



**The Agency for the Assessment and Application of Technology (BPPT)  
The Agency for Meteorology, Climatology, and Geophysics (BMKG)**

**ITU/WMO/UNESCO IOC Joint Task Force for SMART Cables  
UNESCO / IOC International Tsunami Information Center (ITIC)  
US National Oceanic and Atmospheric Administration (NOAA)  
US Geological Survey, Earthquake Science Center (USGS)**

### **STRENGTHENING TSUNAMI WARNING OPERATIONS THROUGH SMART CABLE TECHNOLOGY**

**BPPT 2 Building, 2<sup>nd</sup> Floor  
Jakarta, Indonesia, 13 January 2020**

Tsunamis can be extremely deadly because of their quick onset and immediate impact. In order to warn the public within minutes, agencies must be able to detect and assess hazardous tsunamigenic events – specifically, tsunamis that are caused most often by earthquakes, but also sometimes by volcanic eruptions and/or landslides. For these, rapid and reliable characterization of the source, such as an earthquake's magnitude and rupture characteristics, is a key requirement for calculating a useful tsunami wave amplitude and inundation forecast. Additionally, early direct measurement and validation that a tsunami was generated in the near field is critical to confirm the tsunami's severity and for improving the accuracy of the tsunami wave forecast.

For the earliest detection, an ocean-based network of sensors nearest the active subduction zones is required. The required system must have broad coverage over the entire archipelago and assess both seismic and non-seismic tsunami sources on a local and regional scale, be robust with long-life, and ideally require little or no in-water maintenance and be sheltered from the rigors of ocean-surface dynamics. These requirements call for a cable-based system that would comprise the backbone of the system. To develop such a system will require a stable and sustainable commitment from government, and full deployment may require 10-20 years.

Over the past ten years, led by a United Nations ITU/WMO/UNESCO IOC Joint Task Force composed of government, private sector, and research universities, SMART (Science Monitoring And Reliable Telecommunications) cable technology has been identified as an economically feasible solution.

This stakeholder planning workshop will discuss Indonesia's plans for the deployment of SMART cable technologies to strengthen earthquake and tsunami detection, source characterization, and tsunami wave forecasting.

#### **Resource Persons:**

Dr. Bruce Howe, ITU/WMO/IOC UNESCO Joint Task Force Chair for Science Monitoring And Reliable Telecommunications (SMART) Cables; University of Hawaii, Ocean Resources Engineering, Honolulu, HI, USA

Dr. Laura Kong, Director, International Tsunami Information Center (ITIC), Honolulu, HI, USA

Dr. Charles McCreery, Director, PTWC, Honolulu, HI, USA

Dr. Walter Mooney, Senior Research Geophysicist, US Geological Survey, Menlo Park, CA, USA

## PROVISIONAL AGENDA

Sess ion	Start Time	End Time	Topic	Speaker
			<b>Strengthening Tsunami Warning Capabilities through SMART Cable Technology</b>	
	8:00	8:30	Registration	BPPT
<b>1</b>	8:30	9:00	Opening Remarks	BPPT, BMKG, Jason Seuc, US Embassy, Disaster Relief
<b>2</b>	9:00	9:15	UN Decade for Ocean Science for Sustainability - Tsunami initiatives	Dr. Laura Kong, ITIC
<b>3.1</b>	9:15	9:30	SMART Cables - what, why, where, and how	Dr. Bruce Howe, JTF Chair
<b>3.2</b>	9:30	9:45	Current Status and Future Improvement in Tsunami Warning – Detection, Analysis, Decision-making	Dr. Charles McCreery, PTWC; Dr. Walter Mooney, USGS
<b>4.1</b>	9:45	10:00	Indonesia Research Efforts for Tsunami Warning	Dr. Andi Eka Sakya, Secretary General, National Research Council
	10:00	10:30	COFFEE / TEA BREAK, Group Photo	
<b>4.2</b>	10:30	11:00	Indonesia Requirements for Tsunami Warning	Dr. Rahmat, BMKG
<b>4.3</b>	11:00	11:45	Indonesia SMART Cable Project: Plan for a Cable-Based Tsunami Early Warning System	Dr. Udrexh, BPPT; Dr. Howe
<b>4.4</b>	11:45	12:00	Discussion and Next Steps	Dr. Andi, All
	12:00	13:00	LUNCH	
			<b>SMART Cable Project Planning</b>	
<b>5.1</b>	13:00	13:30	Indonesia SMART, Topic 1 - Stakeholders and Multi-Agency coordination - who national and international, how, how often	Dr. Andi
<b>5.2</b>	13:30	14:15	Indonesia SMART, Topic 2 - Engineering, Technology, Telecomm, Infrastructure requirements	Dr. Howe, Dr. Udrexh
<b>5.3</b>	14:15	15:00	Indonesia SMART, Topic 3 - Timelines and Milestones: Feasibility Study, Pilots, Lab Tests	Dr. Udrexh, Dr. Howe
<b>6</b>	15:00	15:30	Next Steps and Wrap-up Summary	Dr. Andi