



German-Indonesian Cooperation for Protection of Environment Ecosystem in Indonesia



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Introduction

Cooperation in the fields of science and technology that Germany has fostered with Indonesia is a long history in the course of history. This collaboration began when the German government established the Federal Ministry of nuclear which later changed its name to the Federal Ministry of Education and Science in 2005 (Alunaza, 2015). This cooperation can be realized because of the bilateral relations that are well established between the two countries and the role played by B.J Habibie who at that time served as Minister of Research and Technology and Head of the Agency for the Assessment and Application of Technology. In addition, personally Habibie also has a personal closeness with Germany as he studied at the Technische Hochschule Aachen universities in Germany in 1960. The cooperation in science and technology between Indonesia and Germany is based on national development value that was declared by the President of Indonesia in 2011.

Cooperation in the nuclear field is what later developed and became the basis for the first of cooperation in the field of science and technology in which the scope covered is broader. Henceforth, nuclear development cooperation is incorporated into the framework of science and technology cooperation. The cooperation agreement between Indonesia and Germany was signed on March 20, 1979 (Ministry of Research and Technology, 2014). This collaboration aims to conduct and develop research together. Both parties will equally contribute to scientific involvement as well as those related to budgetary needs. This collaboration is related to marine research and technology, energy research and technology, aerospace and space research and technology, earth science, social science and humanity, appropriate science and technology to provide basic needs for industrial development, information and scientific documentation.

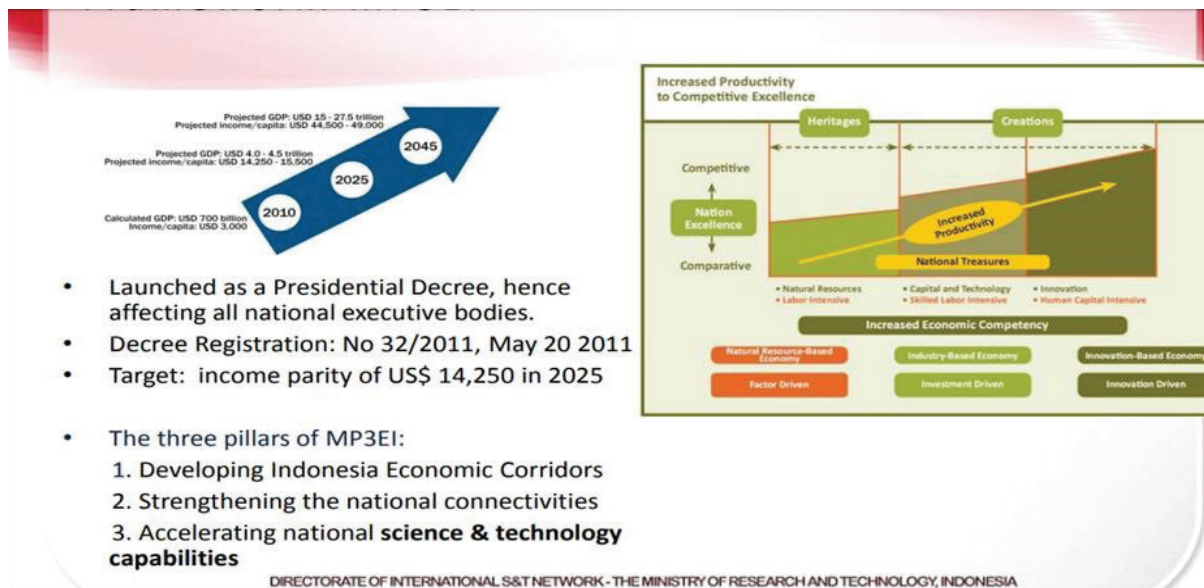
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From 2000 to 2009 there were several new programs developed by the two countries. The program includes SPICE (Science for the Protection of Indonesian Coastal Ecosystem) which is a preliminary study to design a master plan for Indonesian marine, tsunami early warning, geothermal research, and research evaluation of technological sciences for development. Germany's decision to develop scientific and technological cooperation was originally inseparable from the Asia Concept 2002 published by BMBF in June 2002. This concept was compiled because Germany saw Asia especially Indonesia as the most important region from a political, economic, and scientific and technological perspective (Ministry of Research and Science Germany, 2010).

Germany believes that cooperation with several countries in Asia, especially Indonesia, is becoming increasingly important. Germany has made the internationalisation of science and technology with four main objectives (Klode, 2011). First, strengthening collaboration in research and technology with global leaders. Second, the exploitation of the potential for international innovation. Third, intensification of long-term cooperation with developing countries in the fields of education, research and development. Fourth, assume international responsibility and to master global challenges.

Indonesia plays an important role in protecting of global environmental goods such as global climate and biodiversity, not least because of its huge forest areas. Since a large proportion of greenhouse gas emission is released as a result of the destruction of tropical forests, Germany provides assistance to the Indonesian government in implementing forestry reforms that facilitate sustainable forest management such as through the establishment of social forests. Within this priority area, Germany also provides advisory services to the Indonesian government on how to adjust its climate change mitigation policy and how to implement climate action plans. New projects aim to support national reform towards sustainable agriculture value chains and peat land management and rehabilitation of environment in Indonesia.

Bilateral contracts in the earth and ocean research have been in place since 1980s and 1990s, when joint marine geological and geophysical investigations were carried out on the German research vessel SONNE in Indonesian seas. Based on these contacts and the subsequent renewed interest in Indonesia and Germany to intensify and expand the cooperation, a bilateral workshop was held in Hamburg in 1998 to exchange ideas and explore themes for further cooperation. Following this workshop, a bilateral steering committee was established in 2000.



At its first meeting in Jakarta, the Steering Committee for Earth and Ocean Sciences decided to jointly develop a 10-year action plan for cooperation. The plan was developed by Indonesian and German scientists as well as Indonesian alumni of German universities active in the field of earth and ocean research through a series of meetings beginning with a scientific conference and DAAD alumni seminar held at Purwokerto in 2001. The action plan formed the basis of the SPICE (Science for the Protection of Indonesian Coastal Ecosystems) Program which was approved in 2003 and being implemented since then (Glaeser and Glaser, 2010).

SPICE I provided significant information on the structure and functioning of coastal ecosystems, covering mangroves, coral reefs, coastal pelagic systems and peat swamps and on their alterations due to human interventions. Based on the information and experience gained in the first phase, the focus on natural sciences was complemented by social science during the second phase (2007-2010), aiming to better understand the social dimension of coastal ecosystem changes and to improve the links between research and decision making.

Following two phases of successful bilateral cooperation the research program has been continued in 2012. For the third SPICE phase six interdisciplinary research topics were jointly agreed by the German and Indonesian research team. In some of the topics the research which formed the basis of the SPICE Program during the first two phases will be enhanced on a wider approach, some alignments like potentials for renewable energies and natural and anthropogenic induced

environmental changes during the past 4,000 years have been newly affiliated according to their actual relevance in Indonesia. During its implementation, the SPICE-Program has created a bilateral team of scientists dedicated to coastal and marine research and contributing to implementing national marine research and development as well as higher education priorities in Germany and Indonesia. The program also makes substantial inputs towards fulfilling regional and international obligations of the two countries as entailed in international conventions and treaties.

Indonesia-Germany Bilateral Cooperation in Science and Technology

Science and technology cooperation is one form of cooperation that has been maintained by the two countries since the opening of bilateral relations between the two countries. This shows the relevance of the cooperation carried out in Indonesia to illustrate the need for assistance between one country and another. Diplomatic relations between Indonesia and Germany have also been opened since 1952. This relationship shows that both parties have a good and trustworthy relationship. At present there are less than 250 Germany companies doing business in Indonesia.

Indonesia is a priority country in German development cooperation. This development cooperation is an instrument of development policy compiled by the Federal Ministry for German cooperation and development. When viewed from

Table 1: cooperation project between Germany-Indonesia from 2000-2009

No	Project	Sum
1	SPICE	5.500.000,00 €
2	Biotechnology	3.280.000,00 €
3	STORMA	3.700.000,00 €
4	Tsunami early morning system	55.000.000,00 €
5	Geothermal	8.800.000,00 €
6	Geo-technology	1.300.000,00 €
7	Integrated water resources management	6.000.000,00 €
8	Periscope study	3.000.000,00 €
9	International cooperation	2.533.000,00 €
	Total in Euro	87.113.000,00 €

Source: Statistisches Bundesamt (2009) p. 19

an economic and political point of view, Germany has considerable interests in the Asian region, especially in Indonesia. These interests can be seen in the task of Germany foreign policy document issued at the Ministry of Foreign Affairs office in Berlin in May 2002. The document states that the Asia Pacific region with the number of countries in it, its economy and culture, achievements in the field of science and technology and its market potential. That was what later a prominent feature became in German foreign policy.

In cooperation with science and technology with Indonesia, Germany provides assistance in the form of grants in the form of goods and services in the context of project assistance where the source of funds in this scheme does not need to be returned by Indonesia (The European Union and Indonesia, 2006: 86-88). An example of this assistance scheme is the cooperation in the development of tsunami early detection equipment, in which Germany donated some tools and technical assistance for the development of these detection devices in Aceh and Nias after the 2004 tsunami. Another grant scheme provided by Germany is the provision of experts to implementing a cooperation project in Indonesia. The scope of the consultant's work is adjusted to the ongoing cooperation scheme. Other grants given by Germany to Indonesia are training exchanges of researchers both from Germany and those from Indonesia.

Germany has put development issues high on its agenda. Germany makes poverty reduction a top priority in the 2015 Program Action. The contribution of the German Government in halving extreme poverty in the world. This program defines global poverty reduction as an important element in all government political policies and (main) goals of development cooperation.

In 2005 Germany provided tools to improve the urban water supply system, thereby reducing health risks from illness in the Department of Settlement and Regional Infrastructure, PDAM Bengkulu. In 2002-2004, through accompanying measures for the operation of the water treatment installation and distribution network sector in order to contribute to adequate water supply in the Department of Settlement and Regional Infrastructure, PDAM

Palembang. And 2001-2005 in NTT by ensuring a sustainable supply of clean water for residents in five districts in the province of East Nusa Tenggara

Bilateral cooperation between Germany and Indonesia in the fields of education and science and technology can be seen in the cooperation that took place between German and Indonesian universities. Like research and education cooperation. The German Academic Exchange Service and the German Embassy in Jakarta play an important role in the collaboration between the universities. Similarly, cooperation in the fields of science and technology is coordinated by the Federal Ministry of Education and Research in collaboration with the Indonesian Ministry of Research and Technology.

In the fields of science and technology there is a significant increase in the amount of cooperation assistance. If in the first 20 years the field of cooperation was carried out in eight fields, then in the period 2000 to 2009 there were 13 cooperation focuses. Such as cooperation in the field of biotechnology that aims to develop technology in the industry both in Germany and in Indonesia. Then a preliminary study to design a maritime master plan that aims to develop Indonesia's marine potential by mapping the current potential, both in terms of the potential of sea transportation, fish cultivation. Germany contributed by sending experts to design the master plan.

Principles of Germany and Indonesia Bilateral Cooperation

In the study of increasing scientific and technological cooperation assistance conducted by Germany and Indonesia can be carried out on four ethical principles. First, the principle of security. Germany is known by the world community with advanced and sophisticated technology. Sophisticated technology that can sustain the German economy. The German government made a policy strategy on the direction of national technology to be achieved. One such strategy is the Asia Concept 2002. This concept explains that Germany sees Asia as the most important region from a political, economic, and knowledge and technology perspective. Germany believes that cooperation with certain countries in Asia is becoming increasingly important.

Second is economics. Collaboration between research institutes and several countries is a prerequisite for the development of innovation to open new markets. Third, political interests. Germany accepts its international responsibilities in bilateral cooperation in education and research. The collaboration contributes to overcoming global problems and economic, social development for cooperation partners.

Through this cooperation, Germany will be appreciated by the cooperation partners from several countries, especially Indonesia. Because the technological advancements owned by Germany, enable Indonesia to continue to use these technological advances. This was done by Indonesia in order to save on expenses compared to buying technology products at lower prices but of lower quality. Thus, Germany sees the importance of increasing cooperation in the field of science and technology with Indonesia.

By increasing cooperation in the fields of science and technology with Indonesia, Germany gained the intensity of cooperation projects between the two countries and indirectly, cooperation between the two countries will increase. Thus, researchers from Germany will continue to have the opportunity to continue to develop research which in turn will give birth to new research results facilitated by the government and will give birth to new products according to market needs.

In the Indonesian-Germany Development Cooperation document issued by the German Embassy in Jakarta in 2002 it was stated: *"There are numerous motives for granting development assistance. Primarily, the moral obligation towards those who are disadvantaged in our One World. Furthermore, there are objectives in the common interest of Germany and its partners such as a long-term prospect for peace and stability based on prosperity of all nations. The latter is of crucial importance for Germany's export-oriented economy. The preservation of vital natural resources is another issue of global significance."*

Conclusion

The collaboration between Germany and Indonesia aims to develop research together. The collaboration between Germany and Indonesia refers to the

Asia Concept 2002 with four objectives. Namely, strengthening cooperation, exploiting potential and innovation, intensifying cooperation, and mastering global challenges. Germany's national interest in working with Indonesia is seen in the Task of Germany Foreign Policy. Germany sees that Indonesia has great potential to develop the country's technological progress. The cooperation program can be seen from the assistance provided by Germany to Indonesia in the form of an early detection tool for the tsunami disaster after the 2004 Aceh and Nias tsunami tragedies. In addition, assistance was also provided to improve water systems in the urban PDAMs in Bengkulu, Palembang and East Nusa Tenggara. Indonesia was also given assistance in the form of an Expert Assistant to develop cases in the field of technology research. This can be seen from the experts provided by Germany for the development of marine potential in Indonesia.

In the Indonesian-Germany development cooperation document, it is stated that Germany has a moral obligation by helping disadvantaged developing countries. That's because Germany has a mission to maintain peace and stability in the country's economy. Furthermore, cooperation with Indonesia has its own advantages for Germany. The profit is divided into three motives, environmental security, economy values, and politics.

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