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The Management of Minerals and Biological Resources Associated With Submarine Hydrothermal Systems in Indonesia

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The joint program of the Indonesia-Australia Surveys for Submarine Hydrothermal Activity (IASSHA program) between 2001 and 2003 has clearly demonstrated the potential of the submarine Sangihe arc and possibly the Sunda Strait to host hydrothermal sulfide mineral deposits in water depths of up to 2000 m. Elsewhere in Indonesia, the Bandamin program has also discovered sulfide minerals at the Komba submarine site in the Banda Sea.

From the emerging knowledge of Indonesia's submarine geology and metallogenesis, future discoveries of seafloor sulphide mineral deposits are most likely to be within archipelagic (i.e., territorial) waters, where the Government of Indonesia has complete sovereignty. Decisions about exploitation, evaluation, mining and processing of mineral deposits and bioprospecting will come under the direct jurisdiction of the Government of Indonesia, and not under the International Seabed Authority. Accordingly, the Government of Indonesia needs to consider the formulation of policy which encourages and sustains scientific research and attracts commercial interest into seafloor hydrothermal systems for the benefit of all Indonesians.

Adaption of Indonesia's current land-based Contract of Work system to seafloor sulfide deposits in its territorial waters is one possible model. It is a system that mineral exploration and mining companies are familiar with, and is recognised throughout the world. Companies in general may find a model based on the petroleum tender-system too difficult to adapt to the relatively poorly known frontiers of seafloor massive sulphide deposits. Papua New Guinea, for example, has used a land-based system to regulate exploration for seafloor deposits, recognising that licence fees and royalties must be minimal if companies are to be encouraged into this frontier field. This model is proving successful with exploration programs for gold-copper-zinc-silver rich sulfide deposits now underway.

Other issues such as implementing management plans for bio-prospecting and deep sea tourism should also be considered. Training programs and further equipment procurement in marine scientific research for Indonesian scientists should continue in order to build critical capability and capacity in this burgeoning field, especially in the Sangihe and other volcanic arcs throughout the archipelago.