

WORLD BANK HISTORY PROJECT

Brookings Institution

Transcript of interview with

Ir. SARDJONO

November 26, 1991

Jakarta, Indonesia

Interview by: John Lewis, Richard Webb, Devesh Kapur

FOREWORD

The following is a transcript of an oral interview conducted by the authors of the World Bank's fiftieth anniversary history: John P. Lewis, Richard Webb and Devesh Kapur, *The World Bank: Its First Half Century*, Washington, DC: Brookings Institution Press, 1997. It is not a formal oral history, and it is not a systematic overview of the work of the person interviewed. At times the authors discussed the planned publication itself and the sources that should be consulted; at other times they talked about persons and publications extraneous to the Bank. Some interview tapes and transcripts begin and end abruptly. Nevertheless, the World Bank Group Archives believes that this transcript may be of interest to researchers and makes it available for public use.

Ir. Sardjono
November 26, 1991 – Verbatim

*[Begin Tape 1, Side A]*¹

SARDJONO: Well, in this, of course, I have to answer your questions linked with my own tenure in PLN [*Perusahaan Listrik Negara, State Electricity Company*], you know.

LEWIS: Please tell us that, yeah, please tell us that.

SARDJONO: I was appointed by the government to become a member of the board of management, as we called, you know, the board of management since 1970. But eleven years before 1970 I'm starting with this PLN as a brand new engineer, starting from— what do you call—“generation engineer” up to the regional manager for the whole West Java area responsible for generation, transmission and distribution. Within the ten years, eleven years, after I joined with PLN, then I got the assignment as a member of board of management in 1970 as a director of finance and commerce, 1970, this up to 1972. And from 1972 to 1975 I was appointed as the director of operations. And from 1975 to 1980 I was assigned as the director of planning in PLN. And from 1980 to 1985 I was appointed as the president director for the first time.

LEWIS: President?

SARDJONO: President director, yes, my first term, and from 1985 and 1980 [1990] I was appointed as president director for my second term. And then 1990 I fully retire. So answering to your question, I was involved with the World Bank since the implementation of the first loan from not the World Bank but from the IDA [*International Development Association*].

LEWIS: IDA.

SARDJONO: The World Bank, but IDA. Not the IBRD [*International Bank for Reconstruction and Development*] yet for the first loan. The implementation of the first loan of the IDA is in the year 1970.

LEWIS: 1970?

SARDJONO: Yeah, the same time when I was appointed as the director of finance and commerce. And then the main project is covering a small distribution project in the city of Jakarta, but the big part of the project is for financing for the whole management reform in PLN.

LEWIS: I see, management reform.

SARDJONO: Management reform.

¹ Original transcript by Brookings Institution World Bank history project; original insertion are in []. Insertions added by World Bank Group Archives are in *italics* in [].

LEWIS: Did that involve technical assistance or . . .

SARDJONO: Oh, no, that is a loan, soft, what you call a loan from IDA.

LEWIS: A soft loan, yes. But what was the nature of the--what did you buy with the loan?

SARDJONO: This I told you. There are two projects: one is a physical project, a distribution project in the city of Jakarta, and the other project is management reform in PLN. What we got is improving for, into institutional administration, finance and so on.

LEWIS: And that's why I asked you, then, did you have some experts, some expatriate advisors, consultants, who came in?

SARDJONO: Yes. At that time we are appointing consultant from France, that's SOFRELEC, in association with several consulting firms like Peat, Marwick, Mitchell, for finance and other consultants. I don't remember again, but this is--the main job is to provide a physical distribution project in the city of Jakarta and the other is for management reforms, institutionally, financial, organization, management and so on.

The loan is coming from IDA. It's not much. At the time is only 15 million U.S. dollars for the *[inaudible]*. I involved the implementation of the first loan, that loan. I don't involve in the appraisal of that project.

LEWIS: I see.

SARDJONO: But then from the second project to the sixteen project . .

LEWIS: Sixteen?

SARDJONO: Sixteen. I was involved since the appraisal of the project, the negotiation of the project, and the implementation of the project.

As a matter of fact, the loan is not directly to PLN. The borrowing is the government. The PLN is the beneficiary. So then we have two--what do you call--legal documents, that is a loan document, loan agreement, signed by the government of Indonesia and the World Bank and a project agreement signed by PLN and World Bank. But the project agreement is, of course, under jurisdiction to the loan agreement.

LEWIS: And different interest rates, I imagine.

SARDJONO: No, no, no, no, no, no. The interest rate that the government paid is according to the regulation of the World Bank, but up to a certain time the loan from the World Bank passed through government as subsidized together.

LEWIS: At the same rate?

SARDJONO: As I told you, as a subsidy.

LEWIS: Subsidized?

KAPUR: Free.

SARDJONO: Yeah, free. But then I don't know the second or the third or the fourth loan. This loan created by the government as a re-loan from government to PLN with the same rate.

LEWIS: Same rate as they paid the Bank, huh?

SARDJONO: Yes.

LEWIS: Did that change later?

SARDJONO: No, up to my . .

LEWIS: They always had the same rate?

SARDJONO: Yes.

KAPUR: Was the rate the market rate or was it subsidized?

SARDJONO: Which one?

KAPUR: The re-loan from the government of Indonesia to PLN.

SARDJONO: At the same rate, same rate that the government gets from the World Bank.

LEWIS: And this rate, was IDA the first one? Later on they weren't IDA loans, I suppose. I mean, what, sometime in the '70s, you were getting IBRD loans.

SARDJONO: No, IDA loans.

LEWIS: Always IDA?

SARDJONO: No. Up to a certain--I don't forget which loan—changed from IDA to the IBRD.

LEWIS: That's what I'm asking, yes.

SARDJONO: From the IBRD, of course, they implement the loan from the IBRD. From the IDA they implement the loan from IDA. But at the first beginning of the

implementation of the loan, the government paid the loan, the money from the World Bank to PLN as an equity, but then I don't know how much, when the loan created by the government as a re-loan from the borrower, from the government, to PLN with the same rate they got from IBRD.

LEWIS: Okay. And therefore when they went from borrowing from IDA to IBRD, the interest rate went up, and the interest rate charged PLN also had to go up.

SARDJONO: Of course! You see, the same, the same rate. Of course, the rate from the IDA and from IBRD are different.

LEWIS: Right.

KAPUR: Were most of the sixteen projects, were they mainly for generation or for generation and for transmission?

SARDJONO: The most emphasized at that time was generation and distribution because at that time the condition of our PLN in the—what do you call--generation was very, very poor. So the first attack from the World Bank is to help to provide the generation, and then later on, step by step, they moved into transmission and distribution.

LEWIS: These are all thermal projects, right?

SARDJONO: Mostly thermal projects. The World Bank financed the hydro projects; it's only the big hydro at Saguling and Cirata in the year about 1980, something like that. So after so many loans they started a big project, a hydro project, but for the first beginning it's distribution and then generation: thermal, oil-fired, transmission step by step, and then big distribution and then big hydro.

But at the same time in every loan they provide to the PLN, they provide also some money for consultancy, for instance, improvement of financial aspects, improvement of the functional administration aspect, improvement for the planning aspect. So in every loan they comprise of a physical project, a study of an engineering for the other project, and consultancy for management, step by step.

LEWIS: I see.

SARDJONO: And there PLN at the beginning is, of course, fully subsidized by the government. And then with the loan, the World Bank and the government set a target that PLN should be recovery, step by step, financially. And fortunately the target can be reached and then start step by step to make an internal rate of return from the operation.

KAPUR: Were there any sort of issues with the World Bank over the years on cost recovery [both speaking at once] consumers?

SARDJONO: Well, of course, the World Bank, since the name is International Bank for

Reconstruction and Development, in order to appraise the project, they appraise also any aspect of PLN—what you call--management, financially, costing, organization, everything. They go enter into the—what do you call--bottom of the problem, and they sit together with us. If they don't—what do you call--appreciate the result of that aspect and then we start to negotiate how to improve and we make a plan and every new consultant they provide money for consultant's costs.

LEWIS: And these, the people you dealt with, negotiated with in the Bank, were they--did they have a continuity through time? Did you have the same people working in Indonesian power for some years at a time so that they got to know the situation?

SARDJONO: Yeah, yeah. Of course, they have changed.

LEWIS: Yeah, sure.

SARDJONO: But then in a period of the assignment of the—what do you call--experts in the World Bank, they involve deeply in a certain period.

LEWIS: These were engineers in many cases? Their profession was engineers, the people in the Bank?

SARDJONO: It depends. It depends. There are finance, engineer, procurement engineer, and then there are so many—what do you call--structural organization who handle directly with the government and with us.

LEWIS: I see. I see. I see.

KAPUR: So in the roughly twenty years you dealt with the World Bank, did you see any change in the World Bank in the way they approached the power sector?

SARDJONO: Oh, yes. For the first time I got the impression that the World Bank is number one. He is always the man who knows better everything.

LEWIS: At the beginning?

SARDJONO: At the beginning. And at the beginning I was very afraid because I assessed that they are very experienced. But later on we know each other. We can talk openly. We know what's--how to set the target. We know how to implement the project. We can tell what we need.

And they start also--they make some change in the approach. They are more and more listening to us and more and more give the confidence to us. It is, of course, normal, you know.

LEWIS: Yeah, yeah. So they learned along the way, too?

SARDJONO: Oh, yes. Both sides learned very much. We learned how to—what do you call—at least the way how they solve the problems, yeah, the way they are considering the problems. But they are also learning that not always the rule can be implement in a certain country. They have to realize the condition, the situation, but the main what we call rules should be implement without any—what do you call—change.

LEWIS: Did your work involve at all getting involved with the so-called technocrat group, the Widjojo [*Nitisaastro*] group? Did you work with those government economists?

SARDJONO: If you call “work with them,” I am the implementing agency; they are the policymaker. So I follow the policy, the general policy from those gentlemen.

LEWIS: I see, I see, okay. How about in terms of general policy? Did you ever have any energy survey, major power study here?

SARDJONO: Yes. Yes we . .

LEWIS: When was that?

SARDJONO: Well, that's my difficulty if you are asking detail when, you know.

LEWIS: We're not talking, but approximately.

SARDJONO: As a matter of fact PLN is not the entity who is responsible for the total energy.

LEWIS: Right.

SARDJONO: But we have to make our study in order to get an electricity energy with a comparable price, reliable supply and so on. That's why we make our own study for several energy resources. And during my time we are able to diversify. When at the beginning of the loan we have only fuel, oil as a fuel, and small hydro. When I left the office I have already coal, I have already natural gas generation, I have already—what do you call—geothermal potential generation. So we diversify into hydro, fuel, geothermal, coal, and natural gas.

LEWIS: And how about across the whole country? You must have different sources for different parts of different islands.

SARDJONO: Of course, because our country is comprised of so many islands it's impossible to make interconnection with the whole island, you know. Look at here. [apparently goes to a map] Now when I left office I have already succeeded to make an extra high voltage along the Java island. It means that all this area in Java can be not only interconnected but as an integrated system. And then we are also able to connect with the submarine, people from Java to Bali island and from Java to Madura island with

a 150 kV submarine cable. So practically this is already in the one grid.

LEWIS: Right.

SARDJONO: But it is important, you know, because 75 percent of the population of Indonesia is in this small islands. And then the most rich of resources in our area is first Sumatra. They have coal, they have natural gas, they have geothermal, they have hydro: everything. And we develop here hydro, thermal, and we started now to inter-connect this area, pick up one, and half of this area is already interconnected.

LEWIS: I see.

SARDJONO: In this area, North Sumatra, you don't need that. And you have a Lake Toba. The government—not the government, the Japanese invest the aluminum smelters, but they have this own power station from this Lake Toba. In this area the developed is in the east side and the southern part here and also in the western part. We don't have yet interconnection here because, you know, the area is in the middle of nowhere, a big area but small population. Here is much more, you know, developed in this area. This is already—we have one interconnected system in this area and in this area, but this is still individual. This also is individual, and Irian, Basilan also individual, this part, this part, this part, this part. [apparently pointing to various areas on the map]. And all small islands additional, additional. This is a very difficult task for PLN, you know.

LEWIS: It must be very difficult.

SARDJONO: So many islands, and then the concentration of the population is dense in this Java island. The other rich in natural resources, but there's no demand compared to Java.

WEBB: Do you own many of the small, individual . .

SARDJONO: Yes, yes. We have so many. That is the difficulties of us, that in these areas we can easily make internal rate of return. This area we have to subsidize.

LEWIS: I was going to ask you about your rate structure. Do you charge the same tariff to all areas or . . .

SARDJONO: We have a standard tariff.

LEWIS: Across the whole country?

SARDJONO: Across the whole country, only we have functional group with different each other. There are residential, there are social, there are commercial, there are industrial, there are street lighting, there are public lighting and so forth. But for the whole country the same.

WEBB: The World Bank has always accepted that?

SARDJONO: No.

WEBB: No.

LEWIS: I would think not. *[Laughter]*

SARDJONO: No, but don't forget that the World Bank is, in this case, is not able to-- finally they realized that it is a political issue. It is a government—what do you call-- decision which nobody can . . .

But principally the government is going to introduce that no subsidies will be provided for PLN. So PLN has to grow with its own capability.

LEWIS: But you still can do this cross-subsidizing?

SARDJONO: Oh, yes. We can use a cross-subsidy inter-areas but also a cross-subsidy between the consuming groups.

KAPUR: But in the '70s and '80s did PLN get a financial subsidy from the government?

SARDJONO: No. What I called a subsidy in the terms of development, construction, new projects. For operations, since I am the director of finance, I never got subsidized for the operation. But for the new projects we have, as equipping, not subsidized.

KAPUR: Have there been any disputes or discussions with the World Bank on the entry of the private sector in these key [both speaking at once]

SARDJONO: Oh, yes. Oh, yes. Oh, yes. There are a lot of discussions about that because the World Bank also realized that if the electricity is provided all by the government, it's required a lot of money. That's why they invite also for private enterprises goes into that area.

LEWIS: In particular areas?

SARDJONO: In particular areas, because mostly PLN has already operated in all area of Indonesia in order to--not to confusing in the area of operation of course there are some—what do you call--agreements, for instance, between the ministry of mines and energy (who has the PLN) with ministry of cooperation. The cooperatives built also some, develop in the electricity in several areas. In this case we don't enter to this area, and they don't also enter into PLN areas.

LEWIS: Do you have any large enterprises, manufacturing enterprises that are self-supplying, generate their own electricity?

SARDJONO: There are so many what you call private who own his own generation but not for selling to the public.

LEWIS: No, no, to supply themselves.

SARDJONO: Oh, yes. As I told you, the smelting in Lake Toba, they have more than 400 megawatt installed in hydro. And then here in the middle of nowhere in the Sulawesi area there is the nickel, Inco. They have a hydropower station with about 180 megawatts. And then here, what we call the area of, mining area, here also a big thermal power plant. And, of course, the oil company, the Pertamina, who have so many installations throughout the country, they provide electricity by themselves.

LEWIS: What kind of a price do you have to pay for oil? Do you buy your oil from them?

SARDJONO: According to the government decision, we don't have any subsidies, no. You pay for your car the same PLN paid for that.

WEBB: When did the World Bank stop insisting that you have different prices?

SARDJONO: What do you mean?

WEBB: Well, they normally prefer you to have different prices, and they would insist. In 1970 they [both speaking at once]

SARDJONO: Since the beginning. Since the first loan they introduced that, "Why don't you bill electricity to areas according to the cost?"

WEBB: Yeah, but they've stopped insisting or not? They haven't made [both speaking at once]

SARDJONO: They always made their recommendation, but the government doesn't agree with this recommendation.

WEBB: Even now they always . . .

SARDJONO: No, even now they are insisting like that. Then finally the World Bank sent a proposal to the government, "Okay. Let's stop only the internal rate of return of the whole PLN."

WEBB: When was that?

SARDJONO: Oh, in '75.

WEBB: '75.

SARDJONO: That's the recovery plan. You know, at that time we just recover about 80 percent of the costs, and then step by step by introducing the efficiency, by tariff adjustment, by all things to improve the efficiency we can reach the break-even point and will start to make a profit, and then they set a target of internal rate of return with the government.

LEWIS: You can see that the national unity argument in this place would be particularly volatile.

WEBB: Yeah.

SARDJONO: It's not a small job, you know.

WEBB: But in that plan when the World Bank understood the political necessity, who was in the Bank? Who was the principal person negotiating that? Do you remember?

SARDJONO: Of course, I have to mention a gentleman who is sitting in the board of management, of course.

LEWIS: That's right.

SARDJONO: Yeah, you know, of course, who is . .

LEWIS: [*Robert S.*] McNamara.

SARDJONO: Of course, the president at that time is McNamara, and then there are directors, you know . .

WEBB: Vice presidents?

SARDJONO: Vice presidents, who used to be the resident mission here. I forget the name.

LEWIS: Bernie [*Bernard R.*] Bell?

SARDJONO: Dr. Bell, yes. And then he is--what do you call—his successor is . . .

KAPUR: Shahid Husain?

SARDJONO: Shahid Husain.

LEWIS: Burke Knapp get involved at all? He was the sort of executive vice . . [both speaking at once]

SARDJONO: No, I—what you call--witnessed only to Shahid Husain. No, [*Attila*] Karaosmanoglu. I know him also. So since the—of course, as we said at the time, it is

McNamara, but also the successor of Mr. McNamara is . .

LEWIS: [*Alden W.*] Clausen?

SARDJONO: Clausen, yeah. He was also visiting here the project, our projects here also with me, Clausen, yeah. So the director is since Dr. Bell, and then who is it? Shahid Husain?

LEWIS: Shahid Husain.

SARDJONO: And then Karaosmanoglu. Who else? I involved only up to Karaosmanoglu in the level of the board of management, but at that time the organization is, there is—what do you call—it's not yet by areas. It is by industry and so on. So there are so many gentlemen in this . .

LEWIS: Probably Warren Baum who might have been involved as he was at the vice president at the level, looking after these sectoral project groups.

SARDJONO: At that time there was Central Projects.

LEWIS: Yes, he was head of Central Projects.

SARDJONO: Central Projects and there were individual projects by areas. I have so many—what do you call--names but I do forget the names of these gentlemen.

LEWIS: Each of these sixteen loans, did you or someone . .

SARDJONO: Now it is about nineteen or twenty.

LEWIS: Okay. Do you go to Washington each time you sign them, or do they sign them here?

SARDJONO: No, the signing, to be practical, the government and PLN sent a letter of attorney to our ambassador in Washington, but one time I signed it by myself for the project agreement. So the loan agreement is signed by the borrower, government, in this case minister of finance, but always by the Indonesian ambassador in Washington, and the project agreement signed by the beneficiary, that is PLN, and at that time also always signed by the Indonesian ambassador in Washington.

LEWIS: I see. Good.

WEBB: Did PLN have many other lenders besides the World Bank?

SARDJONO: Yes. The whole IGGI [*Inter-Governmental Group for Indonesia*] group, near the whole IGGI group is providing loan for PLN.

LEWIS: Is that so?

SARDJONO: Yeah. The big, the giant is, of course, IBRD, World Bank. And then come to Asian Development Bank.

KAPUR: And from Japan?

SARDJONO: That is multilateral basis. World Bank, Asian Development Bank, and then bilateral: Japan, French, German, Netherland, Belgium, Italian, Swiss, Norway. At the beginning, of course, U.S. AID [*Agency for International Development*], but then stop, this AID.

LEWIS: These are all tied?

SARDJONO: Sometimes tied, sometimes untied, but mostly tied.

WEBB: When you're planning your new projects, how did you decide who was going to finance?

SARDJONO: Well, of course, as a matter of fact in my time I have always a short-range plan, five years, and long-range, medium-range ten to fifteen, and a long-range, twenty to twenty-five. In the short-range program there are always and already determined fix the status of the project. For instance, Project A is under construction. Project B is under study or under engineering, and Project C is in the period of study.

As you know, there are annual meetings for the IGGI members, you know. Of course, before the annual meeting all the IGGI members' officials already get what they call a "blue book" from BAPPENAS [*Badan Perencanaan Pembangunan Nasional, National Development Planning Board*]. A "blue book" is a list of projects which contains the position or the condition of project, whether it is already ready for financing of construction, whether it is still under engineering, whether it is still under identifying or study. Every IGGI member indicates himself what is his interest, first, in this very first beginning. But since this project is already out from our kitchen, we plan already. So whatever they make its choice, it always will come to us because it is already in the short period of planning.

The problem now is whether the counterpart rupiah, the local costs, can be provided or not. Sometimes is okay. Sometimes it's rather difficult. Then we have to cook again which one the priority, because whatever the---what do you call--foreign costs is available, we have to, have to provide the local costs. It is not always when the foreign costs is already provided then we do agree to start with the project; we have also to provide the local costs for the land acquisition, for the other local costs and so on.

LEWIS: And the donors don't ever provide local costs, huh?

SARDJONO: At the very beginning, no. They are very strict.

LEWIS: Yes, I know.

SARDJONO: But sometimes, sometimes, in the end of my assignment in PLN, the World Bank also can realize that, for instance, several local product, as long as they can participate in the international tender, they will—what do you call--finance it if they win the tender. But sometimes also by a certain reason they do agree to provide the financing for a certain product of equipment local [*inaudible*] Of course, the percentage is very small compared to the whole budget.

LEWIS: Right, right.

WEBB: So in any one year you have many projects under construction, normally.

SARDJONO: Yes.

WEBB: And from different donors, different lenders.

SARDJONO: Yes. Look at this. Electricity is needed by people here [apparently pointing to the map again], but at the same electricity is also needed by people there so that when we have to have every area in order we can develop, of course, with the same speed.

WEBB: So sometimes here you have Japanese, there you have French, here you have the World Bank.

SARDJONO: Yes, yes. But sometimes one project also comprised of several, you know, financing it.

WEBB: And do all of them provide consultants or technical ideas, management ideas?

SARDJONO: No, consultants assigned by us.

WEBB: By you.

SARDJONO: By us. And mostly we look for World Bank financing for the consultants.

WEBB: So you always have control over the ideas that you're getting.

SARDJONO: Of course. Yes.

WEBB: You don't--have you had much different ideas, problems with [both speaking at once]

SARDJONO: Of course during the discussions there are so many standards and so on.

That's why we have to—what you call--fix first, like standards and so on, in order to avoid all the—what you call--gray areas [both speaking at once]

LEWIS: You pick out a specification so that when you make a grid of these different inputs they do fit together.

SARDJONO: Yeah, yeah.

WEBB: Do you have one key consultant who is your, like your brother, your [*inaudible*]

SARDJONO: No, no. We never act like that. It's depending upon the project. In every project mostly we have consultants.

WEBB: But when you--for instance, you're going to get Japanese financing for some project, or Dutch, do you discuss that with the World Bank in particular?

SARDJONO: No, no, no. But the World Bank might know to--what do you call--to study, of course, for its own purposes. They can ask us, yeah, but they don't evaluate the project.

WEBB: Only their projects?

SARDJONO: Only their projects. But they evaluate the total management of PLN, yes.

LEWIS: Now, you started this work in 1959, I think you said.

SARDJONO: Yeah, 1960 about, yeah, '60.

LEWIS: You came as a young engineer. You were trained in this country or . . .

SARDJONO: I was graduate in this country from Bandung Institute of Technology.

LEWIS: Right. And so you were turning out in this country engineers pretty early on, is that right?

SARDJONO: Yes, yes.

LEWIS: So you had your own sort of expertise?

SARDJONO: Yes. For instance, I myself, I get my own expertise, but I have the vision to get the training in France for one and a half years.

LEWIS: I see. When was that?

SARDJONO: It was before the loan, in 1967 to '68.

LEWIS: I see, I see. I guess maybe we . .

WEBB: Why don't I ask one more?

LEWIS: Sure. Go ahead.

WEBB: Can I come back to pricing? One question is the overall price, but there's also the tariff.

SARDJONO: Yes.

WEBB: Have you had many disagreements with the Bank on tariffs?

SARDJONO: Oh, yes. But we are in the same idea, that to develop as this tariff, the level of the tariff, we have to use the method long-range marginal cost. That was the one principle that we do agree with the Bank. So we are using the long-run marginal cost. Of course, yeah, in these long-run marginal costs we have to count the local condition, you know. That was important. But how to set the level in every functional groups, sometimes you have different ideas with them, of course, because World Bank is comprised of experts and we are also comprised of experts. No, but finally, finally the decision is the government.

WEBB: The World Bank people in Washington and also here, they all say the same thing: Indonesia, their projects have lots of problems, but power has always been good projects. It's the area they say that's most successful in Indonesia.

SARDJONO: Yes.

WEBB: Why?

SARDJONO: Well, I always get that question. I rather hesitate to answer this question, you know!

What I feel is that before we go with a project, before we go with this development, fortunately we are able to organize, as I told you, the first loan from the World Bank--that's management reform—into institutionally organization, finance and so on, until the government also provided some facilities to us, you know? The government has promulgated the Government Regulation Number 18 in the year 1972. We were able to provide PLN organization into that capability. So the government provided these facilities.

At the same time we have succeeded recruitment of our young engineers at that time--now they are already experts--but in the early '70s, that's the area.

LEWIS: Were they trained mostly in country or abroad, the young engineers?

SARDJONO: Now it's mixed, but there are several . .

[End of Tape 1, Side A]

[End of interview]