

添 付 資 料 5

資料収集リスト

添付資料 5 収集資料リスト (■ 収集資料/口専門家作成資料)

主管部長	文書管理課長	主管課長	情報管理課長	技術情報課長	図書館受入日

		調査団番号	
地域	西南アジア	プロジェクトID	調査団名又は専門家氏名
			パンジャブ州地下水開発計画予備調査
国名	インド国	配属機関名	調査の種類又は指導科目
			基本設計調査 (予備調査)
			18年3月1日～18年3月29日
			担当者氏名
			深瀬 豊

番号	資料の名称	形態(図書、ビデオ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	フォーマット	発行機関	取扱区分	図書館記入覧
A	国家計画、州計画、統計資料								
A-1	National Water Policy	コピー	*				Ministry of Water Resources	JR・CR()・SC	
A-2	Punjab State Water Policy	コピー	*				Punjab Irrigation Department	JR・CR()・SC	
A-3	Punjab Annual Plan 2006-2007	オリジナル	*				Punjab Department of Planning	JR・CR()・SC	
A-4	Statistical Abstract of Punjab 2003	オリジナル	*				Economic Adviser to Government Punjab	JR・CR()・SC	
B	法令関係								
B-1	Northern India Canal & Draunage Act. 1873	オリジナル	*				Punjab Law Agency	JR・CR()・SC	
B-2	The Water (Prevention and Control of Pollution) Act, 1974	オリジナル	*				Punjab State Pollution Control Board	JR・CR()・SC	
C	灌漑給水・地下水開発計画関連資料								
C-1	400本井戸掘削計画	コピー	*				Punjab Irrigation Department	JR・CR()・SC	
C-2	100本井戸掘削計画 (Nabardプロジェクト)	コピー	*				Punjab Irrigation Department	JR・CR()・SC	
C-3	110本井戸掘削計画	コピー	*				Punjab Irrigation Department	JR・CR()・SC	
C-4	75本井戸リハビリ計画	コピー	*				Punjab Irrigation Department	JR・CR()・SC	

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国名	インド国	配属機関名	現地調査期間又は派遣期間
			18年3月1日～18年3月29日
		調査の種類又は指導科目	基本設計調査(予備調査)
		担当者氏名	無償業務第三グループ 水資源・環境チーム 深瀬 豊

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C-5	75本井戸掘削計画	コピー	*				Punjab Irrigation Department	JR・CR()・SC	
C-6	カンデンイ灌漑水路計画	コピー	*				パンジャブ州政府公式サイトより	JR・CR()・SC	
C-7	PSTC作製の申請書説明用補足資料、2003年	コピー	*				PSTC	JR・CR()・SC	
C-8	JICA吉田専門員の水資源・水管理(旱魃対策)分野企画調査報告書、2003年	コピー	*				JICA吉田国際協力専門員	JR・CR()・SC	
C-9	ウッターラプラデシュ州地下水開発計画基本設計調査報告書、2005年	コピー	*				JICA	JR・CR()・SC	
C-10	インド国第2次地下水開発計画基本設計調査報告書、1992年	コピー	*				JICA	JR・CR()・SC	
D	気象・水文、水理地質								
D-1	Report on Dynamic Ground Water Resources of Punjab State, March 2005	コピー	*				Central Ground Water Board North Western Region, Punjab Irrigation Department	JR・CR()・SC	
D-2	PSTCの井戸台帳の例	プリント	*				PSTC	JR・CR()・SC	
D-3	CGWBの地下水位観測記録の例	コピー	*				CGWB/パンジャブ支所	JR・CR()・SC	
D-4	本案件の技術資料(質問書に対する回答集)	プリント	*				PSTC	JR・CR()・SC	
D-5	Rainfall Data of Different Districts of Punjab State	プリント	*				PSTC	JR・CR()・SC	
D-6	Water Level Behaviour in Observatory Wells (Dugwells) of Ropar, Nawanshahar, Hoshiarpur and Gurdaspur Districts of Punjab	プリント	*				PSTC	JR・CR()・SC	

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国名	インド国	配属機関名	現地調査期間又は派遣期間
			18年3月1日～18年3月29日
		基本設計調査(予備調査)	無償業務第三グループ 水資源・環境チーム
		担当者氏名	深瀬 豊

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D-7	中央平原における典型的な地質(井戸柱状図)	コピー	*				PSTC	JR・CR()・SC	
E	地図類								
E-1	各ブロックの地形区分図(19ブロック分)	コピー	*				PSTC	JR・CR()・SC	
E-2	Kandi Canal Project Map (1:250,000)	コピー	*				PSTC	JR・CR()・SC	
E-3	National Hydrograph Observation Stations, Punjab	コピー	*				PSTC	JR・CR()・SC	
F	パンフレット・データ類・その他資料								
F-1	世銀プロジェクトレポート、India-Integrated Watershed Development,1998	コピー	*				世銀	JR・CR()・SC	
F-2	世銀プロジェクトレポート、Hydrology Project-Phase II, 2004	コピー	*				世銀	JR・CR()・SC	
F-3	世銀プロジェクトレポート、Implementation Completion Report of Integrated Watershed Development Project, 2005	コピー	*				世銀	JR・CR()・SC	
F-4	世銀プロジェクトレポート、Punjab Rural Water Supply and Sanitation, 2006	コピー	*				世銀	JR・CR()・SC	
F-5	Integrated Watershed Development Project, Report on Monitoring Indicators, 2004	コピー	*				Director Kandi Area & Special Secretary, Punjab	JR・CR()・SC	
F-6	PSTCの1999年から2002年にかけての財務バランスシート	コピー	*				PSTC	JR・CR()・SC	
F-7	日本の債務救済無償資金協力で2台のリグを調達した際のインド側が日本側に提出した申請書類、2000年	コピー	*				PSTC	JR・CR()・SC	
F-8	Water Resource Management in Punjab under Rice-Wheat Production System	オリジナル	*				Punjab Agricultural University	JR・CR()・SC	

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国名	インド国	バンジャラブ州地下水開発計画予備調査	基本設計調査 (予備調査)
		配属機関名	18年3月1日～18年3月29日
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F-9	1999年度債務救済無償の応札図書 (B/Q表)	コピー	*				PSTC	JR・CR()・SC	
F-10	2000年度債務救済無償の応札図書 (B/Q表)	コピー	*				PSTC	JR・CR()・SC	
F-11	Performance of Rigs Received under Japan Grant-in-Aid Programme	プリント	*				CGWB	JR・CR()・SC	
			*					JR・CR()・SC	
			*					JR・CR()・SC	
			*					JR・CR()・SC	
			*					JR・CR()・SC	
			*					JR・CR()・SC	
			*					JR・CR()・SC	
			*					JR・CR()・SC	

添 付 資 料 6

要 請 書



सत्यमेव जयते

100 37-11 地小開 200 6

भारत सरकार Government of India
वित्त मंत्रालय Ministry of Finance
आर्थिक कार्य विभाग Department of Economic Affairs

MOOL CHAND
Section Officer (Jap)
Tel: 301 8207.

नई दिल्ली/New Delhi, 19

No. 2/3/97/Jap.

Dated : 01st Aug., 1997.

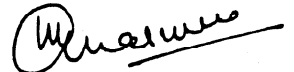
Dear Mr. Murata,

Please find enclosed herewith a copy of the proposal for Procurement of 2 no. of Open Hole Percussing Drilling Rigs under Japanese Grant Aid Programme for Punjab.

I shall be grateful if you could consider and process the above proposal for availing Japanese Grant Assistance at the earliest.

With regards,

Yours sincerely,


(MOOL CHAND)

Encl: As above.

Mr. Y. Murata,
First Secretary,
Embassy of Japan,
Chankayapuri,
New Delhi.

The Application Form for Japan's Aid Project

Applicant:

Project Title : Exploitation of
Ground Water in
the State of
Punjab.

The Government of Punjab

Economic Sector

Project Type:

Agriculture & Rural Development

Responsible Ministry
(Ministry requesting the aid)

Implementing Agency
(Agency in charge of
execution of the Project)

Ministry of Water Resources

PUNJAB STATE TUBEWELL
CORPORATION LIMITED

I. Project Description

1. Background (Please describe in detail)

(1) Current situation of the sector

At present about 50% of water requirement for irrigation are met from ground water. There is a vast net work of canal irrigation in the State of Punjab, but even then there are areas such as kandi area in Punjab where no such irrigation facilities exist and farmers have to depend on rainfall for irrigation of their crops. The Punjab State Tubewell Corporation Ltd. is engaged with the activities of installation and operation of deep tubewells in such areas with more than 1560 No. tubewells in operation at present throughout the State which are irrigating about 82000 Hec. of land. The Punjab State Tubewell Corporation Ltd. at present executing Project of installation of 245 No. +75=320 Deep Tubewells in Kandi area of District Ropar, Hoshiarpur & Gurdaspur under World Bank Aided Project. It takes about 4-6 months for completing a tubewell with the help of percussion rig in such areas as the underground formations being agglomeration of pebbles, heavy boulder and coarse sand which present innumerable problems in drilling. Construction of deep tubewells in these areas has been proceeding at a very slow pace, because of non-availability of requisite type of rigs i.e percussion rigs in sufficient number. At present there are 3 No. Percussion Rigs with this organisation with very less drilling capacity of drilling 1000 ft. holes.

(2) Problems to be solved in the Sector:-

- 1) Non availability of Water for irrigation in the barrani & kandi area.
- 2) Slow pace of drilling in these formations and to accelerate it by adopting new generation and suitable modern technologies.

- 3) Lack of data on aquifer parameters and resource potential availability.
- 4) High cost of construction of deep tubewells in difficult aquifers.

(3) Necessity and Importance of Improvement in the sector which lead to the formation of the Project.

In any welfare State, it is the responsibility of the Government to ensure provisions of basic needs. Agriculture Irrigation is the one aspect, which leads to food production. In the state of Punjab, there is vast network of canal system; but even then some areas like kandi belt of District Ropar, Hoshiarpur and Gurdaspur are deprived of irrigation facilities; because the water table in these areas is very deep and it is not within the reach of individual farmer to install their own tubewell, being beyond their economic reach. The method of Percussion drilling is being applied in foothill area of Shiwalik, where boulder formation exists and it takes average 4 to 6 months to drill and complete a tubewell of about 150 mt. depth. Any improvement in drilling technology aimed at saving time will substantially reduce the cost of construction of Tubewells in such areas. Some Japanese manufacturer of drilling equipment have applied open hole technology, which not only ensures fast drilling, but is also cost effective.

(4) Relations between the Sector and the Project:-

Sustenance of agriculture and rural development programme is closely linked to the provision of assured uninterrupted and timely water supply. Since ground water is yhr only means of irrigation in kandi area, its development ensures timely water supplies for irrigation.

(5) Reasons why Japan's Grant Aid is requested for this Particular Project.

Japan has developed new generation Percussion drilling Rigs and technology suitable for drilling and construction of Tubewells in areas with boulder formations through open Technology which is fast & cost effective. Option has therefore been made to avail of the assistance from Japan.

2. Objective and Outline of the Project

I) Objective of the Project.

i) Short-term Objectives

(a) To acquire capabilities for drilling and construction of Tubewell and water quality evaluation in bouldery formations.

ii) Medium and Long Term Objectives.

Provision of assured water supply for irrigation in kandi & other areas, where there are no other means of irrigation. This will result in more agriculture production, upgradation of Socio - economic Status of the people in rural area.

- iii) Please fully describe the relations between the Project and objectives, and how the Project will contribute to the accomplishment of the objectives.

The Project is for acquisition of the new generation drilling rigs, which will result in accelerating the pace of drilling operations in these areas and will thus contribute to the process of providing irrigation facilities, the prime object of the project.

- (2) Outline of the Project (Please give a full description of each facility and equipment and their detailed specifications.

The equipment proposed to be acquired under the Project are listed below:-

Sr. No.	Item of Equipment	Qty.	Unit Price		Total Price	
			M.Yen	M.Rs.	M.Yen	M.Rs.
1.	2.	3.	4.		5.	
1.	Truck mounted Cable Tool Percussion type Water well drilling Rig, driven by deck Engine. Drilling rigs will be capable of handling 2450 Kgs tool weight at 300 Mt. depth with operating accessories, drilling and fishing tools for open hole drilling, casing tools, auxillary equipment, spare parts etc.	2 No.	150	50	300	100
	Drive Pipes of different sizes and additional tools for cased hole drilling.	2 Set	160	53	320	106
	Micro flow meter for permeability analysis in hardrocks.		-----Not	Reqd.	-----	-----
	Drill Stem Tester	4 No.	8	2.65	32	10.6
	Spare Parts.	L.S.	30	10.	32	10.6
	Consultancy fee	L.S.	15	5	16	5.3
					-----	-----
					700	232.5
					-----	-----

These are prevailing market prices at current exchange rate of 100 J.Yen = Rs.33.15 with Probable rate of inflation of 10%; the net requirement of funds in indian Rs. may be Rs. 12.00 Million.

(3) Location Plan of each Facility and/or Equipment. The drilling equipment will be used in the State of Punjab, for drilling of deep Tubewells in hard formations of kandi area in Hoshiarpur, Gurdaspur and Ropar districts or adjoining states of Himachal and Haryana in foothill of shwalike having identified geological formation for providing irrigation facilities to the farmers.

(4) Cost Estimates Please describe in detail all the Premises on which the cost Estimates are based, such as basic unit prices, inflation rate and so on. Please attach detailed tables of estimate, cost of each facility and item of equipment. If estimated in local currency, please mention the latest exchange rate of U.S. dollar or the Japanese Yen.

Cost Estimates are given under item No.2 above and are based on the rates at which similar equipment has been procured under Japan Assistance during the previous year by Central Ground Water Board. M.O.W.R. Govt. of India.

3. Benefit, Effect and Publicity of the Project.

(i) Population that will be directly benefited from the Project.

Construction of tubewells by employing these machines will ensure supply of water for irrigation in kandi area of the Punjab State. The application of New Technology for construction of tubewells in these areas will result adoption of the same by private sector on a large scale.

(2) Population that will benefit indirectly from the Project.

The likely population likely to derive indirect benefits from this scheme will be 3 to 4 Million.

(3) Area that will benefit from the Project.

Submontaneous area of Ropar, Hoshiarpur & Gurdaspur district will derive benefits from this scheme comprising about 15000 Sq.Km. or 1.50 Hectares.

(4) Economic and Social Effects of the Project (Please describe in detail).

The Project will ensure economic and social security in the area by enhancing the success rate of crop, thereby resulting in more food grains production. It will further up-grade the socio-economic conditions of the population.

i) Current Situation

The small farmers in the kandi area of the State depends upon rains season, which is erratic and is not well spread and occurs mostly during raining season in July to September. There are no other means of irrigation. The technology adopted at present for construction of tubewells is very expensive, and is not within the reach of the farmers, having small holdings.

ii) Expected Effect of the Project.

The Project will lead to provision of irrigation facilities in the kandi area of the State and about 10,000 hectares will get assured means of irrigation in Kandi Area.

(5) Publicity (How many people are expected to notice the benefit or positive effect of the Project implemented with Japan's grant, when it is completed?).

A population of about 3 to 4 Million with about 10,000 farmers are expected to notice the benefit or positive effect of the Project every year.

4. Request to other Donors

a) (1) Is there any request made to other donors for assistance closely related to this Project?

1. Yes

2. No

(2) If Yes, please fill in below :-

- i) Name of donors.)
- ii) Title and outline of the assistance.)
- iii) Possibilities that the donor will extend the assistance requested.)
- iv) In the case where other donors do not extend assistances please describe in detail and effectiveness of this Project.) N.A.
- v) In the case where other donors extend loans please describe the reason. Why Japan Aid is requested for the Project.)

5. Priority

Please describe priority of this Project among other projects for which requests are made to Japan.

Please attach. Project list with Priorities). To be made in P.P.R.

6. Ministry and Agency in charge of the Project.

(1) Outline of the implementing Agency (Please describe in detail the agency incharge of the execution of the Project).

(i) Organisation chart of the Agency (in general) (Please mark the responsible department and division incharge of the Project).

(Please attached detailed organisation chart, pointing out the responsible department, division and Section incharge of this Project).

The Punjab State Tubewell Corporation Ltd. (A Punjab Govt.undertaking) is providing irrigation facilities to the farmers, where there are no assured means for the same or where they are not in a capacity to install their own tubewells, being very costly. At present more than 1560 No. Tubewells are in operation in various blocks of Punjab State providing irrigation to 82000 Hec. At present World Bank Project of installation of 245 +75=320 No. Tubewells in kandi area is in progress. It has more than 100 highly qualified and experienced professional and 200 operating field and technical staff. The Corporation possesses 3 No. Percussion drilling rigs which are quite old & have outlined their useful life with allied machinery and laboratory facilities. A write up regarding function and responsibilities of Punjab State Tubewell Corporation is enclosed.

ii) Authorities and Duties of the agency.

See write up.

(iii) Personnel please mention the number of staff, workers and employes of the agency and the responsible department division and Section incharge of the Project.

Total Staff	= 3500
Professionals	= 100
Technical Persons &	= 200 including Junior Engineer.
Operating crew of drilling rigs.	= 200 including installed & skilled staff.
Supporting Staff	= 400 for office work & accounts.

iv) Budget (Revenue & Expenditure) of mentioned in local currency, please mention the latest foreign exchnag rate of the Currency to the US Dollars or the Japanese Yen.

For 1996-97 for Rs.20.21 Crores.

Exchange rate is Rs.35.00 per US\$ & Rs.3.15 per 100 Jn. Yen.

2. Outline of Supervising Ministry (Please describe in detail)

(i) Organisation Chart of the Ministry (in general) (Please mark the responsible department and division in charge of the Project and implementing agency) (Please attach detailed organisation chart pointing out the responsible department division, and section in charge of the Project and implementing agency.

Ministry of Irrigation & Power, Government of Punjab (Project Branch) is the Supervising Ministry and Punjab State Tubewell Corporation is the implementing agency.

(ii) Authorities and Duties of the Ministry.

The Ministry of Irrigation & Power, Govt. of Punjab is responsible for policy planning for Water Resources including groundwater and is the nodal authority in the Water Resources section in Punjab. PSTC is the executing agency for minor irrigation works through installation of deep tubewells for harnessing the ground water in the state.

iii) Personnel (Please mention the number of staff workers and employees of the Ministry and the responsible department division and Section).

Ministry of Irrigation and Power, Govt. of Punjab
-- Project Branch under Deputy/Under Secretary,
Irrigation & Power.

iv) Budget (Revenue and Expenditure)

(If mentioned in local currency, please state the latest foreign exchange rate of the currency to the US Dollars or Japanese Yen.

1996-97.

7. Preparation:-

(1) Project Site (Please attach photographs and maps of the site with the various scales including that of 10,000:1)

(i) (a) Address of the Site

Hydrogeological Map of Punjab State enclosed.

(b) Total Area of the Site

See Hydrogeological Map of Punjab.

(ii) Land Preparation

Not Applicable

(a) To which extent has the land been expropriated for the project ?

(b) When will the expropriation of the land be completed ?

(Please attach the laws and procedures concerning the expropriation of land).
(Please describe the extent to which above mentioned incidental facilities have been prepared).

Not applicable.

(3) Is there any information, statistics and data regarding geographical, geological, meteorological, oceanographical situations, etc.

(If any, please attach those information)

Hydrogeological Map of Punjab enclosed with Geological setup, of submontaneous Kandi Area where rigs are to be deployed.

Capability of the Implementing Agency (Please described the capabilities of the Agency to manage, sustain, and operate the project).

Current Situation

As mentioned earlier the Implementing Agency is fully equipped both in terms of manpower and expertise and infrastructural facilities to successfully implement the project.

Problems of the Agency Improvement Plan (If any, please describe in details the contents of such a plan that will enable the Agency to handle the project more effectively and efficiently).

None

(3) Technical Abilities of Local Staff

-----H-----L-----T-----T-----T-----T-----T-----T-----J

(i) Please describe technical abilities of local staff operating the project.

The local staff is fully qualified and experienced to successfully implement the project.

(ii) Please described in detail education background of those charge of the operation and management of the facilities and equipment.

Masters Degree in Earth Sciences (Geology and Geophysics) and Bachelor or Master's Degree in Engineering.

10. List of Related Projects.

(If yes, fill in below if there is project executed by another donor country or internation organisation in related areas).

- 1. Name of donor: Not applicable
- 2. Project Title
- 3. Project Outline
- 4. Type of Assistance (grant, loan technical assistance etc.
Not applicable
- 5. Project Period
- 6. Relations with this Project.

(If there are many project, please attach a list of those projects explained in the same way)

11. Technical Assistance.

- (1) Has technical assistance been extended to this project ?
(i) Yes (ii) No
- (2) Is technical assistance needed for the implementation of this Project ?
(i) Yes (ii) No
- (3) If no, please describe the reasons why technical assistance is not needed.

If Yes, please fill in below :

-----H-----L-----T-----T-----T-----T-----T-----T-----J

- (i) Short term experts (Persons) (Sector:)
- (ii) Long term experts (Persons) (Sector:)
- (iii) Acceptance of Trainees(Persons) (Sector:)
- (iv) PProject-type Technical Cooperation

(If needed, please describe the proposed project outline).

(v) Japan Overseas Cooperation Volunteers.

(If needed, please describe the proposed sector and related information).

(vi) Development Survey Programme
(Feasibility, Studies; and Master Plan) (If needed, please describe the outline of the proposed development survey programme)

-----H-----L-----T-----T-----T-----T-----T-----T-----J
(5) Has an official request for technical assistance been already made ?

(i) Yes (ii) No

(iii) If yes, please mention the date of the request.

(iv) If no, please describe the reason why the official request has not yet been made.

(v) When will the request be made to the Embassy of Japan ?

II. General Development Plan

1. Title of the Plan (Please attach the whole volume of the latest general development Plan).

2. Economic and Social Situation

(Please mention the basic statistics of economic fundamentals).

- (1) GNP
- (2) National Income, Sector by Sector
- (3) Unemployment Rate
- (4) Inflation Rate
- (5) Growth Rate
- (6) Balance of international Payments
- (7) Labour, Population (as a whole, and sector by sector)
- (8) Debt Service Ratio
- (9) Outstanding Debt.
- (10) Major Items of Exports and Imports and their value
- (11) Major Trading Partner
- (12) Population and its Growth Rate
- (13) Average Life Expectancy (Male and Female)
- (14) Death Rate and Birth Rate
- (15) Medical Structure

- (16) Ten Diseases most afflicting the nation
 - (17) Illiteracy Rate (or Literacy Rate)
 - (18) Other data
-

3. Outline of the Plan

- (1) Most Importance Sectors in the Plan
 - (2) Basic objectives of the Plan
(Please describe in detail the objectives by using concrete figures).
 - (3) How will the above-mentioned objectives be achieved?
(Please mention specific projects and programme to achieve the objectives).
-

When will the plan be executed and completed ?

Relation between this project and the general development plan. (Please describe the significance of the project in the general plan).

Is there any assistance that other donors have extended/will extend to the projects and/or programme listed in the general plan ?

- (i) Yes
- (ii) No
- (iii) If yes, please give basic information on the assistance
 - (a) Name of donor
 - (b) Project Title
 - (c) Project cost
 - (d) Type of assistance (Grant, Loan, Technical Assistance, etc.).
 - (e) Project Outline.