

CHILEAN MINER DISASTER

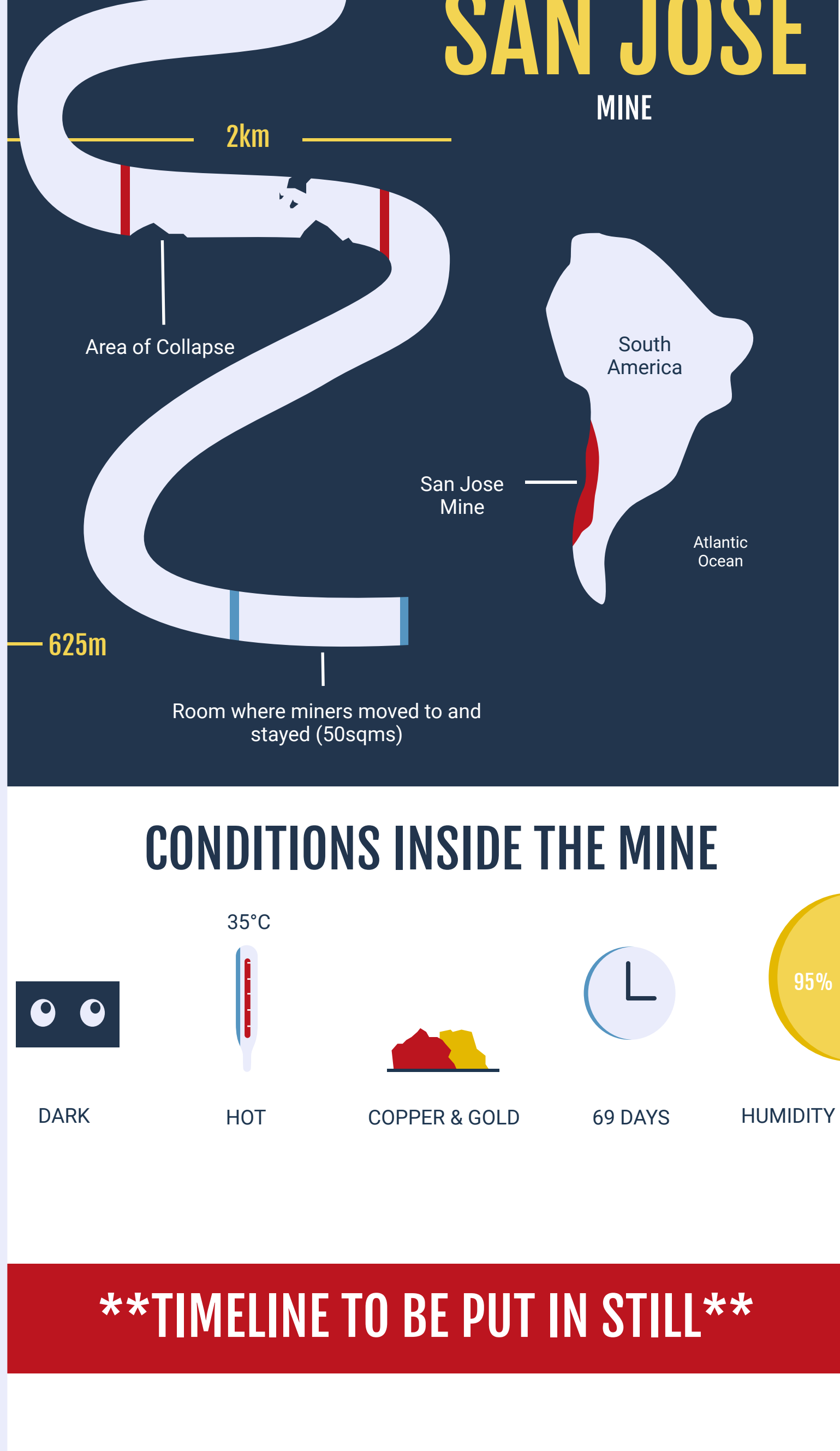
The 2010 disaster where 33 Chilean miners were trapped after an unexpected cave-in located in the San Jose mine, Chile.

33

CHILEAN MINERS TRAPPED

AGE OF YOUNGEST MINER : 19

AGE OF OLDEST MINER : 63



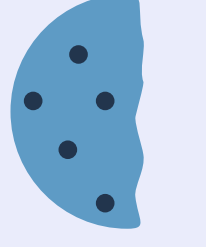
CONDITIONS INSIDE THE MINE



DARK

35°C

HOT



COPPER & GOLD



69 DAYS

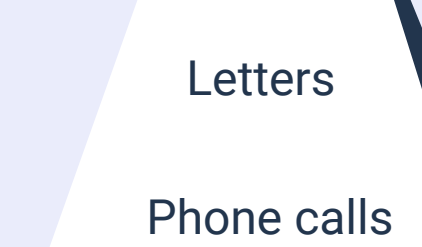
95%

HUMIDITY

TIMELINE TO BE PUT IN STILL

The miners only had 2 days worth of food to survive on.

Every **48 hours** each miner allowed himself:



2 spoonfuls of tuna

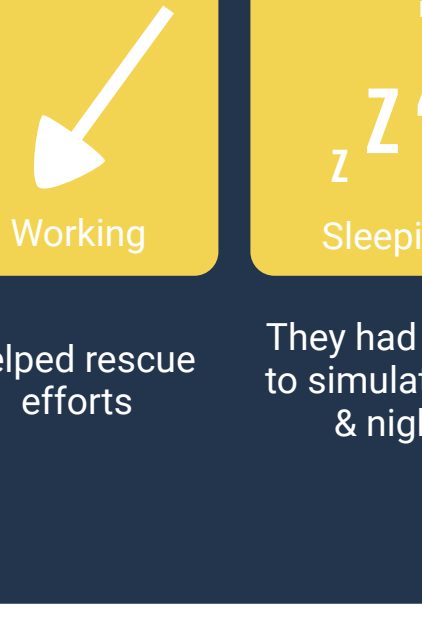


1/2 cookie



1/2 glass of milk

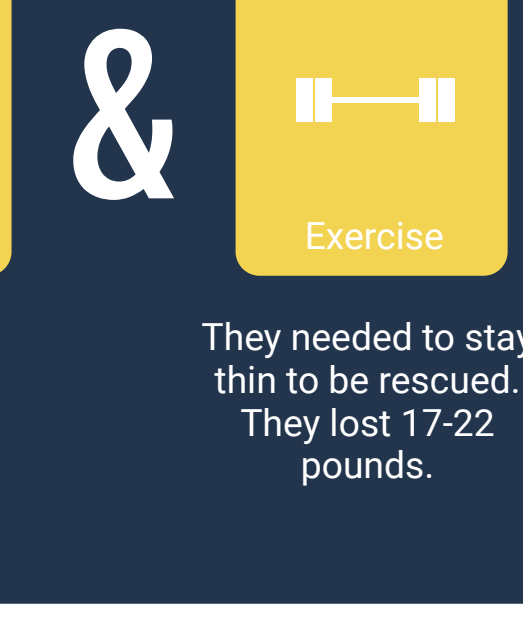
AFTER 17 DAYS



UP
to families

Letters

Phone calls



Food
Water
Medicine
Cots
Clothes
Lights

DOWN
to miners
via lifeline
cable

ROUTINE ESTABLISHED



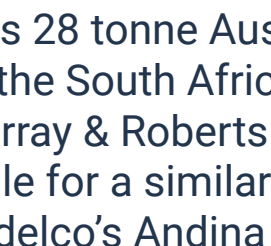
Working

Helped rescue efforts



Sleeping

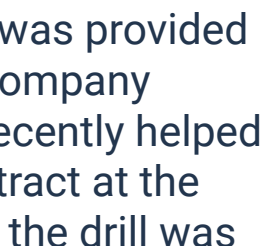
They had lights to simulate day & night



Entertainment

Played cards, dominoes, dice games etc.

&



Exercise

They needed to stay thin to be rescued. They lost 17-22 pounds.

THE RESCUE BEGINS

PLAN

A

Strata 950

This 28 tonne Australian Drill was provided by the South African mining company Murray & Roberts. They had recently helped Chile for a similar mining contract at the Codelco's Andina mine where the drill was immediately transferred to San Jose to begin drilling on August 31st. After all the parts where shipped it began the rescuing process.

PLAN

B

Schramm T130XD

This drill was owned by a Chilean-American joint drilling company, was originally used to widen one of the three 5.5 inch boreholes that were already supplying the miners with goods. The angle of drilling caused pressure and issues with the necks of the drills, the rescuers couldn't drill deep hole. Meant the rescuers couldn't drill vertically. The hard rock was abrasive and wore out the steel of the drill.

PLAN

C

RIG-421

This powerful Diesel-Electric Triple Canadian drill operated by Calgary-based Precision Drilling Corporation was the last drill involved in the rescue process, with beginning to drill on September 19th after Plan B wasn't working out. The RIG-421 was able to drill a wide enough escape shaft in a single pass. It was 43m tall and needed 40 truckloads to bring it's pieces from Iquique, Chile. It suffered a setback when the drill diverted from it's course, it then needed to be removed, resized and repositioned.

Shaun Robstad
Precision Drilling

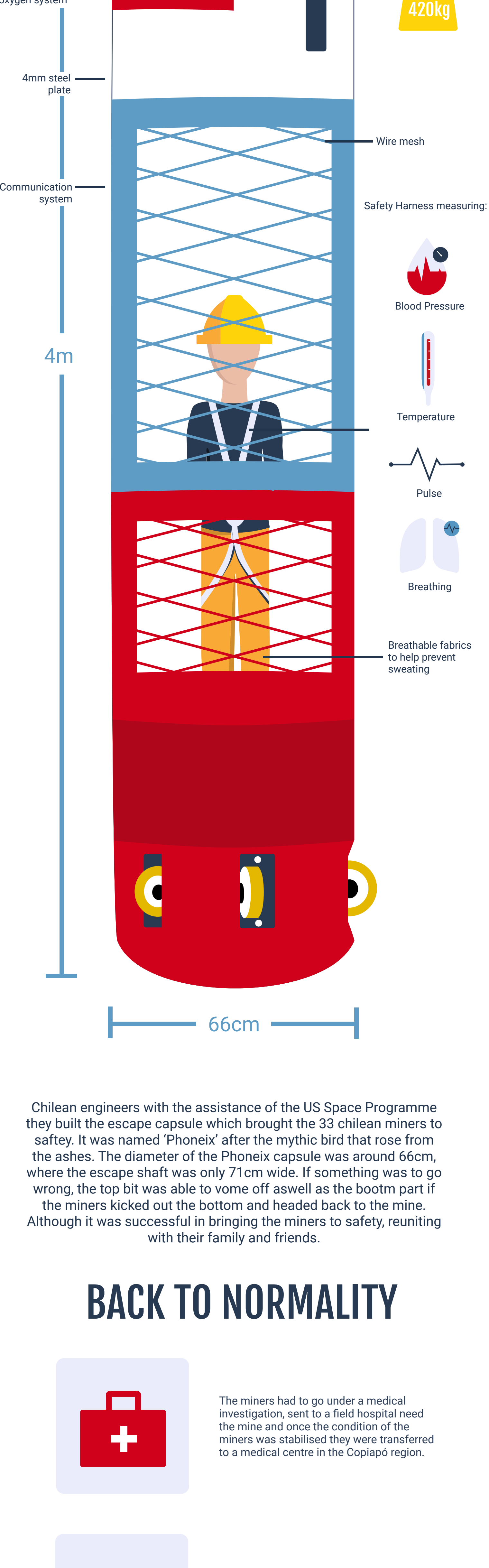
"We've drilled wells all around the world. The actual drilling of the hole in the ground isn't that difficult. When you're given a target to aim for it's a little more difficult,"

THE RESULT



By the 8th October, Plan A drill had reached 598m (85%) but it hadn't started widening it's shaft. Plan B drill reached the trapped miners on the 9th October at 08:05 CLDT after a 10-hour stoppage to change the drill-bit. Plan C, the only machine on site which could drill a shaft wide enough immediately only reached 372m(62%).

PHOENIX TO THE RESCUE

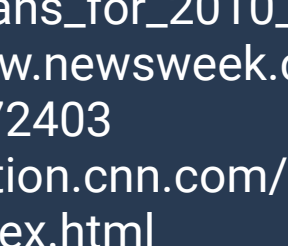


Chilean engineers with the assistance of the US Space Programme they built the escape capsule which brought the 33 Chilean miners to safety. It was named 'Phoenix' after the mythic bird that rose from the ashes. The diameter of the Phoenix capsule was around 66cm, where the escape shaft was only 71cm wide. If something was to go wrong, the top bit was able to come off as well as the bottom part if the miners kicked out the bottom and headed back to the mine. Although it was successful in bringing the miners to safety, reuniting with their family and friends.

BACK TO NORMALITY



The miners had to go under a medical investigation, sent to a field hospital near the mine and once the condition of the miners was stabilised they were transferred to a medical centre in the Copiapo region.



R3 060 Sunglasses
The miners had to wear special glasses to protect their eyes from the sunlight they hadn't experienced in nearly 70 days.

"You have to have faith," Galleguillos said. "You can never lose your faith. Faith is nourishment ... Faith is life."

SOURCES

https://en.wikipedia.org/wiki/Rescue_plans_for_2010_Copiapó_mining_accident#Plan_A
<https://www.newsweek.com/chilean-miners-surviving-darkness-72403>
<https://edition.cnn.com/2013/07/13/world/americas/chilean-mine-rescue/index.html>
<http://www.charlesapple.com/uploads/2010/10/101017ChileMineEnglish.jpg>
<https://www.livescience.com/11169-chile-collapse-facts-amazing-survival-story.html>
<https://www.bbc.co.uk/news/world-latin-america-11527129>