



Fraunhofer Institut
Produktionsanlagen und
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Kai Mertins (Editor)

Innovation in Indonesia



Assessment of the National Innovation System
and Approaches for Improvement

Evaluation of the Indonesian Science,
Research and Technology Landscape

P E R I S K O P

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Authors:

Dipl.-Ing. Rolf Albrecht

Prof. Dr. Hans-Dieter Daniel

Dipl.-Psych. Ina Finke

Dr. Dirk Michael Harmsen

Dr. Arne Jaitner

Dipl.-Ing. Holger Kohl

Dr. Dr. Castulus Kolo

Prof. Dr. Kai Mertins

Dr. Jörg Meyer-Stamer

Dr.-Ing. Ida-Bagus Kesawa Narayana

Dipl.-Volkswirt Christian Schoen

Dr. Thee Kian Wie



**MINISTER FOR RESEARCH AND TECHNOLOGY
REPUBLIC OF INDONESIA**

Foreword

The Minister for Research and Technology of the Republic of Indonesia

The economic crisis that struck Indonesia in 1997 has urged the government to reconsider that the economic growth does not only involve the mastery of macro and micro economy but also of the knowledge and know-how of technologies which, mainly, fit the market needs.

In fact, Small and Medium Enterprises (SMEs), as the Indonesia's economic backbone that are yet indigenous and short of technology capabilities, are in predicaments to the greater development of global technology; the reluctance of R&D institutions to work with them and industries; the nearer distance to free trade era, have all stirred us to design innovation systems at the national and regional levels. Such innovation systems are meant for creating Indonesia's center of excellence in Science, Research and Technology (SRT) in supporting SMEs and industries.

We should also, at the same time, consider the recent development of regional autonomy era, in which central government mainly acts as facilitator while the regional governments and the people solve their own problems. In dealing with problems, especially, in relation to the SMEs problems, the central government has to provide assistance for them to focus on and strengthen their technological development in order to be able to meet both global and local needs, as it is implied in our economic program.

With a purpose of designing and strengthening the Indonesian Innovation Systems, the Ministry of Research and Technology of Indonesia, in cooperation with the Federal Ministry of Research and Education of Germany (BMBP), had utilized the ability of the German Government as successfully practiced in restructuring SRT in the western part of Germany and in some other developing countries, through a project called PERISKOP (Proyek Evaluasi Riset Sains Teknologi untuk Pembangunan / Evaluation of Indonesian Science, Research and Technology Landscape to Strengthen the National Innovation System), from November 2000 to May 2002.

The report of PERISKOP shows significant findings and results on current industry demands and S&T performance. The technology foresight process, as one of the packages in PERISKOP, can be more utilized in regions for identifying the future local innovation system. Some other results can contribute to the understanding of Indonesian S&T capabilities in the national and international forums. Considering the significant findings and results, I believe further cooperation between Indonesia and Germany can be enlarged through implementation of PERISKOP findings by considering the Indonesian Strategic Policy of S&T Development 2001-2004 as well as the Indonesian Basic Law on S&T Number 18/2002.

By publishing the PERISKOP report, industries and R&D institutions of both countries will have better access to valuable information in their efforts to cooperate in establishing a strong and modern economy, and it becomes a place where fairness, opportunities and innovation really mean something. I want people to think and bear in mind that our countries are Knowledge Nations.

Jakarta, October 2002

Minister for Research and Technology
of the Republic of Indonesia



Ir. M. Hatta Rajasa

Foreword

Prof. Dr.-Ing. Kai Mertins (Editor)

'Innovation in Indonesia' contains the main results of the project „PERISKOP – Proyek Evaluasi Riset Sains Teknologi untuk Pembangunan“ (Evaluation of the Science, Research and Technology Landscape to Strengthen the National Innovation System) funded by the German Federal Ministry of Education and Research (BMBF). The content of all 12 work packages conducted in the project are presented in the form of comprehensive summaries. Subsequently, the attempt is made to draw a picture of the current performance of the Indonesian science, research and technology (SRT) landscape and to outline some suggestions and starting points to improve the overall situation of SRT in Indonesia.

The aim of the project's investigations was particularly to address two of the most pressing issues for Indonesia in the near future: How can innovation and technology policy effectively support the present decentralization process and how can an efficient transfer of R&D results between research institutions and product development of small- and medium sized enterprises (SMEs) be facilitated? How do SMEs contribute to innovation processes in Indonesia and how can SMEs become the backbone of a restructured innovative economy in Indonesia?

After the collapse of the “New Order” era the Ministry of Research and Technology (KRT) increasingly obtained significance as central authority in charge of research and technology policy and as coordination unit of the most important non-departmental R&D institutes in Indonesia, such as LIPI and BPPT. In this context, the PERISKOP project also aimed to emphasize the future role of KRT in a decentralized Indonesia.

The PERISKOP project has profoundly been prepared in terms of methodology, contents and the composition of the expert teams. Before the start of the project elaboration in December 2000 the German Fraunhofer Gesellschaft spent almost an entire year discussing with the Indonesian and German Government units in charge (KRT and the German Ministry of Education and Research) and producing a detailed project proposal. After having discussed the project proposal at the KRT seminar on 6th of March 2000 in Jakarta, the team organized and conducted two preparatory workshops with the objective to fine-tune the project's outline - in June 2000 in Munich and in July 2000 in Jakarta.

We are very pleased that we had the opportunity to compose teams of outstanding German and Indonesian experts, who made it possible to carry out high quality investigations for the different components of the Indonesian innovation system. The editor and the authors of 'Innovation in Indonesia' wish to thank a considerable number of German and Indonesian team members, who contributed significantly to the success of the project by working out specific case studies and papers on relevant framework conditions. In this context the following persons have to be mentioned: Dr. Christoph Antons, Steve Begemann, Lucia de Carlo, Alexander Eftimov, Dr. Christopher Heath, Kilian Hirsch, Helge Münkkel, Philipp Rathjen, Ari Setiawan and Boris Wieser. The efforts of Dr. Dieter Fuchs, Mrs. Hedwig Vielreicher and Dr. Ulrike Tagscherer of the department International Business Development at Fraunhofer headquarters in pre-project and early project phases basically laid the foundation for the later success of the project.

Special thanks for their ongoing political and financial support are dedicated to the State Secretary of the German Ministry of Education and Research, Dr. Uwe Thomas as well as to Dr. Christian Stienen of BMBF. Also, the Ambassador of the Federal Republic of Germany in Jakarta, Dr. Gerhard Fulda and his Counsellor for Science, Technology and Environment, Mr. Michael Rottmann (BMBF) provided valuable help.

We highly appreciated the fruitful cooperation with the PERISKOP Steering Committee. Members of the Indonesian Delegation were: Dr. Muhammad A. S. Hikam, Dr. Ir. Dicky R. Munaf, Dr. M. Sc. Didiek Hadjar Goenadi, Drs. Prof. Ardjuno Brodjonegoro, Prof. Dr. Mien A. Rifai, Prof. Dr. Oei Ban Liang, Prof. Dr. Selo Sumarjan and Imam Anshari Saleh. The German Delegation of the Steering Committee consisted of: Klaus P. Friebe, Dr. Christian Stienen, Franz Marré, Dr. Dirk-Meints Polter and Rolf Unterberger. Mrs. Mechthild Wagner of the International Office of BMBF contributed to the organization of the Steering Committee Meetings in an outstanding manner. The Indonesian members of the Steering Committee gave very useful suggestions and comments with regard to the draft reports on each individual work package. The support by the sub-committee consisting of Dr. Mulya (Donny) Mashudi, Peter Karang and Dr. Derry Pantjadarma has to be highlighted. These experts ensured excellent communication links to KRT and helped us significantly to get in touch with numerous Indonesian authorities and organizations relevant to our project.

The project would not have been possible without the kind support of the Indonesian Minister of Research and Technology (Mennegristek). The work on the project began under the guidance of H. E Dr. Muhammad A. S Hikam (Mennegristek 1999 – 2001) and was completed with full support of H. E Mr. Hatta Rajasa (Mennegristek 2001 – 2004). Furthermore we are very indebted to Dr. Widyantoko Sumarlin (BPPT), to Dr. Djoko Pitono (LIPI) and to Dr. Thee Kian Wie (LIPI), who accompanied us throughout the whole project by providing essential information on very different topics of SRT in Indonesia and by making important unpublished documents available.

In several work packages regional investigations have been conducted in ten selected districts. For this purpose teams of local Indonesian consultants have been subcontracted. Each team was headed by a lead consultant (Fabekyus Kasmansyah, Dr. Singgih Hawibowo, Dr.-Ing. Tri Yus Widjayanto, I Gede Arya Sunu, Hari Achmad Perkasa) and supported by a number of consultants (Kornel M. Sihombing, Samiari, Indriyo Jatmiko, Dr. Harwin Saptoadi, Akhmad Yainal Abidin, Dwi Asmoro Toekidjo, Ali Mustofa, Anis Ardianti, Sofwani Anang, Fanny, Antonius Christiawan, Eko Hadicahyono, Agus Gangsar, M. Arfan, Dani Siroz). The regional investigations have been very successful and provided us an in-depth insight into regional innovation systems in Indonesia.

Finally, we like to thank the support teams in our Berlin and Jakarta project offices as well as our permanent Fraunhofer Representative Office in Jakarta-Serpong, which had the chance to build a trustful co-operation with Indonesian institutions during the last four years. The whole support staff solved the project's issues in terms of organization, transportation, secretary tasks and translation in an excellent way. Jana Marie Mehrstens, Gerd Harrie and Karsan Seyhun provided a significant contribution by proofreading selected texts.

To our knowledge, the PERISKOP project documented in 'Innovation in Indonesia' provides the first comprehensive and complete investigation and assessment of the Indonesian national and regional SRT landscape including the relevant framework conditions.

We hope and are very confident that some of our recommendations and suggestions for the improvement of the Indonesian innovation systems will be pursued and implemented by the Indonesian Government, particularly by KRT. These recommendations are bound to increase the technological capabilities of the Indonesian industry, to enhance public and industrial R&D efforts and to strengthen the competitiveness of Indonesian products on international and domestic markets.

In November 2001 the State Minister of Research and Technology, Mr. Ir. M. Hatta Rajasa, and the Secretary of State, Dr.-Ing. Uwe Thomas (BMBF), agreed, that the ongoing evaluation of the Indonesian SRT landscape is of particular importance. In this context the development of human resources should be pursued for mutual benefit in order to strengthen both the Indonesian innovation system and the German-Indonesian scientific co-operation. Finally, we hope that the PERISKOP project as well as its follow-up initiatives will contribute to economic rebound in the aftermath of political, social and economic change starting in 1998.

Berlin, November 2002


Prof. Dr.-Ing. Kai Mertins (Editor)

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