The Balochistan and Sindh coast survivors revealed facts of the 1945 Makran Tsunami.

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UNESCAP-funded project
Administered by IOC-UNESCO Australia

“Communicating the effects of the 1945 Makran tsunami to increase awareness and preparedness of tsunami hazards in the Makran region”.

• Collecting government documents, newspaper reports, and eyewitness accounts of the 1945 tsunami;
• Posting these materials at the IOC-UNESCO website;
• Summarize public-safety lessons in a UNESCO booklet, in English, that describes the 1945 tsunami and its effects in all four countries.
Missions carried out

1. Pakistan Coastal Regions including Archives of Sindh and Quetta and Islamabad
2. Oman Muscat including Sur
3. Iran Tehran
4. India-New Delhi including visit of Geological Survey of India and Archives of India
RULING IN 1945

IRAN

BRITISH INDIA

Princely states

Kalat

Las Bela

Colonial province

Karachi

Sind

OMAN (Gwadar)

1945 rupture

map: National Geographic, 1946

200 km
5. The Pasni Earthquake.—On the night of 28/29th November 1945 a serious earthquake occurred in the Sea off the South-Western coast of Mekran which was closely followed up by High tide of water that completely destroyed and washed off the once prosperous and industrious town of Pasni. The village of Kalmat was also seriously damaged. The total casualties to human-beings were 46 dead and several injured, while the loss of property amounted to Rs. 13,33,000.

An appeal for funds to afford relief to the sufferers was made to all his subjects, by His Highness the Khan, as a result of which a sum of Rs. 40,000 was collected in the State, which together with the generous donation of
4. A severe earthquake occurred at Ormara on the 27th November 1945 resulting in 78 deaths and injuries to 165 persons. In addition, 12 persons were found missing. The loss of property is estimated to range between three to four lakhs of rupees. Relief measures were taken at the time.
SIX BODIES WASHED ASHORE ON BOMBAY COAST

BOMBAY, Nov. 30.—Six bodies were washed ashore on Thursday morning in the vicinity of the Mahalakshmi Temple, Worli. These are believed to be the bodies of the members of the Muslim family, who were returning after a visit to the Dargah of Haji Ali. A ration card was found on one of the bodies.—A.P.I.
THOUSANDS DEAD IN SIND 'QUAKE

PORT WITH POPULATION OF 10,000 WIPED OUT

ANOTHER TOWN LAID FLAT: EXTENSIVE LOSS OF LIFE AND PROPERTY

ALL-INDIA STRIKE THREATENED

RAILWAYMEN READY TO HOLD BALLOT

PROTEST AGAINST POLICY OF RETRENCHMENT

KARACHI, DEC. 4: Reports trickling into Karachi show that the devastating effects of the recent earthquake are still being felt. A number of people have been reported killed, and the situation is said to be critical.

TIDAL WAVE TAKES 4,000 LIVES

MOST UNUSUAL PHENOMENON PLAYS HAVOC IN SIND

TOWERING SPLASH OF WATER MOVES WITH FURY OF GIANT

40,000 RENDERED HOMELESS; CONGRESS SECRETARY APPEALS FOR HELP TO THE VICTIMS
Earthquake Prediction

It was predicted yesterday that the earthquakes will happen in different places of Asia, and in some points, especially in Baluchistan, the earthquake has happened, and based on the reports; there has been other reports in other places in the Indian Ocean.

Earthquake Damages

The news coming from Karachi shows that the damages relating to marine storm was greater than that thought before. This storm due an earthquake occurred some days ago in the Atlantic ocean, which caused 200 victims and a couple of thousand homeless.
Daily Ittalaat, ............ Nov 1945

{Earthquake occurred in Baluchistan}

Radio London: all the seismological centres recorded the occurrence of an earthquake on the earth, but there was possible to understand the location of this earthquake. The press agencies haven't reported more details on this case, but some news show that the earthquake occurred in Baluchistan in an area between Iran and Hindustan (India), and it is not clear yet, if there was the damages or not. Based on the report from Reuters, this was the greatest earthquake in the last 30 years in the Arabian Sea, and had some damages as well.}
INDUS DELTA

“There, during recession of the waves [of the 1945 tsunami] and the rapid drawdown that followed during the strong ebbing of the sea, low-lying hills collapsed and spread out, totally destroying a number of fishing villages between Dubbo and Jadiwari, causing many casualties.”

p. 89-90 in
GWADAR—Amina (~90)

Views below are to northeast, across tombolo

2 km

2000s

1950s
Eye Witnesses of 1945 Tsunami

Pasni
Shamsi +100

Gwadar
Amna +100

Keti Bunder
Natur +100

Karachi
A. Rehman +90
Gwadar

Yes, the ground jolt violently. My mother said, "Wake up, it's an earthquake!" We recited verses from the holy Quran. There was a baby in the cradle and the cradle was shaking so hard that we could not take the baby out. Once the shaking stopped we took out the baby.
The earthquake woke me up at the time of Fajr. After the earthquake the water first went out as much as a mile. I think the sea must first go out before it can attack the land.

The first wave came in about 30 minutes after the earthquake. I believe that there were three waves and that the third was the largest. The water reached the top of date palms, 20-25 feet.
Many people died in Wadsar. This is the area of old Pasni town. Now it is the harbor behind the jetty. After the event there was little drinking water. The water in wells became salty. My father dug a new well near the dunes for people who took refuge there.
I went to the Mosque to offer Fajr [the pre-dawn prayer]. The first wave happened but it was small so we began the prayer. Midway through the prayer we heard a roar and the imam stopped speaking. The roar was the second wave, the biggest one. It sounded like 25 airplanes arriving all together. The imam asked us to evacuate. Most of the people in Pasni took refuge on sand dunes, but those who could not escape in time were drowned.
around 4 a.m. in the morning, we felt a very strong earthquake which made us awake and my uncle shouted that water from sea is coming. So we evacuated.

Wave hit the village and came back again. One woman named “Peerani” swept away by these waves. She was very old and could not rush out of her home timely.

Initially two big waves hit the area but the third and last one was the most severe and went into the creek but stopped by mangrove forest.

People were so scared of storm that they could not take their animals which drowned by the waves and many heavy boats were thrown inland by strong waves.
PORT OF KARACHI—Abul Rehman (~85)

Baba Island

Tide gauge that recorded tsunami Groyne damaged by tsunami
Boulders at Karachi Coast
There was no wind or rain, but there was an earthquake before the waves arrived. The sea water came at midnight or later, when people were sleeping. The waves passed over houses. This kind of sea storm has happened only once in my life.

Boats were destroyed, cattle and houses were washed away, and the human losses were greater. Villages near the shoreline were washed away. I remember there were ten main creeks. All was destroyed along the **creeks named Dabbu [Dubo on 1933 Sindh map Library of Congress], Patyani [Pittiani], Chahh [Khuc], Hajamano [Hajamro], Turshamano, Garu, and Sanghri**. But Vari [Bhuri?], Basta, and Ghaja were not much affected. Keti Bander was not much damaged but our boats were destroyed. Explain ambiguity of "waves": laher can mean breaking wave or a rise in water level with current.
It happened at Fajr or Sehri [pre-dawn prayer or just before]. I was sleeping in my home. We were hit by less high wave and could escape to nearby sand dunes.

In other places the waves were so high they even passed over the trees and small rises. The water came in and went out three times. Along Dhabu [Dubbo] Creek and Punchiyani [Pittiani] Creek, water entered from the sea but hit the people from upstream (opposite) side.

In the morning, dead bodies were on the ground and even in the trees. Where my cousins were living, many people died because there were no sand dunes or high ground.
Earthquake time, Tsunami, Inundation location mentioned by eyewitnesses of 1945 Tsunami.

<table>
<thead>
<tr>
<th>Latitude N</th>
<th>Longitude E</th>
<th>Evidence</th>
<th>Ts: Tsunami</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>25° 6'58.37&quot;</td>
<td>62°19'37.17&quot;</td>
<td>Water marks and boats on hillside.</td>
<td>Ts</td>
<td>The story shared by Mullah Murad’s father.</td>
</tr>
<tr>
<td>25° 6'39.26&quot;</td>
<td>62°19'25.53&quot;</td>
<td>Grave Yard, where the tsunami washed away boats were lying.</td>
<td>Ts</td>
<td>Hassan Ali, Aga Khani Community Member</td>
</tr>
<tr>
<td>25°19'50.04&quot;</td>
<td>64° 2'49.99&quot;</td>
<td>Dry river/Creek channelized the Tsunami waves towards land.</td>
<td>Ts</td>
<td>Abdul Hakeem, Kalmat Village</td>
</tr>
<tr>
<td>25°21'7.34&quot;</td>
<td>64° 4'16.61&quot;</td>
<td>The tsunami waves struck Mangrove</td>
<td>Ts</td>
<td>Ade Nag ,Kalmat</td>
</tr>
<tr>
<td>25°21'9.20&quot;</td>
<td>64° 4'21.66&quot;</td>
<td>Old Kalmat settlement, in 1945, washed away by the tsunami.</td>
<td>Ts</td>
<td>Ade Nag</td>
</tr>
<tr>
<td>25°14'58.81&quot;</td>
<td>63°27'45.45&quot;</td>
<td>The area near the school was inundated.</td>
<td>Ts</td>
<td>Sakhi Dad</td>
</tr>
<tr>
<td>25°15'56.42&quot;</td>
<td>63°28'16.70&quot;</td>
<td>The sea retreated for about one Km and then came forward.</td>
<td>Ts</td>
<td>Master Abdul Rasheed</td>
</tr>
</tbody>
</table>
Types of houses in 1945, still fisherman used in places
Coastal Communities

- **Gwadar**
  - Population in 1941: ??
  - Current Population: 0.2 million

- **Pasni**
  - Population in 1941: ??
  - Current Population: 0.31 million

- **Lasbella**
  - Population in 1941: 3616
  - Current Population: 0.14 million

- **Thatta**
  - Population in 1941: 78835
  - Current Population: 1.11 million

- **Badin**
  - Population in 1941: 60552
  - Current Population: 1.14 million

- **Karachi**
  - Population in 1941: 713900
  - Current Population: 22 million

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- **Current Population**
  - Gwadar: 0.2 million
  - Pasni: 0.31 million
  - Lasbella: 0.14 million
  - Thatta: 1.11 million
  - Badin: 1.14 million
  - Karachi: 22 million
Elders Recall an Earlier Tsunami on Indian Ocean Shores

Ten years later, the Indian Ocean tsunami of 26 December 2004 still looms large in its efforts to reduce tsunami risk. The disaster has spurred worldwide advances in tsunami detection and warning, risk assessment, and awareness [Satake, 2014].

Nearly a lifetime has passed since the northwestern Indian Ocean last produced a devastating tsunami. Documentation of this tsunami, which was in November 1945, was hindered by international instability in the wake of World War II and, in British India, by the approach of independence and partition.

The parent earthquake (magnitude 8.1) was centered west of Karachi along the Makran subduction zone (Figure 1). The tsunami registered on tide gauges, but intelligence reports and newspaper articles say little about inundation limits, and the consequences in terms of lives lost differ by an order of magnitude among the estimates in today's geophysical catalogs. What has been established about the 1945 tsunami falls short of what is needed today for ground-truthing inundation models, estimating risk to enlarged populations, and anchoring awareness campaigns in local facts.

Recent efforts to reduce tsunami risk around the Arabian Sea include a project in which eyewitnesses to the 1945 tsunami were found and interviewed (Figure 1) and related archives were gathered. Results are being made available through the Indian Ocean Tsunami Information Center (IOTIC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO) in hopes of increasing scientific understanding and public awareness of the region's tsunami hazards.

Makran Tsunami Hazards

Tsunamis of nearby origin, which account for up to 70% of tsunamigenic earthquakes, pose a significant risk to coastal populations in the Arabian Sea. The Makran subduction zone, with its long history of destructive earthquakes, is one of the most tsunami-prone areas on Earth.

Fig. 1. (top) Rabia, age 74, recalls childhood memories of the 1945 Makran tsunami during an interview in Pasni, Pakistan, in 2013. Photo by Ghazala Naem. (bottom) The tsunami originated along the Makran subduction zone, the seaway edge of the Arabian Sea.
Remembering the 1945 Makran Tsunami
Eyewitness Accounts from the Northwestern Rim of the Indian Ocean

Based on interviews by Din Mohammad Kakar\(^1\), Ghazala Naeem\(^2\), and Abdullah Usnam\(^3\) in Pakistan, and by Seshachalam Srinivasalu\(^4\) in India.

United Nations Educational, Scientific and Cultural Organization (UNESCO)
Intergovernmental Oceanographic Commission (IOCC)

Nearly a lifetime has passed since the northwestern Indian Ocean last produced a devastating tsunami. The disaster took place in November 1945, when record-keeping was hindered by instability from the Second World War and, in British India, by the approach of independence and partition. What has been established about the 1945 tsunami falls short of what’s needed today for ground-truthing inundation models, estimating risk to enlarged populations, and anchoring awareness campaigns in local facts.

This booklet aims to increase scientific understanding and public awareness of the 1945 tsunami. It contains testimony from dozens of eyewitnesses to that tsunami, and from younger people who recounted what the elders told them. Most of the accounts come from Pakistan and India. It is hoped that these collected memories will help save lives during future tsunamis.

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