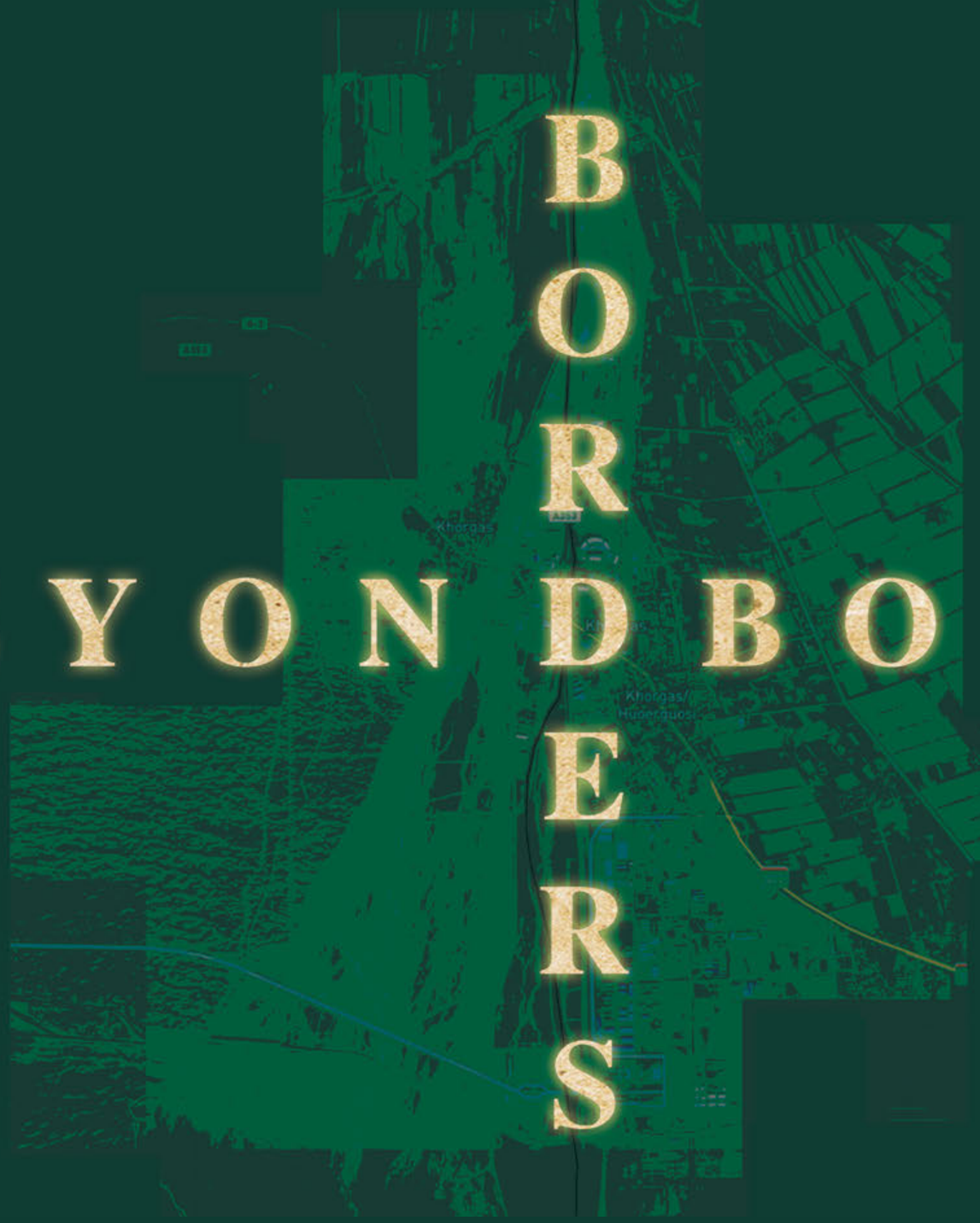


BEYOND BORDERS

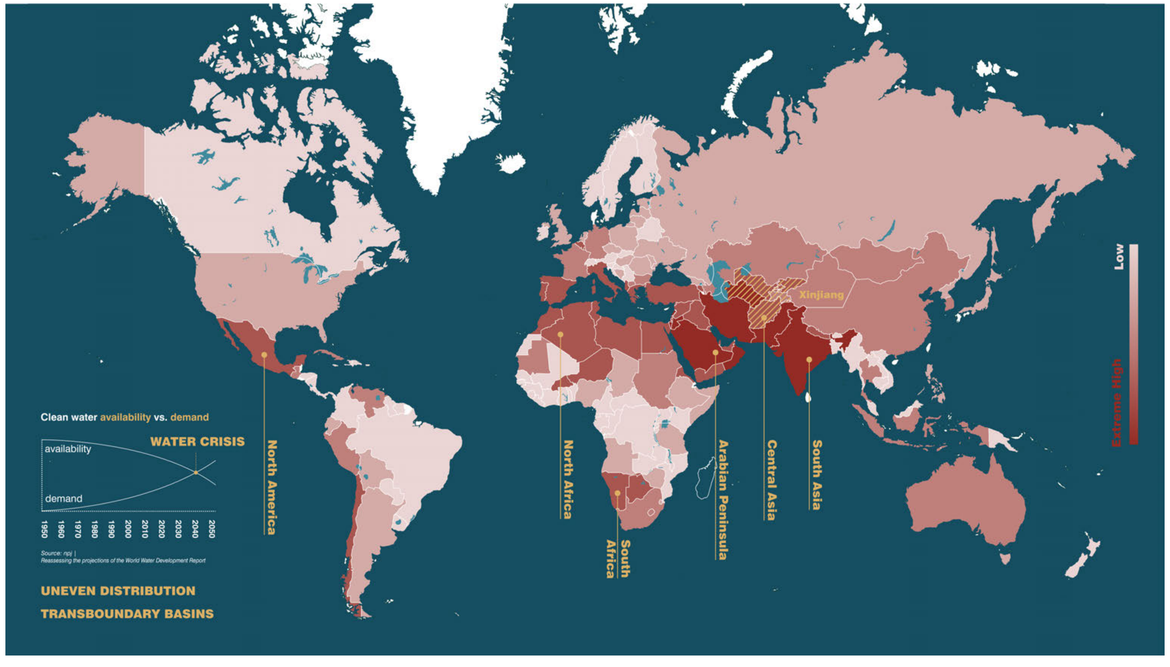
BORDERS

边疆 域外

water as a transboundary shared resource

xingyao wang “yao”
xingyu guo “alven”

"Borders and Beyond Borders: Thirty-Year Plan" examines the growing concern of water depletion and strategies for poverty alleviation. This development-oriented plan sees water as a catalyst of community cohabitation, and offers the citizens an speculative alternative living experience with revitalized local economy under worsened aquatic resource condition. In this narrative, the aquatic system foregrounds the reciprocity across the multidimensional borderlines between political entities, between cities and villages, and between artificiality and nature. With infrastructural premise on regional scale, and government-aided upgrading in human scale, the 30-year plan experiments to help the city adapt to a worsened environmental condition, and it helps every one of your household to achieve and even exceed moderately prosperous lives with stall and courtyard economy. The planning re-imagines for you a living typology that externalizes and monumentalizes the power of nature as a human necessity.



The water crisis was listed as an urgent global issue. And Central Asia is among several most severely impacted regions due to surging demand for economic development as well as geographical features that limit water availability.

THE WATER TIMES

SHARED TRANSBOUNDARY

MAN | WATER CONFLICT | TRIGGER

Mexican National Guard troops stand guard at Las Pilas dam in Camargo, Mexico. Sept. 10, 2020 (AP photo by Christian Chavez).

Mexico's Water Dispute With the U.S.

Tony Payan Wednesday, Oct. 7, 2020 from WPR

For nearly 75 years, the United States and Mexico have transferred giant quantities of water to each other each year as part of a system set up to ensure the equitable sharing of water sheds that straddle their border. The terms and obligations are clearly laid out in a treaty the two sides signed in 1944. The U.S. sends 489 billion gallons of water southward via the Colorado River, and Mexico allocates 114 billion gallons northward, from the Rio Grande and the Rio Conchos. To deal with the technical aspects of this water exchange and settle any issues, the two countries created the El Paso-based International Boundary and Water Commission and its Mexican counterpart, the Comision Internacional de Limites y Aguas, located across the Rio Grande, in Ciudad Juarez.

Most experts consider the treaty fair, and the joint river commission is widely seen as a model of effective bilateral cooperation. Problems do arise occasionally though, primarily due to severe droughts, which can cause Mexico to fall behind on its water payments, as it has this year. Pressured by the U.S. to pay a shortfall of around 100 billion gallons of water by Oct. 24, the Mexican government took control of three dams in northern Chihuahua state this summer, with the intention of opening the flood gates to pay its water debt to the U.S. as stipulated in the 1944 treaty.


Water contamination and shortages lit the spark for violent protests in Basra, Iraq in September 2018.(AP Photo/Nabil al-Jurani)

Iraqi City Seethes Over Water Crisis

Qussim Abdul-Zahra September 11, 2018 from AP

BASRA, Iraq (AP) — The brackish water pouring from the taps of homes in Basra has caused stomach ailments and skin rashes for thousands in the southern Iraqi city once famous for its network of freshwater canals that gave it the nickname the "Venice of the East."

The **VOILENCE** in Basra is threatening to spread to other cities in Iraq's southern Shiite heartland and the capital of Baghdad, where lawmakers are locked in a political struggle over who should be the next prime minister, with Iran and the United States each supporting rival factions.There are concerns that sustained violence could also disrupt oil production in Basra, home to 70 percent of Iraq's petroleum reserves, and at the country's main seaport of Umm Qasr on the Persian Gulf. That could lead to renewed chaos just as Iraq is emerging from a long and bloody fight against the Islamic State group.

Health officials said 35,000 people have been hospitalized for stomach **ILLNESS**. The Sadr Hospital said its emergency room was receiving 600 cases of stomach distress each day.

ECOLOGY | WATER CRISIS

Ecosystems supported by Lake Balkhstan are in jeopardy as desertification increases.

Save Kazakhstan's shrinking Lake Balkhash

Aizhan Ussenaliyeva October 16, 2020 from AAAS

Kazakhstan is home to Lake Balkhash, one of the largest inland drainless lakes in the world. Estimated to be more than 15,000 year old, this lake has cultural, historical, and ecological value. However, since 1970, a substantial decrease in the Ili river runoff has led to a drawdown of water reaching the lake, leading to a decrease in water depth. Out of the original 16 lake systems around Lake Balkhash, only 5 remain. Preserving this lake ecosystem is crucial to halting the desertification process, which has already claimed a third of the lake and will have devastating effects on the diverse flora and fauna that depend on it.

Lake Balkhash's varying degrees of water mineralization support a wide variety of species; the western basin is freshwater, whereas the eastern basin is salty. The lake serves as a habitat for 20 species of fish, 6 of which live only in this lake, and 60 species of plants that don't grow anywhere else. More than 120 bird species rely on the lake, 12 of which are listed in Kazakhstan's Red Book of endangered species. Because the lake Is located in a desert area, without runoff and with a dry continental climate and very little precipitation, these species will have nowhere else to go if their water source disappears.

To protect lake Balkhash, local legislation that regulates industrial exploitation of the lake water area should be updated and enforced. The media should actively promote ebenvironmental awareness among the population of Kazakhstan. Designating Lake Balkhash a national treasure would increase the social significance of the lake in Kazakhstan as well as abroad. Kazakhstan should monitor the lake and provide public access to up-to-date data on its parameters (especially the current volume of water). The country should also clearly define areas of responsibility among the states that are responsible for water resources management. Given rising water security risks in Kazakhstan, Lake Balkhash needs an international collaboration to provide urgent and effective protection. It is crucial that local and national policy-makers, law enforcement authorities, scientists, the public sector, socially responsible businesses, and the world community work together to protect this anckrt lake.

SUSTAINABLE >

MAN | WATER MISMANAGEMENT

At 5.55 am on May 1, after five days of severe storms, a dam wall at the Sardoba reservoir in the region of Sirdaryo, Uzbekistan, collapsed and water poured through a breach onto cotton fields and villages.

To reduce water pressure on the walls of the reservoir and prevent further collapse of dam walls, its gates were opened. Water spilled into the Southern Golodnostepsky Canal and its offshoots, with the intention of sending it to the Aydar-Arnasay lakes – a wetland of international ecological importance. The capacity of the canal was overwhelmed, and the flood expanded.

The flooding affected more than 35,000 hectares of land in Uzbekistan and Kazakhstan. Six people died and at least 111,000 were evacuated from the Syr Darya river basin. The cost of constructing the reservoir was 1.3 trillion Uzbekistani som (roughly USD 400 million in 2017); the recovery will require at least 1.5 trillion som, Uzbekistan's ministry of finance has said.

The collapse of the dam is a culmination of decades of mismanagement and regional water conflicts in the river basin. The disaster has forced countries to cooperate over the immediate recovery and take first steps towards joint management of shared basins. However, it remains to be seen whether these intentions bear fruit.

Tension with Kazakhstan

In rural Kazakhstan, around 32,000 residents were evacuated, two settlements destroyed beyond repair and three others flooded. Total losses just in agriculture exceeded USD 10 million.

On May 5, Sergei Gromov, Kazakhstan's vice-minister of ecology, said, *"The construction of the indicated reservoir was not agreed with us (as required by treaties)… We insist that the dam is not restored at all, if it is restored, then in smaller volume."*

The reservoir on May 8 2020, showing where the dam failed (image by Lauren Dauphin/NASA Earth Observatory)

Uzbekistan dam collapse was a disaster waiting to happen

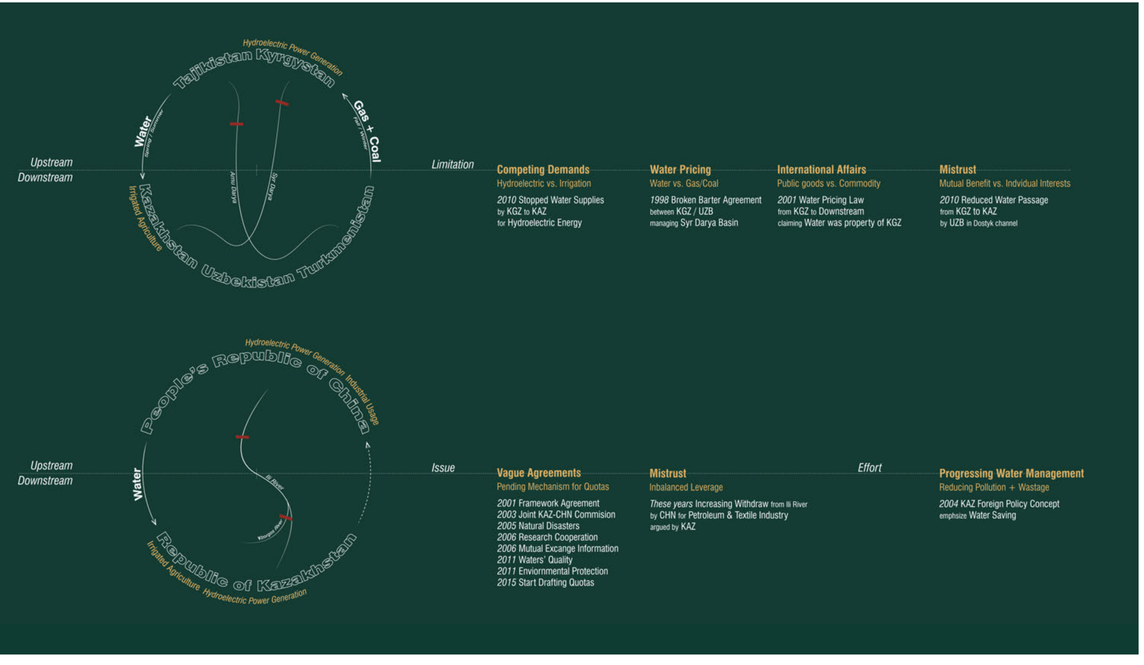
Eugene Simonov, June 23, 2020 from thethirdpole

On May 25, the Kazakh government posted for public comment a draft treaty proposing a bilateral commission on transboundary water bodies. It listed several cooperative activities, including information exchange, joint decision-making and financing infrastructure. Provisions for environmental quality, environmental impact assessment and preservation of shared aquatic ecosystems were glaringly absent.

The draft agreement was removed from the official website before June 2. This could be a sign of political tensions either with Uzbekistan (which could take publication of a draft as unfriendly pressure) or between different Kazakh agencies.

Vanished Aral Sea © Arian Zwegers Moynaq

The dispute between countries over the water usage has led to regional conflicts. And a projective vision of the near future of 2050 indicates even more intensified confrontations due to long-lasting drought across countries.



Such issue reaches to a peak especially in Central Asia. Since China is positioned on the upstream of the transboundary Ili River that runs down to Central Asian countries, uneven distribution of that water resource would evoke further mistrust. The concerns of rights of ownership and usage in the area mainly result from water shortage, industrial pollution, and over-exploitation in agricultural activities. Historically, in between China and Kazakhstan, mistrust often comes along with economic losses in nearby port cities. However, the conflict could be subverted with the implementation of the government-funded 30-year development plan in progress.

KAZAKHSTAN

Khorgos

CHINA

Border

Guard

Beyond

Gate

Gate

railway

highway

gas

Arabian Sea

Bay of Bengal

China Sea

Philippine Sea

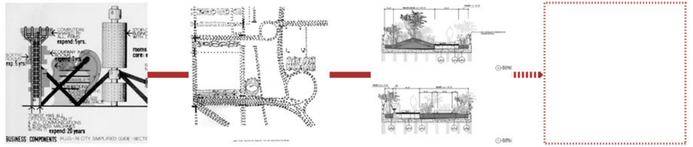
The confrontation exemplifies in Khorgas which shares a branch of the transboundary Ili river with the its Kazakhstan neighbor city. Khorgas, China is a significant port connected with Zharkent, Kazakhstan. Its strategic location marks a pivotal point of railway, highway, and gas transportation that links East Asia with the rest of Eurasia continent.

Region Planing
1890s Patrick Geddes
Insatiability
Affordance

City Beautiful Movement
1890s Daniel Burnham
Poor Living Condition
~~**Over-simplification**~~

Garden City
1902 Ebenezer Howard
Industrialization
Decentralization

Radiant City
1930 Le Corbsier
Over-crowded
~~**Intangible**~~



Plug-in City
1960s Peter Cook
Recoding
Megastructure

Infrastructural Urbanism
1999 Stan Allen
Marginalization
Artificial Ecologies

Landscape Urbanism
1990s
Closed System
Sustainability

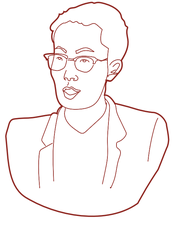
?
2030
Water Crisis
?

In this pilot project, how can we address this regional issue by architectural intervention and urbanism at neighborhood scale? To answer the question, it requires new ways of thinking on urbanism that uses water as a premise to develop alternative life. As past theories have responded to the long-discussed top-bottom relationship from aerial angles, the new aquatic urbanism akclowdges the efficiency that national power offers, while it also values your everyday activities to seek for a middle ground that provides you with half-autonomous living.

Lihua Feng

Associate Professor of Geological Engineering, School of Geology and Mining Engineering Xinjiang University

"Kazakhs have a strong sense of water conservation which may derived from their ancient nomadic living style. For example, they keep a unique habit of washing hands with special water pots. Three pours maximum."



Xingyin Zhang

Director of the National Institute of Satellite Meteorology

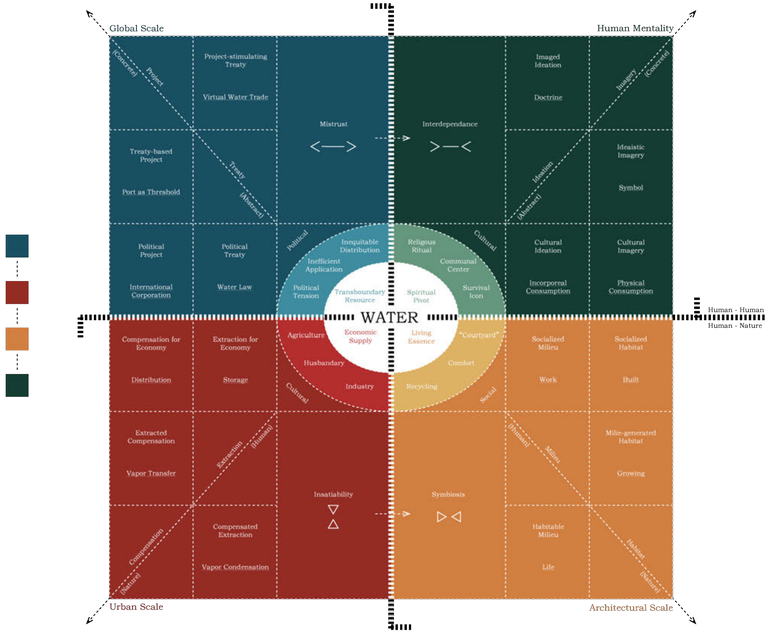
"Theoretically, it is possible that southern water can be extracted for northern use."

Yingsheng Ma

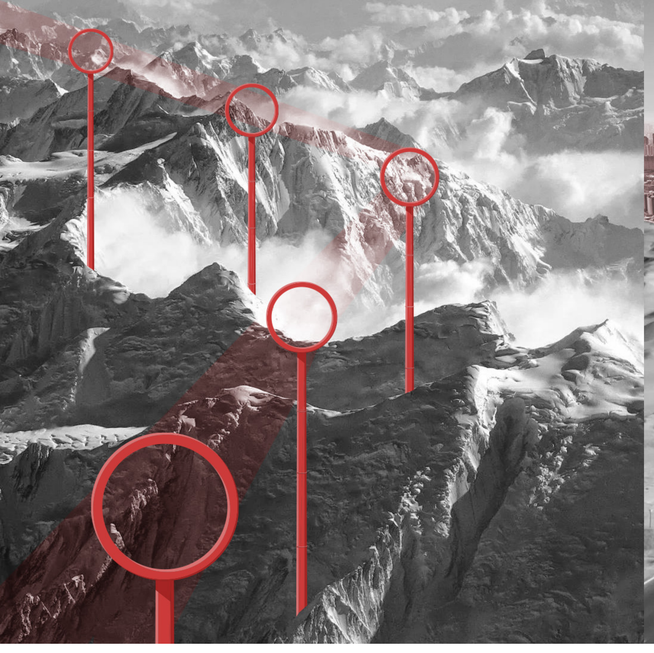
Director of Intangible Cultural Heritage

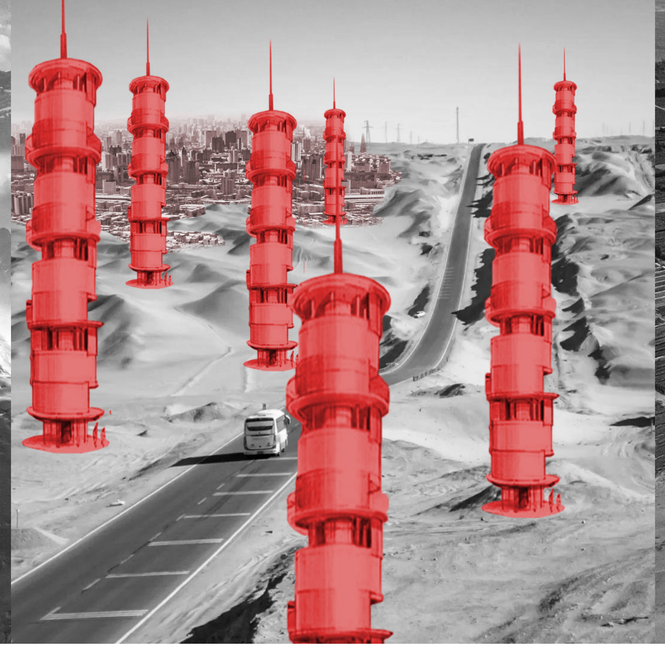
"Xinjiang is a multi-ethnic living area, especially in Ili and Tacheng areas. Due to different cultural, historical traditions and living habits of each ethnic groups, they show great varieties in their housing typologies, in terms of space, structure and aesthetics."

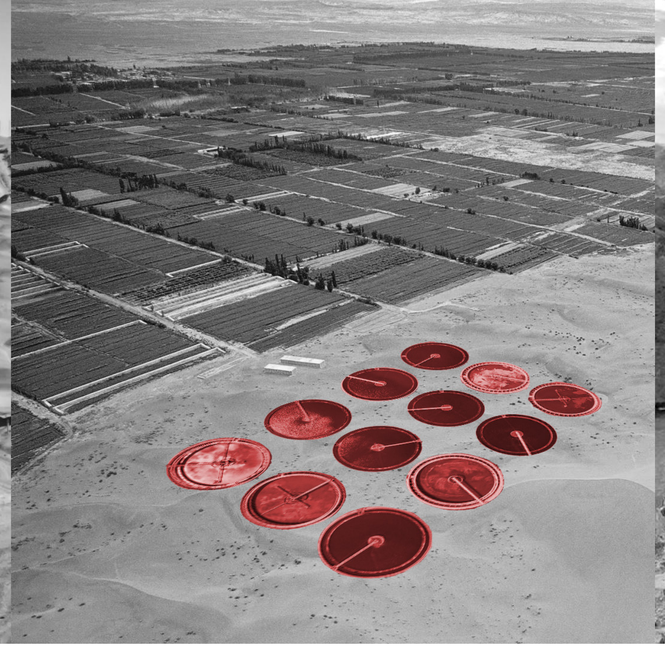
The scale difference in addressing water issue is reflected in our interview with three locals. While Mr. Zhang describes a general blueprint as many city planners do, Mr. Ma and Ms. Feng are more interested in water usage in terms of housing typologies and traditional virtues to conserve water.



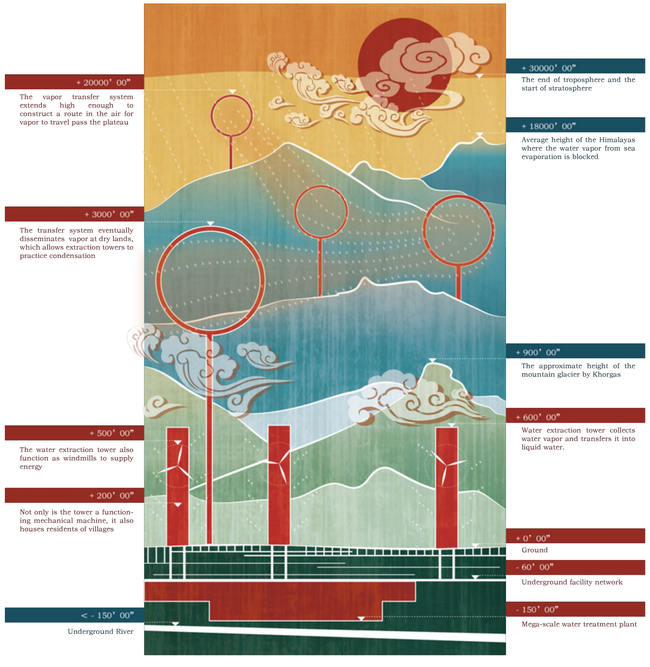
When the different perspectives are translated into architectural ideologies, this quadrant chart frames the principals of the aquatic urbanism from global-scale regulations, urban-scale planning, architecture-scale facility, to human-scale reverence on water.

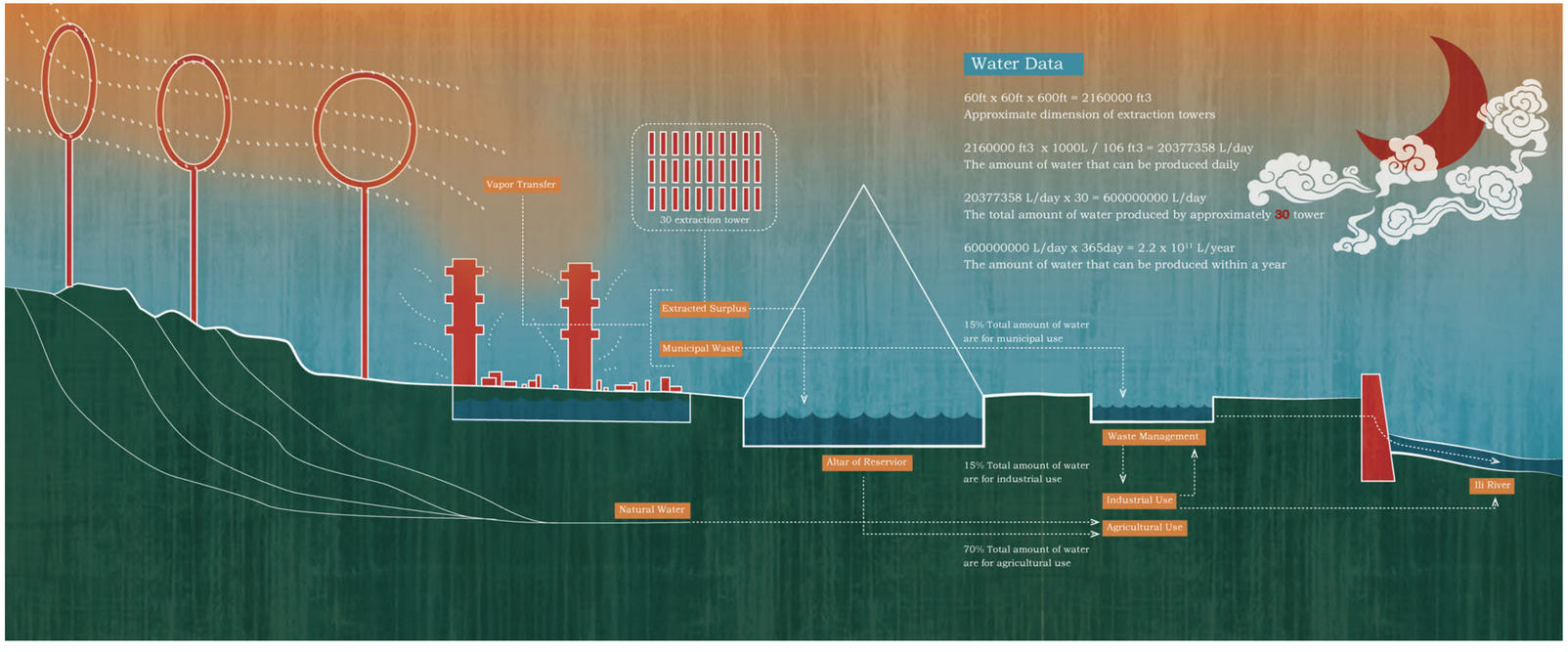




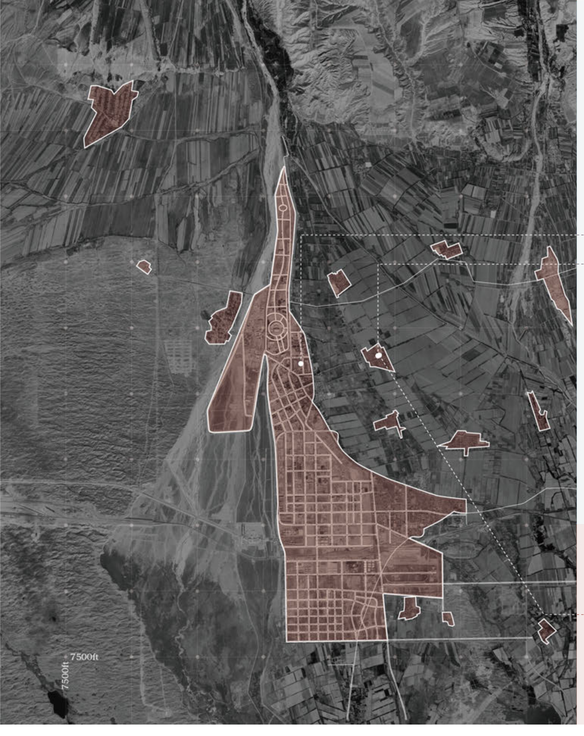


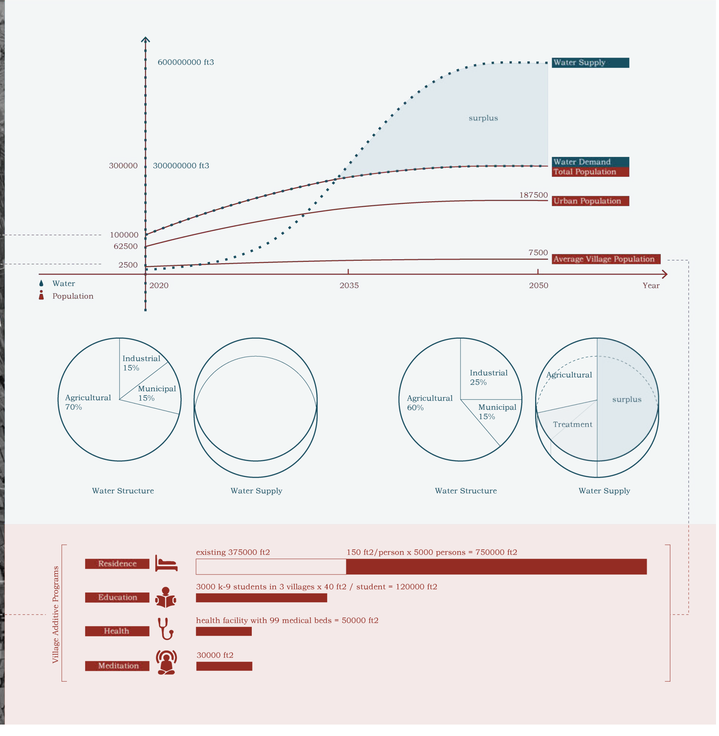
To realize a self-sufficient water supply in Khorgas, a set of infrastructure premise is needed. The system will consist of both exploration and conservation mechanisms to transport vapor, and to intake, store, use, recycle, and release water. For this intervention, the project zooms into the integration of water intake and reuse process with citizen's living experience.

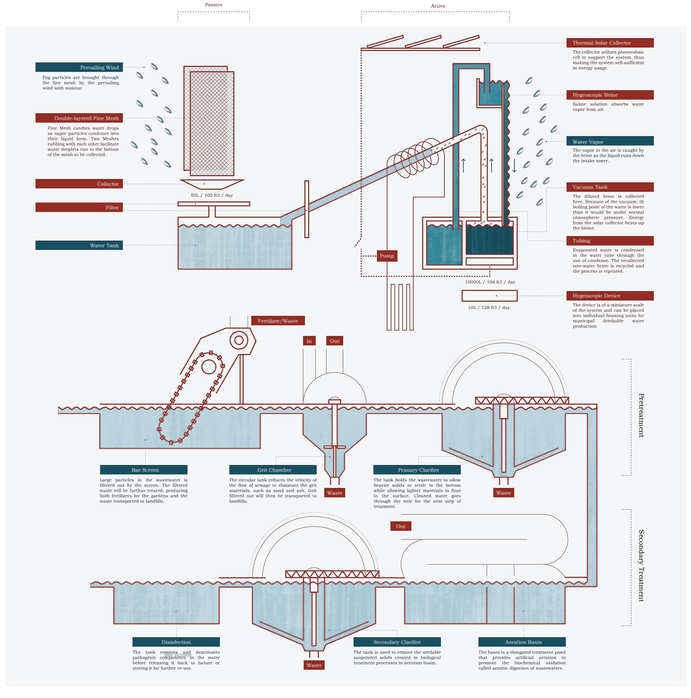


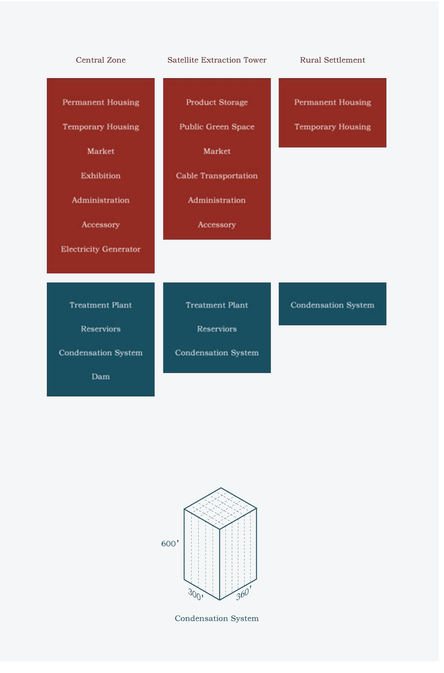


When no interventions are placed, the city and its settlements use mostly underground and surface water from the river of Ili, many times leaving the downstream countries short of supply. With the urban system built, the city becomes mostly self-sufficient with water intake. Surplus of water production would be further used to ecologically compensate the Ili River so as to alleviate and avoid upstream and downstream dispute.



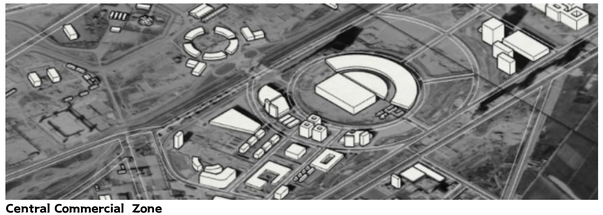




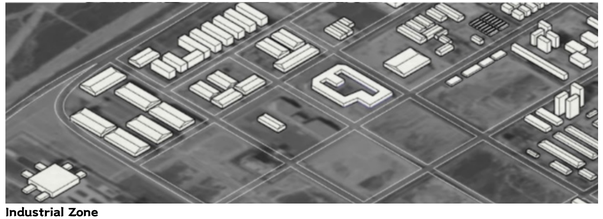


It is expected that the population of Khorgos will grow from 100 thousand to 300 thousand by the year of 2050, making required amount of water growing as well. Ideally with the most efficient production, the new water infrastructure will be able to produce surplus for natural compensation. In addition, with population growth also comes the need for more facilities. Here are calculated building areas for overall expected residence, education, health, and meditation spaces in a typical village.

To meet the aquatic demand of increasing human-based programs, both passive and active systems of water extraction are used and made affordable for family installation. After calculation, the active condensation system equating the volume of 30 vertical structures of the size equating to 60' x 60' x 600' will be the leading component that produces enough water resource for the city. They will be scatted around in the 12 rural settlements.



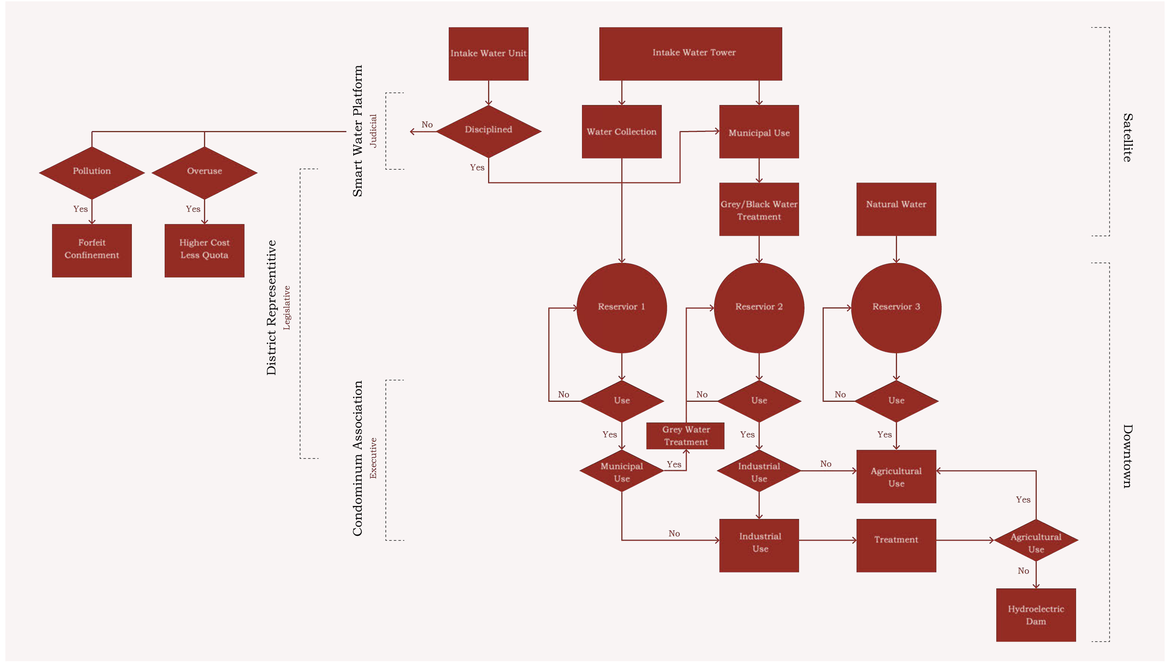
Central Commercial Zone

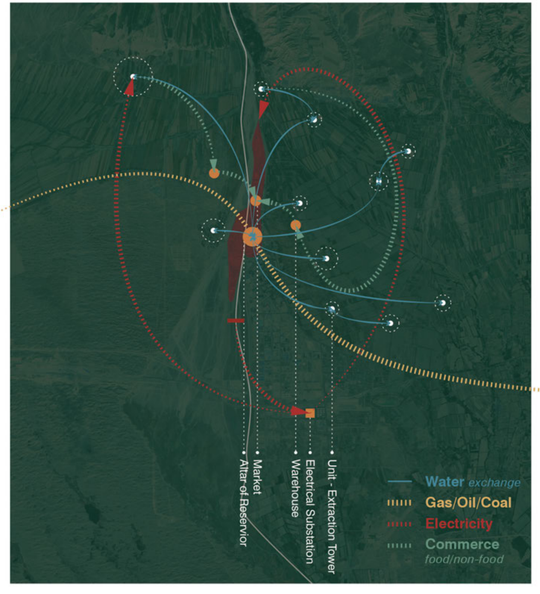


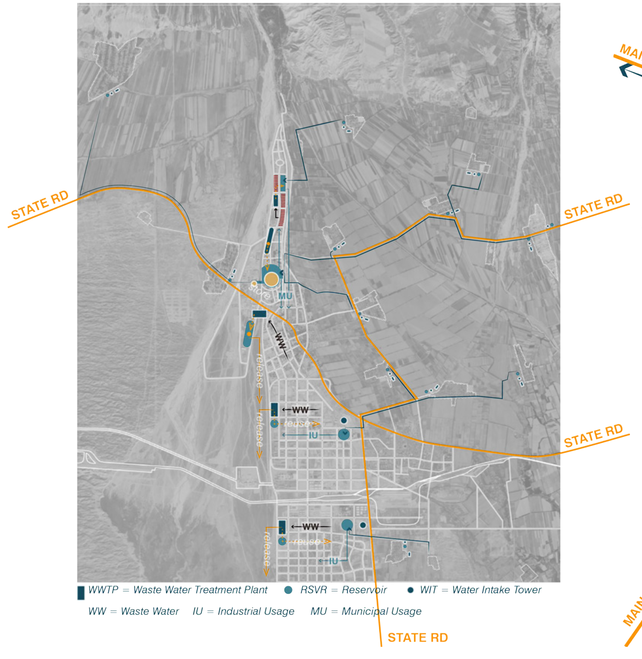
Industrial Zone

Rural Settlement

Like other border cities, the existing planning of Khorgas only focuses on industrial and commercial zones and is void of consideration on water-centered development plan. Therefore, there is intentionally a shift of focus back to the rural neighborhoods that serves as the source for the machenism of water flow chart implemented in Khorgas.

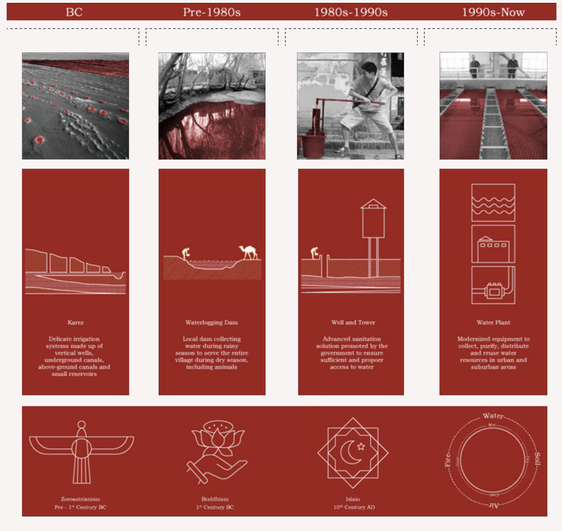






Since we regard water crisis as an urgent issue and village interaction with water an essential component, the project planning subverts the existing planning and puts the concentration back to the dispersed neighborhoods who not only demonstrate close connection to water, but also feed back the city as well as the agricultural land around with their water production, leaving the central zone to conduct mainly treatment and ecological compensation to release surplus back to Ili river.

A typical rural settlement is expected to be self-sufficient in its water usage. With the support of governmental funding, household-scale water intake system is suggested to be installed for every family to encourage courtyard economy. Located in the entry point of the village, a growing high-rise of homestead is another option for you to build your own home with the installed hydro system and participate in village stall economy. Both excessive water supply and agricultural product will be transported to urban area.

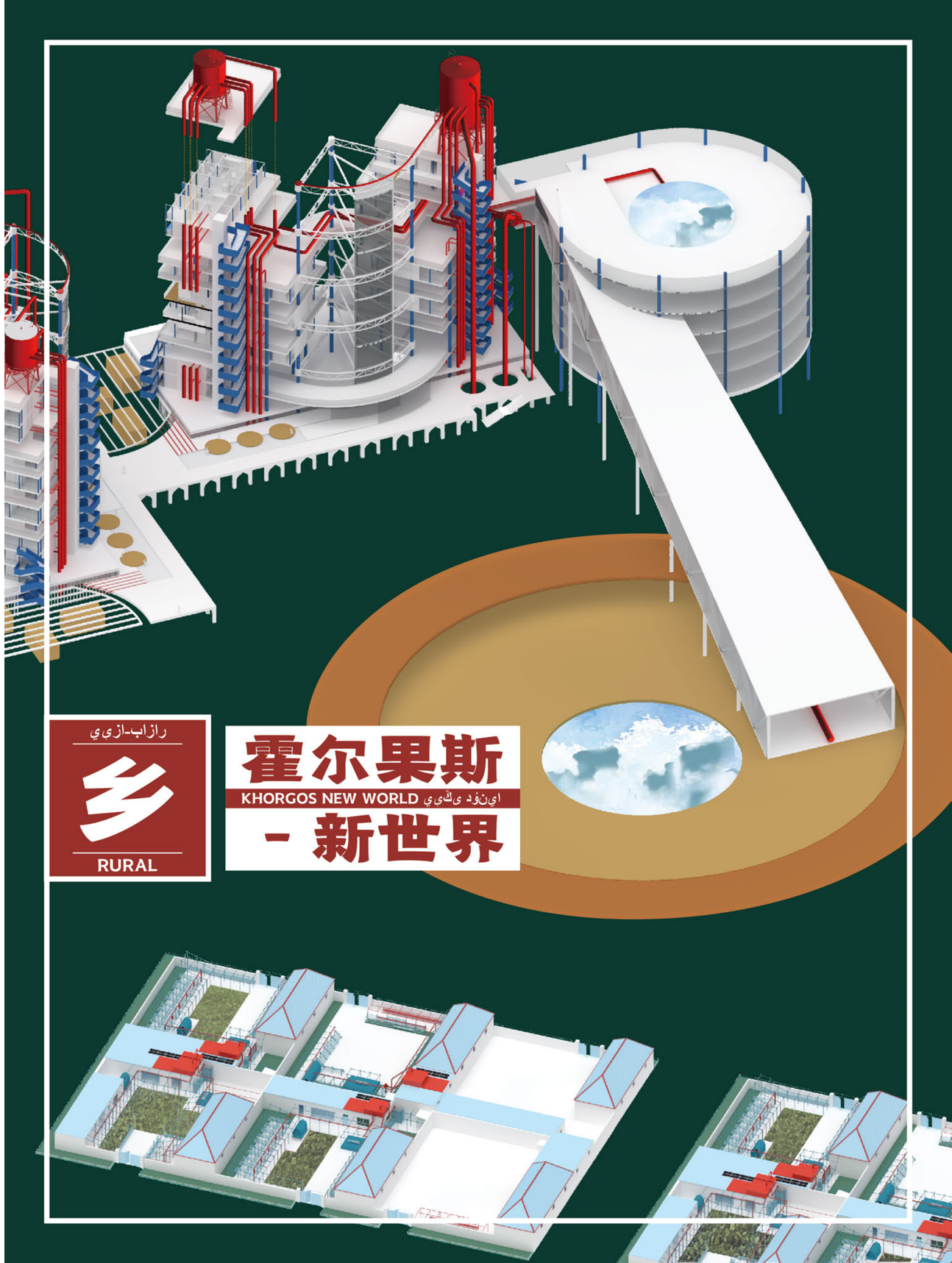


This aquatic urbanism will be implemented step by step in a 30 years period. As the city of Khorgas take targeted measure in economic development to benefit both current residents and influx of immigrants, the aquatic system will grow as population goes up. The 30-year plan highlights the reciprocal relationship between rural and urban areas in aquatic and economic exchange, and also suggests a recycling process of water from nature and back to nature. In the first stage of the plan, everyone of the citizen would play a big part in both contributing to and benefiting from the water intake process in satellite villages by choosing desired packages to reinvent their new homes!

In this narrative, the aquatic system foregrounds the reciprocity across the multidimensional borderlines between political entities, between cities and villages, and between artificiality and nature. With infrastructural premise on regional scale, and government-aided upgrading in human scale, the 30-year plan experiments to help the city adapt to a worsened environmental condition, and it helps every one of your household to achieve and even exceed moderately prosperous lives with stall and courtyard economy. The planning rejects the emptiness of warehouse-like households, and re-imagines a living typology that externalizes and monumentalizes the power of nature as a human necessity.

KHORGAS RURAL VILLAGE

Both single household and the homestead high rise look into different types of water usages in rural living. The incorporation of upgraded water system not only bring back your memory of close human-water interaction that has existed for long in central Asia, but also facilitates the on-going development of both courtyard and stall economy in Khorgas that creates more local income opportunities and alleviate poverty.



ئۆي سۇ سىستېمىسى
家居水务
HOUSEHOLD WATER SYSTEM

هويلى
庭
COURTYARD

يېزا گۈزەللىكى
美丽乡村
RURAL BEAUTY

HOUSEHOLD COURTYARD

For existing villagers currently living in singe households, they may have benefited from the recent "toilet project" implemented by Khorgas government. And now the spatial and functional properties of the newly developed smart water system will further help them retrieve back to beauties of traditional Ili housing typology from their current home built in the form as warehouses due to economic concerns. Compared to traditional Ili households, rarely do all 3 types of existing households make uses of the courtyard. Meanwhile, each family room is scattered around the courtyard without much communication. Therefore, by preserving and restoring levandas, spaces for outdoor dining, sitting and planting zones, their household courtyard would regain aesthetics and economic opportunities rather then being left empty.

The domestic water upgrading process is largely funded by the government. In consideration of low-income families, the start-up basic set of water and attached systems is free of charge. With the compact water intake unit installed, they will be able to self-sufficiently supply their water demands for home, cultivation and breeding uses. In addition, water-saving irrigation structure and animal coop serve as add-ons to help realize economic productions in courtyards. As profit accumulate and if they plan to invest more into the courtyard production, their family could purchase advanced systems that are made affordable through another portion of governmental funding.

These add-ons could be combined with the water system in multiple ways. While irrigation framing can be transformed into greenhouse, levanda, and terraces, the 8-chiken coop structure can be extended. The wastewater produced through these activities will be eventually collected in the treatment plant across the village entrance, and release back to irrigate the agricultural land around. Together, the basic courtyard economy is expected to bring the locals at least additional 3000 RMB per month, which is comparatively high to the 1100 average monthly wage for rural residents in Xinjiang.

庭 COURTYARD

水械妙用·向史而新

A SMART WATER SYSTEM HELPS YOU RETRIEVE BACK TRADITION

庭院微整容 生活大不同

AN ECONOMIC CHANGE IN COURTYARD A BETTER LIFE - EASIER AND COZIER

传统 Traditional

现有 Current

花园 Luxury 庭院

主楼 House 安居

檐廊 Levanda 休憩

庭中 Courtyard 歌舞

绿篱 Grille 障目

经济 Economic 庭院

保 Preserve

补 Add

檐廊 Levanda

双座 Outdoor Dining

入户坐凳 Sitting

种植 Plants

预期 VISION

檐廊休憩 Levanda

庭中歌舞 Courtyard

绿篱障目 Grille

桥 LINKAGE 凉 COOLING 暖 GREENHOUSE

集 GATHER 玩 PLAY 文 CULTURE

秘 PRIVACY 绿 GREENERY 分 DIVISON

富 High Income

中 Mid Income

贫 Low Income

开阔

适中

紧凑

庭院经济·自足盈利

REALIZING COURTYARD ECONOMY, MAKING SELF-SUFFICIENT PROFIT

居家水务·发家致富

A DOMESTIC ADAPTATION OF INFRASTRUCTURE A BETTER LIFE

基础组 BASIC

自选组 ADVANCED

水系统 WATER SYS

附加系统 ATTACHED SYS

水 water

植 plants

畜 stock

¥0 经济型 COMPACT 取配水

¥0 滴灌式 IRRIGATION 种植节水

¥0 简易型 COOP 养鸡自食

¥4000 屏风式 SCREEN 隔挡景观

¥4650 单管式 PIPE 节地产量

¥100 水圈版 COOP+RUN 自食自售

¥4000 喷泉式 FOUNTAIN 隔挡景观

¥4650 阶梯式 TERRACE 休食地自

¥700 串联式 DOUBLE 隔挡景观

植 plants 节水省费 SAVING WATER AND COST

可自由搭配组合 Free to mix

1 GREENHOUSE 冬农不是梦 build against wall

2 LEVANDA 浇水只一秒 valve on the inside

3 TERRACE 农娱两不误 facing courtyard

植 plants 月入千元 MAKING > ¥3000 PER MONTH

畜 livestock 便捷供水 CONVENIENT WATER SUPPLY

可自由搭配组合 Free to mix

1 ISOLATION 安静如鸡 far from living area

2 LEVANDA 顺路取蛋 stand by the lavenda

3 RUN RUN 小鸡快跑 special run space

畜 livestock 自由养殖 FREE BREEDING FOR PROFIT

FAMILY STRUCTURE

家庭结构

ﺟﻮﻟﻰ ﺋﺎﻳﻠﻰﺴﻰ

Tendency of gradual decrease in average family size of Xinjiang | The rise of individuality

2000 3.68

2016 3.34

20.2% 2000

34.8% 2010

>50.0% 2050

Single

Couple Family

Nuclear Family

Less families choose to live with multiple generations

Stem Family

Extended Family

As more and more cross-ethic couple from Xinjiang get married, many of them prefer living within their own nuclear families to raise kids instead of living with their parents whose generation has less tolerence over cross-ethic marriage. The rise of individuality also changes the mentality about cohabitation with the older generation. Despite their is a tendency of reduced family sizes, stem family and extended family type remains one of the most commonly seen family structure in Xinjiang.

PROPOSED LIFE PHASES

生命历程

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Collective Unit

Expandable Family Unit + Nuclear Unit

Elderly Unit

large courtyard for planting

able to accomodate 4 generations

space for breeding

2 Courtyards!

¥600 RMB/m2

250 m2 x 3 level

This unit type is suitable for new immigant families with extended family member numbers to seek for benefit througy collaborative effort in courtyard economy

courtyard for planting

second floor can be
1. occupied by grown-up child
2. rented out
3. used as office space

courtyard for planting

1.5 Courtyards!

¥950 RMB/m2

250 m2 x 2 level

This unit type is suitable for non-extended family who have already established themselves in the city. A second floor could be of multiple uses.

extra living space for health care worker

large living room

garden and health facilities

Community Garden!

¥800 RMB/m2

208 m2

This unit type is suitable for elderly families. Both larger living space configuration and additional health care aids ensures a better living for the elderly.

Courtyard Additon Pricing

庭院增值

项目价格

¥

Please refer to the courtyard page for more infomation on pricing

宅基地

HOMESTEAD

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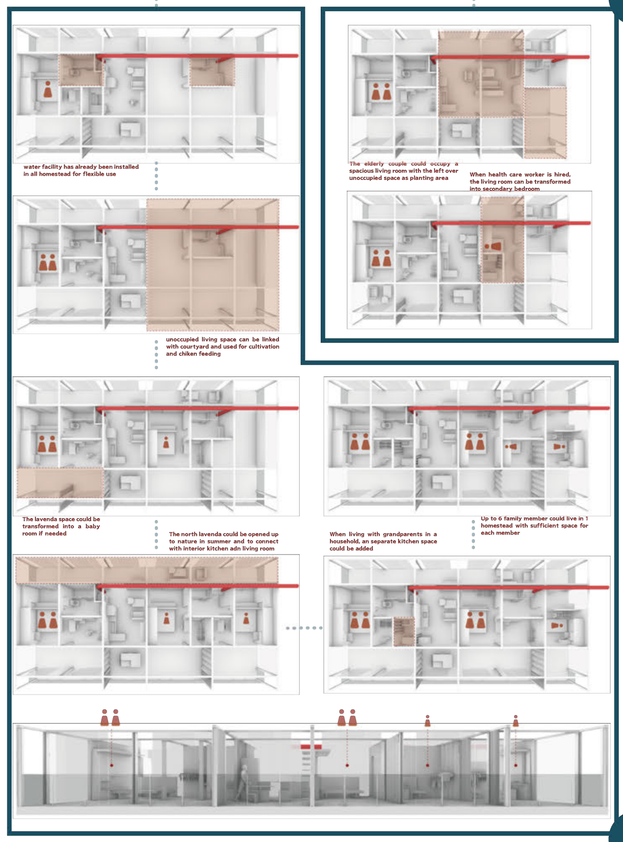


water facility has already been installed in all homestead for flexible use

The elderly couple could occupy a spacious living room with the left over unoccupied space as planting area

When health care worker is hired, the living room can be transformed into secondary bedroom

unoccupied living space can be linked with courtyard and used for cultivation and chiken feeding

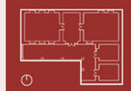
The lavenda space could be transformed into a baby room if needed

The north lavenda could be opened up to nature in summer and to connect with interior kitchen adn living room

When living with grandparents in a household, an separate kitchen space could be added

Up to 6 family member could live in 1 homestead with sufficient space for each member

拥抱基建 打破壁垒 享受生活 拥抱基建 打破壁垒 享受生活



Traditional Ili Household

The Yanlang (levanda) appears on the south side of the traditional household, both creating a buffer space climatically and allowing family life to be integrated with the outside natural world.

The newly developed unit uses a 12' module system. Family members in their own room will be able to open up or close the connection with their family through Yanlang, or to have their own space.

Summer - outdoor kitchen

Winter - Yanlang as a buffer zone

Private balcony

Shared balcony

1 Levanda

133 m2 Shanxi

166 m2 Beijing

200 m2 Shanxi

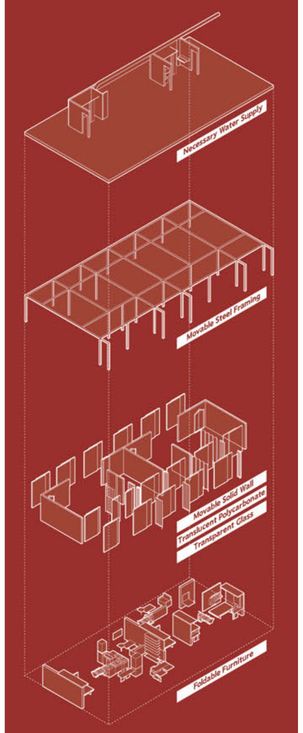
200 m2 Xinjiang

233 m2 Shanghai

250 m2 Homestead Highrise

According to regulation, the areas of homestead application in different provinces are shown in the chart. While the homestead highrise provides larger areas for flexible arrangement.

2 Homestead



With only water facilities installed, the unit could be manipulated as you wish. Foldable furniture pieces that' s made by local carpenters as a part of economy revitalization plan can be ordered from the "Borders and Beyond Borders" planning project website

3 Flexibility

HOMESTEAD HIGH RISE

While the single household upgrading is available for current villagers, a homestead high-rise located on the anchor point of the village is another option for incoming settlement immigrants to establish their lives through also courtyard and stall economy aided by smart water system.

The first feature that highlights the residential unit is the adaptation from the traditional Ili households. As most Ili houses are oriented in line, the south-facing levanda appears to help moderate domestic microclimate and allow families to reach to the outside natural world. Therefore, a double levanda configuration becomes functional in both summer and winter regardless of building orientation. The unit also uses a 12 feet module system with only the restroom space being stationary, so that family members could manipulate the room arrangement and also open up or close the levanda connection with their family.

The second highlight is the large homestead area provided to the new residents. According to regulations, the areas of homestead application vary from province to province. While many places only allows for 100 m2, this high rise provide you with 250 m2 of land on each level for residents to decide on uses for either domestic living, renting, cultivation, and working office.

To support such functional freedom, the unit is designed with flexibility with already installed water facilities inside and outside. The modular unit is framed with movable steel framing and filled with movable walls accompanied by foldable furniture pieces.

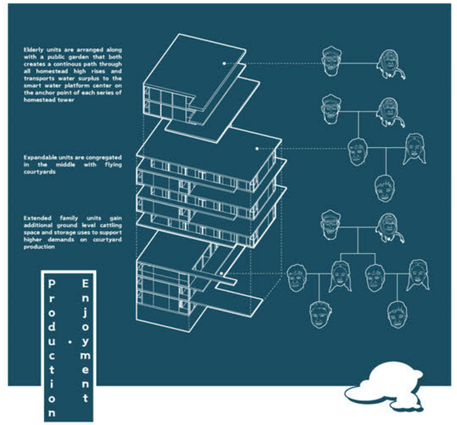
We have suggested 3 types of homesteads responding to the changing family structure in Xinjiang. There is an obvious tendency of gradual decrease in average family sizes in the past decades along side the rise of individuality that changes the mentality about cohabitation with the older generation. However, despite there is a tendency of reduced family sizes, stem and extended family type remains one of the most commonly seen family type, and this homestead high rise will provide flexible options for all family preferences.

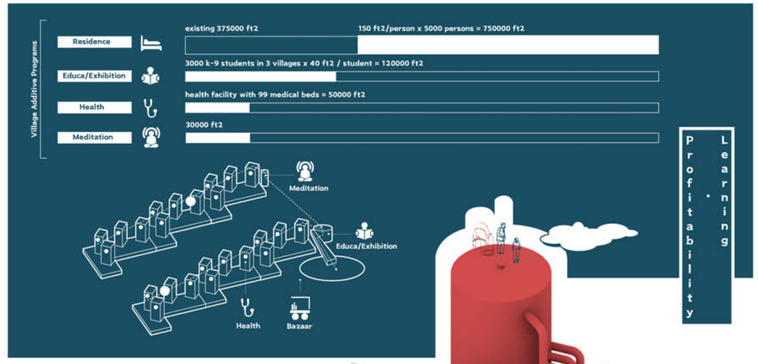
The first unit type with 3 floors and 2 courtyards is suitable for big family seeking for collaborative effort in practicing courtyard economy; the second type with 1.5 courtyards are for non-extended families that allows the youth to choose which life style to follow after growing up and getting married; While the third type is for elderly's collective living. As the chart demonstrates, the unit accommodates a variety of arrangements.

When configured in to a vertical homestead group, the 3 floor family remains on lower levels to occupy more courtyard space, while the elderly units on upper levels are connected with a continuous public garden that also functions as water surplus transportation path.

The public programs are dispersed around the high rise with health care facilities adjacent to elderly unit, and education/exhibition space arranged in the large water exchange portal on the anchor of the village. From that anchor point, the high rises will be built gradually as population goes up.

The ground floor and raised platform with exposed passive and active water intake systems marks the vibrant market space and public landscape. After courtyards produce, the product is brought to bazaars for selling, excessive product will be transported to urban center for larger sales. Mean while, excessive water supply will also be transported to village anchor point and then urban center. In a sense, each homestead feeds back the village's economy and water usage, and the village again feeds back the city.





BREAKFAST IS READY! OPEN THE DOOR!

WASHING INSTRUCTION

MAXIMUM 3 POURS EACH TIME WHEN WASHING HANDS

1 2 3

THESE VEGES ARE GONNA MAKE GOOD PRICES IN TODAY' S BIG BAZAAR!

JUST A SEC PAPA, I' M COMING! MOM SAID THAT WE HAVE TO TAKE THE EGGS WITH US TO SELL

BE QUICK! WE ARE LATE FOR THE BIG BAZAAR !