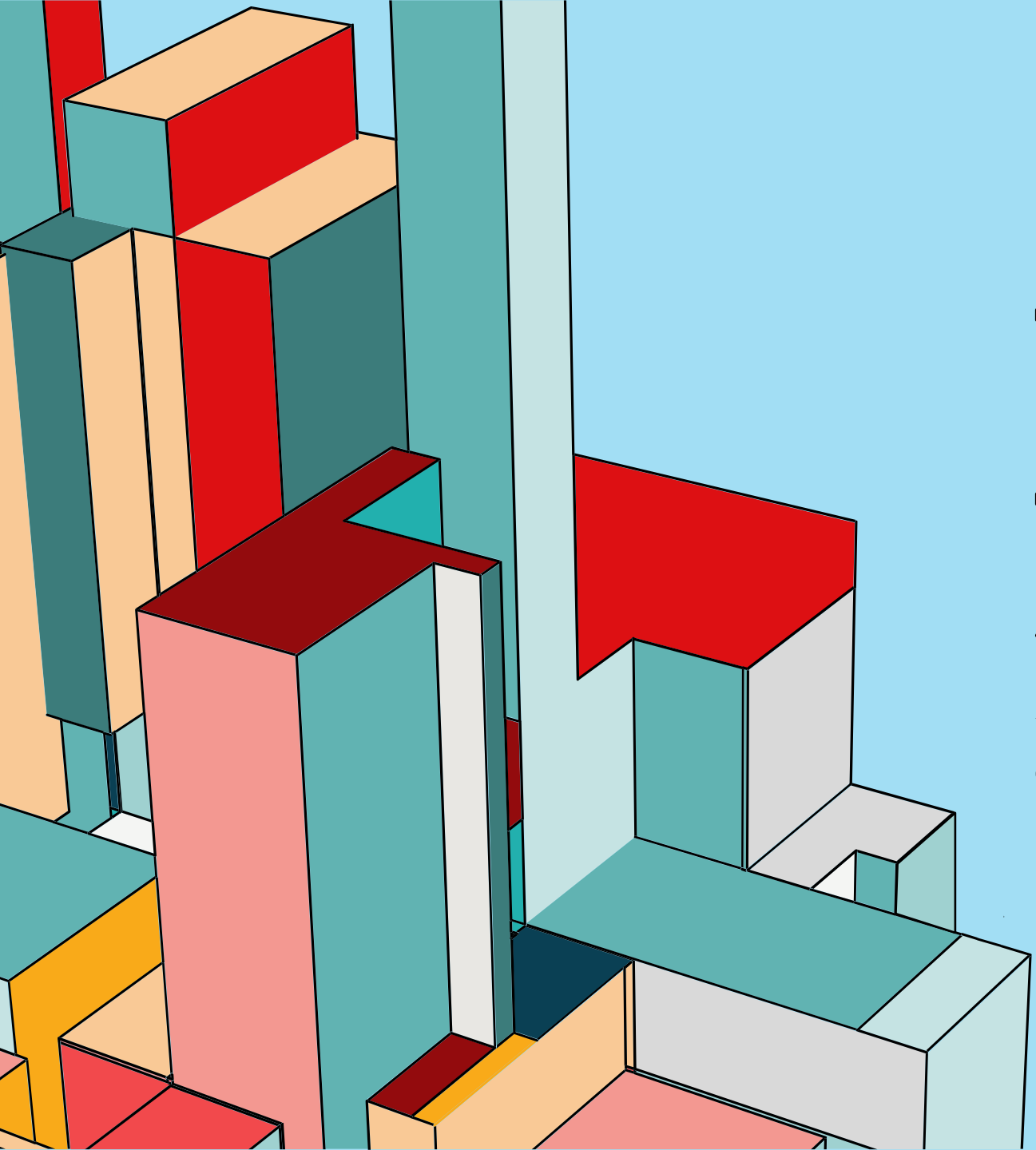
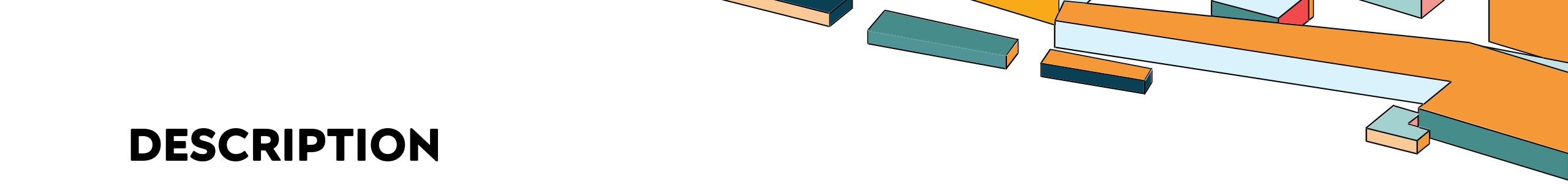


THE 2013 CHRISTMAS EVE TROPICAL TROUGH SYSTEM

Saint Lucia || Saint Vincent and the Grenadines

Group 9



DESCRIPTION

Event: The Christmas Eve Trough occurred on December 24 - 25, 2013.

- Triggered by an intense low-pressure system that brought extreme rainfall.
- The extreme rainfall led to rapid and intense flash flooding as well as numerous landslides, and caused severe damage to transport, water supply, and drainage infrastructures as well as significant damage and loss in the agriculture, tourism, and housing sectors.

Impacts:

- Human Impact: 9 people died, many injured, and thousands displaced in Saint Vincent; 6 people died, over 550 were displaced, and approximately 19,984 were directly impacted by the event in Saint Lucia.
- Economic Impact: Estimated damages over $100 million USD in Saint Vincent; total damage and loss of US$99.88 million in Saint Lucia.
- Infrastructure Damage: Destruction of homes, roads, and bridges. The agriculture, water and sanitation and housing sectors were also affected.
- Environmental Impact: Severe soil erosion, loss of vegetation, and contamination of water sources

CONTRIBUTING FACTORS

- Topography:

  ◦ Both St. Vincent's and Saint Lucia's mountainous terrain exacerbated the rapid runoff and landslides. A combination of high slope angles and rainfall led to slope instabilities and a high occurrences of landslides.

- Infrastructure Vulnerability:

  ◦ Many homes and structures were built in flood-prone areas without adequate flood defenses. In addition, the limited capacity of the local drainage system (arising in part from trash and sediment accumulation) contributed to the intensity of the flooding experienced in Saint Lucia.

- Deforestation:

  ◦ Deforestation in upland areas reduced the land's ability to absorb rainfall, increasing runoff.

- Climate Change:

  ◦ Increased frequency and intensity of extreme weather events due to climate change. It is noted that the Christmas Eve Trough occurred at a time outside the normal hurricane season and produced extraordinarily heavy rains (greater than 224 mm in a matter of two to three hours).

SOLUTIONS

1.Improved Infrastructure:

- Flood Defences, Drainage Systems and Stormwater Management: Construct levees, flood walls, and embankments in high-risk areas! to prevent floodwaters from reaching vulnerable communities. Upgrade and maintain drainage systems to ensure efficient runoff and reduce water accumulation. This includes regular cleaning of drains and culverts to prevent blockages

2. Reforestation and Land Management:

- Reforestation Projects and Proactive Agroforestry Practices: Plant trees in deforested areas to improve soil stability and water absorption. Integrate trees into agricultural landscapes to enhance soil structure and water retention, reducing erosion and runoff. Establish vegetated buffers along waterways to filter runoff

3. Framework and Policy:

- Updating of Legal and Institutional Disaster Risk Management Frameworks: Ensure that the frameworks that direct disaster response are up to date. These include National Hazard Mitigation and National Emergency Management Plans, as well as resource allocation to National Emergency Management Organizations.