies to develop pilot projects at ward level to implement UEMG in all municipalities	Municipalities

4.3.3 Urban Agriculture

Major Issue:

Lack of integration of urban agriculture in urban land use planning and management concept.

Desirable condition	Indicators
Urban Agriculture supplementing urban demand for food, vegetable and horticultural products	Agricultural land stock in urban areas
	Percent of demand of vegetable and horticulture products met from urban areas

Strategy	Activities/Inputs	Lead/Supporting agency
S53. Promotion of urban agriculture for food, vegetable and horticultural products	Review, update, implement Urban Environment Management Guideline (UEMG), 2068 and Planning Norms and Standards focusing on urban agriculture	MoUD, MoA and Municipalities
	Urban agriculture as a strategic component within municipal plan, with technical support from DAO	Municipalities, DAO

4.3.4 Urban Forest

Major Issue:

Lack of integrated approach to promote and support urban forest promotion and conservation program.

Desirable condition	Indicator
Management, expansion and utilization of forest in urban areas to improve urban environment and reduce hazards.	Percentage of forest coverage in urban areas

Strategy	Activities/Inputs	Lead/Supporting agency
S54. Promote/maintain minimum forest cover in urban areas	Review, update, implement Urban Environment Management Guideline (UEMG), 2068 and Planning Norms and Standards focusing on urban forests	MoUD, MoFSC and Municipalities
	Identify suitable areas for forest cover in urban areas	Municipalities

4.3.5 Urban Facilities and Amenities: Open Spaces

Major Issues:

- Definition and accounting of 'open spaces'
- Lack of municipal level information

Desirable condition	Indicator
Existing urban area: 2.5% of land at ward level New urban area: 5% of land at ward level.	Inventory of govt. land and open space in urban areas
	Percentage of open space at ward level

Strategy	Activities/Inputs	Lead/Supporting agency
S55. Promote/maintain minimum stipulated open space in urban areas	Review, update and implement Urban Environment Management Guideline (UEMG), 2068 and Planning Norms and Standards	MoUD and Municipalities

4.3.6 Urban Art, Architecture and Culture

Major Issue:

- Nurture, foster and/or induce art, architecture and culture as an important aspect of urban development

Desirable condition	Indicators
Vibrant traditional art, architecture and culture in urban areas.	Number of tourists
	Number of cultural activities/events
Innovations in art, architecture and culture in new urban areas.	Proportion of municipal budget spent on cultural activities/events

Strategy	Activities	Lead/Supporting agency
S56. Rehabilitation of historical building, preserving its traditional façade but with modern amenities and functions (with adaptive re-use).	Incorporate art, architecture and cultural elements and perspective in building by-laws and land use.	MoUD, MoCTCA, DoA, and municipalities
S57.Documentation and development of heritage sites, routes, museums tied with local economy of historical areas, in visitor friendly way.	Develop urban regeneration programs based on heritage value, that is tied with local economy, in a visitor friendly way.	Tourism Board, DoA, MoUD and municipalities
S58. Innovation of art, architecture and culture in new urban areas.	Prepare guidelines to encourage innovations in art, architecture and culture in new urban areas that incorporates local and surrounding cultural/natural assets.	Municipalities, MoCTCA, MoUD, Local artists

4.3.7 Community Organization and Youth:

Major Issues:

- Community participation in urban development.
- Youth participation in urban planning
- Urban development that addresses needs of special groups

Desirable Condition	Indicators
All urban wards with TLO, CBO, WCF	Number of active TLO, CBO, WCF
Youth participation in planning and community development activities.	% of youth in TLO, CBO, WCF Number of youth focused programs
Mainstreaming GESI in urban development	GESI institutions in place

Strategies	Activities	Lead/Supporting agency
S59. Formation and active engagement of TLO, CBO, WCF in all urban wards.	Prioritize formation of TLOs, in new municipalities.	Municipalities, TLO, CBOs,WCF
	Update inventories in existing municipalities.	
	Review and implement existing guidelines.	
S60. Support youth focused activities in urban development	Initiate design of youth focused activities	Municipalities, TLO, CBOs,WCF
S61. Address issues related to special groups in urban development	Review existing planning and GESI guidelines to incorporate the participation of special groups	MoUD, MoFALD, Municipalities

4.3.8 Urban Security:

Major Issue

- Integration of urban security in urban planning and management

Desirable Condition	Indicator
Safe and secure public spaces and neighborhoods	Number of public spaces with surveillance mechanism Number and distribution of security alert mechanism at neighborhood level % of road length with street lighting

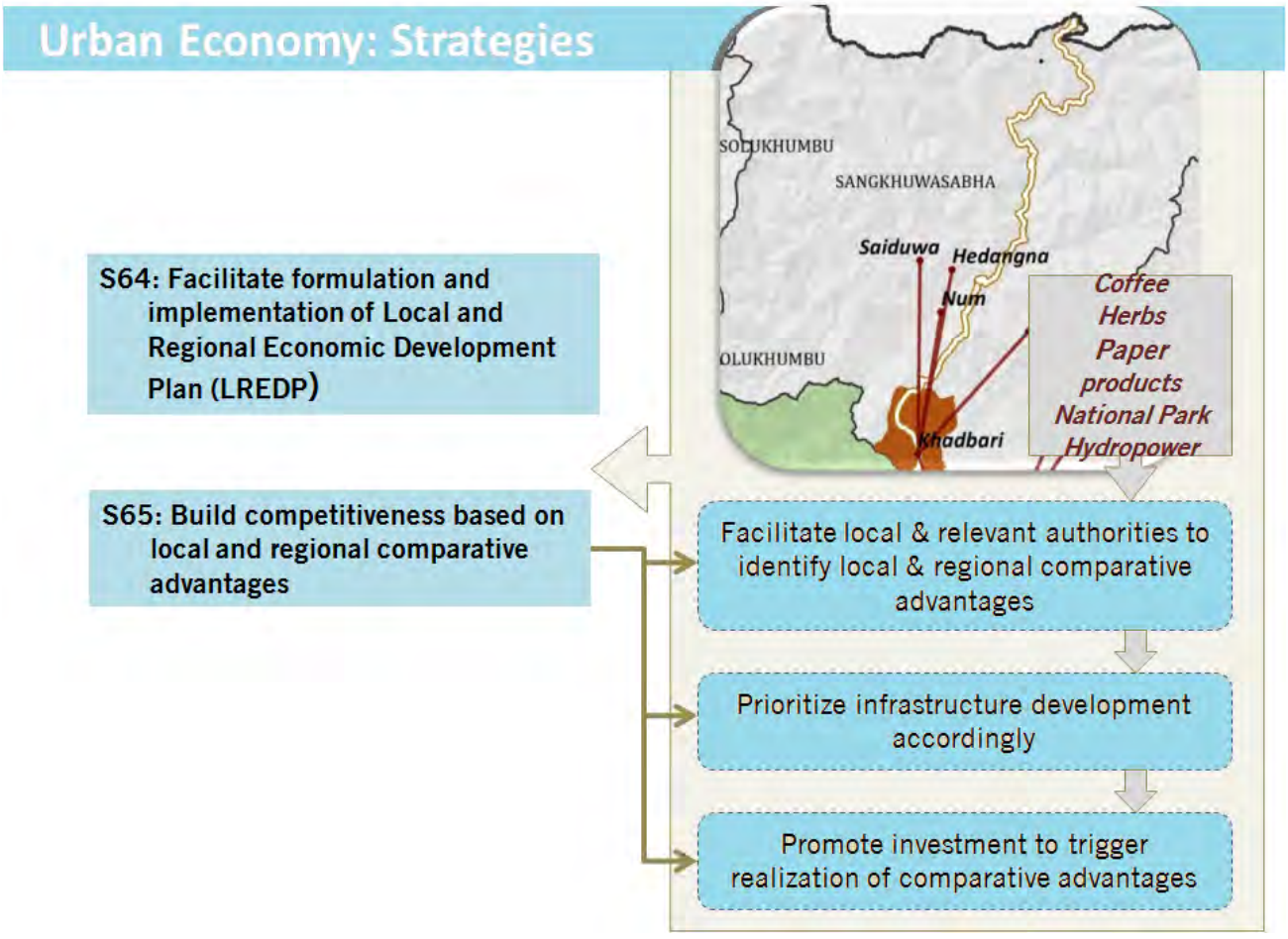
Strategy	Activities	Lead/Supporting agency
S62. Develop community security mechanisms	Surveillance of the public spaces to ensure safety.	MoHA, Municipalities and Policing agencies
S63. Practice appropriate spatial design elements in public space and neighborhood	Prepare model public space and neighborhood incorporating appropriate design elements and initiate pilot projects.	MoUD, IoE/TU

4.4 Urban Economy

Major Issues:

- Inability of municipalities in generating wealth and employment
- Sluggish rate of GDP growth in urban areas.
- Increasing incidence of urban poverty.

Desirable Condition	Indicators
Productive and vibrant urban economy with a quality of growth that creates wealth and employment opportunities.	GDP of municipalities
	Economically active pop in non-agricultural occupation,
	Employment ratio (employment, unemployment and under-employment)
	% of urban poor



Strategies	Activities/Inputs	Lead/Supporting agency
S64. Facilitate formulation and implementation of Local and Regional Economic Development Plan	Formulate Local and Regional Economic Development Plan for small towns, municipalities and regions including entrepreneurship development component in partnership with private sector	Municipalities and private sector supported by MoUD.
S65. Build competitiveness based on local and regional comparative advantages	Facilitate local/regional authorities to identify local and regional comparative advantages through supportive policies	Municipalities, private sector
	Prioritize infrastructure development accordingly	MoUD, relevant agencies
	Promote investment to trigger realization of comparative advantages.	Municipalities, private sector
S66. Urban regeneration program in historic core areas	Formulate guidelines and basis for urban regeneration	MoUD, Municipalities
	Promote public/private investment in urban regeneration through incentive structures	Municipalities, private sector
S67. Mainstreaming informal urban economy	Provisioning of space and time for specified informal economic activities	Municipalities and informal sector groups
	Design capacity building trainings and orientation programs for informal sector workers.	Municipalities
S68 Alleviation of urban poverty	Identify socio-economic, spatial characteristics of urban poor	MoCPA , MoUD, PAF, municipalities
	Development programs focused to urban poor	
	Pro-poor urban planning (housing, infrastructure, transportation)	

4.5 Urban Investment

Major Issues:

- Investment deficit for urban infrastructures (public and private)
- Lagging investment to the backward regions
- Uncoordinated and dispersed investment

Desirable State	Indicators
Strategic and adequate public investment on urban infrastructures (at least 2% of GDP)	Government investment in urban infrastructure as percent of GDP

Strategies	Activities/ Inputs	Lead/Supporting agency
S69. Coordinated investment in urban areas involving all sectoral agencies including the private sector	Government approval for sustained urban development investment as stipulated by NUDS	MoF/NPC
S70. Phased investment for improving basic infrastructure services in all municipalities	Develop and implement Urban Environment Improvement Programs (**UEIP**) beginning with larger regional cities	MoUD, concerned municipalities
S71. Guiding investment for strategic urban infrastructure projects in clustered urban regions and urban corridors	Plan for strategic infrastructure projects for integrated development of urban regions and corridors: Kathmandu valley, Pokhara Valley, Chitawan-Ratnanagar region,Biratnagar-Dharan, Birgunj-Hetauda,Taulihawa-Siddharthanagar-Butuwal, Nepalgunj-Kohalpur, Dhangadhi-Attariya-Bhimdatta corridors	MoUD, Nepal Investment Board, concerned authorities/agencies
S72. Increased investment in urban areas of mid and far west regions and in under-developed regions of southern tarai towns and inner-tarai	Prepare Development Plan and prioritize investment in Dang, Surkhet, Udaypur and Sindhuli valleys and Janakpur and Rajbiraj Municipality regions.	MoUD, MoFALD, TDC, Local bodies.
S73. Prioritize investment in strategic small towns, market centers, border towns, district/local administrative centers and new towns for promoting urban growth and provision of services	Sustained implementation of the plans for 10 new towns along the Mid-Hill Highway by incorporating “smart” city concepts	MoUD
	Identification, planning for initiating investment in strategic small towns and market centres	MoUD and local bodies
	Identify and develop investment plans for strategic towns along the east-west road-rail link by incorporating “smart” city concepts	

4.6 Urban Finance

Major Issues:

- Inter-Government Fiscal Transfer (IGFT) inadequate to match with expenditure assignments of local bodies
- Increasing number of unfunded responsibilities at city/ town level
- Inadequate private sector participation in basic infrastructure provision
- Access to loan and other form of debt financing not readily available
- Revenue potential of municipalities/urban areas from taxes and fees not realized and mobilized fully
- Weak borrowing capacity of small municipalities/towns

Desirable Condition	Indicators
Self-reliant and financially solvent urban systems	% of Own Source Revenue (OSR) in total municipal revenue
	IGFT as % of Expenditure Assignment to municipalities/urban areas
	% increase of private sector investment

Strategies	Activities/Inputs	Lead/Supporting agency
S74. Optimized IGFT by government	Reduce conditional grants and limit it to large scale projects	MoFALD/MoF
	Optimize central transfers through unconditional grants	
	Devolve land transaction registration fee to urban areas	
	Streamline expenditure assignment to local bodies governments/urban areas	
	Provide grant financing for basic infrastructure in new municipalities/small towns/market centers or municipalities that have no borrowing capacity.	
S75. Enhanced mobilization of Own Source Revenues (OSR) of urban areas	Review and revise local body revenue mobilization rule	MoFALD/LBFC
	Conduct periodic review and re-delineation of municipal boundaries (for enhanced resources base)	MoFALD/MoUD
	Institutionalize Revenue Improvement Action Plan- RIAP in all municipalities/urban areas with monitoring system in place ensuring full coverage of tax payers/tax base for exclusive **taxes** (like Property tax/land tax, vacant land tax, Profession tax, Entertainment tax, advertisement tax, betterment tax), **other non-taxes** (like service fees, registration fees, permit fee, licensing fee), **value capture**, etc.	MoFALD/LBFC and municipalities
	Internalize strong database system with ICT for revenue management in urban areas	MoFALD and municipalities
	Prepare medium term budget framework for local bodies	Municipalities
	Maintain current expenditure up to 25% of the total revenue	

Strategies	Activities/Inputs	Lead/Supporting agency
S76. Improved access to debt financing through strong financial intermediary institution	Enhance equity of TDF to make it strong financial intermediary institution	TDF/MoF, MoUD
	Prepare and implement common loan grant policy by GoN, TDF, donors (ADB/WB…)	MoF, MoUD
	Initiate TDF financing to TDC that have borrowing capacity	MoF/TDF, MoUD
S77. Mobilize investment through alternative financing instruments including private sector involvement	Prepare and internalize guidelines for financing methods	MoFALD/MoF
	Select viable PPP projects from urban areas as pilot projects and support municipalities/urban areas to implement them	MoUD, municipalities

4.7 Urban Governance

Major Issues:

- Coordination between MoUD (urban and regional planning and development function) and MoFALD (governance function)
- Inadequate technical expertise and capacity at municipal levels
- Inadequate legal basis to manage and govern large urban regions (valleys and corridors)
- Voluntary nature of cooperative planning; KVDA Act 1988 inadequate
- Inadequacy of Town Development Act 1988 to deal with new towns

Desirable Condition	Indicator
Efficient and Effective Governance Infrastructure and Service delivery	Standards of Service Provision
	Coordination mechanism between MoUD and MoFALD in place

Strategies	Activities/Inputs	Lead/Supporting agency
S78. Improve institutional coordination between MoUD and MoFALD	Clarify roles and work divisions between MoUD and MoFALD with respect to urban planning, and infrastructure development in municipalities and resolve existing ambiguities. Strengthen the role of MoUD to Support and facilitate municipalities/urban areas in physical development and town planning .	MoUD/MoFALD
	Planing and development of strategic and higher order infrastructure project.	
	Prepare and implement model building bylaws, urban infrastructure quality standards, norms, etc.	
	Build technical capacity of urban stakeholders including local bodies. Maintain programmatic or project coordination mechanisms	
S79. Make town plans as a basis for long term development of urban areas	Review existing plans and prepare plans for new municipalities Ensure its approval and implementation	MoUD, MoFALD, municipalities
S80. Improve the current legal basis for managing large urban region and corridor consisting of multiple local bodies	Review and undertake needed reforms	MoUD with relevant stakeholders
	Synchronize planning, development and coordination between plans	

Strategies	Activities/Inputs	Lead/Supporting agency
S81. Facilitate research based policies and programs	Build institutional arrangement for urban research in collaboration with the academic and private organizations	MoUD, universities and NGOs working in the sector, development partners
	Facilitate sharing of regional and international knowledge and experiences in various aspects of urban development	
	Support establishment of national urban research institutes (think tanks) and data centre as knowledge hub	
S82. Devise Social accountability mechanism	Institutionalize public hearing, public audit and social audit	MoUD, municipalities with relevant stakeholders

4.8 Urban Land Management

Major Issue:

- Inadequate land acquisition and compensation mechanism
- Dominance of informality in urban land market
- Land fragmentation and public land encroachment
- Inadequate land use controls (bulk, density and usage) and implementation
- Inequitable benefit sharing from urban development
- Absence of urban land use policy

Desirable Condition	Indicators
Efficient land acquisition system Efficient compensation mechanism including serviced land where feasible	Time taken to complete acquisition cases
Regularized/transparent urban land market and land use system	Availability of web-based Land Information System

Strategies	Activities/Inputs	Lead/Supporting agency
Land Acquisition		
S83. Judicious valuation for compensation of urban land	Prepare land valuation guidelines	MoLR
S84. Land price freezing mechanism for specified period, once the government shows intent to acquire land and implement project	Prepare and enforce relevant law and guidelines	MoLR, District Admin Office
Land Market		
S85. Establishment and internalization of Land Information System (LIS):	Improve accuracy/reliability of land measurement	MoLR
	Improve cadastral and land record system to reflect urban dynamics	MoLR, local bodies
	Facilitate private sectors in establishing web-based information system of availability of land parcels to sell and buy	MoLR, local bodies, private developers and builders
S86. Land use control with infrastructure and environmental thresholds and standards	Prepare and enforce infrastructure and environment threshold and standards for land use control	MoUD, municipalities
	Revisit EPA and EPR to address urban environment issues resulting from particular land uses such as super markets, party palace, workshops and factories, schools, sports facilities, etc.	
	Prohibit incompatible land use	MoSTE, MoUD, Municipalities, local bodies
Agriculture zoning / land classification		

Strategies	Activities/Inputs	Lead/Supporting agency
S87. Build incentives /disincentives for preserving critical agricultural land,	Formulate legal basis for regulating urban land use to discourage agriculture land sub-division, fragmentation, and new development Prepare policy guidelines and legal basis for regulating minimum plot size	MoUD, MoLR
S88. Classify land as urban and rural subjected to periodic revision with prioritization on land readjustment and improvement in circulation and its standards.	Provide legal basis for classification/revision.	MoUD, municipalities

4.9 MASTER FRAMEWORK: URBAN DEVELOPMENT STRATEGY

Vision 2030: Balanced and Prosperous National Urban System

		Time Frame	Short Term Goal (5 YRS)	Mid-Term Goal (10 YRS)	Long Term Goal (15 YRS)
Urban Development Goal/Impact			Enhanced quality of urban life		
Urban Development Outcome			Improved investment and systematic planning for urban development based also on clustered city approach		
OUTPUTS	THEMATIC AREAS	Urban System	Plans and programs in place with identified urban potentials with improved connectivity	Strengthened inter-urban and urban-rural linkages	Strengthened regional urban system with regional connectivity
		Urban Infrastructure	Coverage of basic infrastructure in deprived municipalities. Increased investment in higher order/shared infrastructure in prioritized urban regions and corridors.	Basic infrastructure in all municipalities in place. Increased investment in higher order/shared infrastructure in prioritized urban regions and corridors.	Assured basic infrastructure in all municipalities. Increased investment in higher order infrastructure in large municipalities, urban regions and corridors.
		Urban Environment	Updated UEMG, Plans, and building by-laws together with GESI guidelines, DRM/resilience component in place.	UEMG, Plans, and building by-laws together with GESI guidelines, DRM/resilience component operational.	Assured organizational/institutional capacity and inputs for improved urban environment.
		Urban Economy	Local and Regional Economic Development Plans (LREDP) in municipalities with high resource potential.	LREDP reviewed and made operational in prioritized municipalities.	LREDP process institutionalized in all municipalities.
	MECHANISMS	Investment	Increased national budget and investment for urban infrastructure development.	Increased investment in strategic projects and prioritized locations.	Sustained investment in strategic projects and prioritized locations.
		Financing	Policy, plans and investment instruments in place to optimize IGFT, enhance OSR and access to financing.	Optimum OSR with increased access to debt and alternative financing models.	Self reliant and solvent urban centers.
		Governance	Defined roles and responsibilities of the ministries/agencies coupled with reforms and increased organizational capacity in place with established collaborative mechanisms and efficient infrastructure delivery.		
		Land Management	Legal basis, policies and guidelines in place for land acquisition, LIS and land-use regulation.	Land acquisition mechanism, LIS and land-use regulation fully operational.	Institutionalized land acquisition, LIS and land-use regulation.

Summary

National urban development strategy is formulated with a time horizon of 15 years. Strategies have been conceived to achieve desirable condition in each major theme – infrastructure, environment, economy and finance. Each strategy is backed by a number of activities recommended for each lead and supportive agencies within the different levels of the government and the private sector.

For the urban system sector, the national objective is to strengthen the national and regional urban system. Strategies include – strengthening urban-rural linkages; upgrading inter and intra-regional road connectivity standards; facilitating higher level functions in major regional urban centres; improving connectivity infrastructure in key Tarai urban centres; facilitating small towns in realizing their comparative advantages; creating infrastructure for "smart" towns in priority locations; promoting environment, heritage and tourism friendly economic functions in the Kathmandu valley; and integrating future provincial capitals in the regional, national urban system.

For the infrastructure sector, the strategies seek to increase national resource allocation on urban infrastructure development; promote private sector investment on basic services as well as higher order infrastructure; orient strategic investment for shared infrastructure in urban regions through a cluster city approach; and build national/local institutional capacities for infrastructure development and service delivery. Regarding Water Supply and Sanitation, minimum water provisioning, water security, safety and sanitation coverage are proposed. The strategies include protection and management of fresh water sources; integration of rain water harvesting within the building permit system; institutionalizing water recharge provisions in public spaces; strengthening system to produce and deliver safe water; internalizing regular monitor system to assure water quality standard; promotion of community water storage facilities; facilitating private sector investment in water supply, and augmenting investment in waste water treatment systems.

In terms of solid waste management, complete waste collection coverage is proposed for urban areas. The strategies include focus on community-led waste segregation and collection; public-private partnership in waste collection and management; adopting sanitary landfill sites as a transitional strategy with the aim of promoting and mandating 3R (reduce, reuse, recycle) at household/community level; and establishing dedicated and capacitated SWM unit in all municipalities. Furthermore, a broader perspective on urban transportation is proposed. The strategies include integration of land use and transportation in urban as well as regional planning and development of related institutional mechanisms and capacity; provision of hierarchically balanced urban road infrastructure; promotion of sustainable urban public transport; and preparation of comprehensive transport management standards and plans for urban areas. In prioritized regions the provision of high-speed inter-urban transport infrastructure is also proposed.

Provision of affordable, adequate and safe housing is the objective of the urban housing sector. Strategies include facilitation of the private sector to provide housing to the economically weaker sections; regularize standards of group housing; and promotion of innovative, economic and environment friendly buildings. Strategies to discourage squatter settlement and encroachment, encourage cooperative mechanisms for the production of housing for the economically weaker sections, and facilitate the production of serviced land through public-private/community partnership have been proposed. Similarly, provision of adequate, reliable, efficient and green energy is the major objective in the energy sector. The strategies include development of hydro-power projects in consideration of the urban locations, promotion of the optimal use of solar energy, promotion of passive design and energy efficient building materials.

Urban environment incorporates natural as well as the socio-cultural environment bringing in issues of urban safety, resilience, culture, agriculture, forest as well as the problems of land and environmental pollution. Major strategies include compliance with set standards of pollution in urban areas; promotion of multi-hazard approach to deal with disasters and climate change; internalization of resilience perspective in land use regulations, building codes and by-laws; and enhancing awareness and preparedness to deal with disaster risk and vulnerability at both the levels of government as well as local communities and civic bodies. Promotion of urban agriculture; maintenance of minimum forest cover and stipulated open space in urban areas; preservation of heritage sites as well as museums tied with local economy in old urban areas; promotion of innovative art, architecture and culture in new urban areas; facilitation of community and civil society organizations are among the other strategies proposed related to the urban environment.

Strategies related to urban economy are geared towards enhancing the contribution of urban areas to the GDP and strengthening the economic base of urban areas so as to cover aspects of economic development, investment and finance. The strategies for economic development include support in the formulation and implementation of local and

regional economic development plan for urban areas in order to build competitiveness based on local and regional comparative advantages; promote urban regeneration programmes in historic core areas; mainstream informal urban economy and alleviation of urban poverty. The investment strategy is based on the assumption that at least 2% of GDP will be allocated for public investment on urban infrastructure. Strategies include coordinated investment in urban areas involving all sectoral agencies; phased investment for improving basic infrastructure services in all municipalities; focused investment for strategic infrastructure projects in clustered urban regions and urban corridors; increased investment in urban areas of mid and far west and underdeveloped regions of inner Tarai and southern Tarai; prioritized investment in strategic small towns, market centres, administrative centres and new towns to provide basic services and promote urban growth.

Creation of self-reliant and financially solvent urban areas is the objective of strategies in urban finance. Major strategies include the development of an optimized inter-governmental fiscal transfer system; enhanced mobilization of own-source revenue of municipalities; improved access to debt financing through strong financial intermediary institutions; and investment mobilization through alternative financing instruments. In the area of urban governance, the objective is to create an efficient and effective governance infrastructure for urban management and service delivery. Strategies include improvement in institutional coordination between MoUD and MoFALD; make town plans as a basis for long-term development of urban areas; improve the legal basis for managing large urban regions and urban corridors; facilitate research based policies and programmes; and institutionalize social accountability mechanisms in urban governance.

Urban land management strategies are oriented towards the development of an efficient land acquisition and compensation mechanism, and regularization of the urban land market. The strategies include creation of a judicious land valuation and compensation mechanism; price freezing upon the government's intent to acquire land; establishment of a land information system; land use controls through infrastructure and environment thresholds; build incentives for preserving critical agricultural land; and provision of a legal basis for urban/rural land classification with periodic revisions.

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2	Hemanta Dawadi	Federation of Nepalese Chambers of Commerce & Industry (FNCCI)	Impediments for the Growth of Secondary Sectors in Urban Areas	
3	Kiran Prasad Bhatta	NUDS Consultant	Comparative Analysis of Productive Potential (Industrial) of Urban Areas	
4	Sarita Maskey	Department of Urban Development and Building Construction	Planning for Resilient Cities:Challenges and Possibilities	Environment
5	Dr. Bharat Sharma	Expert	Overture on conservation of Urban Natural Environment	

6	Sudha Shrestha	UN Habitat	Inclusive Cities : Social Dimension;Issues, Challenges and Prospects	
7	Dr. BhaiKaji Tiwari	Kathmandu Valley development Authority	Urban Regeneration: Problem and Prospects	
8	Rajendra Giri	Expert	Review on Urban Policy, Legislations and Institutions	Governance
9	Kalanidhi Devkota	Municipal Association of Nepal	संघीय संरचनामा स्वायत्त राजधानी :fx/ तथानगर सरकारको संवैधानीकव्यवस्था	
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12	Surya Man Shakya	Ex Director SWMTSC	Solid Waste Management in Urban Areas: Challenges and Possibilities	
13	Bhushan Tuladhar	Un Habitat	Urban Mobility & Urban Development :Challenges & Opportunities	
14	SundarShyam Shrestha	Dept. of Electricity Development	Urban Energy : Implications on Urban Development and Vice Versa	
15	Mani Ram Gelal	Department of Urban Development and Building Construction	Urban Infrastructure Financing & Role of External Agencies (Challenges & Opportunities)	
16	Radhesh Pant	Investment Board	Private Sector Financing in Urban Infrastructure: Problems and Possibilities	Investment
17	Raghu Ram Bista	Ministry of Federal Affairs and Local Development	Urban Financing System in Nepal	
18	Mani Ram Singh Mahat	Town Development Fund	Perspective on Urban Financing: Augmenting Urban Resource Base (Challenges and Prospects)	
19	Laxman P. Mainali	Nepal Law Commission	Land Acquisition for the Urban Development: Problems and Solutions	
20	Min Man Shrestha	Nepal Land and Housing Company	Private Land Market	
21	UmeshMalla	Urban and Regional Planner	Urban Land Use Planning in Nepal: Current Status, Issues and Prospects	Land
22	Girija Prasad Gorkhali	Ministry of Urban Development	Government Sponsored land and Housing Development	
23	Dr. Surya Acharya	Expert		
24	SarojBasnet	NUDS Consultant	Towards the prepartaion of Urban Infrastructure Strategy	Linkages
25	PushkarPradhan	Expert	Impediments to the Development of a Balanced Urban System	
26	DrYagya B karki	Expert	Population Dynamics and Urban Growth in Nepal	System
27	YogeshShrestha	NUDS Consultant	Nepal Urban Development Strategy:Intended Urban System	

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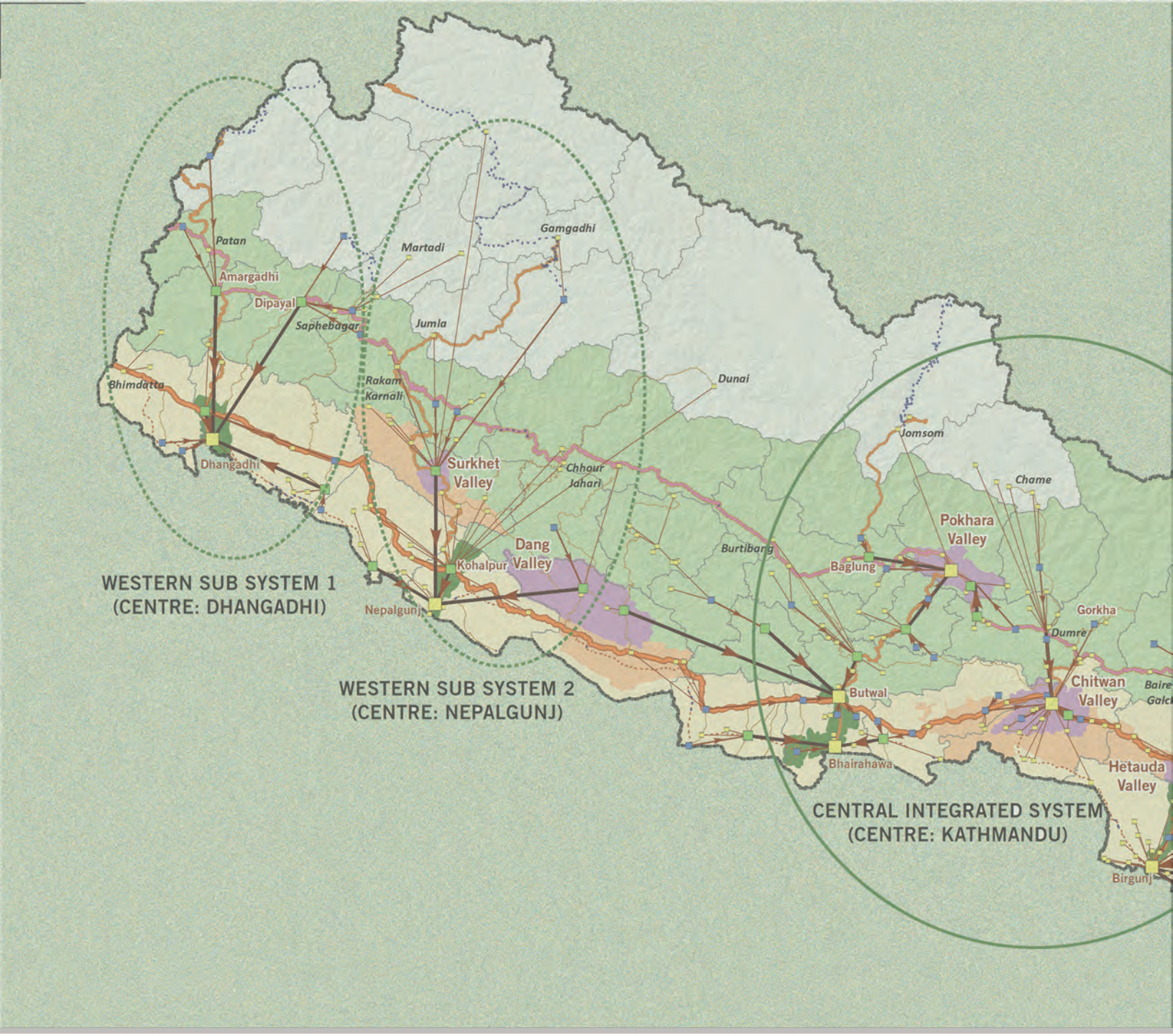
Ministry of Urban Development

Brief Introduction

Ministry of Urban Development was established on May 18, 2012 by the Government of Nepal. The ministry deals with formulation, implementation, monitoring and evaluation of policies, plans and programs related to water supply, sanitation, solid waste management, housing, building construction and urban development. The ministry's vision is to have planned, clean and beautiful cities with adequate infrastructure and amenities. Its mission includes developing clean and beautiful cities, affordable housing, safe buildings and ensuring adequate solid waste management and water and sanitation for all.



MINISTRY OF URBAN DEVELOPMENT
Singha Durbar, Kathmandu
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