Ciguatera Research Strategic Planning to build local warning networks for the detection and human dimension of ciguatera fish poisoning in Indonesia

Suhendar I Sachoemar[1,2], Mitsutaku Makino[3], Alexander Bychkov[4], Mark L. Wells[5], Shion Takemura[6], Naoki Tojo[7], Arief Rachman[8] and Shinta Leonita[2]

[1] Research Center for Environmental and Clean Technology, National Research and Innovation Agency (BRIN), Indonesia
[2] Department of Agro-Industrial Technology, Institut Teknologi Indonesia, Tangerang Selatan
[3] Atmosphere and Ocean Research Institute, The University of Tokyo, Chiba, 277-8564, Japan
[4] PICES Secretariat, 9860 West Saanich Rd., Sidney, BC, V8L 4B2, Canada
[5] School of Marine Science, University of Maine, Orono, ME, 04469, USA
[6] Fisheries Research and Education Agency, Yokohama, Kanagawa, 236-8648, Japan
[7] Faculty of Fisheries Sciences, Hokkaido University, Hakodate, 041-861, Japan
[8] Research Center for Oceanography, National Research and Innovation Agency (BRIN), Indonesia

It is well known that Ciguatera Fish Poisoning (CFP) has become a global problem in several parts of the world, both in the tropics and sub-tropics. Indonesia, as the largest archipelagic country in the world with an area of 39,583 km^2 consisting of coral reefs (about 45.7% of the total 86,503 km^2 of reefs in the Coral Triangle area), and a biodiversity reaching 590 species of rock coral and reef fish, should be prepared for this problem. Coral reefs, if not properly maintained, could be the location for the development of microbenthic algae that can cause CFP. The federal government has identified that more than 30% of the total area of coral reefs in Indonesia, or 18,000 km^2, has been seriously damaged. Apart from being caused by over-exploitation of natural resources, this condition has also been exacerbated by the impact of climate change. It is time for Indonesia to make efforts to prevent further damage to coral reef ecosystems, so that the potential danger of developing CFP in Indonesia can be identified and controlled as early as possible. If not, then CFP will be a threat that can disrupt not only the health of the marine environment and aquatic organisms that are part of the food chain of CFP transmission, but will also endanger the health of humans who consume fish obtained from coral reef ecosystems. To mitigate the threat of CFP in Indonesian coastal waters, the strategy is to conduct integrated research and monitoring, as well as capacity building of Indonesian local communities on Ciguatera in the Gili Matra Tourism Area, Lombok, West Nusa Tenggara (NTB) through collaboration between PICES (North Pacific Marine Science Organization) and various Indonesian research institutions and universities (*e.g.*, ITI - Institut Teknologi Indonesia, BRIN - National Research and Innovation Agency, UI - University of Indonesia, and UNRAM - University Mataram), also supported by the Provincial Government of West Nusa Tenggara (NTB). The base for this collaboration is the PICES project on "Building Local Warning Networks for the Detection and Human Dimension of Ciguatera Fish Poisoning in Indonesian Communities" funded by the Ministry of Agriculture, Forestry and Fisheries (MAFF) of Japan. These activities are in line with the 2030 Sustainable Development Goals of the UN: Establish Good Health and Well-Being (No. 3), Climate Change (No. 13), and Improvements to Underwater Life (No. 14).