THE EIGHTEENTH ANNUAL SESSION OF

GLOBAL FORUM ON HUMAN SETTLEMENTS

OUTCOME DOCUMENT

As an important part of COP28 and hailed as one of the most important conferences worldwide focusing on sustainable cities and human settlements, the 18th Annual Session of Global Forum on Human Settlements (GFHS 2023) was successfully held in Dubai on December 2-3, 2023, with the theme being "***Green, Fair and Smart Urban Transformation: Synergistically Accelerating 1.5°C Goal and SDGs***".

Major partners showed continuous engagement with this year's forum which brought together more than 300 professional participants representing 40+ countries. 20 leading organizations joined GFHS 2023 as co-organizers and collaborators. More than 40 outstanding individuals contributed to the forum discussion, including senior officials from relevant national governments, UN agencies and other international organizations, city mayors, business leaders, well-known experts and scholars, among others.

Distinguished speakers and youth at GFHS 2023

The forum was covered by a number of mainstream media outlets around the world. Delegates had fruitful deliberations on 10 key issues, put forward scientific solutions and policy recommendations, reached a consensus on a set of useful and meaningful outcomes and recommended a group of outstanding sustainable development practices and innovations.

We, the participants of the 18th Annual Session of Global Forum on Human Settlements, acknowledge the issues and points recommended as follows, affirm the urgency of transformative action at local, national, reginal and global level, and send a resounding call for a green, fair and smart urban transition to maximize synergies in delivering the climate goal and the Sustainable Development Goals (SDGs).

1. Among the 193 nationally determined contributions (NDCs) that exist globally, 70 NDCs have little or no urban content and only a third of OECD countries mention the role of local authorities in their National Adaptation Plans (NAP) or National Adaptation Strategies (NAS). There is a missed opportunity to connect global climate commitments and national levers to local action and to harness the full benefits of the net zero transition. Subnational governments provide the missing link, because they are in a unique position to deliver climate action in a way that can deliver for all the SDGs.

2. We need to embrace a place-based approach to climate policy that works with and for our cities and regions, ensuring that national strategies on climate incorporate subnational plans, climate action is embedded in urban policy frameworks, and cities have the resources and powers to deliver more ambitious climate actions – including the ability to raise revenues and tap into innovative sources of climate finance to support needed investment.

3. When it comes to implementation of climate action, there cannot be silo-thinking. We cannot take care of the environment and forget social protection or local economies. There is no point in protecting climate with actions that are detrimental for biodiversity. We need one comprehensive and all-encompassing strategy for climate neutrality. This is why linking climate objectives and SDGs is absolutely crucial. It is now time to streamline the efforts at all level, starting from the global level, to promote a more forward-looking approach that really fosters implementation.

4. This is not about power games: this is about ensuring a liveable planet for our children and grandchildren. Rules need to be consulted with the ones implementing

them to ensure they can actually work. And the climate change area is one where we cannot allow to fail. We need all hands on deck and all brains around the table to drive this complex transition. As local leaders we can lead the process.

5. When it comes to developing zero-carbon and zero-waste communities and cities, we need to move from a piecemeal approach to a comprehensive, multifaceted, and integrated thinking, and incorporate equity, circularity and sustainability in diverse urban systems, namely transport and mobility, building and construction, and industrial process. Resilient, inclusive, gender-responsive and environmentally-conscious planning and design helps make things right from the beginning, which should also be accompanied by effective implementation mechanism and monitoring and evaluation frameworks.

6. Local and regional governments have a fundamental role in making climate and energy policies a concrete reality. Their representatives possess a deep understanding of their unique challenges. They live and breathe the issues their communities face, making them best equipped to propose and implement effective policies. Local and regional governments can develop solutions that are tailored to the specific needs of their territories. This flexibility is crucial because what works in one city or region may not be suitable for another.

7. City authorities can shape and accelerate the evolution of a renewable-based energy transition. They can be target setters, urban planners and regulators. They are often owners and operators of municipal buildings and public vehicle fleets. Cities can aggregate the energy demand, or function as financiers of renewable projects. They can also raise public awareness through local media or activities.

8. Cities can harness locally available renewable resources and technologies, including solar from rooftops, solar thermal and solar cooling systems, bioenergy, and direct use of geothermal. District heating and cooling networks may enable a larger deployment of low-temperature renewable sources (such as geothermal and solar thermal) and waste heat from industrial sources.

9. It is essential for cities to mainstream the use of renewable energy in industrial applications, especially in small and medium sized enterprises (SMEs), to enable access to renewables through mini-grids and distributed energy system and reduce dependence on fossil fuels, to foster innovation in renewable energy technologies,

and to create business development opportunities, thereby elevating their competitiveness and sustainability.

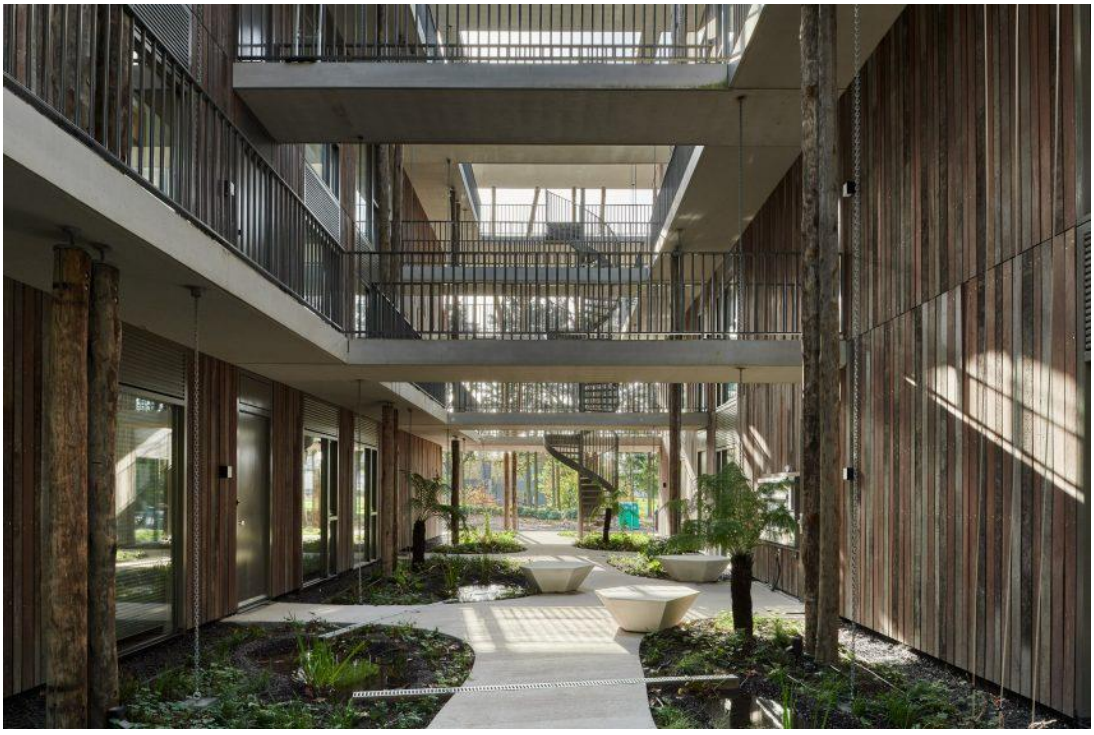
10. Local governments need to enhance their understanding and governance of risks. This requires a coordinated, multi-sectoral risk governance structure where all risks can be considered and acted upon by a variety of actors. This approach would also serve as the basis for making risk reduction decisions on all matters of local development. It is in the face of these growing climate-related disaster risks that we must recognize that we have no other option than to succeed in our collective endeavour to build resilience as the foundation for sustainable development.

11. National governments must prioritize building climate resilience in cities, recognizing that investing in cities is a powerful way of acting simultaneously on development, biodiversity and climate challenges. Countries and cities need better understand and map their risks, deploy adequate observation and monitoring systems and boost their prediction and forecasting capacities to anticipate hazards, as well as leveraging ICTs, cell-broadcast and standards

such as the common alerting protocol to disseminate warning information to all people at risk.

12. The moment to act on multi-hazard early warning systems is now. One of the greatest climate injustices is that around half of the countries in the world are still not protected by multi-hazard early warning systems. We need to adopt a smart climate planning, include climate information (long-term planning, seasonal, daily and nowcasting) in all sectors, and push forward innovation and progress in ensuring everyone is protected by multi hazard early warning systems.

13. The focus of urban transformation lies in buildings and communities. Greener, healthier, low-carbon, efficient, smart and convenient buildings and communities are the foundation for improving the quality of life and well-being of people. People-oriented public space as well as safe and accessible green mobility make cities more attractive and dynamic. These are the key topics addressed at the forum and are also the key for synergistically accelerating the 1.5°C Goal and SDGs.



A green passage in Forest Bath, a circular residential building in Eindhoven

14. Living in sustainable housing should not be a privilege – it should be a fundamental human right – especially in the context of global warming and

the climate emergency. There can be no energy justice and environmental justice without access to sustainable buildings. Yet the building sector is not contributing fully to just transitions. After many years of working on policy reforms from a climate and energy perspective, we realize that a more powerful way of supporting governments and industry to act on climate requires providing evidence of the non-climate benefits of sustainable buildings including the health, economic and climate resilience benefits.

15. The health and other co-benefits of sustainable building which have been reported in research are either not well known in practice, or not used to promote sustainable building. Furthermore, because sustainable building has been viewed primarily through the lens of climate change, other sectors that could benefit such as health, transport, energy and real-estate have not been effectively brought into the conversation. Indirect benefits include better physical and mental health, improving and safeguarding thermal comfort in homes is therefore a priority. High-ambition policies such as mandating net-zero energy performance in building codes also leads to the greatest positive return on investment (ROI) to public finances over time. Sustainable building is the ultimate 'win-win'.

16. The tensile strength of bamboo is higher than steel, it doesn't rust, is lightweight, carbon negative and beautiful making it a unique and versatile construction material. If selected and treated right, combined with modern engineering, bamboo can replace conventional high-carbon-footprint materials to create a more sustainable and beautiful living environment. Combining state-of-the-art engineering with modern design positions bamboo as a potent construction material for the 21st century with no carbon footprint.

17. Sustainable low-carbon solutions are uniquely suited to secure economic and social development if we make the right choices. We should not oversimplify the discussion by just talking about electric vehicles replacing gasoline or diesel-powered vehicles. While such a change addresses climate change it does not increase access, reduce congestion, or improve public transport services; nor does it make transport safer. Developing an integrated national transport vision and strategy for decarbonization is key. A strong vision for a balanced, multimodal and sustainable transport system can provide the

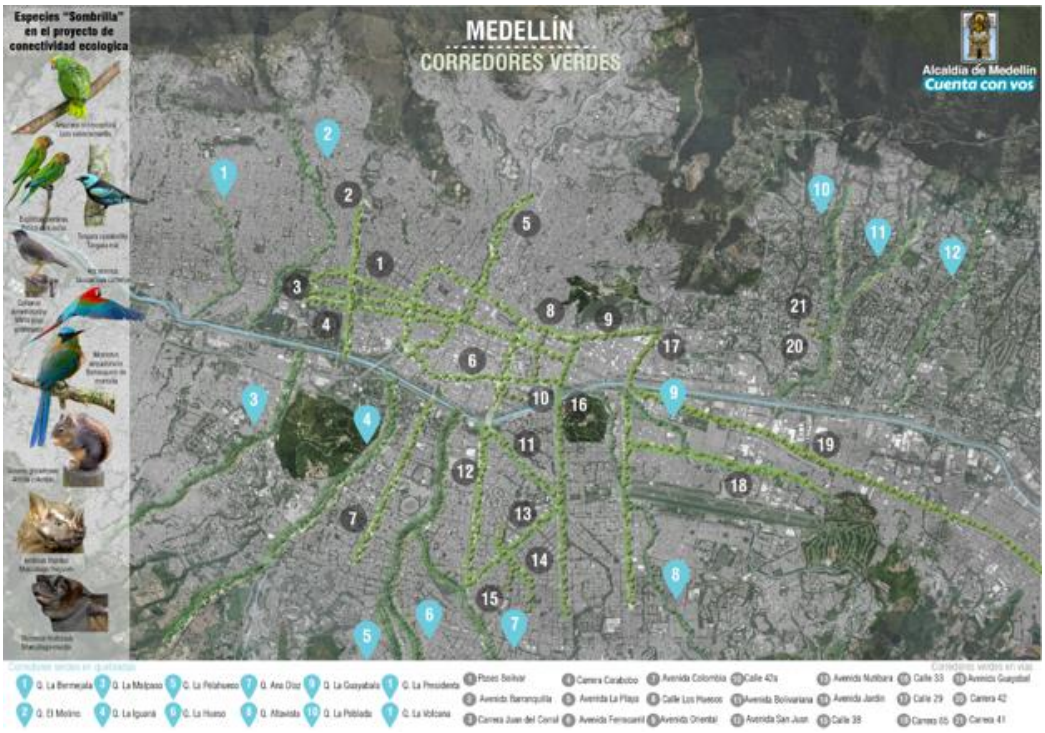
guidance necessary for the creation or revision of policies and measures.

18. Consistent policy and price signals are necessary for achieving development and climate goals. A range of policy instruments influence price formation in markets and thus have a signaling effect for market actors. Problems may arise when external costs are not fully internalized in the transaction between economic actors, or if price signals have countervailing effects, encouraging contradictory behaviors or technologies. This may lead to wasted public funding or increased uncertainty for investors. A careful review and subsequent reform of pricing instruments will help to avoid such conflicting signals and enhance the effectiveness of public spending.

19. Surface Transport Investment mode share is changing from a focus on road to a more balanced across modes. However, the gap between infrastructure investments and transport demand has started widening since 2015. Countries spend majorly on infrastructure expansion (86%) and less on maintenance (14%). There is an urgent need to increase adaptation measures to close the infrastructure resilience gap.

20. As the greenest, most electrified and energy efficient form of motorized transport, rail can help decarbonize transport and avoid the growth on transport emissions in low-income countries (LICs) and low- to middle-income countries (LMICs) by attracting more customers and passengers. Electric railways, when planned in synergy to renewable energy can help accelerate the transition to clean energy and transport.

21. Living a greener lifestyle takes effort. It's not difficult, but it requires brain space and conscious actions to continue to make sustainable choices. Unfortunately, when our mental health deteriorates, maintaining these habits isn't always possible because we just don't have the stamina. Inspiring behavior change requires a solid understanding of how people behave in different situations and contexts, so as to put in place the right education system, enable an environment for action and cultivate a culture of sustainability.



Medellín's interconnected green corridors

22. Local governments need to underscore in policy and planning the need for a landscape-level vision involving a diverse portfolio of NbS actors and actions; recognize nature's multiple benefits for sustainable urban policy, planning and management (e.g. education, health, climate action, employment and environmental conservation); and support and sign global and regional initiatives and guidance on best practices.

23. International finance institutions need to encourage the use of integrated tools to provide investors with accurate information and a holistic, long-term value of local green and sustainable infrastructure projects; foster project upscaling by identifying revenue streams for potential investors and highlighting bankable solutions with positive financial returns; and support research on NbS benefits in cities and local communities, including for urban resilience.

24. To address heat and water related risk in cities, it is important to incorporate green spaces and permeable surfaces into urban landscape design which is a solution that can help mitigate rising temperatures, as trees cool their surroundings via evapotranspiration and shading; and permeable surfaces increase infiltration of rainwater and have the effect of decreasing flood risk. It is also essential to ensure equitable spatial distribution, connectivity and accessibility of urban nature interventions in cities.

Sustainable Development Practices and Innovations

Awarders and Awardees at Sustainable Cities and Human Settlements Awards 2023

1. City of Dublin, Ireland – Global Green City 2023

Dublin is the capital city of the Republic of Ireland and is located on the east coast of the country. Once home to Vikings, the city has grown around the flood plains of the River Liffey, and is now a home to 592,713 Dubliners. Spread over its 117 km2 are markers of a rich history and culture that have been shaping the city's identity for over a millennia.

Dublin City Council is striving to ensure that Dublin is a dynamic, sustainable city that is future-ready, built on thriving, inclusive neighbourhoods and communities, a strong economy, a vibrant cultural life, and compact, connected growth. Climate change is the greatest risk to our future. Through our local authority climate action plan, Climate Neutral Dublin 2030, we are taking action to prepare our city and people living here for the known impacts of climate change – flooding, sea level rise, extreme weather events, drought – and the known unknowns.

Our plan builds on our strengths, like our award-winning Smart City Programme. Initiated in 2015 to experiment with new concepts and ideas, today Smart Dublin is facilitating over 100 live projects. Using the Quadruple Helix model, Smart Dublin has brought together citizens, government, academia and industry to facilitate the growth of our innovation ecosystem. We have developed new 'Smart Districts' across Dublin that facilitate experimentation as living labs. Climate action is central to our smart cities initiatives and we are actively building our data

sets to inform how we take action and continue to make Dublin resilient. (More: http://www.dublincity.ie/)

River Liffey, Dublin

2. Prof. Marina Silva, Minister of the Environment and Climate Change, Brazil

Prof. Marina Silva is Brazil's Minister of the Environment and Climate Change (since 2023) and was the Minister of the Environment from 2003 to 2008. Marina Silva's work is a testament to the power of activism. In more than 30 years of public life, she has gained worldwide recognition for her unyielding resolve, devotion, leadership in the defense of the environment, traditional communities and sustainable development.

She has greatly contributed to strengthening socio-environmental governance by mainstreaming environmental management and sustainable development into national policies and regulations. She led the creation of the most important strategy for the protection of tropical forests in history: the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon, which managed to reduce deforestation in the Amazon by over 80% for almost a decade, avoiding the emission of 2,2 billion tons of CO2 into the atmosphere. In addition, the Action Plan created 24 million hectares of protected natural areas and included thousands of families from extractive communities who lived in the forest and were under threat of invasion of their lands and plundering of their natural resources. During

her office as the Minister of the Environment, she carried out an innovative management of environmental policy in Brazil, including implementing new management of public forests and creating a forest service and a biodiversity institute, and several funds for nature.

She has received dozens of national and international titles and awards, such as the Goldman Environmental Prize, the WWF's Duke of Edinburgh Medal and the United Nations' highest environmental award, the Champions of the Earth. She was chosen as woman of the year by the Financial Times Magazine in 2004 and was listed in the British newspaper The Guardian in 2008 among the 50 people who can save the planet. She was presented Global Human Settlements Outstanding Contribution Award 2023.

3. Six Senses Ninh Van Bay - Global Low-carbon Ecological Scenic Spot

Six Senses Ninh Van Bay is the perfect holiday destination in Vietnam for regenerative travel, allowing guests to actively participate in sustainability and conservation projects with the resort to preserve the marine ecosystem and biodiversity of the Bay. With 19 years of establishment and growth, Six Senses Ninh Van Bay has earned widespread recognition as a trailblazer in sustainable practices within the hospitality industry. It has showcased how a strong commitment to local communities and ecosystems can be successfully combined with uncompromising top-tier facilities.

The Sustainability Fund allocates 0.5 percent of net revenue, 50 percent of house-bottled water sales, and 100 percent of soft toy sales and donations to be spent on community and conservation projects. The objective of this fund is to enhance the quality of life and resilience of local communities, protect and restore ecosystems, and improve the living environment for wildlife populations in the Hon Heo area. This is achieved through collaborative partnerships working together towards predefined goals aimed at tackling local social and environmental issues.

One such issue is the destruction of natural habitats, which poses significant threat to local wildlife and ecosystems. As the number of endangered species continues to rise, the work undertaken to protect wildlife becomes increasingly crucial. The aspiration of Ninh Van Bay is to protect and preserve the local communities, culture, environments, and wildlife, which needs to be done this through a long-term, multi-disciplinary approach. (More: sixsenses.com/NinhVanBay)

Six Senses Ninh Van Bay

4. Bamboo Sports Hall at Panyaden International School, Thailand

Chiangmai Life Architect's Bamboo Sports Hall for Panyaden International School combines modern organic design, 21st century engineering and a natural material – bamboo. Bamboo is a natural re-enforced tube with a higher tensile strength than steel. It is also lighter and more flexible than steel and does not rust. Additionally, it is a pleasure to look at and does not need to be painted or covered up. It is a local material and such causes little emissions during transportation, resulting in a truly sustainable building with a negative carbon footprint. Bamboo can absorb up to 4 times more CO_2 from the atmosphere than trees and can sequester up to 12 tons of CO_2 per hectare per year. Bamboo is a grass and grows as a clump with poles of different ages in one clump. If harvested correctly the clump will prosper and can provide poles for at least 20 years without damaging the plant.

The 3-layered roof design provides ample natural daylight between the first and second layer and an escape opening for hot air on the top between the 2nd and the 3rd layer to enhance natural ventilation and cooling. In addition, the outer roof cover consists of several overlapping layers that insulate against heat much better than conventional roofing materials thus keeping the inside comfortably cool throughout the year.

In this project for the first time large engineered prefabricated bamboo trusses without any steel reinforcements were designed to create big span arches. The trusses and their connections were calculated by engineers to withstand all prevailing load and shear forces such as high-speed winds, storms and earthquakes. This innovative combination has opened endless possibilities for bamboo to be used in mainstream construction which could lead to a substantial reduction in CO2 pollution.

Bamboo Sports Hall at Panyaden International School

5. RainGrid Intelligent Rain Retention and Reuse (IR3) - Global Model of Green Technology

RainGrid captures the value of rain with Intelligent Rain Retention and Reuse (IR3) systems. RainGrid's IR3 enhances data-driven decision-making, improves flood and drought resilience in cities, and applies next-generation technologies for rainfall retention and reuse on every property - including homes, schools, and businesses. This property-based technology (PropTech) is a distributed and democratized approach to building climate-resilient communities.

RainGrid provides end-to-end stormwater management solutions for cities, developers, property management companies and corporate campuses. The team designs, installs and maintains digitized rain management systems that come with improved records, monitoring, and maintenance. The IR3 distributed smart

infrastructure reduces need for pipe system upgrades and delays overland infrastructure repairs caused by flooding. The Internet of Things (IoT) technology enables a circular economy for rain that virtually eliminates stormwater runoff and regenerates watersheds. By correlating rooftop rainfall volumes with cistern storage volumes, IR3 achieves net zero stormwater.

The precipitation forecast algorithm and IoT peripherals (sensors and electrically actuated drainage) combined with property-based infiltration galleries can augment nature-based solutions (NBS) by retaining and recharging groundwater on site. Real-time property-level micro-climate data captured improves decision making and informs flood forecasting, early-warning systems, disaster risk response. Ecosystem outcomes are verified and can be monetized. Data generated empowers credit trading in stormwater offsets, GHG, as well as ecosystem restoration credits. IR3 disrupts linear models of drainage and water retention by designing a circular economy of rain. (More: https://www.raingrid.com/)

6. Forest Bath – a circular residential building in Eindhoven, the Netherlands

Forest Bath is a circular residential building located in a park 'Bosrijk', Eindhoven (NL). In the design of this energy neutral building, many sustainable principles were used. For instance, the main supporting structure, responsible for the vast majority of the total weight, is made of prefabricated concrete components with demountable connections. This demountable approach allows repositioning and reusability of the concrete elements, extending their lifespan.

The reclaimed Azobe façade cladding was previously used as riverbank protection and the supporting columns are Eucalyptus tree trunks. At least 85% of the weight of the applied materials is circular, meaning it is either re-growable, recyclable or suitable for direct reuse, making Forest Bath a source for urban mining. To reduce materials, attention was paid to a more efficient dimensioning of building elements. By eliminating poured-in sewerage, ventilation, and water pipes, unnecessarily thick concrete floors typical for residential buildings, were avoided. Instead, using prestressed "green" hollow-core slabs resulted in 45% material savings compared to cast-in-situ floors.

A landscaped passage runs through the building, providing a connection to the forest, while having an important water management function. Rainwater from the galleries and partly green roof, runs into the passage via water chains and is

collected in small ponds. Excess water drains from the passage and is collected in a wadi in the park. The delayed discharge of water ensures the system is not overloaded during heavy rainfall. Due to the compact footprint of Forest Bath, there is a lot of unpaved soil enabling water infiltration and buffering, reducing heat stress on hot days. The green passage consists of various forest plants, increasing biodiversity. Flowering plants climb up along cables and nesting boxes for animals are included on the tree trunk columns.

Wetland and populus euphratica forest in Layisu Village, Kunyu City, Xinjiang

7. Layisu Village, China - the fourth longevity village in the world

Layisu Village, Yuquan Town, Kunyu City, located on the southern edge of the Taklimakan Desert in Xinjiang, is the fourth longevity village in the world. With a history of more than 2,000 years, the village is an important stop on the ancient Silk Road. Covering an area of over 400 square kilometers, the village currently has a population of nearly 3,000 people, and enjoys unique natural conditions. Snow water on Kunlun Mountain flows underground, and spring water gushes out to form an oasis here. The spring water is rich in strontium that is beneficial to human health. As a place with south-China-type scenery, it is unique and fascinating.

The village has complete infrastructure and an orderly layout. There are shelves of grapes in front of and behind the houses, and people can enjoy the fragrance of fruits and vegetables. Flush toilets are available at every household. The resource utilization rate of sewage stands at 97%, and domestic waste get 100% harmless

treatment. The village attaches great importance to scientific planning, takes "ecology + health care + tourism" as its industrial positioning, vigorously restores and protects the ecology, applies water-saving irrigation, and promotes ecological and circular agriculture through the model of "grass-livestock-fertilizer-fruit" integration. The village enjoys a relatively high wellbeing index and the people live and work in peace and contentment.