



MIXED-USE ECOSYSTEMS

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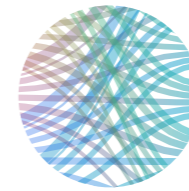
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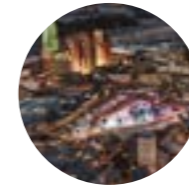
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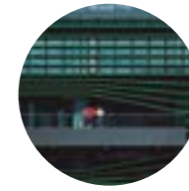
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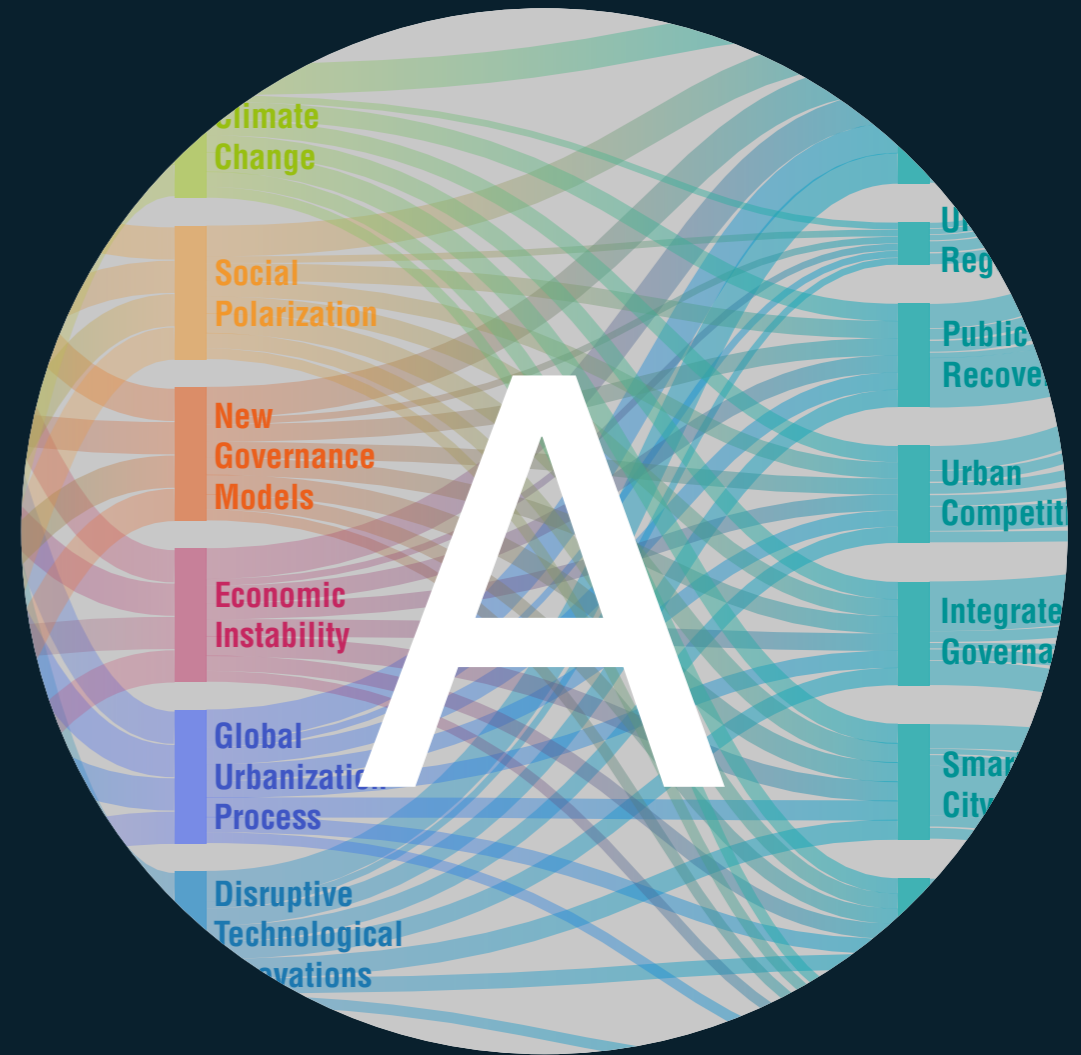
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Conceptual Framework

New paradigms & challenges

“Reconsidering design on a large scale”



Jesús Susperregui
Director of the IDOM Architecture Division

55% of the world's population lives in urban areas, and this percentage is expected to reach 68% by 2050¹. Among other reasons, we choose to live in cities because proximity facilitates collaboration, and collaborating increases our chances of survival. Today, our cities are highly complex spaces of opportunity, combining the benefits of agglomeration economies with new possibilities for socio-cultural interaction and integration.

However, this complexity brings with it so many ecological, social and economic challenges that we are forced to innovate and rethink our cities continuously, from a systemic and holistic perspective. In 1935, Tansley² defined the concept of an ecosystem as a biological whole that interacts with its associated physical environment and is located in a specific place. This system is based on the interaction between the biome (organic) and the habitat (inorganic), and it is through these interactions that the ecosystem is maintained. Many authors, such as Geddes, Mumford or Nicoletti, have transferred the ecosystem concept to the city. Salvador Rueda states that a city, a neighbourhood or a house are ecosystems and this multi-scale vision is key in the approach to the concept of urban ecosystem that we propose³.

In response to this complex ecosystem, urban planning as a discipline was first developed at the end of the 19th century, essentially as a reaction to the unhealthy agglomerations resulting from the industrial revolution. Subsequently, during the 19th and 20th centuries, various urban theories have been translated into built proposals with varying degrees of success. At the beginning of the third decade of the 21st century, we are aware of the need to take the most scientific and comprehensive approach possible to the urban ecosystem, including multiple disciplines in the analysis and integrating a wide range of approaches. It seems unquestionable that only from a transdisciplinary vision can we face the challenges derived from city paradigms based on efficiency, sustainability, connectivity and livability. To do so, we need to develop new tools and processes that transcend old paradigms, adapt to diverse and constantly changing circumstances, and are ca-

pable of managing complexity, avoiding collapse and illuminating new horizons.

Since our aspiration is that the designs we create are integrated into the city's ecosystem, we need to reconsider our approach to urban planning and urban design, clearly establishing the dimensions and degrees of complexity in which they are operative as a tool for transforming reality. In this sense, the experience developed over almost three decades has allowed us to develop a specific methodology that reconciles design with the large-scale. Strategic Design is a tool for the transformation of urban space that incorporates approaches in various disciplines and scales, resulting in open and flexible systems that introduce concepts such as development and implementation phases, flexibility of uses, or the introduction of alternative agents in the development of the design.

This applied approach to contemporary urban paradigms is joined by Mixed-Use Ecosystems, designable urban units with a high degree of self-sufficiency and productive capacity, incorporating a great diversity of uses and with a scale that allows for primarily pedestrian mobility. Mixed-Use Ecosystems therefore propose a transversal and multi-scale vision of urban habitat design with a deep understanding of the interactions with the people who inhabit it as the key to achieving its balance. The aim is to design people-centred habitat to achieve a sustainable, connected, efficient and liveable urban ecosystem.

Strategic Design and Mixed-Use Ecosystems are a tool and a concept respectively that allow architecture to regain its place within the large scheme, both in the field of reflection and in practice: specific solutions capable of transcending paper and physically redefining our environment by responding to the way we live.



Sustainable ecosystem

From the search for a relationship between the city and nature to a complex vision of sustainability that takes into account both the present and the future of the city and its inhabitants. The city as a sustainable ecosystem achieves quality of life by integrating economic, ecological and social aspects, seeking a balance between the urban environment and the environment that will last for future generations.



Connected ecosystem

The impact of major technological revolutions and constant innovation have transformed the way we experience cities and perceive reality. In a globalized environment, the city as a connected ecosystem responds, adapts and uses technological transformations to improve the quality of life of its inhabitants in a specific environment.



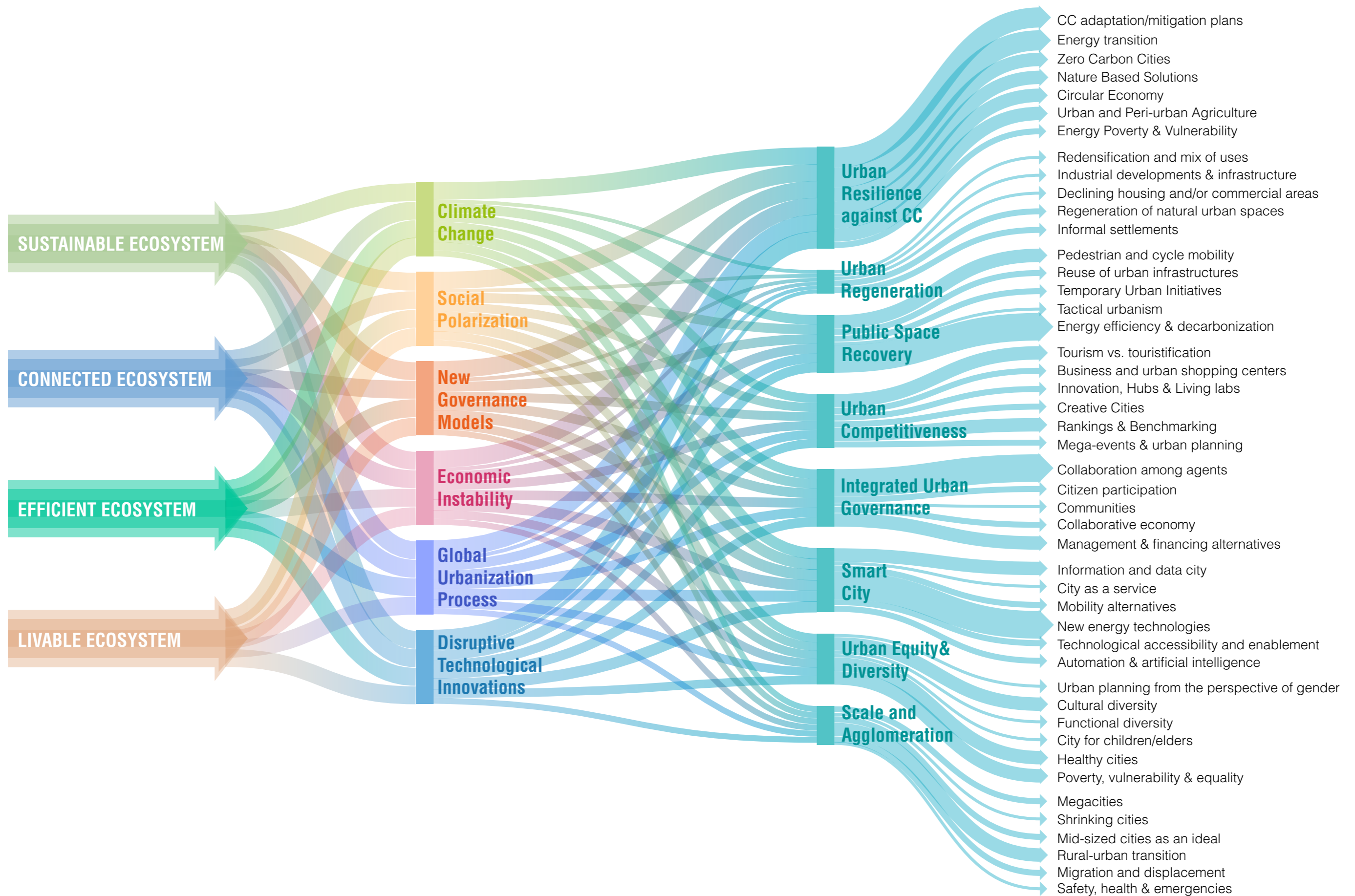
Efficient ecosystem

From the functionalist vision of the city to the circular economy, the vision of city efficiency has evolved over time. The efficient city paradigm allows us to develop the functions defined by the Charter of Athens - living, working, recreation and circulation - in a close environment, livability and minimizing resource consumption and emissions by closing the cycles of the urban ecosystem.



Livable ecosystem

Finally, the livable urban ecosystem proposes new visions that take into account citizens and their way of inhabiting the city space at all levels in order to achieve objectives of well-being and social equity. This vision takes as its starting point the daily life of the people who live in the city and takes into account the participation of the different agents that contribute to the creation of the urban fabric.

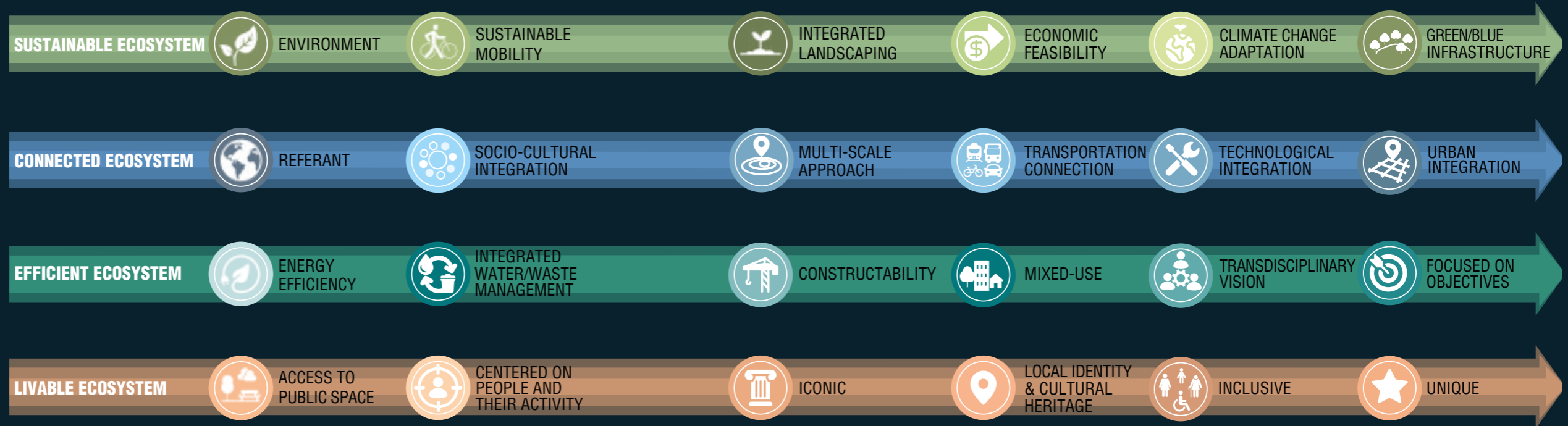


Strategic design

“A transdisciplinary approach based on new tools and processes”



Tono Fernández
Director, Mixed-Use Ecosystems IDOM



Once the basic habitability conditions related to energy, mobility, water and sanitation had been solved, 20th century urban planning was torn between proposition and amendment. The sociological disquisitions and the beautiful unipersonal designs of architects proved ineffective on too many occasions, generating reactions from citizens and even from the architects themselves, as well as from sociologists and members of various disciplines involved in the creation of the city. The twilight of the 1960s gave birth to an anti-determinism that even questioned urban planning as a useful discipline⁴.

At the end of the 20th century we began to dispense with sociology, architecture and design as tools that could deal with complexity and filled the void with basically utilitarian approaches, focused either from economics or engineering. Finally, at the beginning of the 21st century, and under the comfortable umbrella of science, we put the icing on the cake with technological and environmental cities, in many cases slogan-environments that, with greater or lesser success, understood the city as a commercial product, in need of a quick sale to finance huge investments.

Along the way, we have learned that we need to avoid exclusive approaches, and that it is not a matter of choosing, but of being able to include and integrate the greatest number of approaches in a constructive way. To this end, we must reconsider the scope of the various disciplines -including design-, generating processes and tools that allow us to guarantee transdisciplinarity, understood as the horizontal integration of

all of them. From the need to rethink the role of design in the urban environment arises the idea of large-scale Strategic Design, understood as a tool for urban transformation capable of confronting the paradigms of the city. Ultimately, it is not so much a novelty, but an update of design as a discipline to address problems of high complexity.

The efficiency and habitability to which we aspire today are basically paradigms that amplify and complement utility, strength and beauty, characteristics associated for centuries with good design. Likewise, as collateral effects of globalization, we speak of sustainability and cultural identity as differential elements of our proposals, when they were always natural characteristics in any quality design. Once again, new technologies emerge as a breakthrough element in the design process, significantly altering the production and management of spaces and communication between people.

In this framework that combines permanent values with structural changes, new tools are needed to provide effective responses to the challenges of the urban ecosystem. Strategic Design applies future-oriented design principles to create visions in collaboration with different disciplines to drive and implement the strategic objectives of an organization or a project⁵. This recent strategy⁶ is even more innovative in its application to the design of urban ecosystems.

If traditional large-scale design focused on the structuring of general systems and urban morphology, Strategic Design broadens its spectrum of reflection and action, focusing on

objectives capable of effectively transforming urban space from its role as the physical support of human life:

- It focuses on the quality of life of people at all levels, and in all disciplines.
- It is multi-scale, proposing solutions ranging from 1:10,000 to 1:1.
- It defines specific environments for action, with scales that can be covered by the design discipline.
- It is multidisciplinary, integrating as many disciplines as necessary, varying their number and intensity according to needs.
- It covers all phases of the process, starting with the definition of the activities to be developed and moving through all levels of design, supervision and management of the project and works.
- It introduces time as a tool and a conditioning factor, proposing phases that are attentive to technical and economic feasibility and flexible solutions at all levels, capable of adapting to potential programmatic changes.
- Whenever possible, it generates environments with the highest degree of self-sufficiency, developing resilient solutions in all their aspects (morphological, environmental or socioeconomic).

- It considers a balance between the local and the global to be essential, integrating concepts related to the circular economy and understanding ecology and landscape architecture as disciplines capable of generating disruptive solutions.
- It approaches cultural identity as a spectrum of adaptive solutions developed by man in a specific environment and time, transmissible between cultures and essential for the integration of the project in its context.
- It takes into consideration the externalities derived from its development.

Logically, achieving these objectives requires the development of methodologies that simplify complexity, transform multidisciplinary into transdisciplinarity, integrate the information produced on various design platforms, and develop tools that ensure the traceability of the creative process and organize the design process. These methodologies must adapt to an ever-changing ecosystem to achieve the future goals of sustainability, connectivity, efficiency and livability. The development of these new tools and processes is an exciting field of professional opportunity and the fundamental challenge of design as a discipline capable of addressing the large-scale.

Mixed-use ecosystems

“Complex environments designed to shape cities”



Victoria Fernández Áñez
Urban planner and researcher, Mixed-Use Ecosystems IDOM

The new objectives and methodologies applied to the design are materialized in the definition and physical concretion of Mixed-Use Ecosystems as a practice of urban transformation. These are systems of great dimension and complexity, structured around self-sufficiency and optimization, essentially characterized by the diversification, integration and intensification of uses and activities, the control of scale and the empowerment of the urban ecosystem as the backbone of coexistence and social welfare. Through the systemic vision of the urban environment, Mixed-Use Ecosystems provide an integrated response based on the concept of systemic change⁷.

The mix of uses, which has gradually been positioned in discourses as an indispensable element of sustainability in documents such as the New Athens Charter⁸, becomes essential in the definition of the approach.

On this conceptual basis, IDOM incorporates in its designs integrative reflections in fields such as ecology, information and communication technologies, psychology and process design, contributing to the sustainability, adaptability and feasibility of these new ecosystems essential for the socio-economic, environmental and spatial regeneration of our cities.

To achieve this, as in the case of Strategic Design, it is necessary to broaden the approach, rethinking the disciplinary approaches so that they can embrace the complexity of urban environments from an ecosystemic perspective:

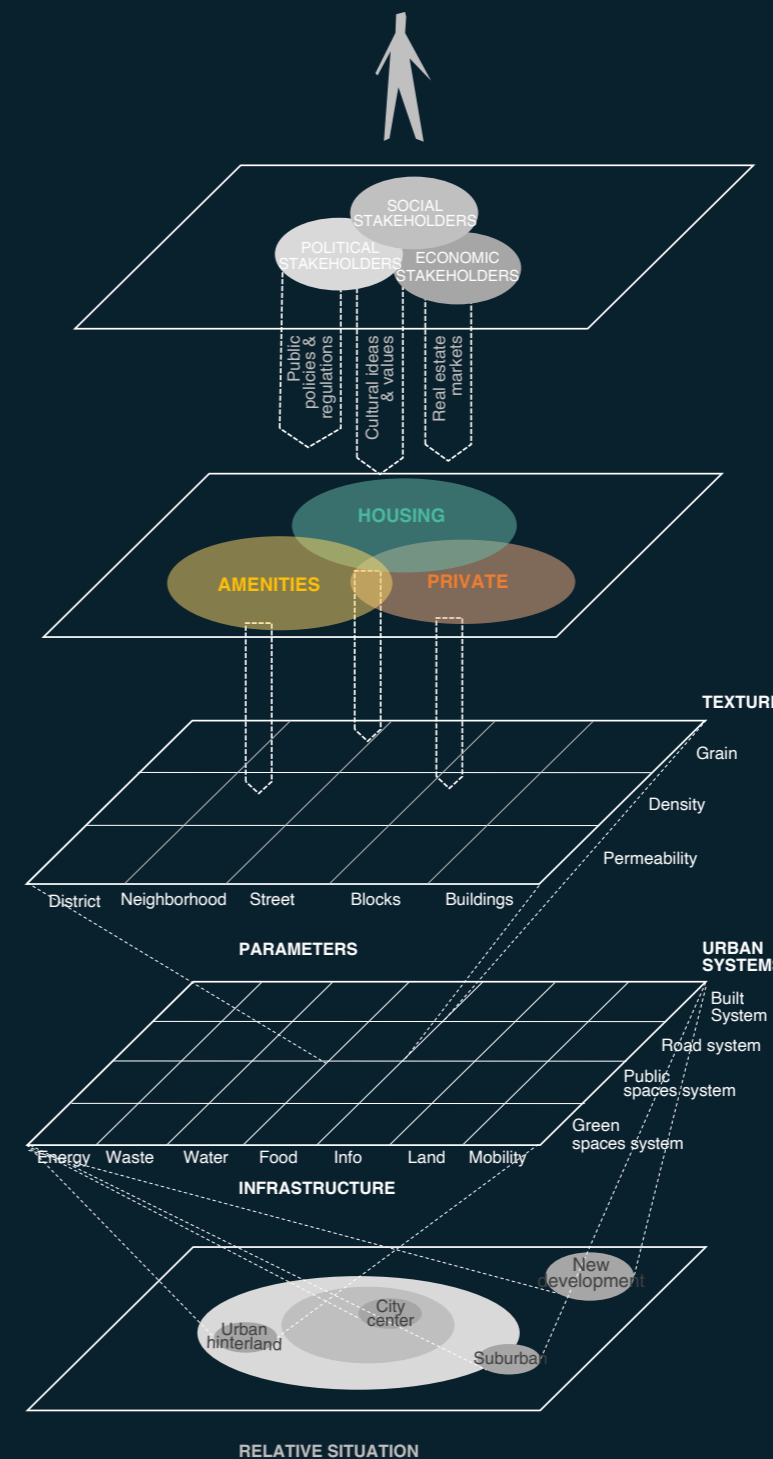
- from land use to the human experience, integrating the different agents in the process.
- from stratified 2D land uses to flexible 3D activities guided by real-time data in urban areas updated 24/7, with a special focus on adaptability.

- from urban morphology to a transversal vision that combines different disciplines with an approach that integrates the physical level with the different urban systems.
- from compliance with energy standards or certificates, to a systemic understanding of complexity that responds to the major paradigms of cities with sustainability, connectivity, efficiency and livability objectives.
- from isolated, profit-focused market ventures to an organic and evolving understanding of urban developments as true ecological systems integrated into larger-scale macro-systems.

This layered vision is underpinned by a thorough review of the scientific literature on Mixed-Use Developments, using the most widespread conceptualizations⁹ as a basis for a reconsideration that incorporates the latest advances and most current visions (see image on the following page).

This broadening of the approach allows moving from Mixed-Use Developments (MUD), initiated at the end of the 20th century, to Mixed-Use Ecosystems (MUE), understood as urban systems that ensure accessibility by combining different uses to develop multiple activities in a rich, diverse and self-sufficient environment, contributing to achieve an efficient, sustainable, connected and livable city.

Often these developments incorporate large endowments at the territorial level, so that the balance between functions is unbalanced if only the MUE itself is considered. In their most extreme degree of development, Mixed-Use Ecosystems allow rethinking the viability of the polycentric city, forming walkable “slow districts” close to the idea of the “15-minute city” and responding to the complexity of the urban system with a trans-scalar and multidisciplinary vision.



Person

The person at the center, shaping the design to the human scale and to the development of their daily life activities.

Stakeholders

The different roles that stakeholders have in the city, the influences they exert in the social, economic and political spheres and their capacity to participate in the design process.

Activities

Starting from the concept of activity instead of program, without limiting buildings and land uses to a single function, guaranteeing access to adequate spaces for the activities of the Athens charter: living, working, recreation and circulation¹⁰, without forgetting the need for care.

Urban form

Identifying the elements that define urban morphology and are key to the success of mixed-use ecosystem.

Urban systems

Integrating the various systems at all levels, establishing priorities according to functional needs.

Location

Location within the city, whether or not there is a relationship with urban fabric of different characteristics and uses, and variations in the intensity of the connection with urban systems.



Case Studies

TYOLOGIES OF MIXED-USE ECOSYSTEMS

- HIGH-DENSITY ECOSYSTEMS
- TOD ECOSYSTEMS
- TRANSPORT ECOSYSTEMS
- CORPORATE ECOSYSTEMS
- BUSINESS ECOSYSTEMS
- LEISURE ECOSYSTEMS
- HEALTH ECOSYSTEMS
- CULTURAL ECOSYSTEMS
- SPORTS ECOSYSTEMS
- EDUCATIONAL ECOSYSTEMS
- NATURAL ECOSYSTEMS
- COASTAL ECOSYSTEMS



- MULTI-SCALE PLANNING
- URBAN & LANDSCAPE DESIGN
- SPATIAL STRATEGY & PROGRAMMATIC DESIGN
- MOBILITY
- CONSTRUCTION
- PARAMETRIZATION
- SUSTAINABILITY & ENERGY
- RECYCLING & REUSE
- WATER
- ENVIRONMENT
- LANDSCAPE
- ART
- ACOUSTICS
- ICTs



STRATEGIC DESIGN METHODOLOGY

SUSTAINABLE ECOSYSTEM

From Sustainable Development to Integrated Sustainable Design



-  Environment
-  Sustainable mobility
-  Integrated landscaping

-  Economic feasibility
-  Adaptation to climate change
-  Green/blue infrastructure

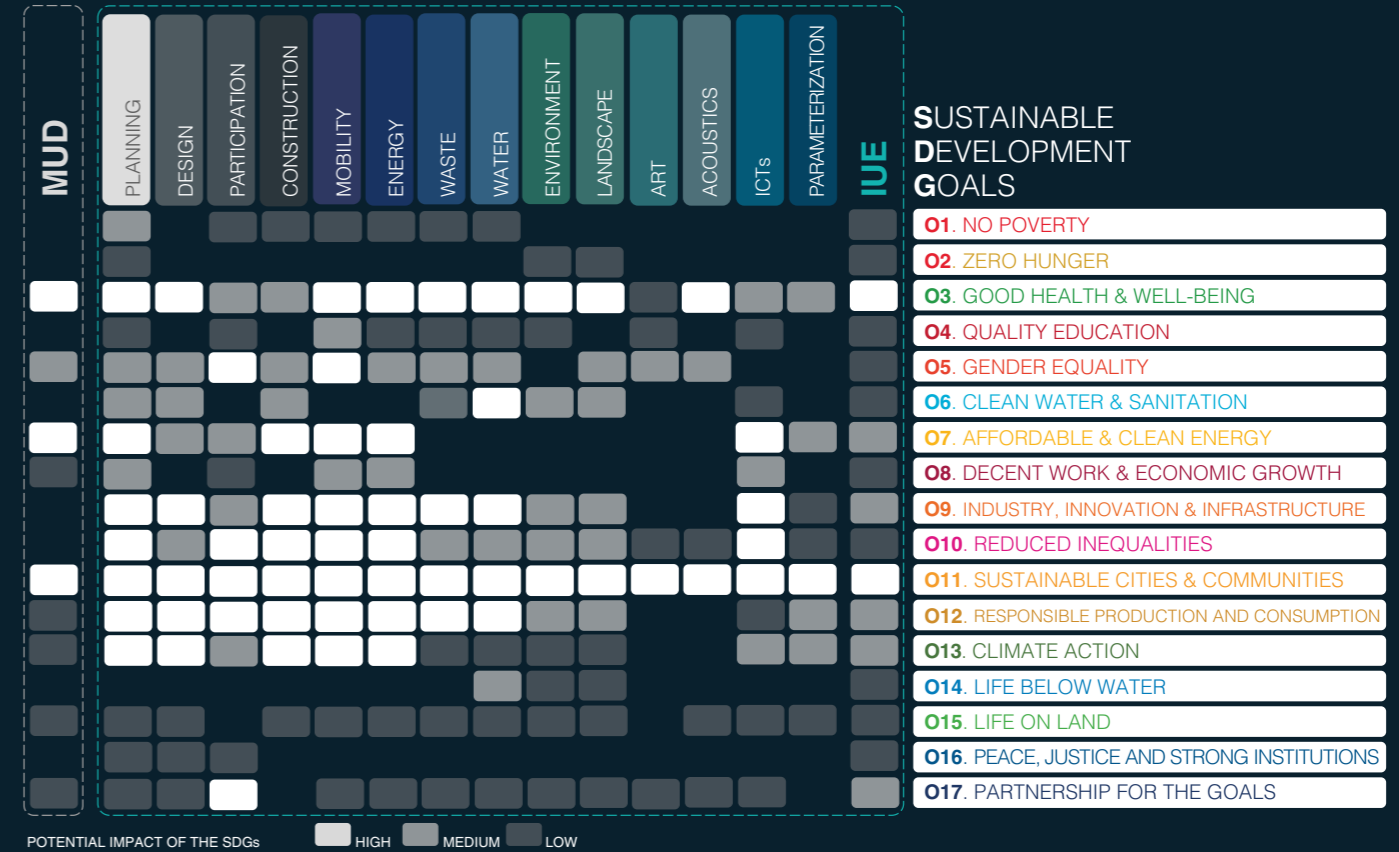
In recent years, sustainability has become an omnipresent rationale in any approach to global challenges, and more specifically to the urban environment. Complexities associated with congestion, energy consumption, emissions generation and water or waste management are compounded by various socio-economic issues: inequity, exclusion, insecurity, aging populations, lack of opportunities for young people, threats to cultural heritage or governance challenges.

For decades we have structured sustainability around the ecological-economic-social triad. What initially seemed to be a broad and multifactorial approach, over time has proved to be insufficient as it fragmented the approach to highly complex problems that required a more integrated approach. Responding to the need to set specific cross-cutting areas and objectives, in 2015 the UN presented a global action plan, called the 2030 Agenda for Sustainable Development, which set 17 Sustainable Development Goals (SDGs) and 169 targets¹¹.

Within this framework, and as an exclusive city-oriented goal, the UN proposed SDG 11: "Make cities and human settlements inclusive, safe, resilient and sustainable". Among the targets of this goal are access to housing, basic services and sustainable transport; sustainable urbanization and planning, including participatory management; safeguarding cultural and natural heritage; reducing environmental impact and the impact of disasters; and universal accessibility to green spaces and public spaces.

It seems obvious that achieving these objectives is not possible with a reduced and sectoral approach. On the one hand, it is necessary to broaden the scope of action and ambitions in each of the areas: seeking equity and accessibility to services in the social sphere; offering a holistic and integrated understanding of the management of resources -energy, water, matter- in the ecological sphere, closing the cycles related to urban metabolism; aspiring to maximum self-sufficiency in the economic sphere. In addition, solutions in the various fields must be cross-referenced, often involving modification and adaptation to generate an integrated proposal.

The integration of the various disciplines raised by Strategic Design is applied to Mixed-Use Ecosystems both to respond to SDG 11 and to address other SDGs in an integrated manner. Thus, in addition to contributing to achieving Sustainable Cities and Communities (SDG 11), it influences Health and Wellbeing (O3), achieves Affordable and Clean Energy (O7), enhances Innovation (O9), acts against Climate Change (O13) and collaborates in the creation of an integrated vision and an alliance between urban actors (O17). In the image we see how the transdisciplinary approach of Mixed-Use Ecosystems is likely to address the SDGs to varying degrees, providing a comprehensive and complex response to urban challenges through the vision of Integrated Sustainable Design (see image on the following page).



- ### SUSTAINABLE DEVELOPMENT GOALS
- 01. NO POVERTY
 - 02. ZERO HUNGER
 - 03. GOOD HEALTH & WELL-BEING
 - 04. QUALITY EDUCATION
 - 05. GENDER EQUALITY
 - 06. CLEAN WATER & SANITATION
 - 07. AFFORDABLE & CLEAN ENERGY
 - 08. DECENT WORK & ECONOMIC GROWTH
 - 09. INDUSTRY, INNOVATION & INFRASTRUCTURE
 - 10. REDUCED INEQUALITIES
 - 11. SUSTAINABLE CITIES & COMMUNITIES
 - 12. RESPONSIBLE PRODUCTION AND CONSUMPTION
 - 13. CLIMATE ACTION
 - 14. LIFE BELOW WATER
 - 15. LIFE ON LAND
 - 16. PEACE, JUSTICE AND STRONG INSTITUTIONS
 - 17. PARTNERSHIP FOR THE GOALS

- The **India International Convention & Expo Centre (IICC)** achieved the highest level (Platinum) of the IGBC Green Campus and IGBC Green New Building certifications by implementing sustainable strategies across all fields and scales. The solutions include the creation of a District Heating and Cooling Plant that serves the entire project, the incorporation of green roofs, the use of native and drought-resistant vegetation for landscape design, rainwater harvesting systems, its treatment and subsequent reuse in the complex itself, the installation of photovoltaic panels for on-site power generation or the pneumatic waste collection system.
- **East Delhi Hub (EDH)** develops the TOD (Transport Oriented Development) concept, based on mobility as the axis to enhance the sustainability of the entire project. This sustainability is also underpinned by the intensive mix of uses and the quality of the environmental proposals, both at the conceptual level in the planning and design proposal and at the physical level in the development of the technical solutions.
- **San Rafael Park** stands out for the vision of the landscape as cultural heritage, introducing activities and technical solutions that contribute decisively to socioeconomic and environmental sustainability and ensure a return to the community. The construction solutions minimize the physical impact on the plant substrate, so that the main access is via a cable transport connection (cable car) and the industrialized buildings are raised above ground.
- The water and energy management of the developments for the **Scientific, Technological and Social Park (PCTS)** and the **Gastronomic, Tourist and Environmental University (UCGTA)** transforms a desert site into an orchard, optimizing the use of resources and generating a plant ecosystem that adds a differential value to the projects and reverts to the community by providing extrapolated and replicable solutions.

IICC DWARKA India International Convention & Expo Centre

“ A large exhibition and meeting space that welcomes the future, celebrating the rich heritage of an ancestral culture ”



Tono Fernández
Director, Mixed-Use Ecosystems IDOM

Overview

CLIENT

DMICDC (Delhi Mumbai Industrial Corridor Corporation)

AREA

90 ha

CONSTRUCTED AREA

2.5 million m²

LOCATION

Dwarka, India

YEAR

Design 2017-2019

Execution 2019-Present

PROGRAM

Exhibition space = 403,000 m²

Convention center = 73,200 m²

Offices = 236,000 m²

Hotels = 339,000 m²

Commercial spaces = 156,000 m²

Multi-purpose pavilion (20,000 pers.) = 64,200 m²

Public space = 372,260 m²

Parking lots = 1,000,000 m²

SCOPE

Competition + Concept Design + Detailed architectural, structural and MEP design + Tender documents + Post-tender and site assistance



IICC DWARKA

India International Convention & Expo Centre

-  Economic feasibility
-  Benchmark
-  Energy efficiency
-  Objective focused
-  Iconic

The India International Convention & Expo Centre in Dwarka (IICC) commission is the result of the international open competition launched by DMICDC (Delhi Mumbai Industrial Corridor Corporation) in January 2017.

The project (Schematic Design), developed by IDOM within three months, has subsequently been detailed (Detail Design) by the contractor and will be built in two phases, the first of which is scheduled for completion in December 2021.

Located 11 km from New Delhi's Indira Gandhi Airport, the IICC will be the largest exhibition center in India and South Asia. Conceived as an anchor project for the country's future development and strategically located between New Delhi and Gurgaon, the development encompasses 90 hectares of exhibition space, a convention center, offices, hotels, retail space, housing, a 20,000-seat multi-purpose hall and more than one million square meters of parking, amounting to almost 2.5 million square meters of constructed area.

Strategically, the operation has four main objectives:

- Be an icon that combines tradition and contemporaneity, capable of projecting the image of a new India, integrating the legacy of an ancestral culture in a 21st century project.
- Become a destination in its own right, representing the

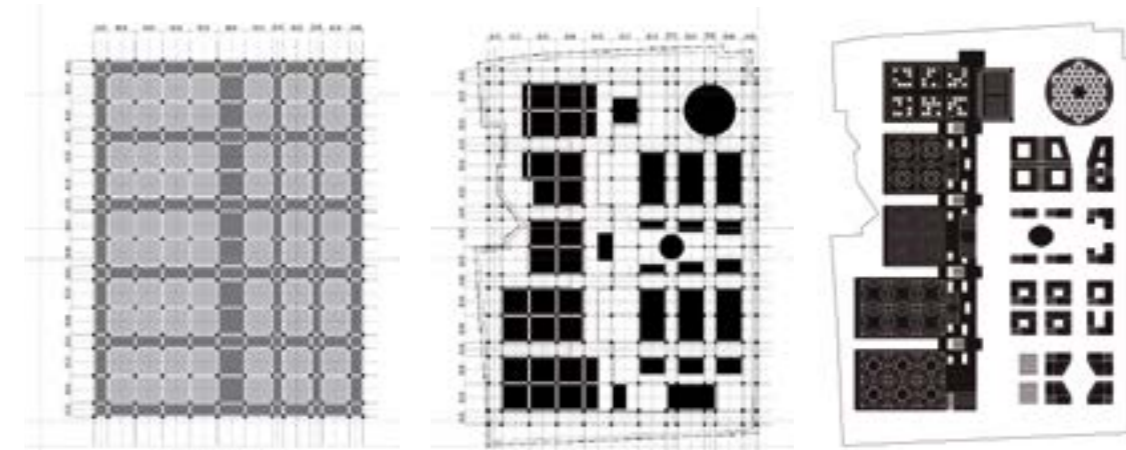
-  Climate change adaptation
-  Technology integration
-  Mixed-uses
-  Access to public space
-  Local identity and cultural heritage

state of the art within the international trade fair and convention circuit.



- Obtain platinum certification from the IGBC (Indian Green Building Council), thanks to its contributions to sustainability, energy efficiency and urban mobility.
- Offer the spatial and operational flexibility to host world-class events and celebrations of the most diverse nature, such as trade fairs, cultural and sporting events, or events such as the celebration of the 75th anniversary of India's independence or the G20 multilateral conferences in 2023.

The Master Plan structures the project in two clearly differentiated sectors, with the trade fair and convention area to the west and the mixed-use development (hotels, offices, residences and commercial space) to the east. A large foyer more than one kilometer long connects the five exhibition pavilions, with more than 243,000 m² of net indoor exhibition area and 71,000 m² outdoor, of which 21,000 m² are covered. The multi-purpose pavilion (Arena) crowns the performance at the northeast end, becoming the main urban landmark of the complex.

In the words of the Prime Minister of India, "IICC would reflect India's economic progress, rich cultural heritage, and our consciousness towards environment protection".






LEGEND

-  Site boundary
-  Setback limit



USES

Built use


ECC & ARENA

-  Exhibitions & Foyer
-  Conventions
-  Stadium

Commercial

-  Offices
-  Retail

Hotels

-  Hotels

Art

“An innovative reinterpretation of Indian artistic influences”

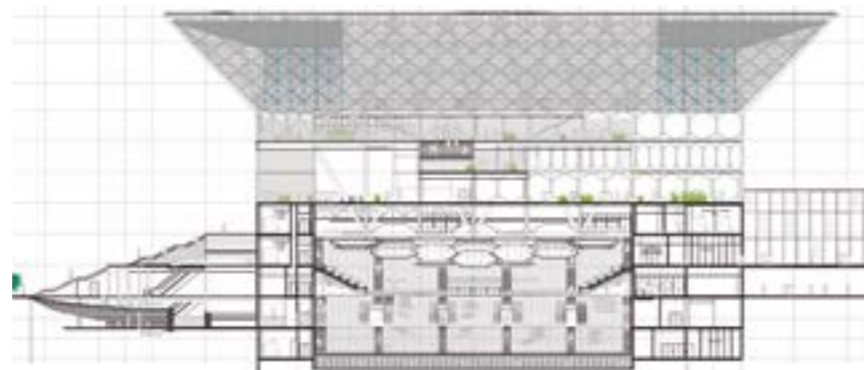


Borja Arostegui
Architect, IDOM

One of the main challenges has been to envision a contemporary space, capable of representing the future of India, while at the same time honoring a past and a history as vast as India. To this end, signs and forms of Indian heritage and culture were interwoven with technical solutions based on the best international practices, allowing the country's values and culture to be showcased internationally.

The reinterpretation of the idea of the palace, as a historical typology capable of integrating buildings of different uses and morphologies, has allowed the master plan to connect with the urban and architectural tradition of India. Thus, the design of the master plan reflects the desire to build an Indian palace for the 21st century.

The buildings are arranged in the palace structure reflecting diverse motifs and iconographies, typical of the vast popular culture of a subcontinent in which ornamentation is also a structural element: on the one hand, diverse representations linked to the rite of greeting and welcome (such as mandalas and rangolis) are reflected in the geometries of the building envelopes and urban design; on the other hand, popular expressions and formal references (such as the Nā-maste greeting, the grand staircases, or embroidery and textiles) permeate the complex of cultural references at all scales and levels.



ART_ As the transmission of culture



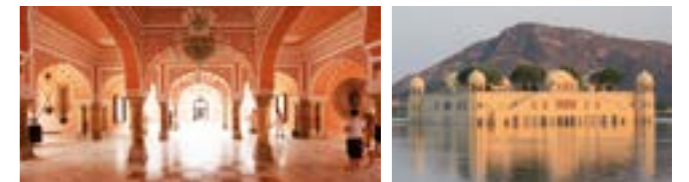
Traditional textile art Rangoli street art

ICONOS_ Unique buildings



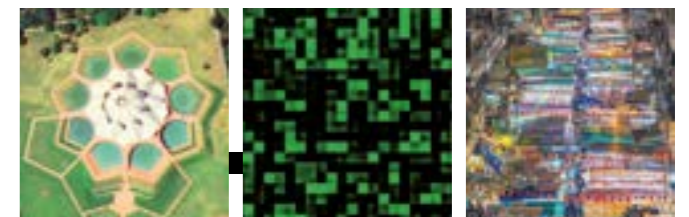
India Gate Akshardham Temple Chandigarh

ECC DWARKA_ As a contemporary palace



Jaipur Palace Jal Mahal

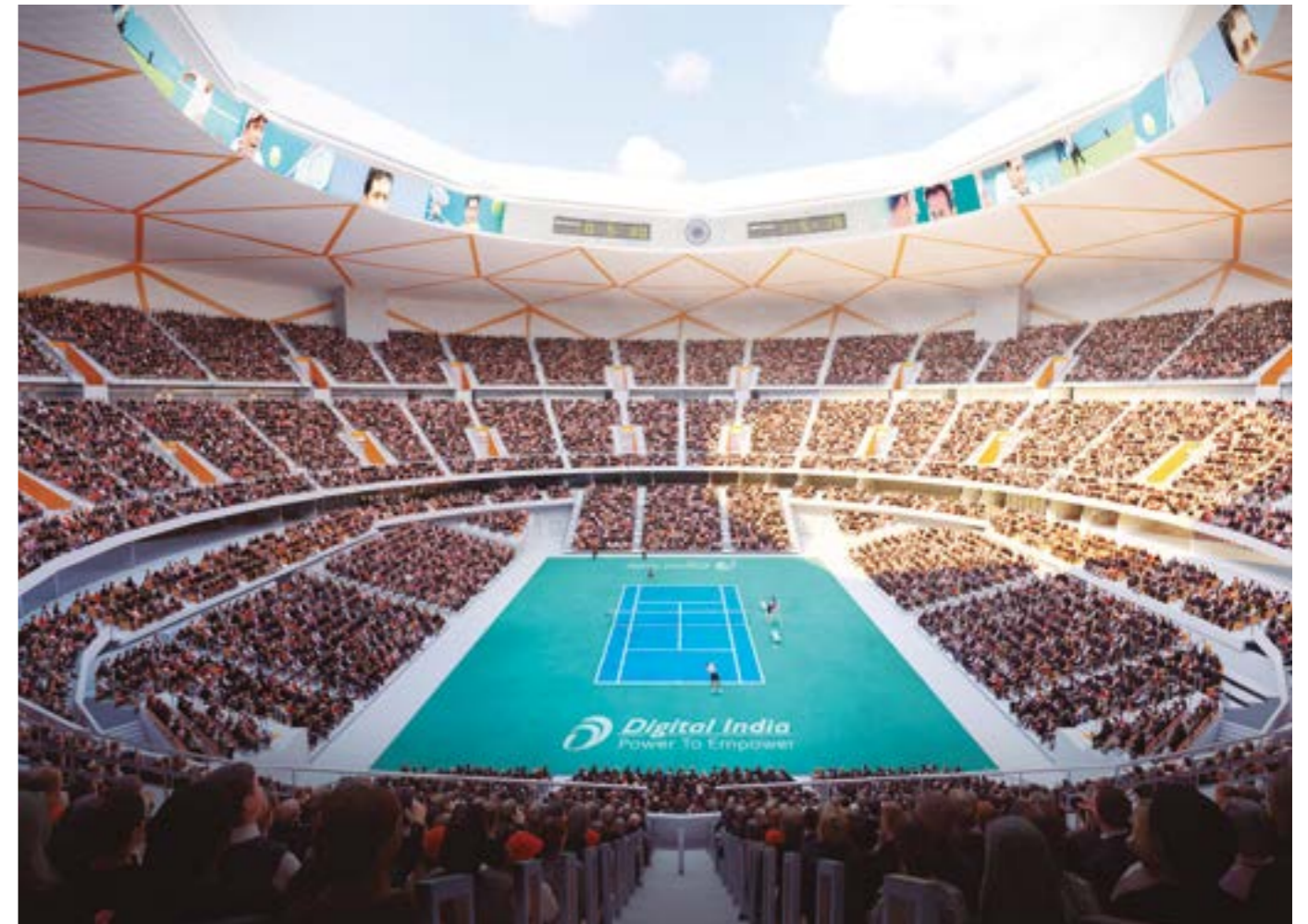
AIR ART_ Airport as an opportunity



Lotus Temple Digital tapestry Street market



Intermediate circulation space



Urban & landscape design

“ The challenge of building on an urban scale while maintaining a human perspective ”



Manuela Casado
Landscape architect and urban planner, IDOM



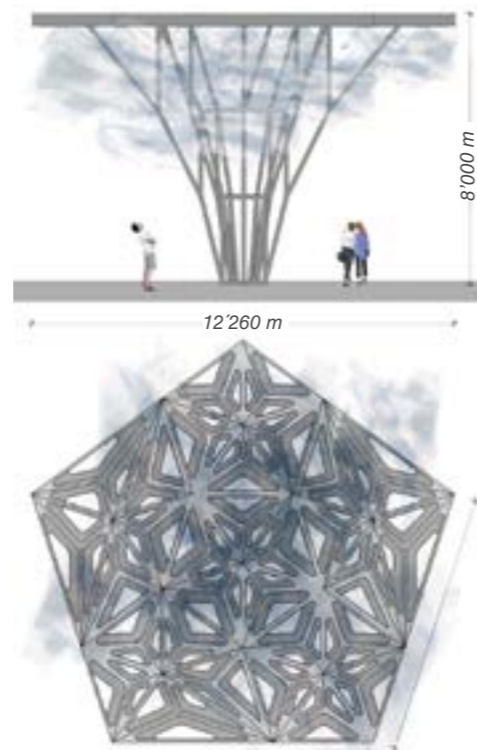
Isabel Alguacil
Landscape Architect, IDOM



The IICC's landscape and urban environment design strategy has been structured around two objectives: to ensure habitability and outdoor comfort in a climate that is extreme for much of the year, and to generate an urban environment in which Indian culture is ever-present. To achieve this, it has been essential to align design strategies with those of sustainable mobility, universal accessibility and environmental sustainability.

Sustainability strategies have guided the project from its initial conception, seeking maximum energy efficiency, the optimization of the water and waste cycle, the integration of green roofs and micro landscapes in the architecture, the densification of trees, vegetation and subterranean fountains, and the integration of pergolas and LED and photovoltaic panels.

The design of the interior and exterior spaces has been produced simultaneously, around the idea of generating a Palace of the 21st century. The open spaces -of different scales and character- are conceived as elements that configure the great garden of the exhibition palace, full of rich patterns and geometries. The balance between the monumental and human scales has been achieved by carefully controlling from the dimensions, proportions, perspectives and visual leakage of the squares and streets to the smallest construction details.



Construction

“ Technical solutions in every discipline and at all levels, integrated into a parametric model and transformed into a constructed reality”

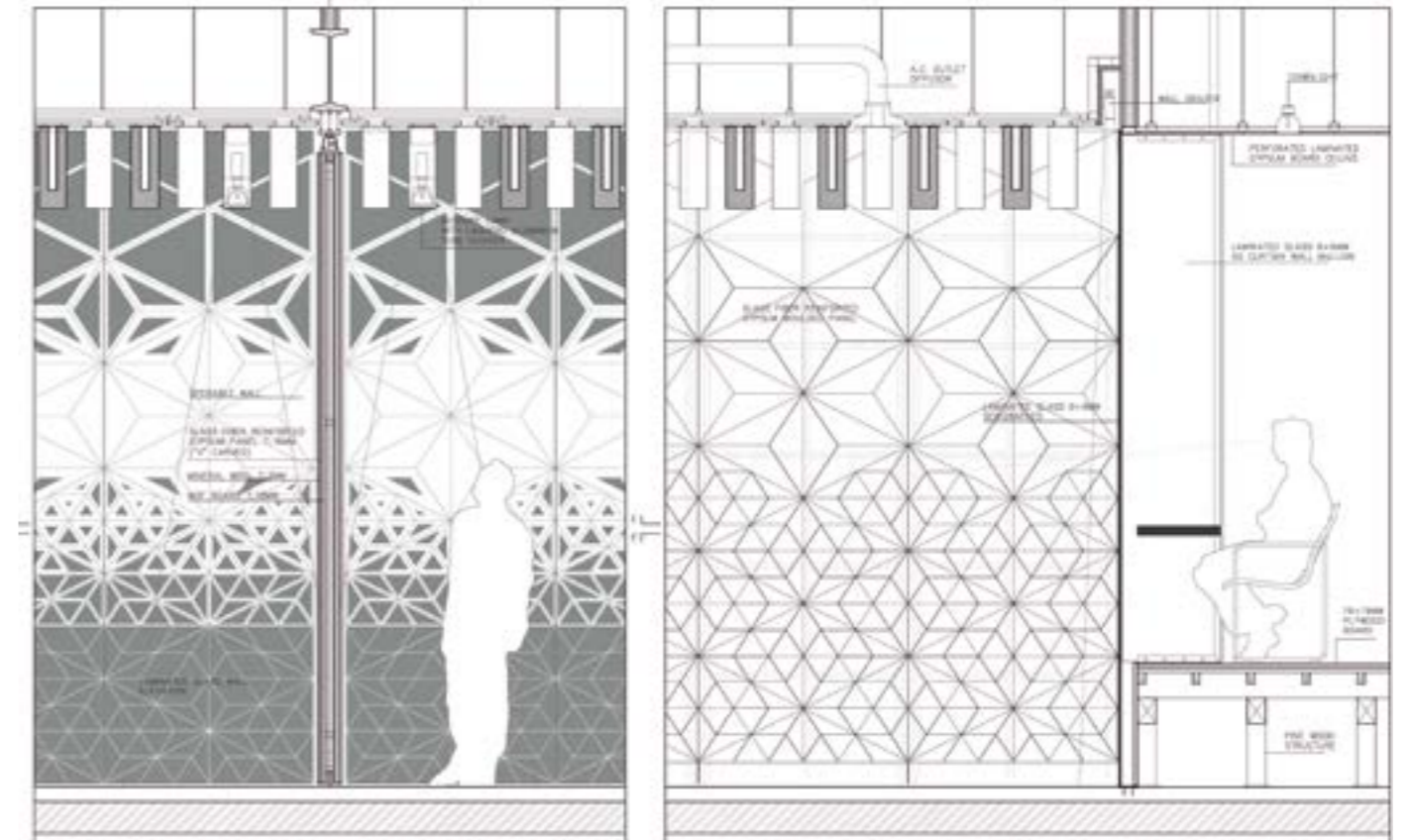


María Cortés
Architect, IDOM

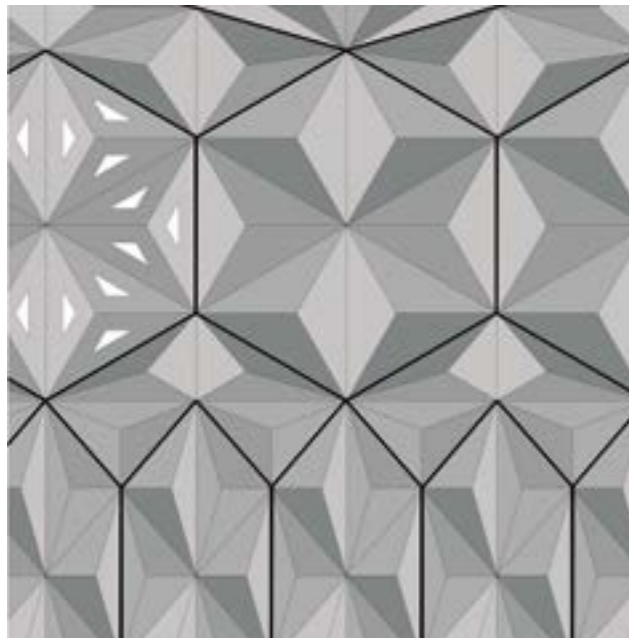
The demanding construction deadlines of the IICC have made it necessary to develop efficient technical solutions that facilitate the supply and assembly of systems and materials, affecting both the excavation and containment systems, as well as the entire structure and construction systems. Although India has an excellent workforce, it was proposed to use industrial or prefabrication of most of the systems to undertake the work with guarantees, ensuring a high quality of finishes, speed and simplicity of execution. In this sense, rather than being constructed, the IICC buildings are assembled, eliminating water on site as much as possible.

The materials and construction systems have been chosen considering both economic and environmental sustainability, considering from the life cycle to their maintenance.

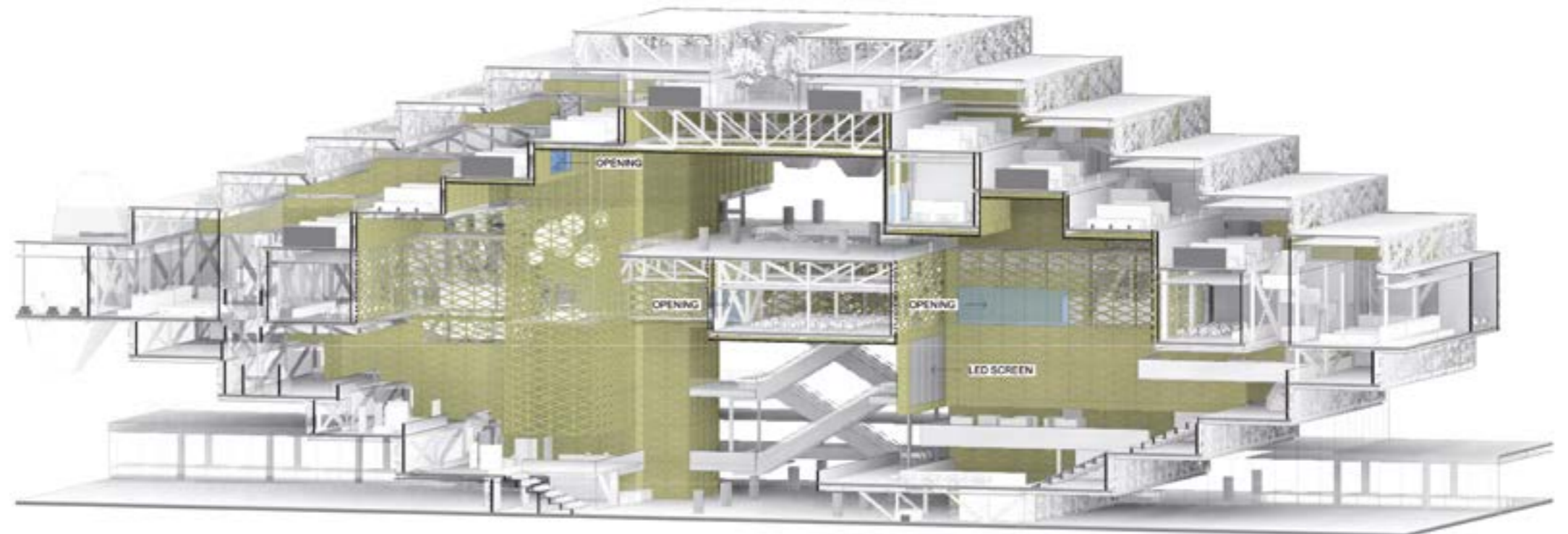
Where possible, systems and materials produced in India - often high-tech - have been selected, such as LED screens, large mobile panels that compartmentalize exhibition halls, or precast glass fiber reinforced concrete (GRC) panels of great geometric complexity. The integration of all these technical solutions in a BIM model has made it possible to successfully coordinate the various technical disciplines, while facilitating the construction supervision process. Integrally defining the systems has involved both defining all the elements of the project at all scales - from 1:1,000 to 1:10 - and subsequently supervising the material samples and prototypes in their actual size.



Construction cross-sections



Detail of a GRC ventilated façade type



Interior cross-section



CONNECTED ECOSYSTEM

Technology as a connector and transformer of the urban environment



Benchmark



Socio-cultural integration



Multi-scale approach



Connection to transportation



Technological integration



Urban integration

Information and communication technologies have transformed our understanding of spatial relationships at the urban and territorial scale. Cities are now spaces of flows whose connections-internal and external-have modified our vision of urban reality¹². After adding new elements and making the pre-existing ones more complex, the so-called fourth technological revolution has led us to understand cities as complex urban systems.

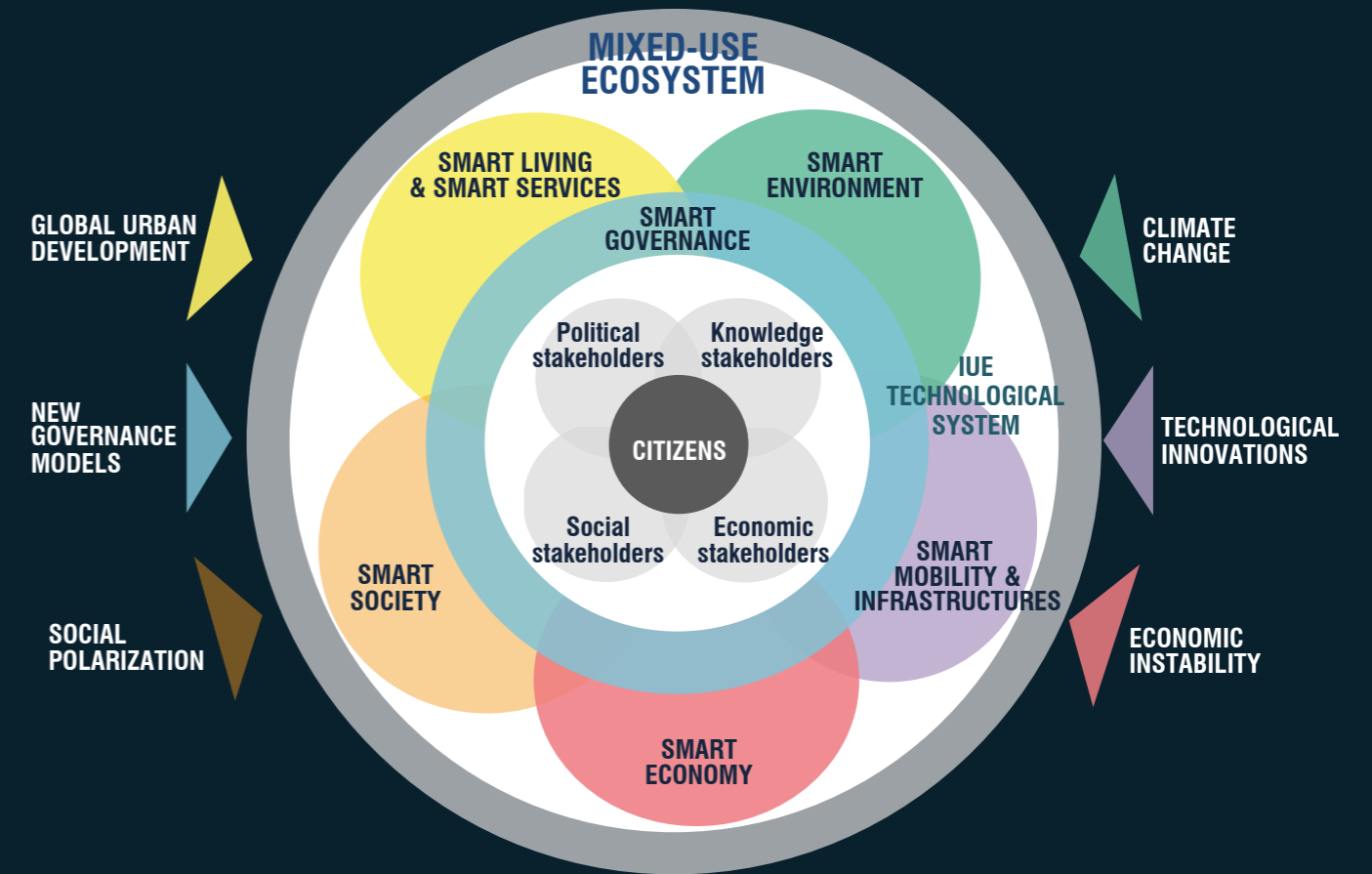
During the 1990s, the Smart City concept was introduced as an interpreter of the role of new technologies, focusing on Information and Communication Technologies (ICTs). Initially, the concept focused on the introduction of ICTs and the improvement of mobility and energy efficiency, objectives that soon proved to be insufficient. The possibility of using urban technology to monitor, analyze and plan the city to achieve objectives for citizens in real time¹³ began to be considered.

Evolved in parallel to the technological advances of the 20th century, the current systemic vision of the city responds to complexity by reformulating the Smart City concept, which has entered a period of maturity. Technology is now understood not as a slogan, but as an opportunity to articulate and connect the various layers of the urban sys-

tem, in order to achieve the goals of efficiency, sustainability and livability. This requires an integrated understanding of spatial and technological realities, without forgetting the role of urban governance in the process. These "smart" or "digital spaces" focus their offerings on inclusion and social innovation, integrating cross-cutting concepts such as the collaborative economy.

Mixed-Use Ecosystems are based on a systemic vision of the city that interprets the urban ecosystem as a set of interdependent elements and processes in which technological systems emerge as potential catalysts for spatial innovation. Technology thus becomes a cross-cutting layer that maximizes synergies between disciplines and a tool that connects ecosystems of diverse scale, contributing decisively to the Connected City paradigm. The vision of Mixed-Use Ecosystems understands intelligence in the city as an instrument that places citizens and agents at the center to respond through technology and urban planning to the challenges of cities. Technology and planning work in a cross-cutting manner articulating diverse urban systems with governance as a catalyst (see image)¹⁴.

The following case studies are examples of how the systemic approach and technological integration can be inter-



preted and adapted to the specific needs of each project. They are thus able to integrate new urban technologies in ways that are truly transforming the human environment at various levels.

- The various solutions implemented at the **India International Convention & Expo Centre (IICC)** have made it possible to reinterpret Indian culture through digitization, to a point where integrated technological solutions are inseparable from the character of public spaces and buildings. The generative tools with which the envelopes and integrated ICTs have been developed have transformed the design and perception of the urban environment, in terms of meaning, orientation and communication.
- At the design process level, the optimization of mobility and accessibility and the use of parameterization tools have been essential for the development of the **East Delhi Hub (EDH)**. Public transport and waste management systems have had a decisive impact on the way urban space is conceived and designed. At the interface level, digital elements such as screens integrated into the facades of high-rise buildings enhance network connectivity,

- **San Rafael Park** will be connected to Bogotá by public transportation (Cable Bogotá) to become another green space in the city and contribute new functions to the urban ecosystem. San Rafael Park's status as a Protective Productive Forest Reserve (RFPP) means that solutions must be proposed for an environment with a low degree of technification, essentially related to the delicate monitoring of waste management and environmental management.
- **The Master Plans of the Scientific, Technological and Social Science Park (PCTS) and the Gastronomic, Tourist and Environmental University (UCGTA)** bring to reality the concept of innovation ecosystem, creating the physical framework for the integration of technologies and agents. The PCTS, Peru's main technology park, integrates ICTs at all levels of the project: physical, virtual and functional. At UCGTA, functional integration is particularly interesting, since the potential of ICTs has made it possible to completely reconsider teaching activities and the spaces necessary for their development.

East Delhi Hub

“ Working with nature
for a new angle to
achieving sustainability
in the entire project”



Francisco Javier Quintana
Architect, Project Manager IDOM

Overview

CLIENT

National Building
Construction Corporation (NBCC)

AREA

30 ha

CONSTRUCTED AREA

1,000,000 m²

LOCATION

New Delhi, India

PARTNERS

CP Kukreja Architects

YEAR

Competition: 2015
Project: 2016 - present

PROGRAM

Housing = 41,8720 m²
Social housing = 103,140 m²
Amenities = 57,536 m²
Retail = 34,467 m²
Offices = 69,272 m²
Public and green spaces = 68,742 m²
Green spaces = 24,160 m²

SCOPE

Competition + Concept Design +
Detailed architectural, structural
and installation design + Tender
documents + Post-tender assistance



East Delhi Hub

-  Sustainable mobility
-  Multi-scale approach
-  Urban integration
-  Mixed-use
-  Focus on people and their activities

-  Economic feasibility
-  Transportation connection
-  Energy efficiency
-  Transdisciplinary vision
-  Inclusive

In July 2015, NBCC, the National Building and Construction Company of India, in collaboration with the DDA, Delhi Development Authority, Delhi's highest urban planning authority, launched an international competition for the design and development of a new urban district for 65,000 people and approximately one million square meters called "East Delhi Hub". The land would occupy approximately 30 hectares and would be located adjacent to the new Karkardooma metro stations. The proposal was to follow Transportation Oriented Developments - TODs - standards while being a smart and sustainable district. The ambition of the DDA and NBCC was a vertical solution that would include iconic towers and incorporate TOD best practices, both in India and internationally. After a shortlisting process based on previous experience, an international jury chose the best proposal from among the four finalists all comprising consortia of Indian and international companies. The "Organic Density" proposal by the Spanish-Indian consortium formed by IDOM and CP Kukreja Architects was chosen as the winner.

The proposal transposes some of the best mixed-use practices of European urban planning - the ensanches in 19th century capital cities in general, and the Cerdá Plan in Barcelona in particular - to a high-density urban environment in India. Over the areas delimited by the viaducts of the two metro lines, a simple organic and radial diagram is superimposed transversally, whose center is the transport node resulting from the intersection between the two metro lines.

The efficiency of the diagram makes it possible to optimize mobility and the overall sustainability of the district, facilitating access to the large public transport system. The balanced mix of uses - residential, tertiary, commercial, commercial, recreational, recreational - gives the proposal great self-sufficiency, and can be conceived as a semi-autonomous district that suggests a promising future for a polycentric and sustainable New Delhi at all levels.

The public space is configured around a large central park, located between the viaducts of both metro lines, and the scheme resulting from the intersection between the two boulevards that arise from the large transport node and those resulting from the concentric hexagonal scheme. This system naturally generates a series of hexagonal blocks around semi-private courtyards that structure a second level of urbanity. The various neighborhood-level facilities are distributed strategically, facilitating access, promoting safety and encouraging interaction between pedestrians. The morphological proposal culminates in a series of diamond-shaped towers that punctuate the beginning and end of the boulevards, giving the new district an iconic skyline.

The balance between built volume and open space, the enhancement of pedestrian spaces, the careful urban and façade design, the integration of green spaces throughout, and the strategic arrangement of retail and leisure spaces ensure a dense but livable and balanced city unknown in these parameters in India.



“ A high-density proposal linked to public transportation, based on the concept of organic growth”

Multi-scale planning

“A design that addresses complexity at all levels”



Viral Bhavsar
Architect, IDOM

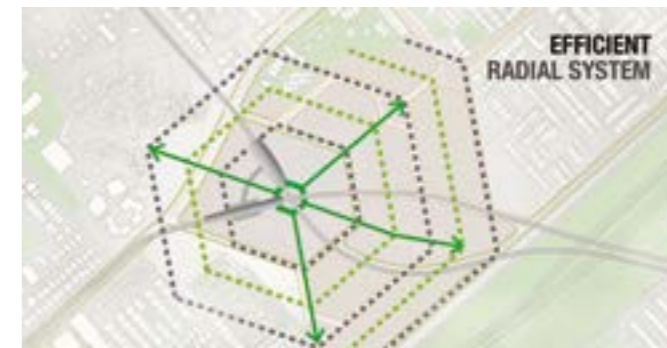
East Delhi Hub is a project with multiple layers of complexity in which language and urban form interact with the form and function of the different buildings.

From the beginning of the project, we have taken into account all the constraints of the site and each of the typologies, so that the principles of the master plan are not only in the layout and urban public spaces, but are transferred to the organization and distribution of the different buildings.

Having been able to carry out all phases of the project, from the initial conception of the idea to the development of the design of each of the buildings, has allowed them to be closely linked to the principles of the master plan in order to offer a coherent and unified response.

All the buildings have been designed taking sustainable approaches that optimize the efficiency of the spaces, guaranteeing good conditions of accessibility, views, privacy and security.

The close collaboration with our partner in India has allowed us to develop a proposal in accordance with the latest regulations and technological requirements in India. In addition, this collaboration has helped us to obtain the successful approval of the plan and the granting of licenses by the Delhi Urban Authority.



Sustainability & energy

“An organic scheme to achieve maximum sustainability and efficiency”



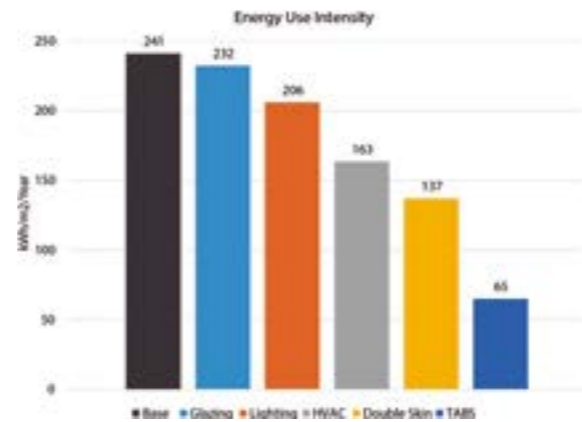
Antonio Villanueva
Engineer and coordinator,
Building Physics IDOM



Javier Martín
Sustainability and energy efficiency specialist IDOM

Given the special environmental conditions of New Delhi, the main objective of the proposal was to generate a microclimate within the city itself. To this end, various passive strategies have been used to achieve the objectives of a Zero Energy District, in which the building complex consumes 50% less energy than the average in New Delhi. As the main active measure, the 70,000 m² of installed photovoltaic panels will cover 25% of the energy needs and can be expanded in the near future to achieve carbon neutrality.

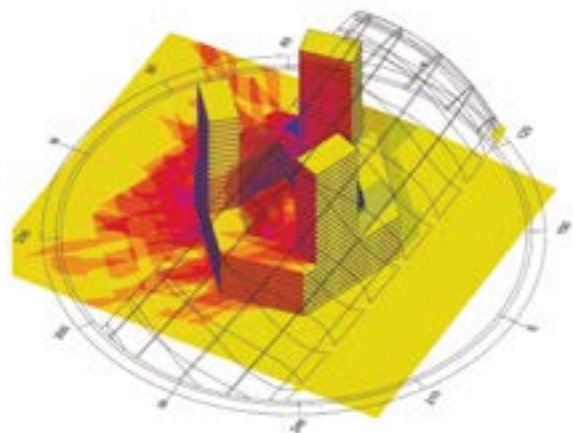
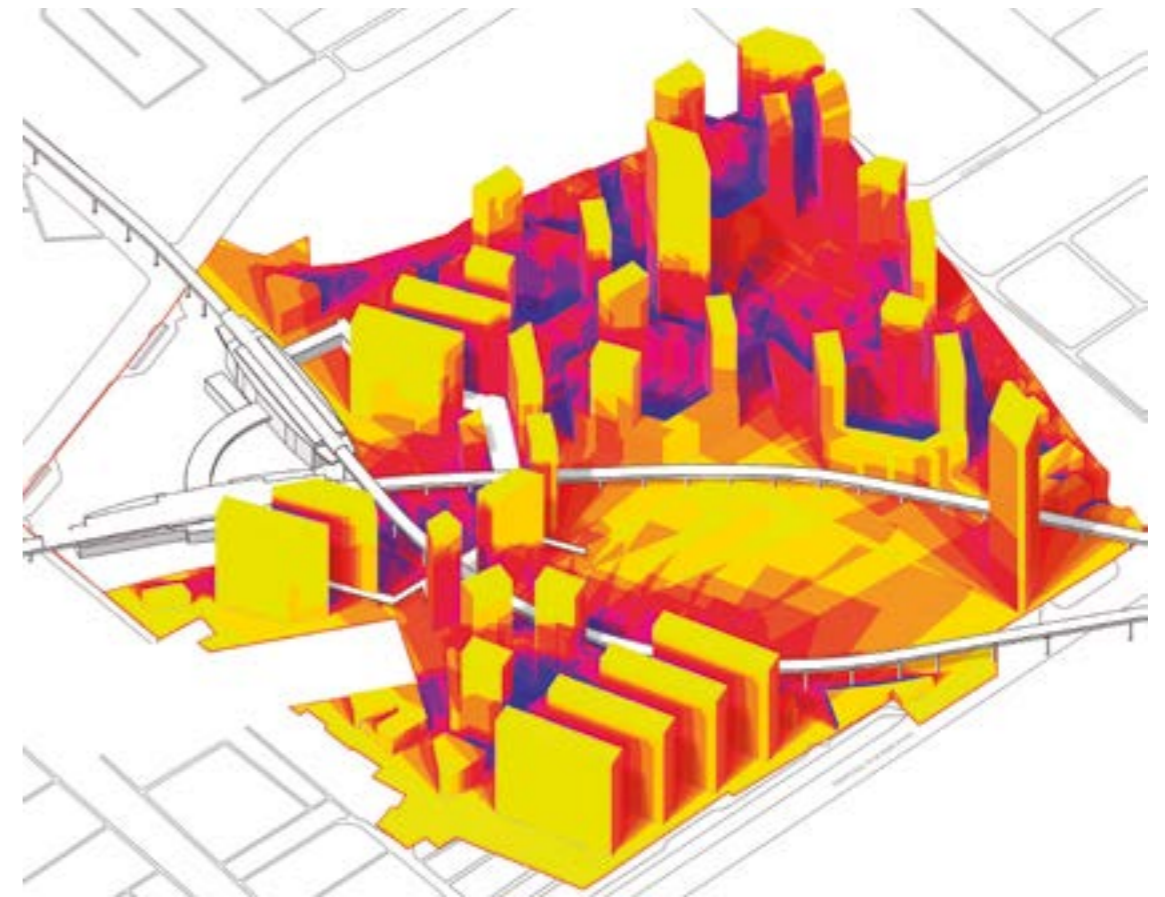
Environmental strategies are based on four pillars: minimizing environmental impact through TOD-derived strategies; generating green infrastructure and high-efficiency waste management; maximizing comfort by reducing energy consumption and associated emissions; and reducing the need for potable water by recycling and reusing water.



The results of the bioclimatic, lighting, energy and acoustic studies, both inside the buildings and in public spaces, have been decisive in defining the general design criteria, determining, among others, the technical parameters of the enclosures, the dimensioning of public spaces or the optimum distances between buildings.

The reduction of potable water consumption - close to 40% of the usual consumption - and the mitigation of runoff volume are the starting point for water-saving strategies, which maximize the use of gray water by capturing rainwater and recycling gray water. Large green infrastructures - huge reservoirs of potentially reusable natural water - reduce the heat island effect and improve adaptation to climate change, mitigating the impact of monsoons and reducing the risk of flooding. In addition, the design of tree-lined streets ensures shaded public spaces and the selection of high-albedo materials and permeable pavements.

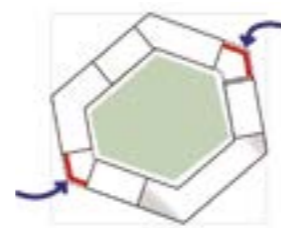
A pneumatic waste management system uses the radial structure of the proposal to avoid vehicular waste collection services, improving the livability and acoustic levels of the urban environment, all of these measures work towards sustainability at all levels and scales, providing a strategy that can be extrapolated to future urban developments in India.



Analysis of solar exposure and energy use intensity.
Data: New Delhi Safdarjung, December 21.



Daytime setting:
permeable courtyards



Nighttime setting:
enclosed courtyards



Parametrization

“ Iteration as a tool to determine the optimal morphology ”



Yian Jiang
Architect, IDOM



The project proposes an innovative approach to the relationship between parametric modeling methods and the design of urban morphology, allowing to check, in real design time, the feasibility of the various morphological possibilities of both the urban space and the building. This allows to quickly explore formal variations as well as possible paths not considered at the beginning of the project.

The process has made it possible to produce multiple variations and alternatives in an iterative process, in which, by integrating the various actors in the development of the design, it has made it possible to agree on and jointly explore parameters such as building density, proportion of open spaces and street widths and buildable heights, among others..



VARIATION 01
FAR: 2,280



VARIATION 02
FAR: 2,460



BASE CASE
FAR: 2,500



ALTERNATIVE 01
FAR: 2,640



ALTERNATIVE 02
FAR: 2,080



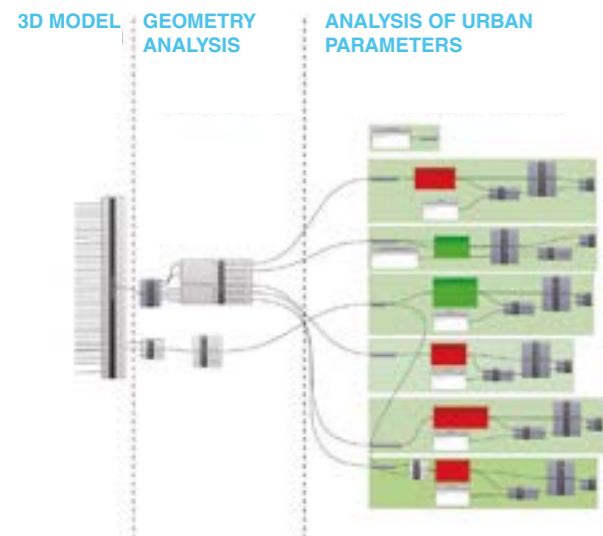
ALTERNATIVE 03
FAR: 2,280



ALTERNATIVE 04
FAR: 1,830



ALTERNATIVE 05
FAR: 1,860



Design alternatives obtained through parameterization



Mobility

“Mobility strategy as a catalyst for a livable, vibrant and sustainable urban environment”



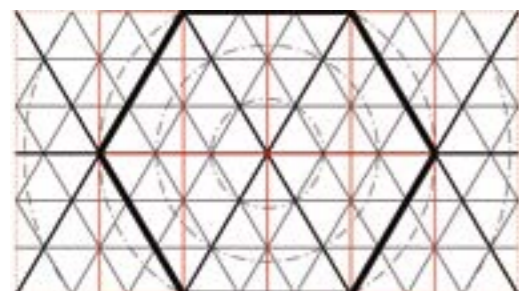
David Moncholí
Director, Mobility & Transportation IDOM



Ibai Díaz de Lezana
Transportation Planner & PMP, IDOM

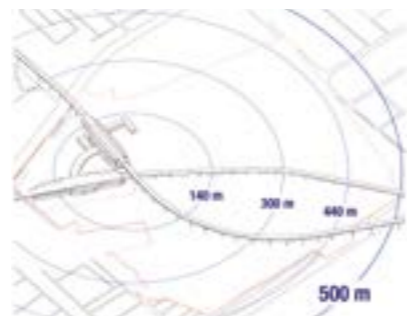
The conditions of the Karkardooma site (plot size, location, existing metro stations, connectivity, population profile, and others) make the new “East Delhi hub” a unique laboratory for testing the new Transport Oriented Development policy established by the Delhi Development Authority, with the aim of regenerating the capital and improving the sustainability of what is today one of the most polluted cities in the world. Once included in the Delhi Master Plan 2021, what was a pilot project is now being presented as a bench-mark project for sustainable urban development, not only for the capital but for many of India’s developing cities.

A major component of the proposal’s success has been to consider from the outset of the project, and prior to any morphological considerations, as many TOD (Transit Oriented Developments) principles as possible. The high density and the design of a balanced program of mixed uses are combined with a commitment to pedestrian space and non-motorized transport; the generation of short and perfectly connected networks; the enhancement of pedestrian public spaces; the elimination of surface parking; the regulation of last-mile transportation; the use of subway parking; and a careful urban design on all levels. The strategy for mobility has therefore been the initial prerequisite for achieving a livable, vibrant and sustainable urban environment.



Adaptable, Efficient, Organic, Polygonal

RECOMMENDATION TOD 11.1: INFLUENCE ZONES



- Intensity zone: 500m
- Pedestrian accessibility: 500 m from transportation
- Planning area TOD: 800m radius around the station

RECOMMENDATION TOD 19.1: PLOT REQUIREMENTS



- Minimum area: 1ha
- Minimum development in the intensity zone: 50%.

RECOMMENDATION TOD 37.1: GROUND COVERAGE



- Maximum: 40% of the surface area
- Proposed Ground Coverage: 24%**

RECOMMENDATION TOD 40.1: MIX OF USES



- Residential: 30-70%.
 - Commercial: up to 10%.
 - Amenities: minimum 10%
- Proposed mix:**
- Residential: 70%
 - Commercial: 20%.
 - Amenities: 10%
 - Subsidized housing: 15%

RECOMMENDATION TOD 19.2: PLOT COMPLIANCE



- Accessibility from the road:
- Minimum width of 18m
 - Continuous length equivalent to at least 25% of the development

RECOMMENDATION TOD 10.2: ROAD NETWORK-EXTERNAL CIRCULATION



- Improved mobility: maximum pedestrian priority and minimum car priority
- Road network: maximum distance between road traffic axes: 200 m
- maximum distance between pedestrian traffic axes: 100 m

Schemes of compliance with the TOD recommendations of the New Delhi Master Plan





EFFICIENT ECOSYSTEM

Ecosystem vision
for the design of the Circular
Economy in urban environmentsEnergy
efficiencyEfficient water
management

Constructibility



Mixed-uses

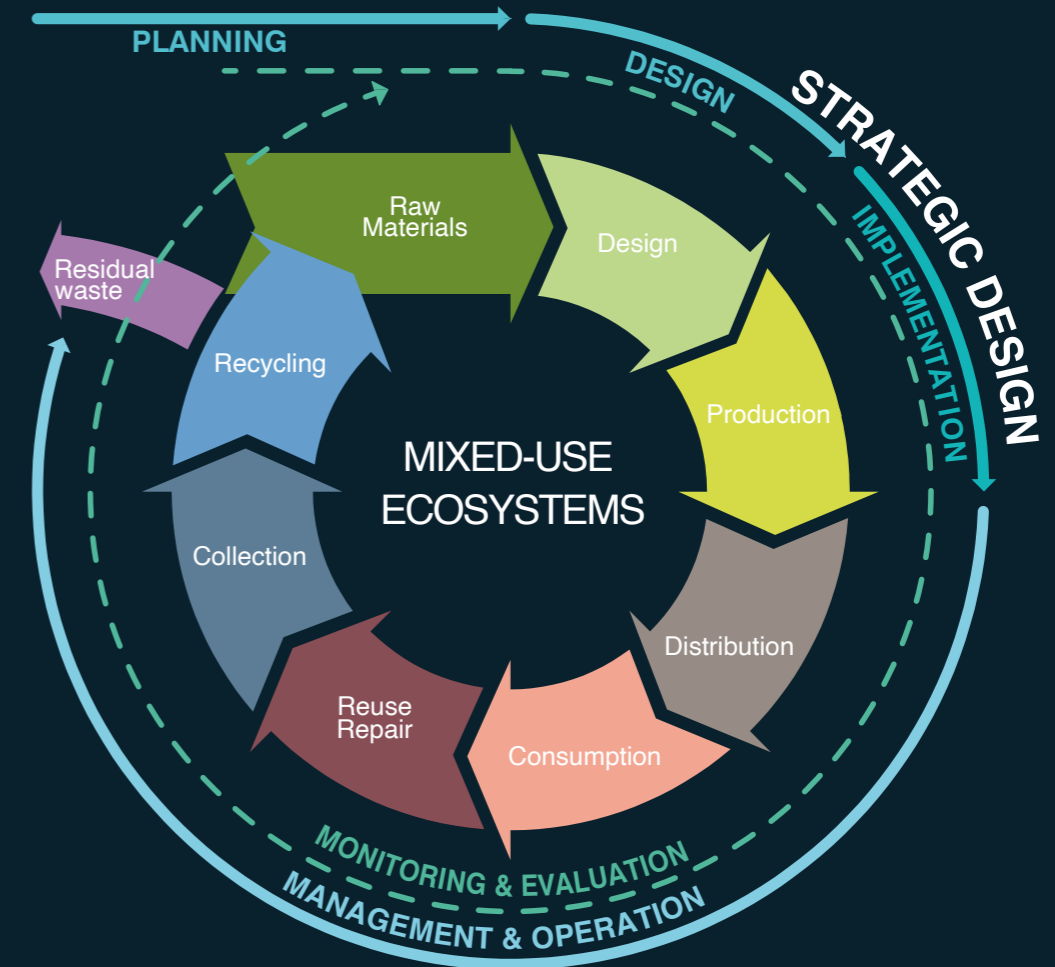
Transdisciplinary
visionFocused on
objectives

Urban systems benefit through economies of scale and agglomeration, tending to maximize their efficiency and generating positive externalities (quality of life, knowledge and innovation). However, cities consume 75% of the world's energy and generate 80% of the world's CO2 emissions. Lyle defined cities as open and dynamic urban ecosystems¹⁵. However, an ecosystem that is open in terms of knowledge and information does not necessarily have to be open in terms of resources. The need for openness to the global world must be compensated by a certain degree of autonomy that ensures the minimum consumption of resources - and therefore the reduction of the externalities derived from that consumption - and returns the benefits to the immediate environment¹⁶. This is the basis of the Circular Economy concept.

The Circular Economy proposes a transition from (eco)efficiency to (eco)effectiveness, from minimizing the environmental impact of the waste generated to eliminating the waste itself, prolonging the life cycle of products as much as possible. It is based on three strategic pillars: designing the integral cycle of materials and the processes that generate them; maintaining the use of products and materials for as long as possible; and permanently regenerating natural systems. Applied to the design of the systems that

make up the urban environment, these strategies require understanding and perfectly developing the planning, design, manufacturing, accessibility and operation processes of each system¹⁷. The result is systemic change that increases resilience to economic change, generates business opportunities, and provides environmental and social benefits at multiple levels.

The Circular Economy constitutes one of the pillars of Mixed-Use Ecosystems, which are characterized by the mix of uses and activities, tending to maximize the efficiency of mobility, resource management, local economy, etc. Strategic Design proposes an integrated vision of urban systems, maximizing the synergies between them to achieve circularity in each one separately as well as in the integral system. The reuse of existing resources, the design of urban infrastructures oriented to the circular economy (mobility, water, energy, among others), the choice of local construction systems and/or the proposal of recyclable or reusable construction materials are some of the strategies used to close life cycles. Finally, Mixed-Use Ecosystems entail a methodological redesign based on circularity, with continuous review and improvement, encompassing the various stages of production of the built environment in closed cycles (see image).



All this generates benefits in the environmental (reduction of emissions, reduction of resource consumption and re-generation of environments), social (reduction of displacements, increase of interactions and enhancement of the local economy) and economic (reduction of investment in resources, increase of the intensity of use, increase of economic resilience, diversity and innovation) fields.

In the case studies analyzed, the circular economy is approached from different perspectives, depending on the needs and possibilities of each of the projects.

- The design of the building and public spaces of the **India International Convention & Expo Centre (IICC)** reinterprets the climate adaptation elements of Indian culture, using shade, water and ventilation, which are combined with active systems to reduce energy consumption. The construction systems and materials used reconcile cultural tradition with the production of large-scale building elements, and wherever possible in close proximity.
- In the **East Delhi Hub (EDH)**, transport emissions are reduced and maximum energy efficiency of the urban form is sought by optimizing travel distances through the introduction of parametric design. The block de-

sign allows for simple closure of the water cycle and activation of public and semi-public spaces through commercial spaces.

- The concept of the **San Rafael Park** integrally incorporates the concept of circular economy both in the way of intervention in the environment and in the selection of materials and construction systems. Integrated water cycle management and energy efficiency are combined with the selection of industrialized dry assembly construction techniques and low-emission local materials, minimizing waste and impact during the different phases.
- The **Master Plans of the Scientific, Technological and Social Science Park (PCTS) and the Gastronomic, Tourist and Environmental University (UCGTA)** are intended to be the first large-scale plans in Peru in which the primary energy consumed annually is offset by the energy generated in the development at the site itself. The design guidelines of both projects are in pursuit of closed cycles in all systems, working on integral cycles of water, waste and energy management, including elements of environmental water collection, purification with macrophyte plants, and alternative systems of collection, distribution and energy saving.

San Rafael Ecological Park

“ An experience in the Forest Reserve, which includes the reservoir, water and sustainability, while contributing to local and regional development”



Jabier Fernández
Architect, Project Manager IDOM

Overview

CLIENT

Finance of National and Water Supply development (Water and sewerage of Bogota)

AREA

1,200 ha

LOCATION

La Calera, Cundinamarca

YEAR

February 16, 2018

PROGRAM

Entrances and farmer's market = 5,044 m².

Adventure/support park = 1,714 m²

Restaurants = 1,670+974+956 m².

Water museum = 2,625 m²

Nautical club = 518 m²

Shelters = 1,560 m²

Landscaping = 176,793 m²

Trails = 65,228 m²

Parking = 355 vehicles, 60 motorcycles and 30 buses

SCOPE

Detailed architectural, structural and MEP design + Tender documents + Post-tender and site assistance.



San Rafael Ecological Park

Finalist in the category Future Projects - Leisure 2020 WAN Awards 2020



Environment



Integrated landscaping



Benchmark



Efficient water management



Access to public space



Sustainable mobility



Green/blue infrastructure



Energy efficiency



Constructability



Local identity and cultural heritage

The San Rafael Park project proposes a regional and national inhabitant in the metropolitan area of Bogotá closer to the parameters recommended by the WHO (10-15 m²/inhabitant).

Located behind the eastern hills of the Capital District, it is just 15 kilometers from Carrera Séptima and, with the construction of a new aerial cable car that will link Bogotá with the municipality of La Calera, it will be only 35 minutes from the city center.

The Park occupies almost all of the land of the El Sapo Protected Forest Reserve (Colombia's highest level of environmental protection), covering 996 hectares, which in turn contains the 376-hectare San Rafael Reservoir, a sheet of water used to supply the city of Bogotá. The landscape is broken up by human activity and the environmental conservation guidelines lack specific plans and actions to put them into practice.

Thus, the main challenge of the project has been to create a public park that is also capable of revaluating and recovering the landscape heritage of the El Sapo nature reserve.

The proposal will bring the visitor closer to the protected natural heritage, respecting and enhancing the socioeconomic development of the area of influence of the park and making the implementation of the conservation guidelines of the El

Sapo ARFPP feasible by generating economic resources through ecotourism exploitation.

All of the proposed activities arise from the assessment of its implementation and the enhancement and dissemination of the conservation of the protected ecological environment. Each intervention is conceived from the analysis of the site that houses it and its main potentials, also taking into account the regulatory constraints, such as the prohibition to build "hard" infrastructures of more than 9 m² or the discharge of treated wastewater over the reservoir or the impossibility of building roads or public services.

The buildings (necessary to provide essential services to the park's visitors and its conservation) were raised to allow the water to pass under them, not to interfere with the animals' routes, and to touch the ground in an area of less than 9 m². Taking into account that the park has 9 buildings of up to 2500 m², this requirement meant devising a design based on stilts that were driven into the ground in the manner of traditional wooden piers. Likewise, structural systems in cross-laminated timber were proposed, which would take advantage of the surplus of local wood and also generate the opportunity for the development of the second and third transformation of wood, technologies that are still very incipient in the area.





CROSS SECTION WATER MUSEUM

LANDSCAPE DESIGN STRATEGIES

- Recovery of Bosque Niebla ● Road edges ●
- Timber zone ● Collections ●
- Evolutionary garden ● Wetland and phytoremediation gardens ●
- Vegetation infrastructure ● Ornamental and successional zones ●
- Agroforestry systems and orchards ● Riverine and Runoff Zones ●
- Reservoir edge zone ●

Museum of Water

CULTURE & KNOWLEDGE

It is located on the south side of the park, and is the area between the Francisco Wiesner Treatment Plant and the oxidation ponds; however, the proposed project is located on the southwestern side next to the ponds, in a space with a topography that is flat and that also has a direct relationship with the reservoir, which makes it an optimal area for the development of the water museum.

This is an educational facility that seeks to instruct and inform each of the park's users about the operation, treatment and disposal of water, using the proposed building as a meeting and reception space where it is possible to carry out different activities and at the same time understand a little of the fauna present in the reservoir.

- Trails
- Cafeteria
- Landscaped gardens
- Water Museum
- Oxidation ponds
- Bike station



MASS TRANSIT
ELECTRIC BUS



CYCLING ROUTE



PEDESTRIAN ROUTES

Native forest

HIKING & VIEWING POINTS

The area called Bosque Nativo is located on the western side of the reservoir. It is known for having large areas of native forest, as well as privileged views of Bogota and the reservoir. The main access is through the intermediate cable car station, which gives the possibility of descending to the park through the different trails or continuing on the cable car to the northern meadows where you enter the park through the main access plaza.

- Trails
- Viewpoint
- Bird observatory
- Restaurants
- Cable car station
- Interpretation center



STRUCTURAL MATERIAL

Downhill to the beach

NAUTICAL ACTIVITIES & LEISURE

The western side of the park is much more natural and has much less interference than the other areas of the park. The descent to the beach has two large influxes of visitors: those who come along the Native Forest Trail and those who get off the park's public transportation. At the confluence of the two paths (Trail and Water Circuit), a plaza is proposed for arriving at the beach, which will have a transportation station, restrooms, and urban furniture. The plaza in turn leads directly to the facilities located in this area: Restaurant, Pier and Nautical Club.

- Trails
- Pier
- Nautical activities
- Restaurants
- Bus stop
- Bike station

North meadows

MAIN ACCESS & RECREATION

The northern meadows, located at the northeastern end of the reservoir, are the area with the closest connections to the urban area of the municipality of La Calera. This is where the main entrance to the park is located, which is divided into two buildings: the Group Entrance, where visitors who come in vans or buses enter, and the Individual Entrance, where visitors coming from the cable car and those who enter the park in private vehicles, motorcycles, bicycles or on foot from La Calera.

- Trails
- Amphitheater
- Farmer's markets
- BBQ | Picnic
- Cable car station
- Interpretation Center



Eastern meadows

GASTRONOMY & LANDSCAPING

The eastern meadows are located on the southeastern coast of the park. This space is proposed as an area of shared use, where in the lower part there are picnic areas accompanied by paths, viewpoints and kiosks oriented towards the reservoir.

In the upper part of the meadows, next to the road that connects Bogotá with La Calera, are located the Eco-restaurants, spaces that have direct access from the Bogotá - La Calera road, which allows a continuous operation and detached from the environmental dynamics of the park.

- Trails
- Kiosks
- Landscaped gardens
- Restaurants
- Parking
- Viewpoints

Main dike | recreation

LEISURE & RECREATIONAL ACTIVITIES

The Major Dam is the most important element of the reservoir's infrastructure in terms of interaction with the park, so the opportunity arises to use this area for an important activity of the park, giving it a playful sense, thus integrating it into the park and revitalizing the surrounding area with the recovery of native species in its lower part.

The Recreation Zone, consisting of zip lines, a large recreation area in the trees, a climbing area on the concrete retaining wall for all ages and levels, viewpoints, a bicycle area with its own entrance to the park and a food center along with a support building with capacity for educational classrooms.

- Trails
- Climbing wall
- Restaurants
- Zip lines
- Teusacá River Walk
- Viewpoint

PARKING
335 Private vehicles
60 Motorcycles
30 Buses



Recycling & reuse

“Integrated water and waste management as a primary element of rehabilitation and conservation objectives”

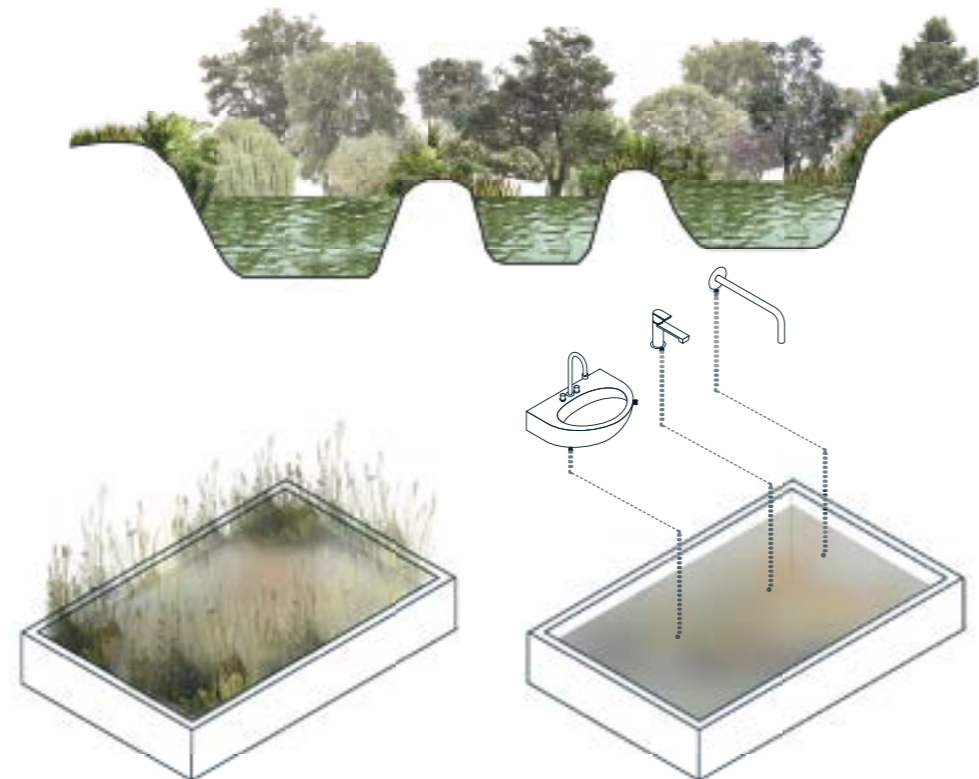
San Rafael Park, due to its size and its status as an ecological park, has a dual practical and pedagogical vision in terms of the development and implementation of environmental measures.

Energy self-sufficiency, which is sometimes introduced in some projects as an element of luxury or distinction, is in this case another starting condition, as is the reuse of waste elements resulting from the operation of the park and its environmental conservation.

The park's nearly 700 hectares of native landscape require an indoor nursery. This nursery will consume a significant amount of compost daily, coming from a selective collection of the park's organic waste-producing elements, restaurants, paths, activities, etc. This organic matter will be accumulated and prepared in the nurseries themselves to later be used for the establishment of species in the natural environment as well as for planting and maintenance in the nursery itself.

The rest of the waste, separated at the source through the introduction of collection centers in the areas where activities are more intensive, and in separator garbage cans (containers) in the rest of the paths and rooms of the park, will be collected and taken out of the park to the recycling centers that the municipality of La Calera has set up for this purpose.

Water merits a separate chapter. The proximity to a reservoir of priority importance means that the discharge of purified wastewater is prohibited above the level of the reservoir. The project proposes phyto-purification lagoons for each service or building in the park (24 in total), which will be responsible, through the placement of decanting systems, active purification by means of bulrushes and other plants with reduced impact on the ecosystem, for discharging into the ground with pollution levels lower than those permitted in the watercourse that feeds the reservoir. A rainwater reuse system will complement the gray water from the buildings (drinking water is not planned for buildings located in the natural environment) and irrigation.



Lucas Álvarez
Civil Engineer, IDOM

Environment

“From passive conservation to an Environmental Management Plan”

The main conditioning factor for San Rafael Park is the mandatory application of the restoration and conservation guidelines for the El Sapo Protected Productive Forest Reserve Area. The Regional Autonomous Corporation, a public administration independent of any political entity, is in charge of enforcing environmental requirements in the Cundinamarca region. Any intervention on land protected by the CAR must comply with a series of measures that are summarized in an Environmental Management Plan (EMP).

The EMP is the instrument that analyzes the risks to the ecosystemic components Water, Soil, Flora, Fauna or Energy and proposes a classification of the same, a series of mitigations and management to avoid negative environmental

impacts and regulates the restoration and rehabilitation measures set forth in the ARFPP regulations.

In the case of San Rafael, as a special protection area with a series of anthropic elements that characterize it, such as the reservoir or the agricultural and livestock production areas of the villages, the EMP is the compendium of measures to achieve the implementation of a public park as required, with a recovery of a natural environment in a critical state of conservation that is key to the ecological connectivity of the Chingaza system.

In San Rafael, all trees larger than 30 cm in diameter are monitored, protected epiphytes are classified, and wastewater purification is made possible from a regulatory standpoint through the use of

phyto-purification lagoons by enabling discharge to the ground as an alternative to direct discharge into the reservoir. All buildings and roads were raised from the ground and built with extreme energy efficiency measures, sometimes due to the impossibility of supplying them with energy because of the prohibition of underground or overhead pipelines to reach their locations.

San Rafael Park's EMP seeks to be a milestone in Colombia's environmental strategy, moving from an eminently regulatory position to the implementation of measures that interpret the regulations in the search for the common good and to bring conservation, the economic viability of corrective measures and the generation of socioeconomic value of protected ecosystems into harmony.



Ana María Romero
Environmental Engineer,
IDOM



Landscape

“Creating a native ecosystem through Natural Landscaping”

The objective of the landscape proposal is the regeneration of the park's ecosystem, which currently has six different zones according to their geolocation, natural conditions, alteration with respect to their original state, and rehabilitation needs. The 500-meter difference in elevation from the shore of the reservoir to the top of the Cerros Orientales generates various ecosystems depending on the altitude, from sub-Andean Forest at the lowest elevations to tropical Andean Forest at the highest points of the mountains.

In turn, the emptying and filling of the reservoir has generated a changing riverbank ecosystem. On the other hand, the anthropic influence of La Calera and the adjoining trails has created grasslands and low tree zones characteristic of the surrounding rural areas. The whole of this anthropic landscape is considered part of the natural heritage of the El Sapo Producing Protected Reserve Area, and the landscape proposal protects and enhances its value.

The landscape approach is therefore based on the recovery and enhancement of existing landscapes. The atlas that the

Humboldt Institute developed on the native species of the Eastern Hills of Bogota is taken as a starting point to subsequently study and understand the various landscape associations that will allow the recovery of heritage landscapes. This approach imitates the natural processes that occur in the generation of any ecosystem, developing the concept of “Natural Agriculture” of the Japanese farmer Masanobu Fukuoka applied to the generation of “native forests”. This system bases its strength precisely on the simplicity and radicality of the initial approach.

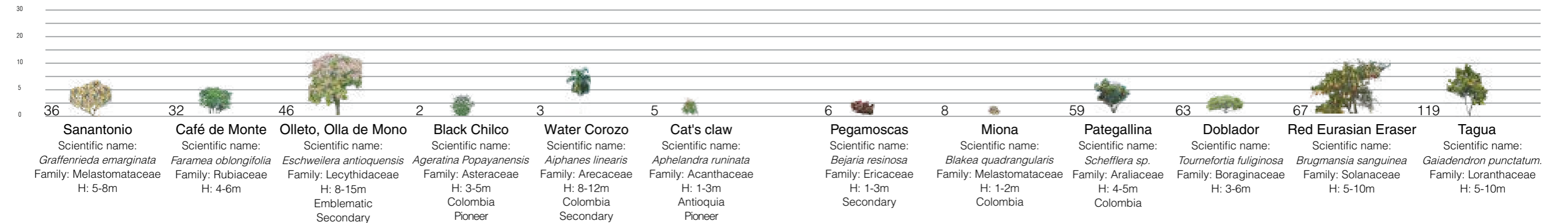
The proposal suggests different associations of high and low native plant species, mixed in clay balls that will be sown in a random way, generating an almost accidental landscape with no maintenance. The result will be a changing landscape, in which the fast-growing species - the first visible ones - will generate the shade, food and protection necessary for the slower-growing and larger ones, creating a new ecosystem that in a few years will be physically indistinguishable from the original one.



Andrés Fajardo
Architect and Designer, IDOM



Manuel Palacio
Architect, IDOM





LIVABLE ECOSYSTEM

Mixed-Use Ecosystems: Designing for the challenges of the New Urban Agenda - Habitat III



Access to public space



Focused on people and their activity



Iconic



Local identity & cultural heritage



Inclusive



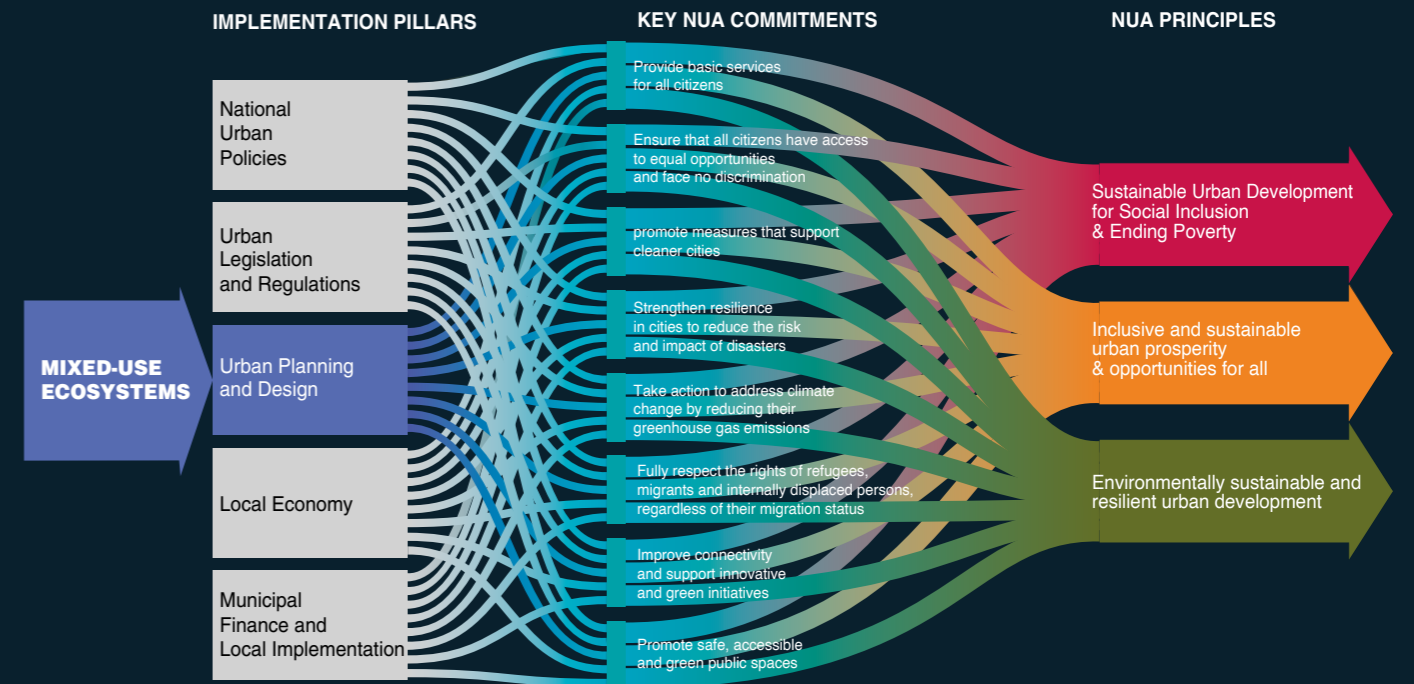
Unique

As we explained at the beginning of this publication, urban planning was introduced at the end of the 19th century and was initially driven by social reformism and hygienism. The focus was on giving meaning to the urban ensemble by guaranteeing livability, improving the quality of housing and progressively focusing also on public space. The rationalist response to urban challenges undoubtedly improved the livability of cities but led to zoning conflicts and social segregation. In response, the 1960s saw the emergence of morphological and social criticism of these models and the loss of the city's identity, and the call for a more human vision of the urban environment¹⁸. Through these questions, the concept of urban livability has become increasingly complex, encompassing multiple scales and disciplines, reconciling technical, sociological and psychological studies.

In the current context, the scale of many of these urban systems has multiplied the social challenges and redefined the global conditions related to livability. Today, designing these environments requires considering all levels and human dimensions and integrating a myriad of new conditioning factors derived from the exponential growth of complexity. Beyond design, recent years have led to a rethinking of governance in cities that has resulted in a revision of methodologies, opening

the door to greater participation in the creation of the city. The inclusion of environmental, technological, psychological, socioeconomic, or any other aspects and the participation of the various stakeholders requires a rethinking of the rules and principles for planning, construction, development, management and improvement of the urban ecosystem. The needs arising from the new challenges have been transformed and, in order to achieve an optimum level of livability, it is important to create new tools based on a broad international consensus to find solutions for each local situation.

The New Urban Agenda¹⁹ was adopted at the Conference on Housing and Sustainable Urban Development (Habitat III), held in Quito in 2016 and involves a paradigm shift based on the science of cities. It seeks to bring the Sustainable Development Goals to the urban scale, understanding both the instruments and the multiple actors involved. It sets standards and principles for the planning, construction, development, management and improvement of urban areas in five main implementation pillars, of which Mixed-Use Ecosystems focuses on urban planning and design (see image). The MUE's approach this pillar with the other 4 always in mind, using Strategic Design to become a tool for improving livability in cities. Achieving the socioeconomic balance that ensures the livability of an environment implies



addressing from design the issues already pointed out in the UN's New Urban Agenda, such as inclusiveness, social balance, equal opportunities, safety, or citizen participation. Strategic Design addresses many of these objectives by generating Mixed-Use Ecosystems, environments capable of crystallizing habitability and favoring equal access to social, environmental and economic resources through the mix of uses and the detailed study of the urban project at all scales and levels. This ability to integrate objectives of the most diverse scales and levels into the design makes Mixed-Use Ecosystems an innovative and sustainable initiative to meet the challenge of making a people-centered city.

In light of these concepts, the case studies analyzed pursue the paradigm of the livable city in different ways:

- **India International Convention & Expo Centre (IICC)**, in addition to stressing sustainability, accessibility to public transport and prioritization of pedestrian and cycling public spaces, places special emphasis on cultural and symbolic values in both buildings and urban space.
- **East Delhi Hub (EDH)** works on livability through accessibility to public transport, an intense mix of

uses, social integration and prioritization of pedestrian public spaces, promoting the enjoyment of public space and contributing to the generation of a vibrant and lively New Delhi.

- **San Rafael Park** is structured around the concept of community-based tourism, understanding tourism as a cultural and environmental conservation strategy that benefits and involves local communities in the process of designing their own environment. This process manages to create an experiential experience in relation to different activities of observation, contemplative recreation, equipment and complementary activities of low impact.
- The **Master Plans of the Scientific, Technological and Social Science Park (PCTS) and the Gastronomic, Tourist and Environmental University (UCGTA)** create a framework for education, entrepreneurship and person-centered innovation, rethinking educational programs and integrating technology to boost creativity and exchange. Both promote the economic development of localities based on the environmental, cultural and social capital of the area.

“ Technology, nature and innovation, integrated in an ecosystem of great landscape and environmental value”



Javier Álvarez de Tomás
Mixed-Use Ecosystems Architect, IDOM

PCTS & UCGTA

Scientific,
Technological
& Social Park
and University
of Gastronomic,
Tourism and
Environmental
Sciences

Overview

CLIENT

Pontifical Catholic University of Peru (PUCP)

AREA

45 ha/25 ha

CONSTRUCTED AREA

60,000 m²/ 30,000 m²

LOCATION

Santa María del Mar, Lima, Peru

YEAR

2014-2016

PCTS PROGRAM

Central building

Meeting room = 337 m²

Administration = 519 m²

Auditoriums and functions = 1,909 m²

Restaurants = 2,019 m²

Hotel = 1,663 m²

Common areas and services = 1,577 m²

Other buildings & infrastructures

Spaces for rent to businesses = 20,612 m²

Infrastructure for rent = 21,623 m²

Institutional investment space = 6,000 m²

Services infrastructure = 4,600 m²

UCGTA PROGRAM

Central Teaching Building = 6,890 m²

Administrative building = 2,155 m²

Modular classrooms = 1,296 m²

Restaurants and cafeteria = 3,021 m²

Market and Commercial Area = 3,712 m²

Sports complex and swimming pool = 6,895 m²

Andean Fund-Library-Museum-
Auditorium = 3,377 m²

Student residence+special = 2,016 m²

Parking lot = 255 parking spaces

Opportunity space = 6,899 m²

SCOPE

Master Plan

PCTS & UCGTA

PCTS:

1st prize in the category Landscape architecture/Large Scale Landscape Projects 2017 AAP (American Architecture Prize)

UCGTA:

1st prize in the category Landscape architecture/Educational 2017 AAP (American Architecture Prize)

1st prize. International Architecture Awards 2017 The Chicago Athenaeum: Museum of Architecture and Design and The European Centre for Architecture Art Design and Urban Studies

Finalist in the Architizer A+Awards. Category Unbuilt Masterplan 2017 Architizer



Environment



Integrated landscaping



Technology integration



Energy efficiency



Focused on the person and their activities



Adapting to climate change



Socio-cultural integration



Multi-scale approach



Integrated management of water/waste



Local identity & cultural heritage

In May 2015, IDOM was the winner of the international merit competitions called by the PUCP (Pontificia Universidad Católica del Perú) to develop the Master Plans for the Scientific, Technological and Social Park (PCTS) and the University of Gastronomic, Tourist and Environmental Sciences (UCGTA) in Santa María del Mar, a small coastal town located 40 kilometers south of Lima.

Both projects are located in a privileged strategic environment, both from a geographical and socioeconomic point of view: the concentration of future strategic projects, both at territorial and local level, aim to transform in a few years a small coastal town with a marked seasonal aspect such as Santa María del Mar -with just over 1,500 inhabitants at the peak of the tourist season- into a municipality with more than 45,000 inhabitants, with the potential repercussions that this would entail in socioeconomic and infrastructural terms.

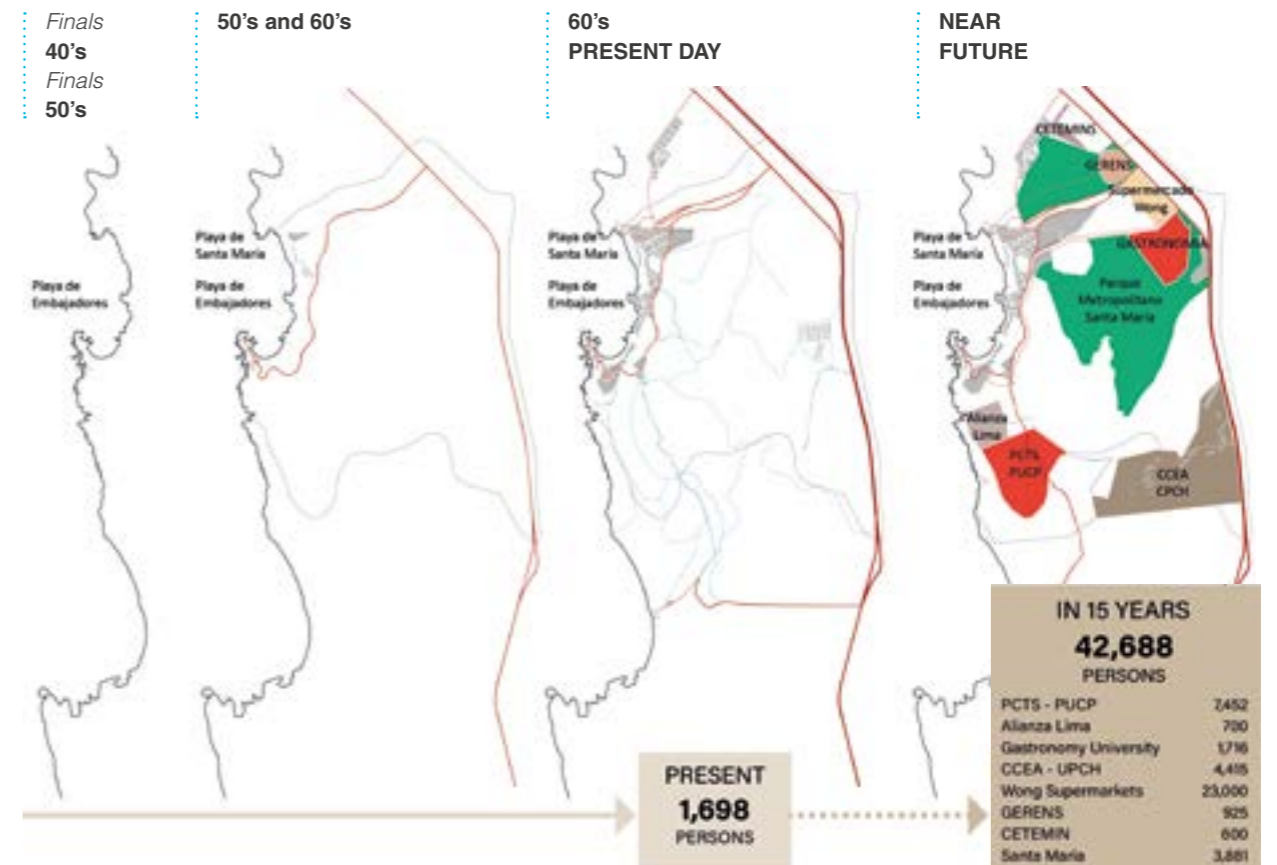
The presence of the PUCP -the main developer of both projects- represents a great opportunity for the dissemination of the knowledge generated in both projects within Peruvian society. Locally, the projects will contribute to generate an ecosystem of knowledge characterized by innovation, creativity, integration of technology and respect for nature. The management of material, energy and information will be an example for future actions and will allow both to be the first projects in Peru designed so that the primary energy

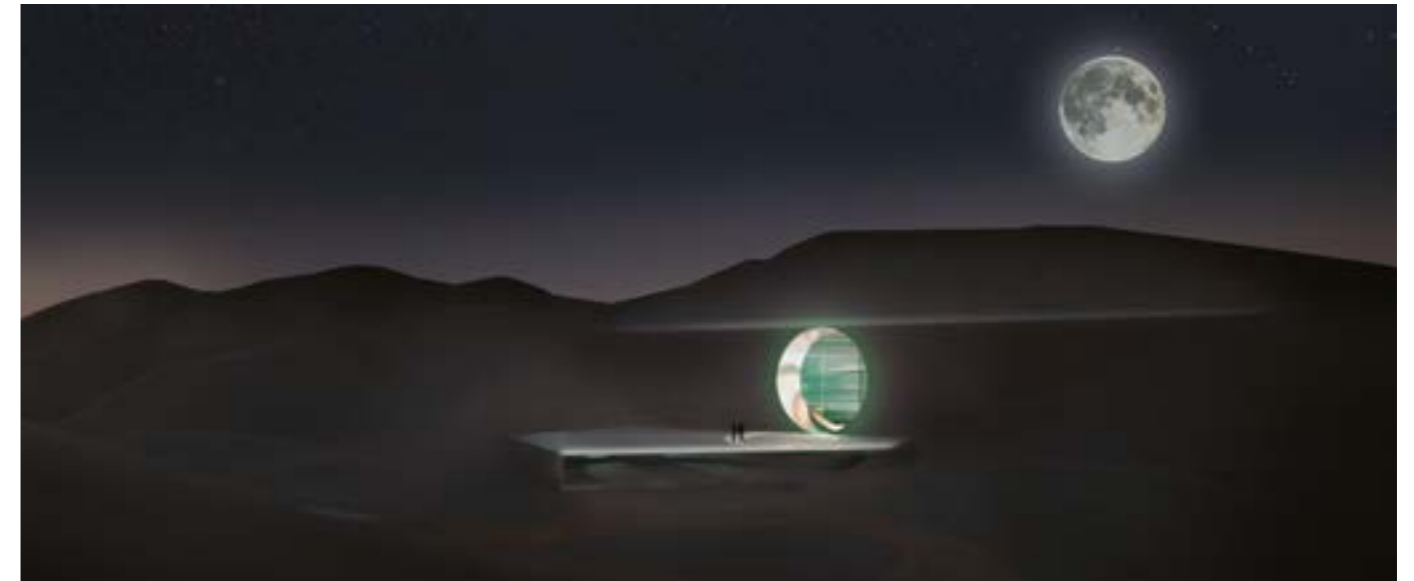
consumed annually will be compensated by the energy generated during their operation.


The PCTS, with an area of 45 hectares, will be the main technological-scientific park in Peru, integrating small and medium-sized companies with large corporations in a project that involves the participation of the country's university, business and government. The creation of a space -both physical and virtual- that promotes the meeting and relationship between people and the integration of ICTs are essential to generate the expected synergies between the different actors that converge in the park.

The University of Gastronomy, Tourism and Environmental Sciences (UCGTA) of Santa María del Mar, developed by the PUCP and the Peruvian chef Gastón Acurio, stands out as a world-class university, a tool for social transformation and an example of ecological development in the landscape. Thus, it is expected that the 25 hectares destined for this purpose will become in a few years the main reference in gastronomic education in the continent and one of the most important worldwide.

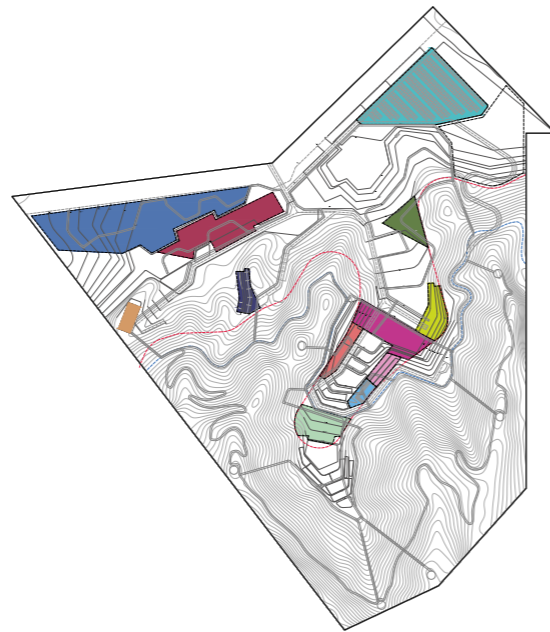
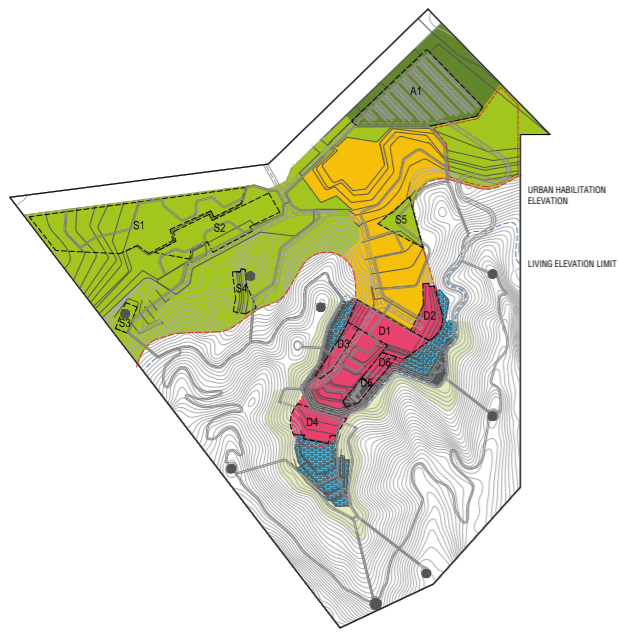
The location of the projects -in a delicate desert ecosystem bordering the Pacific Ocean of great landscape and environmental value- distances the proposals from any concept related to urban planning, being better understood as landscape projects generated through semi-natural infrastructures.





- 
MOBILITY
 Roadways Paths
- 
WATER
 Water supply from the desalination plant
 Water distribution to campus buildings
 Wastewater collection
- 
PURIFICATION WITH MACROPHYTES
 Treatment in natural macrophyte lagoons
 Irrigation of vegetation, flowers and biogardens
- 
ENERGY
 Solar energy collection
 Activated structures. TABS
- 
WASTE
 Primary management in building, internal distributed management and final clean point
- 
ICTS
 Integrated communication systems





- BUFFER AREA
- DEVELOPMENT AREA
- OPPORTUNITY AREA
- TEACHING AREA
- TEACHING AREA LANDSCAPE TREATMENT
- LIVING AREA
- FLOWER LANDSCAPE AREA
- PUBLIC RECREATION AREA
- MOVEMENT AREAS
- POINTS OF INTEREST
- POSSIBLE GROWTH AREA (7,555 m²)
- Urban habilitation limit
- Life elevation (elevation +102m)

MOVEMENT AREAS
BUFFER AREA
A1 Surface area: 7,854 m²
DEVELOPMENT AREA
S1 Surface area: 10,643 m²
S2 Surface area: 4,327 m²
S3 Surface area: 503 m²
S4 Surface area: 939 m²
S5 Surface area: 1,427 m²
TEACHING AREA
D1 Surface area: 2,853 m²
D2 Surface area: 1,538 m²
D3 Surface area: 952 m²
D4 Surface area: 2,040 m²
D5 Surface area: 556 m²
D6 Surface area: 712 m²
MOVEMENT AREA is defined as the area where the building is located. The spots depicted on the plan correspond to the movement area of the buildings of the UCGTA.

TEACHING PROGRAM
CENTRAL TEACHING BUILDING
 Movement Area: 2,853 m²
 Build. area: 6,889.61 m²
EDUCATIONAL EXTENSION
 Movement area: 712 m²
RESIDENCIAL
STUDENT RESIDENCE
 Movement area: 4,327 m²
 Build. area: 3,738 m²
SPECIAL RESIDENCE
 Movement area: 939 m²
 Build. area: 1,008 m²
SPORTS-CULTURAL-LEISURE
SPORTS CENTER
 Area of movement: 1,427 m²
 Surface area of sports center + swimming pool: 3,376.84 m²
POOL
 Movement area: 556 m²
BACKGROUND - LIBRARY - MUSEUM - AUDITORIUM
 Area of movement: 2,040 m²
 Auditorium. Build area: 1,353.50 m²
 Library - Andean Fund. Gross floor area: 2,987.98 m²
RESTAURANT-STUDENT DINING ROOM
 Constr. area: 952 m²
 Sup. constr: 1,298.32 m²
RESTAURANT-GUESTS
 Movement area: 503 m²
 Gross floor area: 451.77 m²
COMMERCIAL
MARKET - STORES
 Area of movement: 10,643 m²
 Build. area: 3,711.91 m²
ADMINISTRATION / MANAGEMENT
ADMINISTRATION AND MANAGEMENT BUILDING
 Area of movement: 1,538 m²
 Build. area: 2,155.31 m²
PARKING
 Number of parking spaces: 225
 POSSIBLE GROWTH AREA (7,555 m²)
 Urban development limit
 Living elevation (elevation + 102m)



Spatial strategy and programmatic design

“Deconstructing the needs program to optimize performance, transform the learning experience and intensify human interaction”

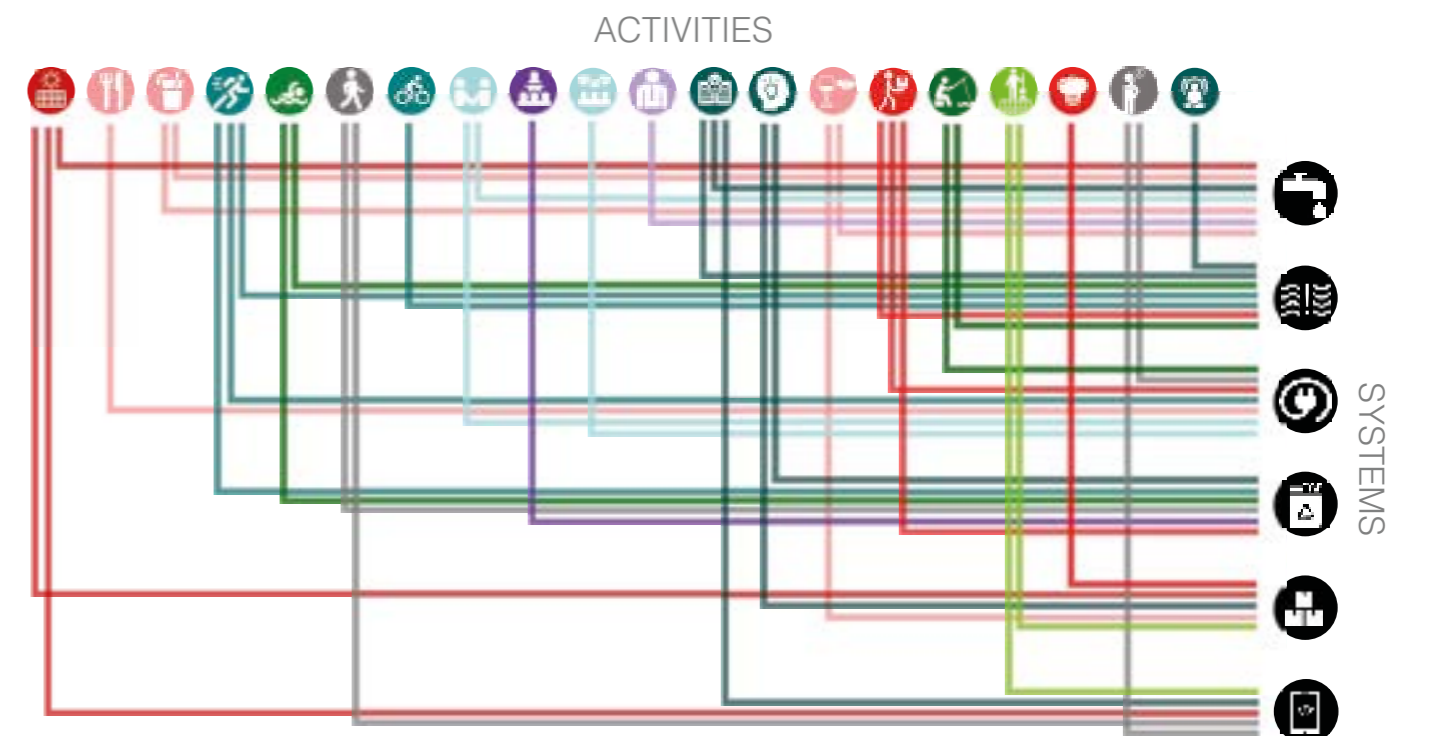
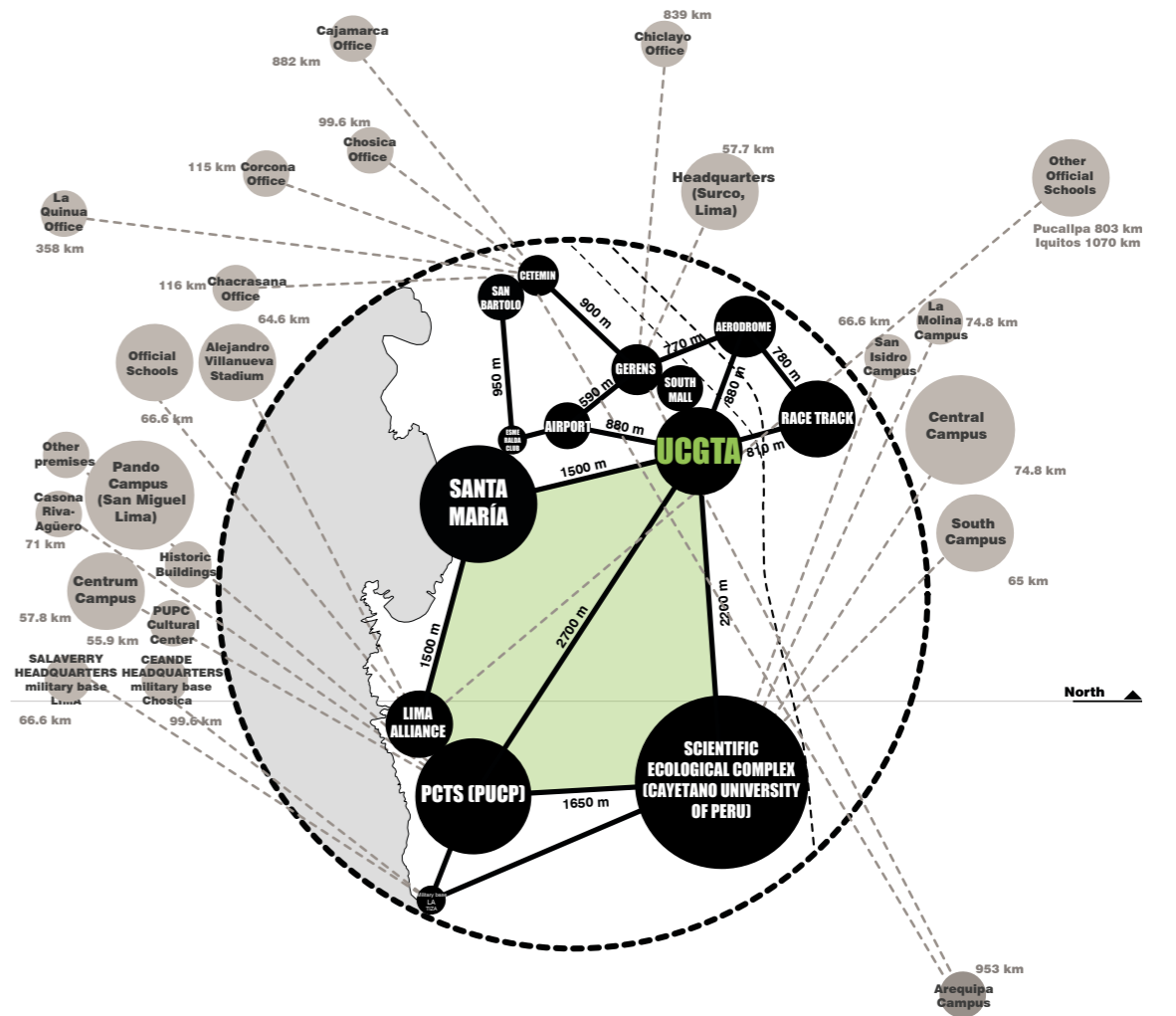


Borja Gómez
Architect, IDOM

To understand the proposals of both projects, we must replace the concept of use with that of activity. A detailed analysis of the activities - understood as the set of actions we perform throughout the day - has allowed us to atomize and deconstruct the program of needs, in order to intensify the level of interaction between the inhabitants and users of the UCGTA and the PCTS. Thus, the buildings are actually condensers of activities in controlled hygrothermal conditions, but the activities -educational, labor, research, housing, or sports, among others- are not only concentrated in one building, but are carried out extensively and cross intensively, favoring interaction and social relations. In order to discover potential synergies with future strategic projects of the environment, the analysis has been extended to the territorial scope. This has allowed the optimization of the use of spaces, which can be shared by

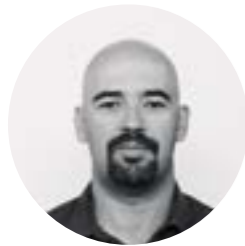
the various projects, establishing initially unthinkable relationships between very heterogeneous agents, transforming the perception of the socio-cultural, technological and economic potential of the environment of Santa Maria del Mar.

This development has been particularly unique in the case of the UCGTA, which in addition to a quantitative analysis of the spaces that the various agents shared, has developed a qualitative analysis - in terms of skills - of the university and training programs. This process, which has made it possible to transform not only the spaces, but also the content of the educational program itself, is embodied in conceptual diagrams that integrate activities and systems, transforming them into specific sensory experiences capable of transforming the learning experience itself.



Acoustics

“Parametric analyses on various scales that optimize comfort and reduce the economic impact of design solutions”

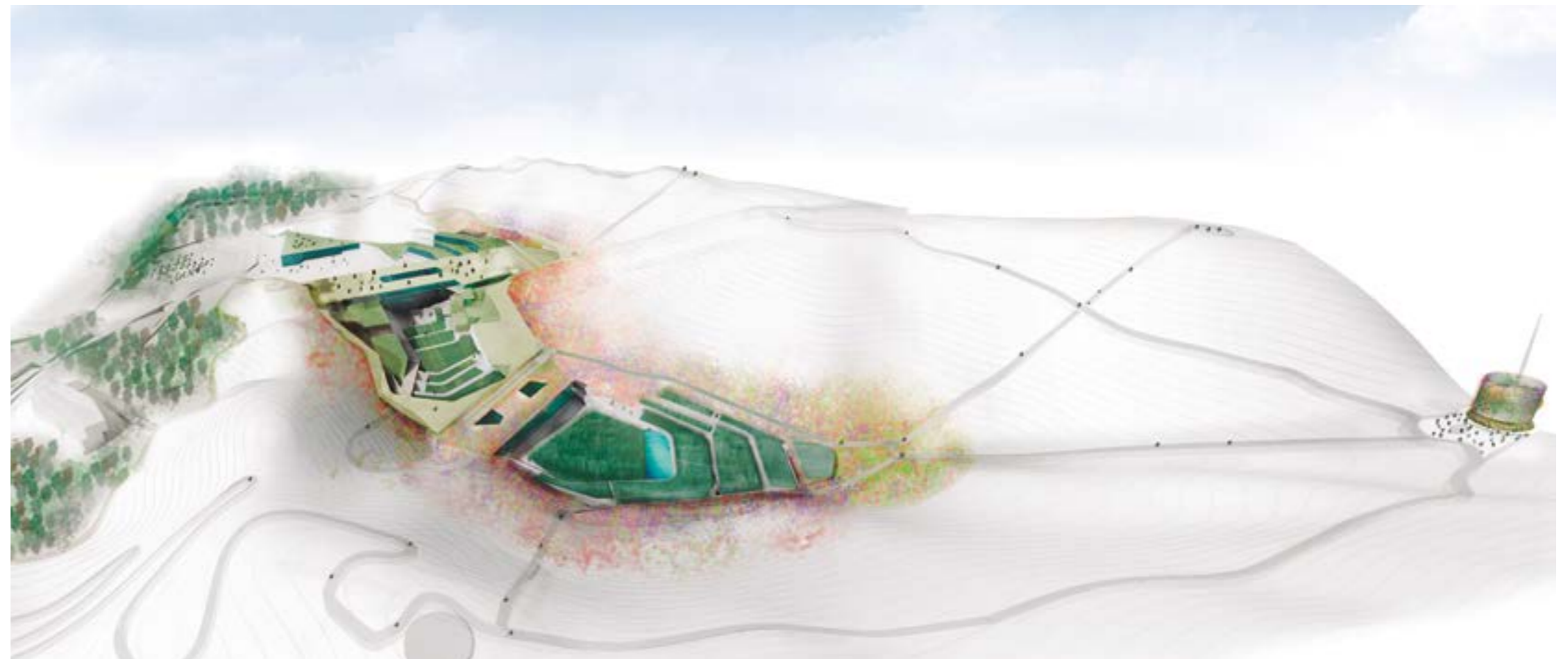
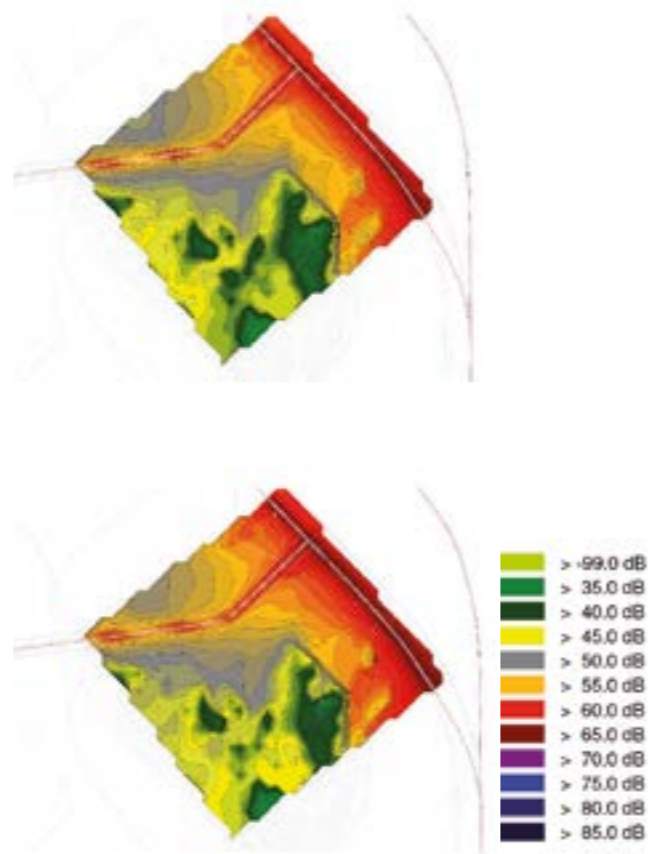


Mario Torices
Acoustic Engineer, IDOM

One of the main requirements of the PCTS and UCGTA needs program has been to maximize the acoustic comfort of all living spaces, both indoors and outdoors. This requirement has been especially critical in the case of the UCGTA, due to the unique topography of the terrain and the existence of a major road intersection, which generates a high level of noise.

The parametric design techniques -based on Grasshopper have made it possible to choose the optimal location and geometry of each building according to its scale and use and to establish various mitigating measures at the urban level, related to sunlight, accessibility or protection against external noise.

In terms of noise data processing, a bidirectional data flow has been generated between the optimization routines of the parametric software and the commercial software for noise prediction in outdoor environments -CADNA- which has allowed a large number of alternatives to be quickly analyzed, in an iterative process of searching for the optimal solution. The multiscale analysis has made it possible to optimize some solutions -such as the creation of acoustic barriers by means of earthworks- not only at the strictly technical level, but also at the economic and environmental levels.



Information & Communication Technologies (ICTs)

“Integrating ICTs to transform programs, perception of space and management of its operation”



Fernando Tomás
Telecommunications Engineer, Smart Cities IDOM

Within the PCTS and UCGTA projects, the digital transformation of space through technological systems can be considered to have taken place in different areas: physical, virtual and functional.

Physically, sensitive, interactive and transformable spaces have been developed, such as the large projection screens projected onto a curtain of water or integrated into the facades of the PCTS, which can be used for meetings and conventions and allow the sharing of company information or data related to the management of the park. In the case of the UCGTA, the physical transformation has been more complex, and has taken place on three levels:

- Transformation of formal teaching: completely rethinking the number, scale and layout of teaching spaces.
- Conceptual transformation of teaching: working with augmented reality, self-projection systems, audiovisual process recording, and others.
- Global transformation of space: creation of Living-LABs, global interactive spaces and Audiovisual Production spaces.

Virtual transformation takes place by leveraging high-density WiFi connectivity and transforming user perception by introducing augmented reality, either through wearable devices, either with standard glasses or through specific applications for smartphones. The Big Data analysis has allowed to modify the management of the operation of both projects, optimizing functionality, especially in terms of mobility energy management and security.

In both projects, the integration of ICTs at different levels has generated transformations that affect even the needs programs and their operation, placing the proposals at the forefront of technological innovation within large-scale design.



Water

“Water as a tool for socioeconomic and environmental sustainability, landscape transformation and emotional well-being”



José Luis Palencia
Civil engineer specializing in water, IDOM

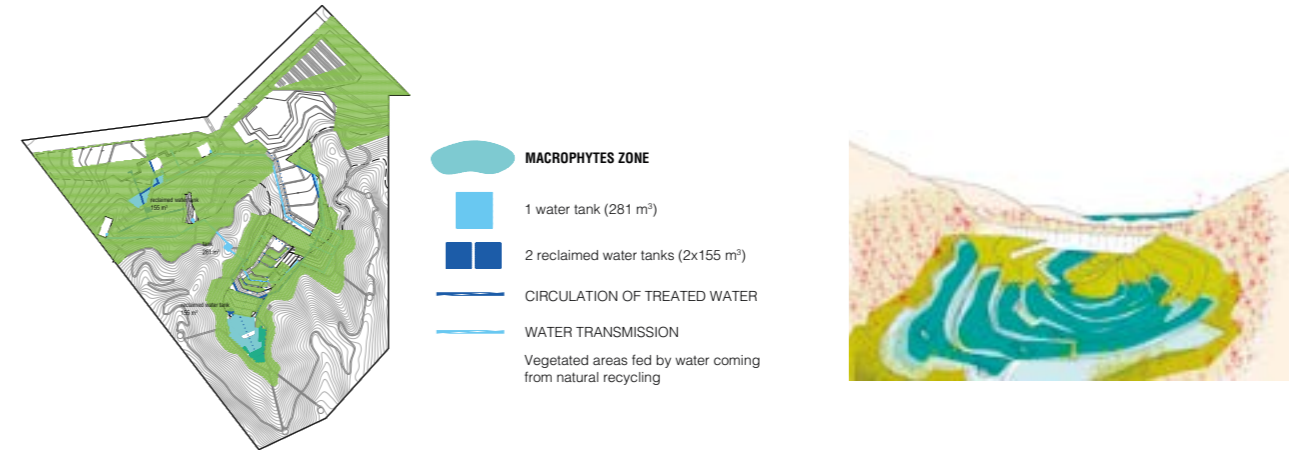
The PCTS and UCGTA projects are located in a desert environment of enormous ecological value, which is why the study of the integral water cycle has been a determining factor in the development of both Master Plans.

The water question is usually approached from a purely technical perspective, i.e., analyzing the integral water cycle -supply and collection, distribution, treatment and purification, sanitation, rainwater and waste management- to guarantee the economic and environmental sustainability of the projects. Within this field, the concepts of saving and reuse are key.

In this unique case, the exceptional nature of the surrounding ecosystem and the clients' desire to generate a differential environment and to propose solutions capable of transcending socially have made it easier to reconsider the approach and focus it on more qualitative aspects, often with the intention of generating solutions that can be transferred to the domestic scale.

Thus, water is the protagonist of the landscape transformation of the desert -through reuse for irrigation and the generation of a new landscape of macrophyte plants-, of the comfort of outdoor spaces, both at a hygrothermal and emotional level, and of the integration of ICTs, serving as a physical support for the projection of images and messages.

The process even applies on a symbolic scale: while the entrance to the PCTS is through a curtain of water more than 15 m high, the perception of the UCGTA from a distance is a landscape of flowers watered by the water recycled in the macrophyte platforms that flood the valley.







Competitions & Proposals



SCWaP

Smart City With a Purpose

Overview

CLIENT

Salman bin Abdullah bin Saedan
Real Estate (SabsRE)

AREA

170 ha

CONSTRUCTED AREA

1,381,565.5 m²

LOCATION

Riyadh, Arabia Saudi

YEAR

March-July, 2020

PROGRAM

Apartments = 344,177.5 m²

Villas = 442,480 m²

Local commerce = 43,161 m²

Community services (schools,
day care centers, community/health/
religious centers) = 42,626 m²

Urban commercial = 23,092 m²

Offices = 47,538 m²

Studios/ Light Industry = 20,339 m²

Hotel = 30,774 m²

Hotel/residential/office = 23,358 m²

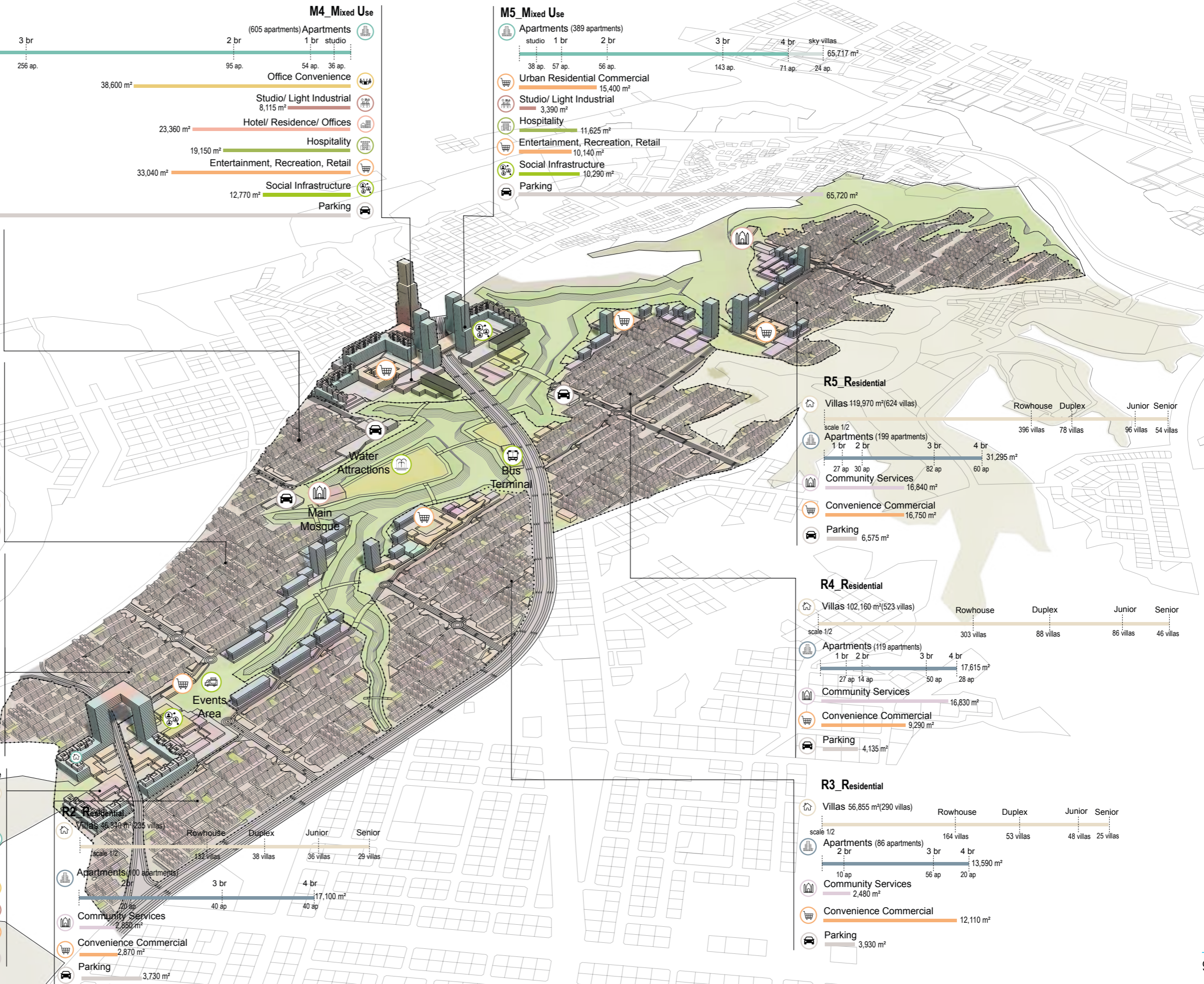
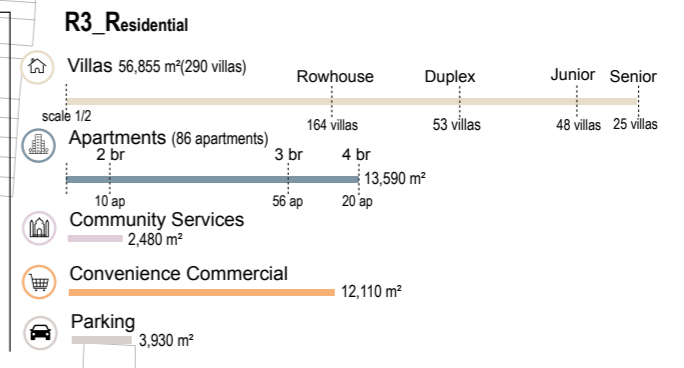
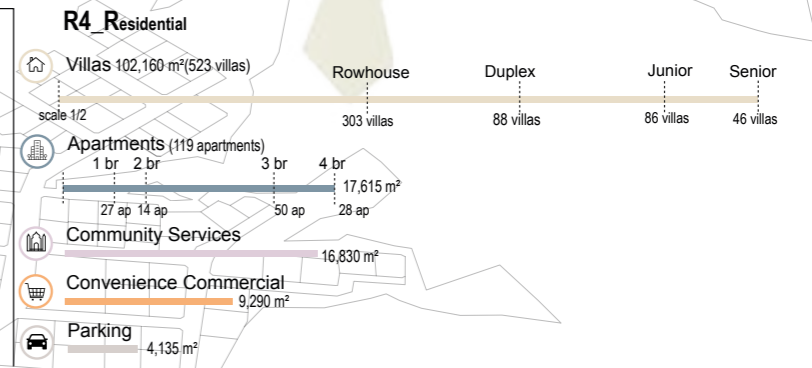
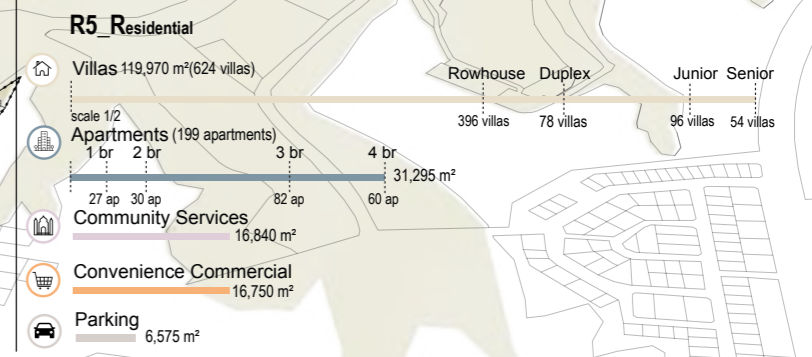
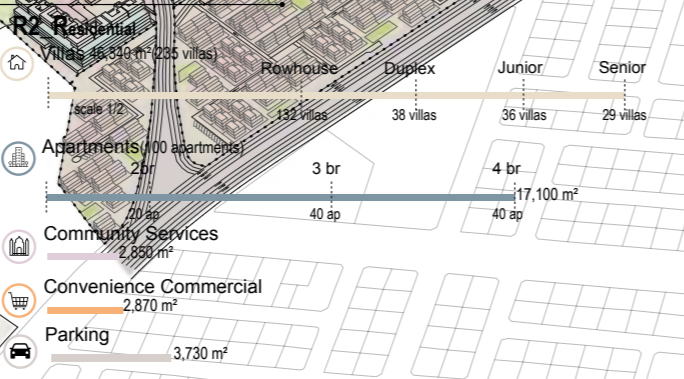
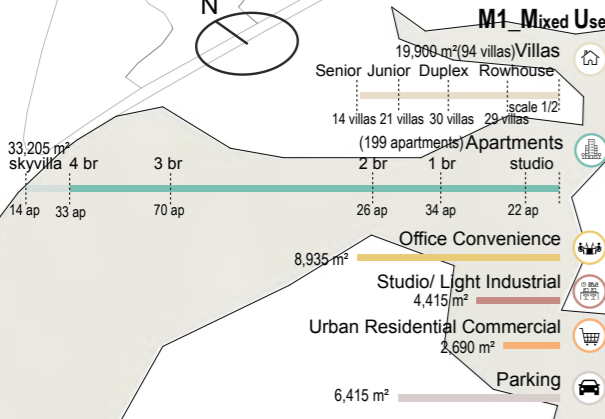
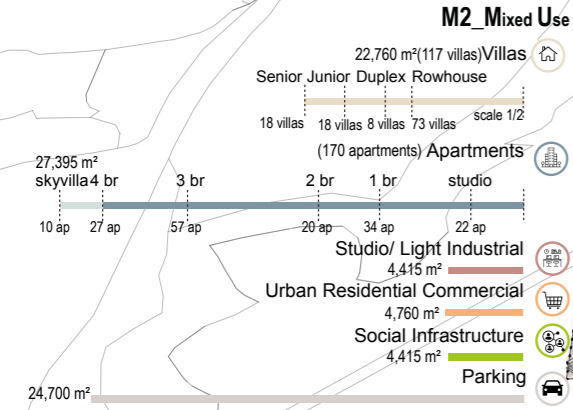
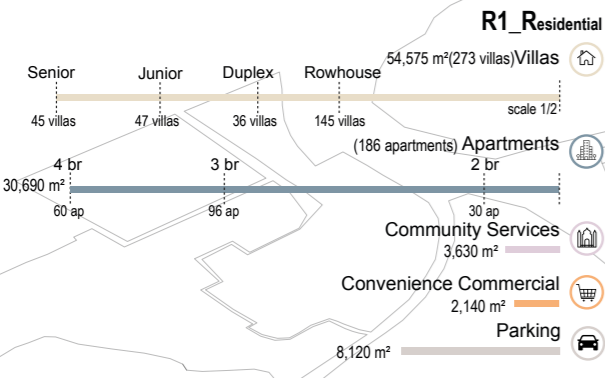
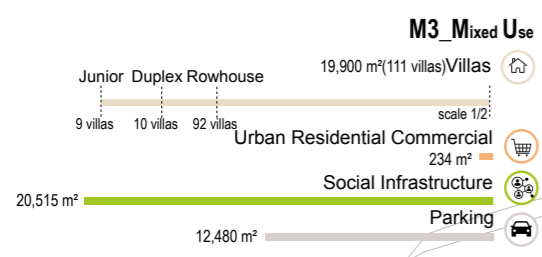
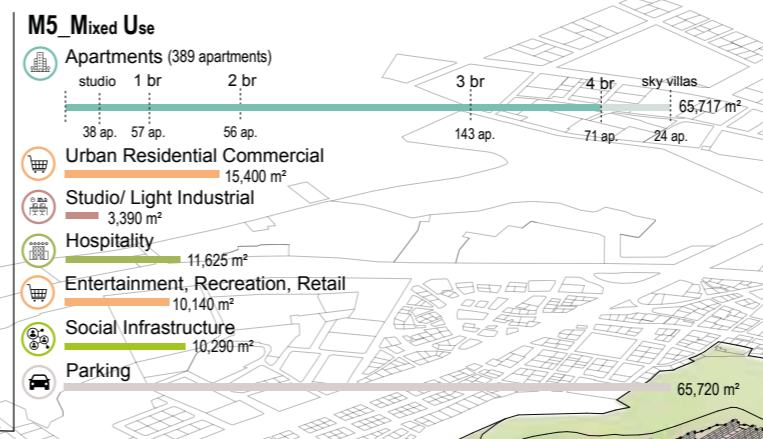
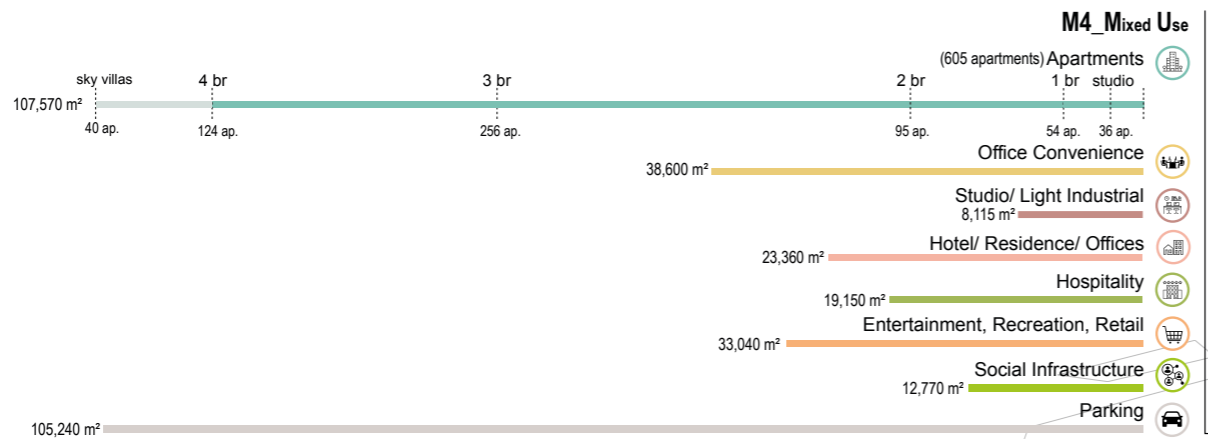
Entertainment and commercial = 43,188 m²

Social infrastructure = 47,628 m²

Parking = 273,204 m²

SCOPE

Competition





SCWaP is the acronym for Smart City with a Purpose, a proposal developed in Riyadh for a new development on vacant land encompassed by the new growth of the city.

The proposed urban structure aims to concentrate activity around the wadi with two main mixed-use cores that are located in the central area (as a gateway to the SCWaP) and in the West area. They act as connectors overcoming the barriers of the existing roads crossing the site. They include different uses (mainly commercial, offices, hotel, studios and social uses) combined with apartments. Linked to them, clusters of medium density housing become a buffer in the transition to the residential areas.

SCWaP is accessed from the perimeter roads, through north-south roads that allow connection to the central wadi and distribution of traffic flows. The mixed-use areas have specific

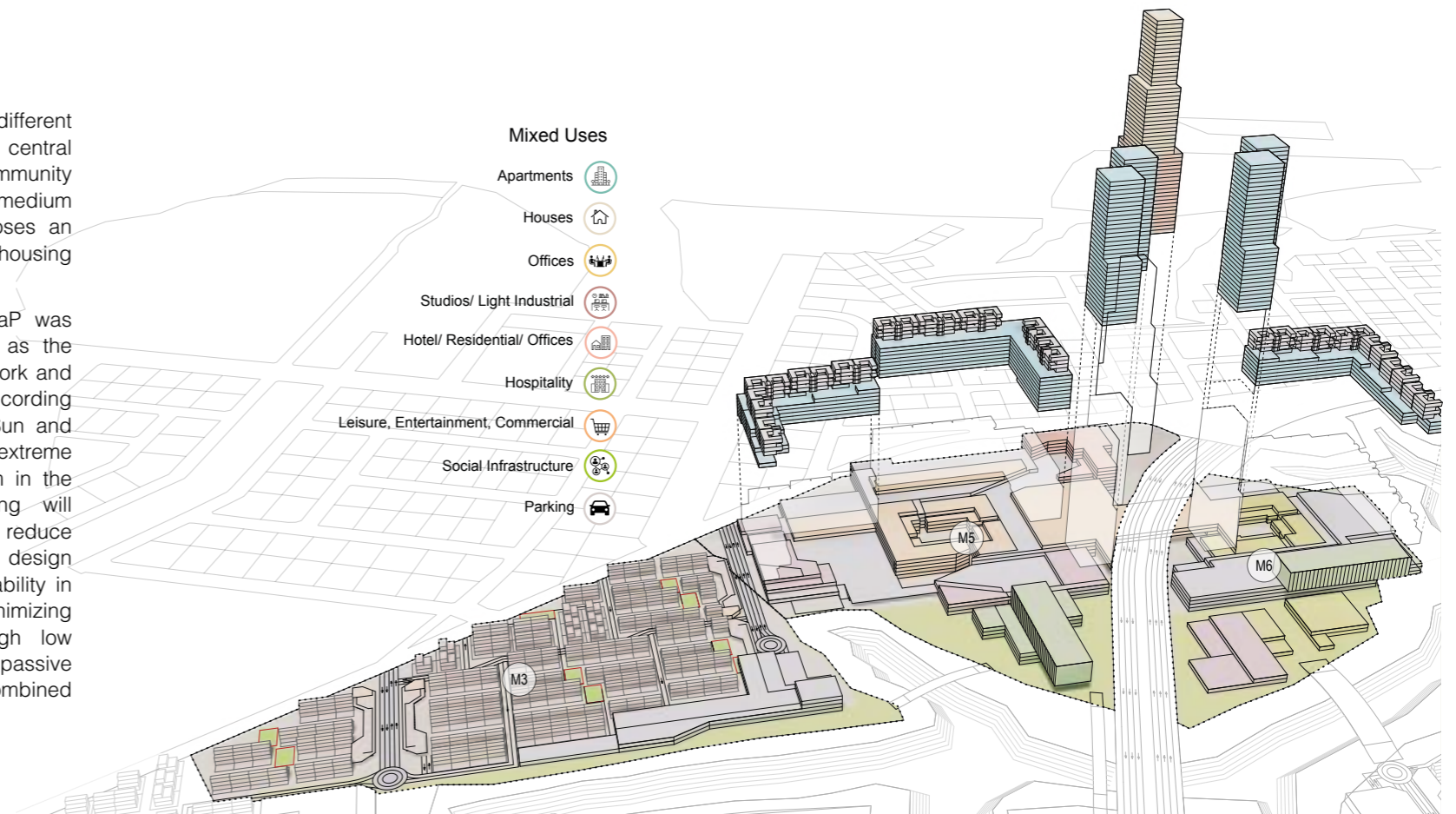
accesses to parking lots, promoting pedestrian circulation inside and around the perimeter of the wadi or in clean mobility alternatives. A pedestrian friendly environment is achieved in the entire SCWaP area allowing walking connections in less than 15 minutes to the cores in the area.

Residential areas are organized in a swastika scheme reinterpreting the planning model followed since the 1960s in Riyadh (Doxiadis plan). The mixed-use cores follow a similar scheme that develops around the central squares around which the buildings are developed.

The wadi functions as the main organizational element: public life develops around the wadi. It distributes land uses and activities on a slope, where the central area, where water flows at certain times of the year, concentrates public activity and density, while privacy increases

to the limits of the area. The different uses are intensified along this central area: close-in commercial, community services and apartments (medium density). This solution composes an activity barrier that separates housing from the activity area.

The urban structure of SCWaP was developed with sustainability as the main criterion. The street network and land uses were organized according to 3 main elements: Water, Sun and Wind. All elements can be extreme in Riyadh and including them in the proposal from the beginning will increase sustainability and reduce maintenance costs. At the design level, the focus is on sustainability in terms of material selection; minimizing resource consumption through low carbon design and proven passive environmental strategies combined with renewable energy.





Single-family homes



Sky villas or luxury apartments



Semi-detached homes



Apartments



CRISTAL GARDENS

European Quarter Bruselas

Overview

CLIENT

European Commission

AREA

13,004 m²

CONSTRUCTED AREA

175,542 m²

LOCATION

Brussels, Belgium

YEAR

February 16, 2018

PROGRAM

Entrance/Reception = 5,101 m²

Workspaces = 79,686 m²

Meeting Centers = 4,592 m²

(MAAS) Catering = 10,635 m²

Support = 10,897 m²

Sports and Cultural = 1,761 m²

Healthcare = 2,647 m²

Exhibitions = 2,460 m²

Event spaces = 1,641 m²

Children's spaces = 6,127 m²

Others = 6,747 m²

Atrium = 3,886.5 m²

Public spaces = 10,513 m²

Parking = 53,611 m²

SCOPE

Competition





The result of an open competition launched by the European Union for the redevelopment of its Brussels real estate complex, the project is a unique opportunity to define the urban status quo of the EU-Quarter and build a new icon symbolizing collaboration between EU member countries.

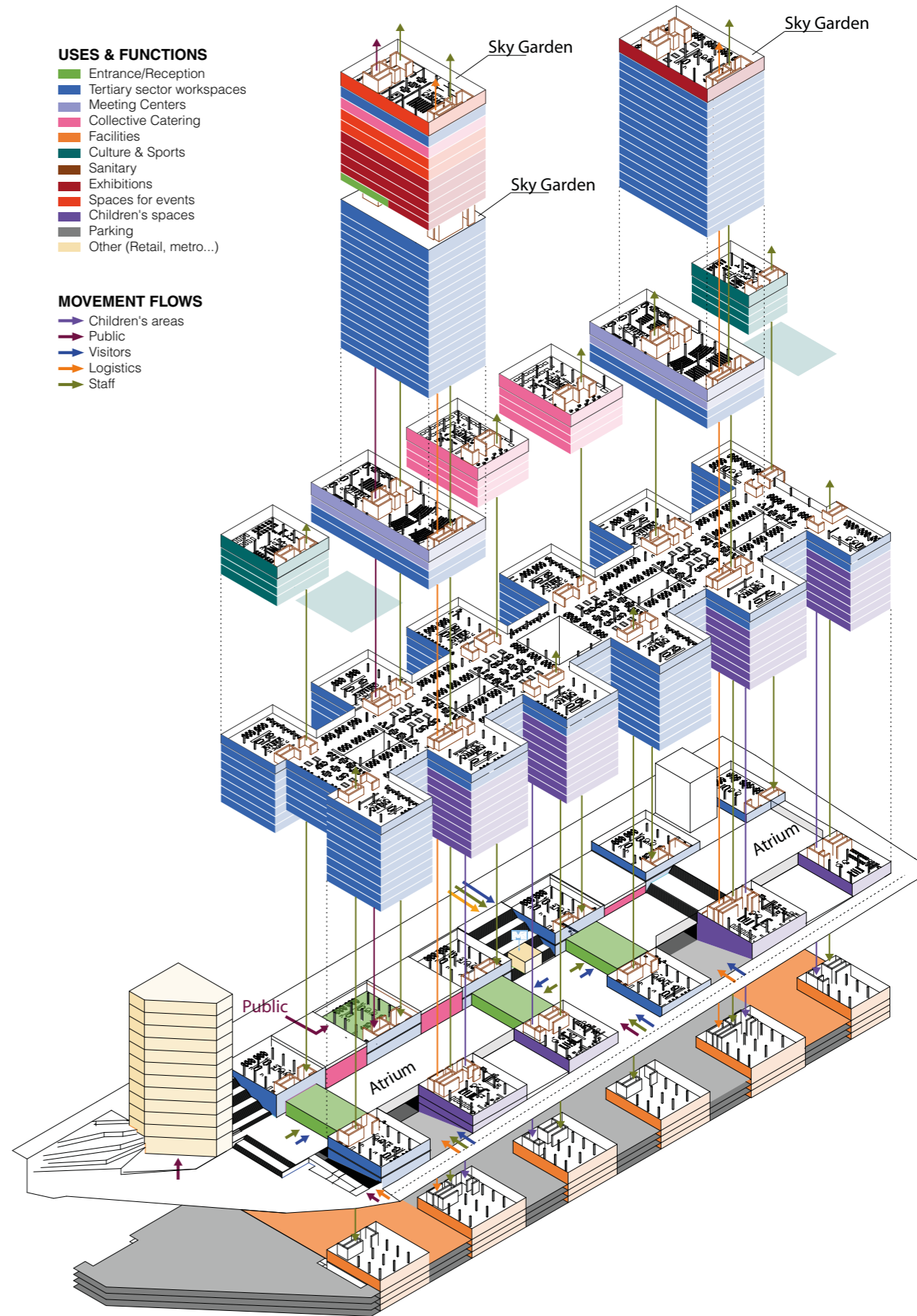
The project will transform the EU-Quarter into a multifunctional complex where offices, leisure, retail and public spaces will coexist. The complex is located at a noisy and busy spot on Rue de la Loi, where heavy traffic greatly affects the vitality of the street. At this point, the street

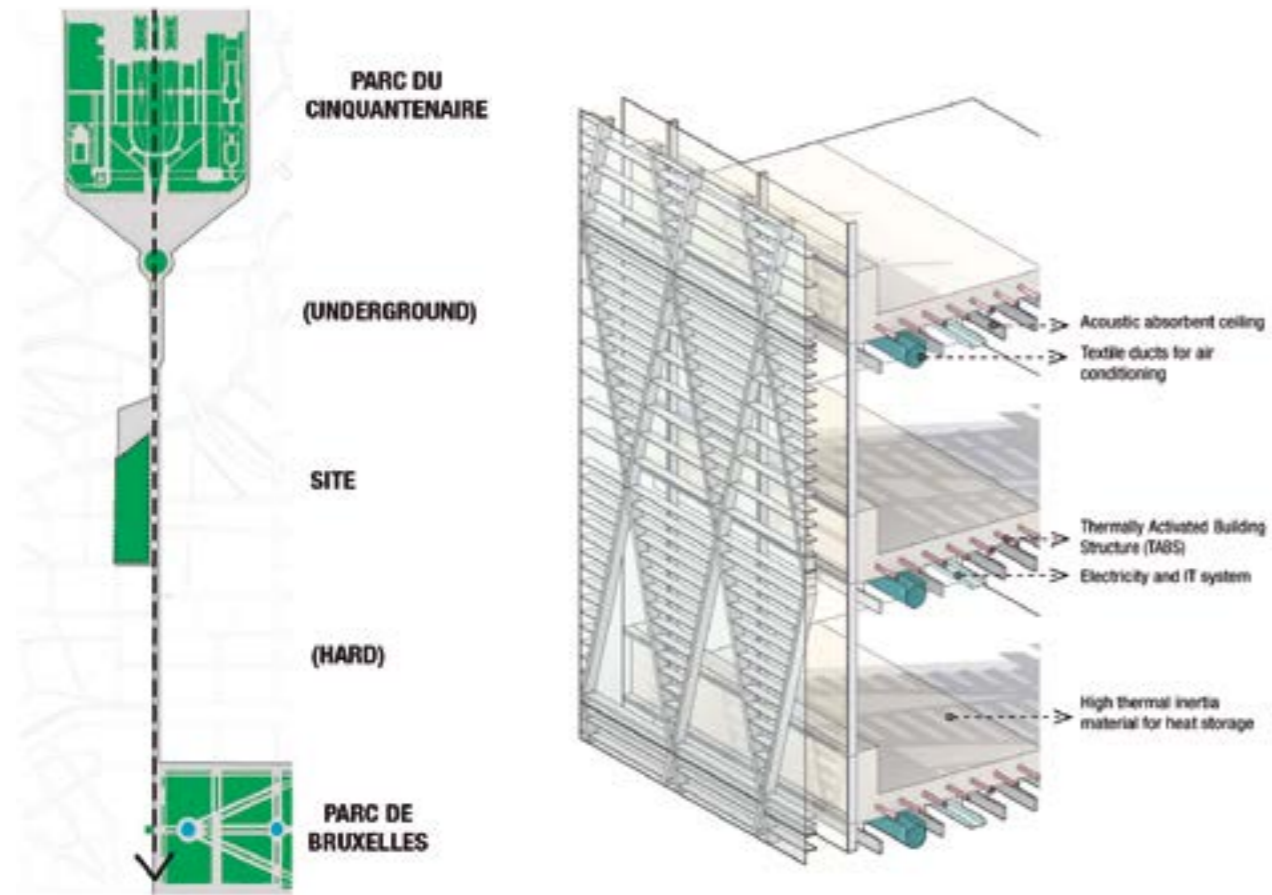
is a hard, gray urban border separating the neighborhoods on either side. This situation contrasts greatly with the high urban quality of the parks at either end, full of life and activity.

The proposal is to create a new urban "Crystal Garden", a large green atrium at street level running parallel to the Rue de la Loi, whose permeability will enhance transversality and revitalize both neighborhoods. Above this multifunctional atrium, inspired by the tradition of squares and shopping arcades in Brussels, is a horizontal superstructure that houses a large part of

the program of offices and collaborative spaces, and on whose roof are located landscaped terraces, sports spaces and roofs formed by photovoltaic panels. On this "bridge structure" are two office towers, one of which is crowned by the visitor center.

The ensemble will revitalize the urban space, becoming not only an institutional working environment of high spatial quality, but also an essential meeting place for the inhabitants of Brussels. On a city scale, the towers will transform the complex into an urban icon that will reshape the city's skyline.







West Entrance Gateway

Overview

CLIENT

Royal Commission for Riyadh

LOCATION

Riyadh, Saudi Arabia

YEAR

2019-2020

PROGRAM

Artistic Intervention

SCOPE

Competition





IDOM's proposals for the West Entrance Gateway are the result of the third phase of a restricted competition called by the Royal Commission for Riyadh (RCR). The project is part of an overall project called Riyadh Art, an ambitious program to integrate works of art into the urban environment in line with Saudi Arabia's Vision 2030, the government's strategy for structuring the country's development over the next decade.

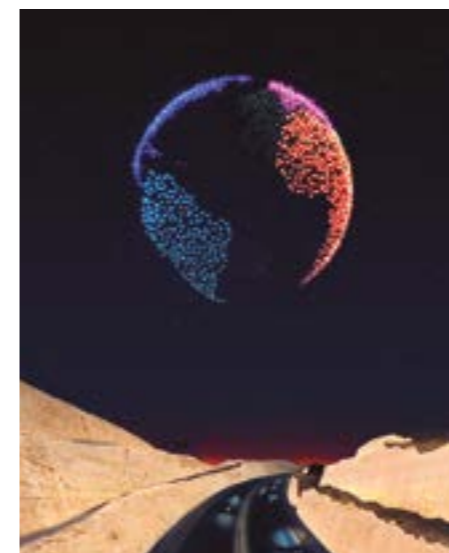
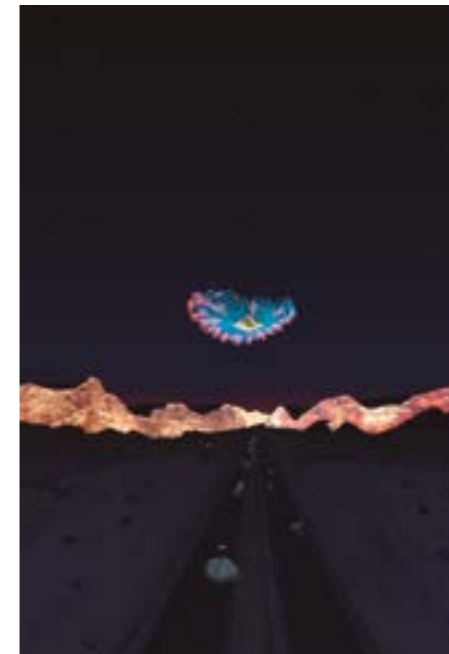
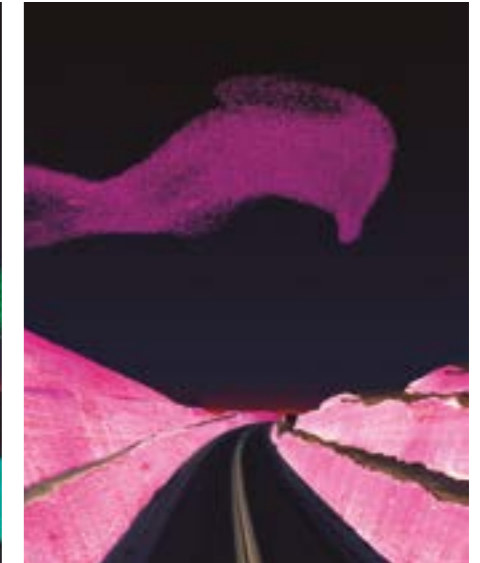
The gate is located 50 km from Riyadh city center, at a point where the Makkah Al Mukkaramah highway - which connects the capital with Mecca - meets the Jebel Tuwaiq cliff. Surrounding it are the King Abdullah International Gardens and the new city of Al-Qiddiya, Saudi Arabia's premier cultural, sports and entertainment destination.

The site defines the entire approach to the project. We are confronted with an astonishing landscape, of a scale that is difficult to imagine: two seemingly infinite horizontal planes separated by a cliff over 160 meters high. The canyon where the highway meets the cliff is in itself an astonishing work of

art on a territorial scale, an autonomous example of land art. The project is based on the understanding that the gate is already built.

In a first approach it is assumed that, during the day, the gate already exists. Practically nothing is touched and only a lighting project is proposed. Thus, the project avoids any kind of physical manipulation, beyond a certain improvement of the asphalt and the surrounding lighting. During the night, the escarpment will be illuminated again, with different configurations depending on the moment, complemented on special dates with light shows generated by drones.

In the second instance - following suggestions received by the jury - the drone shows were eliminated for safety reasons and a physical proposal was finalized in the form of a photovoltaic sculpture on a territorial scale, which feeds the luminaires that will continue to illuminate the Jebel Tuwaiq escarpment at night.





Master Plan & Transportation Systems for the city of Jeddah

Overview

CLIENT

Metro Jeddah Company

LOCATION

Jeddah, Saudi Arabia

COLLABORATORS

Snohetta & DAR Engineering

YEAR

2014

PROGRAM

Metro, intermodal and other stations.
Offices
Exhibition center and auditorium
Medical center
Leisure center
Commercial areas
High density housing
Low density housing
Public services (library, kindergarten and school)
Mosque
Public spaces
Parking lots

SCOPE

Competition, selected among 4 teams.



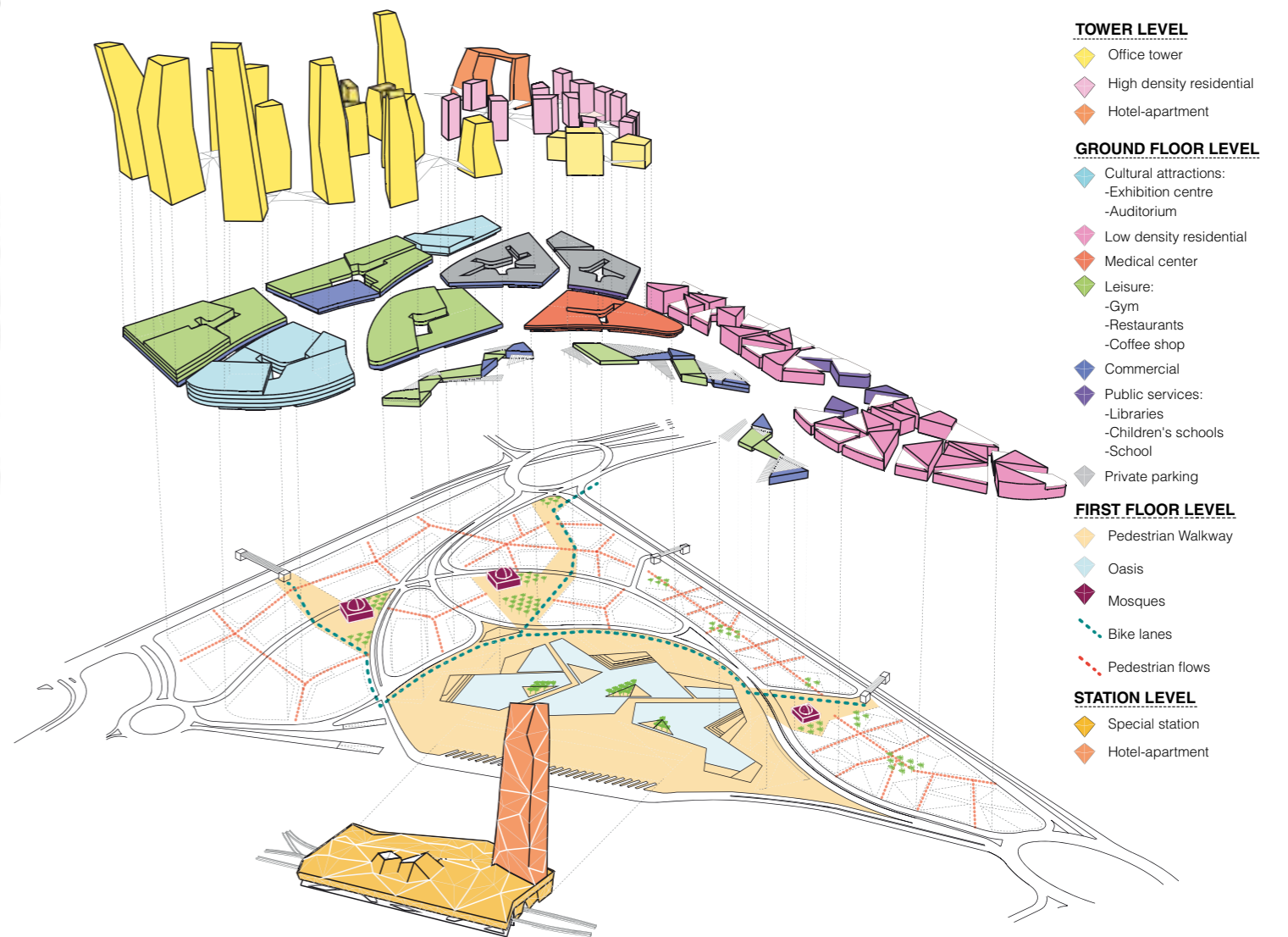
After a two-phase selection process, the city of Jeddah selected four teams of architects-Zaha Hadid, Foster and Partners, HOK and IDOM-to develop a conceptual proposal to define a new multifunctional center in the heart of the city. The program included an intermodal station and several metro, water and bus stations.

The project is structured around the central station, a transportation hub on a territorial level, which incorporates a mixed-use program around a large public space that, integrating a large lake and ample green areas. The boundary of this large public space is resolved with a plinth that incorporates various public services and municipal facilities such as mosques, medical center, schools and kindergartens, shopping, dining and sports centers, library, social and conventual spaces, auditorium, parking and

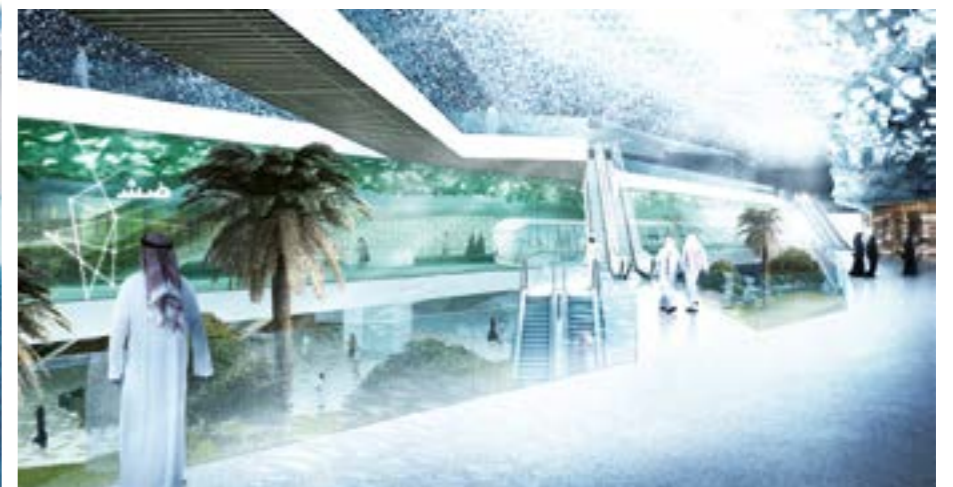
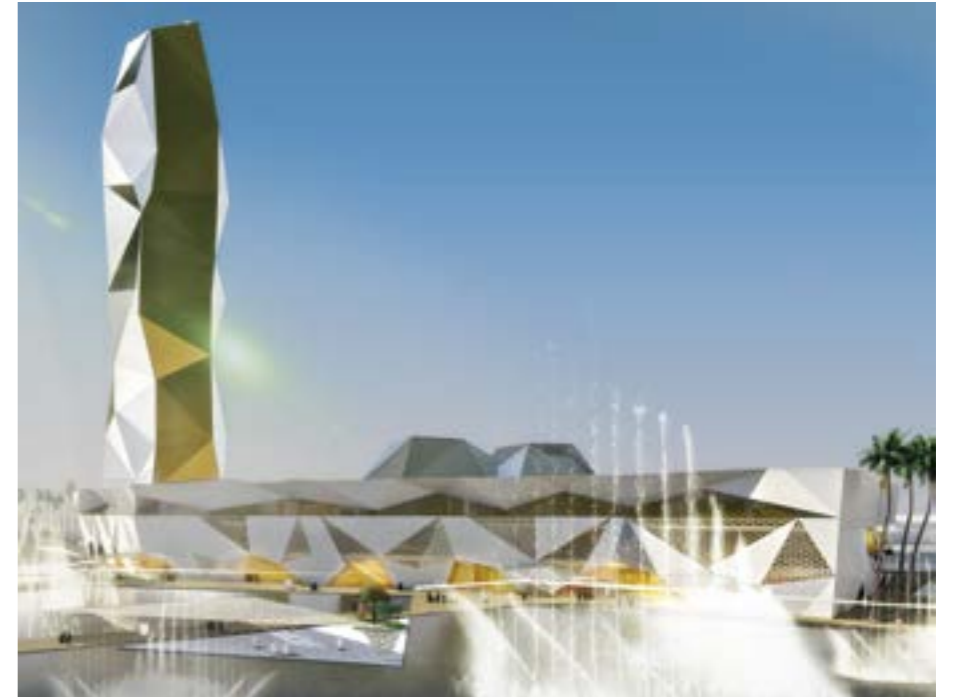
low-density housing. On top of this infrastructure, office towers, housing and hotels are placed, catheterizing the project and defining it on a territorial scale.

In a culture where the desert is the protagonist of life and landscape, each station is metaphorically understood as a star in the firmament that allows travelers to orient themselves during their journey. Formally, the interior spaces of the stations refer to mineral geodes, reflecting with their shapes, colors and reflections the richness and privacy of traditional Arab architecture.

The result is a TOD - Transit-Oriented Development - located in the heart of the city: a new urban pole characterized by high density, a great mix of uses and a high quality of design of both the building and the urban space.



Cross-section of the central station





Other Projects

Other Projects

Intermodal Station A Coruña



Overview

CLIENT: ADIF
AREA: 107,258 ha
LOCATION: A Coruña, Spain
PARTNERS: Architect: César Portela
SCOPE: Competition, Architecture and Engineering projects. Under construction.
YEAR: 2011-present
USES: Railway station, bus station, Shopping Center, Hotel, Offices
DESCRIPTION

The new San Cristóbal Intermodal Complex includes the high-speed train station, with a capacity of 5.8 million passenger/year, a 40-bay bus station, as well as other complementary uses such as a hotel, commercial areas and offices.

The volumetric arrangement frees up the central space for the railway activity and concentrates the rest of the complementary uses on the edge of the project in such a way that, together with the provision of new urban spaces on the perimeter, a regeneration of an environment deteriorated by the barrier of the tracks is achieved.

Vandellós Nuclear Power Plant



Overview

CLIENT: ENDESA Energy
AREA: 52 ha
LOCATION: Vandellós, Spain
SCOPE: Proposal
YEAR: 2009
USES: Energy park, visitor center, offices.
DESCRIPTION

The Experimental Master Plan establishes the basic parameters that could define a nuclear power plant, in this case Vandellós. The special characteristics of the natural Mediterranean landscape around the plant can transform its identity in four main areas: the integration of the built-up areas, teaching, research and leisure.

The overall proposal is divided into three phases that renovate and extend the existing buildings with two new parks, a new headquarters or an R&D building.

The Vandellós 2035 scenario proposes the construction of an aquarium, an energy museum, a monorail system and a double skin façade for the Vandellós II reactor.

National Parks of Brazil



Overview

CLIENT: Ministério do Planejamento, Instituto Chico Mendes de Conservação da Biodiversidade and UNDP (United Nations)
AREA: Various areas
LOCATION: Brazil
SCOPE: Master plan and concept design, structure and MEP design
YEAR: 2012-2014
USES: Tourism, lodging, offices.
DESCRIPTION

With the intention of exploiting the national parks of Jericoacoara, Ubajara, Sete Cidades and Serra das Confusões for tourism, under an economically, environmentally and socially sustainable model, the Brazilian government has called a tender for design studies and feasibility analysis of possible private concessions. The project is divided into Demand Study, Architecture and Engineering Study (where we have developed a sustainable construction), Environmental Studies, Economic Evaluation and Business Model, Financial Evaluation and legal model.

Betis sports Complex



Overview

CLIENT: Real Betis Balompie
AREA: 51 ha
LOCATION: Dos Hermanas, Seville, Spain
SCOPE: Master plan, Architecture concept design, Infrastructure project.
YEAR: 2019
USES: Academy and youth residence, professional amenities, multipurpose stadium, mini stadium (8,000 seats).
DESCRIPTION

On a fantastic plot located in Dos Hermanas, the new training center belonging to Real Betis Balompie, is destined to be an international benchmark, not only for its spaciousness and functional facilities, but also thanks to the careful distribution of its natural and artificial turf pitches and the way these are positioned with respect to the buildings. They remind us of the underlying design of our ancient Greek and Roman cities, generating meeting and relationship areas, combined with the best facilities and the implementation of the latest technology.

Alamah Project



Overview

CLIENT: Bai Tec Real Estate Company

AREA: 23 ha

LOCATION: Alamah, Saudi Arabia

SCOPE: Competition.

YEAR: 2010

USES: Metro station, public space, offices and residential.

DESCRIPTION

Located in an area with an extreme climate and an unstructured urban environment, the project, a finalist in an ideas competition, is seen as an oasis. A large dune, filled with greenery and walkways, rises above the first floor to accommodate commercial spaces and amenities, and generates winding areas of shade and water.

Residential and office buildings are placed around the perimeter of the large plaza. Each is located in a well-defined area to allow for the possibility of being sold as a stand-alone element or developed by third parties.

INTU Costa del Sol



Overview

CLIENT: INTU Spain

AREA: 32 ha

LOCATION: Malaga, Spain construction management

SCOPE: Architecture, Structure and MEP design, Site Supervision

YEAR: 2017-2023

USES: Retail, catering, leisure, hotels, events, cinemas, theater and congress center.

DESCRIPTION

The Intu Costa del Sol Commercial Resort is the largest mixed-use development: Retail, Leisure and Public Spaces in Southern Europe and is the current international benchmark for this type of complex in the sector.

It is configured with twelve thematic areas of more than 230,000 m² of GLA where more than 300 retail operators, 70 restaurants and 20 leisure attractions are integrated.

It has indoor parks and green areas that reach 250,000 m², and has an integrated sustainability plan that will enable it to achieve the highest ratings in the BREEAM and WELL standards.

Spandau Master Plan



Overview

CLIENT: Indukal GmbH.

AREA: 4.6 ha

LOCATION: Berlin, Germany

SCOPE: Concept Master Plan.

YEAR: 2014

USES: Housing, public space, small and medium-sized retail, workshops and offices, water sports area.

DESCRIPTION

The object of the competition is the urban interpretation of the Urban Plan to generate a new residential and mixed-use Master Plan.

The development area is located in Spandau, Berlin, on the banks of the Havel River and is approximately 4.6 ha in size. The site is currently in industrial/commercial use and contains 3 heritage protected former industrial buildings.

The aim is to transform the area into mixed-use residential. Due to its prime location, close to the urban center of Spandau and on the banks of the river, the aim is to develop a child- and family-friendly area with sustainable housing. The industrial buildings are also rehabilitated into housing. The project generates two distinct zones, separated by an access road.

Grao Master Plan



Overview

CLIENT: Urban developments of Valencia

AREA: 23 ha

LOCATION: Valencia, Spain

SCOPE: Competition, Concept Master Plan.

YEAR: 2005-2006

USES: Museum of the sea and cultural endowments, housing, public space, commerce, restaurants, marina.

DESCRIPTION

Urban planning and insertion of the Grao residential sector in the city of Valencia as a pole of attraction on a territorial level, from the conceptual, functional and formal perspectives.

The objective of the proposal is to promote the Grao as an urban space capable of connecting the city with the sea, recovering the dock as an element of union between the Paseo de la Malvarrosa and the Turia Garden. The mouth of the Turia, is developed as the final section of a garden that has begun with a riverside park at its head, continued with a large linear garden in the center of the city and reaches the sea in an intervention in which the green vegetation and the water of the Turia delta are mixed.

Master Plan of Waterford



Overview

CLIENT: Office of Public Works of the Republic of Ireland

AREA: 7 ha

LOCATION: Waterford, Ireland

SCOPE: Ideas Competition, Concept Master Plan and Land Management Plan

YEAR: 2002-2003

USES: Ferry port, residences, offices, small stores, restaurants, auditorium.

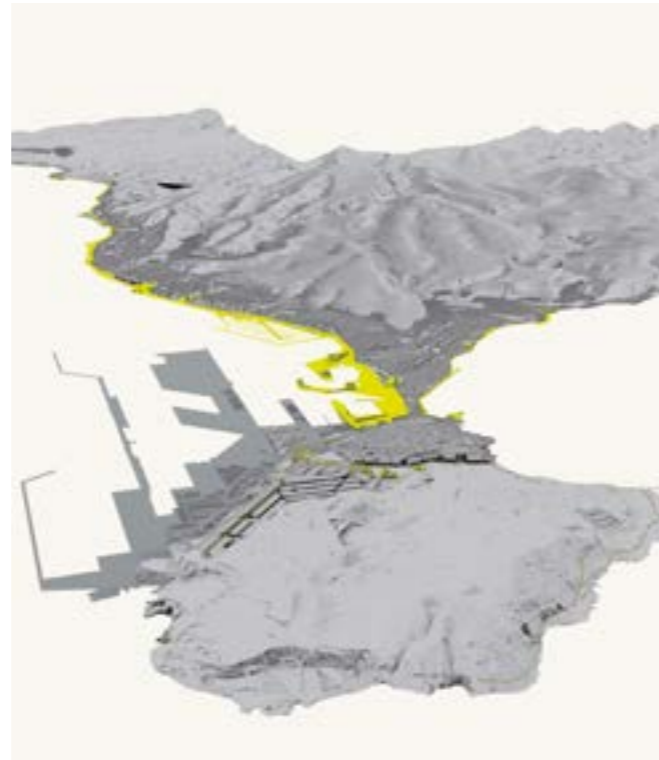
DESCRIPTION

As part of the Irish Government's plan for the economic regeneration of Waterford, the project includes both the master plan for the area, where ferry docks, residences and offices are planned to be built, as well as the design of an auditorium as a singular "driving force" for the regeneration.

[1st Prize in the International Ideas Competition.](#)

The proposal seeks to provide the city of Waterford with a place where people can live, enjoy, visit, shop, etc. In short, to coherently integrate the various planned uses while respecting the environment. The project also aims to strengthen the link between the two banks of the river.

Plan for the management of the coast of Las Palmas



Overview

CLIENT: Las Palmas de Gran Canaria City Hall

AREA: 1005,5 ha

LOCATION: Las Palmas de Gran Canaria, Spain

SCOPE: Ideas competition

YEAR: 2009

USES: Public space, housing, commercial and offices, diverse equipment, multi-scale and port.

DESCRIPTION

Development of the second phase of the Las Palmas de Gran Canaria Urban Planning Competition.

[Finalist. 2011 IX International Biennial of Architecture of São Paulo.](#)

We approached the competition with novel and radical proposals, which serve as a basis for the citizen discussion that we want to raise. The proposal aims to make the regeneration of the coastline compatible with the urban initiative, the protection of the public domain and use of the coastline with the provision of services and infrastructures. As a whole, the proposal must have the character of integrated action required by the complexity and intensity of the natural and artificial phenomena that occur on the coast of the city of Las Palmas.

Hospital del Salvador & National Institute of Geriatrics



Overview

CLIENT: Ministry of Public Works, MOP.

AREA: 16 ha

LOCATION: Santiago de Chile, Chile

SCOPE: Concept Design

YEAR: 2013-2014

USES: Hospital, National Institute of Geriatrics, public space.

DESCRIPTION

The project encompasses two main buildings located on the same plot, the Hospital del Salvador and the National Institute of Geriatrics.

The two buildings will be located on the same site and will share a number of logistical and technical facilities. The maximum surface area that the new Hospital can occupy on the first floor is 21,500 m².

The new Hospital del Salvador will have a built area of approximately 94,437 m² of hospital area and 50,000 m² of subway parking.

Expo Zaragoza



Overview

CLIENT: Expo Zaragoza Empresarial

AREA: 25 ha

LOCATION: Zaragoza, Spain

SCOPE: Architecture and engineering projects

YEAR: 2005-2008

USES: Metro station, public space, offices and residential.

DESCRIPTION

[I Accésit VIII Biennial Intern. Architecture Biennial of Sao Paulo, 2009.](#)

The project for the general site of Expo 2008, its urban development and the conception of the building that houses the bulk of the exhibition area, such as the international pavilions and those of the autonomous communities, was a major challenge from several perspectives. In the first place, its international character meant assuming the specific format of the BIE, which implies designing the exhibition pavilions under the same building concept, making it necessary to understand the unitary character of the intervention, in such a way that it opens the opportunity to bequeath to Zaragoza a dignified building complex integrated with its natural and urban surroundings.

Master Plan in Xenillet



Overview

CLIENT: Torrent City Council

AREA: 16.56 ha

LOCATION: Torrent, Spain

SCOPE: Concept Master Plan

YEAR: 2009

USES: Public space and green areas, educational, cultural, administrative and sports facilities.

DESCRIPTION

The master plan for the Xenillet neighborhood, Torrent (Valencia), is part of a series of actions proposed by the URBAN project, a European plan for the regeneration and integration of degraded neighborhoods. The URBAN project will be developed over 7 years and acts at urban, economic and social level.

The objective of the master plan is to define the urban development actions to be carried out to achieve the revitalization of the neighborhood and its integration with the old town of Torrent.

Meritxel Avenue



Overview

CLIENT: Comú d'Andorra la Vella

AREA: 1.66 ha

LOCATION: Andorra la Vella, Andorra

SCOPE: Project Management, Urban Design.

YEAR: 2006-2007

USES: Public and commercial space.

DESCRIPTION

Meritxel Avenue is the main thoroughfare of Andorra la Vella. It is the economic axis and the most important road in the Principality. The traffic of people and vehicles is the driving force behind the project, which consists of the design of the pavement and streetlights. For years the avenue has been wrestling between its prominence as a road infrastructure for the whole Principality and its prominence as a commercial entity, with the desire of part of Andorran society to promote trade by establishing pedestrian time slots. The pedestrianism of the avenue is revealed through the dynamization and dislocation of the white and red stripes of the crosswalks in the road and the disintegration of these crossings along all the sidewalks through the same-colored stripes.

Projects in Bilbao



Overview

CLIENT: Bilbao City Council

AREA: 1.1 ha

LOCATION: Bilbao, Spain

SCOPE: Architectural and engineering design, construction management.

YEAR: 2005-2009

USES: Public space and urban amenities.

DESCRIPTION

[Selected FAD Awards, Cat. CIUTAT I PAISATGE, 2010](#)

[Selected Exhibition "My Favorite Work," CSCAE, 2009](#)

[Selected IV ENOR Architecture Awards, 2009](#)

[Selected in the V EUROPEAN LANDSCAPE BIENNIAL, 2008](#)

The different projects were developed by the Civil Engineering and Architecture / Landscape groups of IDOM. The different designs are part of a series of projects that the Bilbao City Council has carried out in the outskirts of Bilbao. These projects include large scale areas and urban design for different elements.

It is worth mentioning the development of the Jesús Galindez Slope, which transforms an urban barrier into an element of connection, space, use and landscaping.

Master Plan of Bolueta



Overview

CLIENT: ORUBIDE

AREA: 7 ha

LOCATION: Bilbao, Spain

SCOPE: Urban development project and Concept Master Plan

YEAR: 2004-2010

USES: Housing, small business, public space.

DESCRIPTION

[First prize in open competition.](#)

[First prize in the XI Edition AVNAU Awards of the COAVN, 2009.](#)

[Selected in the 8th International Biennial of Architecture of Sao Paulo.](#)

The proposal developed the PERI and the urban development of the Bolueta Area for the subsequent construction of 1,100 housing units, 700 of which will be social housing. The site, previously occupied by industrial buildings, has a privileged orientation towards the south, the river and the views of the natural landscape on the other side, with linear blocks open in a fan shape towards the views and the river, guaranteeing sunlight. In the new arrangement, the public space is endowed with a new way of relating, with the river promenade as a finishing touch to the new buildings.

Urban Renewal in Ponte Baixa



Overview

CLIENT: Housing Secretary of the São Paulo City Hall, Reno-vaSP program for the regeneration of favelas.

AREA: 6.5 ha

LOCATION: São Paulo, Brazil

SCOPE: Architectural Master Plan and engineering design, technical assistance, urban development design, Concept Master Plan, detail study.

YEAR: 2012-2014

USES: housing, education, commerce, services, industry, transportation, green areas and sports and leisure facilities.

DESCRIPTION

The winning proposal of the National Architecture and Urbanism Competition in Brazil seeks to transform the PONTE BAIXA 4 perimeter into a new neighborhood in São Paulo. To achieve this, the concept of BALANCE is used: between the different levels of the project (metropolitan, urban and local); between the density of the precarious settlements and the large empty spaces where the new social housing units will be located; and between the urban uses that stimulate the mixture of people of different cultures and economic levels.

Renovation - favelas in Rio de Janeiro



Overview

CLIENT: Municipality of Rio de Janeiro

AREA: 13 ha

LOCATION: Rio de Janeiro, Brazil

SCOPE: Ideas competition.

YEAR: 2010-2013

USES: Housing, equipment, public space and connection to public transportation.

DESCRIPTION

The favela renovation project can be understood in the context of the upcoming 2016 Olympic Games, within the framework of the Morar Carioca Program - Municipal Plan for the integration of informal settlements of the Municipality of Rio de Janeiro, with the objective of providing a comprehensive improvement of these settlements. Considering these aspects, different strategies are delineated for three typologies of informal settlements, slope, transition zones and low areas:

- Redensification. Several floors+public space
- Provision of new network of public facilities
- Improve accessibility and mobility (inc. public transport)
- Protection and natural rehabilitation of environmental risk

Algiers Metro. Central Station



Overview

CLIENT: ANESRIF Ministry of Transport of Algeria

AREA: 4.3 ha

LOCATION: Algiers, Algeria

SCOPE: Ideas competition, transport.

YEAR: 2015

USES: Train station, shopping mall, offices, hotel, public space.

DESCRIPTION

The New Algiers Central Station is the result of a restricted competition between three international teams. It is an ambitious project, in which the Station has an important structuring role in a new expansion area of the capital, Kourifa (administrative district of El Harrach), where a new Urban Plan is planned. On the other hand, the station includes, in addition to the passenger building, other buildings such as a shopping center, offices and a hotel, which together with the new Baraki soccer stadium (under construction) make up a new urban center of great attraction for citizens. The proposal proposes the construction of a covered plaza over the tracks, creating a new urban connection space.

Urban Boulevard in Ali-Mendjeli



Overview

CLIENT: EMA Entreprise Metro d'Alger

AREA: 75 ha

LOCATION: Algiers, Algeria

SCOPE: Landscape project; urban development project

YEAR: 2013-2015

USES: Multifunctional public space and tramway stops

DESCRIPTION

The Project involves the design of a boulevard and urban park that generates life and becomes a place of recreation, of great ludic and landscape attraction in the still esplanade of the Main Boulevard of the city of Ali Mendjeli of recent creation. Thus accompanying the implementation of the light tramway linking this city with Constantine, this project becomes the great urban park of enjoyment for the citizens and green lung in a linear axis of almost one kilometer long.

The great unevenness of the 50-meter wide Boulevard characterizes the project, which gives rise to wave-shaped platforms. Each of these platforms is designed to provide an attractive function for the recreation of citizens.

HDD Tehran



Overview

CLIENT: Bai Tec Real Estate Company
AREA: 23 ha
LOCATION: Alamah, Saudi Arabia
SCOPE: Competition.
YEAR: 2010
USES: Metro station, public space, offices and residential.

DESCRIPTION

Located in an area with an extreme climate and an unstructured urban environment, the project, a finalist in an ideas competition, is seen as an oasis. A large dune, filled with greenery and walkways, rises above the first floor to accommodate commercial spaces and facilities and generate winding areas with shade and water.

Residential and office buildings are placed around the perimeter of the large plaza. Each is located in a well-defined area with the possibility of being sold as a stand-alone element or developed by third parties.

Ecovillage in Cameroon



Overview

CLIENT: Green climate fund
AREA: 30.3 ha
LOCATION: Cameroon
SCOPE: Ideas competition.
YEAR: 2018
USES: Housing, social amenities, small business, workshops, livestock spaces, public space.

DESCRIPTION

The development goes beyond a mere residential proposal for a disadvantaged population and will provide a comprehensive solution adapted to the way of life of its inhabitants and will have three axes: residential, productive and educational.

The residential proposal is based on sustainable strategies and the fight against climate change.

Thus, the EcoAldea project constitutes a global economic and social proposal, with the objective that the area will last indefinitely. The EcoVillages project proposes the distribution of the rural population in small villages. The Villages are to be scattered on the transformed lands in such a way that daily commuting to their plots is possible.

Master Plan - University of Misratah



Overview

CLIENT: ODAC. Organization for the Development of Administrative Centers
AREA: 18 ha
LOCATION: Misratah, Libya
SCOPE: Architectural and engineering design, Landscape design, Urban development design, Concept Master Plan.
YEAR: 2007-2011

USES: Eight faculties and services: Rectorate, Library, Conference Hall, sports and residential area.

DESCRIPTION

A reinterpretation of the historical spaces found in the Alhambra in Granada is proposed. The faculties are united to find places of shade and relationship. A central plaza, inspired by the nearby ruins of Leptis Magna, marks the action. The project consists of the drafting of the complete Master Plan and Urban Development Project, as well as the architectural development of all the buildings. The planned faculties are: Faculty of Education, Law, Economics, Medicine, Nursing, Science, Engineering and Information Technology. The Campus will have a Sports and Residential Area for students and professors.

Technology park in Senegal



Overview

CLIENT: Ministère des Postes et des Télécommunications
AREA: 25 ha
LOCATION: Diamniadio, Senegal
SCOPE: Concept and Scheme Design, architectural and engineering design, structures and engineering, construction management, urban, landscape and urban development design.
YEAR: 2017-2020

USES: Offices, equipment and services, data center, public space.

DESCRIPTION

As part of the national ICT strategy, the government is supporting the construction of the digital city project in order to create an urban hub where digital services will be the main driver of economic growth. Covering an area of 4,000 ha, this new hub, 35 km from Dakar and close to the new international airport, aims to place the digital economy at the heart of the new administrative and business city of Diamniadio. The residential and office buildings are located around the large square.

Police HQ in Erandio



Overview

CLIENT: Basque Government

AREA: 7.6 ha

LOCATION: Erandio, Spain

SCOPE: Architectural and engineering design, construction management.

YEAR: 1994-2013

USES: Administrative, laboratories, classrooms, computer and communications centers, workshops, warehouses, parking and other areas for specific police needs.

DESCRIPTION

[Selected. Young Spanish Architects Exhibition 2007 Ministry of Housing](#)

[First Prize COAVN Awards 2000 Colegio Oficial de Arquitectos Vasco-Navarro \(Official Basque-Navarrese Architects Association\)](#)

[Selected. VII Young Architects Exhibition 2001 Antonio Camuñas Foundation.](#)

[Finalist 2001 Foment de les Arts Decoratives \(FAD\)](#)

Situated in the metropolitan area of Bilbao, the Basque Government has located the headquarters of the Police and Security Services, on a gently sloping site, with ample views in all directions.

Convention Center in Mohali



Overview

CLIENT: Punjab State Infrastructural Development Board

AREA: 20 ha

LOCATION: Chattisgath, India

SCOPE: Competition.

YEAR: 2018-present

USES: Convention center, exhibition spaces, New international trade center, financial district, hospitality.

DESCRIPTION

The New Convention Center, winner of an international competition, is part of the first part of the Master Plan for the hotel and commercial complex designed together with CPKA.

The building will offer 15,000 m² of flexible space, with a maximum capacity of 5,000 people, and will be complemented by two Exhibition Halls of 20,000 m² each, built in two phases. The master plan also includes a new international shopping center, a financial district and buildings for the hotel industry.

University of Nalanda



Overview

CLIENT: Nalanda University

AREA: 15.7 ha

LOCATION: Nalanda, India

SCOPE: Ideas Competition

YEAR: 2013

USES: Metro station, public space, office and residential.

DESCRIPTION

The new Campus is conceived as a metaphor for what Nalanda was and what it will soon become again: a meeting point of knowledge and cultures. We opted for a clear and robust geometry to provide order and unity to the Campus. There is a conscious decision to concentrate most of the buildings in one area of the site as a way to increase density, enhance social interaction and facilitate mobility within the Campus, which is conceived as a primarily pedestrian realm. This also allows large areas to be used for cultivated fields (for food consumed within the campus) and energy production. Incorporating the University's Net Zero approach.

Resort in Oran



Overview

CLIENT: Prestige hotels

AREA: 7,290 m²

LOCATION: Oran, Algeria

SCOPE: Competition.

YEAR: 2010

USES: Housing, hotel, marina, golf course and beach club.

DESCRIPTION

Located in a steeply sloping area with a drop towards the sea, this proposal takes advantage of the topography to integrate the program on terraces. The houses are distributed in a linear form connected with two roads: the upper one arranges the Villas "Ciel" and the lower one the Villas "Terre". They blend into the landscape, as does the golf course down to the sea. The hotel opens like a fan, becoming the icon of the intervention. In the lower area, the intervention reaches the sea with a beach club and a marina that becomes another form of access and arrival to the Resort.

Risaralda Science & Biodiversity Center



Overview

CLIENT: Government of Risaralda

AREA: 12,000 m²

LOCATION: Dosquebradas, Colombia

SCOPE: Architectural and engineering design, structures and MEP, public space and landscaping design, museological and museographic development.

YEAR: 2019-ongoing

USES: Exhibition area, multipurpose rooms, Auditorium, Do-mo-one, laboratories, restoration, commercial areas, kindergar-ten, public space and gardens.

DESCRIPTION

The Center was designed with the two-fold objective of providing a solution to the city's need for public space and responding to the decision to conceive a Science and Biodiversity Center that could act as an external tourist attraction highlighting Risaral-da's main potential. The Center has a total area of 11,700 square meters with a public space of 6,700 square meters on its roof, accessible from the adjacent streets for a public area designed as an atlas of the natural biodiversity of Risaralda.

Tequendama International Center



Overview

CLIENT: Financiera de Desarrollo Nacional FDN

AREA: 126,000 m²

LOCATION: Bogota, Colombia

SCOPE: Concept design and feasibility study..

YEAR: 2016-2017

USES: Commercial and services, offices, residential apart-hotels.

DESCRIPTION

Between 2016 and 2017, IDOM developed the Technical Con-sulting work, contracted by Colombia's Financiera de Desarrollo Nacional (FDN), for the technical prefeasibility and drafting of the advanced basic level technical studies for the Tequendama International Center (CIT) urban renewal and real estate project in the heart of Bogota.

The complex consists of four buildings constructed between the 1950s and 1980s, and their corresponding public spaces. Their heights vary between 10 and 33 stories, in addition to their par-king basements.



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Bibliography

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