

Report of Preliminary Survey
for
Standardization and Development
of
Building Materials in the Kingdom of Saudi Arabia

June 1975

Japan International Cooperation Agency

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Introduction

The Kingdom of Saudi Arabia has a large-scale plan for over-all industrialization which is aimed at assuring economic independence and advanced living standards before oil resources are exhausted in the future. The execution of the plan is being carried forward through the Five Year Development Plan financed by the increased oil revenues. The first five year program for social and economic development which covers the years from 1970 to 1975 shall be followed by the second five year program starting in 1975, and the targets will be reached with the termination of the second five year program in 1980.

One of the main targets in the program is the establishment of self-sufficient industry which produces building materials utilizing locally-abundant resources such as gypsum, limestone, clay and sand. However, the present technical capability of the country is not yet sufficient enough to utilize those resources effectively, and there are many problems which require early efforts at solution. The country itself would encounter great difficulty in solving those problems because of a lack of expert personnel, and requests for technical cooperation are being made to foreign Governments including that of Japan.

On such request was received in June, 1973, with respect to technical cooperation for the development of building materials, specifically for standardization of building materials. The Japanese Government responded to this in November, 1973, by despatching two experts to the country from the Agency of Industrial Science and Technology, Ministry of International Trade and Industry to give officials in the Kingdom of Saudi Arabia a

general explanation of Japan's situation regarding industrial standardization.

Further study regarding the matter led to the conclusion that the technical cooperation between two countries should be utilized for the standardization and development of building materials such as gypsum, clay and others. Technical cooperation was determined to start with related Saudi Arabian Governmental agencies represented mainly by Saudi Arabian Standards Organization (SASO). A Japanese preliminary survey team for the above purpose was despatched to the country on March 7, 1975, for 25 days' survey activities.

The main activities of the team are summarized as follows:

- (1) Survey on the background of the project, present situation of the local industries, etc.
- (2) Study on possibility of implementation of a cooperative project.
- (3) Outlining of a program for the mutual collaboration.

Discussions were held between Saudi Arabian officials headed by Dr. Qutub, Director General of SASO and the team from March 12 to March 20 regarding future cooperation programs. The following chapters contain the team's proposals for the project drafted from outcomes of above discussions and the team's findings.

Each member of the team extends his deepest appreciation to the government officials of the Kingdom of Saudi Arabia and each of the related persons for their kind and warm consideration and cooperation which enabled the team to conduct efficient survey activities within the limited period of stay in the Kingdom.

I. Proposals on the Japanese cooperation for standardization and development of building materials in the Kingdom of Saudi Arabia

Proposals were made for the program for promoting the project which is considered to be most adequate and effective judging from the present situation in the Kingdom and the Saudi Arabian Government's intentions which were explained mostly by SASO, which is a part of the Ministry of Commerce and Industry of the Kingdom.

1. SASO planning

SASO is presently planning standardization of building materials, foods, chemicals, electrical products, machines, textiles, etc., with the final objectives of formalizing national standards with regulations for those products. The main work of the organization at present is, unfortunately, limited mostly to desk work with regard to standardization of imported goods, as it does not yet have sufficient testing and experimental facilities. The team received the request from SASO that Japan may send experts with the wide knowledge of standardization concerning all building materials.

2. Proposals and comments

SASO may do well to concentrate for the time being on standardization of imported materials, as manufacturing industry in this country is not mature yet. However, the standardization of industrial products can be established against the background of fully-developed domestic industry, in a proper sense, as always has been the case in the history of developed countries.

Another fact that cannot be ignored is that the standardization is basic to technological development. If the standardization proceeds without heeding the above principles, its effect and the proper industrial development would not be expected in the future.

The following proposals accepted by SASO were drafted after several explanations of the above fundamental ideas for the country to promote standardization and development of building materials.

(1) Establishment of a pilot plant to produce test pieces and a testing laboratory for testing them

These facilities are necessary for the Kingdom of Saudi Arabia to accept Japanese experts. Experts without these facilities cannot be expected to perform satisfactory technical cooperation work. Establishment and running costs shall be covered by the Saudi Arabian Government, and Japanese cooperation shall be made by supplying experts for the plant and laboratory.

(SASO showed deep interest in establishing a ready-mixed concrete pilot plant.)

(2) Establishment of a Saudi-Japanese Standardization Committee of building materials in Tokyo

Standardization work usually requires quite a number of experts. As it is impossible to send many Japanese experts to engage in such work in Saudi Arabia at one time, the committee should be established in Tokyo; it should consist of Japanese experts who shall conduct standardization work in Tokyo. The committee

shall also take care of Saudi personnel by arranging for their training. The draft standards compiled by the committee shall be sent to the Saudi Government for further study and final formalization. Expenses for the committee activities (about 100 million yen per one original draft) shall be borne by the Saudi Arabian Government.

(3) Acceptance of Saudi Arabian trainees in Japan

The Kingdom of Saudi Arabia has an extreme shortage of skilled manpower. The Japanese Government shall give necessary traineeships to Saudi Arabian candidates so that they can acquire proper understanding and knowledge regarding standardization. As for training authorities Building Material Testing Center of Japan may begin to accept trainees from the Kingdom of Saudi Arabia. After the establishment of the Saudi-Japanese Standardization Committee, it shall act as the authority responsible for training.

(4) Japanese experts (two or three experts) to work in the Kingdom of Saudi Arabia for standardization and development of building materials

Experts shall conduct such work as production of test pieces and engineering development work at a pilot plant. Other experts shall perform various tests on these test pieces to collect data for preparation of standards. The above work shall be proceeded according to the directions of Saudi-Japanese Standardization Committee in Tokyo, and the committee

shall be informed of the results. These experts shall also cooperate at the earlier stage when the pilot plant or the testing laboratory are established.

II. Important items to be discussed and decided in the future

Technical cooperation should be provided to help the country to standardize and develop building materials in accordance with the present situation of the country. Establishment of the ready-mixed concrete plant, for example, is worthy of consideration in this sense.

Before despatching the Implementation Programming Team for the project, careful preparations should be made in order to make the work of the Implementation Programming Team most effective. Both the Implementation Planning Team and some persons who shall stay longer on long-term research assignments for preparatory work should be despatched. The following are the preparatory items which the Implementation Planning Team and long-term research staff are to study and work on.

(1) Understanding and approval of the Saudi Arabian Government regarding the program of Japanese cooperation

The preliminary survey team conducted its survey activities mostly with SASO and was not able to contact other important Governmental agencies such as the Ministry of Foreign Affairs, Ministry of Finance and National Economy, Central Planning Organization, Public Works Department, etc. As the team found some points of difference between the ideas of SASO and the team

itself concerning the future program of technical cooperation, fundamental principles of Japanese technical cooperation concerning standardization and development were explained on several occasions to the Saudi Arabian officials. As for the execution of the project on a technical cooperation basis a considerable amount of expenses is proposed for the Saudi Arabian Government. Close relations among Saudi Arabian Governmental agencies shall also be needed for the smooth and efficient operation of a pilot plant and a testing laboratory. This means the project would require the full understanding and cooperation of Saudi Arabian Governmental agencies mentioned above in further stages, if it will be promoted according to the program proposed by the team on a bilateral cooperation basis between the two countries.

(2) Financial arrangements by the Saudi Arabian Government

According to the program proposed in Chapter I, only two items of despatching of experts and long-term research personnel and training of Saudi Arabian personnel in Japan can be financed by the Japanese Government. It is proposed that all other expenses such as establishment of a pilot plant, a testing laboratory and the Saudi-Japanese Standardization Committee together with their management and maintenance costs be borne by the Saudi Arabian Government. As for the accommodation and local transportation costs of Japanese experts in the Kingdom of Saudi Arabia, costs of which are expected to increase rapidly, it is also proposed that they shall be borne by the Saudi Arabian Government.

This means that quite a large amount of financial arrangements should be made within the Saudi Arabian Government. This seems to be understood by SASO, when it was proposed by the team.

However, SASO pointed out that the approach should be made through the Saudi Arabian Foreign Ministry to secure a financial allocation for the above in the budget of the Saudi Arabian Government. This measure should be taken immediately for the successful promotion of the project.

(3) Construction of a pilot plant and a testing laboratory

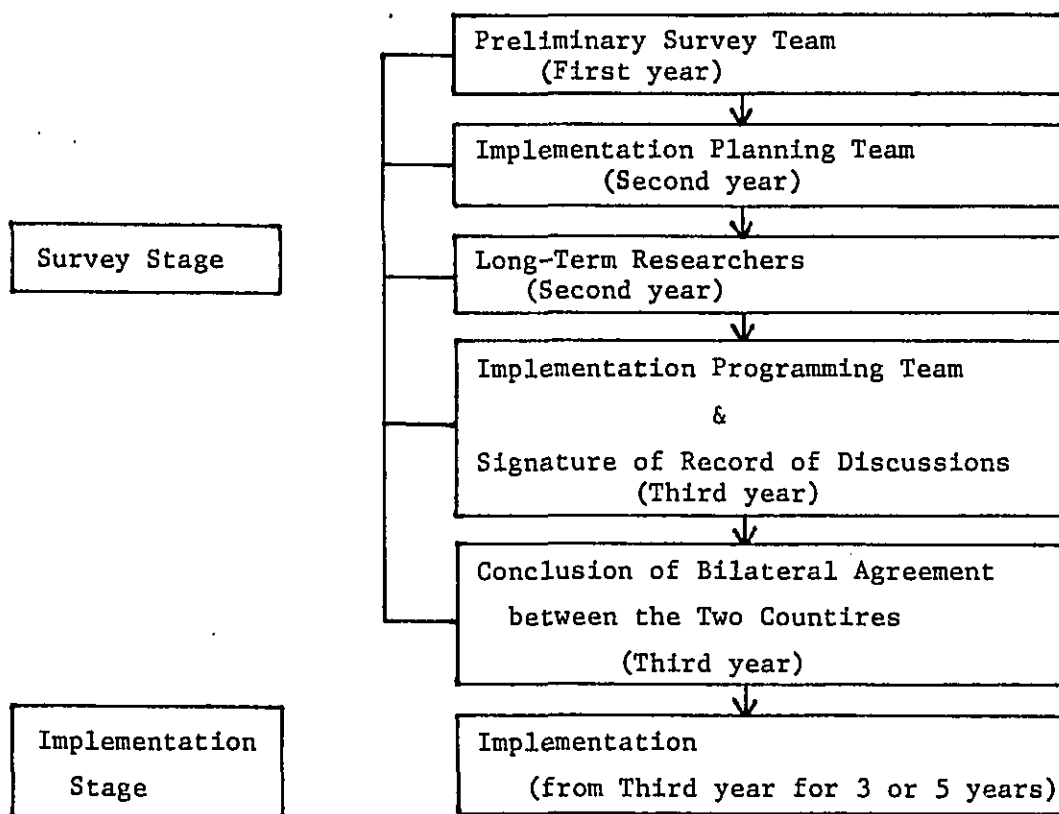
It is necessary to materialize this plan as soon as possible, as it is an initial step of this cooperation project. Before the Saudi Arabian Government calls for tenders for the construction of a plant and a laboratory including installation of necessary equipment, Japan should supply enough information regarding the scale, function, layout, equipment and total cost for preparation of tender documents. Among numerous kinds of building materials, SASO indicated an interest to take up "ready-mixed concrete" which has a greater effect of diffusion. Therefore the plan of a pilot plant and a testing laboratory should be made taking this into consideration. It will be necessary to introduce this plan to the Saudi Arabian side, after it has been prepared in the way described above. The Implementation Planning Team or long-term researchers should be sent to the Kingdom of Saudi Arabia with the plan and related information in due course.

(4) Establishment of the Saudi-Japanese Standardization Committee

A detailed plan regarding members from both sides, by-laws for administration and management and other matters should be made as concrete as possible.

III. Cooperation program and tentative time schedule

The usual stages of implementation of technical cooperation by the Japan International Cooperation Agency are as follows:



The following is a summary of the technical cooperation to be offered by the Japanese Government to the Saudi Arabian Government. Fundamental ideas of this cooperation have been discussed in Chapter I. The

following six items are proposed in accordance with the above ideas, and are supplemented by additional comments.

a. Implementation Planning Team

b. Long-term researchers

Long-term researchers shall continue the work conducted by the Preliminary Survey Team and Implementation Planning Team in more detailed manner to make preparations for the Implementation Programming Team

c. Implementation Programming Team

The team shall determine final work items of the project including allocation of work between both countries. The Record of Discussion shall be signed by representatives of both countries (and shall be followed by concluding of an inter-government agreement).

d. Appointment of Japanese experts

After Saudi Arabia establishes appropriate facilities (a pilot plant and a testing laboratory), the Japanese Government shall send experts on standardization and development of building materials. The Japanese Government shall also offer necessary cooperation for the establishment of the above facilities.

e. Establishment of the Saudi-Japanese Standardization Committee of building materials in Tokyo

f. Acceptance of Saudi Arabian trainees in Japan

Tentative time schedule for bilateral cooperation for the project

Locus of responsibility	Work Items	1975				1976				1977				1978							
		3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8		
Japanese side	Survey	Preliminary Survey -- (Survey Report) _____																			
		Long-term researchers _____																			
		Implementation Planning Team _____																			
	Implementation	Implementation Programming Team _____																			
		Despatch of experts _____																			
		Acceptance of trainees _____																			
Saudi and Japanese sides	Concluding of the agreement _____																				
	Establishment of Saudi-Japanese Standardization Committee										Establishment and operation _____										
Saudi side	Facilities	Pilot plant										Tender of construction _____									
		Testing laboratory										Tender of construction _____									

Appendix (1) List of Japanese Preliminary Survey Team Members

TANEO SAKATA	Leader	Assistant Professor Department of Junior College of Engineering, Chiba University
KENKICHI TOKURA		New Products Sales Department, Nisso Master Builders Co., Ltd.
TADAYUKI TAMURA		Materials Standards Division, Standards Department, Agency of Industrial Science & Technology, Ministry of International Trade and Industry
KAZUO WAKAKI		Ceramics & Construction Materials Division, Consumer Goods Industries Bureau, Ministry of International Trade and Industry
KOICHI TAKAE	Coordinator	Technical Cooperation Division, Mining and Industrial Development Cooperation Department, Japan International Cooperation Agency

Appendix (2) Itinerary of Japanese Preliminary Survey Team

(1975)

- March 7 (Fri) Lv. Tokyo
- 8 (Sat) Arr. Jeddah
- 9 (Sun) Visit to Japanese Embassy
Meeting with the Embassy staff
- 10 (Mon) Visit to Jeddah Vocational Training Center
- 11 (Tue) Visit to Industrial Studies and Development Center,
Jeddah branch; discussions with personnel
- 12 (Wed) Lv. Jeddah
Arr. Riyadh
Visit to Saudi Arabian Standards Organization (SASO)
- 13 (Thu) Meeting with officials of SASO
- 14 (Fri) Soil survey at the site at 80 km distance from Riyadh
- 15 (Sat) Visit to Industrial Information and Documentation Department (ISDC); Meeting with officials, Collection of related information
- 16 (Sun) Meeting with Dr. Qutub, Director General of SASO.
Explanation of team's ideas on standardization and other matters
- Visit to Engineering Service, Municipal Affaires,
Discussion with official
- 17 (Mon) Visit to the Material Testing Laboratory, Public Works Department
- Survey on sands for wall materials in Dhahna area,
120 km east of Riyadh
- 18 (Tue) Visit to National Gypsum Co. and SAPPSCO Ltd.
- 19 (Wed) Visit to Riyadh Vocational Training Center, and
Yamama Saudi Cement Co.
- 20 (Thu) Discussion with Dr. Qutub and other officials
- Visit to Water Tower and others in the center of Riyadh
- Final meeting with Dr. Qutub and officials of SASO.

- 21 (Fri) Lv. Riyadh
Arr. Dhahran
Visit to the buildings in Dammam
- 22 (Sat) Visit to University of Petroleum and Minerals, Dhahran
(Administrative office, Laboratory, Library)
- 23 (Sun) Visit to Cement Laboratory, Civil Engineering Faculty;
University of Petroleum and Minerals
- Visit to Municipal Office of Dammam; Meeting with
official, collection of information regarding city
planning, building codes, procedure of acquiring
permission for construction works, etc.
- Visit to Dammam port
- 24 (Mon) Visit to Kharafi Industries and Establishments (Wooden
pre-fabrication factory), AL-Khobar
- Visit to Dammam Quality Control Laboratory, Ministry of
Commerce and Industry
- 25 (Tue) Lv. Dhahran
Arr. Jeddah
- 26 (Wed) Arrangement of survey results and collected information
- 27 (Thu) Meeting in the Japanese Embassy reporting outline of
the survey
- Meeting with a representative of a Japanese trading
company regarding distribution systems of building
materials.
- 28 (Fri) Arrangement of collected information
Drafting of the report
- 29 (Sat) Lv. Jeddah
- 30 (Sun) Arr. Karachi
Lv. Karachi
Arr. Peking
- 31 (Mon) Lv. Peking
Arr. Tokyo

and also to train Saudi trainees in Japan, their living allowances, outfit allowances, books fees, round-trip economy class air-fare, transportation and medical expenses being met by the Japanese Government. The Government of Japan will decide as to the number of trainees for undergoing training the duration of which is to be of 3 months-one year.

Owing to the scarcity of technical personnel in SASO, a suggestion was voiced to send to Riyadh, one or two Japanese experts to stay in the Kingdom for about a year or a part of a year and prepare draft standards. During this period, they may study local conditions and the materials locally available. They may obtain, in this regard, all possible details from SASO. They may even send samples to Tokyo, supported by relevant data, which a Liaison Committee, based in Tokyo, will study and conduct requisite tests. This Committee is proposed to be established through the efforts of the JISC (JIS Committee) but financed by the funds from Saudi Arabia.

Consequent on the results obtained from tests and the reports from the experts, followed by discussions on various aspects, the Committee may prepare draft standard and sent it to SASO. SASO may then circulate this standard among other experts at home and abroad with a view to find out their opinion. If their views turned out to be favourable, the draft will be considered as approved and fit for publication.

The team disclosed that the Government of Japan will be responsible to pay salaries to the experts but it was mutually agreed that they would

get from SASO lodging, local transportation and medical facilities.

When asked about the cost of such a project, the team expressed its concern and pointed out that the task involves lot of work and requires considerable time. So the preparation of a single draft standard would cost about one million Saudi Riyals and would take about 3 years' period to complete it.

The team proposes that SASO should establish a proto-type or pilot plant to produce some components which can be tested in the laboratory.

The team gravely feels necessity of a laboratory under SASO and is of the view that a standard organization virtually needs a laboratory not only to enforce standards but also to make them. They expressed their willingness to assist SASO in establishing a laboratory of its own. In this connection, they have handed a list of laboratory equipment and testing machines.

Finally, it was slao suggested that some experts from Japan should come to Riyadh for 5 weeks to study further and finalize matters for preparation of future agreements.

