

The Overseas Fellowship Program: A Technoscientific Scholarship Program in New Order Indonesia*

Anto MOHSIN[†]

Introduction

In June 1983, Indonesia's then Minister of State for Research and Technology Dr. Ing Bacharuddin Jusuf Habibie delivered a speech before the members of the German Society for Aeronautics and Astronautics in Bonn, West Germany on the occasion of being elected as an Honorary Member of the society earlier that year.¹ In his address, Habibie thanked the society for the honor bestowed upon him and presented his ideas on how to best transform Indonesia into an industrialized nation. Habibie's speech, in essence, conveyed his belief in the role of the state to educate Indonesia's human resources in various scientific and technological fields, to provide them with opportunities for hands-on learning in industries, and to protect the country's nascent technological companies to achieve technological independence in the future. The strategies Habibie laid out in his speech would later form the framework of Indonesia's science and technology policy during the so-called "New Order" period (1966-1998).²

On the topic of education, Habibie championed science and technology education

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[†] Northwestern University in Qatar, anto.mohsin@northwestern.edu

¹ B.J. Habibie, "Some Thoughts Concerning a Strategy for the Industrial Transformation of a Developing Country," Address Delivered to the Deutsche Gesellschaft für Luft- und Raumfahrt, Bonn, Federal Republic of Germany, 14 June 1983.

² Other than the Broad Outline of State Policy (*Garis-Garis Besar Haluan Negara*) the New Order government did not produce any other public documents that described its science and technology policy. The best sources of Indonesia's national policy on science and technology were the speeches delivered in Habibie's speeches in the early 1980s (see Ted M. Smith and Colin MacAndrews, "Attachment 2 Science and Technology Context for Overseas Fellowship Program," in *Overseas Fellowship Program Midterm Review Report Part 1*, 15 July 1987, Prepared by Monitoring and Evaluation Section OFPIU, c/o Gedung BPP Teknologi, Jalan M.H. Thamrin No. 8, Jakarta, Indonesia, A-13).

regardless of where students get their training, whether in Indonesia or in other countries.³ Having been trained abroad himself, Habibie saw the benefits of sending Indonesians overseas to learn the various Science, Technology, Engineering, and Math (STEM) fields. He knew that they would receive excellent training, be exposed to the latest knowledge, and get a chance to apply their knowledge in the real world, which was something that Habibie strongly advocated. Habibie argued that getting a formal education in universities alone would not be enough. Science and technology students would need to get practical experience whether in laboratories or in technology companies. Habibie asserted this idea in his speech when he said, “[W]hile education is very important, it cannot be sufficient. For science and technology is only mastered through work. Lasting technological skills are only transferred and further improved through concrete programs of producing goods and services.”⁴ This idea of formal education and hands-on learning formed the core of Habibie’s approach in developing Indonesia’s human resources in science and technology.

As a highly influential and well-regarded member of President Suharto’s cabinet, Habibie was in a good position to implement his vision and ideas. When Suharto asked Habibie to come back to Indonesia in 1974 to contribute his expertise as an aerospace engineer to Indonesia’s development efforts, Habibie agreed to return home from Germany to serve the country. Initially, Suharto appointed him as one of his personal advisors and as the head of the State Oil Company (PT Pertamina)’s Advanced Technology division with an important task of establishing an aircraft industry in Indonesia. Habibie then took an existing and small aircraft agency called the Nurtanio Aviation Industry Institution (LIPNUR) in Bandung and turned it into a new aircraft company called *Industri Pesawat Terbang Nurtanio* (IPTN).⁵

Habibie also asked President Suharto to found two supporting institutions for the newly established aircraft company, one that would house a number of testing laboratories and another that would implement his technology policies. With Suharto’s blessing Habibie later founded the Center for Research in Science and Technology (*Pusat Penelitian Ilmu Pengetahuan dan Teknologi, Puspiptek*) and transformed PT Pertamina’s Advance Technology division into the Agency for the Assessment and Application of Technology (*Badan Pengkajian dan Penerapan Teknologi, BPPT*). Puspiptek would grow to have eleven laboratories and a multipurpose research reactor. BPPT, formally established in August 1978, would become one of the most influential technoscientific institutions in the country.

BPPT along with five other agencies like it formed the core of research-focused organizations in Indonesia. The other five agencies, established during the period of

³ Habibie, “Some Thoughts,” 3.

⁴ Habibie, “Some Thoughts,” 29.

⁵ Sulfikar Amir, “Nationalist Rhetoric and Technological Development: The Indonesian Aircraft Industry in the New Order Regime,” *Technology in Society* 29:3 (2007), 283-293.

Suharto's predecessor President Sukarno, were the Central Bureau of Statistics (*Biro Pusat Statistik, BPS*), the National Atomic Energy Agency (*Badan Tenaga Atom Nasional, BATAN*), the National Institute of Aeronautics and Space (*Lembaga Penerbangan Dan Antariksa Nasional, LAPAN*), the National Coordinating Agency for Surveying and Mapping (*Badan Koordinasi Survei dan Pemetaan Nasional, BAKOSURTANAL*), and the Indonesian Institute of Sciences (*Lembaga Ilmu Pengetahuan Indonesia, LIPI*). Together with BPPT, these five non-ministerial government institutes (*Lembaga Pemerintah Non Departemen, LPND*) were spearheading the scientific and technological research activities in the country.⁶

The role of the six LPNDs in research in Indonesia was crucial. Effectively, the six agencies were the ones mostly engaged in building scientific and technological research capabilities of the country in the 1980s and 1990s. In general, they were involved in broader research projects than any other existing research organizations in the country such as private companies, state-owned corporations, universities, and ministerial research and development centers. Three of the LPNDs also split responsibilities for the facilities at Puspiptek. BATAN operated the research reactor. LIPI was responsible for the electrotechnique, applied physics, and applied chemistry laboratories, and BPPT ran the materials, aerodynamics and vibration, thermodynamics and propulsion, energy, and technology processes laboratories.⁷

One serious issue faced by the six LPNDs (and the country generally), however, was a severe shortage of qualified personnel to carry out research in scientific and technological fields. It was reported that by the end of 1982 Indonesia had only one engineer for every 5,800 people, which was a low and unfavorable ratio, especially compared to some other countries such as Thailand (1:3,000), India (1:2,400), and South Korea (1:600).⁸ The Indonesian Institute of Engineers estimated that in the mid-1980s, the number of non-agricultural engineers in Indonesia was about 17,000, of whom 5,100 were civil engineers, 1,190 were chemical engineers, 1,700 electrical engineers, 1,700 mechanical engineers and the rest in other branches of engineering.⁹ Moreover, a 1987 data showed that there were about 5,000 people who held the title of "researcher" (*tenaga peneliti*) in government institutes and ministerial research and development centers, although it was estimated that only about 1,000 of them were really "deeply engaged in research."¹⁰

Indonesia's problem of having a shortage of qualified researchers was compounded with the fact that Indonesian higher-learning institutions at the time could not produce enough STEM graduates. In 1983, there were only 5,000 science and

⁶ The six agencies still exist until today, but only BAKOSURTANAL changed its name to Badan Informasi Geospasial (BIG) or the Agency for Geospatial Information in 2011.

⁷ Melvyn A. Hopper and Adian Bonds, *Building Human Potentials Science and Technology in Indonesia* (Hong Kong: Eurasia Media, 1986), 42.

⁸ World Bank Staff Appraisal, 1

⁹ World Bank Staff Appraisal, 1

¹⁰ Smith and MacAndrews, "Science and Technology Context for OFP" (cit. n. 2), A-18.

engineering graduates and only 160 students had obtained advance degrees since the mid-1970s.¹¹ In the mid-1980s Indonesian universities were only able produce about 3,400 engineering graduates per year. Part of the issue was the available seats in universities. In 1984, there were 519,000 high school graduates in the country, but Indonesian public and private universities could only absorb 255,000 of them, or less than half of the total. Although a project was underway to expand the capacity of Indonesia's tertiary education to produce 7,500 engineering graduates per year by early 1990s, this increase would not be enough to satisfy the projected number of engineers Indonesia would need by the mid-1990s. The number of graduate programs in Indonesia did not help resolve the issue, either. Out of nine state universities that had graduate programs at the time, only five of them offered programs in scientific and technological disciplines. In short, in the early 1980s Indonesia's higher learning institutions were not equipped to absorb graduating high school seniors and were not able to produce enough graduates for Indonesia's projected needs of 200,000 engineers by 1994.¹²

To address the problem of highly-trained manpower shortage, the Indonesian government decided to conceive a program to recruit and train students overseas to get bachelor's (Strata 1 or S1), master's (Strata 2 or S2) and Ph.D. (Strata 3 or S3) degrees in the STEM fields using a program called the Overseas Fellowship Program (OFP). The OFP was thus a national science and technology overseas training project that the New Order government of Indonesia planned, implemented, and managed between 1985 and 1992. It was the first large-scale scholarship program that the Indonesian government managed on its own. Previously, Indonesia depended on foreign consulting firms to run similar programs because of lack of experience.¹³ Indonesia's experience in managing the OFP shaped two additional scholarship programs that were rolled out at later dates.¹⁴

This paper discusses the OFP and its implications in Indonesia's endeavors to upgrade its scientific and technological research capabilities. It discusses the program's rationale, objectives, implementation, assessments, and outcomes. Using primary sources obtained from BPPT's library, World Bank documents, interviews with some of the fellowship recipients, an autobiography of one OFP alumnus, and other

¹¹ World Bank's Report and Recommendation of the President of the International Bank for Reconstruction and Development to the Executive Directors on a Proposed Loan in an Amount Equivalent to US\$93 million to the Republic of Indonesia for a Science and Technology Training Project, 13 June 1985.

¹² *Proposal: An Overseas Fellowship Program to Develop and Enhance Capabilities in Research and Technology in Indonesia*, prepared by The Office of the Minister of State for Research and Technology/The Agency for the Assessment and Application of Technology of the Republic of Indonesia, n.d., 11-15.

¹³ World Bank Staff Appraisal, 8.

¹⁴ The two later scholarships were called the Science and Technology Manpower Development (STMPD) and the Science and Technology for Industrial Development (STAID).

documents from the association of the alumni of this scholarship program (*Ikatan Alumni Program Habibie, IABIE*), this paper illustrates that Indonesia's overseas education and training project was part of the country's industrialization program to generate highly trained scientific and technical personnel for the country's six research organizations and several national laboratories. Through the OFP the Indonesian government learned how to manage its own scholarship program, a valuable experience in management training. One result that fell short of its intended goal was to convert the six research institutions into "top-heavy" organizations from a "bottom-heavy" ones. The reintegration of OFP fellows also faced some challenges because this aspect of the program was initially underdeveloped. But this program produced hundreds of highly-educated and skilled Indonesian graduates who have been carving their own careers in government agencies, private companies, and in academia both in Indonesia and abroad. Many of them now belong to a newly created association called IABIE and they have been involved in various activities meant to increase the knowledge and skills of Indonesia's younger generation out of sense of indebtedness for what the country had done for their own education.

The Overseas Fellowship Program

Funded by a loan from the World Bank in the amount of USD 93 million and with additional funding from the Indonesian state budget, the rationale of this project was to produce scientific and technical graduates for six Indonesian research institutes, to promote technological transfer to Indonesia, to help the Indonesian government manage research and evaluate technologies purchased from abroad, and to produce "a core of staff with internationally recognized degrees in order to establish their credibility and legitimacy in the international science and technology community."¹⁵ The objectives were to enhance the country's capabilities in science and technology and prepare it for the "take-off" stage at the start of its sixth Five-Year-Development (*Pembangunan Lima Tahun, Pelita*) in 1994.¹⁶

Through the OFP the New Order government hoped that a nucleus of highly trained technoscientific professionals working in the six research organizations would spearhead research activities in the country as Indonesia was trying to upgrade its higher-learning institutions to produce more engineers and scientists in the future. Habibie also envisioned that graduates of the program would fill various positions in Puspiptek's laboratories. The project's plan was to recruit and send a total of 1,499 fellows overseas to get training in various scientific and technical fields. Out of the 1,499 fellowships, the OFP allocated funds for 644 masters, 255 Ph.D.s, 300 non-degree, and 300 undergraduate students. The OFP was divided into four smaller

¹⁵ *Proposal* (cit. n. 12), 14-15.

¹⁶ *Proposal*, 1.

programs as shown in Table 1 below.¹⁷

Table 1. Four sub-programs of the Overseas Fellowship Program

Program No.	Maximum number of years abroad	Type of degree/certificate planned to be obtained abroad
1	3 years	Dr.; PhD; Dr. Ing; Dr. Ir.
2	2A 2.5 years	MSc; DEA; DESS
	2B 5 years	Dipl. Ing; Ir.
3	5 years	B.Sc.
4	4A 1.5 years	Industrial/Research Training Certificate
	4B 1.5 years	Academic Training Certificate

In the proposal for the OFP produced by the Habibie’s office, it was stated that the OFP would recruit Indonesia’s top high school graduates, train them in foreign languages, and fund their university education overseas “to give the best possible start to a small selected group of young people who can return not only with the skills acquired during their Bachelor’s program, but also with a broader world view, formed while the fellow is still young. It is hoped that this broader vision will infuse all aspects of their work on return, and last throughout their working life.”¹⁸ Prior to sending them, these youngsters must sign up to become a formal employee of one of the six LPNDs and upon their return would commit to working full time for the agency.

Working with the Ministry of Education and Culture, the OFP planned to select undergraduate candidates from a pool of talented students from the PMBK program. The PMBK, which stands for *Penelusuran Minat Bakat dan Kepandaian* (Interest,

¹⁷ *Buku Pedoman Kebijakan Program Beasiswa*, Disusun oleh Seksi Monitoring dan Evaluasi Unit Pelaksana Program bekerjasama dengan PT REDECON, April 1992, 1.

¹⁸ *Proposal*, 49-50.

Talent, and Intelligence Search), was a Ministry of Education and Culture's program to find top high school graduates from all of the 27 provinces of Indonesia.¹⁹ The search was carried out by reviewing academic records and personal traits of the best students from all of Indonesia's high schools. First, these records were reviewed by a provincial office where the students reside. Afterward, the ones determined to be the best among them would be then referred to the Ministry of Education and Culture. These selected students would then be assigned seats in state universities until ten percent of the available seats were filled. The remaining seats would be filled by students who passed the nationwide university admission examination called *Seleksi Penerimaan Mahasiswa Baru* or SIPENMARU, which PMBK students were exempted from taking.²⁰ By selecting from the PMBK students pool, the OFP wanted to ensure that students from outside the island of Java would have a fair chance of being selected into the program since Java-based students had traditionally dominated university admissions because they had access to better schools than their peers in the other islands. The plan was to recruit about 50 undergraduate OFP fellows from a pool of 500 high school students in a given year.²¹

In addition to recruiting and funding undergraduates, the OFP allowed Indonesian students who were already studying abroad for a qualified scientific or technological field to apply to become a fellow. The only requirement was that the individual must first return to Indonesia using their own fund and apply to become an employee of one of the six institutes. Once accepted as an employee, he or she could request to be considered as an OFP "Midstream" candidate and if selected, to be funded for the remainder of his or her study. Upon graduation, a midstream fellow would need to work for a certain number of years at the LPND where he or she has gained an employment.²²

Another OFP category was called the "Associates." This program was open to non-LPND employees, but who were "closely associated with an ongoing research program in an LPND."²³ They could be academics or private company employees and did not need to be a government employee necessarily. They needed, however, to be nominated by one of the six agencies and approved by the Steering Committee. The OFP allocated a maximum of 10 percent of the total fellowship recipients to be associates.

Habibie's office learned that not all LPND employees necessarily needed to earn

¹⁹ During the New Order period Indonesia was divided administratively into 27 provinces including the then province of East Timor. Now the country has 34 provinces excluding East Timor, which has since 2002 become a new nation.

²⁰ One of the OFP fellow I interviewed was selected through the PMBK program and placed in the Bogor Agricultural University (IPB) although he applied to go to the Institute of Technology at Bandung (ITB) (Interview with Bambang Rudyanto via email, 25 February 2016).

²¹ *Proposal*, 51.

²² *Proposal*, 4 and 55.

²³ *Proposal*, 55.

advanced degrees. What they needed was to upgrade their skills in certain areas. For this type of employees, the OFP allocated what they called non-degree fellowships. Non-degree training was divided into two groups. The first group consisted of researchers sent to study specialized subjects such as “radioactive waste treatment, drinking water treatment system, and materials for solar energy.”²⁴ The second group of non-degree fellows could visit world-renown centers to update their specialized knowledge. Usually allocated for senior staff, they would need language training as well, although not as rigorous as the undergraduate fellows.

The OFP also wanted to upgrade the educational levels and/or skills of the existing LPND employees by funding their advanced studies in foreign countries. Table 2 below shows the makeup of the employees of the six agencies by highest academic qualifications in the mid-1980s. As it can be seen, out of a total of 5,868 employees, 96 percent had a formal education of bachelor’s degree or less. *Sarjana Muda* referred to those who had received the equivalent of a two-year university education and STM to those who graduated from Technical Vocational High School.²⁵ Thus, at the time, the main feature of the LPND employees were still “bottom heavy” and part of the OFP was to convert it into a “top heavy” one. Consequently, the planned emphasis was to train and educate more postgraduate fellows than undergraduate ones.

Table 2. Staffing of LPNDs by Highest Academic Qualification

	STM	SARJANA MUDA	SARJANA S1/BSc	S2/ MSc	S3/ PhD	TOTAL
BAKOSURTANAL	97	19	36	13	0	165
BATAN	830	321	487	20	15	1,673
BPP TEKNOLOGI	221	111	623	7	7	969
BPS	144	864	119	40	5	992
LAPAN	222	420	174	5	1	442
LIPI	472	350	686	74	45	1627
TOTAL	1,986	1,525	2,125	159	73	5,868

In order to effectively allocate the funds, all six LPNDs were asked to identify

²⁴ Philip Adey and William A. Loxley, “Attachment 3a: Description of Overseas Fellowship Program,” in *Overseas Fellowship Program Midterm Review Report Part 1*, 15 July 1987, prepared by Monitoring and Evaluation Section OFPIU, c/o Gedung BPP Teknologi, Jalan M.H. Thamrin No. 8, Jakarta, Indonesia, A-80.

²⁵ Even though there were many STM graduates employed by LPNDs, they were deemed weak and unprepared to pursue an undergraduate degree, which led the OFP to recruit high school graduates from outside of LPNDs (see Smith and MacAndrews, A-21).

their future manpower needs by specifying the number of employees for each of the five categories of the OFP (Ph.D., MSc, Associates, Midstream, and undergraduates). Table 3 shows the six LPNDs and Puspiptek, their future staffing requirements, and the total number of fellowships allocated for each institution. As we can see from the table, BAKOSURTANAL requested the least number of fellows and BPPT the highest. LIPI identified that it would need to have 97 Ph.D.s in their agency, the highest of all six LPNDs. Puspiptek asked only for 54 non-degree fellows to be trained, reflecting the need of the national research laboratories to have personnel highly trained in specialized techniques. In fact, the total number of non-degree fellowships requested exceeded by 187 from the total number allocated by the OFP, making it the only category to have more requested fellows than the fund available to support them.

Table 3. Training Requirements by LPNDs and Puspiptek

AGENCIES*	1	2	3	4	5	6	7	8	9
BAKOSURTANAL	5	15	2	2	24	2	26	50	79
BATAN	43	162	20	20	245	0	245	110	335
BPPT	46	155	20	20	241	229	470	82	552
BPS	12	30	4	4	50	0	50	42	92
LAPAN	15	25	4	4	48	0	48	109	157
LIPI	97	146	24	24	291	69	360	40	400
PUSPIPTEK	0	0	0	0	0	0	0	54	54
TOTAL REQUIREMENTS	218	533	74	74	899	300	1,199	487	1,686
TOTAL SUPPORTED BY THE PROJECT	218	533	74	74	899	300	1,199	300	1,499

* 1: Ph.D; 2: MSc; 3: ASSOCIATES PROGRAM; 4: MIDSTREAM PROGRAM; 5: TOTAL GRAD (1+2+3+4); 6: UNDERGRAD; 7: TOTAL DEGREES; 8: NON DEGREE; 9: TOTAL FELLOWSHIPS

One concern was the whether the six LPNDs would still have enough employees available to function when some of their staff receive fellowships to study abroad. Table 4 below shows a breakdown of total graduate fellowship requests as a proportion of current bachelor's degree (S1) and master's (S2) degree holders. BAKOSURTANAL and BATAN both had the highest percentage of request as a proportion of their current pools, even though the absolute numbers of graduate fellows requested were different by one order of magnitude. This was because BAKOSURTANAL had a small pool of staff to draw from. Nonetheless, all six LPNDs maintained that

they would still have a large percentage of their employees working at their institutions even when a portion of their staff receive training overseas.

Table 4. Breakdown of Total Graduate Fellowship Requests as a proportion of current S1 and S2 Pool.

	TOTAL GRAD REQUESTS MSc + PhD*	CURRENT S1+S2 POOL	% TO BE TRAINED OVERSEAS OF CURRENT POOL	% REMAINING IN LPND
BAKOSURTANAL	20	49	(40.8)	59.2
BATAN	205	507	(40.4)	59.6
BPPT	201	630	(31.9)	68.1
BPS	42	159	(26.4)	73.6
LAPAN	40	179	(22.3)	77.7
LIPI	243	761	(31.9)	68.1

* Does not include Associates and Midstream Fellows.

Implementation of the OFP

Habibie’s ministry was responsible for the overall management of the OFP. To implement the program, it established an office called the Overseas Fellowship Program Implementation Unit (OFPIU) to carry out the daily operations of the scholarship program. The OFPIU was chaired by Dr. Ing Wardiman Djojonegoro, one of Habibie’s Deputies at BPPT. The OFPIU selected candidates, trained them before going abroad, helped candidates with university application, took care of their passports and visas, monitored their academic progress, and disbursed funds. The OFPIU was answerable to the Research and Technology Overseas Training Program Steering Committee, which consisted of a representative from each of the six LPNDs, the Ministry of Finance, and the Cabinet Secretary. The Committee was headed by a chairman who was aided by a secretary.²⁶

Habibie’s office also tried to setup an Educational Exchange Organization (EEO) in the countries where there would be large number of fellows studying to maintain contact with the Indonesian Embassy and to establish procedures for emergency assistance whenever necessary.²⁷ EEO representatives were also asked to monitor the

²⁶ *Proposal* (cit. n. 12), 66-67.

²⁷ *Proposal* (cit. n. 12), 71 and Phillip Adey, “Attachment 3c Implementation of Overseas Fellowship Program Abroad,” in *Overseas Fellowship Program Midterm Review Report Part 1*, 15 July

academic progress of the fellows, although this was not done uniformly or consistently, depending on what institution was contracted to do so. In several countries in which there was an established EEO such as in the United States (International Institute of Education, IIE), the United Kingdom (the British Council), Australia (International Development Program of Australian Universities and Colleges, IDP), Canada (World University Service of Canada, WUSC), Germany (Deutscher Akademischer Austauschdienst, DAAD), France (Comité d'études sur les formations d'ingénieurs, CEFI), Japan (International Research Institute, IRI), and Austria (Osterreichischer Auslandsstudentendienst, OAD), data on students' academic progress were generally more available and better than the data where there was no established EEO.²⁸

Since the OFP emphasized on recruiting and sending post-graduate fellows, the proposal took great care in coming up with the procedures of their overseas training. They included: identification of training needs, selection of fellows, selection of institutions overseas, identification of funding, pre-degree training, application and placing procedure, degree program overseas, monitoring and evaluation, and return of fellows, which each the nine procedures carried out in a number of steps.²⁹ Selection of fellows, for example, were divided further into six steps that consisted of identification of pool potential candidates, screening within LPND, selection at the central project level, foreign language ability, course work and post-course testing, and university admission.³⁰

At the outset, Habibie's office had planned to choose qualified candidates very selectively. In the proposal for the OFP, it states: "People who either do not have the ability to benefit from further training, or the motivation to study and to put their knowledge to use on their return, will not make the most of the training offered to them."³¹ To ensure only those individuals who would "make the most of the training offered to them," the OFP set and maintained high standards and rigorous processes to select its fellows. The OFPIU, in a review of its recruitment, selection, and training practices in December 1988 wrote:

Individuals who are academically unqualified, have poor foreign language proficiency, have potential psychological problems, lack motivation, have health problems, do not easily adapt to new social environments or may misrepresent the Republic of Indonesia by their behavior are filtered out during the various stages of

1987, prepared by Monitoring and Evaluation Section OFPIU, c/o Gedung BPP Teknologi, Jalan M.H. Thamrin No. 8, Jakarta, Indonesia, A-115.

²⁸ The list of EEOs is obtained from the Student Relations Officer Handbook, prepared by the OFPIU Student Relations Officer Section in Cooperation with PT Redecon, 22 March 1988 (Appendix 56).

²⁹ *Proposal*, 24.

³⁰ *Proposal*, 24-28.

³¹ *Proposal*, 25.

the selection process. This is absolutely necessary since the costs of failure are so high.³²

The costs of failure were not only measured in financial term, although that in its own was pretty high. The OFP estimated that on average it cost US\$ 53,174 to get a master's degree in the United States. If an individual failed to earn his or her advance degree, institutionally Indonesia would suffer some losses too. It would mean that the LPND sending the fellow would lose a personnel and delay in its research activities. It would also mean that the efforts that the OFPIU put in to recruit and select candidates would go to waste. Not to mention the losses that the individual would incur in going through the process.

In order to reduce the risk of failures, the OFP set a number of criteria. Applicants who did not meet these initial criteria were screened out. OFP postgraduate candidates could not be older than 35 years of age at the time of application, needed to be civil servants, and had worked at their current institution's for at least two years. For undergraduate candidates, they needed to be 20 years old maximum, single and unmarried throughout the duration of their study. The OFPIU assumed that single students would be able to concentrate better than married students, especially to complete a study that could last up to five years. As for the age limits, it was assumed generally (though this was not always the case), older students would have more difficulties in learning a new foreign language.³³

Those who passed the first screening needed to take a battery of tests. The first set of exams were written tests to gauge the candidates' achievement (mastery of physics, chemistry, and mathematics), aptitude (modeled after the SAT and GRE), intelligence (problem solving and thinking skills) and personality (motivation, adaptability, self-confidence, emotional maturity, and social skills).³⁴ Afterward they were subjected to a group interaction exercise and a psychological interview. For postgraduate fellows, they also needed to undergo a general interview carried out by senior representatives of the LPNDs and members of the OFP Monitoring and Supervision team.³⁵ Candidates who were marginally acceptable could be provisionally selected into the program. They were given a chance to prove their abilities during the pre-departure preparation phase, which consisted of language training,

³² *The Overseas Fellowship Program in Science and Technology Conducted by the Ministry of State for Research and Technology Recruitment, Selection and Training Review of Current Practices*, prepared by the OFPIU Recruitment, Selection and Training Section in Cooperation with Dr. Norman Goodman, Jakarta Representative of the Institute for International Education, December 1988, 3.

³³ *Recruitment, Selection and Training Review of Current Practices*, 19.

³⁴ The modified GRE was called the Graduate Qualitative Exam (GQE), which was adapted from GRE quantitative and analytical sections. The Modified SAT was called the Undergraduate Aptitude Exam (UAE). Both tests did not include the verbal section of GRE and SAT.

³⁵ *Recruitment, Selection and Training Review of Current Practices*, 23, 39, and 42.

basic science courses, foreign admission tests, security clearance, and physical examination.³⁶

Undergraduate fellows must also take and pass the Pre-employment Course for Civil Servants (*Latihan Prajabatan Pegawai Negeri*) in order to qualify for a civil servant status. They must earn this status before they could officially be an OFP grantee. Each LPND administered their own Pre-employment course, but generally it consists of the following subjects: Pancasila (the state ideology), constitutional law, state guidelines, government regulations and organizations, LPND's structural organization, and other knowledge related specific to the LPND such as library resource. Students took exams, wrote papers, held group discussions, and did group presentations while enrolled in the course.³⁷

The rigor of the selection process is evidenced from the number of selected candidates in the first three successive batches of the OFP (1985 through 1987) for both postgraduate and undergraduate fellows. Table 5 shows the selection results for postgraduate fellows and Table 6 for undergraduate fellows. For the 1985 postgraduate Batch, for example, only 5.2 percent candidates were selected. The 1986 and 1987 Batches were 4.3 percent and 6.2 percent respectively. The 1985, 1986, and 1987 undergraduate batches had 7.6 percent, 7.8 percent, and 5.4 percent acceptance rate, respectively. One consultant wrote that the approach that the OFPIU undertook to select candidates was "to select the best from as large a pool as possible."³⁸ In other words, the OFPIU wanted to create and maintain a small percentage of acceptance rate as possible.

³⁶ *Recruitment, Selection and Training Review of Current Practices*, 7. BPPT candidates must be cleared by Indonesia's Armed Forces Strategic Intelligence Agency (BAIS).

³⁷ *Recruitment, Selection and Training Review of Current Practices*, 57.

³⁸ Adey and Loxley, "Description of Overseas Fellowship Program" (cit. n. 24), A-64. Note that these numbers are based on LPND's employees who had bachelor's degrees (2,125) and master's degree (159) in 1984. The numbers for the successive year are based on the numbers of the year before minus applicants who ailed the GRE and not allowed to retake the test minus those selected.

Table 5. Overview of Selection Results for Postgraduates ³⁹

	Number of Candidates Prior to				
	Pre-selec- tion	GRE	Interviews	Language Training	Going Abroad
1985 Batch	2,284	574	280	226	118
1986 Batch	1,860	565	239	147	80
1987 Batch	1,396	621	241	150	87

Table 6. Overview of Selection Results for Undergraduates

	Number of Candidates Prior to			
	SAT Exam	Psycho tests	Language and Science	Going Abroad
1985 Batch	500	50	38	38
1986 Batch	2,552	505	217	198
1987 Batch	4535	670	268	243

Fellows who have been selected to go abroad were required to take pre-departure training courses for several months, geared toward improving their language and qualitative skills to gain admissions to universities.⁴⁰ Language skills were deemed essential for fellows not only to qualify for admission, but also to follow along lectures, engage in class discussions, and adapt to their surroundings in a new country easily. The length on foreign language training for six months in Indonesia and another six months or more overseas underscore the serious attention the OFPIU paid to their fellows’ mastery of communicating in foreign tongues.

Language proficiency, however, was not used by the OFPIU as an important recruitment (undergraduate) or nomination (postgraduate) criterion. But pre-departure training could be (and was) used to screen candidates further, especially if they showed no improvement in their language skills. More important, they were looking

³⁹ Adey and Loxley, “Description of Overseas Fellowship Program” (cit. n. 24), A-68.
⁴⁰ Foreign institutions in Indonesia that trained candidates in language skills included the Australian Language, the British Council, the School for International Training, World University Service-Canada (English); the Goethe Institute (German); Erasmus Huis (Dutch); CEDUST (French); the Japan Cultural Center and Tokyo Nihongo Gakuin (Japanese).

for candidates who were willing to study a new language. As long as they showed eagerness to study hard, they could continue in the program. But if they showed no aptitude or received “recurring negative reports from the language school,” they could be deselected from the program.⁴¹ In order to be allowed to go abroad, post-graduate fellows must earn a minimum score of 500 and undergraduate fellows 550 on Test of English as a Foreign Language (TOEFL) before departing to an English-speaking country.⁴² English language training for fellows prior to departure could only guarantee a 50-point rise making those who scored less than 50 below targets would be deselected from the program, although this occurred in only a few instances. Candidates who were headed for non-English speaking countries usually started with no knowledge of the language and this was the assumption that the language training school used to train them. Their scores after the language training indicated to the EEOs how much additional coursework they would need to take once they arrive in the country of destination.⁴³

The language training program in Indonesia also served as preparatory course for candidates to learn some important study skills. To this end, the language schools reported on the candidates’ attendance, motivation, language acquisition progress, cultural skills, interpersonal skills, and devotion. For example, if they had more than five inexcusable absences, they could be cut from the program. If they showed a lack of interest in learning, they could also be deselected as candidates. But removing a candidate from the program was only done as a last resort for the OFPIU. An assigned OFP Student Relations Officer (SRO) would be asked to meet with a failing candidate to see if he or she could resolve the issue of the student in question.⁴⁴

Graduate fellows were also prepared to take the Graduate Records Examination (GRE) and undergraduate fellows the Scholastic Aptitude Test (SAT) to achieve the minimum score required to be admitted to a university, especially if they were going to the United States. The OFPIU paid for all the required exam fees of the candidates, but only paid for the SAT exam once.⁴⁵ As for other fellows who were going to the United Kingdom, Canada, Australia, France, Japan, and Austria, they needed to be interviewed by university professors or the EEO representative of the country of destination.⁴⁶ The length and content of the interviews varied and the interviewers either accepted or rejected a candidate. A 1988 report produced by Habibie’s ministry indicated that “most OFP candidates have little difficulty with this step in the selection process.”⁴⁷ During pre-departure training candidates were also given cross cultural orientation to show that there were more aspects to their overseas training

⁴¹ *Recruitment, Selection and Training Review of Current Practices* (cit. n. 32), 46.

⁴² TOEFL scores was also required for fellows going to Thailand and the Philippines.

⁴³ Adey and Loxley, “Description of Overseas Fellowship Program” (cit. n. 24), A-70.

⁴⁴ *Recruitment, Selection and Training Review of Current Practices*, 46.

⁴⁵ Buku Pedoman Kebijakan Program Beasiswa (cit. n. 17), 50.

⁴⁶ *Recruitment, Selection and Training Review of Current Practices*, 48-49.

⁴⁷ *Recruitment, Selection and Training Review of Current Practices*, 55.

than just achieving a diploma. They were made to understand that overseas training involved the acquisition of “new ideas, broader cultural understandings, and new perspective on personal and career plans.”⁴⁸ Consequently they were introduced to new cultures while being made aware of their own and taught the skills to process, understand, and cope their new surroundings so that they would not experience a “culture shock.” The cross-cultural training course program was designed, among others, by Prof. Josef Westenhauser and Dr. Michael Paige of the University of Minnesota and Prof. Saparinah Sadli of the University of Indonesia.⁴⁹

After the candidates underwent their pre-departure training and received news of their university acceptance, they finalized the final phase of their appointment. This included getting parental consent for undergraduate fellows, signing an OFP contract, securing an official LPND approval, and obtaining Decision Letter (*Surat Keputusan*) signed by the Minister of Research and Technology Dr. Ing Habibie.⁵⁰ They were then sent abroad in batches. For the second OFP batch especially, fellows were sent twice that year and so there was a group of students belonging to Batch 2.5, although this was done only once.⁵¹

When they arrived at their destinations, depending on the program and country of study, they might need to continue their language and academic training. And once they started their formal education, the fellows’ study progress was monitored very closely as part of the requirement for the disbursement of scholarship. For example, they needed to send quarterly reports consistently and promptly along with supporting documents to the head of OFPIU, the scholarship coordinator of their own institution, their immediate supervisors, and the Division Head of Education and Culture at the Indonesian Embassy in the country where they were studying. They were also required to fill out and return EEO’s monitoring forms. The EEOs would then send reports of academic progress to the OFPIU chairman. If they failed to send a report or sent them late, they would get two warnings, a negative evaluation, not receive their allowance, and even be deselected from the program, especially if they did not send any reports in more than a six-month period.⁵²

The EEOs collected, organized, and summarized the reports and forms sent by fellows although Dr. Philip Adey wrote that data on students’ academic progress was neither “as detailed nor reliable as it should be.”⁵³ The OFPIU was focused on selecting and sending students abroad, while the monitoring part was a bit neglected. However, despite the lack of attention to the academic monitoring aspect, there were

⁴⁸ *Preparing Indonesians for Overseas Training: The OTO Approach* by the National Overseas Training Office National Development Planning Agency Government of Indonesia, paper presented at NAFSA Conference, Washington DC, USA, 1 June 1988, 9.

⁴⁹ *The OTO Approach*, 9-10.

⁵⁰ *Recruitment, Selection and Training Review of Current Practices* (cit. n. 32), 60.

⁵¹ Suyoto Rais, *Seindah Sakura di Langit Nusantara* (Jakarta: Penebar Plus+, 2015).

⁵² *Buku Pedoman Kebijakan Program Beasiswa* (cit. n. 17), 45.

⁵³ Adey, “Attachment 3c Implementation” (cit. n. 27), A-115.

some reports collected in several countries that were summarized by Dr. Adey. Dr. Adey reported that academic records of students in Canada formed “one of the most comprehensive academic records available from any country.”⁵⁴ This was because the WUSC officials actually visited each of the 12 students and their professors at the universities where they were studying. In France, CEFI provided the most complete data of the fellows’ academic progress because CEFI staff took a direct interest in the OFP and was reflected on their data. DAAD provided “an overview of the progress of all OFP students in Germany without detail for individual students, except in their *Studien Kollege* (pre-university academic and language programs).”⁵⁵ There were some materials on students enrolled at certain universities including Berlin, Stuttgart, and Heidelberg. Other than that, available information was drawn from students’ quarterly reports, although not all were sent promptly. There was no EEO in the Netherlands and consequently there were no reports other than those provided by Prof. Van Ghesel Grothe for TU Delft students. The EEO in Japan sent their reports twice every year “on general progress and exam results of undergraduates.”⁵⁶ Academic progress of undergraduate fellows was assessed based on their exam scores at the end of the academic year and for graduate students from their quarterly reports and transcripts. But these reports were incomplete because they were not always sent by students. The British Council by mid-1987 had only sent two reports that covered about half of the fellows studying in the United Kingdom. And although there was an available EEO in the United States, the data came mainly from the students’ reports although they were incomplete (no transcripts included).⁵⁷

The need to coordinate and manage the OFP in details was deemed necessary because the Indonesian government recruited and sent fellows to universities in 14 different countries.⁵⁸ There were three reasons to explain why the OFPIU sent fellows to slightly more than a dozen countries. Financial costs were the first main consideration. For example, the costs to send students to European universities were cheaper than sending them to American or Japanese universities. Diversifying the countries of destination would reduce the average cost of training the OFP fellows. Second, the six research agencies for which the fellows were trained had different research agendas and personnel needs, “ranging from statisticians from BPS to oceanographers from LIPI to engineers from BPPT and cartographers from

⁵⁴ Adey, “Attachment 3c Implementation,” A-115.

⁵⁵ Adey, “Attachment 3c Implementation,” A-116.

⁵⁶ Adey, “Attachment 3c Implementation,” A-116.

⁵⁷ Adey, “Attachment 3c Implementation,” A-117.

⁵⁸ The destination countries were: United States, UK, Canada, Germany, the Netherlands, France, Japan, Thailand, Austria, Australia and the Philippines. Three additional countries (Norway, Belgium, and New Zealand) also became destinations of one or two OFP fellows. The list of countries was taken from the OFP SRO Directory #17, June 30, 1997.

BAKOSURTANAL.”⁵⁹ Moreover, fellows were sent based on the needs and countries that had the required training programs. For example, LAPAN wanted scientists and engineers trained in aerospace-related disciplines that were available in France and Japan, “two countries with satellite launching expertise,” to satisfy the need for its space launching capabilities.⁶⁰ To this end, undergraduate fellows’ fields of study and their country of destination were largely determined from the top. They had little to say on what discipline that they should study overseas.⁶¹ The third reason seemed to be that the Indonesian government wanted to diversify its investment in science and technology training so that collectively the OFP fellows could have as much experience and as many personal contacts in their networks as possible. The OFP also seemed to want fellows to be proficient in multiple foreign languages of the industrialized world so that when the need arose, these fellows could be called on to participate in any potential negotiations with technical professionals from many countries.

In the end, the OFP was a state project using a World Bank loan that the Indonesian government had to pay back in twenty years. As a result, the program was in effect a technoscientific manpower factory with highly-selected candidates as “raw input” and highly-trained scientific and technical professionals as the “products.” To ensure the “products” would be produced as desired, the state’s intervention and management of the fellows were quite deep and comprehensive. Not only their fields of study were decided by the OFPIU, but their academic progresses were also closely monitored by them. This was because their successes were as much the state’s stake as their own. In the next section, I will draw on some of the fellows’ voices to understand their experience participating in this program.

OFP Fellows’ Experiences

There are two main sources that allow me to get a glimpse of what the OFP fellows thought about the program: oral history interviews with a few OFP alumni and texts describing the experiences of the OFP fellows, which include an autobiography written by one of the OFP fellows, an assessment of the OFP implementation abroad

⁵⁹ *Recruitment, Selection and Training Review of Current Practices* (cit. n. 32), 4.

⁶⁰ Adey and Loxley, “Description of Overseas Fellowship Program” (cit. n. 24), A-56.

⁶¹ A lack of thorough planning of sending students abroad to study could have unintended consequences. As Manyong Moon recounts, between 1956 and 1966, the South Korean government sent 260 students to study nuclear science and engineering to the U.S. and Europe to produce highly-trained technical professionals for the Korean Atomic Energy Research Institute (AERI). However, Moon writes that a paucity of planning resulted in a good proportion of them “did not return to Korea, or opted to pursue other areas of study” [see Manyong Moon, “Understanding Compressed Growth of Science and Technology in South Korea: Focusing on Public Research Institutes,” *KJHS* 37:2 (2015), 431-453 on 439].

prepared by Dr. Philip Adey as part of the first Midterm Review report that Habibie's office wrote in July 1987, a monitoring team's report of OFP fellows who were studying in West Germany written in March 1990, and a proceeding of BPPT's OFP fellows reentry meeting on 19 January 1989. The overall picture that emerges from these sources is that although their experiences varied, they were thankful for the opportunity to get educated abroad, an experience that many attributed to expanding their knowledge, horizons, skills, self-esteem, and self-confidence.

As mentioned above, the OFPIU largely determined what STEM field and where the selected OFP undergraduates would study, although they would take certain considerations such as a candidate's language skills and interests to place them in a particular program or country. One OFP alumni told me that before being accepted as an OFP fellow, she was actually already enrolled at the University of Brawijaya studying civil engineering. But she ended up getting accepted and went to study electrical engineering at Tokyo University of Agriculture and Technology to earn her bachelor's degree. This was because although she was given a freedom to apply to universities that interested her, she needed to find one that would accept her in the university's science or technology discipline. Although there was a switch in major, she was still accepted in one of the STEM fields. As with other undergraduate OFP grantees, she needed to learn the Japanese language for one year before starting her study. Since BPPT recruited her, when she completed her study she went back and worked for BPPT. She has been there since.⁶²

Another OFP alumni recounted that after applying and passing a battery of tests, he was selected to be an undergraduate OFP grantee in 1985. He was disappointed, however, when he learned that he would be sent to Japan rather than to the Netherlands or West Germany as he had requested. This was an instance when a fellow's country of destination was determined by the OFPIU. Initially he did not want to go, thinking that he would rather finish his civil engineering study at the Institute of Technology at Bandung (ITB). But on the advice of his father who told him not to pass up this opportunity, he finally went anyway. Although he was highly concerned at first about learning a new language, he fell in love with the Japanese language and culture once he landed in Japan. He went on to earn his bachelor's degree at Keio University, his master's degree at University of Tsukuba, and his doctorate at the University of Tokyo. After finishing his studies, he was offered to work at the United Nations Centre for Regional Development (UNCRD) in Japan and secured a permission from BPPT. While at UNCRD, he was offered to work at OECF in Jakarta. Since he was still under obligation to work for the LPND that recruited him, he asked for a second permission to work outside of BPPT, which he received. In 1998 when Suharto fell, he made a career decision to stay in Japan instead of returning to Indonesia, where he has been living and working since.⁶³

⁶² Interview via email with Wiji Lestari, 2 March 2016.

⁶³ Interview via email with Bambang Rudyanto, 25 February 2016.

In another instance, an OFP alumnus wrote in his autobiography that he learned about the OFP in the midst of his first-year undergraduate study at Sepuluh November Institute of Technology in Surabaya. Coming from a poor family, he was struggling to pay for his tuition and decided to try and apply for the Habibie scholarship. After meeting the initial requirements (under the age limit, meeting the academic achievements, etc.) he went to Jakarta to take a written test. He recalled there were thousands of students who took the test in Jakarta. Much to his delight he passed this first selection process and went on to the next step. BPPT then recruited him along with 54 other candidates. After passing another battery of exams, he was selected to be an OFP grantee among 27 selected candidates. He was given a choice to go to either the Netherlands or Japan to study, and he chose Japan.⁶⁴ When I asked him why he chose Japan, his considerations were both practical and intellectual. He felt that with his small posture he would fit in more easily with Japanese people than with Europeans. On the intellectual side, he believed that Japan would be a better place to study industrial engineering and production management since Japanese consumer products were more widely available in the market.⁶⁵

Postgraduate OFP fellows faced a different challenge to find a field of study overseas. Typically, an OFP grantee's supervisor would try and find a discipline relevant to the grantee's line of work. But often this discipline was either not available in a country where the grantee was sent or underdeveloped. Reflecting back on her experience, one former OFP grantee opined that candidates should be given more freedom to choose their field of study so that they would be motivated to complete it. She was fortunate that she was able to choose her own field of study (physical metallurgy) and found a university in the United Kingdom (Sheffield University) to study for her master's degree. Her motivation to select physical metallurgy was the big problem she found (corrosion) while handling a piece of ice making equipment at BPPT. At Sheffield University, she was also able to select a program to earn her Master of Philosophy degree by research instead of by course, thinking that she might want to continue to a doctoral program later.⁶⁶

Some fellows expressed a concern about the recognition of their degrees. They were the ones who studied in Germany, Holland, and France. Dr. Adey wrote:

In all three [countries] there is a Dipl. Ing degree available after a minimum of five years of university study. In France, there is a one year DEA [Diplome Etude Approfondie] program after the Dipl. Ing, which leads into a doctoral program.

In Germany and Holland a student is accepted in a doctoral program as soon as

⁶⁴ Suyoto Rais, *Seindah Sakura* (cit. n. 51), 37-38.

⁶⁵ Interview with Suyoto Rais in Jakarta, 12 August 2018.

⁶⁶ Herliyani Suharta, "Variable Yang Mempengaruhi Sukses Dalam Usaha Pendayagunaan Purna Karya Siswa OFP-BPPT," a paper presented at the OFP BPPT's OFP fellows reentry meeting, 19 January 1989.

he or she can reach an agreement with a professor on a research topic. It is possible, though not common, for this to happen even before the student has taken the Dipl. Ing. There is no problem about the recognition of doctorates from these countries as S3 in Indonesia. The problem is that neither the Dipl. Ing, nor the DEA is recognized as equivalent to more than S1.⁶⁷

Dr. Adey added that this issue had been discussed between the Indonesian Ministry of Education and representatives of German, Dutch, and French universities though an agreement had yet to be reached. It is this reason that the OFP put DEA and Dipl. Ing degree holders in the same program as those of master's degree holders (see Table 1) to acknowledge that students who received these degrees had the potential to continue their studies straight into a doctoral program. Fellows who obtained their degrees in the United Kingdom, the United States, Canada, Australia, and Japan in general did not encounter any difficulties getting their academic degrees recognized by the Ministry of Education who had made their decisions based on precedents. One implication of this formal (but highly bureaucratic) recognition of academic degrees was the assignment of civil servant status and pay scale for the fellows. It would make a difference whether one was acknowledged to have a bachelor's or a master's degree.⁶⁸

Dr. Adey's report also revealed the fellows' experiences living overseas. Many fellows felt homesick and a bit alienated from their surroundings. They preferred to be back in Indonesia and did not like the food they ordered abroad. They "did not find people very friendly" and felt that their living quarters were too small. It seems that they had a bit of a culture shock and Dr. Adey recommended that future fellows needed to be prepare better for life abroad.⁶⁹ But despite these challenges, almost all acknowledged that their university administration procedures were "excellent" and information about their universities and the process of registration were "very good." Their views on EEOs, on the other hand, varied from country to country, because of the different roles the EEOs played in monitoring their academic progress. Students in West Germany wondered about the role of DAAD in helping them find a place to live, mentors, and a place to do an internship.⁷⁰ Apparently even after 5 years, the OFPIU has not yet set the terms clearly with the German EEO requested to help monitor the students.

Allowance disbursement was an important topic for many of the fellows studying overseas. While in Dr. Adey's report some fellows reported that they did not always get their stipends on time, fellows studying in West Germany reported to a monitoring team that they were happy with the reliability of their scholarship payments.

⁶⁷ Adey, "Attachment 3c Implementation" (cit. n. 27), A-123 and A-124.

⁶⁸ Adey, "Attachment 3c Implementation," A-123.

⁶⁹ Adey, "Attachment 3c Implementation," A-124.

⁷⁰ Umar Bey and Herry Suparyadi, *Laporan Monitoring Karyasiswa OFP Jerman Barat Maret 1990*, 1 April 1990, 31.

Some said that they even received their allowances ahead of time. OFP fellows in other countries did not think their scholarship disbursement was done reliably. Undergraduates in Holland were especially unhappy with the unreliability of their stipend payments.⁷¹

In a monitoring report prepared and written by Umar Bey and Herry Suparyadi after touring West Germany for half a month from 15 March to 31 March 1990 to meet and talk to undergraduate and graduate fellows in several cities, they found that while the majority of fellows were doing fine, they had a few concerns. One concern was about the reimbursement for the money they have used for their health insurance premiums. Eighteen fellows had not received it and repeatedly asked them when they would receive it. Another concern was expressed by students living in Stuttgart. Since they were required to move out of their dormitories during the summer months, they found this regulation disruptive to their studies. Eighteen fellows (3 undergrads and 15 graduates) requested that their scholarship period be extended to enable them to complete their studies.⁷²

When OFP fellows finished their studies overseas and returned home, they needed to re-adapt to their workplaces. Each OFP returnee experienced the so-called “re-entry program” differently, but a few who shared their experiences mentioned a set of challenges that included an unsupportive work environment or an unclear job description. One OFP alumna, for example, recounted how she often received unconstructive criticism for small mistakes she made from her colleagues. In her mind, the comments she received most likely resulted from feelings of rivalry or even jealousy from her co-workers and the incorrect perception that overseas graduates knew a lot of things.⁷³ Another returnee admitted that he had a bit of trouble adjusting to his workplace after completing his study because he did not receive clear duties and responsibilities. He was afraid that any initiatives that he wanted to take might be construed as taking away existing jobs from his colleagues. His solution was to work on something other than what his co-workers were already doing.⁷⁴ Not all returnees found adapting to their workplaces a challenge. One OFP fellow who returned from his study in the Netherlands found that he was assigned the same job duty as before, which he readily accepted. He also made some efforts to share information about studying abroad with his colleagues.⁷⁵

⁷¹ Adey, “Attachment 3c Implementation” (cit. n. 27), A-126.

⁷² Bey and Suparyadi, *Laporan Monitoring* (cit. n. 70), 31-34.

⁷³ Herliyani Suharta, “Variable Yang Mempengaruhi Sukses Dalam Usaha Pendayagunaan Purna Karya Siswa OFP-BPPT,” a paper presented at the OFP BPPT’s OFP fellows reentry meeting, 19 January 1989.

⁷⁴ Iding Chaidir, “Pengalaman Mengikuti Program OFP di Amerika,” a paper presented at the OFP BPPT’s OFP fellows reentry meeting, 19 January 1989.

⁷⁵ Komarudin, “Permasalahan Studi di Negeri Belanda dan Pendayagunaan Purna Karya Siswa OFP di Lingkungan BPP Teknologi,” a paper presented at the OFP BPPT’s OFP fellows reentry meeting, 19 January 1989.

From these sources, it can be seen that Indonesian students encountered different experiences and challenges as OFP fellows and returnees. The close monitoring of the fellows' progress, academic and otherwise, showed a great concern on the part of the Indonesian government about how well the students the OFPIU selected were doing. There were some recommendations made by Dr. Adey and the West German monitoring team in their reports to improve the preparation and experience of the fellows. Although the sources I managed to collect do not indicate whether these recommendations were followed, at the very least, the OFPIU tried to understand the conditions of the fellows overseas. Following a strong recommendation of the World Bank, the OFPIU also held a series of re-entry seminars, both within each research agency and across agencies.⁷⁶ The seminars were meant to gain honest feedback from OFP fellows about their experiences readapting to their workplaces, the challenges they faced, as well as the recommendations they made.

Evaluation, Assessment, and Outcomes of the OFP

One of the main conclusions of the 1987 Midterm Review report written by Habibie's office was that the most successful part of the program up to that point had been selecting and placing candidates abroad. But according to one foreign consultant's assessment included in the report, the rush to recruit and send students overseas meant that the OFPIU overlooked a more careful planning and development of the program management in the long run.⁷⁷ The problems included an underdeveloped OFPIU that lacked a full-time staff and overlapping responsibilities among several OFPIU staff. One example cited was Dra. Trulyanti S. who was responsible for monitoring and evaluation as well as administering psychological test on the candidates. But she also served as BPPT's Head of Personnel. The head of the OFPIU, Dr. Ing Wardiman Djojonegoro handled personally many problems brought to him by his staff. Dr. Loxley wrote, "This direct management style has served the program well in placing people quickly. However, as the numbers grow and the range of program cannot depend on the commitment and energy of one man. **A more institutionalized and more permanently staffed management pattern must be established.**"⁷⁸ In other words, at the beginning the OFPIU's focus was more on recruitment, selection, and placement of candidates than creating an office for the long-term management of the OFP fellows.

⁷⁶ From the sources I obtained, I know that up until March 1991, the OFPIU Re-entry Unit had held six seminars across agencies. It is unclear how many times each of the LPNDs held its own re-entry meeting, but BPPT seemed to be the agency that held the meetings more often than other agencies since they sent the most fellows overseas.

⁷⁷ Loxley, A-224. -앞에 전체 서지사항이 없음. 혹시 각주 90번이 전체서지?

⁷⁸ Loxley, A-210, original emphasis.

Another important assessment was about one of the OFP's goals to produce more advanced degree holders than graduates for the six technoscientific institutions. A careful examination of the selected OFP fellows by a consultant showed that while there would be an increase in highly trained personnel at LPNDs, it would still be bottom-heavy, i.e. less master's and doctoral degree holders than bachelor's.⁷⁹ There were two reasons cited for this and they were somewhat intertwined. First, it was difficult to recruit Ph.D. fellows because there were too few LPND MSc employees to draw from and second, in the first three years of the program, the OFPIU selected, prepared, and sent more undergraduates than graduates because it had a larger pool of candidates to draw from.⁸⁰ The lack of S2 employees at the LPNDs influenced the OFPIU to select more undergraduate fellows than it had originally planned.

After three batches (1985, 1986, 1987), OFPIU sent a total of 972 fellows, of which 36 were Ph.D. students, 338 MSc students, 503 BSc students, and 95 non-degree candidates.⁸¹ The number of Ph.D. fellows was significantly lower than it was initially targeted at 255 fellows. Even with 15 additional Ph.D. fellows thought to be selected for the fourth batch and 100 MSc students projected to continue their studies until they earn their doctorates, and assuming all of them would complete their studies, the total would be 151 Ph.D.'s, still 104 shorter than anticipated. The number of master's degree students was also short of target. Adding the number of fellows sent in the first three batches and the projected 130 fellows selected for batch 4 would bring the total to 468, which would be 176 fellows less than the target of 644. Undergraduates on the other hand, made up the bulk of the fellows. The total of BSc fellows sent after three batches was 503, which was 203 students more than the initial allocation of 300. The good news was that 240 undergraduates were enrolled in five-year diploma programs in Germany, France, and Holland, and when they completed their studies they could be treated as master's students "for purposes of meeting the quotas set in the loan agreement."⁸² But the overall numbers led the consultant writing the report to conclude that although there would be an increase in highly trained personnel at LPNDs, they would not unfortunately convert into "top-heavy" organizations.⁸³

One of the main concerns about setting up and running a national science and technology overseas training project was the "risk" to losing the "investments." In the language of the day, it was called "brain drain," i.e. the highly-trained students who studied overseas do not return to their country of origin and instead work and make careers elsewhere, typically in more industrialized countries. In my interview

⁷⁹ Loxley, A-184.

⁸⁰ Loxley, A-85.

⁸¹ Loxley, A-84.

⁸² Loxley, A-85.

⁸³ Overseas Fellowship Program Midterm Review Report Part 1, July 15, 1987, prepared by OFPIU, A-184.

with Dr. Ing Wardiman Djojonegoro, he recalled that the World Bank warned the Indonesian government about the brain drain issue, citing India as an example in which only about 40 percent of its students sent overseas returned home.⁸⁴ Although this is an unconfirmed number, the story of the founding of a technical university in India seemed to support this perception. When India decided to establish a technological institute in Kanpur, which was modeled after the Massachusetts Institute of Technology (MIT) and with financial and technical aid of the United States, the hope was to train future Indian engineers to meet India's demands of highly-skilled and highly-trained technical professionals at home instead of sending them abroad. But after Indian Institute of Technology (IIT) Kanpur was founded, an unexpected outcome occurred. One assessment of it was that IIT Kanpur became an insular highly-regarded academic institution, but unconnected to India's national development. Leslie and Kargon write that at least in the beginning, "IIT Kanpur accelerated rather reverse India's 'brain drain.' Of the 840 undergraduates who had earned degrees by 1971, a quarter had gone abroad to complete their educations, while a fifth of the 576 master's students had done so, including the cream of the crop. None of the 111 Ph.D. graduates had taken a position abroad because the best prospective candidates had already left for U.S. universities."⁸⁵

The concern of "brain drain" was also in the minds of the World Bank staff as they appraised the Indonesian OFP loan proposal. They wrote, "Another risk of the project is that of brain drain. However, from past experience, the return rate of Indonesian students is high. A survey of the 1300 participants trained overseas in the General Participant Training I Project [overseas training for employees of some government ministries] sponsored by USAID showed that the return rate was 99%."⁸⁶ Habibie's ministry has assured that brain drain would not be an issue in its proposal for OFP and similarly, an assessment by one of the consultants in the Midterm Review report confirmed it. Dr. William Loxley wrote:

The SMA [high school] recruitment policy has worked nicely and appears to be a 'stroke of genius.' However, it is imperative that the returnees in fact do work in LPNDs upon return to Indonesia. The outlook of this is encouraging since Indonesian culture is such that virtually all students will return home after overseas study. Any brain drain would be minimal."⁸⁷

In general, many Indonesians who were sent overseas to study under this fellowship

⁸⁴ Interview with Wardiman Djojonegoro in Jakarta, 26 July 2016.

⁸⁵ Stuart W. Leslie and Robert Kargon, "Exporting MIT: Science, Technology, and Nation-Building in India and Iran," *Osiris* 21:1 (2006), 110-130 on 118.

⁸⁶ World Bank Staff Appraisal Report Indonesia Science and Technology Training Project, June 6, 1985, 19-20.

⁸⁷ Loxley, A-86.

did return home. Those OFP grantees who finished their studies and returned to Indonesia did so mainly because they were under obligation to do so. Their scholarship contract stated that they needed to work for one of the six LPNDs that had recruited them to be their employees prior to going abroad. The contract stipulated that they needed to work at least twice the amount of time they spent overseas plus one year. For example, if they spent 5 years abroad, they would need to spend a minimum of 11 years working at the agency. Lack of data prevented me to know for sure at this point how many of the OFP alumni returned and worked for the same agency that recruited them. But currently (some thirty years after the program started) at least two OFP alumni are heading two of the six LPNDs. Dr. Unggul Priyanto, member of the fifth OFP batch who was sent to the United Kingdom (OFP5 UK), has been the chairman of BPPT since June 2014.⁸⁸ Another OFP alumnus Dr. Laksana Tri Handoko (OFP4 Japan) was appointed as the new chairman of LIPI on 31 May 2018.⁸⁹ Darman Mappangara, M.Eng.Sc., MBA (OFP3 UK) is now serving as the CEO of PT INTI, a state-owned telecommunication company that has produced high frequency radios, analog and digital telephones, earth stations for Indonesia's telecommunication satellite and other telecom products.

Although many OFP fellows returned home, one area that OFPIU underdeveloped at the beginning was the reintegration of fellows. This was because the main focus was to quickly select top candidates and prepare them to study overseas. Even after three years, the OFPIU did not yet set up a comprehensive reintegration plan. A draft for such plan was proposed by Dr. William A. Loxley another consultant who contributed to the Midterm Review Report.⁹⁰ Part of the plan was to have a seminar "linking the LPND research programs to possible contributions by OFP fellows."⁹¹ A series of re-entry seminars were held regularly between 1988 and 1991 in which OFP returnees were asked to present papers at the seminar regarding their experience studying abroad and/or their theses. Beyond this, however, the reintegration process was not at all clear. One indication that the reintegration of the fellows had some challenges was provided by Dr. Djojonegoro. He mentioned that the placement of fellows was inconsistent and that if the same scholarship program was conceived again, more thoughts would need to help returning fellows reintegrate better with

⁸⁸ His profile in Indonesian can be seen online at <https://www.bppt.go.id/profil/pimpinan> (accessed on 23 June 2018). His name also appears in the Students Relations Officer Directory no. 17, 30 June 1992.

⁸⁹ His profile in Indonesian can be seen online at <http://lipi.go.id/profil/ka> (accessed on 11 July 2018). His name also appears in the Students Relations Officer Directory no. 17, 30 June 1992.

⁹⁰ William A. Loxley, "Attachment 3d Reintegration of Fellows" in *Overseas Fellowship Program Midterm Review Report Part 1*, 15 July 1987, Prepared by Monitoring and Evaluation Section OFPIU, c/o Gedung BPP Teknologi, Jalan M.H. Thamrin No. 8, Jakarta, Indonesia, A-182 – A-195).

⁹¹ Loxley, A-192.

their institutions.⁹²

Because of the poorly planned reintegration scheme, there were some OFP alumni who decided to gain employment and experience outside of the six LPNDs and even outside of Indonesia. Included in this group of Indonesia's technical diaspora are Dr. Suyoto Rais, who worked in a number of Japanese companies even as a "Japanese" expatriate in Indonesia at a few instances.⁹³ He has returned permanently to Indonesia in 2014 and founded a company called PT Proanda Sinergi Indonesia that specializes in consulting and trading three Japanese products. He now serves as its CEO. Another alumnus, Dr. Bambang Rudyanto (Rudy) received an OFP scholarship in 1986 and was sent to Japan as part of the second batch (OFP2). He completed his undergraduate study and graduated from Keio University and earned his master's degree from University of Tsukuba. In 1996, he completed his doctoral study from the University of Tokyo. Afterward he went back to Indonesia to work in one of Indonesia's LPNDs. But he did not last long. He could not work in an environment that he felt unsupportive. He seized an opportunity to work at the Japan office of the UNCRD. From there he moved on to work as a Project Officer for Japan Bank for International Development (JBIC) in Indonesia overseeing 15 public works projects. However, he got frustrated dealing with some of the challenges of managing infrastructure projects in Indonesia, including corruption. Finally, he decided to return to Japan and work at the Asian Disaster Reduction Center. Since 2002, he has been teaching at Wako University in Tokyo.⁹⁴

There are other OFP alumni who are now living and studying outside of Indonesia. They make up Indonesia's technical diaspora and many of them are members of IABIE.⁹⁵ Together with their colleagues in Indonesia they have been actively participating in various activities such as giving regular talks to members and students as well as establishing links to countries where they used to study.⁹⁶

Conclusion

Overall the OFP was a well-thought-out project. There were a lot of thinking that

⁹² Interview with Wardiman Djojonegoro in Jakarta, 26 July 2016.

⁹³ See Suyoto Rais, *Seindah Sakura* (cit. n. 51).

⁹⁴ Ahmad Arif, "Bambang Rudyanto, Duta Indonesia di 'Negeri Sakura'" Kompas, August 2, 2013, <http://edukasi.kompas.com/read/2013/08/02/1327387/Bambang.Rudyanto.Duta.Indonesia.di.Negeri.Sakura> (accessed on 27 May 2018) and interview with Bambang Rudyanto via email, 25 February 2016.

⁹⁵ IABIE's members consist of not just OFP, but also STMDP and STAID grantees. Its website is <http://iabie.org/>

⁹⁶ Although IABIE has a website, many of its activities are announced and spread through the 54 WhatsApp groups that it manages. Since I have gained permission to be a member of a few of the groups, I've been able to follow their activities.

went into the planning, implementing, and managing the OFP. The focus on quickly producing large number of STEM graduates was to solve a very specific problem: a severe shortage of well-trained technoscientific professionals for the country's top research agencies. This does not, however, mean everything was smooth. The Indonesian government did not always do things right the first time. But it sought feedback and input both from the fellows themselves and outside consultants. From this point of view, the OFP was more than just a science and technology overseas training project, but it was also a domestic management training program. As mentioned above, the reintegration scheme could have been planned and implemented better.

The OFP ended in 1992, but two other scholarship projects continued until 1998, when it stopped abruptly. This was when Habibie's main political backer Suharto was forced to step down by mass demonstration and a bailout from the International Monetary Fund (IMF) "killed" many of ongoing projects Habibie was developing, including the two ongoing fellowship programs at the time. Grantees of the latter scholarship needed to either stay in their host countries to survive or were forced to return home. Some OFP returnees who were working at the LPNDs decided to work elsewhere and outside of the country.

To Habibie, who had a big plan to "leapfrog" Indonesia from an agricultural country into an industrialized one, the 1998 event was an unintended and painful episode. Many of the fellowship recipients shared this sentiment although some of them do not view it as a complete failure. Dr. Rudy is content working in Japan and contributed to Indonesia's development from afar, as are other alumni of OFP who now work in various organizations overseas.

The creation of Indonesia's technical diaspora and IABIE are two things that Dr. Habibie did not foresee or really wish. He was mainly fixated on the idea of industrializing Indonesia rapidly and part of the plan was to produce highly-skilled technoscientific manpower. He succeeded in churning out hundreds of Indonesian engineers, giving them jobs at the dozen technical institutions he led, and producing an indigenously designed and manufactured aircraft that made the nation proud, but he has been uneasy with some of the unintended consequences of his technological programs. One positive unintended consequence of Habibie's technology policies was the education of thousands of Indonesia's technical professionals. He was able to create a sense of pride and national identity among these scholarship recipients that they are now forming a very active association. Out of a sense of deep indebtedness to the country that has paid for their education overseas they have been trying to realize Habibie's vision in their own ways.

Abstract

This paper discusses the Overseas Fellowship Program (OFP), a national science and technology overseas training project that the New Order government of Indonesia (1966-1998) planned, implemented, and managed between 1985 and 1992. It discusses the program's rationale, objectives, implementation, assessments, and outcomes. Drawing on several sources, this paper illustrates that Indonesia's overseas education and training project was part of the country's industrialization program to generate highly trained scientific and technical personnel for the country's six research organizations and several national laboratories. Through the OFP the Indonesian government learned how to manage its own scholarship program, a valuable experience in management training. One result that fell short of its intended goal was to convert the six research institutions into "top-heavy" organizations from "bottom-heavy" ones. The reintegration of OFP fellows also faced some challenges because this aspect of the program was initially underdeveloped. But this program produced hundreds of highly-educated and skilled Indonesian graduates who have been carving their own careers in government agencies, private companies, and in academia both in Indonesia and abroad. Many of them now belong to a newly created association called IABIE and they have been involved in various activities meant to increase the knowledge and skills of Indonesia's younger generation out of sense of indebtedness for what the country had done for their own education.

Keywords: OFP, overseas fellowship program, BPPT, Habibie, LPND, IABIE