The application of biotechnology for the development of fisheries and marine can be classified into three groups, namely (1). Natural aquatic product development, (2). Technology development / product for the environmental applications, and (3). Development of both conventional cultivation or through genetic improvement of aquatic organisms. Based on Kate and Laird report, global sales of herbal products/supplement, and cosmetic/personal care in 1997 which were derived from natural materials have reached 2.8 billion per year. For natural pharmaceutical products the sales were between 75-150 billion dollars per year. There are at least 24 international companies produce biotechnology-based natural pharmaceutical and cosmetic products.

"These are both opportunity and challenge as well for all stakeholders in Indonesia to play an active role in developing the economic potential of aquatic resources of biotechnological products," Prof. Dr Linawati Hardjito explained in her press conference prior to her scientific oration on Exlounge Room, Baranangsiang Campus, Bogor, on 21 May 2015.

According to Prof. Lina, the biotechnological products developed in Indonesia are herbal/supplements, personal care and cosmetics. In addition, aquatic-based biological resources for pharmaceutical raw materials. "With reference to the strict regulations for pharmaceutical products, strategies must be taken to work with the established pharmaceutical industry in Indonesia and in the world, to produce raw materials to be processed further by pharmaceutical companies," he said.

Dexa Medica, Kalbe Farma, Deltomed, and Sidomuncul are leading pharmaceutical company partner with the Indonesian scientists for development and commercialization their products. Based on the analysis of Prof. Lina, Indonesia could contribute 10 percent of the world market demand for pharmaceutical, herbal/supplements, and cosmetic/personal care products.

By taking the lowest value of 75 billion dollars per year for pharmaceutical products and 2.8 billion dollars per year for herbal/supplement and cosmetic/personal care in 1997, Prof Lina predicted that the demand for raw materials of pharmaceutical products in 2015 will reach 214 trillion rupiah. For herbal/supplements, and cosmetics/personal care respectively has reached 17 trillion rupiah. This figure will only be achieved by smart and hard work by all stakeholders," she said (Wied)