

**WARTA  
PENGELOLAAN PENELITIAN PENGEMBANGAN  
PERKEMBANGAN ILMU PENGETAHUAN DAN TEKNOLOGI**

**PUSAT ANALISA PERKEMBANGAN  
ILMU PENGETAHUAN DAN TEKNOLOGI  
( PAPIPTEK - LIPI )**

**Vol. 3 No. 6, 1991**



**LEMBAGA ILMU PENGETAHUAN INDONESIA**

**ISSN 0126-4478**

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**STT : No. 887/SK/DITJEN PPG/STT/1981**

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**ILMU PENGETAHUAN DAN TEKNOLOGI**  
**( PAPIPTEK )**

Vol. 3 No. 6, Februari 1991

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Tulisan dalam Warta dapat dikutip dengan menyebutkan sumbernya.

## PENGANTAR REDAKSI

Pokok bahasan dalam terbitan "WARTA" kali ini berkisar pada masalah kebijaksanaan, dari kebijaksanaan umum yang terkandung di dalam Pancasila sampai kepada gambaran-gambaran operasional daripada implementasi suatu kebijaksanaan. Seperti halnya pada tulisan pertama, menguraikan konsep kebijaksanaan secara umum terutama di sektor pemerintah disertai dengan penggunaannya di sektor yang sama. Tulisan kedua berangkat dari hal yang sama dengan pengkhususan bahasan pada sektor pembangunan (18 sektor) dilanjutkan terutama pada kebijaksanaan iptek dengan ditopang oleh beberapa indikator, baik indikator umum seperti buku-buku yang diterbitkan oleh BPS maupun indikator-indikator khusus di bidang iptek. Tulisan ketiga masih membahas konsep kebijaksanaan dengan pendekatan analisis dari tiga cara inovatif, rasional dan konvensional. Sedangkan tulisan terakhir merupakan tinjauan singkat yang berbicara masalah alih teknologi dengan paten sebagai salah satu alternatif yang ditawarkan.

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## DEVELOPMENT OF VARIOUS INDICATORS IN INDONESIA

By : Djoko Pitono \*\*)

### 1. Description of the Government's Role

As any experience in the developing countries, the role of the Government of Indonesia (GOI) in national development is very dominant, since the capability of private sectors are relatively weak. Therefore, a brief description of the GOI'S role will help to understand the development of various indicators in Indonesia.

Indonesia present form of government is based on the 1945 Constitution, which was readopted on July 5, 1959. The constitution vest the highest authority in the People's Consultative Assembly and provides for establishment of four independent branches of government :

the President, the House of People's Representatives, the Supreme Audit Board and the Supreme Court. The Contitution also provides for establishment of the Supreme Advisory Council, which functions as an advisory and consultancy body to the President.

The basic philosophy of the Indonesian people is embodied in a set of fundamental principles known as "Pancasila".

Pancasila (Five Principles) encompasses belief in one supreme God, humanity, the unity of Indonesia, democracy led by the wisdom of deliberations among representatives, and social justice for all. The Republic of Indonesia is structured as a "Unitary State" The sovereignty of the state is vested in the people and is exercised by the People's Consultative Assembly (MPR). The Assembly is the highest authority of the state. It elects the President and vice President and determines the "Guidelines of the State Policy" (GBHN) to be implemented by the President.

The Constitution prescribes that the Assembly shall sit at least once in every five years, that all decisions of the Assembly shall be by majority vote except for amandment of the Constitution, which requires a two-thirds majority vote and that the Assembly shall consist of all members of the house of People's Representative (the House), delegates representing regional territories and delegates representing functional groups (farmers, youth, veterans, cooperatives, businessmen, women and labor). The General Election Law provides that the Assembly shall consist of 460 members of the House and 460 members appointed by the Government. The appointed members consist of regional representative, representatives of the functional groups and those designated by the

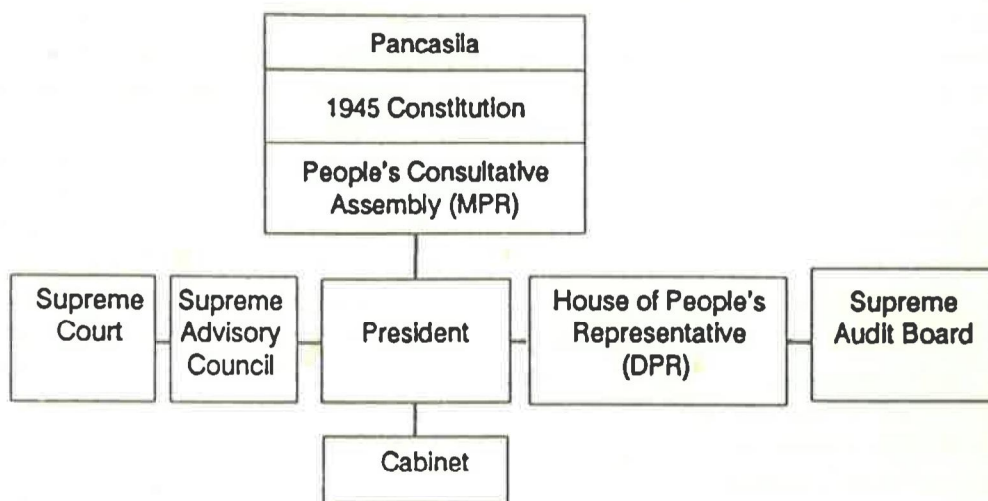
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\*) Paper presented to the Asian Regional Seminar on the "Integration of Sociocultural Technological change and Human Resources Development Indicators in Developing Planning Process", Kuala Lumpur, 3 - 7 December 1990

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political parties in proportion to the results of the general election held to elect members of the House. Members are elected for a term of five years.

#### Constitutional authority, in the Republic of Indonesia



The President and Vice-President are elected by a majority vote of the Assembly. The general session of the Assembly held in March 1988 re-elected President Soeharto to his fifth term and elected Sudarmono as Vice-President, each for a term of five years.

The President has the authority and responsibility for conducting the administration of the state and is the Supreme Commander of the armed forces. The President is responsible only to the Assembly. The President has the right to declare war, make peace, conclude treaties with other state and make statutes.

Actions of the President on all these matters must be ratified by the House.

The President is assisted in the administration of his responsibilities by ministers, who are appointed and dismissed by the President and who are responsible only to the President. The Fifth Development Cabinet is composed of 37 ministers, including three coordinating ministers for political affairs and security, for the economy, finance, industry and development supervision and for public welfare and seven ministers of state. The remaining ministers head various ministries within the govern-

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ment. The Fifth Development Cabinet includes four junior ministers and three officials with ministerial rank.

## 2. Integration of Technological Considerations in National Planning

The main goal of the Indonesian long range development programme is to create a strong basis for the nation to grow and develop by its own capacity and power towards a just and prosperous community. The stress of the overall efforts is on the economic development with the main target to achieve a balance between the sectors of agriculture and industry, and also the fulfillment of the basic needs of the people. The implementation of the economic development should proceed in parallel with the strengthening of a dynamic national stability. The economic growth should be on one hand, to increase the national production, and on the other hand, to accelerate the growth of job opportunity for the people.

The long range development programme should also be able to reform fundamentally the economic structure of Indonesia, so that the production of non agricultural sectors will become dominant with industry as the back-bone of the national economy. The economic development is built up through the growth of capital investment, application of technology and the development of organization and management capability. The use of foreign inputs in the form of capital, technology and expertise should be where local inputs are not available, and should be in a position to supplement

the development of national self reliance.

The application of science and technology in national development activities should consider several criteria, such as :

- a. To create more job opportunity
- b. To increase manpower productivity
- c. To utilize indigenous hardware and maintenance capability
- d. To support the achievement of development targets and
- e. To increase the skill to handle more advance technology in the future.

Starting from PELITA I (Five Year Development Plan), the long range development programme in economic sector has followed five successive stages of activities :

**PELITA I** : the stress was on the 1969-1974 agricultural sector and industry to support the agricultural sector.

**PELITA II** : the stress was on the 1974-1979 agricultural sector and industry to process raw material.

**PELITA III** : the stress was on agricultural sector to achieve self-sufficiency on food and industry to process finished products.

**PELITA IV** : the stress was on agricultural sector to continue the efforts towards self-sufficiency

on food and industry to manufacture machines.

**PELITA V** : the stress is on agricultural sector to maintain self sufficiency on food, and industry to manufacture export oriented products as well as preparation for industrialization phase in the next Pelita VI.

High economic growth in Pelita IV can be achieved through the increase of production and services in various sectors such as agriculture, industry, mining, energy, communication, education and culture, tourism, trade and others. The sectoral goals and strategies are derived from the respective sectors based on GBHN and PELITA.

Each sector will have its own master plan which cover short medium and long term plans. Every year the individual sectors submit proposal and budget requirement for the following year. The commitments of the government are given after the sectoral proposal is evaluated at the National Development Planning Board (BAPPENAS). The consistency of individual sectoral plan with the integral framework of national development is supposed to be examined by BAPPENAS.

### 3. Priority Setting

The development priorities of the long-term development programme written in the "Guidelines of the State Policy

(GBHN) are : 1) high economic growth; 2) improvement of political participation; 3) equity of social and cultural development and 4) stability of defense and security aspects.

Based on those four priorities developed by MPR (People's Consultative Assembly), the GOI prepares sectoral development of PELITA (Five years Development Plan) which consists of 18 sectors, such as :

- 1). Agriculture and Irrigation
- 2). Industry
- 3). Mining and Energy
- 4). Communication and Tourism
- 5). Cooperatives and Trade
- 6). Manpower, Job opportunity and Transmigration
- 7). Regional, Rural and Urban development
- 8). Religious affair
- 9). Education of younger generation, National Culture and Belief in One and Supreme God
- 10). Health, Social Welfare, Women's role, Population and Family Planning
- 11). Public housing and Living environment
- 12). Law
- 13). Defense and Security
- 14). Information, Press and Social Communication
- 15). Research, Science & Technology
- 16). Government apparatus
- 17). Private sector



18). Natural resources and Environment

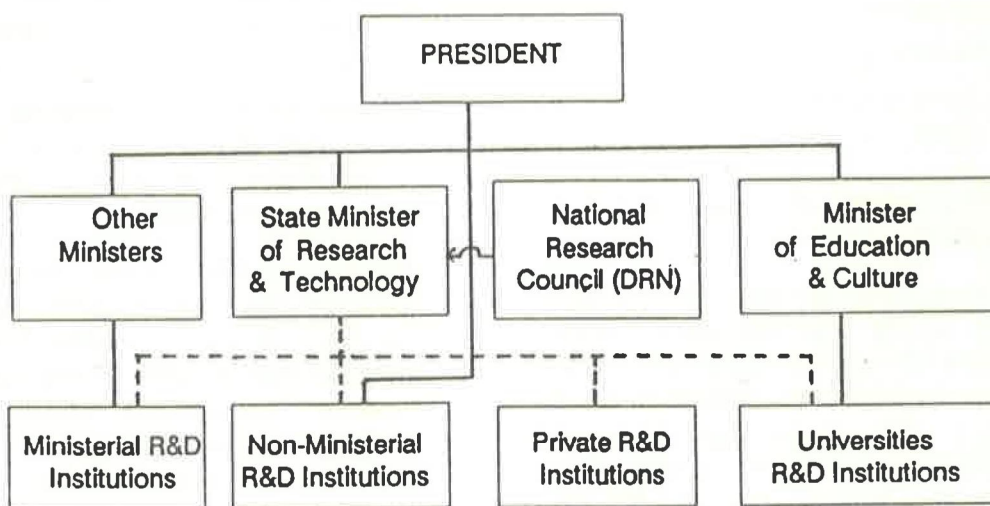
In 1973, the office of the Minister of State for Research was established to assist the President in the formulation of policies, direction and coordination of research activities. The Minister also assisted the President in the implementation of policies on science & technology.

In 1978, the status and name of the office were changed and become the Office of the Minister of State for Research and Technology. The Minister is given the task of coordinating all science & technology activities in Indonesia. In general science & technology activities are conducted by government institution as well as by private sector.

The Minister is also assisted by team of experts formally called PEPUNAS RISTEK (National Committee for Evaluation & Formulation of National Programmes on Research & Technology) which has a major task as follows :

- 1). Formulating the main national programmes on R & D and science and technology
- 2). Evaluating the ongoing programmes
- 3). Monitoring R & D activities
- 4). Identifying priority areas in R & D.

Diagrammatically the institutions which are involved in science and technology activities (administration, execution etc.), are as follows :



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On 7 January 1984, the "PEPUNAS RISTEK" was promoted by Presidential Decree to become "National Research Council" (DRN), to assist the State Minister for Research and Technology in the execution of his very broad tasks as mentioned above. The Minister himself acting as the Chairman of the council.

The main tasks of DRN are :

- 1). To prepare national programmes on Research and technology
- 2). To perform monitoring and evaluation of the planning and implementation of the programmes continuously
- 3). To advice and coordinate research and technology activities.

Main activities of DRN are divided into five priorities, namely :

- 1). Basic human needs (shelter, food, housing, education, health, etc.)
- 2). Natural resources and energy
- 3). Industrial development
- 4). Defense and security
- 5). Socio-economy, culture and philosophy.

#### 4. Development of Various Indicators in Indonesia

Based on the step by step priority setting started from four areas of priorities by MPR (People's Consultative Assembly) written in GBHN (Guidelines of the State Policy), followed by Pelita prepared by the GOI with 18 development sectors and finally five main activities of DRN (National Research Council), various statistics and indicators are developed in Indonesia.

#### a). Statistical System and Organization of the Central Bureau of Statistics.

The present statistical system in Indonesia based on the statistic Act No. 7 issued in 1960 and the Government Decree No. 6, 1980 on organizational structure of the Central Bureau of Statistics (CBS) is broadly centralized.

The Act provides for the establishment of the CBS, which is :

- *responsible for carrying out statistical activities assigned by the GOI among others in the field of agriculture, social affairs, mining, industry, communication, trade, labour, finance, national income, education and religion.*
- *on behalf of the GOI, in charge of coordinating statistical activities of all Government, both at Central and regional levels, with the aim of preventing duplication, and also to bring uniformity in definitions, classifications, measurements, etc.*
- *responsible for informing the public of the objectives and usefulness of statistics, in order to facilitate statistical research.*

Besides the CBS, other Government Agencies also compile statistical data for their internal use, mainly based on administrative records. These agencies however, occasionally collect data through a special undertaking which should be coordinated by CBS.

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Recently CBS has published hundreds of statistics and indicators, but generally they cover :

- 1). Geographical condition
- 2). Climate (main seasons, temperature, humidity, rainfalls, surface winds)
- 3) Population and labor force (population size, growth, density, demographic characteristics, labor force, population mobility)
- 4). Social affairs (education, culture, health, public order and safety, religion, other social affairs, housing and environment)
- 5). Agriculture (the land utilization, food crops-their production and cost structure, plantation, forestry, animal husbandry, fishery)
- 6). Industry (manufacturing, mining, energy and construction)
- 7). Foreign trade (trend of exports & imports, exports of oil and gas, exports of non oil & gas products, exports by country of destination, imports by country of origin, import by broad economic categories)
- 8). Transportation and Communication (length of road, land air and sea transportation, post and telecommunication, hotel and tourism).
- 9). Finance and prices (public finance, banking, insurance, cooperatives, prices)
- 10) Consumption and expenditure (availability of nutrient consumption, expenditure)
- 11) National and regional income (gross domestic products, gross domestic regional products, international comparison).

More detailed publications can be seen in the annual list of CBS publications.

b). Other governmental agencies which publish specific statistics, indicators and information are :

- 1). Agency for survey and Mapping (geographic map, natural resources map, agricultural map, etc.)
- 2). Investment Coordinating Board (foreign and domestic investment in Indonesia)
- 3). Data bank in every ministry responsible for their own internal use.

c). Every 16 August, the President has to report to the House of People's Representative (DPR) regarding the progress of Pelita. Therefore all of the institution concerned have to prepare reports according to the 18 sectors of development. The Office of the Cabinet Secretary is responsible to assemble all data collected from various institutions as well as from private sectors including CBS.

d). Cultural and Human Resources Development Indicators in Indonesia partly have been covered by CBS and other data from Ministries of Education & Culture, Religion, Internal Affairs, Health, Private Universities and Family Planning.

It is indeed well understood that

according to the terminology developed by Alvin Toffler written in his book "The Third Wave", Indonesian people lives in three waves parallelly. Most rural people especially in West Irian lives in the first (primitive) wave, urban people lives in the second (industrialized) wave and finally the most developed groups live in the third (information) wave. Therefore cultural and human resources development indicators should be directed according to the needs regarding those three levels of living. Priority usually given to the activities which support to indicate the progress of the national programmes. The GOI will direct international funding to explore the development of indicators through Non-Governmental Organizations which are not covered by the government fund.

- e). Science and Technology Indicators is still under development by Center for Analysis of S & T Development (PA-PIPTEK-LIPI) in cooperation with other local organizations like CBS, BPPT (Agency for Assessment & Application of Technology), BATAN (Atomic Agency), LAPAN (Agency for Space & Aeronautics), BAKOSURTANAL (Agency for Survey & Mapping) and data centers from other ministries as well as private sectors. UNDP/UNESCO provides financial support \$ 695,000 for 3,5 years started from January 1991. The immediate objectives of this project, named "Science and Technology Management Information System" (STMIS) are :

- 1). Designing a "Science and Technology Management Information System" (STMIS) which can be used in day-today micro-level management decisions and in long-range macro-level policy formulation for the transfer, development and utilization of industrial technologies in accelerating socio-economic advancement of the people of Indonesia.
- 2). Developing national capability for establishing and operating a "Science and Technology Management Information System" (STMIS) for Indonesia on a sustainable basis, using the principle of networking.
- 3). Strengthening the capacity of various institutions, which are going to form the nodes of the "Science and Technology Management Information System" (STMIS) network in the collection, processing and dissemination of science and technology indicators for decision-makers as well as policy-makers at different levels.

The methodology used to implement STMIS is "Technology Atlas" developed by APCTT which consists of six volumes : 1) An Overview of the Framework; 2) Technology Content Assessment; 3) Technology Climate Assessment; 4) Technology Status Assessment; 5) Technology Capability Assessment; 6) Technology Need Assessment.

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- f). Other activities which are strongly complementary with STMIS are two sub-projects namely : 1) Establish and Train Science & Technology Information Unit within LIPI and 2) Science & Technology Research Information System (BPPT).

Both sub-projects are programme-elements of the national Science & Technology for Industrial Development (STAID) project which is supported by two donors - The World Bank and Japan's Overseas Economic Cooperation Fund (OECF).

The fact that the GOI has already started implementation of the STAID project on the basis of loan obtained from the World Bank and OECD is perhaps the strongest indication of the high priority and need of the GOI in developing a science and technology management information system to produce science and technology indicators. Therefore the STAID project would specifically concentrate on the resource inputs and conventional outputs of research and development (R&D) activities in Indonesia or in term of Technology Atlas, it covers the third volume of Technology Atlas Methodology-Technology Climate Assessment.

- g). In short, the BPPT and LIPI initiatives on S&T management information have distinct aims which are strongly complementary. A special focus of the LIPI initiative will be establishing a national capability in S&T management information system (through manpower development) and in streng-

thening the content of such a system. The third external activities with which the proposed projects should have interaction are the Science & Technology Policy Asian Network (STEPAN) which is supported by UNESCO. STEPAN will be especially valuable for helping to disseminate the results of experience gained throughout ASIA. STEPAN has "nodes", or participating organizations in many Asian countries and communication facilities on this topic.

## 5. Conclusion

- Indonesia relatively is a young country, therefore activities of statistics and indicators are still under development.
- Integration of socio-cultural, technological change and human resources development indicators is clearly stated in the Guidelines of the State Policy (GBHN) and Five Year Development Plan (Pelita).
- Complexity of Indicators development as a results of the dynamic progress of the development itself requires national capability to produce sustainable and suitable indicators to meet the national needs.
- To maintain awareness of international change on socio cultural, technological and human resources development, international cooperation and exchange of experiences are strongly recommended.

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