

# Architecture and Implementation of Integration Biodiversity Data and Traditional Knowledge Resources in Indonesia

Hakim Lukman<sup>\*1</sup>, Dana Indra Sensuse<sup>1</sup>, Pesigrihastamadya Normakristagaluh<sup>2</sup>, Tsuyoshi Hosoya<sup>3</sup>

1 Faculty of Computer Science, University of Indonesia

2 Research Center for Biology, Indonesian Institute of Sciences

3 National Museum of Nature and Science, Japan

Although great amount of biodiversity data exist in Indonesia, which has the second largest potential wealth of biodiversity in the world, they are managed personally or by the research institutes. Because data available for the public are limited, cumulating data is of urgent need. On the other hand, some biodiversity resources existing for centuries are not likely well-recorded. Without a database, important knowledge for biodiversity resources may disappear.

To integrate biodiversity data and traditional knowledge, we arranged a model called I-Grest (Indonesian genetic Resources and Traditional Knowledge), using TOGAF (The Open Group Architectural Framework) framework to build an architecture and biodiversity informatics as standards and tool. IPT 2 (Integrated Publishing Toolkit 2), provided by GBIF (Global Biodiversity Information Facility), Darwin Core were used for data integration and standardization, respectively.

Prototype of this model integrated 8 databases for biodiversity and Traditional Knowledge (TK) from different organizations in different format. Database of TK, including knowledge of medicinal plants, is indispensable for domestic users, and will be integrated in the future. All collected data are to be sent to I-Grest, and to GBIF via IPT2.

This project was initiated by the Research Center of Biology Indonesian Institute of Science as a place to network. To exchange biodiversity information, we declared a consortium named InaBIF (Indonesian Biodiversity Information Facility). Key success factor for the implementation of this model are: 1) Political aspect: we must have regulations from the government to reward and punishment for integrated biodiversity and traditional knowledge data, and we should have special funding programs to maintain this model, 2) Technical aspect: Currently database differs in format by the institution, so are metadata and system, and we must facilitate the model for every case. We must training and capacity building regularly for every institution of the consortium.