

LIFE

Karsts, kiwifruit and big data

Guizhou has transformed its notoriously juddering terrain from a bane into a boon. Turns out, tricky geology can advance technology, **Erik Nilsson** discovers.

I recently used an app to water a mountainside kiwi field in Guizhou's Shuicheng. A few taps on a phone and the taps of the sprinkler systems started spurting.

It was one of several experiences that showed me how topographically treacherous Guizhou — one of China's poorest provinces for time immemorial — is turning its geological disadvantages into technological advantages.

Turns out, big data has climate preferences — cool and stable — and is averse to seismic twitchiness.

And Guizhou's karsts, which have long stood as obstacles to its development, sire ideal conditions for data storage.

Much of this is concentrated around the capital, Guiyang — aka, the "city of eternal spring". The city has an average temperature of 22 C and rarely registers anything beyond magnitude-3 tremors.

So, China selected Guizhou as the site of the country's first comprehensive big data experimental zone.

Big data has contributed over 20 percent of Guizhou's annual growth from 2014 to the end of 2017.

I visited a park with 29 buildings that house 60,000 cabinets and 800,000 servers. It hosts data centers for such telecom giants as China Telecom, China Mobile and China Unicom. Huawei's data center is under construction.

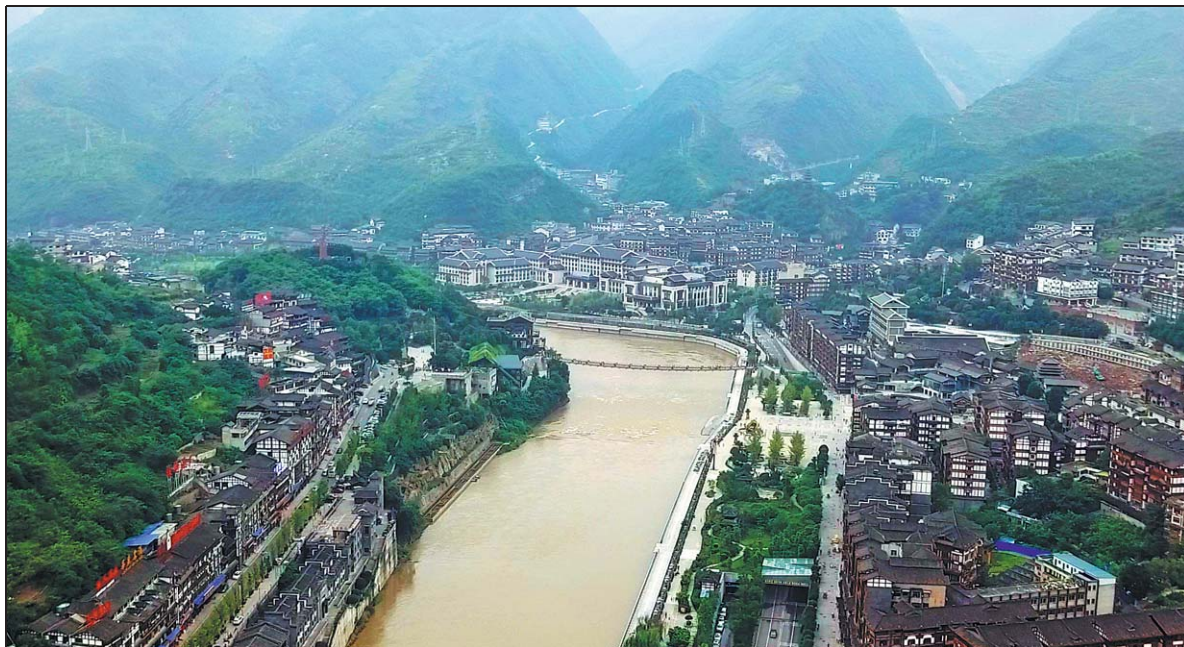
The porous, melted-limestone landscapes are pocked with a honeycomb of caves particularly ideal for data hardware.

One of the centers is contained in a man-made tunnel connecting two mountains. Its natural ventilation saves energy, my guide told me.

The park includes a district in which the province has concentrated its major universities to cultivate talent for the industry.

It's also producing the semiconductors used to store and process big data — "like the neurons in a giant brain," as one producer put it.

Thus, Guizhou's otherwise-hazardous topography has led to an explo-



A bird's-eye view of Shuicheng, Guizhou province. PHOTOS BY CHINA DAILY NEW MEDIA CENTER

sion of big data's development in the province and throughout the country.

The app I used at the 400-hectare agricultural-technology-demonstration park built in Shuicheng six years ago operates according to a big data system adopted last year.

Sensors monitor such conditions as sunlight, moisture, nutrition, temperature and pests, and relay the information to the app.

The app can perform such actions as watering and fertilizing fields according to the data. This reduces human labor — and error.

"It requires electricity," agronomist Zhang Rongquan told me, "which comes from that," he said, pointing to a waterfall blasting down a mountainside.

The cascade gushed into a fizzing pool in front of a two-story statue of a



Editor's Note: This is Part 3 of the six-part Yangtze diaries series based on journalist Erik Nilsson's recent 35-day, 2,000-kilometer journey to 11 cities to discover how the Yangtze River Economic Belt has transformed over the 40 years since the reform and opening-up. Scan the code to watch the video.



kiwifruit slice installed for photo ops.

At the bottom of the alp's water ribbon, teeny people got out of tiny cars to snap shots with the huge fruit wedge.

The fruit from which the kiwi was created in New Zealand originally came from China's Sichuan province over a century ago.

The wild varieties, then called Chinese gooseberries, were grape-sized and bitter.

They were selectively bred in New Zealand to create the large, sweet varieties we eat today.

About a decade ago, I reported on how the not-so-prodigal kiwi had returned home to southwestern China's soil.

It's today cultivating new prosperity in places like Shuicheng.

The variety that thrives in Guizhou — relatively bald and with a tangy-honey aftertaste — sells for four to 10

times more than Sichuan's on average, locals told me.

Turns out, like big data, they thrive in climatically stable karsts.

Guizhou has long been known for poor soil that often produces little more than low-grade corn on terraces chopped into the mountains over centuries.

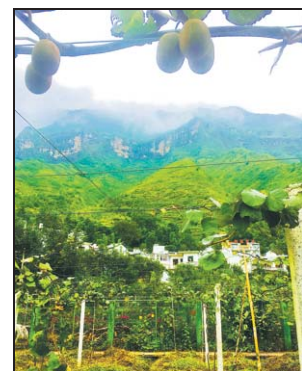
"Local farmers could only earn about 1,000 yuan (\$144) per mu (1/15th of a hectare) growing corn," Zhang told me atop the mountain that the orchard spills down.

"They earn an average of 30,000 yuan per mu a year growing kiwifruit. They can earn 90,000 yuan per mu at most."

I pointed out a small cornfield below, at the orchard's edge.

"That'll be gone next year," Zhang told me.

"Locals have realized kiwifruit



brings in several times more money."

Shuicheng's kiwis are not only eaten raw but also processed into alcohols and soft drinks with growing national brand recognition.

Many residents lease their land to growers and earn about 100 yuan additionally a day as migrant workers, he explains.

Others are capitalizing on the growing tourism industry, as more outsiders arrive to pick fruit and enjoy the striking scenery.

The number of visitors to the agricultural park and surrounding area has grown from roughly 20,000 six years ago to about 80,000 today. Villas built in the scenic spot cost about 2,000 yuan a night.

Guizhou was the last stop of my 35-day, 2,000-kilometer journey to 11 destinations along the Yangtze to discover how cities on the river have embraced the achievements and confronted the challenges brought by the reform and opening-up.

China is addressing such problems as uncoordinated regional development, widening wealth gaps and environmental degradation by shifting toward new models that focus on quality development rather than growth for growth's sake.

The country is improving people's lives while protecting the ecosystems we depend on.

The reform and opening-up is still unfolding, especially as China enters a new era.

It's not only a model for development along the waterway — or even throughout China — but, ultimately, an inspiration for the world we all share.

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Gulping firewater along the 'liquor river'

By **ERIK NILSSON**

I recently learned how to sensory evaluate China's top-end tittle and joined an assembly line to package booze bottles while exploring the country's "liquor river" in Guizhou province.

The Chishui River, which takes its name from its reddish color, in Renhuai city's Maotai town has long remained underdeveloped — serendipitously, it turns out. The dearth of other industries has safeguarded the water's purity.

Indeed, the Yangtze tributary's superb quality is hailed as the magical ingredient that conjures China's most-famous firewater.

The air throughout the town is soaked with the smell of alcohol. It's almost like you can feel it on your skin.

A growing number of tourists are visiting the mountainous settlement to sample its spirits, enjoy its pristine environment and view its splendid scenery.

I watched children scuttle in and out of a massive sculpture of a brewing urn near the Chishui's banks. An elderly man rode a robotic panda with wheels that blasted music nearby.

The shore is lined with traditional-style wooden buildings plated with black-tile roofs ending in eaves that curl upward like talons.

Moutai liquor is an 800-year-old type of *baijiu* ("white" spirits) that's celebrated as China's national tittle.

US president Richard Nixon and Chinese premier Zhou Enlai raised a glass when the US leader made his historic visit to China in 1972. Moutai is still served to foreign heads of state during banquets.

The brand is internationalizing as its exports increase. It's now even being used to concoct cocktails.

I sampled some in the bar lounge of the local Moutai museum, where displays show recipes for versions of Manhattans, martinis and mojitos made with Moutai. Some of these inventions have won awards in international competitions.

Hundreds of ceramic bottles are exhibited in a two-story glass wall in the lobby that displays different varieties produced over the years. Some are designed in shapes like lighthouses. Others are printed with brocade patterns from Chinese ethnic groups.

A specialist taught me how to sensory evaluate the liquor. Turns out, the process is much the same as sampling wine.

First, you sniff the aroma. Then, you assess the color. The longer the booze brews, the darker yellow it is.

You next swirl the glass to examine the tears dribbling down the side.

And, finally, you taste it to detect such notes as fruit, honey and flowers.

I later joined the assembly line at a plant that packages up to 150 tons of Moutai a day.

It's harder than it looks, I found. I messed up the first time. And the second. And the third.

The workers coaching me giggled as I alternately folded the wrong cardboard flaps or got them right but forgot to put the shot glasses in the box first.

I got it right on the fourth try. After successfully packaging one bottle, I officially retired from my factory gig.

It takes workers an average of two minutes. (I took much longer.)

They operate with a machine-like speed and precision. The plant hopes to automate and is currently trialing a giant robotic arm used to lift crates onto carts.

But the company has already adopted other new technologies, such as big data. For instance, it places sensors in bottle caps that can be scanned with phones to prevent forgeries.

We later visited a Moutai distillery that uses ancient methods to ferment the liquor. About 300 glazed clay urns are housed in a windowless room built in the 1970s.

My colleagues' eyes watered at the strong smell inside.



The assembly line at a Moutai liquor plant in Renhuai, Guizhou, packages up to 150 tons of Moutai a day. CHINA DAILY NEW MEDIA CENTER

Improved transportation and development have accelerated Maotai's liquor industry.

Travel from the town to Zunyi city now takes an hour compared with eight a decade ago. And increased disposable incomes following the reform and opening-up have enhanced demand for luxury liquor.

Renhuai issued the first regulations to protect the Chishui in 2011, the city's environmental protection bureau office director, Ding Junjie,

told me at a water-treatment plant. It has built 22 treatment facilities in 20 towns and villages, including nine specifically dedicated to purifying water used for liquor, he says.

About 200 distilleries operate in the area.

"Protecting the Chishui equals protecting Renhuai's economic development," he says.

Certainly, I found my visit to the "liquor river" intoxicating — in every sense.

Work on to make Sanya a city focused on sports

By **LI YINGXUE**

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The Chinese women's 9-ball world champion Pan Xiaoting walks onto the red carpet, together with 63 other female billiards players, each wearing a lei — it's like a runway show.

Along the carpet, there are totem poles, palms, coconut trees, and tourists — they are in Sanya Romance Park, a popular scenic spot which is a cultural microcosm of Hainan province.

It's the opening ceremony of the 2018 Hainan Sanya Women's World 9-Ball Championship, from Dec 3 to 9, with a total prize of \$175,000.

The event, hosted by China's Billiards & Snooker Association and Department of Sports, Culture, Radio, Television and Publication of Sanya, is the city's first top level

international billiards competition.

For the opening ceremony, the organizers decided to hold the event at Sanya Romance Park, which is covered in primeval forest and has different theme areas.

"We want to open the tunnel between sports and tourism in Sanya, and this ceremony is our first effort," says Chen Zhenmin, the director of the Department of Sports, Culture, Radio, Television and Publication of Sanya.

At the venue, players were exposed to China's intangible cultural heritage such as weaving Li brocade and blowing sugar-figures.

The Romantic Show of Sanya, which is staged at the park each day, lets visitors enjoy multiple art forms' show and learn about the history of Sanya.

Speaking about the arrange-

ments, Pan says: "When we are in competition, we are always nervous, but in Sanya the comfortable environment and the scenery has helped me relax."

Sanya, which is located on the "edge of heaven and in a corner of the sea" in Hainan province is one of most popular tourism cities in China.

But now, it's not only a beautiful and romantic tourism city, but also a sports venue.

According to Li Wujun, vice secretary-general of the Sanya municipal government, Sanya's current gross domestic product has jumped 353-fold over 30 years, achieving historic leaps forward in the economic and social fields.

"Since the setting up of the city, Sanya has gone from being a small fishing village girl to becoming an internationally well-known modern

lady," says Li.

Since April, Sanya has taken President Xi Jinping's speech on the 30th anniversary of the Hainan special economic zone to heart, by taking concrete actions to build the Hainan pilot free trade zone, a free trade port with Chinese characteristics.

"Sports tourism is one of the new ways for Sanya to actively explore tourism, which earlier used to rely only on its unique natural and tourism resources," says Li.

In recent years, a number of international sports events have chosen Sanya, including the Central Hainan International Road Cycling Race, the Youth Sailing World Championships, and the Volvo Ocean Race.

In July, the Sanya Serenity Coast clinched the overall Clipper Round

of the World Yacht Race, the first time a Chinese boat has won this competition. And one month later, Sanya earned the bid to host the sixth Asian Beach Games in 2020.

Li says the events had not only caused a rise in public fitness in Sanya, but also greatly boosted the development of the tourism sector, creating a deep convergence between sports events and Sanya's tourism.

Separately, the Sanya Ball King series competition has been held for three consecutive years. And this year's competition involves nine sports including soccer, basketball, volleyball, table tennis, badminton and tennis.

According to Chen, this year's competition attracted amateur athletes aged from 7 to 82.

"It (the series) has become a calling card for Sanya, and it's not only for Sanya's residents. We are inviting ball game lovers from around the world to join us as the Sanya Ball

King can be the World Ball King," Chen says.

In another development, Sanya and the Guoao group signed an agreement on June 1 under which the two sides will cooperate in the fields of sports, culture, tourism, and rural revitalization. And the 2018 Hainan Sanya Women's World 9-ball Championship is the first sports project being held under the agreement.

Also, Sanya and the Guoao group plan to build more sports facilities in the parks and on the beach, says Chen.

As Sanya is a coastal city, beach sports and water sports will be the main sports there, says Chen, adding that a sailing school from Qingdao, in Shandong province, and a diving school from Zhanjiang, in Guangdong province, will also set up branches in Sanya.

"Each city has unique characteristics, and our goal is to make Sanya a sports hub in the winter," says Chen.