

Papua New Guinea Earthquake-Related Media Monitoring Log

Communicating with Communities Working Group

25th June 2018

Date	Location	Details	Channel	Standardized Complaint Priority¹
When was this captured?	What location is it regarding?	Details	What media channel was captured?	
25/06/18	Hela province	UNICEF ready to return to Hela <i>[Refer to article 1]</i>	<i>The National newspaper</i> UNICEF is preparing to resume response and recovery support to earthquake-affected communities in Hela	3
25/06/18		Can earthquakes be induced? <i>[Refer to article 2]</i>	<i>The National newspaper</i> An article by Frank Senge Kolma, former editor of The National and a commentator on national issues.	3
25/06/18		UN team trucks on with relief efforts in PNG Highlands	<i>Radio NZ [website]</i> United Nations humanitarian relief efforts in Papua New Guinea's earthquake-affected region are picking up pace again with a welcome return to Mendi.	3

¹ 1- *Immediate Response* - Applies for all violence related and protection cases and issues including sexual harassment, exploitation, child abuse, and security issues.

2- *Urgent Response* - Applies for all corruption cases and cases not receiving assistance and issues including Fraud, bribes, and selling food assistance.

3- *Ordinary Response* - Applies for all other complaints and inquiries.

			https://www.radionz.co.nz/international/pacific-news/360374/un-team-trucks-on-with-relief-efforts-in-png-highlands	
		Emergency Preparedness importance	<p><i>PNG TV [Facebook page]</i></p> <p>Relief supplies for areas hit by February's earthquake in the Highlands had to be obtained on credit worth 2 million kina due to the non-availability of disaster funds.</p> <p>Emergency Controller, Dr William Hamblin says the recent earthquake has exposed the unpreparedness of the country in quickly responding to disasters.</p> <p>https://www.facebook.com/pngtelevision/videos/2187616457920689/</p>	3

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Unicef ready to return to Hela

UNICEF is preparing to resume response and recovery support to earthquake-affected communities in Hela.

Conflict and violence had forced Unicef aid and relief workers, and other UN agencies to briefly relocate in April as a security precautionary measure.

Over 115,000 children under the age of 18, including some 32,000 under five years.

Close to 8000 infants are expected to directly benefit from health, nutrition, education, child protection, water, sanitation and hygiene activities that Unicef will support the Government to implement in Hela.

At a review meeting held on June 8 with local partners - Catholic Diocese of Mendi, Southern Highlands Provincial Health Authority, Caritas, provincial child and family welfare services and the provincial education department - Unicef reiterated its commitment to fulfill its humanitarian obligations to the children of Hela and Southern Highlands.

"We are happy to be able to go back to Hela where we will continue to work with the Government and our partners to provide much-needed assistance to the children who desperately need help," Unicef representative David Mcloughlin said after the review meeting.

"We have been working together since the earthquakes devastated



A Unicef aid nurse with Martina testing two-year-old Shenilda's for malnutrition at Tate village, Southern Highlands.

communities and destroyed livelihoods. We intend to continue our support."

Mcloughlin said a two-month integrated child health campaign planned to kick off in mid-July

would provide immunisation and nutrition services for children.

The establishment of child friendly spaces will offer psychosocial support to children who have been traumatised by the earth-

quakes. "Children from badly damaged schools will be able to continue their education through temporary learning spaces that we will support our partners to set up," Mcloughlin said.

"We will also provide water tanks and construct ventilated improved pits (Vip) latrines in these schools to promote good hygiene and sanitation practices," he said.

Can earthquakes be induced?

By FRANK SENGÉ KOLAMA

It is now several months since the disastrous magnitude 7.5 earthquake of Feb 26 and the long series of aftershocks that have devastated Hela, Southern Highlands, Western and parts of the Gulf, Enga and West Sepik. The dead have been buried, the living are moving on to rebuild their lives and the emergency relief operations are scaling down to long-term resettlement and infrastructure rebuilding.

But what of the causes for the sudden earthquake in a region not known for severe earthquakes. Having visited the region once are there chances for another serious type 7.5 earthquake? What of the causes? Have they been established yet and if they have cannot the public be told?

After all it is the people who suffered at the hands of this freak earthquake and the month's long series of aftershocks, many of them of damaging magnitude 5s or 6s.

Available literature indicates that oil and gas extraction activities cannot be ruled out as the causes for earth tremors.

What most concern authorities for the present is whether or not sufficient information has been made available to regulatory authorities persisting to human activities inducing potentially damaging earthquakes.

Available literature suggests that human induced earthquakes have been important discussion topics among scientific, political and business circles since the 1950s.

While commercial oil and gas production only occurred from the 1960s on, exploration to proof up their potential has been ongoing since the 1930s.

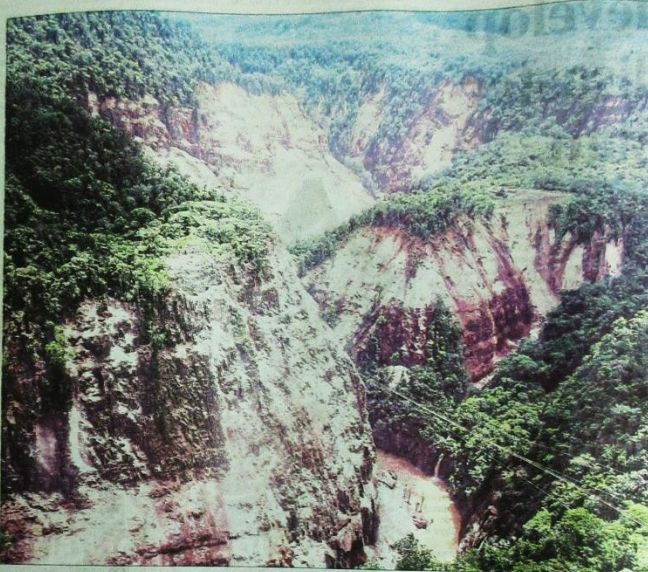
This means that drilling and associated activities have been going on sporadically for nearly 100 years now, much of it in the provinces directly affected by the earthquakes in Hela, Southern Highlands, Gulf and Western.

Knowledge that some earthquakes have been induced by human activity of the sort associated with oil and gas extraction, water extraction or injection and core for almost half of that time and one in oil production in PNG, Chevron, US Geological Survey experiment was very closely associated with a test proved that human activities can and do induce earth quakes.

A paper titled *Injection-Induced Earthquakes* by William L. Ellsworth (Science 311: 2013) cites cases of activity in many parts of the world but principally in the United States and Europe.

A particular case cited by Ellsworth is of interest. Chevron, which was the first developer of the Kunlun oil fields in PNG, was involved in a field test in one of its oil producing fields in the north-western part of the state of Colorado, United States of America between 1969 and 1973.

Data obtained used human activity to earthquakes. A series of tests carried out by the US Geological Survey (1966/6)



Landslips caused by the Feb 26 earthquake at the Heigligo gorge in Southern Highlands. – Picture courtesy of Oil Search

between 1969 and 1973 on the Rangely field also provided compelling data that it is possible to control the level of earthquake activity by corresponding increases or decrease in certain activities.

Chevron had been injecting water under high pressure into the Colorado oil reservoir to enhance oil production since 1957.

This is a well-established method of extracting oil and from the experiment, the USGS concluded that these human activities induced some earthquakes recorded in the area.

In the tests the USGS determined that there was a critical failure level that had to be reached by human activity acting on natural stress and pressure levels in rock or faults in particular geological settings, in the particular instance – high pressure water injection – to trigger earthquakes.

When the pressure was reduced with backflow the critical failure level dropped and earthquakes were reduced.

The opposite result occurred when high pressure injection was commenced beyond the pressure point.

Of course stress or pressure levels vary from region to region and there are so many variables that work in each geological area so that determining critical failure is understandably not easy to determine and varies from area to area.

In some cases extraction of fluids such as water, oil and gas seems to be the trigger.

In others it is injection of fluids underground that does the trick. In others it is major construction activities.

The trick, it would appear, is to determine what the conditions are subsurface to be able to control human activity and determine at what point an earthquake event might be triggered and therefore to never exceed beyond this point.

Induced earthquakes have been suspected and studied throughout the United States, in India, China, the Netherlands and other parts of Europe where earthquakes have had their epicentres around hydrocarbon extraction sites.

The science is not exact and the information, even after half a century of gathering, is still insufficient but certain important guidelines require no scientist in the case of Papua New Guinea.

In PNG's case, renowned Professor of Geology at the University of PNG Hugh Davies (now retired) said early in the piece that the earthquakes and aftershocks originated at a much greater depth in the Earth's crust.

He said human activities occurred at the top few kilometres of the Earth's surface and could not have caused the earth tremors. Davies who is also an Honorary Professor in the Research School of

Earth Sciences at the Australian National University in Canberra, said the earthquakes were caused by a plate convergence – two of the great plates that form the Earth's surface competing for the same space.

"It is the same plate motion that caused the Aitape earthquake in 1980 and the 'Wewak earthquake in 2002," he said.

"And it is the same motion that has caused the formation of the great mountain ranges that form the central spine of the island of New Guinea."

Whether or not near surface human activity can transfer stress downwards so many kilometres is still new territory because of the particular geological makeup of PNG.

PNG sits on the Pacific ring of fire and is prone to naturally occurring earthquakes and other seismic events.

While there are no active volcanoes in the highlands region hit by the February earthquake, there are known extinct volcanoes such as at Mt Bosavi.

The country also sits astride the point of convergence of two tectonic plates.

The colossal forces and pressures associated by these plates involve

against each other has pushed up the central mountain ranges that contains the toro sandstone, the rock sponge filled with oil and gas.

One needs only squeeze the rock hard enough through high pressure water injection or other methods to extract the valuable contents.

That squeezing method might be the culprit here if human activity is found to be at fault here.

A geological locality with these kind of features is fraught with dangers.

Those dangers of natural or man-made origin must be known and they should be made known to the regulatory authorities.

It is certain that the dangers inherent in hydrocarbon extraction activities triggering such events have been known for many decades now.

Whether or not these have entered business and political discussions and whether such dangers have been factored in regulatory governing the sector is uncertain but they should be important factors.

For now, it would make everybody rest easy if the findings of the Australian expert who was brought into the country for the purpose could make known.

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