



## Flowing with Urban Water Design

# Interview With Herbert Dreiseitl

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Photography by Atelier Dreiseitl Asia Pte Ltd

1. Potsdamer Platz in Berlin was one of the first projects to be awarded the DGNB Certificate of the German Sustainable Building Council (Silver) in 2011.

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What we see is what we take care of."

—Herbert Dreiseitl

Born in Ulm, Germany, Herbert Dreiseitl founded the firm Atelier Dreiseitl in 1980, a multidisciplinary practice that specialises in integrating art, urban hydrology, environmental engineering, and landscape architecture within an urban context. Trained as an artist, the renowned urban planner, landscape architect and water artist is known for his contemporary and groundbreaking water sculptures and urban spaces. CITYGREEN has a conversation with him on his newest project to redevelop the Kallang River and Bishan Park in Singapore and his wider international practice and design philosophy.

With a particular focus on water, one of the most essential and threatened natural resources on the planet, Atelier Dreiseitl seeks to awaken a new understanding of sustainability, while implementing comprehensive design solutions. The Atelier prides itself on its multidisciplinary team and hands-on approach, often building scale models up to actual size to test the effectiveness of its designs. Dreiseitl's portfolio of international projects are showcased in the latest version of his book, *Recent Water-scapes*, published in 2009. His notable projects featured include Berlin Postdamer Platz, Solar City Linz, and Tianjin Cultural Park.

**CG: CITYGREEN**

**HD: Herbert Dreiseitl**

**CG: Atelier Dreiseitl has a unique focus on storm water management. What is it about water that interests you?**

**HD:** To me, water is the most important and critical topic for urban life and urban society. Questions of energy and traffic can be solved sometime in the future as we can reduce them if we like, but water cannot be, as it is even more elementary: it is a basic need, like food. Rainwater is the first point in our freshwater cycle. It is very important as it has to do with landscape architecture and cities, it has to do with food and vegetation, and it has to do with health. Therefore, smart management is needed for this important resource and it is a very relevant topic for landscape architecture.

**CG: In your work, you tend to emphasise a holistic approach. Can you describe a bit about how you collaborate with your consultant team?**

**HD:** We are a multi-disciplinary and multicultural team of 80 people: we are landscape architects, urban planners, civil engineers, hydraulic engineers, model makers, architects, environmental engineers, and artists. My partners Dieter Grau and Gerhard Hauber and I continue to arrange the core team and our consultants for the best constellation to deliver excellent work results. We always have the top of the top in the team, and we collaborate with top research institutions. I think the size of our team is ideal. Some think it is small, but I think it is important to have a mix of experts in the core team and new, young, fresh graduates to keep communication flowing.

We do quite interesting team building events. In many ways, I try not to be a teacher in the old sense; I am creating opportunities for the entire team to come up with new ideas and new concepts. They themselves start to be the learning group. We also regularly invite lecturers from outside; this is very exciting and productive for the team. We also have many exchanges between our different offices; we have colleagues from China, Singapore, America, and Europe. We try to mix the teams and to mix the cultures together. When designing, we want to keep the character and quality of a region, so for all of us, cultural sensitivity and awareness are important.

**CG: Water is dynamic, and so are your methodology and process. How have your processes and influences changed over the years?**

**HD:** I am a very practical person, and when I started in 1980 to build my company, I was simply trying to understand water. We did everything in experiments, I tried out many things, made 1:1 models to figure out how water behaves—how it flows, how I can express the beauty of water, how I can avoid just making boring jumping jets, which you can see all over the place. I learnt a lot from old masters. They were always very exact and precise, really looking at what water is doing. My philosophy focuses more on learning about the process than on the end products.

**CG: How do you think waterscapes can activate spaces in the city?**

**HD:** Cities and urban areas have to change their systems into waterscapes. Waterscapes are living systems that provide a living, cleansing process like nature. If we take the intelligence of nature and bring it back to cities using smart technology, we can recreate this. The water body in a city is like an organism. It has different ways of interacting. Water has to be decentralised, brought to the surface, and integrated into what we can actually see. What we see is what we take care of.

We also need more space. To put it together in a very clear and simple formula, we need to give time and space for the process of water. That is what we have to create in our cities. Cities need to be waterscapes, and these waterscapes have to be healthy. We have to work at this and create prototypes.

Waterscapes are not decoration. They are infrastructure, protecting cities against flooding and securing drinking water resources. They are a necessity. Thankfully, water is also aesthetically beautiful. It gives a place ambience and makes people want to be there. Beyond the question of beauty, there are also aspects of temperature control and outdoor comfort to be considered, not to mention the creation of space for nature. So every liveable city has the urgent question of water as its starting place. Waterscapes are extremely connected to the liveability of a city, and to the functioning of its urban landscapes and infrastructure.

**CG: Your projects cover a range of scales. How are the considerations different for a river catchment area and a small urban plaza?**

**HD:** I have to be honest—whether a large project of many miles, or a small art project, it takes almost the same energy and considerations. For me, scale does not really matter. Often I will find the answer to questions of big projects in the small scale, and vice versa. There is a give and take across them. I like this—it makes my brain flexible.

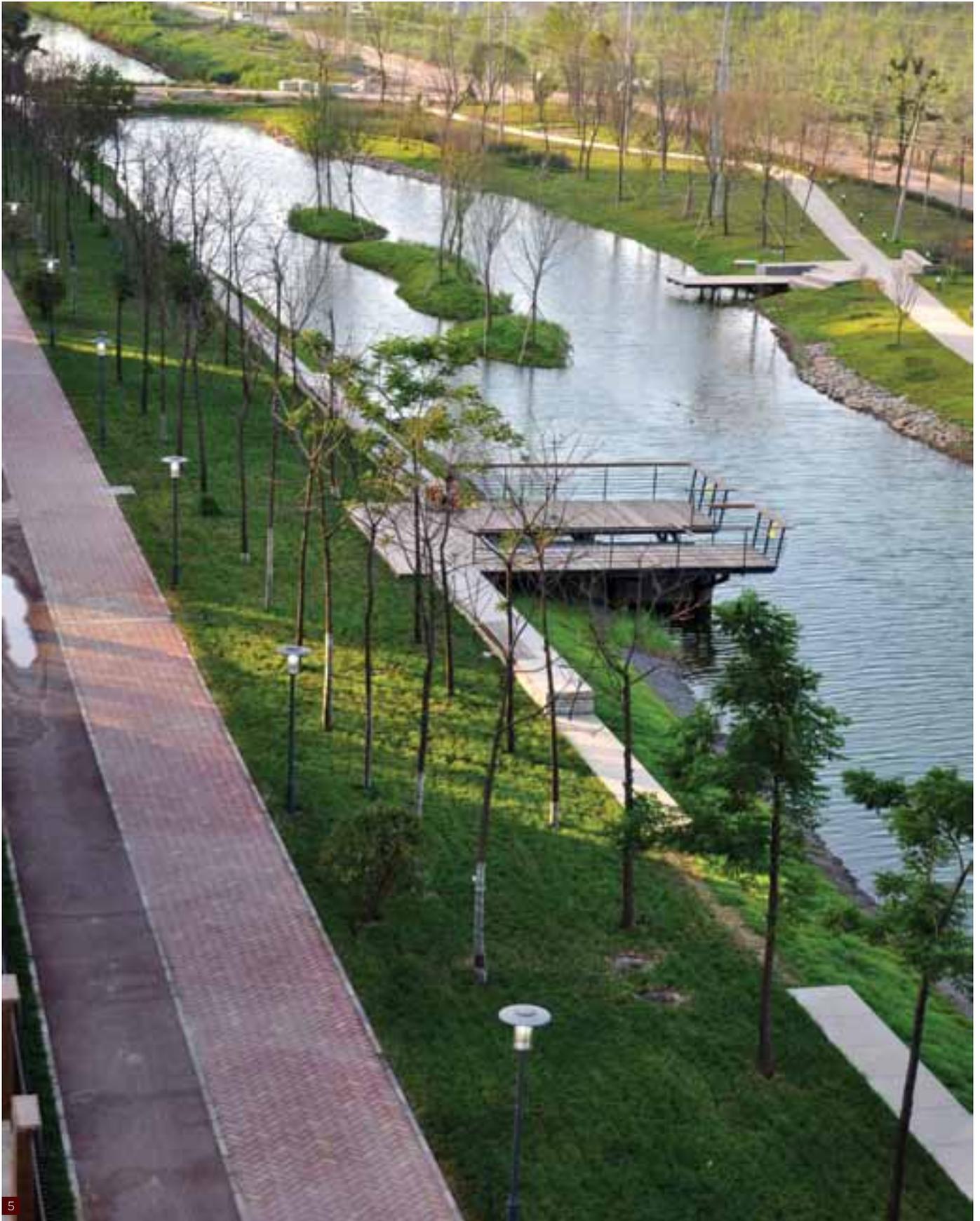
Small-scale projects are good for creating a sense of hope. They are good learning experiences that plant the seed for something bigger. As innovators, it's important to learn out of failing. On a broader scale, it's very important that we discover ways to recycle water, and treat water so it can be renewed. As an example, I mention Singapore, a city that is at the forefront of new water technology but is smart enough to know it's not only about technology. It's also



2. Tianjin Cultural Park, in one of China's significant cities, is a new museum district with a sustainable urban water concept.

3. The Zayed National Museum, a collaboration with Foster + Partners, in the United Arab Emirates.

4. Human-scale urban design and diverse architectural typologies characterise the Zhangjiawo Residential Development in Tianjin, China.



about aesthetics. The emotions must come in. People need to have a feeling, an understanding of what happens. That's where we can come in to make cities more beautiful. I am not just being altruistic. Function and form and aesthetics really need to get together, complement each other, and encourage progress.

**CG: Please describe an urban project that illustrates your approach to designing with water.**

**HD:** On a very large scale, I would pick out the central watershed master plan for Singapore, which we worked on together with CH2M Hill. The project is really about thinking about the entire island, a huge city, and its vision for the future. It's about making the city more independent and less reliant on other countries for their water resources. At the moment the city needs a lot of water from abroad, coming in via pipelines from Malaysia, which is actually typical for any major city. From a broad perspective, what is needed for the future is more harmony, partnerships, and an intelligent and better use of resources. With a holistic approach, the large amounts of tropical rain that currently flows out to sea can be collected and used in a different manner.

What we're trying to do is collect rainwater from the entire city's central catchment, which includes hard surfaces, rooftops, roads, plazas, and so on. We try to harvest the water and release it slowly into the central rivers before it enters the Marina Barrage, a freshwater catchment reservoir. However, we need a treatment train—bio-swales and structures that are integrated into the urban grid and city. These have to be accepted by the local people; it has to be part of their culture.

Therefore, this is not only a technical solution. It involves the people. The government has been very supportive of this and they created the ABC Water Guidelines to get the public and private sectors on board. The letters "A", "B", and "C" are an acronym: "A" for Active; "B" for Beautiful; and "C" for Clean. That's one of the projects that illustrate the long-term vision and integrated approach to our work with water.

With this project, we are also doing different pilot projects. One of them is the Bishan Park, a major heartland park in the city that is well loved by people and has more than three million visitors each year. We integrated the park with the Kallang River that flows beside it. The canal was once a river, and it's also a tributary of Singapore. Previously it acted as a barrier between the park and people. We want to use the river and its water to reach out to people by renaturalising it. As such, this project includes a completely different way of stabilising the edges within an urban environment. We integrated soil-bioengineering, which is completely new in Singapore. It has never been done before, so we did a lot of research and built a test bed to try out new ideas.

**CG: What are the key design strategies used in the design for Bishan Park and how has it impacted the community in Singapore?**

**HD:** As a starting point, water scarcity is an important security issue in Singapore. The development of the ABC programme, which originally brought me to Singapore, gave me the opportunity to come up with a strategic plan that would contribute to the water security of the city. Public Utilities Board was interested because combining green infrastructure, urban planning, and water issues was new. It was

5. Feng River, in Zhangjiawo Residential Development in Tianjin, China, has been restored from a polluted drainage channel to an ecological and social resource.



6. The Ecological City Winnenden won first prize in the Green Dot awards 2011, in the category "Build".

7. Winnenden has turned an industrial site into a first-class community.

basically seen as a purely engineering topic until then. Atelier Dreiseitl's background and philosophy proposes a different strategic plan by bringing urban planning, landscape architecture, and green infrastructure together with blue infrastructure. When I heard about Bishan Park, I thought, "Wait a minute, that's an opportunity!" We can simultaneously redesign the park, restore the river, and improve the catchment area. In doing so, we are also improving the awareness of the local people to interact with their environment.

There are three main topics in the project: water security and water management, to incorporate nature into the modern city, and third, to reconnect society with nature through awareness. It's amazing that in a city, people can be completely cut off from their environment. Singapore is a typical example. To reconnect to nature and have an open space where people can connect to each other—that is basically how a modern park should be. A society can only work when people learn about social behaviours, about basic matters of democracy. It is very important to have different points of view and to encourage children to play together in the playground—even with other children whom they may not know. These are basic social exercises that happen in a park, and that's also a key part of this park design.

Then maybe another consideration is that this is an Asian culture and we needed to be sensitive. It was even more important for me, as a foreigner, to understand the strengths of the Asian culture and see the potential of the future. So what we tried to do in the design was not to overdesign, but to observe and encourage existing local habits, such as early morning exercises, meditation, and tai chi. We have tried to enhance these in our design, but we also wanted to have the best of the east and the west in our park design. So we also incorporated different types of playgrounds, designed to be stations for unique experiences and active zones where you get a sense of the environment and yourself. We thought about the different user groups, and were sensitive to locate these playgrounds not only for kids but also for adults.

Another key topic was bringing environmental science to the park, for example, finding natural ways of slowing down the water flow to have retention along the river. To improve the water quality, we also researched and tested special plants that have water-cleansing qualities. We introduced elements such as cleansing biotopes, which also contributes to the water-treatment. We have recycled concrete from the demolished canal, crushing it into small pieces to be used as gravel. We also used slabs of these recycled concrete to form an artificial hill that would be a lookout point and an art performance space at the same time.

**CG: How do you convince cities and their residents to invest in sustainable water management, and more specifically in Singapore and the Kallang River?**

**HD:** There are two ways I do it. First, I bring clients to projects we have completed and show them their success. I let them interview former clients and ask questions for themselves—this is more convincing than showing statistics and points. It is very much about emotions, not only statistics. Second, I try to make the benefits of integrated water systems clear.

In Singapore, the process of starting the Kallang River Bishan Park project was an interesting one bringing the park and the river together. Together with my small team, we invested in a one-week workshop with the stakeholders, namely the statutory boards of Public Utilities Board and National Parks Board. The aim was to bring these parties together as a client, helping them understand the end goal and how to work with joint resources. As this was unprecedented, we had to prepare and present a convincing idea. Therefore, first, I came up with initial sketches. There was a short timeslot for the CEOs, to bring them together to show them the presentation. In this workshop in Bishan Park, we were with the local people. It was not done in an office with air conditioning, but in the field, with simple chats. It was pouring and no one could walk around, we saw all the beauty and all the problem areas. So my proposal was not up in the air, or an academic exercise, it was down to earth. It was really looking at the day-to-day problems and an opener for them to listen. They must have thought, "He must be a crazy guy, but he has something to say."

**CG: Are these the same issues that every city should be addressing?**

**HD:** There are many issues that need to be addressed worldwide but they might not be typical of the tropics. Considering the function of the park is more than assessing it as a fun place to be in or having a beautiful open space. As we have run out of space and nature in our cities, we must see this green space as infrastructure, infrastructure that has air and biodiversity makes the cities more liveable and sustainable. That is what parks need. This can be applied in other parks and Bishan Park is an example.

Another issue is that parks should be sensitive to the local culture. We tried to be sensitive to the culture of this specific area; Bishan Park would have looked different in a different part of Singapore. Being in this specific place means we have special neighbours. They are locals, not tourists, who use the park on a daily basis. The park is not a big show of fancy things for tourists, not to make it super "this" or super "that". We are honest, it is a really down-to-earth approach.



8. Tianjin Airport Logistic Park, China. In a semi-arid environment, the lake stores water for irrigation, whereas the green streets and courtyard give a human context to the large-scale development and significantly increase outdoor comfort in a dry climate.

9. The award-winning Tanner Springs Park, in Portland, Oregon, is an artistic and natural park which connects to the urban spirit of Portland.

10. McLaren Development Center, London. The integrated rainwater management system cools the building, protects the nearby river, and creates an outstanding ambience for this Stirling Prize-shortlisted project.

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We tried to be sensitive in noting the assets of the park and what needed to be changed. For example, in the foot reflexology zone, we kept these small little stones. The users go around and around the stone pavement ten times. It was old-fashioned and boring but still amazing and functional. So we thought we should keep this quality of the foot reflexology zone. When they walk around, not a boring circle but designed so they see different types of plants, suddenly they are between palms and trees, or between grasses or on open lawn. Those are sort of compositional, experiential changes in the foot reflexology zone.

Another example was the old lotus pond, which was beautiful, and so we tried to keep the atmosphere. It is about keeping that but still making one view from the lotus pond where we can see the temple on the other side just through making one axis open. I found certain things like the temple beautiful, with a strong spiritual aura. To get this aura into the park, our cleansing biotope is a contemporary and spiritual thing for water. To connect that to the temple is an interesting feature.

So the park design actually did come out of walking, sometimes in the early morning and sometimes late evening, to see how the park functions. I was not trying to create a design at the very beginning, but to listen carefully first. To be sensitive to the local users and to learn from the way they behave, to look from their eyes and see what possible change could be made to the park. That is an approach that can be done in many cities.

**CG: In designing living systems, have you encountered any maintenance problems over time given that they involve water, plants, and other living organisms?**

**HD:** It is important that living systems are self-contained and self-regulating; this is like our human body, and any healthy organ should work best without maintenance and repairing. One example is our living system "cleansing biotope" technology. We have a very special substrate, plants and microorganisms in a symbiosis. The water is treated through a slow filtration system of microorganisms, root systems, and special plant collections. This is a completely self-

contained system; the living system itself is renewing—very similar to nature and you only need to harvest the plants from time to time. Also, with the other living systems technologies, I try to keep them as organic as possible, so that they do not need a lot of money or maintenance. We call this not a machine but a living organism. I think that is the future.

**CG: What challenges have you met along the way? Are there any new advances you expect from future development?**

**HD:** The thing that has impressed me most is the rapid change of our society. For example, East and West Germany coming together was for all, including myself, a complete surprise. I worked on a project, called Potsdamer Platz, which is in the centre of Berlin, at the very heart of this change and was fortunate to be able to bridge the east and west together symbolically. While working with Renzo Piano [the architect who worked on Potsdamer Platz] and his building workshop, we reflected this momentous political and societal change in our work.

When we think about the future, we often complain about cities not functioning, about people never changing, constantly striving for material things and so on. But I think the environment will challenge us more extremely and we need to switch paradigms and priorities. People will need to change very quickly to avoid killing the planet and ourselves.

Yes, I am an optimist and I see hope, and that motivates me to work as an urban designer, artist and landscape architect. I believe in change, new concepts, and I can see that the shift in paradigm is already happening. Water is a very good model for this because water is in a permanent state of change. Water is flexible, seems open to learn, and open to create new things out of old. Water not only destroys, but also builds up, it is really the source of life.

Amidst all the destruction I see hope. I see development, and I think that in our profession, what we do is not only for a single project, but to give a whole new generation a perspective and direction for the future. This is what I am working for. 