

## = Sembawang Hot Spring =

The Sembawang Hot Spring ( Chinese : 文泉 ; pinyin : sanbawang wenquan ) , located at Gambas Avenue between Woodlands Avenue 12 and Sembawang Road , is the only natural hot spring on the main island of Singapore . It lies in a wooded area about 100 metres ( 330 ft ) off the main road . The spring is believed by locals to have healing properties , and its water has been bottled commercially by Fraser and Neave , under the brand name of Seletaris . Since its discovery in 1909 , the spring , now on land belonging to a military air base , has gone through several changes of ownership and abortive redevelopment plans . The hot spring retains a rural rustic feel for nature visitors to unwind .

## = = History = =

In 1909 , a Chinese merchant named Seah Eng Keong , the son of Chinese pioneer Seah Liang Seah , discovered hot springs in his pineapple estate in Sembawang . The three springs were channelled into one , so that the water would be conveniently concentrated in one area . A well was built along the spring , which became popular with the villagers , who frequently sought the waters for their supposed healing powers . The spring 's fame spread , resulting in the village becoming known as Kampong Ayer Panas , which means " Village of Hot Water " in Malay .

Soft drinks firm Fraser & Neave ( F & N ) acquired the site in 1922 , and set up a bottling plant at nearby Semangat Ayer to tap the mineral water , which they labelled Seletaris . During the Second World War , the spring 's flow was temporarily interrupted when a bomb fell near the well during a Japanese air raid over Singapore in 1942 . After the fall of Singapore , the Japanese military seized the place and converted it into recreational thermal baths ( onsen ) .

The hot spring was frequented by gamblers in 1960 , who took " good luck " baths before the start of horse races . That same year , the villagers urged the authorities to develop the area into a spa @-@ like onsen tourist resort . However , F & N shelved the suggestion after geologists could not trace the source of the spring water . In 1967 , the proposal of the spa surfaced again , when F & N proposed plans for the development of a bathhouse , restaurants , a miniature golf course and even a nature reserve . However , the plans did not materialize , so the hot spring remained untouched and forgotten .

## = = = Redevelopment = = =

In 1998 , the Ministry of Defence ( Mindef ) acquired the land containing the spring for the expansion of the nearby Sembawang Air Base , leaving F & N with less than 4 hectares ( 10 acres ) of land . Its water @-@ bottling plant survived until the early 1990s however . In January 2002 , locals ' interest to the hot spring , which had caught the attention of Singaporeans after the surrounding land had been cleared to begin the RSAF air base extension . Sembawang community leaders gathered signatures to petition Mindef , which was going to fence off the area , to preserve and develop the hot spring for the general public . Mindef gave the green light to the appeals and opened a small side gate pavement for the public to access the spring .

During that same year , a series of scalding cases , including an incident in which a senior citizen diabetic lost six toes to gangrene after soaking in the hot spring , prompted the Singapore General Hospital to warn that people with nerve disorders or diseases affecting blood circulation should be cautious to hot mineral springs . As a result of some negative rumors and hearsay , and the RSAF redevelopment , public interest began to wane and the number of visitors dwindled .

## = = = Present day = = =

During its peak , up to 300 people visited the hot spring daily . On 1 March 2002 , it was closed for two months while upgrading and improvement works were carried out to the area around the spring , which had become sodden and muddy . Litter had also become a problem because of the increased

numbers of visitors . The former dirt track leading to the spring was paved with cement , and lined with bougainvillea bushes and high fences to ensure the security of the air base . Drainage pipes were also installed . Mindef , which owns the land , allows public access between 7 am and 7 pm daily , free @-@ of @-@ charge . When the spring reopened on 1 May 2002 , more than 100 people visited the site despite the afternoon drizzle . At the same time , some new free @-@ hold condominiums were built in the surrounding area ; one of the developments , built by the property arm of F & N in 2001 , is called Seletaris after the company 's former mineral water .

In July 2005 , a Business Times reader proposed that the authorities should explore the possibility of tapping the geothermal heat that lies many miles under Sembawang ? similar to the project in South Australia 's Cooper Basin ? in order to aid Singapore 's reliance on oil and gas . The proposal was not acted upon .

As of 2014 , the well can still be seen locked inside a red @-@ brick enclosure with a steel gate , and its geothermal heat can be felt outside the building . Some plastic chairs , pails and mini @-@ tubs kindly donated by visitors are stored at the perimeter of the compound , which has a makeshift shed in one corner . A caretaker , paid by Mindef , takes care of the place to ensure its overall cleanliness , but there is no toilet on location . The hot spring is less frequented nowadays but remains rustic for rural and suburban families to discover and explore .

The potential redevelopment of Sembawang Hot Spring into a national park is currently being explored . The Ministry of Defence ( MINDEF ) said on 23 April 2016 that it is prepared to return the land occupied by the hot spring to the Singapore Land Authority . MINDEF hopes a public agency such as the National Parks Board ( NParks ) can take over to improve and maintain the place , while constructing amenities such as toilets and adding more greenery . The ministry added that putting the place under a public agency means the land need not be tendered out to the highest bidder and become commercialised .

Earlier on 16 April 2016 , a NParks senior director of Parks Development confirmed the statutory board was working with the Urban Redevelopment Authority , Singapore Land Authority and MINDEF on ? the feasibility of using the area as a park

= = Water properties = =

According to local geologists , the exact source of the spring remains unknown , but it is believed that its origin may be southwest of its actual location , possibly at Bukit Timah . Hot springs are formed when underground water comes into contact with hot rock masses . The resulting high pressure causes the water to seep upwards through cracks , forcing itself out of the ground as a spring .

A series of tests conducted by the PSB Corporation and SGS Testing & Control Services found the spring water contains 420 mg of chloride per litre , an amount which is substantially higher than the 35 to 100 mg in the water from Choa Chu Kang and Bedok waterworks . It was also found that the sulphide content is three times more than tap water and the spring water is also slightly alkaline due to the presence of minerals . Natural spring waters may have health benefits , similar to the hot springs of other countries near tectonic plates with volcanoes , in a search for cures for some skin conditions , as well as debilitating ailments like rheumatism and arthritis . Although local rheumatologists conceded that hydrotherapy is an accepted treatment that can be helpful for mild forms of rheumatism or muscle strain , they , along with dermatologists , remain skeptical of claims about the alternative healing of the natural spring water .

Hot hard water bubbles continuously in the well , releasing a slightly unpleasant sulphur mud @-@ like odour together with steam . The temperature of the spring water is measured by precision instrument to be constant 70 ° C ( 160 ° F ) . In an investigation carried out by the Nanyang Technological University in 1994 , the hot spring was found to have an estimated yield of approximately 150 litres ( 33 imp gal ; 40 US gal ) per minute at ground level through installed steel casings .