

SELECTION # 1270436

Nepal Municipal COVID-19 Recovery and Disaster Preparedness Assessment and Investment Plan

REQUEST FOR EXPRESSION OF INTEREST | SEPT 2020

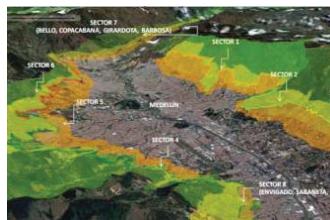




Table of Contents

A	Cover Letter	5
B	Team Description	7
	GeoAdaptive Profile	10
	Naxa Profile	14
	Zite Profile	16
	Utopia Profile	17
C	Letters of Association	19
D	Team Qualifications	23
	Qualifications for Project	24
	GeoAdaptive Team CVs	26
	Naxa Team CVs	32
	Zite Team CVs	34
	Utopia Team CVs	36
E	Team Experience	39
	GeoAdaptive Project Portfolio	40
	Naxa Project List	48
	Utopia Project List	50

Protect High-risk Landscapes from Urban Expansion



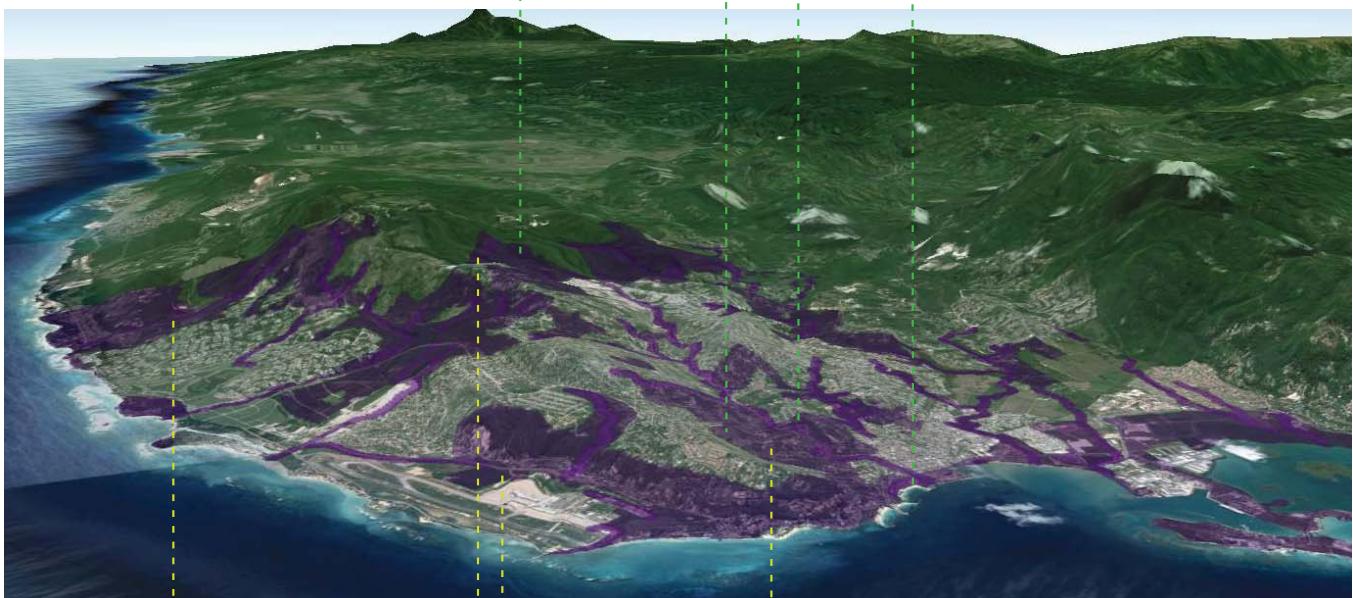
Urban Nature Based Solutions (Bioswales)



Urban Nature Based Solutions (Green Streets)



Coastal Areas for Cultural and Tourism economy



Riparian Areas and Floodplains



Natural Reserves and Biodiversity Corridors



Mangrove conservation for Coastal Resilience



Caves as habitats and cultural resource

SYNERGIES BETWEEN URBAN AND NATURAL SYSTEMS FOR SUSTAINABLE GROWTH

Montego Bay, Jamaica: Visualization of growth scenarios by GeoAdaptive to inform long-term, climate-resilient development

The World Bank
1818 H Street, NW
Washington, DC 20433 USA



Attn: The World Bank Group

Boston, Massachusetts | 30 September, 2020

Re/ EOI: Selection # 1270436, NEPAL MUNICIPAL COVID-19 RECOVERY AND DISASTER PREPAREDNESS ASSESSMENT AND INVESTMENT PLAN

Dear Sir/Madam:

In response to the Request for Expression of Interest for Selection #: 1270436 "Nepal Municipal COVID-19 Recovery and Disaster Preparedness Assessment and Investment Plan" published on eConsultant2, we, **GeoAdaptive LLC (USA)** and **Naxa, Zite, and Utopia (Nepal)**, hereby confirm our keen interest, and intend to submit a Proposal for this project if we are invited to do so.

GeoAdaptive is a leading global strategy and international development planning company that specializes in solving complex economic, environmental, and social problems in a variety of territories in the developing world. Our company - founded in 2009 as a spin-off of the Massachusetts Institute of Technology (MIT) - integrates advanced analytics, design-driven solutions, community engagement and locational data insights, to deliver robust strategies for our clients that reduce risk and maximize their opportunities for sustainable growth.

We are pleased to have secured the cooperation of Naxa, Zite, and Utopia who are actively working in Nepal on innovative approaches to disaster risk mapping, post-disaster reconstruction, urban planning, and community engagement. Our consortium is supported by a collective of young and innovative professionals who are exploring new models of engagement, data gathering, rapid assessment, and geospatial mapping to address many complex issues in Nepal's cities including disaster risk reduction. These unprecedented times call for innovative ways to move forward and build back better. Together, our consortium is well positioned to effectively deliver the project objectives and the larger objectives of the World Bank program.

We have enclosed a number of documents that briefly describe the relevant experience and expertise. We trust that these documents demonstrate our capability to carry out this project.

COMPANY DETAILS

Name: GeoAdaptive LLC
Address: 100 Franklin St, 2nd Floor
Telephone: +1 617 832 5396
E-mail: jcvgas@geoadaptive.com
Website: www.geoadaptive.com
Contact Person: Juan Carlos Vargas, Managing Principal, Boston

Given our expressed interest, the following document reflects our expertise and qualifications in supporting this opportunity. Should you require any additional information, please do not hesitate to contact us. We hope to receive your invitation to submit a formal proposal.

Sincerely,

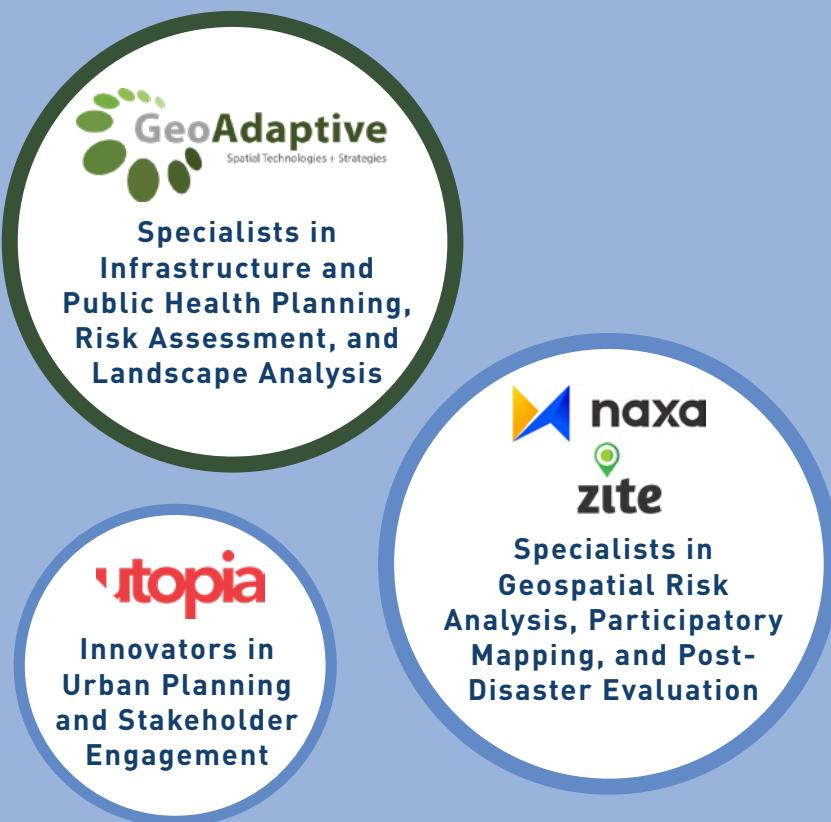
Juan Carlos Vargas
Managing Principal GeoAdaptive Boston, EEUU
100 Franklin Street, 201, Boston MA 02110 USA
jcvgas@geoadaptive.com



COMMUNITY SURVEYS, PARTICIPATORY MAPPING AND CAPACITY BUILDING

Simikot, Humla, Nepal: OSM workshops, fieldwork surveys, and mapathons by NAXA with hillside communities

TEAM DESCRIPTION



Team Description

GeoAdaptive is a global consulting firm that provides intelligence services and place-based solutions to its clients by seamlessly integrating research, advanced data-driven analytics and strategic planning. Through comprehensive analytics, planning and design, GeoAdaptive triggers territorial transformation by integrating technology and intelligence across sectors.

We offer advisory and consulting services, research and business collaborations, and product development. Our approach optimizes resource allocation in local governance, infrastructural investment and development strategies that are in line with environmental dynamics and territorial trends. We are teaming with Naxa, Zite, and CITYLAB in Nepal to ground our global experience with strong local expertise.

Naxa, Ltd. is focused on working with government partners and communities in

Nepal to co-develop tools and technology to support development, disaster risk reduction, and humanitarian response. **Zite** builds software tools based on experience from working on the Nepal earthquake response to develop tools that collect real-time data in remote locations to improve program quality and inform management, planning, and decision-making. Naxa and the founders of Zite have worked together for more than 4 years with clients including the World Bank, DFID, and UNOPS on building technology solutions for working in remote, post-disaster, and otherwise complex environments.

Utopia is an urban innovation group for emerging cities and their slums. We are building a network of CITYLABS across Africa, Asia, and Latin America that operate as urban venture studios to help build and back urban startups focused on making their cities better for the many, not just the few.

Team Understanding of Disaster Risk and COVID-19 Impact in Nepal

Nepal is one of the most disaster prone countries in the world impacted by multiple natural hazards. Globally, Nepal ranks as the fourth, eleventh and thirtieth most vulnerable countries to the risk of climate change, earthquake and flood respectively. Nepal's unique geographic terrain and ecology has made tourism the most important economic activity with the largest source of foreign exchange and revenue. However, this terrain also places Nepal's cities in precarious high-risk areas. Our team's representation of risk and assessment of risk preparedness will be based on a holistic understanding of the landscape and its relationship to settlements and livelihoods.

COVID-19 has ruptured Nepal's tourism industry, negatively impacted agricultural livelihoods, and altered urban-rural migration patterns. COVID-19

has reinforced systemic disparities by compounding vulnerabilities for urban and rural households with the lowest adaptive capacity. Our team will examine the intersectionality of COVID-19 with existing risks, socio-economic disparities, tourism and agricultural value chains, as well as urban-rural linkages.

As one of the fastest urbanizing countries, Nepal's national disaster response and management strategy has to reconcile the increasing demand for housing and urban amenities with resilient infrastructural investments and strategic land-use planning. Reeling from COVID and faced with these demographic realities, Nepal's urban centers have to be prepared to address their risk profiles through systemic disaster risk reduction. Our team offers a holistic lens to help to make strategic decisions at the municipal scale.

Team Approach

1. Integrated risk and impact assessment for multi-hazard risks across systems

Our team takes a systemic view of risk where natural hazards like earthquakes, flooding and landslides are evaluated in terms of topography, hydrology, and ecology and their compounding relationship to each other; exposure is measured by a comprehensive inventory of assets and infrastructure within zones of recurring small or large hazards; and vulnerability is understood through a socio-economic lens of adaptive capacity within a resilience framework. COVID-19 reveals a number of compounding vulnerabilities and makes risk profiles more complex.

We take a systems approach to understanding the complex relationship of risk to natural, built, and social systems at multiple scales including the watershed, city-region extent, municipal boundaries, and household unit.

3. Innovative stakeholder engagement to inform investment plans

Our team recognizes that natural hazards and COVID-19 impact urban dwellers in vastly different ways. Through participatory mapping, creative engagement, and innovative tools we endeavor to understand the lived experiences of professionals, SMEs, land-owners, slum dwellers, informal workers, migrants, and other disadvantaged groups. Our team is experienced with user research through human-centered design methods adapted to the urban Nepali context. We use a systems approach to map and unravel the complexity of disaster risk response with an understanding of causality and feedback loops. Finally, we summarize insights from analysis or participatory mapping in a geospatial manner through strategic visualizations that provide a clear understanding of risks and associated investments to reduce risk for all urban dwellers.

2. Comprehensive geospatial intelligence for place-specific strategies

Our team specializes in the use of geospatial tools for analysis, data collection, and visualization to understand territorial relationships including disaster risk profiles at a granular scale. We believe risk is variegated across space especially in Nepal's challenging terrain and high levels of socio-economic disparities. By taking an explicitly geospatial approach, we recognize the complexity of the topography and its impact on access, reveal areas of entrenched socio-economic gaps, highlight the relationship of exposed assets to natural or man-made hazards, and finally propose place-specific investments that can improve disaster risk response or prevent disaster fallout altogether. This approach is critical in places with limited capital and capacity for strategic planning.

Experience with Risk Profiling and Disaster Risk Reduction

- **Nepal: UNOPS; UNDP; World Bank; Government of Nepal (National Mapping Agency, Ministry of Land Management); International Organization for Migration**
- **Argentina, Brazil, Colombia, Costa Rica, Mexico, Jamaica: Inter-American Development Bank Emerging Sustainable Cities Program**

Experience with COVID / Post-Disaster Impact Assessment

- **Honduras: Inter-American Development Bank**
- **Puerto Rico: RAND Corporation, U.S. Department of Interior**
- **Haiti: Inter-American Development Bank**



Who We Are

GeoAdaptive is a global consulting firm that provides intelligence services to its clients by seamlessly integrating research, advanced data-driven analytics, strategy, and design of place-based solutions. Scientific rigor and creativity drive our team to deliver meaningful impacts across territories, organizations, and businesses.

What We Do

We specialize in understanding the complexity of sustainability challenges as they relate to urban, regional and national scales. Through comprehensive analytics and strategic planning, we trigger transformation across sectors by integrating technology and geospatial intelligence. We offer advisory and consulting services, research and business collaborations, and product development. We apply our approach in these practice areas:

1. Urban and Landscape Planning
2. Sustainable and Resilient Infrastructure
3. Climate Change, Disaster Risk and Resilience
4. Environment and Natural Resource Conservation
5. Territorial Economic Development
6. Social Development and Public Health
7. Sustainable Tourism Strategy

Our services foster anticipatory, preventive, and sustainable territorial strategies. We identify spatial synergies and gaps that help optimize resource allocation, design targeted interventions, and leverage place-specific opportunities. Our scenario planning approach responds to spatial dynamics and trends and strengthens participatory and decision-making processes that are adaptable to future uncertainties and contingencies.

Our Story

GeoAdaptive was born as a spin-off from a research lab at Massachusetts Institute of Technology (MIT) in 2010



Our Services



Geospatial Intelligence and Territorial Analysis



Sustainable Regional Economic Development and Planning



Climate Change Risk Assessment and Mitigation Strategies



Tourism Development and Conservation



Urban Growth Management and Scenario Modeling



How We Do It

GeoAdaptive's methodologies are specially developed to enable a Territorial Approach to Development. This approach builds upon a holistic understanding of the territory to leverage place-specific strengths through co-ordinated investments and actions by various local, regional, and national stakeholders. GeoAdaptive primarily relies upon geospatial methods of analysis and representation to build a comprehensive diagnosis of social, economic, political, and environmental issues unfolding within the territory. We combine socio-economic variables that influence urban patterns, as well as biophysical and regulatory constraints to development. The spatial distribution of climate impacts is also incorporated. To secure accuracy, we work with geographic data from official government sources, scientific research, satellite imagery, and open source databases.

Where We Work

GeoAdaptive has experience in 26 countries across several continents including rapidly growing areas across Latin America, Asia and the Caribbean. We are proud of having an impeccable business record of successful projects over the past years. GeoAdaptive has worked with agencies, initiatives, organizations, and governments, at a local, state, national and multinational level, providing tools that improve the decision-making process in cities and regions, across more than 26 countries.

At GeoAdaptive, nearly ninety percent of our work is with recurring clients, demonstrating the incredible trust and sense of camaraderie that is emblematic of our work. Our dedication to research and the application of new technologies keeps our work on the forefront.

Our Impact

669,000 km²
of Territory Impacted by our
Spatial Intelligence

US\$ 5 Billion
of Investments directed by our
Recommendations

US\$ 23 Billion
in Projected Revenues for our
Government clients

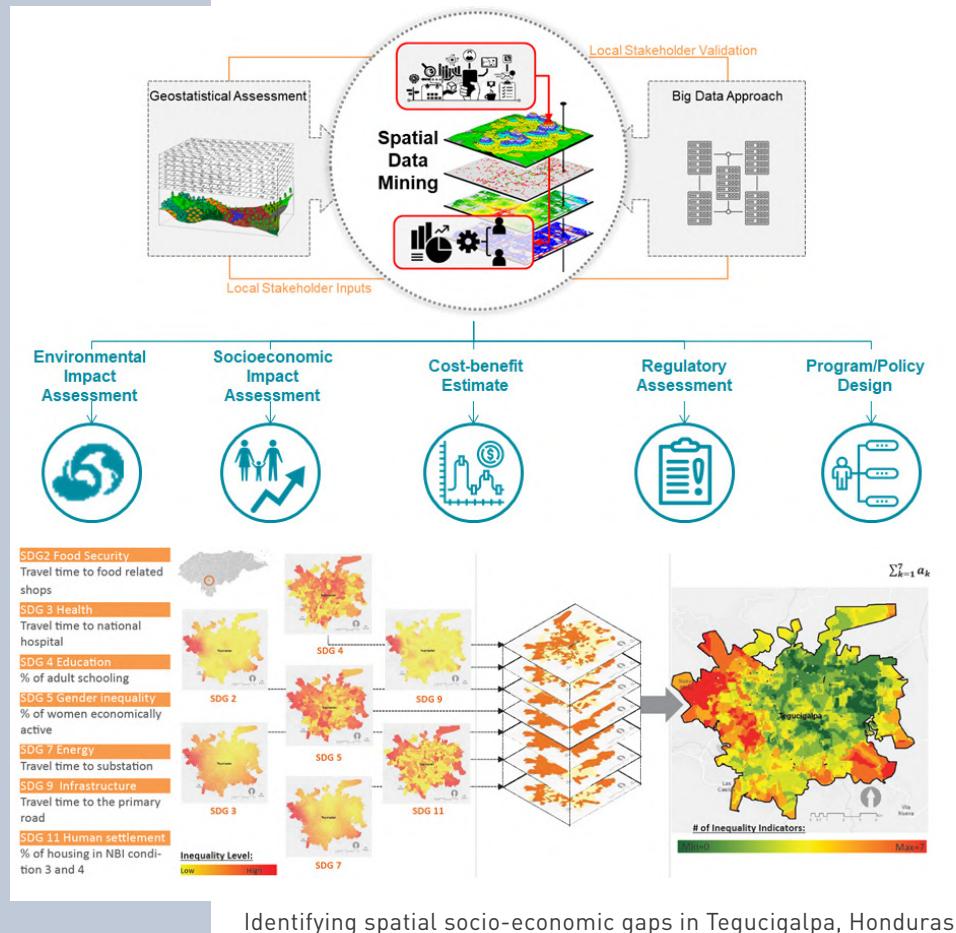
Our Clients

90%
of our Work is with Recurring
Clients



Territorial Intelligence and Spatial Gap or Opportunity Analysis

GeoAdaptive uses various geospatial and econometric methodologies to identify areas of strength and weaknesses within a territory. This approach has a wide variety of applications including disaster risk exposure, vulnerability and socio-economic disparities of adaptive capacity within urban regions. We have informed development strategies, policies, infrastructure interventions through place-specific observations and insights.



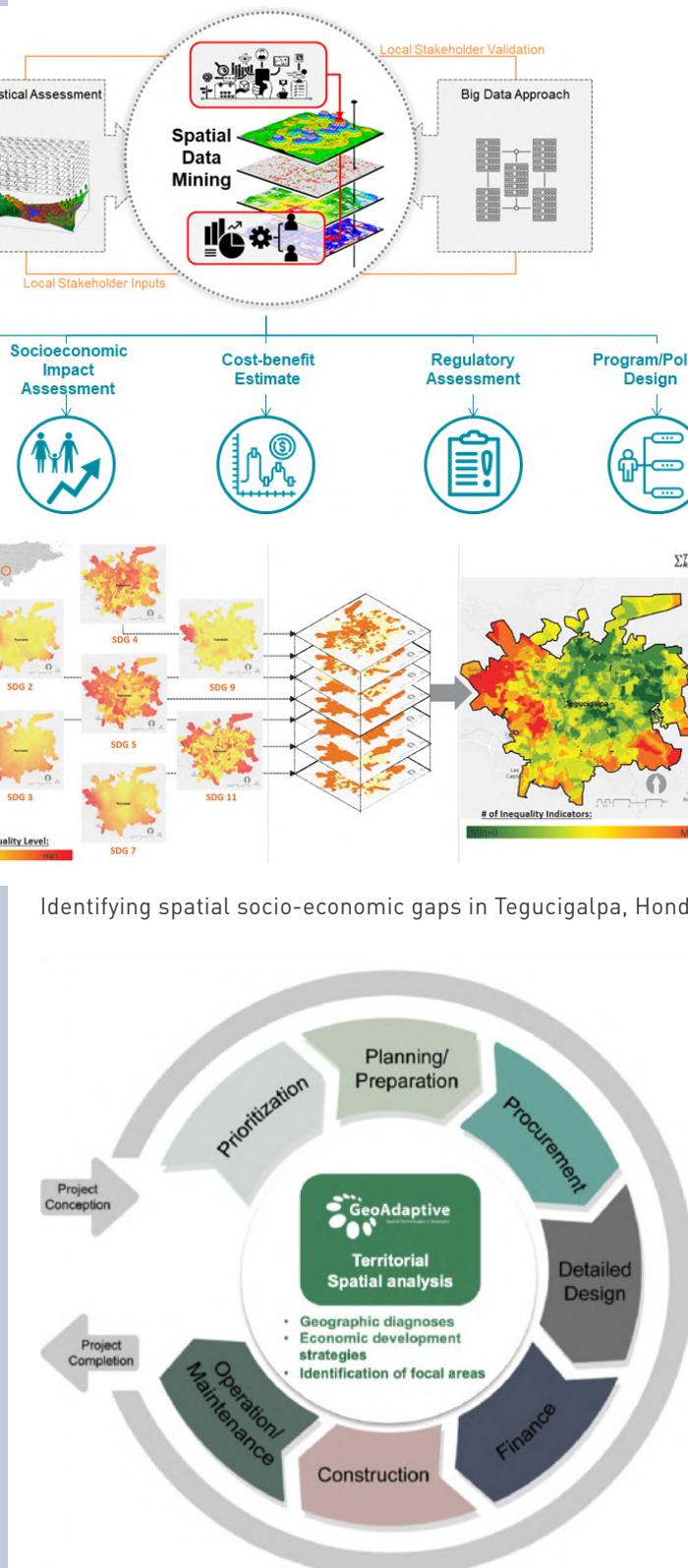
Sustainable Infrastructure Planning

GeoAdaptive facilitates collaboration between all stakeholders to integrate sustainable design standards and help them promote better environmental and social management of infrastructure projects in the territory. GeoAdaptive's services are tailored to the needs of a variety of stakeholders involved in infrastructure development.

An integrated territorial approach to sustainable infrastructure brings together policy, planning, and implementation to ensure systemic resilience

Key Expertise

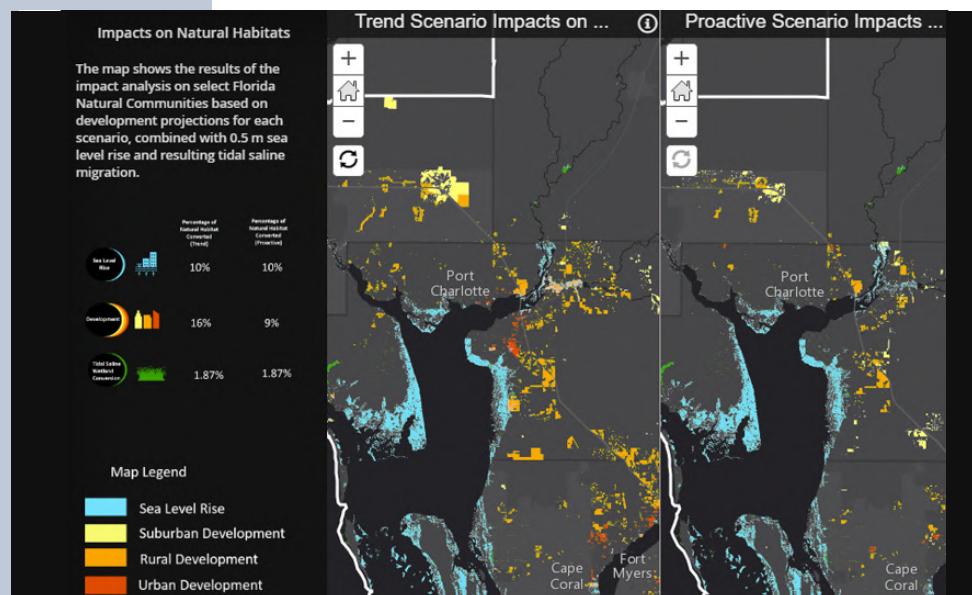
**Territorial Intelligence
Scenario Planning**
Sustainable Infrastructure Planning
Landscape Analysis and Visualization



Key Expertise

Disaster Risk Modeling and Scenario Visualization

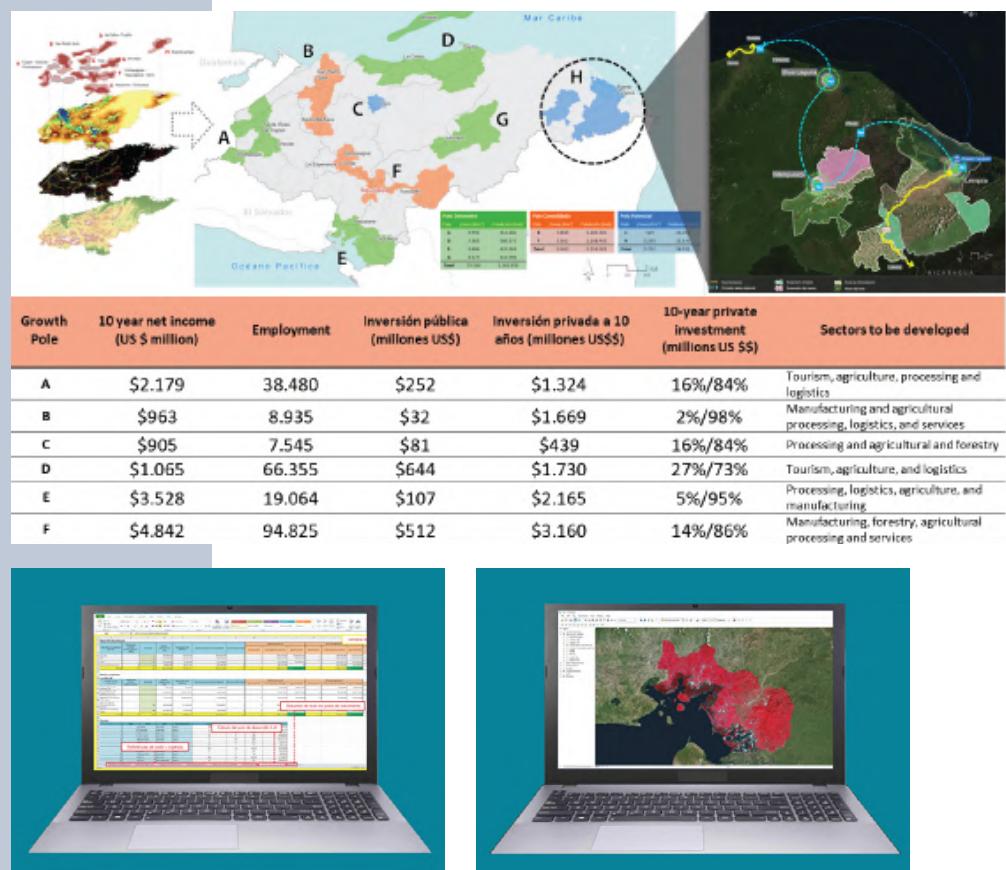
Urban planning and disaster risk reduction will increasingly rely on understanding risks from land-use changes and climate change. This is particularly true for rapidly growing cities in emerging economies that are exposed to drought, coastal inundation, or flooding. GeoAdaptive has extensive experience in modeling and visualizing urban growth and landscape changes. We engage stakeholders through scenario planning so they can make strategic decisions that are resilient to shocks and stresses.



Web visualization of the potential impact of development and sea level rise on natural habitats for various scenarios along the Florida coastal landscape

Interactive Decision Support Tools

GeoAdaptive develops a variety of web-based or desktop-based tools that are custom-built to respond to project challenges and client requirements. The synthesis of spatial analysis, cost-benefits, and other analytical information empower decision-makers to prioritize investments and respond to place-specific conditions.



Areas of potential high-impact in Honduras are spatially identified along with a list of cost-benefits by investment. GeoAdaptive's decision support tools effectively integrated tabular and spatial data to empower decision-makers.



Who We Are

NAXA is a youth-led geospatial service provider company with a key focus on design and development of technological solutions for Disaster Risk Reduction, Governance and Civic issues. The core expertise of the company lies in digital mapping, geodata management, analysis and development of geospatial applications. NAXA holds specific expertise in geodata management, digital mapping and development of map-centric web portals. After the 2015 Nepal Earthquake, the company has shifted its focus on implementation of latest geospatial tools and development of digital technologies to develop effective tools and solutions for disaster risk reduction and management.

NAXA is a private limited company registered under the Office of Company Registrar Nepal and the primary domain of the company is in collecting and analysing geo-located data to turn them into sensible information that can facilitate better decision making. NAXA holds specific expertise in digital mapping, geodata management, and development of map-centric applications (both web and mobile).

With a diverse team of Geomatics engineers, GIS analysts, Software developers, Development experts and data analysts, Naxa has worked on technological interventions, capacity development, localization of frontier tech projects with several governmental, non-governmental, private and bilateral organizations in many locations across Nepal. The company in the past has worked for the Government of Nepal, various ministries, NGOs and UN agencies, and private companies in conceptualizing and materializing GIS based digital solutions to enable them to make more data driven decisions.

Areas of Expertise

We are a diverse group of people with specialized expertise and experience in GIS Mapping, Digital Mapping, Photogrammetry and Remote Sensing, Data Visualization including the latest technology like Drone Mapping. We mainly work in the following 6 thematic sectors:

- **GIS Mapping:** We focus on the use of location datasets and visualizing them through hard copy maps, map based applications and portals.
- **Digital Data Management:** We build digital application solutions that contribute to efficient data collection and visualization focusing mainly on geodata collection and visualization. These are mostly data visualization systems and Geo-portals.
- **E-Governance:** We conceptualize and pitch ideas that focus on digitizing government service deliveries and build tools that can help the government carry data driven decision making.
- **Development of Information Management Systems:** We conceptualize and pitch ideas that focus on development of scalable and data driven information system that could be used for decision-making, and for the coordination, control, analysis, and visualization of information.
- **Training and Research:** We provide tailored training packages in GIS Mapping, OpenStreetMap and Web GIS to students, researchers and government and non-government officials.
- **Surveying and Mapping:** We provide surveying and mapping services ranging from total station based topographical survey to advance surveying based on Remote Sensing, Photogrammetry, and frontier technologies like drones.

Our experience in GIS mapping and web geo-data management application development for non-governmental agencies includes assignments with Department for International Development (DFID UK Aid), United Nations Office for Project Services (UNOPS), Voluntary Service Overseas (VSO), Institute for Social and Environmental Transition-Nepal (ISET-N), Build Change Nepal, DanChurchAid (DCA), Sarbodaya Nepal, World Vision International Nepal (WVIN), World Wildlife Fund (WWF) Nepal, OXFAM Nepal, The Asia Foundation, Niti Foundation, Rural Access Program (RAP 3), Nepal Monitor, Social Science Baha and more. Similarly, we have worked with several governmental agencies including Kathmandu Metropolitan City (KMC) Office, the Ministry of Land Management, Cooperatives and Poverty Alleviation, the Ministry of Labor and Employment (MOLE), Far Western Development Commission (FWDC), Department of Information Technology (DoIT), Survey Department, Geographic Information Infrastructure Department (GIID), Office of the Investment Board and several urban and rural municipalities.





Founded: 2020

Co-Founders: Justin Henceroth, CEO; Arun Bhandari, CTO; Nikita Rajbhandari, CXO

Registered: Colorado, USA

Offices: Kathmandu, Nepal and Bangkok, Thailand

What We Do

Zite is building software tools to support integrated remote management and planning. Built on the idea that real-time data is the key to improving management and planning, Zite builds up from flexible, mobile data collection tools to create an integrated assessment, quality management, project review, and planning platform that can help teams and organizations do better work. Through more actionable data and improved quality, this better work translates directly into better projects that are more able to deliver economic development and resilience services.

At its core, Zite builds tools around mobile data collection. Customizable forms that allow users to collect any kind of data can be structured, organized, and grouped to monitor processes on schedule, in sequence, or for specific purposes. In this way, Zite can integrate directly into already established team and organizational processes. Collaboration tools built on this data collection enable teams to review field submissions, flag and chat about issues, and respond to emerging issues in real-time. Finally, dashboards, maps, and custom-reporting tools help ensure that the real-time data teams are collecting can be used in planning and management decisions, making sure that the data collected actually improves overall performance.

Integrating remote data collection with team collaboration and decision support tools is the key to gaining adoption of these tools by teams across a range of sectors. Zite works with private companies, government agencies, and international organizations to improve their work and help them build more resilient communities.

Who We Are

Zite was founded in 2020 by a team of technologists and humanitarian responders who had worked together to support post-earthquake reconstruction in Nepal. Prior to launching Zite, the founders worked for the UN Office for Project Services (UNOPS) to develop and deploy tools to improve the quality and efficacy of humanitarian response. While at UNOPS, the founders built tools that ensured seismic resilience standards were included in more than 30,000 houses in Nepal, and worked to deploy the tools and findings across projects in more than 16 countries.

Zite builds on the lessons and successes identified using technology as part of humanitarian responses in Nepal and elsewhere. By launching a new start-up, we hope to be able to develop and deploy tools to support more actors at all scales to gather, analyze, and act on data to implement assessments and projects that address key challenges facing communities worldwide.



Zite's mobile tools and real-time dashboards bring data to life, helping teams respond in real-time to issues and emerging insights as they implement projects.



We aim to build the urban innovation ecosystem for emerging cities and their slums

Utopia is an urban innovation group establishing a network of [CITYLABS](#) as urban venture studios across emerging cities in Asia, Africa and Latin America. These CITYLABS are urban venture studios to help build and back urban startups focused on making their cities better for the many, not just the few. We also help governments innovate for their cities.

We were formed in 2016 after a decade working in cities in Asia. We are a distributed organization with our mothership based in San Francisco and teams in Kathmandu, Lagos, Rio de Janeiro and Manila. Collectively, our team is a mix of entrepreneurs, designers, urbanists, technologists, behavioral scientists, futurists and lots of zero gravity thinkers on cities.

01

Build Network of CITYLAB Platforms

We are building CITYLAB platforms across Asia, Africa and Latin America. These platforms will build and back 5-10 urban startups each year.

02

Establish Megacity Fund

We are creating urban funds at the city level to support emerging urban startups in their ecosystems.

03

Build the Ecosystem for Emerging Cities

We ideate and activate urban solutions under our Urban Practice with a cross-section of multi-sectoral actors, including government.

Through the urban venture studios, urban fund and urban practice, we are growing a community committed to making cities better for the many.

PEOPLE



Jonathan Hursh
Founding Partner
Urban Innovation Design



Dori Nguyen
Managing Partner
Urban Planning
Participatory Development



Emmanuel Adegbeye
Managing Partner
Entrepreneurship
Environmental Engineering

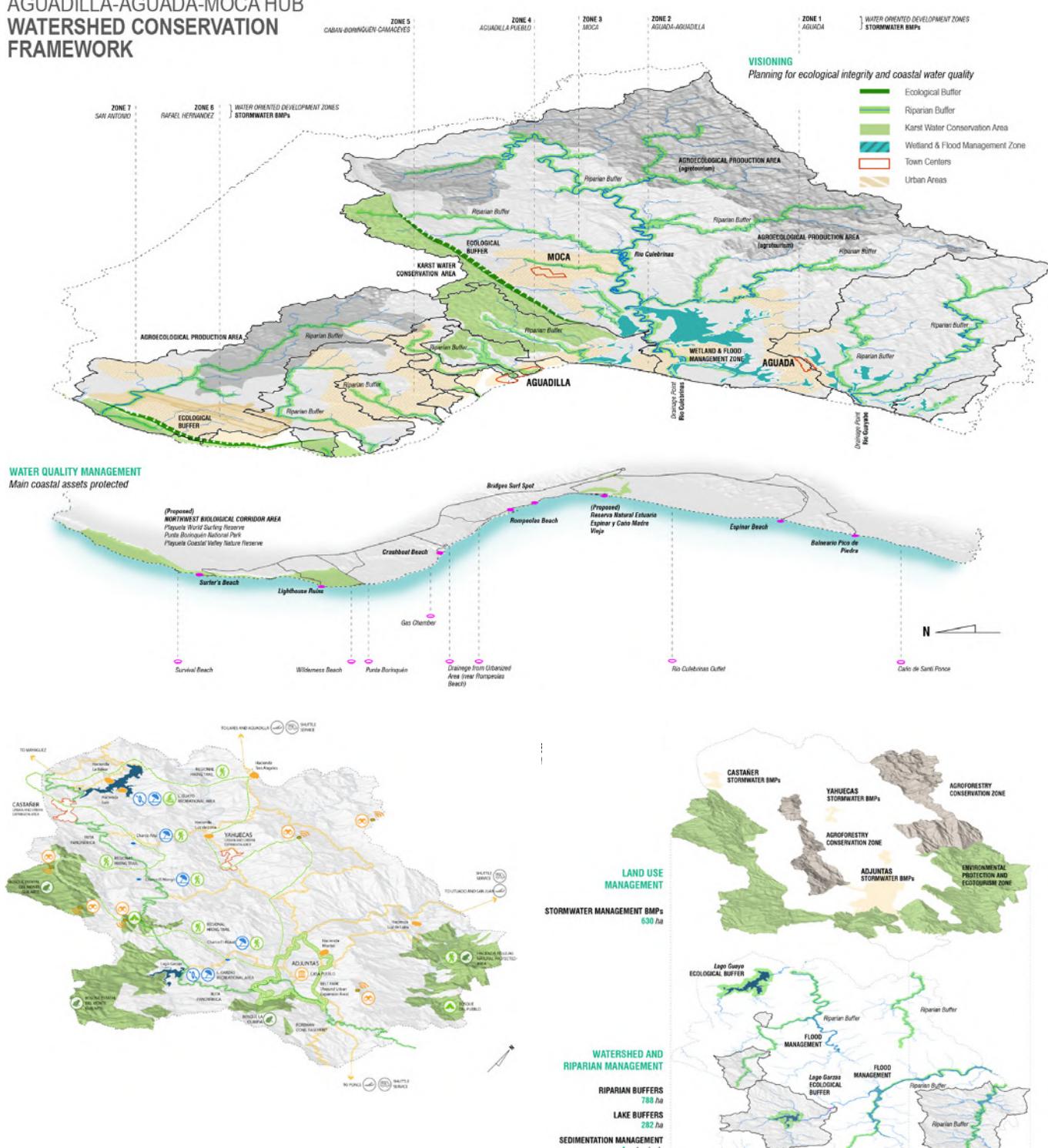


Kavyaa Rizal
Creative Director
Kathmandu
Service Design
User Research



Prabina Shrestha
Associate
Kathmandu
Architecture
Urban Design

AGUADILLA-AGUADA-MOCA HUB WATERSHED CONSERVATION FRAMEWORK



TOURISM DEVELOPMENT AND WATERSHED CONSERVATION

Puerto Rico: Visualization by GeoAdaptive of tourism hubs and landscape structure within sub-regions prioritized for tourism development on the island

Letters of Association



PAN No.: 602417000
Regd. No.: 126602/071/072
Ref No.: 077/178

World Bank
1818 H Street NW,
Washington, DC 20433.
USA

30 September 2020

Ref: Letter of Association for Naxa, Ltd.

To the World Bank EOI review panel:

In response to the Expression of Interest #1270436 released on 16 September 2020, we herewith confirm that Naxa Ltd., located at Baluwatar, Kathmandu, Nepal, agree to associate with GeoAdaptive LLC, 100 Franklin St. Suite 201, Boston, Massachusetts, United States, for the purpose of submitting a Proposal for the project:

Nepal Municipal COVID-19 Recovery and Disaster Preparedness Assessment and Investment Plan

We declare that we are eligible to participate in this project and we herewith authorize GeoAdaptive to represent us for the above-mentioned project.

We confirm that we are not participating in any other application for the same contract, whatever the form of the application.

Sincerely yours,

Uttam Padasaini
Legal Presentative
Managing Director
Naxa, Ltd.



True Digital Park 101, Sukhumvit, Bangkok, Thailand

| Phone +66 970 389 6996

| www.zite.io

World Bank
1818 H Street NW,
Washington, DC 20433.
USA

30 September 2020

Ref: Letter of Association for Zite

To the World Bank EOI review panel:

In response to the Expression of Interest #1270436 released on 16 September 2020, we herewith confirm that Zite, located at True Digital Park 101, Bangkok, Thailand, agree to associate with GeoAdaptive LLC, 100 Franklin St. Suite 201, Boston, Massachusetts, United States, for the purpose of submitting a Proposal for the project:

Nepal Municipal COVID-19 Recovery and Disaster Preparedness Assessment and Investment Plan

We declare that we are eligible to participate in this project and we herewith authorize GeoAdaptive to represent us for the above-mentioned project.

We confirm that we are not participating in any other application for the same contract, whatever the form of the application.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Justin Henceroth".

Justin Henceroth
Legal Presentative
CEO
Zite



We're an urban
innovation
group for
emerging cities

www.utopia.do
hello@utopia.do

September 29, 2020

World Bank
1818 H Street NW,
Washington, DC 20433
USA

Subject: Letter of Association, #1270436 - Nepal Municipal COVID-19 Recovery and Disaster Preparedness Assessment and Investment Plan

To the Nepal Municipal COVID-19 Recovery and Disaster Preparedness Assessment and Investment Plan EOI review panel:

In response to the #1270436 - Nepal Municipal COVID-19 Recovery and Disaster Preparedness Assessment and Investment Plan Expression of Interest released on September 16, 2020, we herewith confirm that Utopia Cities PBC, located at 643 Mission Street, San Francisco, California, United States, agree to associate with GeoAdaptive LLC, 100 Franklin St. Suite 201, Boston, Massachusetts, United States, for the purpose of submitting a Proposal for the project:

#1270436 – Nepal Municipal COVID-19 Recovery and Disaster Preparedness Assessment and Investment Plan

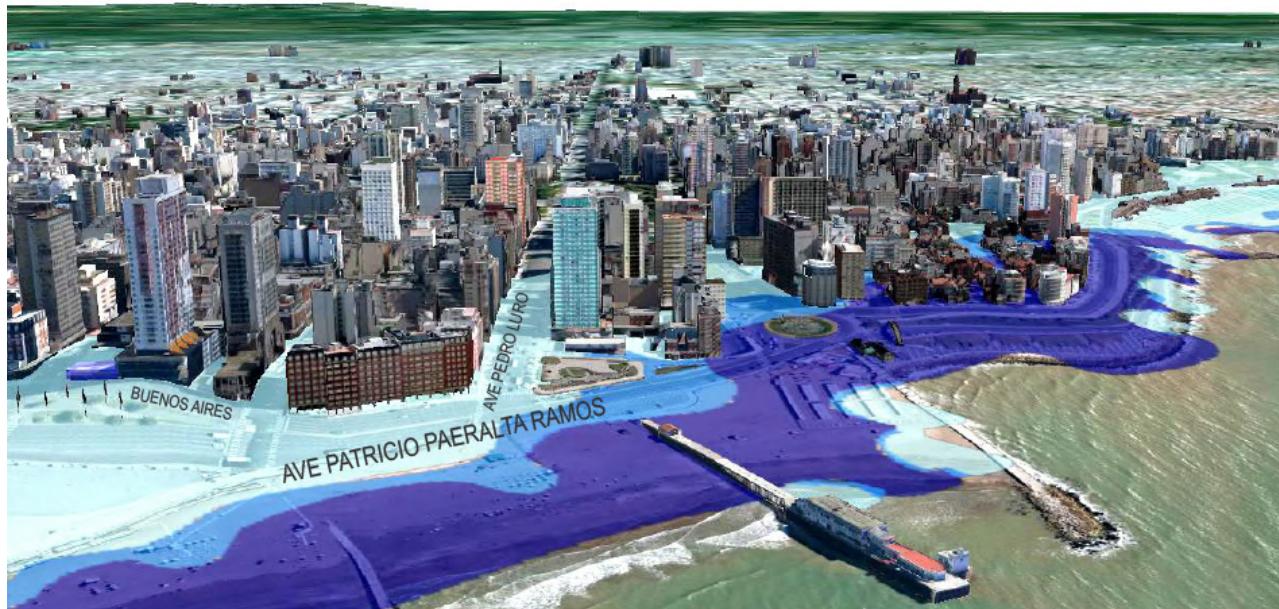
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We confirm that we are not participating in any other application for the same contract, whatever the form of the application.

Sincerely,

Dori Nguyen
Managing Partner, Kathmandu
Utopia

Coastal Inundation Hazard Visualization



Pluvial Flood Risk Visualization



MULTI-HAZARD VISUALIZATION FOR COASTAL CITIES

Mar del Plata, Argentina:
GeoAdaptive visualized multiple hazards for various climate scenarios to derive a holistic socio-economic understanding of coastal vulnerability



Urban Resilience and Scenario Planning Expert

Dr. Juan Carlos Vargas

Urban and Regional Planning Specialist

Sourav Kumar Biswas

Social Development and Public Health Specialist

Dr. Sulhee Yoon

Resilient Infrastructure and Risk Analysis Specialists

Maria Ignacia Arrasate

Eduardo Pérez Molina



Geomatics, Disaster Risk Mapping and Assessment Specialists

Uttam Pudasaini

Upendra Oli



Post-disaster Assessment Specialist

Justin Henceroth

Software Development Specialist

Arun Bhandari



Human Centered Urban Planning and Community Engagement Specialists

Dori Nguyen

Kavyaa Rizal

TEAM QUALIFICATIONS

Team Qualifications



Qualification Criteria 1

Experience in disaster risk preparedness and impact evaluation

GeoAdaptive's staff have urban, regional planning, and landscape architecture experience in more than 30 countries collectively, including rapidly developing cities in the Caribbean, Latin America, Central Asia, South Asia, and China. As a strategic planning firm leveraging geospatial innovations, GeoAdaptive has developed specialized methodologies for understanding climate risks, land-use change risks, multi-hazard exposure, and compounding vulnerabilities. These methods have helped inform resilient urban growth management and natural resource management plans for coastal cities and island nations in Latin America and the Caribbean. GeoAdaptive developed the technical procedures of the Emerging Sustainable Cities Program of the IDB, implementing it and developing studies in seven cities across Latin America: Goiania, Brazil; La Paz, México; Barranquilla Colombia; Montego Bay, Jamaica; San José, Costa Rica; Mar del Plata, Argentina; Salta, Argentina. GeoAdaptive has worked with the World Bank, FEMA, USGS, NOAA, US Fish and Wildlife, Inter-American Development Bank, and GIZ among other clients towards climate change adaptation strategies that account for land-use changes as well as multi-hazard risks.

Naxa has worked extensively on developing platforms impact evaluation and disaster risk preparedness. Naxa has developed the Covid-19 tracking portal for the Nepal Ministry of Health, a web-based risk assessment tool for the World Bank, a series of assessment and data collection tools for DFID Nepal, a trail-mapping program in

remote parts of Nepal, and a tool for mapping urban DRR projects with DCA Nepal.

Prior to launching **Zite**, the founders worked for UNOPS to develop and deploy a set of tools to monitor post-earthquake reconstruction for key seismic resilience indicators, with the overall goal of operationalizing 'Build Back Better.'

Qualification Criteria 2

Experience in using geospatial tools to evaluate risk and inform strategic investments

GeoAdaptive specializes in the use of spatial intelligence and visualizations to inform investment decisions in territorial development, disaster risk reduction, infrastructure, and urban planning. The GeoAdaptive team has developed unique methodologies for spatial analysis and scenario modeling in data-scarce environments. The Rapid Urban Growth and Landscape Change Models developed in-house have been used to inform climate adaptation strategies for coastal cities in the US, Central America, Caribbean Islands, and Latin America. We have built web or desktop-based, geospatial decision support systems to guide stakeholders through a robust scenario planning process. Our multidisciplinary team of spatial analysts, designers, landscape architects and urban planners develop creative and informative graphics in 2D and 3D to effectively communicate risk and synthesize complex information.

Naxa has developed a number of webGIS portals and applications for various entities within the Government of Nepal

Team Qualifications

including the Ministry of Housing Affairs, Land Management, Labour, and some municipalities. Naxa has developed open GIS-based municipal disaster information management systems as well as portals for national data visualization systems. These tools enable strategic decision-making and improve vulnerability and capacity assessments.

Zite is working with IOM Bangladesh to collect community feedback and monitor camp conditions and use that information to assess, direct, and improve the actions of the humanitarian response.

Qualification Criteria 3

Experience in risk mapping, impact assessment, and stakeholder engagement in Nepal and other developing countries

Our team is well-positioned to conduct assessments that meaningfully engage key stakeholders and contribute to ongoing efforts to support post-Covid planning because of our:

- **In-country and regional expertise.** This consortium has deep experience working in Nepal through recent challenges and changes in the last 5 years, including the 2015 earthquakes, energy crisis, and federalism, and understands the unique challenges facing the country. The team has also worked extensively throughout South Asia, including supporting Rohingya refugee programming in Bangladesh and disaster preparedness and response in India. Throughout the region, the consortium members focusing on

using data, analysis, and design to support disaster planning and response.

- **Track record of designing and implementing assessment programs in developing countries:** GeoAdaptive, Zite, Naxa, and Utopia have collectively worked in more than 30 countries to conduct spatial assessments that inform and guide humanitarian response and development planning. Collectively these firms have a track record of engaging stakeholder groups to co-develop assessment tools and work with stakeholders to evaluate data and design interventions. Utopia has particular experience with human-centered design in urban contexts, while all firms have worked collectively to support both disaster response and disaster preparedness efforts around the world.



Team Profile

Dr. Juan Carlos Vargas



Managing Principal GeoAdaptive Boston Urban Resilience and Economic Planning Expert

Dr. Juan Carlos Vargas-Moreno is the Managing Principal at GeoAdaptive in the firm headquarters in Boston. He is a development specialist with 18 years of expertise in the territorial economic analysis, strategic development spatial planning and policy and the use and application of spatial technologies, including sat-elite, open source and ICT data. His work focuses on the development and integration of analysis and planning processes to improve the strategic decision-making for the development of inclusive and sustainable strategies. This has enabled Dr. Vargas-Moreno to assist in the design, planning and management of strategies to ensure sustainable growth in organizations in a diversity of territories.

EDUCATION

Massachusetts Institute of Technology, USA.

Postdoctoral Studies in Computational Regional Analysis

Harvard University, USA.

Doctorate in Strategic Regional Planning; Doctoral Fellowship in Public Policy

Harvard University, USA.

M.Des – Master in Planning and Ecology

Universidad de Costa Rica, Costa Rica

Bachelor of Architecture and Urban Design

Dr. Vargas-Moreno has worked in Latin America, Europe, Africa, and Asia. Before GeoAdaptive, Dr. Vargas-Moreno served as an assisting director of the MIT-USGS Science Impact Collaborative, a research initiative of the U.S. Federal Government at MIT focus in the use of technology and modeling to aid complex decisions making. He is an architect from the University of Costa Rica and holds both a Master and Doctorate degree in Regional Planning and Urban Information Systems from Harvard University. He is also an alum-nus of the Sustainability Science and Policy Program, Center for International Development at the Harvard Kennedy School and develop post-doctoral position in computational analysis for developing and planning at Massachusetts Institute of Technology (MIT).

Board Memberships and Advisory Role to Organizations

- **Harvard Innovation Labs, Harvard University, USA:** Entreprenuer-in-Residence Advisor
- **Inter-American Development Bank 2019-2020:** Nature-Based Solutions Expert Consultative Group
- **Coastal Solutions Fellowship Program, Cornell University, USA:** Board Member
- **Conservation Council Washington DC, National US Landscape, USA:** Board Member

Select Professional Experience

- **2011 - Present: GeoAdaptive, LLC, Founder and Managing Principal (Boston)**
- 2019 - Present. **Project Director. Mideplan/IDB/GIZ.** Spatial Economic Strategy for Inclusive Economic Development and Decarbonization of Costa Rica by 2050
- 2018 - 2019. **Project Director. IDB.** Revising and Focusing the Comprehensive Development Plan for Petén 2032.
- 2018 - 2019. **Project Director. Department of Interior USA – FEMA and RAND Corporation.** Post Hurricane Maria Economic and Disaster Recovery Plan for Puerto Rico: Resilience and Adaptation Strategy for the Tourism in Puerto Rico

Team Profile

Dr. Juan Carlos Vargas Managing Principal GeoAdaptive Boston
Urban Resilience and Scenario Planning Expert

Select Professional Experience (cont.)

2017 - 2018. Project Director. IDB. Spatial Economic Strategy for Honduras.

2017 - 2018. Project Director. World Bank. Spatial Economic Development and Human Empowerment Strategy for Southwest Bangladesh

2016 - 2017. Project Director. Palmer Land Trust, Rocky Mountain Farmers Union. Evaluation and Planning of Alternatives to Improve Agricultural and Eco-Hydrological Outcomes in Pueblo County, Colorado, USA.

2016. Project Director. Department of Interior, USA, USFWS - Peninsular Florida Landscape Conservation Cooperative. Resilience of the Territory and Coastal Areas of the Southeast Florida Region

2013 - 2014. Project Director. Department of Interior, USA, USFWS - Peninsular Florida Landscape Conservation Cooperative. Collaborative Conservation Opportunities in Central Florida's Working Lands

2013. Project Director. Ministry of Environment and Sustainable Development, Colombia. Strategic Adaptations to Climate Change Through the Use of Open Spaces in Colombia

- **2008 - 2011: Massachusetts Institute of Technology, Department of Urban Studies and Planning, Project Director**
Applied Research and Professional Services of the MIT-USGS Science Impact Collaborative Center

- **2009 - 2010: Dobbin and Associates, Senior Analyst**

Coordinator of the Analysis and Territorial Strategy component for the East Africa region and the Rovuma Basin in Mozambique and Tanzania

- **2008: GeoDesign Technologies and Harvard University, Project Director**

Director of Analysis for Alternative Futures for the Telluride Region, Colorado

- **2004: EDAW - AECOM Environmental, Urban, and Regional Planning, Analyst and Planner**

- **2000 - 2003: GDG Architecture and Planning, Architect and Urban Planner**

Select Publications

- Increasing infrastructure resilience with Nature-based Solutions (NbS): A 12-Step Technical Guidance Document for Project Developers. (2020). Inter-American Development Bank.
- Almeida, E. M., Prat, J., Vargas-Moreno, J.C., Acevedo, M. C., Del Carmen, G, Mejía, A., ... & Sabatini, J. L. (2019). Honduras: A Territorial Approach to Development (Vol. 691). Inter-American Development Bank. <http://dx.doi.org/10.18235/0001679>
- Makino, Y., Brahmam, M., Vargas, J. C., and Yoon, S. (2019). Economic Empowerment of Women through Resilient Agriculture Supply Chains: A Geospatial and Temporal Analysis in Southwestern Bangladesh. World Bank, Washington, DC. © World Bank. <https://doi.org/10.1596/31262> License: CC BY 3.0 IGO.
- Moreno, J. C. V., Ponte, E., Emperador, S., & Noriega, M. O. (2017). An Effective Approach to Mainstreaming DRR and Resilience in La Paz, Mexico. In Renewing Local Planning to Face Climate Change in the Tropics (pp. 285-310). Springer, Cham. https://doi.org/10.1007/978-3-319-59096-7_14
- Flaxman, M., & Vargas-Moreno, J. C. (2011). Considering climate change in state wildlife action planning: A spatial resilience planning approach. Report No. FWC-2011. Department of Urban Studies and Planning, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA.
- Vargas-Moreno, J. C., & Flaxman, M. (2012). Using participatory scenario simulation to plan for conservation under climate change in the greater everglades landscape. In Restoring Lands-Coordinating Science, Politics and Action (pp. 27-56). Springer, Dordrecht.
- Steinitz, C. Abis, E., von Haaren, C., Albert, C., Kempa, D., Palmas, C., ... & Vargas-Moreno, J.C. (2010). Alternative Futures for the Metropolitan Area of Cagliari - The Cagliari Workshop, an Experiment in Interdisciplinary Education. Rome, Italy: Gangemi Editore.



Team Profile

Sourav Kumar Biswas

Practice Area Leader, Urban and Landscape Planning
Urban and Regional Planning Specialist



EDUCATION

Harvard University, USA

Master in Landscape Architecture

University of Texas at Austin, USA

Bachelor of Architecture

Sourav Kumar Biswas is the Practice Area Leader for Urban and Landscape Planning at GeoAdaptive. Sourav has more than 10 years of experience in the most innovative urban and landscape planning practices on projects in Afghanistan, China, Denmark, Mexico, Middle East, India, and South-east Asia. At GeoAdaptive, he works on integrating environmental, hydrological, and urban development dynamics with economic development and sustainable infrastructure strategies.

His projects on sustainable urban development, landscape conservation, and regional water resilience have received awards from American Society of Landscape Architects (ASLA), Boston Society of Landscape Architects (BSLA), and American Institute of Architects (AIA). He has been a visiting faculty at Mumbai University and Research Associate at Harvard.

His research pursuits include building urban water resilience through integrated watershed management and nature-based solutions, as well as the urban-rural linkages between transitioning settlements in India. He is the lead author of 'The Sponge Handbook: Chennai' for GIZ and 'PLAY! Tactics and Strategies for Public Spaces in Mumbai's Informal City' for ORF India. His research on India's urbanization and urban-rural linkages has been presented at Harvard, MIT, and the Venice Biennale.

Select Professional Experience

- **2020 - Present: GeoAdaptive, LLC, Practice Area Leader - Urban and Landscape Planning**

2020 - Present. World Bank. Visualization of Long-term Climate Adaptation in Republic of Marshall Islands

2020 - Present. Mideplan/IDB/GIZ. Spatial Economic Strategy for Inclusive Economic Development and Decarbonization of Costa Rica by 2050

- **2017 - 2020: SASAKI Boston, Landscape Planner and Spatial Analyst**

2019 - 2020. Ministry of Urban Development and Land (MUDL), Afghanistan / World Bank. Strategic Development Framework for Five Provincial Capital Cities - Herat, Jalalabad, Kandahar, Khost, Mazar-i-Sharif

2018 - 2019. MUDL and Office of the President of Afghanistan. Kabul Urban Development Framework

- **2016 - 2017: EDAW - AECOM San Francisco, Landscape Planner**
- **2015 - 2016: SLA Copenhagen, Landscape Designer**
- **2013 - 2015: Harvard University / Zofnass Program for Sustainable Infrastructure, Research Manager**

Select Publications / Presentations

- 2020. Presenter. 'Using the Landscape Approach to Build Urban Water Resilience.' NIUA, New Delhi, India. Webinar
- 2019. Lead Author. 'The Sponge Handbook: Chennai.' (GIZ India)
- 2018. Co-editor. 'From the South: Global Perspectives of Landscape and Territory.' (Universidad del Desarrollo, Chile)
- 2018. Co-presenter. 'Becoming Urban: Patterns of Urbanization in India.' Harvard Asia Center, Cambridge, USA
- 2018. Presenter. 'A Geospatial, Landscape-based Approach for Navigating Complex Multi-sectoral Water Rights Issues.' World Bank Environment and Natural Resources Global Practice, Washington DC, USA. Webinar
- 2017. Co-author of 'A Landscape Approach for Calama's Oasis: Negotiating Landscape Conservation, Agricultural Livelihoods and Mining' published in 'The Camp and the City: Territories of Extraction' (LAB Editorial)
- 2013. Author of 'PLAY! Tactics and Strategies for Public Spaces in Mumbai's Informal City.' (Observer Research Foundation India)

Team Profile

Maria Ignacia Arrasate

Practice Area Leader, Sustainable Infrastructure
Resilient Infrastructure Planning Specialist



EDUCATION

Harvard University, USA

Master in Design – Risk and Resilience

Columbia University, USA

M.S in Advanced Architecture Design

Universidad Católica de Chile

Bachelor of Architecture

Maria Ignacia Arrasate is the Sustainable and Resilient Infrastructure Area Leader for GeoAdaptive and an active academic researcher. Her work focuses in the field of sustainability, considering the intersection of multiple disciplines, including architecture, engineering, urban planning, and spatial economy. Drawing on her master's degrees in architecture and design studies, she has spent the last years working in the development of more sustainable infrastructure projects in Latin America. As the Area Coordinator of Sustainable and Resilient Infrastructure at GeoAdaptive, she directs diverse projects related to the area.

After her studies at the Harvard Graduate School of Design (GSD) she worked as Research Associate for the Zofnass Program for Sustainable Infrastructure, developing several case studies to unpack the meaning of sustainability in infrastructure projects developed across LAC as well as examining best practices to build resilient infrastructure. Before coming to Harvard, she worked as Minister Advisor, as part of the Urban and Housing Reconstruction Team, for the Chilean Ministry of Housing and Urban Development, focusing in sustainable planning.

Throughout her professional development she has worked as an architect, developing housing and commercial projects, as well as urban designer, participating in the design of sustainable master plans. She has combined her practice with her interest in research, working as professor in Pontificia Universidad Católica de Chile and Universidad del Desarrollo in Chile. Also, she has been part of advanced research teams at the same universities, working in the development of design and public policy recommendations for sustainable approaches to architecture, urban design, and infrastructure development.

Select Professional Experience

- **2017 - Present: GeoAdaptive, LLC, Practice Area Leader - Sustainable and Resilient Infrastructure**
- **2020 - Present. Mideplan/IDB/GIZ.** Spatial Economic Strategy for Inclusive Economic Development and Decarbonization of Costa Rica by 2050
- **2017 - 2018. Ministry of Finance/IDB.** Spatial Economic Strategy for Honduras: Socio-spatial analysis of Honduras Decarbonization for Costa Rica by 2050
- **2020 - Present: Universidad del Desarrollo Chile. Professor of Nature-Based Solutions Studio, Sustainable Urban Development Masters Program**
- **2015 - 2017. Research Associate. Harvard University / Zofnass Program for Sustainable Infrastructure.**
Projects: "Social and Environmental Conflict in Infrastructure Projects"; "IDB's Safeguards Policies"; "Surdna Project for Urban Water Management in US Cities"
- **2010 - 2013. Advisor to the Ministry. Reconstruction Program, Ministry of Housing and Urban Planning, Chile**

Relevant Publications

- 2020. Support for the Sustainability Criteria Strategy in Strategic Documents of the Ministry of Public Works. Ministry of Public Works of Chile and IDB.
- 2018. Co Author. "Sustainable infrastructure projects in Chile: application of the Envision Rating System". Project Manager. Report by the Zofnass Program and IDB.

Team Profile

Dr. Sulhee Yoon

Lead Associate Public Health and Social Development Specialist



EDUCATION

**University of Florida,
USA**

Ph.D in Urban and
Regional Planning

Master in Urban and
Regional Planning

**Sejong University,
South Korea**

Bachelor of Engineering
and Geoinformatics

Dr. Sulhee Yoon the Associate Lead for GeoAdaptive's Social Development and Human Capital Practice Area. She is a specialist in urban and social analysis. She is an evidence-based researcher who applies geostatistical and quantitative methods to assess socioeconomic and infrastructure conditions at the local and regional level. She has more than 10 years of experience in statistical and spatial modeling. She also has professional experience in identifying human capital potential in developing countries to alleviate public health and education problems through the use of GIS models and statistical analysis. In addition, she applies statistical models of territorial prospecting to forecast future needs on a disaggregated geographic scale.

Prior to her joining GeoAdaptive, her research at Florida University linked statistical analysis of employment opportunities and provision of social services to urban planning and multimodal transportation.

Currently Dr. Yoon directs in GeoAdaptive analysis model optimization projects, as well as in the design of methodologies and parameterized simulations on the availability and accessibility of services. Yoon designs and oversees socio-economic analyzes to achieve sustainable urban development in view of the SDGs. She has a wide range of experience in the United States, Latin American countries, and Asia

Select Professional Experience

- **2016 - Present: GeoAdaptive, LLC. Lead Associate for Social and Human Capital Development**
- 2019 - Present. Human Capital and Social Development Expert. Mideplan/IDB/GIZ.** Spatial Economic Strategy for Inclusive Economic Development and Decarbonization of Costa Rica by 2050
- 2018 - 2019. Technical Coordinator. IDB.** Identification of Clusters for Poverty Alleviation Programs in Honduras.
- 2018 - 2019. GIS Specialist. Departament of Interior, USA – FEMA and RAND Corporation.** Post-Hurricane Maria Disaster Recovery Plan and Economic Strategy for Puerto Rico: Strategy for Resilience and Adaptation of the Tourism Sector in Puerto Rico.
- 2017 - 2018. Technical Coordinator. World Bank.** Economic Empowerment of Women through Resilient Agriculture Supply Chains: A Geospatial and Temporal Analysis in Southwestern Bangladesh
- 2017 - 2018. Human Capital and Social Development Expert. IDB.** Spatial Economic Strategy for Honduras.
- 2016. Human Capital and Social Development Expert. IDB.** Socio-economic and Productive Spatial Diagnosis for the Northern Triangle Territories, Guatemala.
- **2013 - 2015: University of Florida, Robert Wood Johnson Foundation (RWJF). Researcher.**

Select Publications

- Yoon, S., Patel, A., and Vargas, J.C. (2020). Exploring spatial patterns of economic activity in Central America and their relationship to informal settlements. Habitat International. Under Review
- Yoon, S., & Steiner, R. (2016). Investigating the Spatial Distribution of the Healthcare Disparity Populations and Its Implications for Primary Healthcare Needs. Journal of Transport & Health, 3(2), S34. <https://doi.org/10.1016/j.jth.2016.05.080>

Team Profile

Eduardo Pérez Molina

Senior Associate
Territorial Modeling and Risk Analysis Specialist



EDUCATION

University of Twente, Netherlands

Doctorate in Urban and Regional Planning

Master in GIS and Spatial Analysis

Universidad de Costa Rica, Costa Rica

Bachelor of Civil Engineering

Eduardo Pérez has more than 10 years of experience in engineering and territorial modeling projects. He has extensive experience in managing large scientific databases and information systems, including data mining and spatial econometrics. At GeoAdaptive, Eduardo has participated in multiple projects on the development of databases and predictive analysis models of risk and urban growth based on remote sensing and big data, the use of parameterized simulations based on cellular automata and GIS rule-based models, hydrometeorological and earthquake risk prediction, and stochastic land use modeling.

He has applied artificial intelligence methods to the study of land markets in San José, Costa Rica (for the compilation and spatial analysis of urban real estate market listings as well as spatial quantitative analysis of bank mortgages) and to remote sensing-derived land cover maps in Sub-Saharan Africa and Latin America. He also teaches Systems Engineering, optimization, and statistics to Civil Engineering students at the University of Costa Rica.

Eduardo is a skilled programmer on different platforms including Python with an emphasis on spatial analysis (PC Raster library, ArcGIS library) and stochastic statistical programming (SciPy, NumPy) and statistical packages like R, SPSS, EViews, GRETL, Stata. Eduardo has published several scientific articles in predictive modeling.

Select Professional Experience

- 2012 - Present: GeoAdaptive, LLC. Senior Geospatial Analyst**

Geospatial analyst, responsible for calibration of urban growth models in Costa Rica, analysis of climate change in Colombia, natural hazards in Jamaica, with the use of GIS for analysis of human settlements.

2019 - Present. Mideplan/IDB/GIZ. Spatial Economic Strategy for Inclusive Economic Development and Decarbonization for Costa Rica by 2050

2014 - 2016. Technical Coordination. IDB. Study of climate change and urban development for the city of San José, Costa Rica

- From 2014 - Present: University of Twente. Netherlands. Investigator.**

Development of urban growth and flood models for Kampala, Uganda and Kigali, Rwanda

- 2006 - 2012: Universidad de Costa Rica, Research Program on Sustainable Urban Development. Investigator.**

Research on issues of urban growth, land values, residential segregation, transportation engineering, valuation of environmental services.

Relevant Publications

- Perez-Molina, E., Sliuzas, R., Jetten, V.G., & van Maarseveen, M.F.A.M. (2017). Developing a cellular automata model of urban growth to inform spatial policy for flood mitigation: A case study in Kampala, Uganda. *Computers, Environment and Urban Systems*, 65, 53-65.
- Pujol, R., and Perez-Molina, E., & Sanchez, L., (2011). Estimates of the impact of the growth limit (containment ring) on soil values in northern Heredia, 1997-2007. *Revista de Ciencias Económicas*, 31(2), 117-134



Uttam Pudasaini

**Co-founder and GIS Analyst
Geomatics and Disaster Risk Mapping Specialist**

EDUCATION

Kathmandu University

B.E. Geomatics Engineering

Select Professional Experience

- 2014 - Present: NAXA Pvt. Ltd. Co-founder**

Development of National Geospatial data Portal for the National Mapping Agency- Department of Survey (<http://nationalgeoportal.gov.np/>)

GIS Mapping of Identified Open Spaces in 5 Earthquake Affected Districts of Nepal and status Update on Open Spaces Identified in Kathmandu Valley- IOM Nepal

Developing a web based risk assessment tool powered by Google Earth Engine to help risk assessment importing data from different open source systems, Digital and Spatial Technologies for Disaster Governance and Capacitating Rural and Urban Municipalities (Nepal), The World Bank (Consortium with Practical Action Consulting & Young Innovations Nepal won the Collaborative Data Innovation Grant from World bank, Details here)

Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glacial River Basins of Nepal -UNDP Nepal

Development of Data Visualization System for DFID Nepal programs and projects -DFID Nepal

Development of Fieldsight,A digital data collection and monitoring tools Upgrade and Maintenance-UNOPS

Local Trail and Community Infrastructures Mapping for Emergency Preparedness and Response in remotest districts of Nepal : Bhajang, Bajura and Humla District-WFP Nepal

Development of Safer reconstruction information dissemination mobile app after Nepal Earthquake 2015,30.000+ downloads - Owned & Promoted by National Reconstruction Authority -Supported by Build Change Nepal

Digital Mapping Partner for Urban DRR Projects Projects (Phase I and Phase II) - Provided open mapping , trainings on digital data collection to aid relief efforts in flood affected municipalities- DCA Nepal

- 2014 - Present: Fieldsight. Web Application Development Lead**

FieldSight is a platform for remote monitoring and supervision of humanitarian and development projects in order to improve quality and reduce risk.

FieldSight provides tools to customize remote data collection, deliver education and reference materials, and improve communication across multiple channels in order to enhance the work of teams working on distant and remote project sites. Built to scale, FieldSight works on projects with one to thousands of sites, and includes tools for review, coordination, and analysis across aggregated data.

- 2016 - Present: Nepal Flying Labs. Coordinator.**

Lead Aerial Mapping mission using different kind of Drones/UAVs.

Support the incubation of local businesses around Robotics (mostly aerial robotics/ drones) as a service.

Coordinate, facilitate and document new projects with local Social Good Partners.

Select Publications

- Bhandari, B., Oli, U., Pudasaini, U., Panta, N., 2015. Generation of High-Resolution DSM Using UAV Images. FIG Working Week.

Select Awards

- 2018 Winner: AUVSI XCELLENCE Humanitarian Operations Award 2018 for Drones based Landslide risk mapping project in an Earthquake affected Community in Nepal- Role of Uttam (Project manager & Technical lead- Nepal Flying Labs)



Upendra Oli

**Chief Technical Officer and Web GIS Developer
Geomatics and Disaster Risk Mapping Specialist**

EDUCATION

Kathmandu University

B.E. Geomatics Engineering

Select Professional Experience

- **2014 - Present: NAXA Pvt. Ltd. Chief Technical Officer**

Government of Nepal, Ministry of Housing Affairs: Technical Assistance in Development of BIPAD (Building Information Platform Against Disaster) for NEOC, Ministry of Home Affairs. The major objective of the project was to develop map-based Risk Information dashboard that will provide the information to the public about major risk and hazards in National, provincial and local levels

IOM, Nepal: Development of Open Space modules in Nepal Governments' BIPAD Platform. The major objective of the project was to integrate/develop an open space module under the Risk Info of BIPAD utilizing the data collected under the project Mapping of Identified Open Spaces in 5 Earthquake Affected Districts of Nepal and Information Update on Open Spaces Identified-Kathmandu Valley.

Geographic Information Infrastructure Division (GIID), Survey Department Nepal: Development of Integrated geoportal to disseminate the spatial datasets provided by the survey departments and its divisions.

United Nations Office for Project Services (UNOPS): FieldSight WebGIS Developer. FieldSight is a technological platform for remote monitoring, supervision, and quality assurance on humanitarian, development, and construction projects. Android based dynamic data collection, management and web based visualization system developed for UNOPS. Geo-Tagged (GPS Tagged) Photographs along with other data collection systems using dynamic forms on Android Phone. It is running in more than 10 countries all over the world.

Far Western Development Commission, Nepal: Development of Socio- Economic Atlas of Farwest Region (Web Atlas Book). Selection and filter options for different socio-economic indicators in District level and Municipality Level. Map, Bar Chart, Pie Chart and Table based data visualization with export options.

World Wildlife Fund: Development of Android Application for Tracking Conservation Programs:Upgrade and Integration of Mountain Conservation Activities Conservation Tracking Application (CTA) is a system is a combination of an android application for field based officers and a web application for project managers for monitoring purpose. It is a digital system that allows tracking of project progress in real time over maps , charts and tables. The project has been founded on the simple idea of digitizing the current system of data collection and reporting of conservation programs under WWF Nepal Terai Arc Landscape (TAL) program.

- **2017: Total Management Services Pvt. Ltd. CAD / GIS Engineer**

Multi source data integration to prepare maps of Multipurpose Nagmati Reservoir at Northern part of Kathmandu.

- **2015 - 2016: Solu Hydroelectric Project. IOW - Civil, Survey Engineer**

- **2014 - 2015 Pathway Technologies. Web GIS Developer**

Skills

GIS, Geoserver, Geonode, Openlayers, React JS, Mapbox, Leaflet, UAV Imagery



JUSTIN HENCEROTH

Innovator | Collaborator | Designer | Urbanist

Current Address: Bangkok, Thailand

Contacts: justinh@zite.io | +1.970.389.6996 | +66.97.051.3121 | [LinkedIn](#)

EDUCATION

Master of Design Research, Risk and Resilience 2017
Harvard University Graduate School of Design, Cambridge, MA, USA

Bachelor of Arts, Biology 2009
The Colorado College, Colorado Springs, CO USA

WORK EXPERIENCE

Zite Chief Executive Officer (April 2020 - Present)
Lead development and growth of Zite. Identify market opportunities, build a team, develop business and operational structures, and pursue funding and investment to support scaling and growth.

- Successfully launched Zite as a start-up and product in less than 4 months.
- Secured funding from UN agency to deploy Zite to support refugee camp management.

UN Office for Project Services Innovation Program Manager (June 2016 - March 2020)
Responsibilities: Develop and design technical products to support the implementation of UNOPS projects worldwide. Build teams to support the design and implementation of those products.

- Led the Development of FieldSight and oversaw its deployment to support quality assurance and risk reduction on over 100,000 project sites in 18 countries.
- Integrated FieldSight into UNOPS HQ systems to roll out to all country offices.

ISET and Thailand Environment Institute Luce Scholar, Research Associate (June 2012 - June 2015)
Responsibilities: Support research and urban planning initiatives in SE Asian cities to build urban climate change resilience. Write research papers, develop project implementation plans, and manage partnerships.

- Oversaw development of an urban resilience flood model to support planning in Udon Thani, TH.
- Supported the development of Urban Resilience plans in 8 cities in Thailand and Viet Nam.

Meridian Institute Fellow, Project Associate (January 2010 - June 2012)
Responsibilities: Provided research support, project planning, and implementation / logistics support for multi-stakeholder collaborative policy dialogues focused on public sector and environmental issues.

- Managed the engagement of 5,000+ stakeholders to draft new US Forest Service planning rules.
- Supported the development of a 100 year vision for the Mississippi River Basin.

AWARDS

Grand Prize, AVPN and Prudence Foundation Disaster Technology Award (2019)

Environmental Collaboration and Conflict Resolution Award, USIECR (2012)

Henry Luce Scholar (2012) | Boettcher Scholar (2005)

SUMMARY

I specialize in design and collaborative processes, and am particularly passionate about using this skill set to help solve critical challenges related to urbanization and climate change.



ARUN BHANDARI

Engineer | Entrepreneur | Enthusiast

Current Address: Lalitpur, Nepal.

Contacts: arunb@zite.io | +977 9849152018 | [LinkedIn](#)

EDUCATION

Bachelor's in Engineering, Geomatics Engineering
Kathmandu University, Nepal.

2014

WORK EXPERIENCE

Zite

Co-Founder, Chief Technical Officer (April 2020 - Present)

Responsibilities: Lead the design and development of the Zite technical platform. Analyze business requirements, design software solutions, and lead technical teams.

Naxa Pvt. Ltd.

Co-Founder, CEO (August 2014 - Present)

Responsibilities: Engage in strategic planning and administration of the company. Lead projects and engage in business development.

United Nations Office of Project Services

Technical Lead, FieldSight Project (March 2018 - December 2018)

Responsibilities: Engage in technical design and development of features, ensure the smooth operation of the technical system.

PROJECTS ACCOMPLISHED

Worked as the Technical Manager in the development of, but not limited to:

- FieldSight - A remote monitoring and supervision system for UNOPS Nepal
- Conservation Tracking Application (CTA) for WWF Nepal
- Data Visualization System for DFID Nepal
- Monitoring and Evaluation (M&E) System for Practical Action in Nepal
- Supply Chain Automation System for World Vision International Nepal
- Socio-Economic Web Atlas of Far-Western Region for Far Western Development Commission, Government of Nepal
- Data Visualization Tool for Louise Berger (Sakchyam- Access to Finance Project)
- Varicon for BodhiTech Pty. Ltd.

OTHER POSITIONS/TRAINING

Joint Secretary, Nepal Geomatics Engineering Society, 2019-Present

Public Service Fellow, Daayitwa Abhiyaan, 2014

Participant, Summer School on Engineering for Developing Communities, 2014

SUMMARY

I am a tech practitioner with a passion for designing and implementing technology solutions. With an entrepreneurial mindset, I have co-founded two tech companies and worked in more than a dozen technical systems. I love reading and have a passion for playing football.

Dori Nguyen
dorixn@gmail.com
M: +977 9818167181
Lalitpur, Nepal



EDUCATION

- May 2013 **Rutgers University**, The Edward J. Bloustein School of Planning & Public Policy
Master of City & Regional Planning, MCRP
Concentration in Community Natural Resource Management
- Feb 2011 **Columbia University**, Graduate School of Architecture, Planning, Preservation (GSAPP)
Post-baccalaureate in Urban Studies
- June 2009 **University of California, Los Angeles (UCLA)**
Bachelor of Arts in Anthropology (Sociocultural); Minors in Urban & Regional Studies, French

EXPERIENCE

Utopia

- Dec 18 – Present **Managing Partner**
Sep 17 – Nov 18 **Co-Director (Kathmandu)**
- Launch and shape CITYLAB Kathmandu as urban venture studio to build urban startups, a multi-sectoral and -disciplinary urban practice, and an urban investment fund
 - Identify, co-shape and scale adaptive innovations as urban startups with local cofounders that address urgent issues – currently: circular waste, urban migration, early education, govtech
 - Grow and lead team to develop and adapt responsive design and systems processes for urban venture and ecosystem building, and actionable and iterative research applications
 - Co-design and implement programming, operations and strategy with global/regional offices, including Asia regional CITYLAB expansion

- May 13 – Present **Research & Program Development Consultant | Selected projects**
- **Collective Campaign for Peace (COCAP)**: identify, analyze and draft articulation of change pathways and user engagement and research uptake strategy for violence monitoring data
 - **The Asia Foundation (Nepal)**: interviewed bi-/multilateral, local actors to draft 'Support to the National Statistical System of Nepal' landscape analysis under DFID-funded Data for Development (D4D); drafted Most Significant Change Stories as profiles of D4D beneficiaries
 - **Social Development Direct (SDD)**: coordinated KIIs with Nepali actors (MPs, ministries, I/NGOs, bi/multilateral agencies) for OECD Policy Dialogue on Women's Economic Empowerment
 - **Population Services International (Nepal)**: wrote situation analysis on gender-based violence in Nepal on tight deadline for US Department of State's \$2m funding opportunity

- Jun 16 – Jun 17 **Nepal Urban Reconstruction & Governance Project** Built Environment Researcher
- Co-designed and conducted field research within budget, and co-authored papers on post-disaster governance in 6 urban Kathmandu Valley settlements for DFID-funded study
 - Managed extensive local initiatives and stakeholder mapping, policy research and analysis, liaising with government, I/NGO, local actors to access built environment and governance data

- Nov 15 – Feb 17 **UN-HABITAT (Nepal)** Urban Planner
- Wrote \$100k successful proposal on post-disaster public space rehabilitation
 - Led partner/beneficiary evaluation on post-disaster response of WASH clusters in 4 districts
 - Designed strategy and conducted planning workshops with youth and local committees
 - Drafted project management, engagement and implementation approach for Bungamati Reconstruction Project with local partner, and contributed to open space plans for multiple rehabilitation projects

- Mar 16 – Jan 17 **UNDP Comprehensive Disaster Risk Management Programme (Nepal)** Urban Planner
- Oversaw planning components of project development, data collection, drafting of Risk-Sensitive Land Use Plan and implementation strategy for Chautara Municipality with local firm

KAVYAA RIZAL

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+977-9841748320 | Linkedin: Kavyaa Rizal

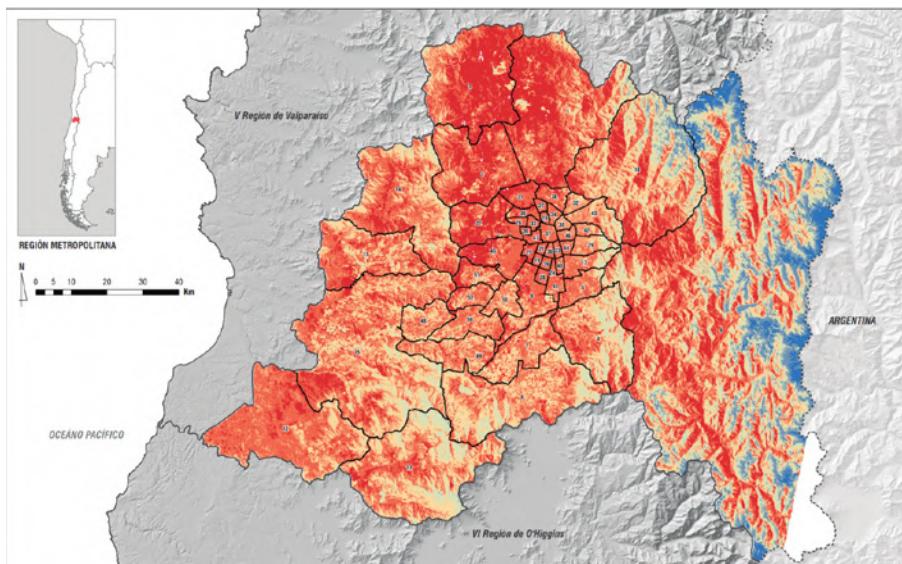


EDUCATION

Mid-Western University Kathmandu, Nepal	Master's in international Cooperation and Development, 2019 <i>Thesis: Conscious Innovation - Human Centered Design, Evaluation and Measures of Success for Climate Action in Nepal.</i>
Colby-Sawyer College New Hampshire, USA	Bachelor of Arts in Sociology, 2017 <i>Minor in Political Studies and Legal Studies</i>

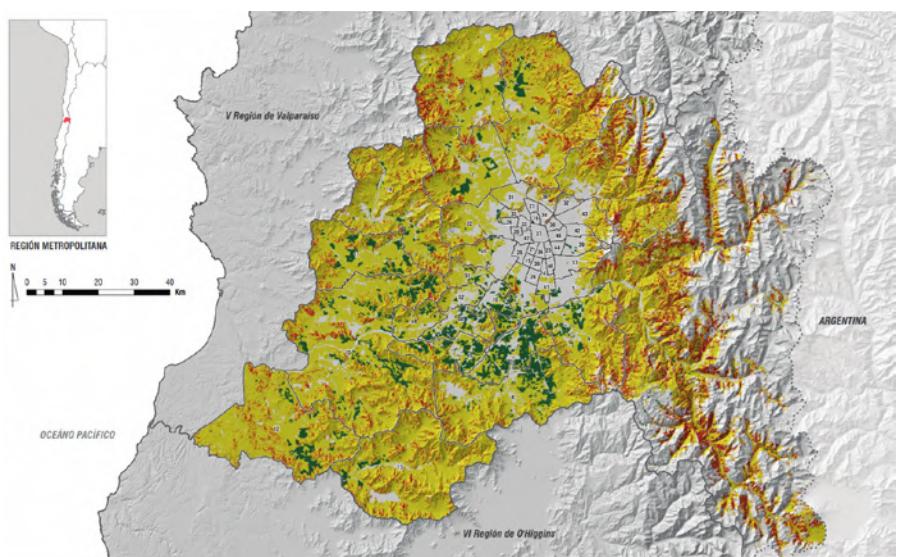
EXPERIENCE

02/2019- Present	Creative Director, Utopia Kathmandu Studio Kathmandu, Nepal
	<ul style="list-style-type: none">- Supporting the design and implementation of a virtual accelerator for over 10 impact-based enterprises in Kathmandu, Nepal.- Supporting the user research, ecosystem and market research, solution design and prototyping of 3 in-house social enterprises under Utopia CITYLAB.- Conducting and producing in-depth user research and process/product designs for corporate/development partners of the organization.- Closely engaging with informal settlements in and around Kathmandu to identify unique community problems and supporting development of corresponding ventures.- Co-built Cue Studio as Utopia Kathmandu's sister design research and innovation arm.
05/2019-01/2020	Human Centered Design (HCD) Research Lead, The Lotus Initiative Dhankuta, Nepal
	<ul style="list-style-type: none">- Co-designed HCD and systems practice based qualitative research framework with over 150 participants and 3 user groups in rural Nepal focused on access to finance, financial literacy, and entrepreneurship opportunities.- Co-designed and facilitated 6 HCD based workshops among local key stakeholders in identifying urgent issues and co-creating solutions.- Managed a team of 4 researchers on conducting and synthesizing qualitative data of over 150 participants in the span of 40 days.- Co-designed and facilitated 4-day data synthesis and ideation session among researchers, context experts and technical experts.- Co-designed and facilitated a 9-day workshop on co-creating, prototyping and testing solutions for identified problems among local residents and key stakeholders in rural Nepal.
01/2017-04/2019	Program Officer, Women Development Advocacy Center Kathmandu, Nepal
	<ul style="list-style-type: none">- Managed the strategic direction and daily operations of a skills development program in partnership with local colleges, corporates, and development institutions.- Designed and facilitated organizational development training for corporate partners and development institutions.- Designed and facilitated soft-skills training for students and staff in tertiary education institutions based on Project Based Learning (PBL) methods.- Facilitated partner creation and engagement with over 150 national and international stakeholders of a soft-skills development program.

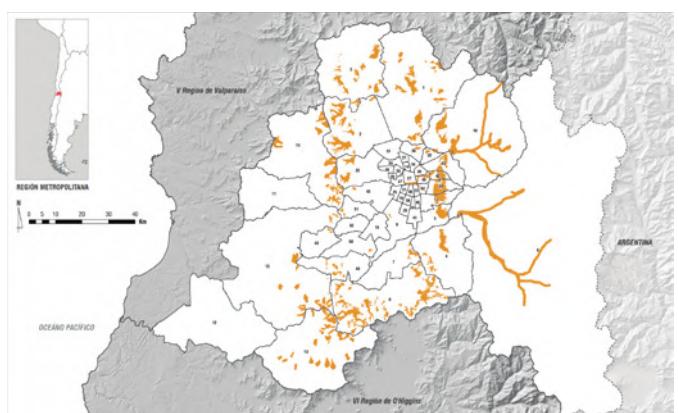
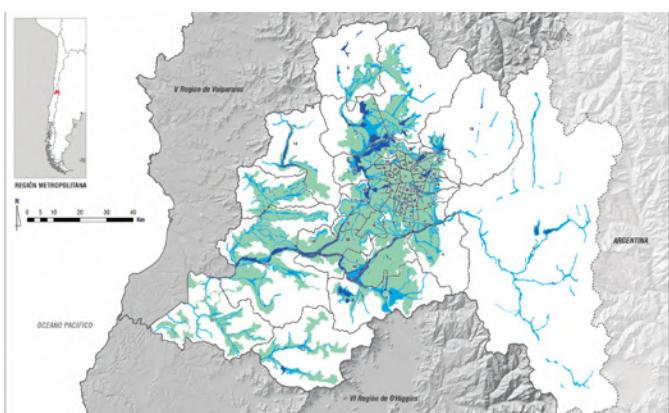


Wildfire Risk

Extreme Heat Risk



Flood Risk



Landslide Risk

ANALYSIS OF MULTI-HAZARD RISKS AT METROPOLITAN SCALE

Santiago, Chile: Visualization of multiple risks and composite risk accounting for hazards and vulnerability by GeoAdaptive for the Ministry of Environment for Santiago

TEAM EXPERIENCE

Relevant Experience



1. Urban Development and Climate Change: Analysis of Threat and Vulnerability to Climate Change in Mar del Plata, Argentina

Country: Argentina

Client: Inter-American Development Bank

Project Duration

2011 - 2012

Relevant Project Themes / Expertise Involved

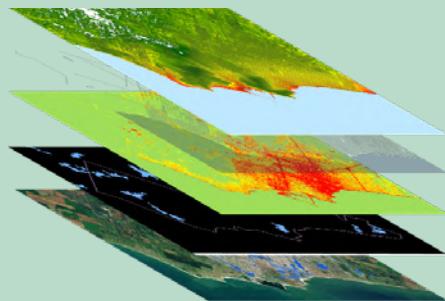
Comprehensive assessment of vulnerability to climate change under multiple urban development scenarios. Used Spatial Analysis, Risk Modeling, Land Cover Assessment, Urban Growth Modeling to derive holistic understanding of coastal and pluvial hazards and socio-economic impact.

Project Description

As a coastal city with a thriving commercial center and seasonal tourism-based economy, the threat of inland flooding and sea level rise is critical to Mar del Plata's future. Using projections of coastal inundation and available information on flooding within the city, GeoAdaptive developed 3D visualizations to highlight the most exposed areas. An assessment of the coastline also identified zones of greater susceptibility to erosion and deposition, which can threaten operations of active ports and the maintenance of beaches for resorts.

Topographic analysis and a customized pluvial flood index were depicted through 3D spatial representations of inundation risk throughout the city. This helped guide decisions about risk-mitigation for investments and prioritization of engineering studies to make the most efficient use of the city's construction and maintenance budget.

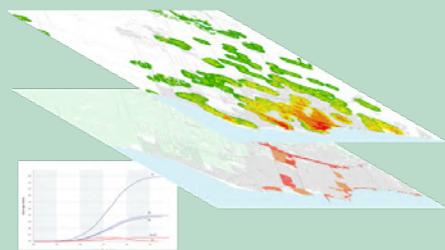
Multi-hazard and Multivariate Risk Analysis



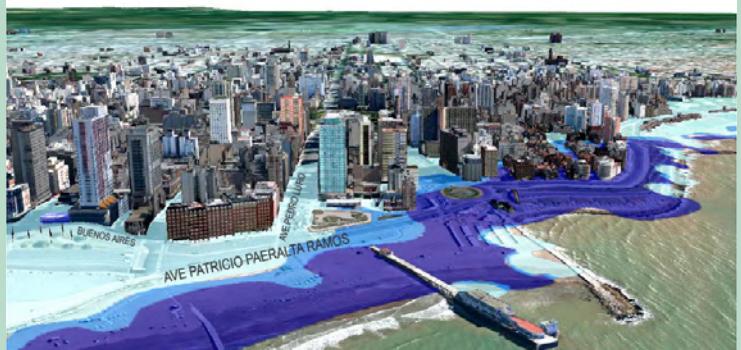
Risk Factors:

1. Elevation
2. Vital Roads
3. Permeability
4. Historic Flooding
5. SLR+Flood Risk
6. Hazards
7. Exposure
8. Vulnerability
9. Impact

Urban Permeability by Block Typology



Coastal Inundation Hazard Visualization



Pluvial Flood Risk Visualization



Relevant Experience

2. Historic, Current, and Future Urban Footprint Analysis for Scenarios of Vulnerability to Climate Change, Montego Bay, Jamaica

País: Jamaica

Client: Inter-American Development Bank

Project Duration:

2012 - 2013

Relevant Project Themes / Expertise Involved

Evaluating vulnerability to climate change under various urban growth scenarios. Using Urban Growth Modeling, Typology Analysis, Landscape Analysis, Risk Modeling, Participatory Mapping, and Scenario Planning to understand nature of growth over time and relationship of urban development to changing environmental risks.

Project Description

The project included an integrated study of urban growth in 2030 for two scenarios - trend and smart growth. Historic land cover changes were mapped using landscape and residential built-up typologies. Development typologies derived through Residential Density Analysis were integrated into the urban growth scenarios with smart growth prioritizing strategic siting and higher density neighborhoods.

In addition to evaluating future urban expansion of Montego Bay and the network of surrounding urban settlements, a probabilistic multi-hazard analysis was conducted to determine the combined economic and human risk of five hazards. These hazards include: coastal flooding, river flooding, earthquakes, landslides, and wind. Census data on housing construction type and real-estate listings were used to calculate vulnerability and land values to provide a more detailed determination of economic risk to each hazard. Fieldwork was conducted to survey the dimensions of waterways and stormwater control structures. The characterization of previous flood events based on feedback from local business-owners and city planners ensure that the needs of the different stakeholder groups were incorporated.

Development Typology derived through Residential Density Analysis



Land Cover Legend

- Scrub/Shrub Wetland
- Scrub/Shrub
- Open Spaces/Grassland
- Medium Intensity Development
- Low Intensity Development
- High Intensity Development
- Forested Wetland
- Forested Land
- Emergent Wetland
- Bareland
- Agriculture/Pasture

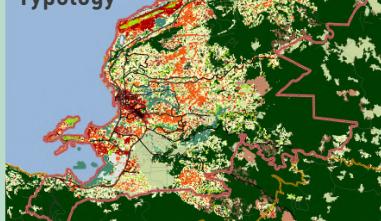
1985 Built-up Typology



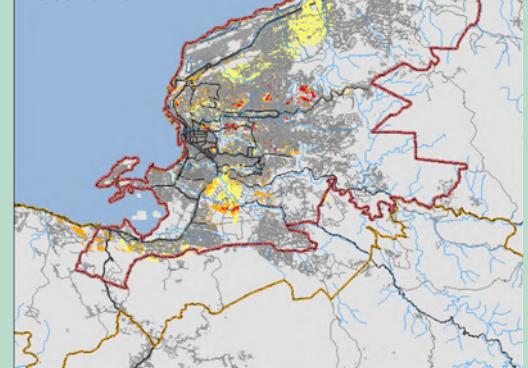
2001 Built-up Typology



2011 Built-up Typology



2030 TREND Growth Scenario



2030 SMART Growth Scenario



Relevant Experience

3. Urban Resilience Plan: Strategic Interventions towards a Resilient Future, La Paz, BCS, Mexico

Country: México

Cliente: Inter-American Development Bank (IDB) - International Community Foundation (ICF)

Project Duration:

From: December 2014 To: August 2015

Relevant Project Themes / Expertise Involved

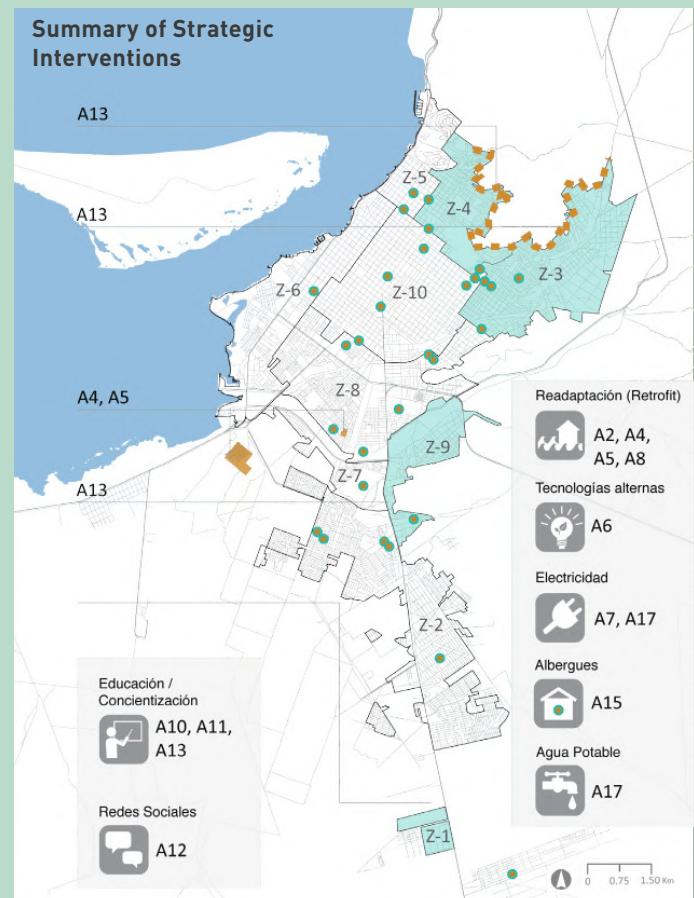
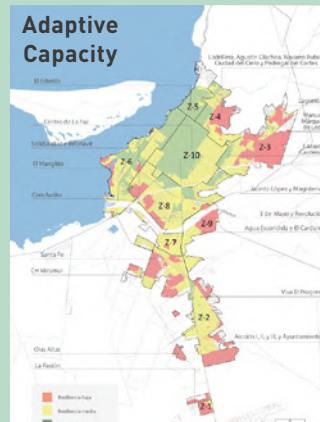
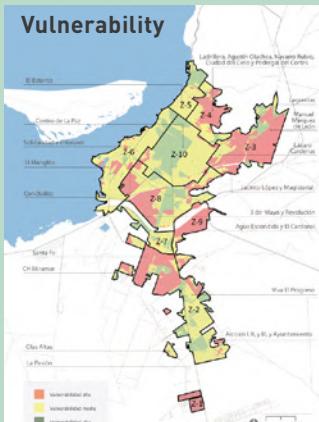
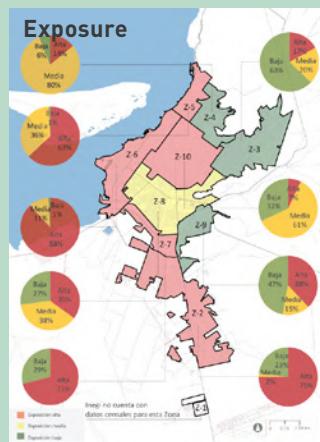
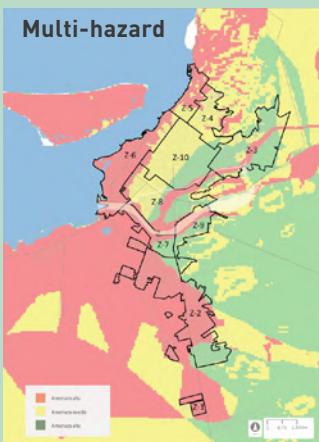
Assessing urban multi-hazard risks using environmental, political, and big data methods to understand vulnerability, adaptive capacity and impact on tourism. Using Spatial Analysis, Risk Modeling, Big Data, and Strategic Planning to create a set of policy and infrastructural interventions that build urban resilience.

Project Description

The project was part of a series of studies commissioned in the areas of urban and economic development, land productivity, municipal finances, and climate change adaptation. The study's objective was the development of integrated, multi-sectoral scenarios that inform an urban and regional investment plan. The plan aimed to secure a more sustainable and resilient form of development.

Four structural variables were considered in the study: (i) population growth projections, (ii) desirable sectoral contributions to the economy, (iii) public policies that guide future land use and public infrastructure / services, and (iv) government budget for public projects and investments.

A spatially derived Gross Regional Product and per capita income were used to create a spatial economic summary index for urban interventions. Environmental factors were evaluated by calculating the numerous economic and socio-ecological indicators for each growth scenario. These analyses informed the economic resilience plan and action plan for implementation.



Relevant Experience

4. Urban Scenarios, and Studies on Climate Change, Vulnerability, Mitigation and Adaptation of Risks in San José, Costa Rica

País: Costa Rica

Client: Inter-American Development Bank (IDB) - Initiative for Emerging and Sustainable Cities

Project Duration:

From: August 2014

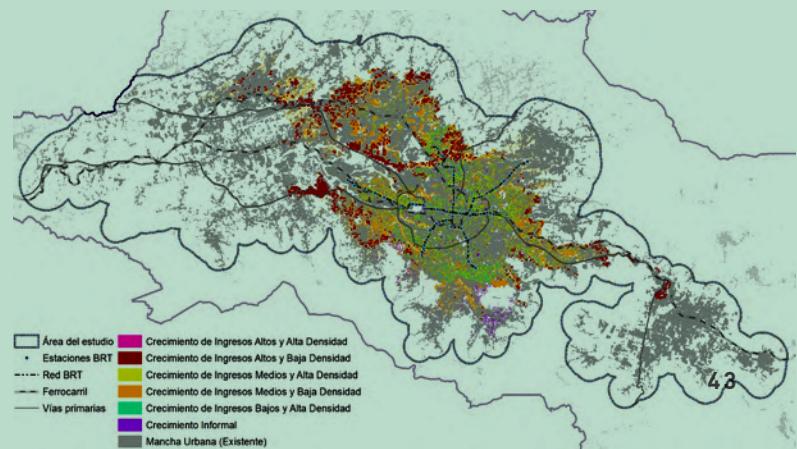
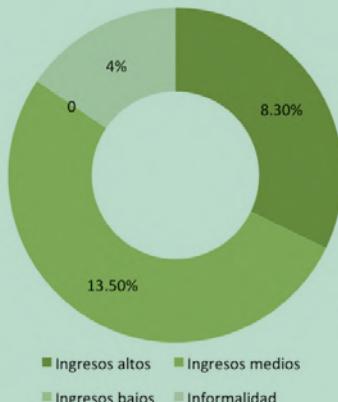
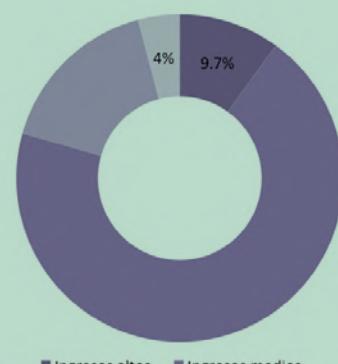
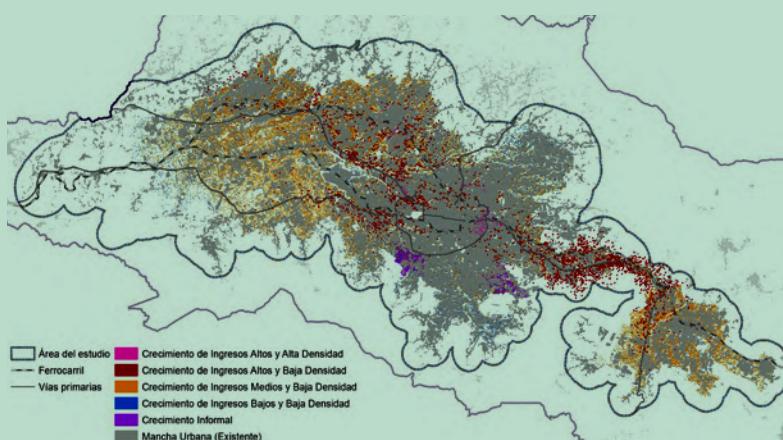
To: March 2016

Relevant Project Themes / Expertise Involved

Devising long-term adaptation strategies that built metropolitan resilience to multiple natural hazards. Using Spatial Analysis, Risk Modeling, Urban Growth Modeling, Scenario Planning, and Decision Support Tools to create a comprehensive assessment of vulnerability and impact of climate change under various scenarios.

Project Description

In an effort to support long-term planning solutions and sustainability initiatives, a vulnerability assessment to natural hazards was carried out in San José, Costa Rica; one of the largest metropolitan areas in Central America. The project assessed the region's vulnerability to floods, landslides, and drought using probability assessment tools, two-dimensional models for flood potential in urbanized river corridors, seismic models for landslides, and remote sensing models for vulnerability to drought. Incorporating these risk assessments into growth development models revealed that, in a trend growth scenario, city infrastructure and service delivery were twice as likely to experience maximum flood losses and 13 times more probabilities of suffering a landslide event. The tools developed throughout the process enabled policy makers to promote sustainable development initiatives.



Relevant Experience

5. Climate Risk Assessment for the Santiago Metropolitan Region

Country: Chile

Client: Ministry of Environment for the Santiago Metropolitan Region

Project Duration:

From: Aug 2019

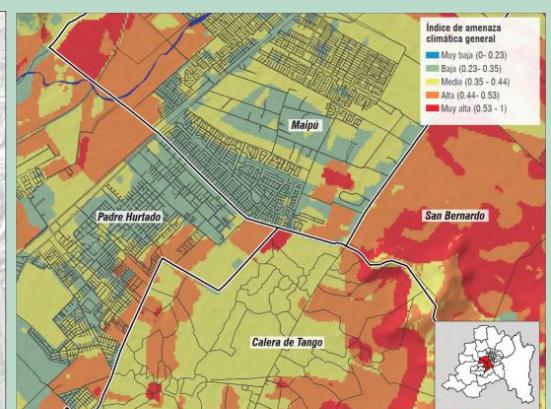
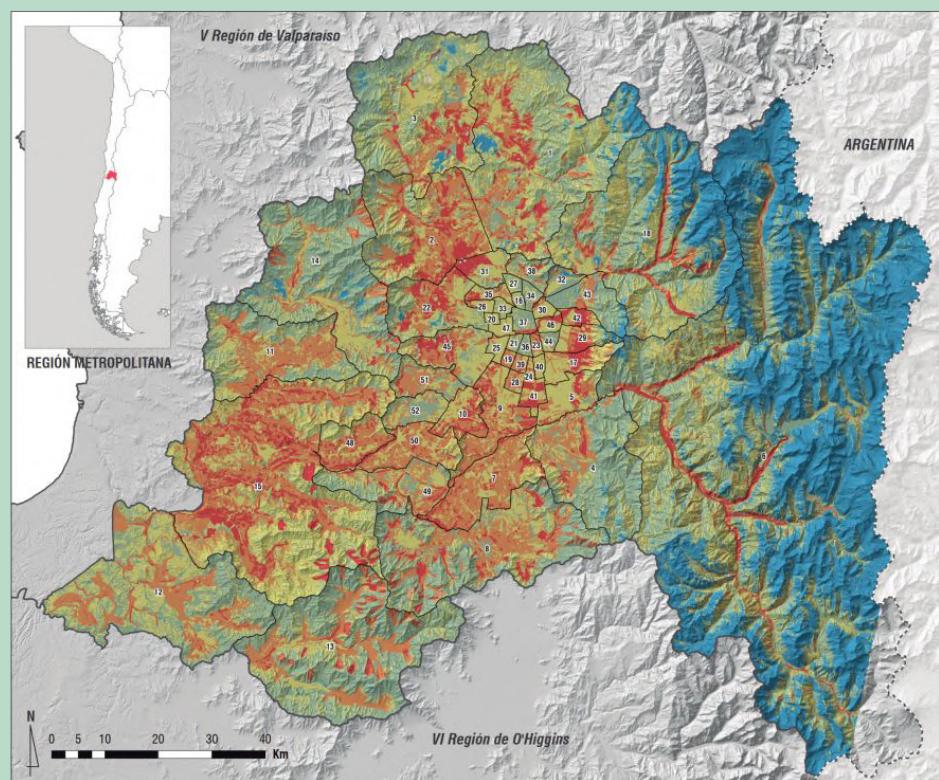
To: Jan 2020

Relevant Project Themes / Expertise Involved

Comprehensive environmental and landscape assessment to reveal watershed and neighborhood block scale interdependencies between infrastructure and environmental risks including floods, droughts, landslides, and earthquakes. Using Climate Hazard Modeling, Urban Vulnerability Assessment, Regional Risk Assessment, Socio-demographic Analysis, Adaptive Capacity assessment.

Project Description

This regional and community planning project seeks to prepare the municipalities of the Santiago metropolitan region to respond to threats from climate change and other anthropic stresses. The project is situated within a process of climate planning and action for the Santiago Metropolitan Region, providing key inputs that will guide the process. The study includes the modeling of threats of climatic origin (flood, landslides, drought, forest fires and heat waves), analysis of population exposure and infrastructure, vulnerability analysis and risk assessment for the region, both in areas urban as well as rural, reaching a spatial resolution of 30x30 meters - that is, on a block scale. As part of the climate planning and action process, territorial indicators of adaptive capacity were developed to assess and monitor the effectiveness of the actions implemented. The reporting inputs and outputs were geared towards decision-making, developing effective and useful indicators and indices that triggered action.



Relevant Experience

6. Resilient Lands and Waters Initiative for Southwest Florida

Country: USA

Client: The White House (B. Obama Administration), U.S. Department of Interior, U.S. Fish and Wildlife Services(FWS)

Project Duration:

From: Sept 2013 To: May 2014

Relevant Project Themes / Expertise Involved

Assessing the resilience of land-water systems under various development and conservation scenarios using Hydrological and Risk Modeling, Urban and Landscape Change Modeling, NBS Suitability, and Participatory Mapping

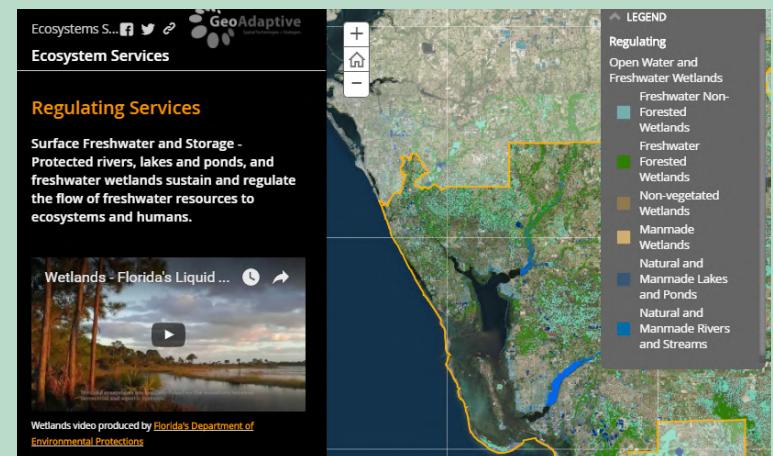
Project Description

The study region spans seven counties in southwest Florida, where a combination of population growth, sea level rise and increasing water temperature threaten coastal, marine and terrestrial ecosystems. This project looks ahead to 2060 to assess resiliency, considering two scenarios with distinct sets of development and conservation policies, as well as the implications they may have on the region's natural resources and populated coastal areas. To support the formation of partnerships and decision-making to enhance resilience, a website was developed which enables a better understanding of the role habitats play in reducing adverse effects of the projected changes. Using the DPSIR causal framework as a conceptual backbone, the resiliency assessment applied previously developed statewide scenarios and geospatial analysis to evaluate the expected impacts on natural habitats and people in alternative futures, including:

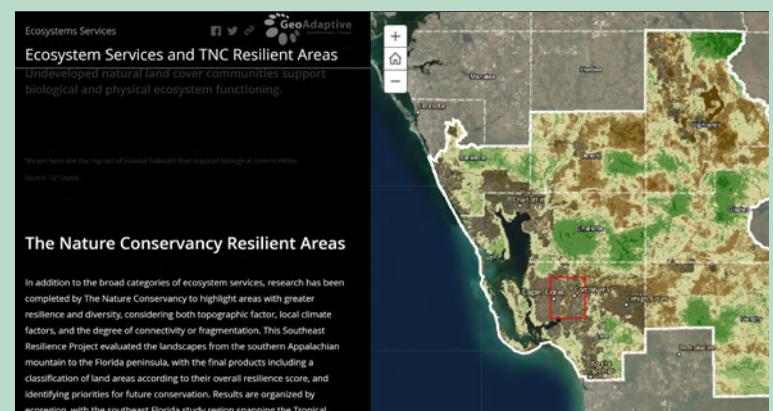
- Evaluation of drivers, pressures, and key ecosystem services
- Resilience assessment (biophysical and socio-economic factors)
- Coastal vulnerability and population exposure analysis

Visit the interactive online portal at: www.geoadaptive.com/rlwi_southwest_florida/

Ecosystem Function and Services (Worldwide)	Description	Number of Studies
Nutrient cycling	Storage, processing, and acquisition of nutrients within the biosphere	••
Net primary production	Conversion of sunlight to biomass	•
Pollination and seed dispersal	Movement of plant genes (considered terrestrial, but marine systems may facilitate dispersal for some coastal species)	••
Habitat	The physical place where organisms reside	••••
Hydrologic cycle	Movement and storage of water through the biosphere	••
Gas regulation	Regulation of the chemical composition of the atmosphere and oceans	••••
Climate regulation	Regulation of local climate processes	••••
Disturbance regulation	Dampening of environmental fluctuations and disturbance	••••
Biological regulation	Species interactions	••••
Water regulation	Flow of water across the planet surface	••••
Soil retention	Erosion control and sediment retention	•••
Waste regulation	Removal or breakdown of non-nutrient compounds and materials	•••
Nutrient regulation	Maintenance of major nutrients within acceptable bounds	••••
Water supply	Filtering, retention, and storage of fresh water	••
Food	Provisioning of edible plants and animals for human consumption	••••
Raw materials	Building and manufacturing, Fuel and energy, Soil and fertilizer	•••
Genetic resources	Genetic resources	••
Medical resources	Biological and chemical substances for use in drugs and pharmaceuticals	••••
Ornamental resources	Resources for fashion, handicraft, jewelry, pets, worship, decoration, and souvenirs	•••
Recreation	Opportunities for rest, refreshment, and recreation	•••••
Aesthetic	Sensory enjoyment of functioning ecological systems	••••
Science and education	Use of natural areas for scientific and educational enhancement	•••
Spiritual and historic	Spiritual or historic information	•••



Portal developed with a network of researchers and agencies to illustrate ecosystem services and climate change threats across the landscape



Relevant Experience



7. Regional Frameworks for Open Space Adaptation to Climate Change for Three Intermediate Cities in Colombia

Country: Colombia

Client: FONADE (National Financial Fund for Development Projects), Ministry of Environment and Sustainable Development

Project Duration:

2013 - 2015

Relevant Project Themes / Expertise Involved

Evaluating regional landscape for open space typologies and nature-based solution potential. Used Remote Sensing, Landscape Analysis, and Strategic Planning to derive landscape typology, ecosystem service functions, environmental vulnerabilities, and open space potential

Project Description

The project objective is the creation of a scalable and replicable regional level framework for the identification, categorization and prioritization of open spaces in intermediate cities in Colombia using solely open-data sources. The framework defines procedures to analyze similar cities using satellite data at 30 meters of resolution and link the derived landscape features to ecological functions. Specifically, a framework that related derived-open space feature to four ecosystem services and functions was created. This include functions on 1) Water Management, 2) Land Management, 3) Heat Island Control and 4) Integrated NBS strategies.

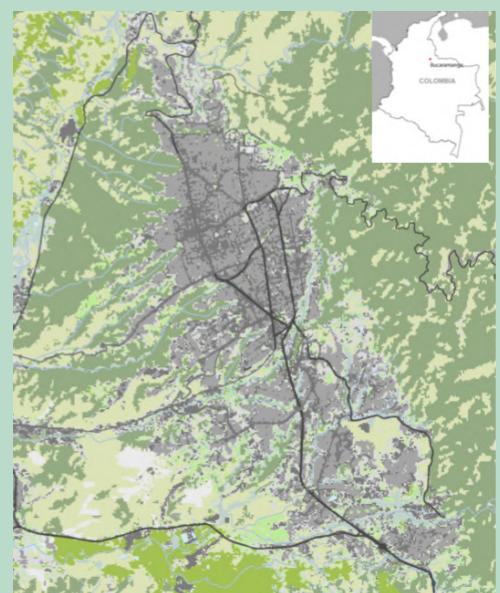
This project included an application of the framework in three cities in Colombia (Medellin, Barranquilla, Bucaramanga) as well as an inventory and rapid assessment of open space typologies. Climate adaptation strategies were then identified for these typologies through a series of best management strategy case studies and relate them to the open spaces identified to guide planning efforts by the Local Governments and the Ministry of Environment and Sustainable Development Adaptation efforts to climate Change.



MEDELLIN



BARRANQUILLA



BUCARAMANGA

— Vías Primarias	Desarrollado: Intensidad Baja	Agua
— Vías Secundarias	Espacios Abiertos	Vegetación de Humedal
- - - Vías Rurales	Tierras Forestales	Matorral/Arbusto
■ Desarrollado: Intensidad Alta	Cultivos/Campo	
■ Desarrollado: Intensidad Media	Sin Vegetación (Suelo Desnudo)	

Relevant Experience

8. Demand Study for the Development Strategy of the Tourism Sector in Honduras

Client: Inter-American Development Bank, Instituto Hondureño de Turismo

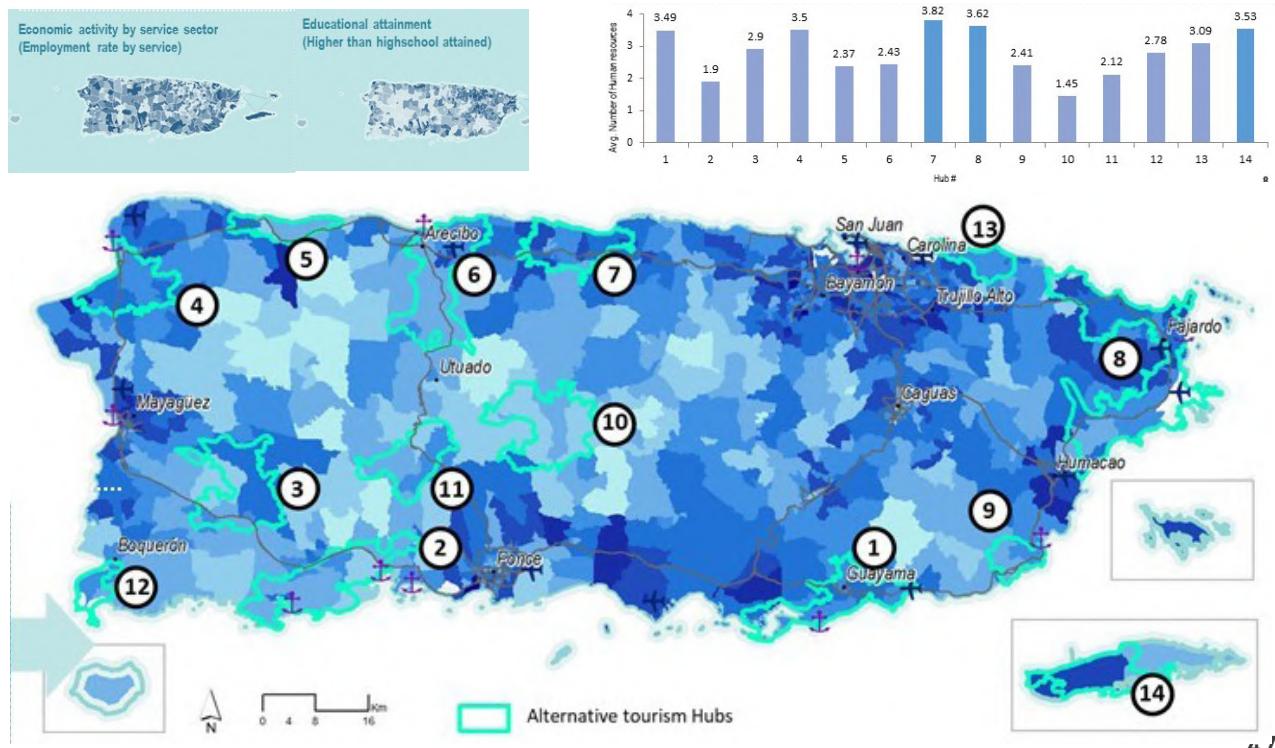
The purpose of the project is to determine the feasibility of using big data in tourism demand analysis and using ICT data analysis to supplement the current survey methods. The methods were tested in a pilot study, then applied to the datasets of the individual ICT sources. The results were then combined using proportions obtained from a traditional survey to estimate the characteristics of tourists that use ICT platforms in Honduras. Due to the uncertainty surrounding tourism in Honduras due to COVID-19, an additional dataset of flight bookings and searches was added to the project. The aim of this section of the project is to estimate how the tourism industry will be affected in the coming months due to COVID-19. An additional dataset of flight bookings and searches was used to estimate future tourism trends considering COVID-19 and systematizing data from the main Global Distribution Systems (GDS).

The study provided recommendations and projections for short-term and medium-term pathways for recovery.

9. Action Plan for Development and Territorial Management of Tourism Destination Alternatives in Puerto Rico post-Hurricane Maria

Client: RAND Corporation, U.S. Department of Interior

The project was designed to identify sustainable tourism hubs across Puerto Rico, and develop strategic actions to support its growth following the destructive impact of Hurricane Maria. The project integrated both quantitative and qualitative assessment methods to prioritize tourism potentials. By combining geospatial and statistical analysis with expert consultation and stakeholder engagement, the study developed an indicator-based assessment of opportunities and challenges across different tourism sectors. These results were then validated and enhanced based on field observations, expert interviews, and a participatory workshop to further characterize and prioritize the selected areas. Building on the knowledge gained developing the economic and disaster recovery plan, this effort provides a more detailed spatial assessment of existing environmental, social, and infrastructure conditions to understand how tourism hub functions and where the most significant challenges and assets are concentrated.



Relevant Experience



NAXA's Innovative Work during COVID-19:

- Development of Covid-19 Official Web and Mobile Application for the Ministry of Health. The digital system was launched on the 5th day of lockdown. Mobile App (<https://play.google.com/store/apps/details?id=np.com.naxa.covid19&hl=en>), Web App (<https://covid19.mohp.gov.np/>)
- Development of Nepal Innovation Mapper-An open initiative to indeed and map innovations around Nepal during Covid crisis (Received grant from the Data for development Initiative to develop the platform, The platform is now owned by National Academy of Science and Technology,Platform here : <http://innovationnepal.nast.gov.np/>)
- Carried out high resolution aerial mapping of dense urban settlements in Nepal utilizing the free air space during covid lockdown, details here

NAXA's Comprehensive Experience in Disaster Risk Assessment and Mapping:

- Development of National Geospatial data Portal for the National Mapping Agency- Department of Survey (<http://nationalgeoportal.gov.np/>)
- GIS Mapping of Identified Open Spaces in 5 Earthquake Affected Districts of Nepal and status Update on Open Spaces Identified in Kathmandu Valley- IOM Nepal
- Developing a web based risk assessment tool powered by Google Earth Engine to help risk assessment importing data from different open source systems, Digital and Spatial Technologies for Disaster Governance and Capacitating Rural and Urban Municipalities (Nepal), The World Bank (Consortium with Practical Action Consulting & Young Innovations Nepal
- won the Collaborative Data Innovation Grant from World bank, Details [here](#)
- Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glacial River Basins of Nepal -UNDP Nepal
- Development of Data Visualization System for DFID Nepal programs and projects -DFID Nepal
- Development of FieldSight,A digital data collection and monitoring tools Upgrade and Maintenance-UNOPS
- Local Trail and Community Infrastructures Mapping for Emergency Preparedness and Response in remotest districts of Nepal : Bhajang, Bajura and Humla District-WFP Nepal
- Development of Safer reconstruction information dissemination mobile app after Nepal Earthquake 2015,30.000+ downloads - Owned & Promoted by National Reconstruction Authority -Supported by Build Change Nepal
- Digital Mapping Partner for Urban DRR Projects Projects (Phase I and Phase II)
- Provided open mapping , trainings on digital data collection to aid relief efforts in flood affected municipalities- DCA Nepal
- Organization, collection and synthesis of information to develop GIS-based DRR information systems. In Kathmandu & Lalitpur Metropolitan City -Surakshit Sahar Project (Phase I & II), ISET Nepal
- Drones Optimized Treatment System"Use of Drones for Collection of Sputum Samples for Tuberculosis Diagnosis from rural health posts to central Hospital in Pyuthan Nepal- WeRobotics

Relevant Experience



Surakshit Char
E-Technical Assistance: Making safe construction knowledge accessible to everyone

Client Name: Build Change Nepal
Project Date: November 2016- Ongoing (20,000+ Downloads)

Open Disaster Information Management Platform
A GIS based Disaster Information Management Platform for Shankharapur and Changunarayan Municipalities

Client Name: VSO Nepal -PRAGATI Project
Project Date: November 2018 (Completed)

GIS Based Disaster Information Management System
A municipal GIS based data management and hazard information dissemination platform

Client Name: ISET (Institute for Social and Environmental Transition) Nepal
Project Date: November 2018 - Ongoing

Bhumi Sushasaan: Nepal's first Land Governance App (20,000+ Downloads)
Nepal's first land governance app providing key information to public about land related services, news, unit conversion, area calculation and more.

Client Name: Ministry of Land Management and Cooperatives and Poverty Alleviation
Project Date: June 2018 (Completed)

VCA TOOL
VCA project

Create VCA Project

VCA PROJECTS

DOLAKHA VCA MAPPING
पि. सि. ए. गर्ने संस्थाको नाम: Nepal Red Cross Society
Date : 2020

NUWAKOT VCA
स्थान : Chabise, Dhankuta
पि. सि. ए. गर्ने संस्थाको नाम: NAXA
Date : 2020

Web Based Digital VCA Tool
VCA DHANKUTA
Web based application to carry out vulnerability and capacity assessment, map risks, hazards and resources and share outputs digitally.

Client Name: DCA (DanChurchAid) acalliance
Project Date: September 2018 (Completed)

DASHBOARD **INFOGRAPHICS** **GLOSSARY**

PROVINCE **MUN**
Total population
No. of districts
Area (sq km)
Population density
Poverty rate
Population under p
Per capita income
HH by lowest wealth
HDI
Minute access to h
Vulnerability index
GDP

Data Visualization System-DFID
Visualization of demographic as well as project data in maps and charts for better insight

Client Name: DFID (Department for International Development)
Project Date: June 2018 (Completed)

Relevant Experience



Data and The City Design Challenge

Utopia Kathmandu | 2019

The Asia Foundation/Development Initiatives (DFID-funded)

A collaborative, highly curated design challenge to stimulate dialogue and actions leading towards increased, creative generation and use of data towards solving urban challenges in Nepal. The challenge brought together researchers, practitioners, innovators and wildcard actors around two broadly defined themes: 'Data and Urban Informality' and 'Data and Urban Mobility'. The wide cross-section of participants refined and clarified urban challenges, which led into an intensive prototype development phase that engaged 40+ potential users in design research. The result was the foundation for Urban MigrantX, an in-house venture built by Utopia.

Cycle Infrastructure Design Challenge

Utopia Kathmandu | 2019

Nepal Cycle Society/Lalitpur Metropolitan City

A community and expert convening design workshop and synthesis process to ideate user-centered, heritage sensitive and functional cycle infrastructure in the historic Patan area of Lalitpur Metropolitan City.



Interplay between design, density and wellbeing towards developing resilient cities

Utopia Kathmandu | 2020-21

Royal Academy of Engineering/UK Global Challenges Research Fund (GCRF)

An interdisciplinary collaboration between academia and professional practice exploring context specificity on the relationships between urban form and social inclusion. This research explores challenges informal settlements face in cities across three countries (Nepal, Jordan, South Africa) at the cross-section of urban density, urban design and public well-being. It considers the issues of equality, equity, inclusion and welfare, especially in view of the contemporary challenges emerging from natural and anthropogenic events, as well as more recent issues of social and spatial distancing in the wake of the COVID-19 pandemic.

Assessing the informal waste sector contribution to Nepal's circularity transition

Utopia Kathmandu | 2020-21

Royal Academy of Engineering/UK Global Challenges Research Fund (GCRF)

Informal (unregistered, self-employed) waste workers can play an essential role in the transition to a circular economy, as they currently hold sole responsibility for Nepal's recycling. The understanding of their exact conditions, interactions with their networks and hierarchical forces they regularly negotiate within lacks granularity - building on this will shape a stronger possibility of bringing them into the fold of registered systems. The research generates and contributes knowledge and provides policy

Relevant Experience



recommendations to strengthen and catalyze their efforts to transition to a circular economy. The project assesses the waste system's circularity, provides information on understudied players and identifies bridges into circular waste management. These opportunities for engagement and action will encourage more collaborative processes and begin to dissipate tensions through open dialogue and actively probing answers.

Understanding the built environment's impact on mental health in Kathmandu

Utopia Kathmandu | 2020-21

Royal Academy of Engineering/UK Global Challenges Research Fund (GCRF)

This study takes a deep dive on mental health research to develop a methodology framework, engaging a cross section of urban residents, particularly women, in primary data collection through a series of urban experiments. By examining the distinct relationships between urban built environment and individual and collective well-being, particularly mental health, patterns from entrenched methods of design and opportunities for positive change will emerge. Based on the perceived accessibility and widespread secular appeal of the mindfulness practice, the research draws from experts, practitioners and the growing body of work around this subject as a possible lens through which to approach mental health. The research convenes specialists, urban residents and partners in an interactive, co-building space to share and refine findings and identify pathways for further collaboration and buildout for use across other (emerging) cities.

CUE

Sister design research arm of Utopia Kathmandu



The Lotus Initiative

Cue (Kathmandu) | 2019-20

Lien Centre for Social Innovation, Singapore Management University

Developed an innovation framework, design guidelines and prototype areas based on three broad user groups of a rural municipality in Dhankuta District, Nepal for the five year Lotus Initiative. Intensive, iterative series of user research interactions, workshops and prototype sessions conducted on-site in Nepali.



Green Energy Mobility (GEM) Project

Cue (Kathmandu) | 2020

Aeloi Technologies

A curated design sprint workshop for Aeloi, a fintech social enterprise. The Aeloi team created a long term goal for their company and rapidly worked through various business development and marketing challenges to ideate, create and test prototypes and ideas with their users. By the end of the week, the team successfully prototyped and tested a marketing campaign with direct potential users.

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