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Guttannen won't give up

Guttannen in the Bernese Oberland is used to harsh winters complete with avalanches. Climate change now raises the additional spectre of debris flows, but the inhabitants of this Alpine village want to stay put.

THEODORA PETER

"The ground rumbled and shook. It was like an earthquake." The now-retired Edi Schläppi was working as a road inspector on 22 August 2005, the day when 500,000 cubic metres of rocks and earth thundered down from the Rotlouwi ravine into the valley from the mountains above. It had been raining heavily for days, but no one in Guttannen was prepared for such a cataclysmic event, Schläppi included. "I can barely describe what it was like," he says.

Schläppi was called out to inspect the cantonal road just above the village. An avalanche of rocks and mud had rolled several hundreds of metres down into the valley floor and on to the road. It had stopped the River Aare in its path – and redirected it towards the village. The water level in the church was one metre. A corresponding water mark and a sign reading "Die Aare kommt" (The Aare is coming) now commemorate what happened 17

years ago. The village church is today one of 28 stops on a theme trail called "Das Wetter und wir" (The weather and us). Inaugurated in 2021, the trail starts in front of the village hall and winds around Guttannen for almost three kilometres. The information signs contain a QR code for downloading audio content. In these recordings, villagers – including Schläppi – recount their personal experience of natural events and the local climate, e.g. avalanches in winter, debris flows in summer, and the föhn winds that blow for over a hundred days a year from the direction of the Grimsel Pass.

Melting permafrost

The theme trail also passes underneath the Rotlouwi. Since the 2005 debris flow, this flank of the mountain has been continually in flux. One of the reasons is climate change. Not only are rising temperatures accelerating the

In August 2005, the River Aare flowed through the middle of the village of Guttannen, flooding streets and cellars with mud. Archive photo Grimselfoto.ch retreat of glaciers, but they are also causing the high Alpine permafrost to melt. Climate change is having a particularly stark impact on Switzerland's mountain regions, where the average temperature has increased by two degrees Celsius since the pre-industrial era – almost twice as much as the global average.

The specific consequences for Guttannen are evident in borehole analyses conducted near the Homad Glacier 2,500 metres above sea level – namely, that the warmer it is becoming, the deeper the upper permafrost layer is melting. As a result, the Alpine bedrock is losing stability and the mountain slopes are starting to slip away. Such analyses also help to give early warning of imminent rockfall

The Spreitgraben on the other side of the valley is another issue. On the Ritzlihorn mountain above, 2009 saw a series of rockfalls and debris flows that filled the riverbed of the Aare on the valley floor with more and more material. This increased the risk of a part of Guttannen called Boden being covered by further debris flows. Thirty inhabitants even feared they would have to leave their homes for good. But in the end it was not necessary to move them. In 2014, experts said that the probability of a threat over the next 25 years was low. Nevertheless, some houses had to be vacated for good because they were too near to the danger zone.

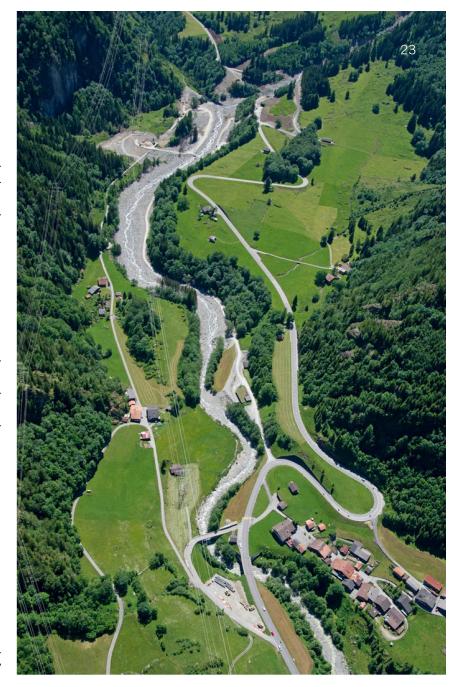
More than just a "disaster zone"

Werner Schläppi-Maurer, who runs a joinery in the village, has been the mayor of Gutannen since 2019. "These natural events have brought all of us in the village together," he says, deliberately referring to "events", not "threats". "We are surrounded by Mother Nature here and we know



"Natural events like this unify the local villagers"

Werner Schläppi-Maurer, municipal mayor of Guttannen



what she can do." The 61-year-old is committed to ensuring a sustainable future for the village with its 260 inhabitants. He is critical of the media, whom he says refer to the village as a "disaster zone". "Besides risks, we also see opportunities."

Schläppi-Maurer also chairs Guttannen bewegt, an association that wants to future-proof the village and make it an attractive place to live. Another stated aim is to encourage ecotourism, with the theme trail "Das Wetter und wir" (The weather and us) only one of a number of projects launched recently. In the summer months, tourists can pay to stay overnight in the village ecocapsule – a self-sufficient, zero-carbon micro home situated in the middle of the village. The pod has integrated solar cells and a wind generator that provide the energy needed for power, heating and ventilation, and for processing rainwater into drinking water.

The village was also home to an ice stupa last winter – part of a University of Fribourg research project. An ice stupa is a conical-shaped ice heap used for preserving winter water for the summer. It is an innovation that orig-

The Aare's riverbed has been filling with increasing amounts of debris from landslides since 2009. This increases the risk of flooding in the village's lower Boden district, which can be seen at the bottom right of the picture.

Archive photo Grimselfoto.ch

Fresh legislation to combat climate change

One year on since voters rejected the CO_2 Act, Swiss parliamentarians have embarked on a new attempt to achieve the goals of the Paris Agreement. In June, the National Council approved legislation to cut greenhouse gas emissions to net zero by 2050. The Council of States will consider the bill in September.

Specific, binding milestones will apply to industry, motorised traffic and buildings under the proposed new law. Financial incentives will also be created to ensure that factories, cars and heating installations emit reduced or no greenhouse gases in future. Two funding packages are in the pipeline – one worth around two billion Swiss francs to replace oil and gas heating, the other worth 1.2 billion francs to promote green industrial technologies.

The bill is parliament's response to the "Glacier Initiative" – a proposal, submitted in 2019, to make Switzerland climate-neutral by 2050 and ban fossil fuels like oil, gas, petrol, diesel and coal from 2050. The initiative committee – whose members include biophysicist and former Nobel Prize winner Jacques Dubochet – has stated a willingness to withdraw its proposal, so that the bill can quickly come into force. However, this offer is contingent on the Council of States not watering down the legislation.

The SVP is particularly opposed to a strict climate change regime. It prefers "voluntary" action to combat global warming. Hence, there is a distinct possibility of the issue being put to voters.

https://gletscher-initiative.ch

inates in the north Indian region of Ladakh, where rainfall is becoming increasingly scarce. Fribourg's academics used Guttannen's ice stupa to study freezing and melting processes. Their findings will help populations in the Indian Himalayas adapt to climate change.

Stopping the exodus

In 2016, Guttannen and the Grimsel region drew up their own "climate adaptation strategy". This paper contains a wide range of action areas, such as land-use planning, social and economic development, and protection from natural threats.

Besides climate change, Guttannen has also clearly felt the consequences of depopulation and demographic ageing. "People aged 30 to 45 no longer live in our village," says Werner Schläppi-Maurer. With fewer and fewer children being born as a result, the canton of Berne wanted to close the local pri-



More than 500,000 cubic metres of debris rumbled down the Rotlouwi ravine during the 2005 storm.

Archive photo Grimselfoto.ch



Landslides exert enormous power this immense rock was moved several hundred metres. Archive photo Grimselfoto.ch



The weather with all its challenges is omnipresent — a wind gauge on the "The weather and us" themed hiking trail. Photo Guttannen-bewegt.ch



Plaques are used to immortalise the villagers' testimonies to the climate and weather — here is one about the föhn wind, which often blows with great force through the valley.

mary school in 2019 due to a lack of pupils. To allow children to continue going to class, Guttannen has since funded the running of the school itself.

So that it could offer housing to newcomers and returnees, the village has bought empty properties that used to be lived in by employees of local hydropower company Kraftwerke Oberhasli. This has already paid dividends, with one family having now moved into the village. This is good news for Guttannen stalwarts like Edi Schläppi, who could never imagine leaving. "Guttannen is my home," he says.