Folder Title:	UNDP/INT/81/026 - Rural Water Supply Handpumps Project - Fields, Trials and Technology Development Project - 1981 / 1983 Correspondence - Volume 7
Folder ID:	30196892
Dates:	09/01/1982 - 09/30/1982
Fonds:	Records of the Water Development Sector
ISAD Reference Code:	WB IBRD/IDA WAT
Digitized:	7/2/2020

FORM NO. 635
(6–77)

CLOSE – OUT SHEET

This file is closed as of SET 30, 1982.

For further correspondence, please see VIII.

RECORDS MANAGEMENT SECTION

Record Removal Notice

The World Bank Group Archives & Records Management

File Title	Barcode No.
UNDP/INT/81/026 - Rural Water Supply Handpumps Project - Fields, Trials and Technology Development Project - 1981 / 1983 Correspondence - Volume 7	30196892

Document Date	Document Type
9/30/1982	Telex

Correspondents / Participants

To: Journey

From: Kalbermatten

Subject / Title

Home leave

Exception(s)

Financial Information (i-iii)

Additional Comments

The item(s) identified above has/have been removed in accordance with The World Bank Policy on Access to Information. This Policy can be found on the World Bank Access to Information website.

Withdrawn by	Date
Bertha F. Wilson	20-May-16

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

Yellow

OFFICE MEMORANDUM

INT|A1|026

TO: Mr. John M. Kalbermatten

DATE: September 30, 1982

FROM: Gerhard Tschannerl G. Tschannerl

SUBJECT: Handpumps Project Malawi Meeting, December 1982

In your absence I talked to Tony Edwards today by phone in Malawi. He told me the following:

1. In a meeting yesterday between the Government of Malawi and UNDP (where Ken McLeod and David Grey were also present) it was decided to limit the total number of participants in the workshop to 60 for logistical reasons.

2. He requested that we send a follow-up letter to those people whom we already invited, stating that the workshop is jointly organized by the Malawi Government and UNDP.

3. He suggested that we inform the other people on our list (whom we still wish to invite) that this meeting in Malawi will take place, and to ask them to let us know if they are interested in attending (at their own expense). I said I would rather not do this unless there was a good chance that we could eventually tell them to come.

4. The meeting organizers in Malawi have no idea how many people that they invited from their side will come. The aim of the seminar is to train junior professionals in the rural water supply field. In accordance with this they sent out invitations to 42 different developing countries, asking for one or two junior professionals from each. The people we invited don't fit into this category. Saul's intention was to use this as a forum for a review of the state of the art in handpumps technology and utilization.

GTschannerl:phm

cc: Messrs. S. Arlosoroff
O. Langenegger

INT|81|026

Mr. S. Arlosoroff, Project Manager — Sept. 29, 1982

Bruce Gross, TWDWW

Procurment of Handpumps

1. I have made two efforts to clarify arrangements for procurement of handpumps using existing procurement mechanisms.

2. I reinstituted contact with Mel White, UNICEF's chief of procurement. Mr. White remains eager to assist us, using the agreement that we had drafted last year. I explained to him our needs to buy pumps in one developing country and to ship them to another and to have assistance both in arranging for the complete portal-to-portal shipping and in clearing pumps through customs. He expressed UNCIEF's willingness at least to attempt procurement in any conceivable set of circumstances. However, he said UNICEF might not be able to handle all the arrangements themselves, but he would not know that until he had a specific request to present to his field personnel for reaction. Thus, the next step with UNICEF appears to be to present them with a specific request and see what they are able to do.

3. When Don Bergstrom of IAPSU was in Washington on September 8, I discussed handpump procurement with him and also give him a copy of the agreement we had worked out with UNICEF. He was also enthusiastic about getting involved with us, but said he should stop in New York for further discussions before he returned to Geneva. He telephoned from New York the following Monday and his attitutde and message were remarkably changed: he said that IAPSU would not, after all, be the lead agency in procurement, but that OPE would handle the procurement and IAPSU might get involved in shipping arrangements and the like. He gave me the name of a Mr. Nevrodis (X-3127) at OPE, who did not return my call. I have not pursued Mr. Nevrodis when mention of OPE's involvement elicited raised eyebrows from both Mel and Vince Riley; Mel further suggested that I await your return before making any further contact with OPE.

cc: Messrs. Loewen, Tschannerl, TWD

BGross:aq

INT/81/026

September 28, 1982

Mr. Stefan Ernst
Export Dept.
Water Well Equipment
Preussag
Aktiengesellschaft
Kunststoffe and Armaturen
P.O.B. 6009
D 3150 Peine
West Germany

Dear Mr. Ernst:

Thank you for your letter of 20 September 1982. I am sorry that, because I was out of town, I was not able to meet with you during your recent visit to Washington.

We are glad to receive your news that two Preussag handpumps, the KARDIA and TURNI, were sent to the Consumers' Association for laboratory testing in early September.

We will be looking forward to receiving information on the new handpumps. While you are awaiting translation of the descriptions into English, we would be most happy to read copies of the German originals. I can make my way through the technical German, and my two colleagues on the handpumpsproject, Mr. Langenegger and our new Project Officer Mr. Tschannerl, are native German speakers.

Thank you for the pictures of the new KARDIA.

I hope you enjoyed your trip to the States. We will be looking forward to seeing you in the future.

Best regards,

Melissa J. Burns
Economist
UNDP Resource Recovery and
Handpumps Projects

cc: S. Arlosoroff
G. Tschannerl
O. Langenegger

MBurns:lm

FORM NO. 27 - OCR
(3/82)

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PAGE [ ] OF [ ]

EXTENSION 61790

MESSAGE NUMBER

TEST NUMBER (FOR CASHIER'S USE ONLY)

START HERE

TO: BOOK OF SIX

INT/81/026

~~(1)~~ MR. NABULSI

UNDEVPRO (TELEX UNDP 28 96 20)

GENEVA, SWITZERLAND

~~(2)~~ MR. PRATTLEY

788-

UNDEVPRO (TELEX TH 82392)

BANGKOK, THAILAND

(3) MR. PRIESTLEY

953-

UNDEVPRO (TELEX 31 2611 UNDP IN)

NEW DELHI, INDIA

~~(4)~~ MR. KIM

954-

UNDEVPRO (TELEX COLOMBO 21210)

COLOMBO, SRI LANKA

~~(5)~~ MR. SMITH

UNDEVPRO (TELEX RCA 722-22250)

MANILA, PHILIPPINES

~~(6)~~ MR. OUATTARA

UNDEVPRO (TELEX 975-41284)

DARESSALAAM, TANZANIA

END OF TEXT

NOT TO BE TRANSMITTED

CLASS OF SERVICE: TELEX NO.: DATE SEPT. 27, 1982

SUBJECT: DRAFTED BY:

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(3/82)

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PAGE 1 OF 2

EXTENSION 61790

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ATTENTION NABULSI, UNDEVPRO, GENEVA. INFO PRATTLEY, UNDEVPRO, BANGKOK (PARA CCC), PRIESTLEY, UNDEVPRO, NEW DELHI (PARA DDD), KIM, UNDEVPRO, COLOMBO (PARA EEE), SMITH, UNDEVPRO, MANILA (PARA FFF), OUATTARA, UNDEVPRO, DARESSALAAM (PARA GGG). OUR TELEX 373. RE INT/81/026 HANDPUMPS PROJECT. YOUR LETTER OF 8/26 AND UNVGRAMS OF 8/30, 9/13 AND 9/14. AAA. RE MR. VAN SCHEPPINGEN. FULLY AGREE WITH MR. FINNS SUGGESTION FOR YOU TO APPROACH ONV TO SPONSOR VAN SCHEPPINGEN AS A UNV. LETTERS TO YOU AND TO ONV FOLLOW. BBB. RE CANDIDATE GERRY CLARKE. HE APPEARS TO BE SUITABLE FROM HIS PHS, BUT WE REQUEST YOU TO INTERVIEW HIM BEFORE WE GIVE FINAL CLEARANCE. ONE QUESTION WE HAVE IS HIS MOTIVATION FOR GOING OVERSEAS AND HOW HE MIGHT REACT WHEN FACED WITH DIFFICULTIES THERE. (SEE HIS ANSWER TO QUESTION 36.) CCC. THAILAND. SINCE KHIN MAUNG THAN CANNOT REPORT BEFORE END OF NOVEMBER, WE WILL BE UNABLE TO ROUTE HIM THROUGH DACCA. KINDLY ARRANGE FOR HIS TRAVEL DIRECTLY TO BANGKOK AND ADVISE US OF HIS EXPECTED ARRIVAL DATE SO THAT WE CAN MAKE THE NECESSARY ARRANGEMENTS THERE. DDD. INDIA. STILL AWAITING GOVMT APPROVAL OF THAN ZIN. EEE. SRI LANKA. AWAITING A REPLY FROM THE GOVMT ABOUT JOSHI AND AUNG CHEIN. FFF. PHILIPPINES. GOVERNMENT HAS ACCEPTED OUR PROPOSAL FOR FIELD TRIALS WHICH INCLUDES FIELDING A UNV THERE. WE DO NOT ADVISE DOUBLE

END OF TEXT

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CLASS OF SERVICE: TELEX NO.: DATE: SEPT. 27,1982

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PAGE 2 OF 2

EXTENSION 61790

MESSAGE NUMBER

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TO:

SUBMITTING JOSHI AND AUNG CHEIN FOR CLEARANCE TO THE PHILIPPINE GOVERNMENT. WE URGENTLY NEED NEW CANDIDATES. GGG. TANZANIA. THE WITHDRAWAL OF MR. MURPHY LEAVES US AGAIN WITHOUT A CANDIDATE THERE. THIS MIGHT BE SUITABLE ASSIGNMENT FOR GERRY CLARKE OR VAN SCHEPPINGEN. WE SHALL AWAIT YOUR COMMUNICATION ON BOTH CANDIDATES BEFORE REQUESTING YOU TO PROCEED ON TANZANIA. HHH. RE HEMAL DUDLEY FONSEKA, OUR REF TEL 324. WE HAVE JUST RECEIVED A COPY OF HIS PHS WITH REFERENCES ATTACHED FROM HIM, AS PER OUR REQUEST AND ARE PREPARED TO GIVE YOU OUR ADVICE PENDING YOUR PROPOSAL TO US BY TELEX REGARDING HIS CANDIDACY. JJJ. GHANA. PLSE ARRANGE FIELDING THINT MYAT FOR THE BEGINNING OF DECEMBER TO SYNCHRONIZE WITH VISIT THERE OF OUR REGIONAL PROJECT OFFICER, MR. LANGENEGGER, TWO WEEKS AFTER THINT MYAT'S ARRIVAL IN ACCRA. REGARDS, TSCHANNERL FOR ARLOSOROFF, INTBAFRAD.

END OF TEXT

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CLASS OF SERVICE: TELEX

TELEX NO.:

DATE: SEPT. 27, 1982

SUBJECT:

DRAFTED BY: GTschannerl:lm

CLEARANCES AND COPY DISTRIBUTION:

AUTHORIZED BY (Name and Signature): G.Tschannerl, Acting Project Manager

DEPARTMENT: TWD/UNDP

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PAGE 1 OF 2

EXTENSION 61785

NRIC
INT/81/026
MESSAGE NUMBER

TEST NUMBER (FOR CASHIER'S USE ONLY)

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TO: LANGENEGGER VIA SEMERDJIAN, UNDEVPRO, NIAMEY, NIGER.

OUR TELEX 375. RE UNDP INT/81/026 HANDPUMPS PROJECT. YOUR TELEX 1497. YOUR ALPHA. UNV GHANA. UNV GENEVA ESTABLISHED A POST FOR GHANA, BUT TO OUR KNOWLEDGE, HAS NOT YET OFFERED A CONTRACT TO THINT MYAT. THEREFORE HIS FIELDING WITHIN THE NEXT MONTH IS HIGHLY UNLIKELY. EYE AM ASKING UNV GENEVA TO FIELD HIM IN THE BEGINNING OF DECEMBER SO THAT HE HAS A FEW DAYS TO SETTLE IN BEFORE YOU GET THERE AFTER MALAWI. PLSE INFORM RES REP, UNDP, ACCRA. YOUR BETA. ITINERARY. CHANGE OF ITINERARY AS PER YOUR REFTEL 1497 IS APPROVED. YOUR GAMMA. MONITORING FORMS HOPEFULLY WILL BE REVISED BEFORE YOUR RETURN AND SENT FOR SIX MONTHS FIELD TESTING IN KENYA AND POSSIBLY MALAWI BEFORE THEY GET PRINTED. THIS WAS SAUL'S DECISION BEFORE HE WENT ON LEAVE. EYE EXPECT TO MAINTAIN THE BASIC FORMAT OF THE LATEST DRAFT. REVISED DRAFT WILL BE TRANSLATED INTO FRENCH AND YOU SHOULD USE THIS VERSION FOR THE START OF YOUR FIELD TRIALS. PLSE TELEX YOUR PRESENT SUGGESTIONS FOR REVISION. EYE EXPECT TO WORK ON THEM IN THE NEXT FEW DAYS. YOUR DELTA. NIGER LETTER. MEL LOEWEN ASKED ME TO TRANSMIT THE FOLLOWING QUOTE WE HAVE RECEIVED COPY OF NIGER GOVERNMENT LETTER TO GTZ REQUESTING ASSISTANCE ON HANDPUMPS TESTING PROJECT BUT IN ORDER FOR

END OF TEXT

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CLASS OF SERVICE: TELEX NO.: DATE SEPT. 27,1982

SUBJECT:

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PAGE 2 OF 2

EXTENSION 61785

MESSAGE NUMBER

TEST NUMBER (FOR CASHIER'S USE ONLY)

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TO:

LOEWEN TO FINALIZE AGREEMENT HE NEEDS COPY OF GTZ REPLY TO NIGER GOVERNMENT WHICH WE ARE UNABLE TO FIND IN FILES. IF YOU HAVE LETTER WITH YOU PLEASE MAKE COPY AND AIRMAIL TO US. END QUOTE. YOUR EPSILON. HELVETAS SARVODAYA PUMP. EYE HAVE DISCUSSED THIS ISSUE WITH KALBERMATTEN AND ARLOSOROFF, BUT IT REMAINS UNRESOLVED. SAUL CONSIDERS THE SARVODAYA PUMP TECHNICALLY INFERIOR TO OTHER COMPARABLE MAKES AND IS HESITANT TO MAKE AN EXCEPTION TO PAY FOR TESTING. ALSO THE BUDGET IS EXHAUSTED. EYE WILL TAKE IT UP WITH KALBERMATTEN AGAIN IN A COUPLE OF DAYS AND WILL TELEX YOU THE DECISION THEN. HAVE A SAFE TRIP, TSCHANNERL, INTBAFRAD.

END OF TEXT

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CLASS OF SERVICE: TELEX TELEX NO: UNDEVPRO 5 232 NI DATE: SEPT.27,1982

SUBJECT:

DRAFTED BY: GTschannerl:lm

CLEARANCES AND COPY DISTRIBUTION: cc: S. Arlosoroff, M. Loewen

AUTHORIZED BY (Name and Signature): G.Tschannerl, Acting Project Manager

DEPARTMENT: TWD/UNDP

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File Title	Barcode No.
UNDP/INT/81/026 - Rural Water Supply Handpumps Project - Fields, Trials and Technology Development Project - 1981 / 1983 Correspondence - Volume 7	30196892

Document Date	Document Type
9/24/1982	Telex

Correspondents / Participants

To: Dewar

From: Hwang

Subject / Title

Imprest Account

Exception(s)

Financial Information (i-iii)

Additional Comments

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Withdrawn by	Date
Bertha F. Wilson	20-May-16

INT/81/026

September 24, 1982

Mr. Robert Borthwick
UNDP
P.O. Box 30135
Lilongwe 3, Malawi

Dear Mr. Borthwick:

We understand from talking with Mr. Tony Edwards and from other conversations we have had, that DTCD has asked for clarification on the list of persons to be invited by us to the workshop and/or the advisory panel meeting and about funding their attendance. Mr. Edward's visit to Washington is giving us a good opportunity to transmit to you the full list of our invitees and their status. The list is in conformity with our telex to you No. 311, copied to Ms. Anstee per our telex No. 344.

A. Members of the Advisory Panel: nine persons, some paid for by us (INT/81/026) and some from their own sources; have already been invited (letter enclosed).

B. Regular panel observers: seven persons, paid for by us.

C. Senior Professionals from field trial countries: one from each of 15 countries, to be paid for by us; some of the individuals have already been identified, and some have been formalyy invited.

D. Additional invitees: these are primarily from bilateral and multilateral donor agencies, totaling some 40 people to be invited; they are asked to pay their expenses from their own sources; the ones with a check mark have already been sent a letter of invitation (copy enclosed); the ones with an asterisk should be invited with top priority; the rest, we feel, would also either contribute to or benefit greatly from the meeting.

We would like all of these people to participate in the meeting. The actual number that will come is likely to be much less than the number to be invited, particularly in Category D, so that we are probably talking about 40 - 50 people attending. Please let us know if you can manage the logistics for such a number.

Many thanks for your cooperation. We look forward to your response.

Yours sincerely,

G. Tschannerl for

S. Arlosoroff
UNDP Projects Manager (TWD)
(Handpumps Testing and Development)
(Integrated Resource Recovery)

Enclosures

Copy: Mr. Beyer, Adviser, Drinking Water Programs, UNICEF, New York
Mr. Potashnik, UNDP, New York
Mr. Edwards, Chief, Water Resources, Department of Lands,Valuation and Water, Malawi

cc: Messrs. Kalbermatten, Freedman, Loewen, Langenegger, McLeod, Journey

GTschannerl:lm

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The World Bank Group Archives & Records Management

File Title	Barcode No.
UNDP/INT/81/026 - Rural Water Supply Handpumps Project - Fields, Trials and Technology Development Project - 1981 / 1983 Correspondence - Volume 7	30196892

Document Date	Document Type
9/23/1982	Telex

Correspondents / Participants

To: Journey

From: G. Tschannerl

Subject / Title

Work program

Exception(s)

Personal Information

Additional Comments

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Bertha F. Wilson	20-May-16

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UNDP/INT/81/026 - Rural Water Supply Handpumps Project - Fields, Trials and Technology Development Project - 1981 / 1983 Correspondence - Volume 7	30196892

Document Date	Document Type
9/23/1982	Telex

Correspondents / Participants

To: Langenegger

From: G. Tschannerl

Subject / Title

Office space

Exception(s)

Corporate Administrative Matters

Additional Comments

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Withdrawn by	Date
Bertha F. Wilson	20-May-16

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File Title	Barcode No.
UNDP/INT/81/026 - Rural Water Supply Handpumps Project - Fields, Trials and Technology Development Project - 1981 / 1983 Correspondence - Volume 7	30196892

Document Date	Document Type
9/21/1982	Telex

Correspondents / Participants

To: Zagorin

From: Hwang

Subject / Title

Bank deposits

Exception(s)

Financial Information (iv)

Additional Comments

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Withdrawn by	Date
Bertha F. Wilson	20-May-16

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File Title	Barcode No.
UNDP/INT/81/026 - Rural Water Supply Handpumps Project - Fields, Trials and Technology Development Project - 1981 / 1983 Correspondence - Volume 7	30196892

Document Date	Document Type
9/17/1982	Telex

Correspondents / Participants

To: Saul Arlosoroff

From: G. Tschannerl

Subject / Title

Work programs

Exception(s)

Personal Information

Additional Comments

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Withdrawn by	Date
Bertha F. Wilson	20-May-16

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File Title	Barcode No.
UNDP/INT/81/026 - Rural Water Supply Handpumps Project - Fields, Trials and Technology Development Project - 1981 / 1983 Correspondence - Volume 7	30196892

Document Date	Document Type	
9/20/1982	Telex	

Correspondents / Participants

To: Arlosoroff

From: J. Freedman

Subject / Title

Home Leave Travel

Exception(s)

Personal Information

Additional Comments

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Withdrawn by	Date
Bertha F. Wilson	20-May-16

INT/81/026.

Gerhard Tschannerl, Project Officer (TWD/UNDP) September 17, 1982

Joseph Freedman, Acting Senior Adviser (TWD/WW)

Terms of Reference: UNDP Handpumps Project INT/81/026
UK, Switzerland, Bangladesh, Thailand, Philippines
October 17 - November 12, 1982

1. On October 17 you will proceed to the UK to familiarize yourself with the handpumps testing and development activities of CATR, Gosfield, England, and to exchange views on current activities of the project.

2. On or about October 19 you will proceed to Switzerland for discussions with the United Nations Volunteer Organization, Geneva, regarding the on-going identification, selection, recruitment and fielding of UNVs as monitors for the field trials.

3. On or about October 21 you will continue to Bangladesh to familiarize yourself with the project-related activities there and conclude the work program on the CIDA co-funded project.

4. On or about October 26 you will proceed with W.K. Journey to Thailand to make the necessary arrangements and initiate the start of the field trial. This includes the selection of the pumps and the test area in collaboration with DRWS, as well as the introduction of Mr. Khin Maung Than, the UNV, to his work in case he had already arrived in Thailand by that time. While there, you will also make inquiries about the progress on the TAG-funded project which was to introduce the fabrication of Roboscreens in Thailand.

5. On or about November 7 you will continue to the Philippines to discuss with the Ministry of Public Works and Highways (MPWH) the draft proposal for a project agreement that had been submitted to them earlier, and to reach a final agreement between INT/81/026 and MPWH if possible. The details of the field trials are also to be finalized as much as possible.

6. You will return to Washington, DC on or about November 12 and submit a Back-to-Office report to me within 14 days of your return.

Copy: Mr. Roger E. Rowe, Chief, Resident Mission, World Bank, Bangladesh
Mr. Walter Holzhausen, Res. Rep., UNDP, Bangladesh
Mr. Adi J. Davar, Chief, Regional Mission, World Bank, Thailand
Mr. Winston Prattley, Reg. Rep., UNDP, Thailand
Mr. Euan E. Smith, Res. Rep., UNDP, Philippines

Cleared with and cc: S. Arlosoroff, (TWD), I.K. Sud, (AEP)

cc: Messrs. Kalbermatten, Loewen, Middleton, Langenegger, (TWD), Saravanapavan, Bruestle, (AEP), Journey, McLeod

GTschannerl:lm

INT/81/026

September 16, 1982

Chris Evans
Project Controller
CATR
Harpenden Rise Laboratory
Harpenden Hertfordshire
AL5 3BJ
England

Re: Lesotho Handpump Field Trials, INT/81/026

Dear Chris:

Thank you for the copy of your letter to Mr. Motta, which was particularly welcomed since we had been wondering about the status of the Lesotho field trials. We are now in the process of finalizing the monitoring forms and will field test the new version for about six months, mainly in Kenya and Malawi, before the monitoring forms will be generally distributed for use by our project and by other agencies interested in pump testing. (See our letter to Ken Mills of September 14.) It would be very useful in this regard to be able to learn from recent experience with the field trials in Lesotho.

We are also glad that you will spend some time while in Lesotho on such questions as pump maintenance, costs and reliability. As background material to this work, we would like you to be aware of the economic analysis that is currently being done in the project by Ms. Melissa Burns, our Economist. A draft of the paper which outlines this approach is enclosed. Ms. Burns is in the process of revising it, and you are asked not to quote from it or to circulate it. The enclosed forms, dated September 1982, might also give you an idea of the kinds of data that we need as inputs for the total cost calculation, which will allow us to make an economic comparison between different types of handpumps and maintenance systems. The "assumptions" refer to a range of likely values in the absence of reliable data.

Please let us have your comments, particularly in light of your Lesotho experience.

Yours sincerely,

G. Tschannerl for

S. Arlosoroff
UNDP Projects Manager (TWD)
(Handpumps Testing and Development)
(Integrated Resource Recovery)

Enclosures
cc: M. Burns, K. McLeod, D. Grey

GTschannerl:lm

OFFICIAL FILE COPY

FORM NO. 27 - OCR
(3/82)

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PAGE 1 OF 1

EXTENSION 61790

MESSAGE NUMBER 2548

TEST NUMBER (FOR CASHIER'S USE ONLY)

START HERE

TO: JOURNEY, INTBAFRAD, DACCA, BANGLADESH.

OUR TELEX 366. ALPHA. YOU ARE TO PROCEED TO THAILAND ON OCTOBER 26 TOGETHER WITH G. TSCHANNERL TO MAKE THE NECESSARY ARRANGEMENTS AND INITIATE THE STARTING OF THE FIELD TRIALS. THIS INCLUDES THE SELECTION OF THE PUMPS, THE TEST AREA, AND THE INTRODUCTION OF KHIN MAUNG THAN, THE UNV, TO HIS WORK IF HE IS IN THAILAND BY THEN. YOU WILL ALSO MAKE INQUIRIES THERE ABOUT THE PROGRESS ON THE TAG FUNDED PROJECT WHICH WAS TO INTRODUCE THE FABRICATION OF ROBOSCREENS. YOU WILL RETURN TO DACCA ON OR ABOUT NOVEMBER 6 AND MAIL A BACK TO OFFICE REPORT TO ME WITHIN TWO WEEKS OF YOUR RETURN. REGARDS, FREEDMAN, INTBAFRAD.

END OF TEXT

NOT TO BE TRANSMITTED

CLASS OF SERVICE: TELEX TELEX NO.: 950 5523 DATE: SEPT.16, 1982

SUBJECT:

DRAFTED BY: GTSCHANNERL:lm GT

CLEARANCES AND COPY DISTRIBUTION: Cleared with &
cc: S. Arlosoroff (TWD), I. Sud (AEP)
cc: A. Davar, WB, Thailand; W. Prattely, Reg. Rep., UNDP, Thailand; J. Kalbermatten, M. Loewen, R. Middleton, (TWD); Bruestle, (AEP)

AUTHORIZED BY (Name and Signature): J. FREEDMAN

DEPARTMENT:

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INT/81/026

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PAGE 1 OF 2

EXTENSION 61790

MESSAGE NUMBER

TEST NUMBER (FOR CASHIER'S USE ONLY)

START HERE

TO: CHARLES GUNNERSON, GUEST, ASHOKA HOTEL, DELHI, INDIA.

OUR TELEX 365. RE VISIT OF MESSRS. ZHOU, MAY AND TANDON, UNIDO, TO WASHINGTON. AAA. MR. ZHOUS TELEX NO. 61465 WAS COPIED TO YOU ON 9/13 TO NEW DELHI. HE, MR. TANDON AND MR. MAY WILL MEET YOU IN VIENNA ON 9/23. THEY IN TURN WILL BE IN WASHINGTON ON 10/29. BBB. MR. WILLOUGHBY ADVISES THAT YOU BE IN CHARGE OF THEIR PROGRAM HERE. ARLOSOROFF AND TSCHANNERL WILL BE AWAY, BUT WILLOUGHBY, KALBERMATTEN, AND FREEDMAN WILL BE PRESENT. THE PROGRAM SHOULD INCLUDE A LUNCHEON, AND THEY SHOULD MEET BRIEFLY WITH MR. WILLOUGHBY DURING THE COURSE OF THE DAY. PLEASE FIND OUT FROM THEM WHAT ELSE THEY PLAN TO DO. CCC. I SENT THE FOLLOWING TELEX TO UNIDO, VIENNA, QUOTE ATTENTION MR. ZHOU, DEPUTY DIRECTOR, INDUSTRIAL STUDIES. OUR TELEX 364. RE GLO/80/004 WASTE RECOVERY PROJECT AND INT/81/026 HANDPUMPS PROJECT. THANK YOU FOR YOUR TELEX 61456 OF SEPTEMBER 14. AAA. WE HAVE FORWARDED A COPY OF YOUR TELEX TO MR. GUNNERSON EN ROUTE. BBB. MR. GUNNERSON WILL BE IN CHARGE OF THE PROGRAM FOR YOUR VISIT IN WASHINGTON ON OCTOBER 29. KINDLY DISCUSS YOUR WISHES FOR THE PROGRAM WITH HIM WHILE HE IS IN VIENNA. DO NOT HESITATE TO ASK US IF YOU NEED ANY ASSISTANCE WITH RESERVATIONS OR OTHER TRAVEL MATTERS IN WASHINGTON. WE ALSO

END OF TEXT

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CLASS OF SERVICE: TELEX NO.: 953 312567 DATE: SEPT. 16, 1982

SUBJECT: DRAFTED BY:

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PAGE 2 OF 2

EXTENSION 61790

MESSAGE NUMBER

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TO:

LOOK FORWARD TO RECEIVING MESSRS. MAY AND TANDON.

BEST WISHES, TSCHANNERL, INTBAFRAD.

END QUOTE.

END OF TEXT

NOT TO BE TRANSMITTED

CLASS OF SERVICE: TELEX

TELEX NO.: 953 031-2567

DATE: SEPT. 16, 1982

SUBJECT:

DRAFTED BY: GTSCHANNERL:LM

CLEARANCES AND COPY DISTRIBUTION: cc: Messrs. Willoughby, Kalbermatten, Freedman, (TWD)

AUTHORIZED BY (Name and Signature): G. TSCHANNERL, ACTING PROJECT MANAGER

DEPARTMENT: TWD/UNDP

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EXTENSION 6-1785

MESSAGE NUMBER 1117

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TO: INTBAFRAD, ABIDJAN, IVORY COAST

INT/81/026

ATTENTION M. GUETTA, COPIE A M. DJOUKA, DIRECTEUR CENTRAL DE L'HYDRAULIQUE, M. GBOZIA, DIRECTEUR GENERAL, CAA, M. ROTIVAL, PNUD. REF. PROJET POMPES A MAIN - UNDP INT/81/026 A INSERER DANS COMPOSANTE ALIMENTATION EN EAU VILLAGEOISE (DEUXIEME PROJET EAU POTABLE - PRET NO. 2130-IVC). NOUS AVONS L'HONNEUR DE VOUS INFORMER QUE LE DERNIER PARAGRAPHE DE NOTRE TELEX DU 9 SEPTEMBRE EST A RECTIFIER COMME SUIT. CITATION PRIERE NOUS INFORMER SI CELA EST FAISABLE ET QUELLES SONT LES DATES QUI VOUS CONVIENNENT FIN DE CITATION. AVEC NOS MEILLEURES SALUTATIONS, TSCHANNERL FOR ARLOSOROFF, INTBAFRAD.

END OF TEXT

NOT TO BE TRANSMITTED

CLASS OF SERVICE: Telex TELEX NO.: 969-3533 DATE: 9/16/82

SUBJECT: Abidjan Water Handpumps

DRAFTED BY: SCalegari/md

CLEARANCES AND COPY DISTRIBUTION:
Cleared with and cc: S. Calegari
cc: O. Langenegger (TWD)

AUTHORIZED BY (Name and Signature): G. Tschannerl, Acting Projects Manager

DEPARTMENT: Transportation and Water Department

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WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

INT|81|026

TO: Those Listed Below

DATE: September 15, 1982

FROM: S. Arlosoroff, UNDP Projects Manager (TWD)

SUBJECT: The MALDEV (AFRIDEV) Pumphead

Attached please find the new set of drawings for the Malawi Pumphead as developed by the Water Resources Branch of the Lands Valuation and Water Department of the Government of Malawi. Technical support was provided by the UNDP/WB INT/81/026 - Handpumps Programme.

The Pumphead is now being tested in the field as well as in the laboratories of the Consumers' Association Testing and Research (CATR) in the United Kingdom.

The Pumphead is designed to be a classic VLOM (Village Level Operated and Maintained) Pump, as the entire ground structure can be pulled out of the ground without moving the pumphead.

The Pumphead can be attached to plastic belowground structures now under research and development. This phase is being co-funded by the Overseas Development Administration (ODA) of the United Kingdom. The Pumphead also meets our design specifications of using strong materials found in most developing countries and, if necessary, using parts that can be easily replaced and imported by donor agencies.

The drawings are of the public domain and can be regarded as an important contribution of Malawi to the TCDC efforts and the solution of rural water supply problems.

After the completion of the testing phase, we will report on the modified version to all those persons and organizations within our dissemination system.

Attachments

SArlosoroff/kb

cc: Messrs. Beyer, Ballance, Hofkes, McGarry, McJunkin, Mills, McLeod, Journey, Grey, Borthwick, Farrant, Grieveson, Cook, Potashnik; Ms. Jorgensen, Ms. Obeng

Messrs. Kalbermatten, Freedman, Langenegger, Tschannerl

Record Removal Notice

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File Title	Barcode No.
UNDP/INT/81/026 - Rural Water Supply Handpumps Project - Fields, Trials and Technology Development Project - 1981 / 1983 Correspondence - Volume 7	30196892

Document Date	Document Type
9/14/1982	Telex

Correspondents / Participants

From: Hwang, Disbursements Division II, INTBAFRAD

Subject / Title

Bank Resident Mission Imprest Account

Exception(s)

Financial Information (iv)

Additional Comments

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EXTENSION 61790

MESSAGE NUMBER 2515

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START HERE

TO: JOURNEY, INTBAFRAD, DACCA, BANGLADESH. REF.363.

YOUR TELEX 2002. ALPHA. RE YOUR PARA AAA. AGREE WITH DEPARTURE OCT. 26 FOR BANGKOK. YOUR TOR WILL BE TELEXED SHORTLY. BETA. RE YOUR PARA CCC. STERNBERG WILL BE OFFICIALLY REQUESTED TO VISIT YOU IN DACCA NOV. 14 to 19 FOR CONSULTATIONS. ON YOUR NEED FOR MASS PRODUCTION OF SCREENS, STERNBERG STRONGLY ADVISES NOT TO GO INTO MASS PRODUCTION AT THIS TIME AND INSTEAD (111) TO TEST THE PERFORMANCE OF THE SCREENS FIRST IN THE FIELD, (222) TO BUY THIS LOT FROM MANILA WHERE NELTEX HAS BEEN MAKING 4 INCH DIAMETER SCREENS FOR 3 YEARS WITH A LOW COST SLOTTING MACHINE WHICH REQUIRES NO MANDRIL, AND (333) TO FIND OUT FROM NELTEX HOW THEY HAVE SET UP THEIR PRODUCTION. GAMMA. MIKE MCGARRY, A CANADIAN CONSULTANT ON THE CIDA FUNDED INFORMATION AND TRAINING PROJECT, WANTS TO MEET WITH YOU AND OR GIBBS DURING HIS MISSION IN OCTOBER. HIS ITINERARY IS OCT. 4-11 KARACHI, OCT. 11-16 DELHI, OCT. 16-20 KATMANDU, OCT. 20-23 BANGKOK, OCT. 23-28 MANILA. WE'LL MISS HIM IN BANGKOK BY 3 DAYS. WILL YOU OR GIBBS BE AT ANY OF THE OTHER PLACES ON THOSE DATES? REGARDS, TSCHANNERL FOR ARLOSOROFF, INTBAFRAD.

END OF TEXT

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CLASS OF SERVICE: TELEX TELEX NO.: 950 5523 DATE: SEPT. 14, 1982

SUBJECT:

DRAFTED BY: GTSCHANNERL:LM G. Tschannerl

CLEARANCES AND COPY DISTRIBUTION: Mr. Y. Sternberg

AUTHORIZED BY (Name and Signature): G. TSCHANNERL, ACTING PROJECT MANAGER

DEPARTMENT: TWD/UNDP

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WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

INT/81/026
cc GLO/80/004

TO: Mr. John Kalbermatten

DATE: September 13, 1982

FROM: S. Arlosoroff

SUBJECT: UNDP/WB Projects - Co-Sharing with Australia (ADAB)

Following the discussions I held in Canberra with Mr. C.E.T. Terrell of the ADAB and others, I was invited to participate in a meeting chaired by Mrs. Helen Hughes, Director of EPD, to welcome Mr. Terrell, who was returning from the Toronto meeting. Since our meetings in March 1982, Mr. Terrell has been promoted to the position of acting first assistant secretary, Policy, Training and Organizations Division, ADAB.

We have continued our discussions on the possible co-sharing with the ADAB on our UNDP projects. The following points were raised:

1. ADAB could not fit themselves into our previous model of collaboration, "piggy-backing" on ADAB ongoing programs dealing with rural water supply and urban sanitation. I therefore proposed to him our CIDA-Model of a package agreement between the bilateral agency and UNDP, total funds earmarked to our projects and to specific countries if so required by ADAB. Thus, we would avoid the timing problems involved in reaching bilateral agreements; however, Australia will have all the credits of supporting the global program.

This proposal seems to have opened new ways for collaboration with ADAB. Mr. Terrell promised to telex us soon after he returns to Australia.

2. Both projects - Rural Water Supply Handpumps (UNDP INT/81/026) and Integrated Resource Recovery - Recycling of Wastes (UNDP GLO/80/004) are proposed for the package.

3. Countries of mutual interest

China in first priority, Philippines, Thailand, Indonesia and Fiji.

4. I have briefed him on our mission to China, their positive reaction to collaboration with Australia and the potential interest I feel Australia should have collaborating with us in the Shanghai industrial recycling program. Mr. Terrell has shown great interest in the subject.

I suggest waiting on any commitment to sonsultants for Shanghai operation until we receive ADAB's reply, as we may have to select Australian consultants.

SArlosoroff:kb

cc: Mr. C. Willoughby, Mrs. H. Hughes
Messrs. K. Conlan, M. Loewen, R. Middleton, G. Tschannerl, C. Gunnerson

FORM [illegible] BROKEN-UP LETTERS

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TO:

gco/80/004
cc BNT/81/026

(BOOK OF TWO SEE MESSAGES ATTACHED) OUR TLX. REF.359.

(1) MR. BECKER BOOST

L/C

DIRECTOR UNIDO/WORLD BANK CORPORATE PROGRAM

MR. J. CARMICHAEL (FOR INFORMATION)

UNIDO

VIENNA, AUSTRIA (TELEX NO. 135612)

(2) MR. C. GUNNERSON, WORLD BANK STAFF MEMBER

TLP C/O HOTEL CLARKS 953- LT/RCA

LUCKNOW, INDIA (TELEX NO. 033243)

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TO:

ATTN. MR. BECKER'S BOOST, DIRECTOR UNIDO/WORLD BANK CORPORATE PROGRAM. RE: UNDP GLO/80/004 RESEARCH AND DEVELOPMENT IN INTEGRATED RESOURCE RECOVERY, INT/81/026 RURAL WATER SUPPLY HANDPUMPS. APOLOGIZING FOR NOT KEEPING YOU INFORMED ON OUR TRIAL TO GET UNIDO INVOLVED IN THE TWO UNDP/WORLD BANK PROJECTS WHICH I AM RESPONSIBLE FOR. I AM QUOTING HERE THE TELEX WE SENT TO MR. ZHOU. QUOTE OUR TLX. REF. NO. 321. FOR MR. L.C. ZHOU , DEPUTY DIRECTOR FOR INDUSTRIAL STUDIES. AAA. FURTHER TO MY AUGUST 18TH TELEPHONE CONVERSATION WITH MR. CARMICHAEL CONCERNING POTENTIAL UNIDO/UNDP/WORLD BANK COLLABORATION ON GLOBAL PROJECTS IN CHINA AND ELSEWHERE. RECENT MISSION TO BEIJING REVEALED GOVERNMENT INTEREST IN PARTICIPATING IN HANDPUMP AND IN RESOURCE RECOVERY PROJECTS. INITIAL ACTIVITIES FOR SHANGHAI DESCRIBED IN PAR. (6) BELOW. BBB. WORLD BANK IS EXECUTING AGENCY FOR (I) UNDP/GLO/80/004, AN URBAN SANITATION PROJECT ON RESEARCH AND DEVELOPMENT IN INTEGRATED RESOURCE RECOVERY AND (II) UNDP/INT/81/026 RURAL WATER SUPPLY, HARDWARE PROJECT ON HANDPUMP DESIGN, MANUFACTURING, AND TESTING IN LABORATORY AND FIELD. BOTH PROJECTS REQUIRE HIGH LEVEL OF COOPERATION WITH MULTILATERAL AND BILATERAL DEVELOPMENT AGENCIES. BOTH HAVE MAJOR TRAINING AND INFORMATION

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TO:

DISSEMINATION COMPONENTS. CCC. GLO/80/004 FUNDED 2 MILLION DOLLARS FOR JULY 81 TO JUNE 84. (1) GOALS ARE TO ACHIEVE REPLICABLE HEALTH, ENVIRONMENTAL, EMPLOYMENT, ENERGY, ECONOMIC AND FINANCIAL BENEFITS THROUGH INTEGRATED RESOURCE RECOVERY PROJECTS IN DEVELOPING COUNTRIES; AND TO DISSEMINATE TECHNOLOGICAL, ECONOMIC AND FINANCIAL INFORMATION ON SUSTAINABLE RESOURCE RECOVERY PROJECTS TO DEVELOPING COUNTRIES. (2) IMMEDIATE OBJECTIVES ARE TO CONDUCT AND DOCUMENT STATE-OF-THE-ART REVIEWS ON RESOURCE RECOVERY METHODS AND SYSTEMS; TO CONDUCT AND DOCUMENT CASE STUDIES OF TECHNOLOGICAL, ENVIRONMENTAL, INSTITUTIONAL, EMPLOYMENT, SOCIAL, FINANCIAL AND ECONOMIC ASPECTS OF ENTREPRENEURIAL AND COMMUNITY SYSTEMS FOR WASTE COLLECTION, REUSE AND DISPOSAL; TO DEVELOP PROTOCOLS FOR MONITORING AND APPRAISAL OF SECTORAL AND INTEGRATED RESOURCE RECOVERY PROGRAMS IN URBAN AND RURAL AREAS OF DEVELOPING COUNTRIES; TO DESIGN, INSTALL, MONITOR AND EVALUATE INITIAL OPERATIONS OF DEMONSTRATION PROJECTS AND TO PREPARE TERMS OF REFERENCE FOR FULL-SCALE INVESTMENT PROJECTS IN INTEGRATED RESOURCE RECOVERY IN SELECTED DEVELOPING COUNTRIES HAVING WIDE RANGE OF ECONOMIC, CULTURAL, ENVIRONMENTAL, AND INSTITUTIONAL CHARACTERISTICS; AND TO DEVELOP GUIDELINES FOR

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TO:

NATIONAL POLICIES CONSISTENT WITH INTEGRATED RESOURCE RECOVERY. (3) STATE-OF-THE-ART REVIEWS BEING PREPARED ON EXISTING SYSTEMS FOR WASTE RECYCLING IN DEVELOPING COUNTRY SITES, MESOPHILIC AND THERMOPHILIC (AMBIENT AND HIGH TEMPERATURE) ANAEROBIC DIGESTION (BIOGAS GENERATION), HEALTH EFFECTS OF IRRIGATING WITH SEWAGE EFFLUENTS, AND AQUACULTURE BASED ON ANIMAL AND HUMAN WASTES. POTENTIAL TOPICS INCLUDE REUSE, REPAIR, AND REMANUFACTURING SYSTEMS; CASE STUDIES OF COST REDUCTION IN URBAN SOLID WASTE MANAGEMENT THROUGH WASTE RECYCLING; AND TECHNOLOGICALLY ADVANCED SYSTEMS FOR INTEGRATED RESOURCE RECOVERY AND UTILIZATION. (4) TWENTY-THREE SITES IN TWENTY-ONE COUNTRIES HAVE BEEN PROVISIONALLY IDENTIFIED FOR STUDY. THE COUNTRIES REPRESENT A VARIETY OF ECONOMIC, INSTITUTIONAL, ENVIRONMENTAL, AND CULTURAL CONDITIONS. DIFFERENT COMBINATIONS OF WASTE SOURCES, RECYCLING TECHNOLOGIES, AND RECYCLED PRODUCTS WILL BE EXAMINED. THE BANK'S URBAN PROJECTS DIVISIONS ARE ACTIVE IN 11 OF THE SITES, AND OTHER MULTILATERAL AND BILATERAL AGENCIES ARE PRESENTLY OR POTENTIALLY INVOLVED IN ALL OF THEM. (5) THREE LEVELS OF RESOURCE RECOVERY PROJECTS ACTIVITIES HAVE BEEN ESTABLISHED: (5.1) AN ENGINEERING SURVEY OF PRESENT AND POTENTIAL WASTE SOURCES, MANAGEMENT, AND RECYCLING ACTIVITIES. COSTS OF THESE SURVEYS ARE BORNE BY THE PROJECT WITH

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TO:

AN ESTIMATED RANGE FROM 3000 DOLLARS TO 10,000 PER SITE. UP TO 25 SITES WILL BE SURVEYED IN THIS MANNER. IN ALL CASES, HOUSEHOLD AND COMMUNITY SANITATION ARE IMPORTANT ELEMENTS OF RESOURCE RECOVERY PROJECT ACTIVITIES. SELECTION CRITERIA FOR FURTHER STUDY INCLUDE IDENTIFICATION OF APPROPRIATE RESOURCE RECOVERY TECHNOLOGIES TO BE CONSIDERED, ASSURANCE OF LOCAL AND CENTRAL GOVERNMENT CONTRIBUTION TO THE GLOBAL REQUIREMENTS OF THE PROJECTS, AND IDENTIFICATION OF POTENTIAL BILATERAL AND MULTI-LATERAL COLLABORATION AND CO-FINANCING. (5.2) A MULTIDISCIPLINARY STUDY OF INSTITUTIONS, FINANCING, TECHNOLOGIES, UTILIZATION, AND INTEGRATION OF WASTE RECYCLING ACTIVITIES AT UP TO 12 SITES SELECTED FROM THE ORIGINAL LIST. TOTAL ESTIMATED COSTS (INCLUDING THOSE FOR THE INITIAL SURVEY). OF SECOND LEVEL SURVEYS RANGE FROM 10,000 DOLLARS TO 60,000 DOLLARS DEPENDING UPON THE LEVEL OF LOCAL GOVERNMENT INPUT. THE PROJECT WILL BEAR FROM 8,000 TO 15,000 DOLLARS OF THE COSTS. WITH THE BALANCE TO BE CO-FINANCED BY BILATERAL OR OTHER SOURCES. DEMONSTRATION PROJECTS ARE SCHEDULED TO BE SELECTED BY JUNE 1983. (5.3) DEMONSTRATION PROJECTS WILL BE IMPLEMENTED IN 6 TO 8 COUNTRIES. ESTIMATED COSTS WILL BE SITE-SPECIFIC, MOSTLY IN THE 100,000 DOLLARS TO 200,000 RANGE BUT POSSIBLY REACHING 1 MILLION. FUNDING FROM THE UNDP

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TO:

RESOURCE RECOVERY PROJECT WILL BE FROM 20,000 TO 30,000 FOR EACH SITE, WITH THE BALANCE FROM ONE OR MORE BILATERAL OR OTHER SOURCES. (6) ON OCTOBER 22 , 1982, CHARLES GUNNERSON, SENIOR PROJECT OFFICER IS SCHEDULED TO BRIEF MR. CARMICHAEL ON DETAILS OF PROJECT TO DISCUSS POTENTIAL MEANS FOR UNIDO/UNDP/IBRD COLLABORATION IN RESOURCE RECOVERY PROJECT AND TO IDENTIFY POTENTIAL UNIDO STAFF OR OUTSIDE CONSULTANTS TO PARTICIPATE IN A MISSION TO SHANGHAI LATER THIS YEAR. SHANGHAI AUTHORITIES HAVE SPECIFICALLY REQUESTED EUROPEAN CONSULTANTS IN (I) WASTE MATERIALS HANDLING, SEPARATION, AND PAPER RECOVERY AND (II) PLASTICS, NONFERROUS METALS, AND RARE EARTHS RECOVERY. FUTURE NEEDS FOR CONSULTANTS IN SHANGHAI ARE LIKELY TO INCLUDE INDUSTRIAL WASTES TREATMENT BECAUSE OF GREATER COST-EFFECTIVENESS OF WASTE MATERIALS RECOVERY AS OPPOSED TO WASTE TREATMENT FOR DISPOSAL. DDD. THERE IS A CLEAR NEED FOR COORDINATION AND INFORMATION EXCHANGE BETWEEN YOUR DIVISION AND MINE ON BOTH OF THE PROJECTS WHICH I MANAGE. TO THIS END, I WOULD APPRECIATE YOUR INCLUDING A VISIT TO MY OFFICE AT YOUR EARLIEST CONVENIENCE AND WHEN YOUR TRAVEL SCHEDULE PERMITS. IN THIS CONNECTION, PLEASE BE ADVISED THAT I WILL BE ON TRAVEL FROM SEPTEMBER 13 TO OCTOBER 10 AND FROM DECEMBER 1 TO 31, 1982. I LOOK FORWARD TO MEETING YOU

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TO:

IN WASHINGTON AND IN DUE COURSE TO VISITING YOU IN VIENNA. UNQUOTE. OUR SENIOR PROJECT OFFICER MR. C. GUNNERSON WILL ARRIVE IN UNIDO OFFICES ON THE MORNING OF SEPT. 23RD AND WILL PROCEED WITH MR. J. CARMICHAEL, OF INDUSTRIAL STUDIES TO A MEETING WITH MR. HERBERT MAY. HE WILL NOW MEET YOU BEFORE PROCEEDING TO MR. H. MAY AND BRIEF YOU ON OUR EFFORTS AND ON MR. ZHOU'S VISIT TO OUR OFFICE IN WASHINGTON TO COORDINATE ACTIVITIES IN SHANGHAI, P.R.C. UNDER SEPARATE COVER WE POUCH YOU 2 PROJECT DOCUMENTS AND RELATED MATERIAL. OUR TELEX REF. NO. 359. REGARDS, S. ARLOSOROFF, PROJECTS MANAGER, WORLD BANK.

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SUBJECT:

DRAFTED BY: S. Arlosoroff/sas SA.M.

CLEARANCES AND COPY DISTRIBUTION:

cc: Mr. Thandani,
Mr. Kaden (TWD)
Mr. Gunnerson (o/r)

AUTHORIZED BY (Name and Signature) S. Arlosoroff S. Arl

DEPARTMENT: TWD

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TO: BOOK OF FIVE

INT/81/026
Sept. 13/82

(1) LANGENEGGER C/O WIDSTRAND

4/c UNDEVPRO (TELEX 5 251 UV)

OUAGADOUGOU, UPPER VOLTA

(2) MCLEOD

NAIROBI INTBAFRAD (TELEX 963-22022) ~~#~~ 3435

4/c NAIROBI, KENYA

(3) GREY C/O BORTHWICK

988

TLX UNDEVPRO (TELEX 4466)

LILONGWE, MALAWI

(4) MUBANDA

2T/1T UNDEVPRO (TELEX 974 2195) LT/1T

ACCRA, GHANA

(5) SCHATZ

WMD CIDA HULL (TELEX 534140)

OTTAWA, CANADA

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TO LANGENEGGER VIA WIDSTRAND, UNDEVPRO, OUAGADOUGOU, UPPER VOLTA. INFO MCLEOD, INTBAFRAD, NAIROBI, GREY VIA BORTHWICK, UNDEVPRO, LILONGWE, MUBANDA, UNDEVPRO, ACCRA, SCHATZ, CIDA, OTTAWA. OUR TELEX 357. RE INT/81/026 HANDPUMPS PROGRAM. AAA. HOPE ALL IS WELL WITH YOU. BBB. CIDA REPLY WILL NOT BE BEFORE SEPTEMBER 23 OR 24. GERHARD WILL TELEX YOU. CCC. RE CIDA AND GHANA. (111) THERE IS NO PROJECT MANAGER RIGHT NOW BUT IT WILL BE ESSENTIAL TO SPEAK TO REGIONAL DIRECTOR MR. NUNOU. GIVE HIM MY REGARDS. WILL COME TO SEE HIM WHEN IN GHANA. HE SHOULD AGREE FIRST THEN ARRANGE A HOUSE, MAINTENANCE OF THE VEHICLE, ETC. WE SHALL PAY FOR ALL SERVICES VIA THE IMPREST ACCOUNT TO BE OPENED SOON WITH UNDP OFFICE IN ACCRA AND VIA OUAGADOUGOU IT WILL BE SIMPLER. (222) BEFORE GOING NORTH YOU HAVE TO MEET HAGAR OR THE CHIEF ENG. BRIEF THEM ON KFW PROGRESS AND ON THE NEW ACTIVITY TO BE CARRIED OUT IN THE UPPER REGION CO-SHARED BY CIDA. (333) MR. RON SCHATZ, PROGRAM OFFICER FOR GHANA IN CIDA, OTTAWA, WHO SPENT 3 YEARS IN THE UPPER-REGION PROJECT IS TELEXING TO NUNOU ON THE PROPOSED FIELD TRIAL AND ON YOUR ARRIVAL THERE. SPECIFIC DATES PLEASE INFORM GWSC AND REGIONAL DIRECTOR VIA GWSC OR CIDA. (444) 1200 NEW MODIFIED MONARCHS HAVE ALREADY BEEN INSTALLED. THE NEW NOYNO PUMPS WILL BE INSTALLED STARTING MARCH-APRIL 1983. PROPOSED SET UP OF FIELD TRIAL--70

Hagar

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TO:

MONARCHS, 70 - MOYNO, 30 - MALDEV (AFRIDEV),--TO BE SUPPLIED DURING JANUARY-FEBRUARY FROM MALAWI AND 30 PRODORITE TO BE SUPPLIED DURING DECEMBER FROM ZIMBABWE. SPECIFIC NUMBERS MAY BE CHANGED WHEN DETAILS OF OPERATION IS DISCUSSED WITH CIDA. (555) MONITOR SHOULD BE RECRUITED WITH THE HELP OF GWSC, PREFERABLY A GHANAIAN ENGINEER. ALL HIS SALARY AND RELATED COSTS WILL BE PAID BY US VIA UNDEVPRO. PLEASE INITIATE PROPOSALS TO BE SUBMITTED TO UNDEVPRO ACCRA FOR OUR REVIEW. (666) WHEN YOU VISIT CIDA PROJECT GIVE MY REGARDS TO MR. TANAS. HE SPENT TIME IN OUR LAB TESTING FACILITY. SALARY AND VEHICLE MAINTENANCE MUST BE PROPERLY ARRANGED TO MEET THE PROBLEMS THERE. ARRANGEMENTS VIA OUAGADOUGOU MAY BE BETTER. REGARDS, ARLOSOROFF, INTBAFRAD.

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DATE: SEPT. 13, 1982

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MS. DEL CASTILLO (TWD)

AUTHORIZED BY (Name and Signature): S. ARLOSOROFF

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MESSAGE NUMBER 2504

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TO: JOURNEY, INTBAFRAD, DACCA, BANGLADESH.

OUR TELEX 356. AAA. RE YOURS 2061 and 2068-BRUCE GROSS WILL REPLY SOON. BBB. RE YOURS 2067. CGG WILL CONTACT DR. RAHMAN. HOW SHALL WE DEAL WITH THE CIDA PROJECT IF DR. RAHMAN IS AWAY. I THINK HIS SEBBATICAL AT THE ROSS IS HIGHLY VALUABLE. I JUST HOPE THEY WILL NOT CONFUSE HIM WITH THE PHRASE QUOTE WHY MAKE IT HARDER WITH A LITTLE MORE EFFORT YOU CAN MAKE IT IMPOSSIBLE UNQUOTE. CCC. BY SEPTEMBER 23-24 WE SHOULD HEAR FROM CIDA AFTER SUBMISSION FOR PRINCIPLE APPROVAL BY SENIOR MGMT. GERHARD WILL NOTIFY YOU. IN CASE OF POSITIVE REPLY, DETAILED AGREEMENT WILL BE NEGOTIATED WITH CIDA FOR FINAL APPROVAL BY THE END OF OCTOBER. AFTER APPROVAL WE SHALL BE ABLE TO ADVANCE MONEY IF NECESSARY. DDD. WHO WOULD BE PROJECT MANAGER? EEE. WHO WOULD RECEIVE THE TOTAL SUM, RELEASE IT AND RECORD IT ACCORDING TO ACCOUNTING PROCEDURES? SINCE OUR JOINT MEETINGS WITH ICDDR B EYE ASSUMED THIS ORGANISATION WITH DR. RAHMAN AS PROJECT MANAGER WILL ASSUME RESPONSIBILITY FOR EXECUTING THE PROJECT. IS MY ASSUMPTION STILL CORRECT? IF NOT CAN WB DACCA WITH YOU OR UNICEF WITH KEN ASSUME THAT FUNCTION. FFF. HOPE YOU ALL HAVE A SUCCESSFUL MISSION TO INDIA. GIVE MY REGARDS TO KEN GRAY AND KEN GIBBS. INFORM GRAY WE SHALL TELEX HIM ON MALAWI MEETING SOON. HOWEVER WE CANNOT PAY

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FOR HIS TRAVEL. IF TO YOU FEEL IT CREATES A CRISIS OF COOPERATION

KEEP ISSUE OPEN. REGARDS, ARLOSOROFF, INTBAFRAD.

END OF TEXT

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SUBJECT:

DRAFTED BY: SARLOSOROFF:LM

CLEARANCES AND COPY DISTRIBUTION: MESSRS. KALBERMATTEN, GUNNERSON, TSCHANNERL, GROSS (TWD) MS. DEL CASTILLO (TWD)

AUTHORIZED BY (Name and Signature): S. ARLOSOROFF

DEPARTMENT: TWD

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TO:

INT/81/026

cc GLO/80/004.

BOOK OF FOUR

1. FINNIDA, HELSINKI, FINLAND (TELEX 124636B UMIN SF)
2. DANIDA, FOREIGN AFFAIRS, COPENHAGEN, DENMARK (TELEX) 31292 ETR
3. SIDA, STOCKHOLM, SWEDEN (TELEX 11450 SIDA)
4. NORAD, OSLO, NORWAY (TELEX) 16548

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FOR MAGNUSSON AT SIDA, ANTTOLA AT FINNIDA, JENSEN AT DANIDA AND KAYSER AT NORAD. OUR TELEX 351. RE UNDP/WORLD BANK INTEGRATED RESOURCE RECOVERY PROJECT GLO/80/004. AAA THIS IS FURTHER TO OUR EARLIER DISCUSSIONS OF POTENTIAL COLLABORATION BETWEEN YOUR AGENCY AND OUR GLOBAL RESEARCH, DEVELOPMENT AND DEMONSTRATION ACTIVITIES IN WASTE RECYCLING. THE FOLLOWING IS FOR YOUR ADVANCED CONSIDERATION AND OUR SUBSEQUENT DISCUSSIONS DURING OUR SEPTEMBER 21 MEETING IN HELSINKI. AS IN THE CASE OF THE HAND-PUMP PROGRAM INT/82/026, THE RESOURCE RECOVERY PROJECT REQUIRES A HIGH LEVEL OF COOPERATION WITH MULTILATERAL AND BILATERAL DEVELOP-MENT AGENCIES. BOTH HAVE MAJOR TRAINING AND INFORMATION DISSEMINA-TION COMPONENTS. BBB GLO/80/004 HAS A VERY LIMITED UNDP FUND OF 2 MILLION DOLLARS FOR JULY 81 TO JUNE 84 IN ALL COUNTRIES INVOLVED. (1) GOALS ARE TO ACHIEVE REPLICABLE HEALTH, ENVIRONMENTAL, EMPLOYMENT, ENERGY AND ECONOMIC BENEFITS THROUGH INTEGRATED RECYCLING PROJECTS IN DEVELOPING COUNTRIES, AND TO DISSEMINATE TECHNOLOGICAL, ECONOMIC AND FINANCIAL INFORMATION ON SUSTAINABLE RESOURCE RECOVERY PROJECTS TO DEVELOPING COUNTRIES. (2) IMMEDIATE OBJECTIVES ARE TO CONDUCT AND DOCUMENT STATE-OF-THE-ART

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REVIEWS ON RESOURCE RECOVERY METHODS AND SYSTEMS; TO CONDUCT AND DOCUMENT CASE STUDIES OF TECHNOLOGICAL, ENVIRONMENTAL, EMPLOYMENT AND ECONOMIC ASPECTS OF ENTREPRENEURIAL AND COMMUNITY SYSTEMS FOR WASTE REUSE; TO DEVELOP PROTOCOLS FOR MONITORING AND APPRAISAL OF SECTORAL AND INTEGRATED RESOURCE RECOVERY PROGRAMS IN URBAN AND RURAL AREAS OF DEVELOPING COUNTRIES; TO DESIGN, INSTALL, MONITOR AND EVALUATE INITIAL OPERATIONS OF DEMONSTRATION PROJECTS AND TO LEAD TOWARD FULL-SCALE INVESTMENT PROJECTS IN INTEGRATED RESOURCE RECOVERY IN SELECTED DEVELOPING COUNTRIES. IN SOME CASES TO DEVELOP GUIDELINES FOR NATIONAL POLICIES CONSISTENT WITH INTEGRATED RESOURCE RECOVERY. (3) STATE-OF-THE-ART REVIEWS BEING PREPARED ON EXISTING SYSTEMS FOR WASTE RECYCLING IN DEVELOPING COUNTRY SITES, MESOPHILIC AND THERMOPHILIC (AMBIENT AND HIGH TEMPERATURE) ANAEROBIC DIGESTION (BIOGAS GENERATION), HEALTH EFFECTS OF IRRIGATING WITH SEWAGE EFFLUENTS, AND AQUACULTURE BASED ON ANIMAL AND HUMAN WASTES. POTENTIAL TOPICS INCLUDE REUSE, REPAIR, AND REMANUFACTURING OF SOLID RECYCABLES; CASE STUDIES OF COST REDUCTION IN URBAN SOLID WASTE MANAGEMENT THROUGH RESOURCE RECOVERY; AND TECHNOLOGICALLY APPROPRIATE SYSTEMS FOR

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INTEGRATED RESOURCE RECOVERY AND UTILIZATION. (4) AROUND TWENTY SITES IN DEVELOPING COUNTRIES HAVE BEEN PROVISIONALLY IDENTIFIED FOR STUDY. THE COUNTRIES REPRESENT A VARIETY OF GEOGRAPHIC, ECONOMIC, INSTITUTIONAL, ENVIRONMENTAL AND CULTURAL CONDITIONS. DIFFERENT COMBINATIONS OF WASTE SOURCES, RECYCLING TECHNOLOGIES, AND RECYCLED PRODUCTS WILL BE EXAMINED. THE BANK'S URBAN PROJECTS DIVISIONS ARE ACTIVE IN 11 OF THE SITES, AND OTHER MULTILATERAL AND BILATERAL AGENCIES ARE PRESENTLY OR POTENTIALLY INVOLVED IN ALL OF THEM. (5) THREE LEVELS OF RESOURCE RECOVERY PROJECTS ACTIVITIES HAVE BEEN ESTABLISHED: (5.1) AN ENGINEERING SURVEY (INITIAL FEASIBILITY STUDY) OF PRESENT AND POTENTIAL WASTE SOURCES, MANAGEMENT, AND RECYCLING ACTIVITIES. COSTS OF THESE SURVEYS ARE BORNE BY THE PROJECT WITH AN ESTIMATED RANGE FROM 3000 DOLLARS TO 10,000 PER SITE. 20 TO 25 SITES WILL BE SURVEYED IN THIS MANNER. IN ALL CASES, HOUSEHOLD AND COMMUNITY SANITATION ARE IMPORTANT ELEMENTS OF RESOURCE RECOVERY PROJECT ACTIVITIES. SELECTION CRITERIA FOR FURTHER STUDY INCLUDE IDENTIFICATION OF APPROPRIATE RESOURCE RECOVERY TECHNOLOGIES TO BE CONSIDERED, ASSURANCE OF LOCAL AND CENTRAL GOVERNMENT SUPPORT TO THE GLOBAL REQUIREMENTS

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OF THE PROJECT, AND IDENTIFICATION OF POTENTIAL DONOR AGENCIES COLLABORATION AND CO=FINANCING. (5.2) A MULTIDISCIPLINARY STUDY OF INSTITUTIONS, FINANCING, TECHNOLOGIES, UTILIZATION, AND INTEGRATION OF WASTE RECYCLING ACTIVITIES AT 10 TO 15 SITES SELECTED FROM THE ORIGINAL LIST. TOTAL ESTIMATED COSTS OF SECOND LEVEL INDEPTH STUDIES RANGE FROM 10,000 DOLLARS TO 60,000 DOLLARS DEPENDING UPON THE SCOPE AND LOCAL GOVERNMENT INPUT. THE PROJECT BUDGET MAY BEAR FROM 5,000 TO 15,000 DOLLARS OF THE COSTS WITH THE BALANCE TO BE CO-FINANCED BY THE DONOR AGENCIES. THIS PHASE IF SO DECIDED WILL PREPARE THE PLANNING FOR DEMONSTRATION PROJECTS SCHEDULED TO BE SELECTED BY JUNE 1983. (5.3) DEMONSTRATION PROJECTS WILL BE IMPLEMENTED IN 6 TO 8 COUNTRIES. ESTIMATED COSTS WILL BE SITE-SPECIFIC, MOSTLY IN THE 100,000 DOLLARS TO 200,000 RANGE BUT POSSIBLY REACHING 0.5 TO 1 MILLION, IF SUCH AN AGREEMENT WILL BE REACHED. FUNDING FROM THE UNDP RESOURCE RECOVERY PROJECT WILL BE FROM 20,000 TO 30,000 FOR EACH SITE, WITH THE BALANCE FROM ONE OR MORE BILATERAL OR OTHER SOURCES. CCC WE HAVE IDENTIFIED POTENTIAL PROJECT ACTIVITIES IN (i) AFRICA--EGYPT, ETHIOPIA, GHANA, MALI, IVORY COAST AND SUDAN. (ii) LATIN AMERICA -

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BRAZIL, HAITI, MEXICO, PERU AND URUGUAY; (iii) OCEANIA - INDONESIA, PHILIPPINES; (iv) ASIA - BANGLADESH, CHINA, INDIA, NEPAL AND THAILAND. (v) MIDDLE EAST - CYPRUS AND TURKEY. OTHER COUNTRIES UNDER CONSIDERATION BUT FOR WHICH NO ACTIVITIES HAVE BEEN IDENTIFIED INCLUDE KENYA, MALAWI, NIGERIA, TANZANIA, TOGO AND ZAIRE. THERE MAY BE ADDITIONAL COUNTRIES IN WHICH YOUR GOVERNMENT HAS AN INTEREST AND WHICH MAY BE CONSIDERED FOR INCLUSION IN OUR ACTIVITIES. DDD I WOULD VERY MUCH APPRECIATE YOUR CONSIDERING COLLABORATION WITH US IN OUR PROJECT AND YOUR IDEAS AS TO POTENTIAL RESEARCH TOPICS IN SPECIFIC COUNTRIES. WE WILL DISCUSS THESE MATTERS ON SEPTEMBER 21. REGARDS, ARLOSOROFF/LOEWEN, INTBAFRAD

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DATE: SEPT.10,1982

SUBJECT:

DRAFTED BY: SARLOSOROFF:PHM

CLEARANCES AND COPY DISTRIBUTION:
cc: Messrs. J. Kalbermatten
C. Gunnerson
M. Potashnik
M. Loewen

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DEPARTMENT: TWD

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WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

NRIL
INT/81/026
cc. GLO/80/004

TO: Mr. J. Kalbermatten, Senior Adviser, TWDWW DATE: September 9, 1982

FROM: S. Arlosoroff, Projects Manager

SUBJECT: UNDP Projects: INT/81/026: Rural Water Supply Handpumps (Testing and Technological Development)
GLO/80/004: Integrated Resource Recovery (Recycling of Materials in Wastes)

CHINA - UNDP Integrated Resource Recovery and Handpumps Projects
TURKEY - Bogazici University, Bebek - Participation in the First International Symposium on Environmental Technology for Developing Countries
UNITED KINGDOM - Gosfield - Meetings with the Consumers' Association personnel, and with BP Plastics experts
NEW YORK - Meetings with officials of UNDP and OPE
Complete Back-to-Office Report (Mission: June 20 - July 26, 1982)

ANNEXES

cc: Messrs. Willoughby, Buky, Freedman, Loewen, Middleton, Gunnerson, Tschannerl, Langenegger, Ms. Burns (TWD); Sud, Bruestle (AEP); Koch-Weser (AEA); Lamson-Scribner (ASP); Bronfman, Erkman (EAP); McBride (EA1A); Reese (EA1B); Burmester (EA2B); Al-Khafaji (WAP); Thys (EMP); Bart (EM2); Costa (LAC); Riley (IRD); Hotes (AGR); Tibor (ASP-AGR.C)

Messrs. Potashnik (UNDP, New York), Members of the Advisory Panel (INT/81/026): Beyer (UNICEF, New York), Ballance (WHO, Geneva), Hofkes (IRC, The Hague), McGarry (Cole & Company, Ontario), McJunkin (AID, Washington, D.C.), Mills (CATR, Harpenden), McLeod (WB/Nairobi), Journey (WB/Dacca), Grey (Malawi), Ms. Jorgensen (Denmark), Ms. Obeng (UNEP, Nairobi)

Itinerary

1. I completed the mission as per terms of reference of June 4, 1982, with some minor modifications in the itinerary. Since our mission to China was shortened, I remained an extra day in Hong Kong and completed mission reports and necessary documents with you and M. Potashnik. I also returned one day early to Washington as I had completed the necessary meetings and discussions in New York in one day.

China - General

2. I joined you and M. Potashnik for the mission to the People's Republic of China. The mission visited Beijing and Changsha for the Handpumps Project and Hangzhou, Suzhou and Shanghai for the Resource Recovery Project. A mission report is attached as Annex I. Annexes II, III, and IV give the list of persons met and the provisional proposals for the programmes of INT/81/026 and GLO/80/004. Highlights are described below.

China - UNDP INT/81/026 - Rural Water Supply Handpumps Project

3. The mission's counterpart in China is the Chinese Academy for Agricultural Machinery Sciences which operates a hydraulic laboratory in Beijing. The members had organized an exhibit of some 25 Chinese manual and animal powered pumps; all were shallow-well pumps rather than the deep-well pumps on which we are concentrating. With the representatives of the Academy, we visited a commune in the vicinity of Beijing to observe field conditions. We also visited a provincial hydraulic laboratory and a local commune in Changsha. Photographs of a selected number of observed handpumps in Beijing and Changsha are attached as Annex III-A.

4. We found little evidence of state-of-the-art work in handpumps, particularly deep-well pumps. The shallow pumps we observed were rather simply designed and usually manufactured by local communes for needs in the immediate area, e.g. small-plot irrigation and application of liquid manure. The Academy is extremely interested in undertaking testing and development work, principally in obtaining the necessary laboratory equipment and technical assistance. We drafted a project document which was extensively reviewed and tentatively agreed upon. The document, which is attached as Annex III, has been submitted in draft form to the UNDP Resident Representative's office which will initiate contacts with the Government of China and the German Embassy in an effort to reach an agreement for implementing this project. We will also send the project document to our contact in the Ministry of Economic Cooperation in Bonn.

China - UNDP GLO/80/004 - Integrated Resource Recovery Project

5. Mr. King Wu, Senior Adviser, Coal Ministry and the designated focal point for this project, organized a visit to Hangzhou, Suzhou and Shanghai. Only the latter site is of real significance, although the draft document for a joint Recycling Project in Shanghai (attached as Annex IV) includes minor activity to be undertaken in Hangzhou. Shanghai has organized an efficient collection system for municipal wastes and requires assistance

primarily to achieve greater mechanization and improvements in reuse efficiency. As in the Handpump Project, we prepared a draft document which was extensively discussed with Shanghai officials, who agreed with the approach taken. UNDP will transmit the document to the Ministry of Foreign Economic Relations for follow up. In the meantime, we will prepare for a mission tentatively scheduled for November. Shanghai also agreed to participate in the Resource Recovery Project by identifying Chinese waste collection experts for work in other LDCs and jointly organizing with the project a workshop for developing country officials responsible for waste collection. Shanghai and other sites in China offer a good opportunity to demonstrate the effectiveness of waste collection and reuse organizations and provide good examples of how some of the practical problems of collection and sorting can be resolved without complex and sophisticated technologies. Shanghai also agreed to write and disseminate a report on their waste disposal practices, including details about manpower requirements and cost.

Turkey

6. I chaired, participated in and lectured to a session of the International Symposium on Environmental Technology for Developing Countries at Bogazici University, Bebek. Over 100 participants from approximately 30 countries in the Middle East, Europe, Africa, Asia and the United States attended the conference. I lectured on our global programme. The discussion focused on the need to analyze and demonstrate recycling projects in developing countries. Most participants felt that co-composting, effluent irrigation and aquaculture should be our top-priority subjects.

7. Most of the lecturers reported on theoretical recycling works, pollution aspects or reuse of industrial wastes. A minority of the works dealt with domestic recycling in developing countries. I have a set of all reports with me for those who wish to read them.

United Kingdom

8. I spent a day at Gosfield, where I discussed a number of important issues with members of Consumers' Association Testing & Research (CATR) and observed the testing of the third batch of handpumps (primarily VLOM pumps - Volanta, Petro, ABI-Vergnet, Hybrid; MALDEV pumphead - new Malawi VLOM pumphead; Rower - plastic pump used for irrigation in Bangladesh; and the USAID pump from Latin America).

9. The discussions centered on shock load testing which has been proposed by a number of experts after reading our Report Number One, as well as by our "group." (The "group" consists of the Regional Project Officers, members of the Advisory Panel, CATR engineers and a number of close colleagues from UNICEF.) We decided to include shock load testing in our programme.

10. We also discussed the final report, the problems of the weighting analyses, the approximate costs of future maintenance on the basis of laboratory test results. We concluded that the CA group and the report will deal with future speculation of breakdowns; sensitivity analyses

which we conducted have shown the overwhelming high costs involved in the frequency of visits by mobile maintenance units. Annexes V-A and V-F give details of our recent work programmes and the visits to plastics manufacturers by CATR personnel.

11. We spent a day at BP Plastics in Wales. BP is one of the plastics manufacturers selected to assist us in the R&D phase of the plastic belowground structure of the VLOM handpump. The discussions are detailed in Annex VI. BP officials are ready to assist and advise CA and support us with their long and varied experience; however, they are not ready to carry the R&D phase by themselves as the subject is not first priority with them. They are now going through a period of reducing and eliminating a number of second-priority subjects. They offered to give their views on any of the solutions which are developed.

New York

12. I met M. Potashnik for discussions on budgetary aspects of INT/81/026 and GLO/80/004, including the proposal to move McLeod to U.K. as a global expert and technical assistant for all regions. He will lead the R&D in U.K. with the CATR group.

13. We later met with John Cella, the director of OPE, to introduce ourselves and to explain our purposes in selecting OPE for the Kenya project being carried out with SIDA. I doubt that we did the right thing in contacting OPE, for they resent the function of being "mailmen" for us. I am worried about delays in their processing and transferring funds.

ANNEX I

REPORT ON UNDP/WB MISSION TO CHINA (JUNE 20-JULY 27, 1982)

Background/Terms of Reference

1. A joint UNDP/World Bank mission visited the People's Republic of China from June 20 to July 7 to discuss China's participation in the UNDP-financed projects, Handpump Testing and Development (INT/81/026) and Integrated Resource Recovery (GLO/80/004). The members of the mission were Messrs. Michael Potashnik, Senior Programme Officer, Division for Global and Interregional Projects, UNDP; John M. Kalbermatten, Senior Adviser, Water and Wastes Advisory Staff, Transportation and Water Department and Saul Arlosoroff, Manager of the two projects.

2. Prior to the mission, the World Bank had received a positive indication from the BMZ in the Federal Republic of Germany of its interest in financially supporting the establishment of a laboratory for the testing and development of water supply handpumps in China and the field trials of selected Chinese and other handpumps. This support would be in the amount of $500,000. Therefore, one of the specific aims of the mission was to reach agreement with local officials on the details of a project proposal within the objectives of INT/81/026; the proposal will be submitted to the BMZ by the PRC. A second objective was to follow-up on the March 1982 mission of Mr. C. Gunnerson, Project Officer for GLO/80/004, by defining a programme of technical assistance within the frame of GLO/80/004 which contributes to the Resource Recovery efforts of the city of Shanghai, and by identifying the possibilities of establishing Shanghai material recovery as a model and related demonstration project for recycling of solid waste in other municipalities. A third objective was to accelerate the follow-up on the interagency mission on the IDWSSD which visited China in March 1981 to develop a cooperative programme in support of Decade objectives in China.

3. The mission visited Beijing, Changsha, Hangzhou, Suzhou and Shanghai. Activities at these locations are described below and the names of officials met are attached as Annex II.

Beijing

Chinese Academy of Agricultural Machinery Sciences (CAAMS)

4. The Academy, which is under the Ministry of Machine Building Industry, was selected by the government as the counterpart agency for the proposed rural water supply handpumps project in China. The Academy conducts research, testing and development of agricultural machinery and pumps, and formulates national and ministerial standards for this machinery. The Academy has 11 institutes or divisions and a total personnel of 1050, of which 500 are engineers and technicians. Mr. Feng Bingyuan, Deputy Chief Engineer, Head of Scientific Research Work Managing Division, led negotiators on behalf of the Academy.

5. The mission visited the Academy's hydraulic laboratory, which is modestly equipped with underground and overhead storage for conducting pump testing and EDP equipment for recording pump test results. The research and testing conducted in the laboratory is primarily on centrifugal pumps, but the lab has the capability of testing human and animal powered irrigation pumps as part of rural development policies. Although the Academy had not tested drinking water supply and pumps, it had collected various models of shallow-well handpumps in preparation for the visit by the mission. The mission observed some of these pumps in operation. The variety of shallow and manual irrigation pumps collected by the Academy in nearby provinces indicate that there is an even larger variety of locally manufactured pumps in China. Based on limited observations of these pumps, the mission members believe there is considerable room for improvement in the use of plastics and in the ergonomics design of the irrigation handpumps. The mission stressed the importance of these pumps to other developing countries after the proper modifications and testing.

6. The mission was unable to examine deep-well handpumps manufactured in China, but was informed that they were in use in several parts of the country. It did determine, however, that one of the most significant contributions the project could make would be the introduction of new innovative village-level deep handpumps technology in China. Work teams and brigades located above deeper aquifers would then be supplied with an adequate water supply. In other cases, improved pumps could replace power-driven pumps and thereby save scarce energy resources (especially in remote regions where diesel fuel is highly expensive). Less expensive handpumps could provide clean drinking water in areas where the population is supplied by remote or polluted sources.

7. Academy officials expressed strong interest in the proposed project for laboratory and field testing of handpumps and collaborated with the mission in defining all aspects of the project proposal presented as Annex III. Copies of this proposal were left in China for review by the Academy, the Ministry of Foreign Economic Relations and Trade, and UNDP for subsequent discussions and submission to the Federal Republic of Germany.

Lin Ming-Ying Brigade
Zhang Zhi Ying People's Commune, Daxing Xian County

8. The mission visited this brigade located about one and one-half hours south of Beijing to observe water supply handpumps and irrigation pumps under field conditions, and to examine the operations of biogas digesters and the applications of slurry for fertilizer. This brigade is composed of 160 households, with some 800 people divided into 4 production teams. By comparison with other brigades in this commune, it claimed and appeared to be prosperous, having registered a 10-fold increase in productivity during the past 15 years.

9. The brigade homes which we visited had individual biogas units of 8-10m^3 which produced methane gas for cooking and lighting. The gas was produced from human and agricultural wastes. The slurry from the digesters was collected by vacuum trucks and transferred to storage bins for subsequent applications as fertilizer. The homes had piped water supply from bore-holes drilled by technicians of the commune. Handpumps were no longer installed in every yard to supply drinking water.

10. The mission observed bore-hole drilling which used very expensive pipes for casings and screens. Total cost per meter drilled is much higher than what it would be with proper techniques.

11. The mission also identified the potential improvements that could be implemented in biogas technology and solar units used for heating water.

The City of Changsha, Hunan Province
Hunan Research Institute of Agricultural Machinery

12. Our counterparts in CAAMS had identified this institute as a possible collaborating agency in the project to conduct further laboratory testing and co-manage field trials in the Hunan Province. The Institute performs services similar to the Academy at the provincial level. The mission met with officials in the Department of Irrigation and Drainage Machinery Research. The Department employs 15 engineers and has a hydraulic laboratory with testing beds, a micro-computer for performance testing of centrifugal and turbine pumps and other equipment. The mission observed the operations of the following shallow-well pumps: paddy thresher, foot-operated pumps, bicycle-type pumps, handpumps, footpumps, gear pumps, and animal-driven pumps.

13. As in Beijing, the mission was impressed by China's efforts to produce manual and animal-driven pumps, but stressed the potential room for modifications and improvements. The mission was favorably impressed with the technical staff and facilities of the Institute and agreed in principle to include manual and animal-powered irrigation pumps in the PRC handpump program. The subject is already being dealt with by INT/81/026 in its laboratory testing in U.K. and its collaboration with World Bank rural development projects and field trials in Bangladesh and Nigeria. The mission and officials agreed this subject should be an important part of the proposed China-INT/81/026 joint project.

Changsha

14. The Institute arranged for the mission to visit the Tunglun Tu Brigade located 15 minutes east of the city of Changsha. The mission observed a few of the irrigation pumps seen earlier at the laboratory. These were being used for rice and vegetable crop irrigation during two to three months of the year and for diluting the digester slurry, nightsoil, and septage from the city. The mission also observed household biogas digesters and water supply handpumps.

Hangzhou
West District Processing Station

15. In Hangzhou the mission visited the West District Processing station, one of six stations responsible for receiving septage, nightsoil and garbage. This is an experimental station where the city is planning research on digestion and co-composting. The station has a 60 m^3 digester which was no longer in operation, but reportedly had a production rate of 10-12m^3 of gas per day operating at 30° to 50°C[1]. Raw material fed to the digester was septage mixed with nightsoil. A new 25 m^3 digester is under construction with a daily inflow of 4 tons. The slurry will be stored for 15 days in a holding tank, then mixed with nightsoil. A new 25 m^3 digester is under construction with a daily inflow of 4 tons. The slurry will be stored for 15 days in a holding tank, then mixed with crop residues and held for an additional 30 days and finally transported by boat to farm brigades for use as fertilizer.

16. The station has constructed closed cells with aerator pipes to replace its previous system of pile-layer composting of garbage. The garbage is sorted by 5 or 6 people. Presorting is done by individuals before the garbage is collected.

17. The mission held discussions with a representative of the city agency responsible for waste collection and resource recovery. About 300 tons of waste per day are collected. Recycled materials are purchased by the agency at 114 shops and stations. These materials are divided into 15 major categories which include 1,000 different varieties. Revenue gained from the sale of recycled materials totals $20 million yuan. Approximately 14 million yuan is paid to individuals, 4 million for operations of which approximately one million is for salary and three million primarily for transportation costs. Net profit from the sale of all materials is about two million yuan. Details on the collection and recycling operation in Hangzhou were provided to the mission in documents prepared by municipal officials.

18. In a concluding session, municipal officials advised the mission of the research interests and development plans for waste disposal and recycling in Hangzhou. In turn, the mission briefed officials on the status of the Resource Recovery Project and on some recent experimentation in the field. It was agreed that Hangzhou will receive technical assistance from project consultants who will visit Shanghai and receive published reports from the project.

19. Subject to the availability of new sources of funds, the mission agreed to collaborate with the city of Hangzhou in joint research and development in co-composting of nightsoil, septage, and sorted domestic wastes.

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[1] The reported temperature range would be expected to cause a range of gas production in the ratio of one to four.

20. It is possible to modify the biogas digester to achieve a high rate of gas production and sterilized slurry through thermophilic digestion. A nearby brigade could collaborate in controlled experiments to compare benefits of thermophilic and mesophilic slurries as a substrate, soil conditioner and/or animals and aquaculture feed. Such a controlled experiment would require operation of an ambient (psycrophilic) digester to produce a conventional slurry.

Suzhou

21. During a brief visit to Suzhou, the mission held discussions with the Vice Mayor, with officials of the Bureau for Municipal Construction, including Mr. Wong Dai Lin, Director, and with Madame Chee Jing Lan, Section Leader, Office of Export and Import; and observed the operations of resource-recovery purchasing and garbage transfer stations.

22. Suzhou is an old city founded in 514 B.C. now having a population of about 400,000. It is a tourist attraction because of its many gardens, canals and small lakes. Pollution problems are caused by the many factories located in the city and the use of coal briquettes having a sulfur content of 1-1.5%. About half of the households have piped water and sewers, while the others depend on standpipes for water and pour-flush vault latrines for waste disposal. Nightsoil is collected by vacuum trucks and carried to transfer stations for shipment by boat to the countryside for composting. Sewage and septage are directly emptied into the Suzhou river, a tributary of the Wong Po.

23. The city employs 1,000 workers for street sweeping and garbage collection. An estimated 50,000 tons of solid wastes are collected annually and carried to 15 transfer stations for subsequent transport to the countryside. The mission visited one station and estimated that the total costs of street cleaning and solid waste collection and transport are between $4-5 US per capita per year including capital costs.

24. An estimated 40,000-50,000 tons of wastes are recycled annually. The six to seven million yuan ($3.3 to 3.7 million) paid for this salvage is said to result in profits of 2 million yuan. The resource recovery purchasing station visited by the mission, one of 20 such stations, collected an average two tons per day and paid 400,000 yuan ($220,000) for materials brought in by individuals. Sorting of materials is done by 18 employees (salaries are 60 yuan per month, $33, excluding benefits and bonuses). This station is similar to those in Hangzhou and Shanghai, and is the basic unit in the recovery operation. When individuals bring in recycled materials for a posted price, materials are sorted, put in sacks and transferred to the relevant industries.

25. The mission agreed to keep local officials informed about potentially relevant project activities in China. In the event that consultants sent to Shanghai could be of assistance with recycling or other waste disposal matters, provisions could be made for them to visit Suzhou. All technical reports prepared by the project will be sent to the municipalities. Further in-depth association in Suzhou will be subject to the support obtained from donor agencies.

Shanghai (2-6 July)

26. The mission visited and conducted discussions at the following resource recovery sites:

(A) Waste paper sorting and recycling plant. This plant processes about 21,000 tons of the 130,000 tons of recyclable paper collected annually in Shanghai. The plant deals with dust cleaning, sorting, bailing, pulping and other basic recycling processes. The mission observed and officials reported on low productivity. Labor intensive operations preclude an increase in volume and diversification of the plant's activities within the present facilities. Furthermore, working conditions need to be improved. The estimated value of the recycled product is more than 70 million dollars per year and saves the country a considerable amount of energy.

(B) Nightsoil transfer stations. Approximately 50% of the urban population in Shanghai is served by nightsoil collection and disposal facilities. This makes Shanghai's nightsoil recovery operation one of the largest in the world. The management and operation of the system can serve as a model for other countries. The station visited by the mission is one of 60 in the city. It serves 90,000 households and has 2,400 branch stations which store nightsoil in neighborhoods. The nightsoil is collected by around 30 vacuum trucks making approximately 20 trips daily. Garbage from households is also brought to this station. Garbage and nightsoil are then discharged to separate fleets of boats (1,800 serve the whole city). These boats travel from one to two days to the countryside around Shanghai where they dump the wastes for storage, aging and application to the soil. For Shanghai as a whole, 4,000 tons of domestic refuse and 9,000 tons of night-soil are generated, collected and transferred each day.

The mission observed that the garbage contained a wide variety of inorganic materials (eg. broken glass, metal, etc.), which were not removed before transfer to the country. These materials are both a nuisance and a hazard to farmers who must subsequently remove them before applying the compost to the soil. The materials can also be recovered through improved sorting and separation at a cost which may be compensated by the sale of the recycled products within the existing infrastructure.

(C) Don Hai Chemical Recycling Plant. This plant deals with the collection and recycling of non-ferrous and rare metals from industrial scrap, waste acids and metallurgical sludges. Last year, it recovered around 70 kg of gold and 12,000 kg of silver, as well as nickel, cobalt, copper and other metals for a total sale value of 10 million yuan ($5.6 million). The mission observed that the handling of materials and methods used in plant operations can be improved so that the quantity and quality of recovered materials can be increased and the environmental problems can be solved.

(D) Xin-Guang Plastics Recycling Factory. This factory recycles about 20% of the total waste plastics of Shanghai, amounting to about 10,000 tons. (The figure does not include internal recycling of plastic residues within the plastic industry.) The plant operations, carried out by 300 workers, include sorting, rinsing, extruding, pelletizing and cracking waste plastic to produce new plastic materials and products. Total sale value of recyclables in 1981 was 5.5 million yuan. The mission observed that the technology, processes and equipment could be greatly improved providing for an increased rate of recovery, an increased diversification of the end products, a reduction of environmental problems, and higher-quality end products.

(E) Yon Qiao Commune, Tong Xin Brigade, No. 4 Production Team. This production team has constructed a biogas plant for its piggery. (There are 1,200 larger size biogas plants in the rural areas of Shanghai in addition to 60,000 household units in Shanghai.) This biogas plant includes 11 digesters of 150 m^3 each for 200 pigs. Manure and urine are drained into the digesters while slurry flows from the digesters to a 100 m^3 storage pond. The plant has been in operation since April and has a gas production of 0.15 m^3 per/day/6 m^3/digester. Wet gas, including CO_2, is being distributed to the households through galvanized pipes and conventional gas meters. Slurry is applied manually to the field. A small gas storage tank has been constructed. Team members claim controlled experiments prove that slurry value is higher than conventional manuring practices based on composting. The mission observed that the system could be substantially improved in regard to gas production rates, distribution and storage, and quality and application of the slurry.

27. In a concluding session with Mr. Shui Zhong Quan, Deputy Director and Chief Engineer, Bureau of Municipal Construction, Shanghai; Mr. King Wu, Senior Technical Adviser, Coal Ministry PRC; and local officials, the mission reported on its findings and recommendations, and discussed a programme of cooperation for Shanghai under GLO/80/004. An aide memoire on these discussions and the proposed program for Shanghai is in Annex IV, and copies will be sent by UNDP Headquarters together with this request through the UNDP Resident Representative to the Ministry of Economic Relations and Trade and Shanghai officials. Subject to the timely approval of the programme by the government of PRC, activities can begin in October-November 1982.

International Drinking Water Supply and Sanitation Decade

28. The mission held brief discussions with Messrs. Doss and De San, UNDP Beijing, and Dr. Li Jiou Ru, Deputy Director, National Committee of Patriotic Health Campaign (NPHC) on present and planned activities in China for the decade. It will be recalled that an interagency mission consisting of WHO, IBWD and UNDP visited China in March 1981, and made several recommendations for follow-up activities in support of the decade.

29. In discussions with Mr. Li Jiou Ru, it was confirmed that the government would welcome the convening of a workshop in March-April 1983, on water and sanitation for technicians and policy makers. The workshop, which would be organized by WHO with support from the World Bank and financing by GTZ of the Federal Republic of Germany, would consist of two parts. The first part, for technicians and lasting for three weeks, would focus on the technological and financial aspects of project preparation in water supply and sanitation, with particular emphasis on low-cost solutions. The second part, for policy makers, would familiarize senior central and provincial planning and financial staffs with the economic/financial aspects of water and sanitation technology selection. While GTZ would provide the necessary financing for the workshop, the mission believed that UNDP should also participate or sponsor the workshop, since the project personnel of RAS/81/001, which is being executed by the World Bank, would be used to conduct part of the workshop. The World Bank has agreed to discuss this matter with GTZ.

30. The mission also learned from discussions with UNDP, Beijing, that a project proposed by the March 1981 inter-agency mission in support of the Decade was still under review by the government. This project is to be executed by WHO and financed by the IPF of China. It is unlikely that preparatory assistance will be made available by UNDP.

31. The follow-up to the March 1981 inter-agency mission appears quite modest to date and there is need to accelerate implementation of its recommendations.

City of Changsha, Hunan Province

Mr. Xiao Yi-Gai, Chief Eng. of Hunan Bureau of Machine Industry.

G. Hunan Research Institute of AGricultural Machinery

1. Mr. Lu Yu-Xian, Deputy Director, Hunan Research Inst. of Agricultural Machinery.
2. Mr. Huang Ju-Yun, Deputy Director Agricultural Machinery
3. Mr. Chen Run-Min, Vice-Chief Eng. Agricultural Machinery
4. Mr. Wu Tai-Jei, Agricultural Eng. Agricultural Machinery
5. Mr. Chen Su-Nang.
6. Mr. Chieng Wen-bin
7. Mr. Liu Siu-Sin, Head of the 4th Research Dept. Agricultural Machinery

City of Hangzhou, Zhejiang Province

H. Bureau of Environmental Protection

1. Mr. King Wu, Sen. Adviser, Mineral and Coal and Energy
2. Mr. Zhou Non-Sheng, Deputy Head of Public Utility, Bureau of Municipal Construction, Hangzhou.
3. Mr. Li Cheng Shong, Deputy Division Chief of Environment and Sanitation.
4. Mr. Zheng en Yen, officer, Min. of Foreign economic relation & Trade
5. Mr. Wang Dasun, Deputy Section Chief.
6. Mr. Yu Jian Ping, Deputy Section Chief.
7. Mr. Liu Yu Shein, Adviser

J. City of Suzhou, Jiangsu Province

1. Mr. Vice Mayor for the city of Suzhou
2. Mr. Wong Dai-Lin, Div. of Construction, Municipality of Suzhou
3. Mrs. Chee Jing-Lan, Section leader of the office of Export and Import.

L. Shanghai Municipaly

Mr. Jian Chun-Ze, Director, Shanghai Bureau Ministry of Economic Relations with Foreign Countries.

Mr. Shui Zhong Quan, Deputy Director and Chief Engineer, Shanghai municipal Bureau of Construction

Mr. Chew Ming, Deputy Manager of Shanghai Materials Recovery and Utilization Company.

Mr. Feng Shen-Ling, Group leader, Biogas Development in Shanghai

ANNEX II

OFFICIALS MET - CHINA MISSION

A. Ministry of Foreign Economic Relations and Trade

Mr. Chiu Wen-Min
Adviser, Dept. of Relations with International organizations.

Mr. Nie Hua Lian
Deputy Division Chief, Dept. of International organizations.

Mr. Li Ming
Regional Programme Officer, Dept. of

Mr. Kung Ting Jung, Regional programme officer, Dept. of

B. Coal Ministry

Mr. Wu King, Senior Adviser Coal Ministry and member of Advisory Committee for project GLO/80/004.

C. Embassy of the Federal Republic of Germany

Mr. Von Sydow

D. Chinese Academy of Agricultural Machinery Sciences (CAAMS)

Mr. Feng Bingyuan, Deputy chief Engineer, Head of the Scientific Research Work Managing Division.

Mr. Zhany Guangfu, Eng. and Deputy Director in office.

Mr. Chang Yi Meng, Engineer

Mr. Yuan Zheng, Assoc. Engineer

Mr. Zhang Yimeng, Engineer

Mr. Chen Longging, Interpretor

Guanzhou Inst. of Energy Conversion

Wuxi FAO/PRC aquaculture research institute

E. UNDP

Mr. A. Doss, Deputy RR.

Mry Desante, Program Officer

and support of technical cooperation among developing countries. Only limited funds are available to purchase pumps, the project having been designed to participate in ongoing or new rural water supply programs in order to minimize costs. Several bilateral agencies are actively participating by conducting field tests as part of their own projects, by supplying pumps to national rural water supply projects, or by providing funds to INT/81/026.

5. The government of the People's Republic of China (PRC) has expressed an interest in participating in the laboratory and field testing of handpumps. As a consequence, a mission composed of Messrs. S. Arlosoroff, INT/81/026 Project Manager, and J. Kalbermatten, Senior Advisor, Water and Wastes, of the Transport and Water Department of the World Bank, and Mr. M. Potashnik, Senior Program Officer, Division for Global and Interregional Projects, UNDP, visited China to explore PRC's participation in the project. Discussions were held with staff of the Chinese Academy of Agricultural Mechanization Sciences (CAAMS) from June 20 to 27, 1982. CAAMS staff was led during the discussion by Mr. Feng Bingyuan, Deputy Chief Engineer, Head of Scientific Research Work, Managing Division and Mr. Chang Yi Meng, Engineer. The project described in Par 7 to 20 incorporates suggestions offered by CAAMS staff.

6. Discussions and limited field visits during the mission indicate that development of human and animal powered water lifting devices has emphasized single family shallow well handpumps and human or animal powered irrigation pumps, with less emphasis on village handpumps lifting water from depths greater than eight meters. The project will therefore emphasize the testing and development of human and animal powered lifting devices for small plot irrigation, a field in which China can make a significant contribution, and of multifamily drinking water handpumps for depths to 50 meters where China's needs are not met. These "deepwell" pumps will also be adapted to shallow wells to eliminate the potential health hazard resulting from the priming of shallow well suction pumps.

THE PROJECT

Long-Term Objectives

7. The long term objectives are:

(i) Improvement and extension of potable water supply in rural areas where groundwater is available at depths to 50 meters by means of handpumps.

(ii) Increased food production through small plot irrigation by means of human and animal powered pumps in rainfed areas with short 1 to 3 month dry periods and in dry areas where groundwater is available 1 to 5 meters below surface, i.e. in areas

LABORATORY AND FIELD TESTING OF DRINKING WATER SUPPLY HANDPUMPS AND ANIMAL AND HUMAN POWERED IRRIGATION PUMPS IN THE PEOPLE'S REPUBLIC OF CHINA

INTRODUCTION

1. Worldwide, between 70 to 80% of the rural population is lacking an adequate supply of safe water. In China alone, it is estimated some 500 million are served inadequately. Worldwide, financial constraints, lack of sufficient trained human resources, lack of competent institutions and increasing costs of energy will prevent, at least for the forseeable future, the extension of piped water service to the majority of the rural population. Handpumps, if designed to last and if constructed for village maintenance, could provide inexpensive water service to a great number of rural people. Unfortunately, today's handpumps usually fail quickly and generally cannot be repaired by villagers.

2. In response to the need to improve rural water supply and recognizing the potential of handpumps in solving the problem, the United Nations Development Programme (UNDP) and the World Bank initiated the Handpump Testing and Development Project, INT/81/026. The purpose of the project is to laboratory and field test selected existing pumps to identify deficiencies and to assist in the redesign of those pumps which can be produced in less developed countries, often in partnership with or licensed by other countries. Success of this project will substantially contribute to the achievement of the International Drinking Water Supply and Sanitation Decade (IDWSSD) objectives.

3. To date, laboratory tests of twelve handpumps have been completed by the Consumers' Association (CA) testing laboratory in Great Britain under the sponsorship of the British Overseas Development Agency. INT/81/026 has engaged CA to test additional handpumps. Tests are now in progress on 18 pumps, with an additional six handpumps soon to be tested at the request and at the cost of manufacturers who wish to retest improved versions of previously tested pumps. Field tests are now ongoing or about to be initiated in 14 developing countries. Some of these countries have requested that human and animal powered low lift irrigation pumps be included in the testing and development program. Work on such pumps has started in one country.

4. INT/81/026 activities are intended to finance technical assistance in: development of pump testing facilities; laboratory testing, development and manufacture of pumps; setting up and monitoring of field testing; evaluation of tests and dissemination of results; the provision of advice and training of local staff; and the initiation

(iii) Field testing of selected pumps to verify performance in actual use.

(iv) To develop a guide for the selection of handpumps and components best suited to particular installations, locations and applications.

(v) To publish a manual on the installation, operation and maintenance of handpumps.

Special Considerations

8. The Ministry of Economic Cooperation of the Federal Republic of Germany expressed an interest in supporting the objectives of INT/81/026 by financing the foreign currency requirement of this project. As a consequence, this document provides not only information about the execution of the project, but cost estimates of foreign currency expenditures and Chinese counterpart contributions. INT/81/026 staff will provide technical and administrative support to the project. UNDP's resident office in Beijing is prepared to assist in its further development.

9. Technical Cooperation among Developing Countries (TCDC) is an important aspect of this project. INT/81/026 is testing pumps from many countries, fosters the exchange of information between countries and emphasizes the use of pumps which can be locally manufactured jointly with or licensed by the patent holder in the case of existing pumps. The mission believes that, given her experience, China could play an important role in the development of irrigation pumps. INT/81/026 is prepared to assist in such an effort by:

(i) Testing foreign-made pumps in the Chinese laboratory and in other ways assisting the establishment of the laboratory as a regional testing center for handpumps and animal and human powered irrigation pumps, where governments and manufacturers could have their products tested and obtain technical assistance for their improvement.

(ii) Sponsoring the participation of Chinese professionals in the global activities of INT/81/026.

(iii) Locate the regional manager for Asia of INT/81/026 in Beijing (preferably in the UNDP office) to assist both in the laboratory and field tests and organize regional and global contacts and activities.

Outputs

10. Facilities and methodologies for testing human and animal powered water-lifting devices.

11. Documents, designs, drawings and related materials presenting the results of laboratory testing and field trials for dissemination to all concerned in the central government, provincial, county and manufacturing organizations. The reports will identify and recommend pumps for manufacturing, the needs for further developments and improvements, and the proposed manufacturing processes and quality control. The project will also provide for the analysis and dissemination in China of the results obtained from other field trials and laboratory testing executed by INT/81/026.

12. Final reports correlating the field trials of the pumps to the laboratory testing and guidelines for the selection of human or animal powered pumps reflecting technical considerations, ease and costs of maintenance, to be used by each province on the basis of local conditions.

13. An evaluation report on local requirements considered essential for the manufacturing of the different pump assemblies, and the dissemenation of the detailed manufacturing designs to the relevant authorities. Priority will be given to application of village level operation and maintenance (VLOM) pumps to intermediate and deep groundwater for potable water supply and shallow groundwater for irrigation. This report will be available to all governments in developing countries interested in human/animal powered pumping devices for drinking water and/or small plot irrigation.

14. Nationwide survey (in all provinces and relevant communes) to identify the variety of human/animal powered pumps in operation, including preliminary engineering assessment of their performance and an assessment of the capacity and quality control of their manufacturers. The report of the results of this survey will form the basis for the selection of pumps for the laboratory and field trials and will also be included in the global reporting of INT/81/026 to enable all those interested to have access to the work done in China.

15. A final report on all activities in China will provide an assessment of the types of pumps likely to be available for the achievement of the IDWSSD in China and other Asian countries. The report will include guidelines and proposed methodology for further laboratory and field testing of pumps by others as part of TCDC efforts in East Asia and other regions. The final report will include an evaluation of the steps which could be taken by the international community, in cooperation with bilateral aid agencies, to press on with the task of assisting China in promoting and improving rural water supply and small plot food production by improving the design, manufacturing, maintenance and repair of human/animal powered pumping devices.

ACTIVITIES

16. First phase: laboratory testing

(i) Preparation of final estimates for local costs and completion of project document (based on this report) by Sept. 15, 1982.

(ii) Initiation of discussion between governments of China and Germany.

(iii) Selection of institute(s) to assume responsibility for laboratory testing (it is assumed that CAAMS will be the responsible organization with possible assistance from another institute).

(iv) Appointment of project manager(s) and identification of support staff.

(v) Preparation of first phase work plan and establishment of administrative procedures.

(vi) Survey of existing pumps produced in China, preliminary evaluation of their performance, and assessment of manufacturing capacity (quality and quantity) and preliminary selection of pumps to be tested. This activity will be by INT/81/026.

(vii) Execution of project agreement by governments and authorization to CAAMS to proceed.

(viii) Study visit of selected CAAMS staff to CA laboratory in England for training in setting up testing facilities and conducting tests.

(ix) Selection of necessary equipment and apparatus with assistance of CA staff, possible visit to equipment manufacturers outside England.

(x) Selection of pumps for testing, purchase of equipment.

(xi) Visit to CAAMS by senior CA staff to assist in test facility, equipment and pump installation, preparation of testing programme.

(xii) Initiation of testing program with assistance of CA staff.

(xiii) Execution of testing program, visit(s) by CA staff.

(xiv) Technical assistance to manufacturers in the improvement of existing pumps, development of new designs and prototype testing.

(xv) Evaluation and publication of results.

17. Second phase: field testing

Details of the field testing will be developed during the period from July to December 31, 1982 in consultation between project participants and institutions responsible for rural water supply. At the same time, cost estimates will be further refined. Costs shown

in this report are based on generally conservative assumptions. It may be necessary to redistribute funds among items, but the total cost is not expected to change from such adjustments.

INPUTS

Participants

18. The project will be supported by three participants, the Government of China, the Government of Germany and UNDP/World Bank through INT/81/026. The tentative budget, which shows the respective contributions, is shown below. In this budget, foreign currency expenditures are based on INT/81/026 experience and are firm. Local currency estimates need to be confirmed for several items (e.g. the testing tower which is part of "building and laboratory").
INT/81/026 will provide the drawings/sketches necessary for CAAMS to complete the estimate by Sept. 15, 1982. The budget is subject to negotiation between the governments, of course. The budget presented represents the best estimates of CAAMS staff and the mission and is based on a project duration of two years. Both CAAMS staff and INT/81/026 would be able to initiate work within three months. INT/81/026 is prepared to finance activity 17 (vi) "Survey of existing pumps" and to advance funds (to be reimbursed from project funds) for activity 17 (viii) "Study visit of selected CAAMS staff to CA laboratory" if the German Government budget cycle makes such a provision desirable.

19. Budget

Items		Value in US$
A. Laboratory Testing		
1. Testing Facility		
(i) Equipment	80,000	
(ii) Building and Laboratory		50,000
2. Personnel		
(i) Expatriate Advisers		
6 mm @ 8,000	48,000	
Travel; 4 trips London/Beijing @ 5,000	20,000	
(ii) Training in UK of Chinese Staff		
6mm @ 2,000		12,000
Travel 2 trips @ 8,000	16,000	
(iii) Work in China of Chinese Staff		
2my @ 24,000		48,000
4my @ 12,000		48,000
6my @ 6,000		36,000
3. Consumables	20,000	30,000
4. Pumps		
(i) Foreign 2 of 11 models @ 1,000	22,000	
(ii) Chinese 2 of 6 models @ 250		3,000
Subtotal A	206,000	227,000

B.	Field Testing		
1.	Shallow Well Area		
	(i) 100 foreign hand/irrigation pumps	25,000	
	(ii) 100 Chinese hand/irrigation pumps		20,000
	(iii) Well construction or rehabilitation		25,000
2.	Deep Well Area		
	(i) 100 foreign handpumps	50,000	
	(ii) 100 Chinese handpumps		50,000
	(iii) Well construction or rehabilitation		75,000
3.	Equipment and Materials	25,000	
4.	Monitoring and Technical Assistance		
	(i) Expatriate expert 1.5 my	75,000	
	(ii) Housing and travel	50,000	
	(iii) Local assistance 8 my @ 12,000		96,000
	(iv) Transportation and assembly of pumps		25,000
	(v) Vehicles	12,000	
	(vi) Training	10,000	
	(vii) Interpretation and assistance		18,000
	Subtotal B	247,000	309,000
	Subtotal A + B	453,000	536,000
	Contingency	47,000	39,000
	Total A + B	500,000	575,000
C.	INT/81/026 Participation		
	(i) Survey of Chinese pumps	10,000	10,000
	(ii) Resident INT/81/026 Regional Manager for Asia, 3/4 time of 2 my	146,000	
	(iii) Housing and travel	50,000	
	(iv) Interpretation and assistance		24,000

(Con't part C INT/81/026 participation)

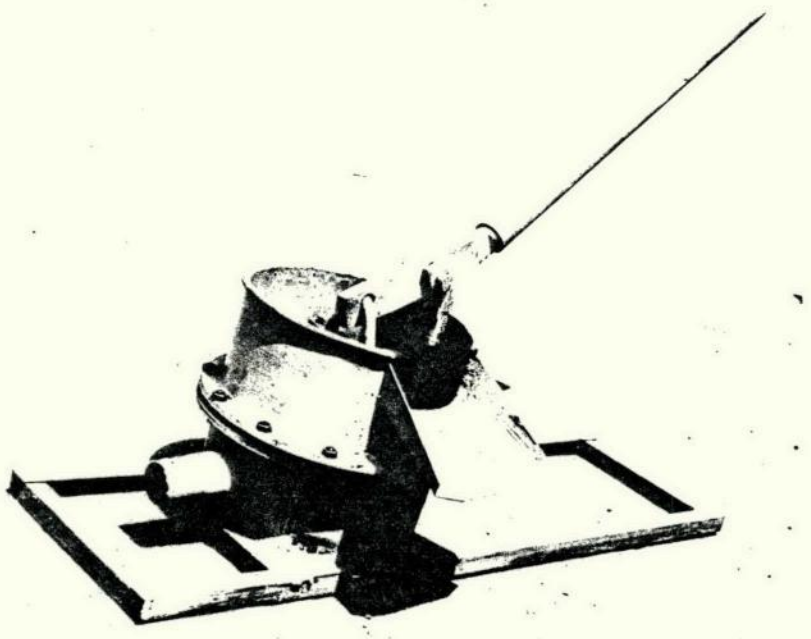
	Items	Value in US Dollars	Local
(v)	Expert and facilities for training Chinese staff in England	20,000	
(vi)	Reports and other material		10,000
(vii)	Support from INT/81/026: Exchange of information, tests conducted elsewhere, visits to China by project staff, etc. 1/15 of project cost (this includes cost of Chinese expert participation in Technical Advisory Panel for INT/81/026)	250,000	

PROJECT EXECUTION

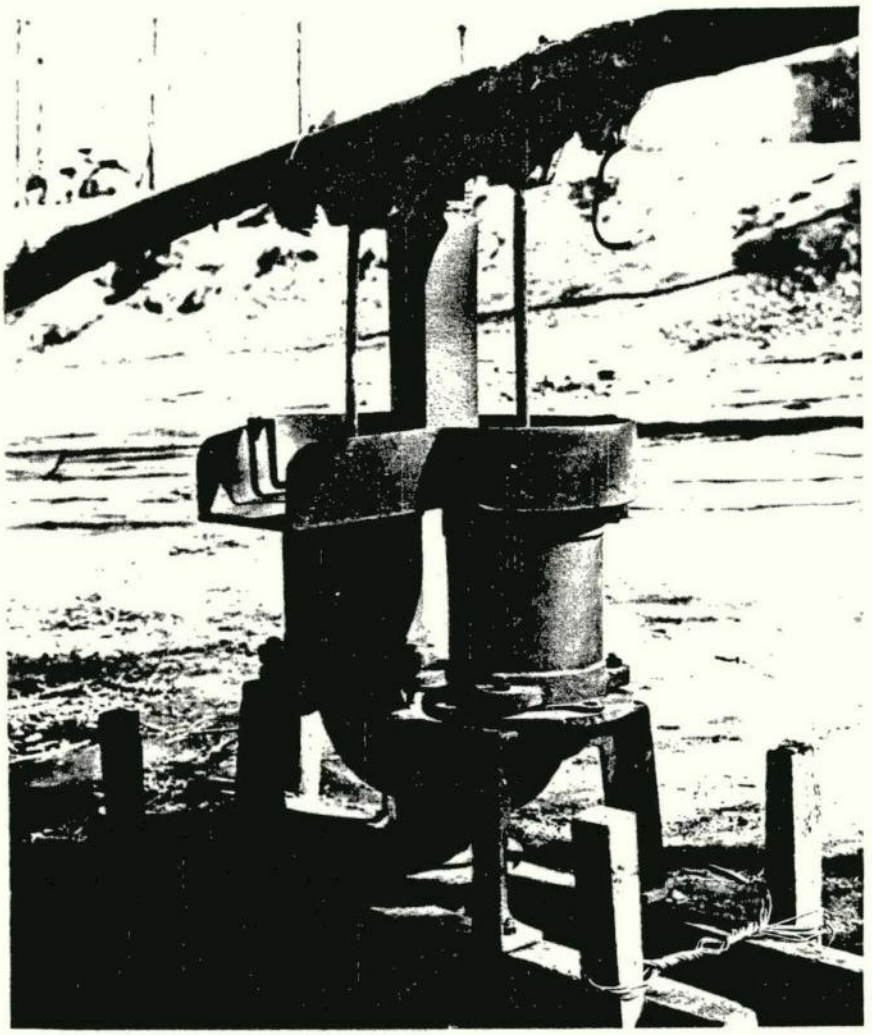
20. The project would be executed within the framework of INT/81/026 under procedures established in the Standard Basic Agreement etween the Government of the People's Republic of China and the United Nation Development Programme, except as otherwise agreed upon by the Governments of China and Germany. A detailed working agreement will be developed between INT/81/026 and CAANS during the preparation of the workplan and administrative procedures (activity 17(v))

ANNEX III-A

HANDPUMP PHOTOGRAPHS



name: hand diaphragm pump
flowrate: 5-8 m^3/h
discharge head:
suction head: 2-5m.
required power: one or two person with hand
principle: diaphragm type
construction: to consist of check valve, cylinder, rubber membrane and handle etc.
dimensions:
weight: 30kg
manufacturer: water-electric equipment factory of Shandong (in Jinfu)



name: SBI50 type double-piston hand pump

flowrate: $6m^3/h$

discharge head:

suction head: 6m

required power: two person with hand

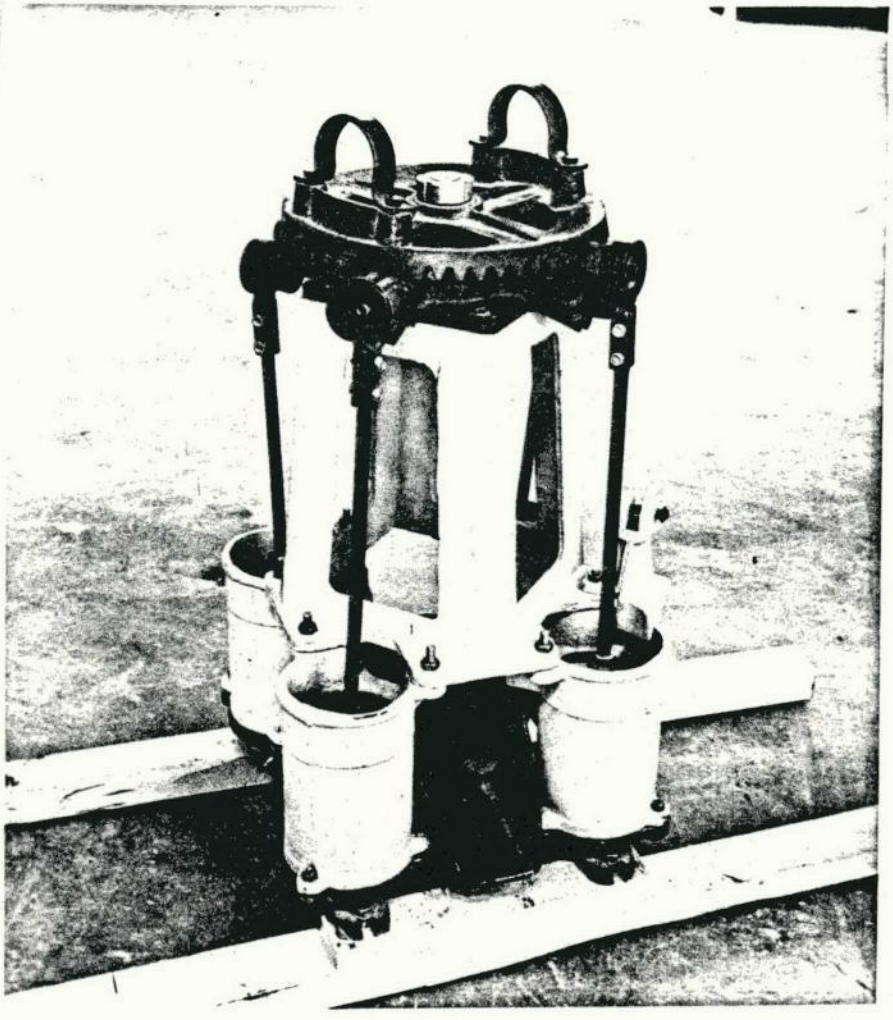
priciple: piston type

construction: to consist of chech valve, cylinder, piston and handle etc.

dimensions:

weight: 35kg

manufacturer: Juye water conservaney bureau in Shandong



name : 4DI20 type animal-drawn pump

flowrate : 5 m^3/h

discharge head :

suction head : 8 m

required power : animal

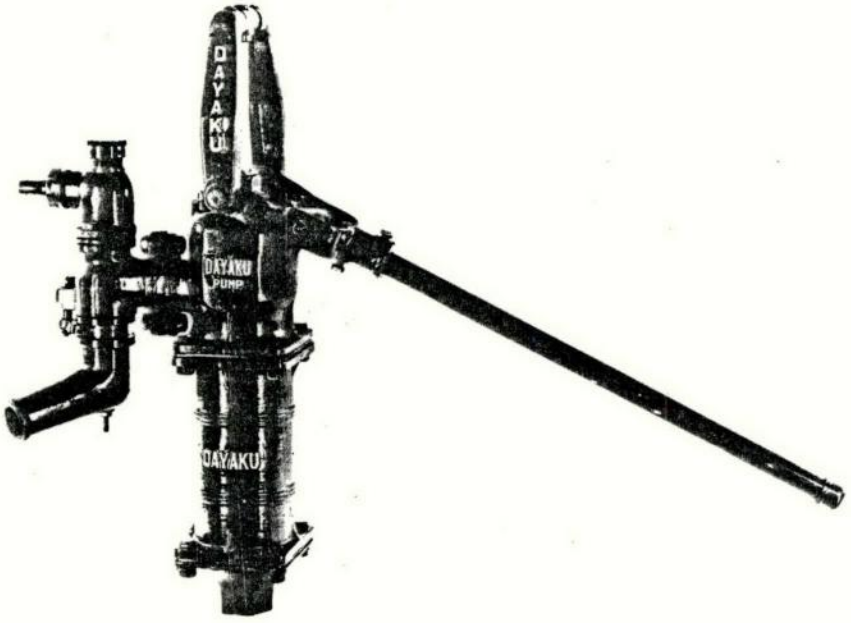
principle : big gear drives four small cam gears, piston reciprocate to lift water

construction : to consist of big angular gear, small angular gears, five way, cylinder, bracket and besket etc.

dimensions :

weight : 9I.4 kg

manufacturer : Jingxian Dongfeng factory of agricultural machinery in Hebei



name: SB type hand pump
flowrate: 2-3 m^3/h
discharge head: 25m
suction head: 9.1m
required power: one person with hand
principle: piston type
construction: to consist of suction valve, cylinder, piston, casing, water discharge valve and handle etc.
dimensions: 374 x 216 x 485 mm
weight: 21 kg
manufacturer: Qianan pump factory in Hebei

name : foot-paddle pump

flowrate : I0 m^3/h

discharge head : 2 m

suction head : I.5 m

required power : one person, foot-paldle

principle : centrifugal type

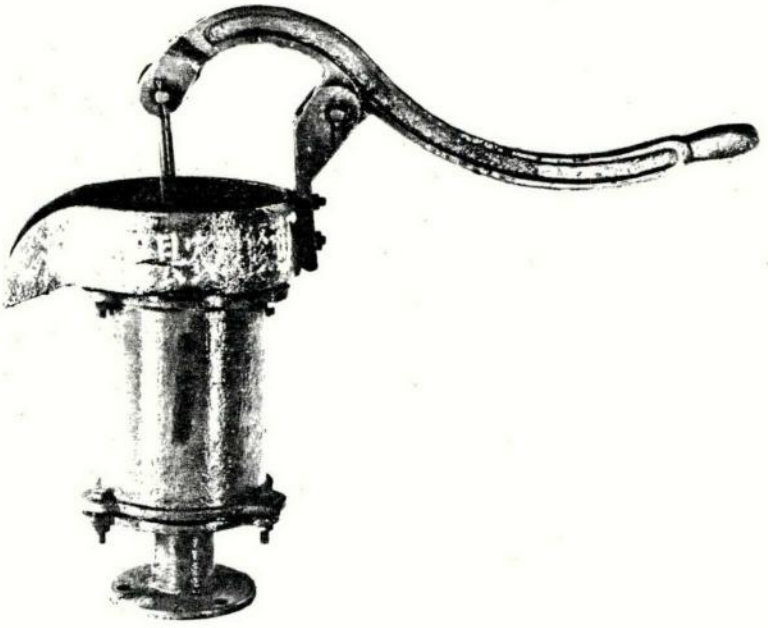
construction : gearing up, drives centrifugal pump

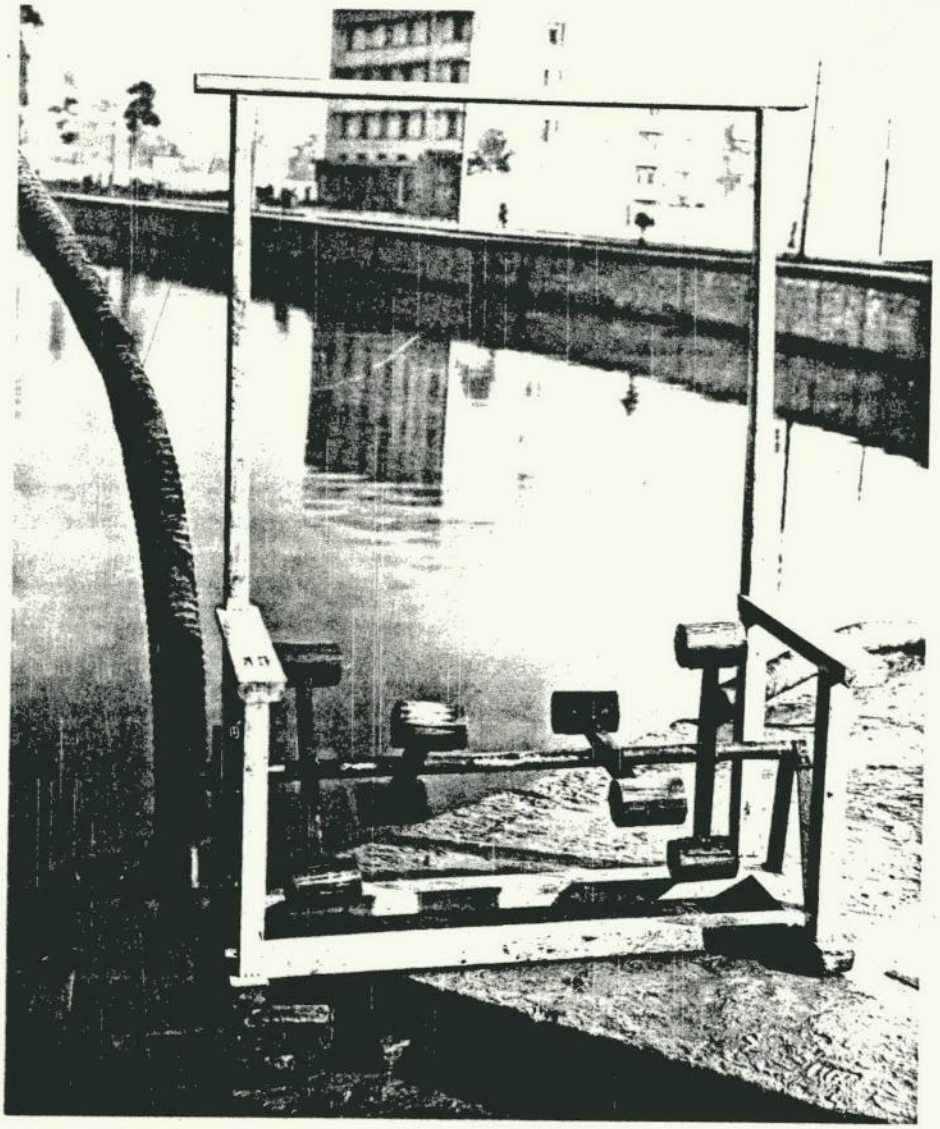
dimensions :

weight : I9 kg

manufacturer : Guangji pump factory in Hubei

name: DI50-3 type hand pump
flowrate: 1.5-2 m^3/h
discharge head:
suction head: 7m
required power: one person with hand
principle: piston type
construction: to consist of check valve, cylinder, basket and handle etc.
dimensions:
weight: 30 kg
manufacturer: Qingxian repair and manufacture factory of agricultural machinery in Hebei





name : double-person foot-paddle pump

flowrate : I2 m^3/h

discharge head : 5m

suction head : 3 m

required power : double-person, foot-paddle

principle : centrifugal type

construction : pump and gear box is connected together, gear box is driven by foot-paddle shaft

dimensions :

weight : 30 kg

manufacturer : Longchang factory of agricultural machinery in Sichuam

name: HP-81 type hand pump

flowrate: 2.82 m^3/h (60 time/min)

discharge head: 8m

suction head: 6m

required power: one person with hand

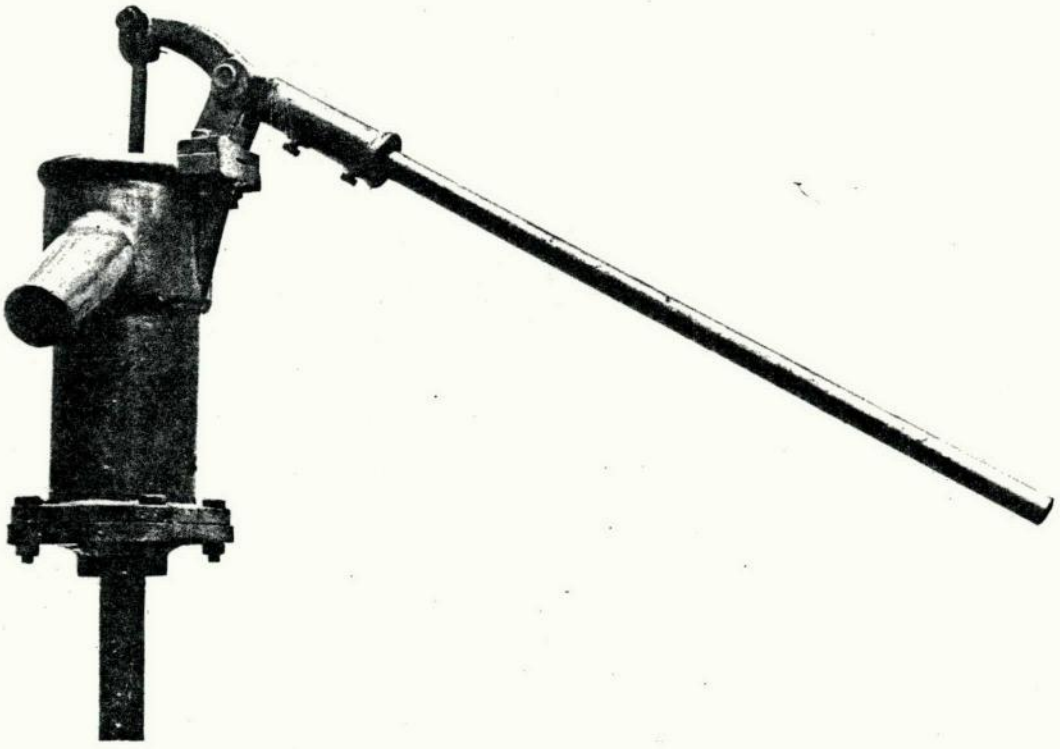
principle: pist on type

construction: to consist of cylinder, piston, check valve and handle etc.

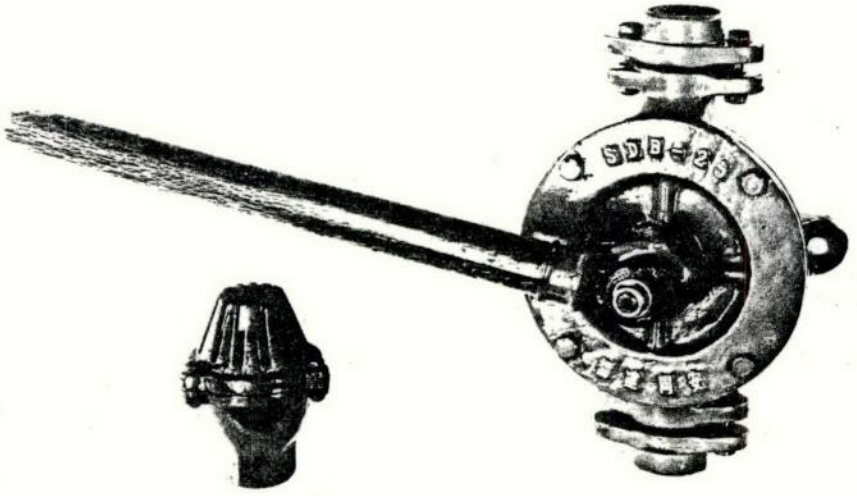
dimensions: 250 x 350mm

weight: 12 kg

manufacturer: Daiyu factory of agricultural machinery in Jiangxi

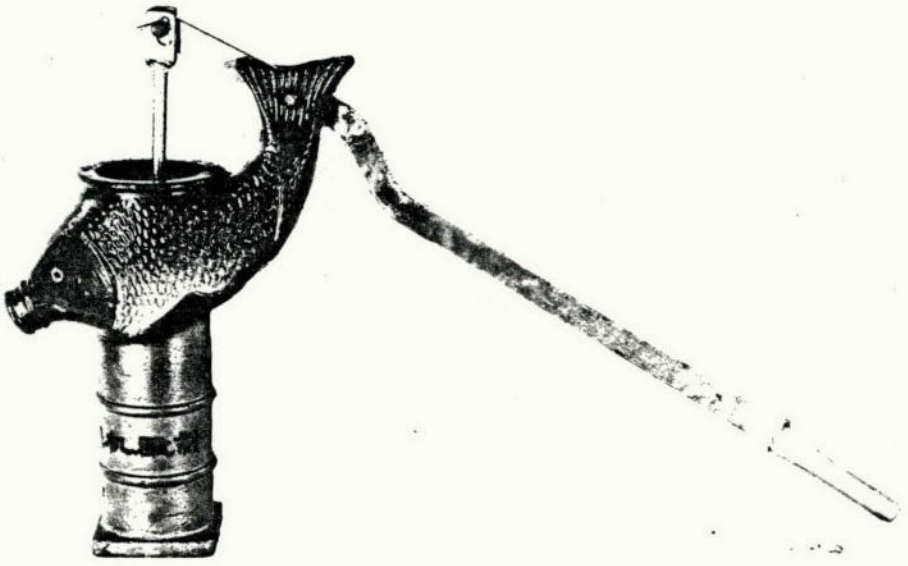


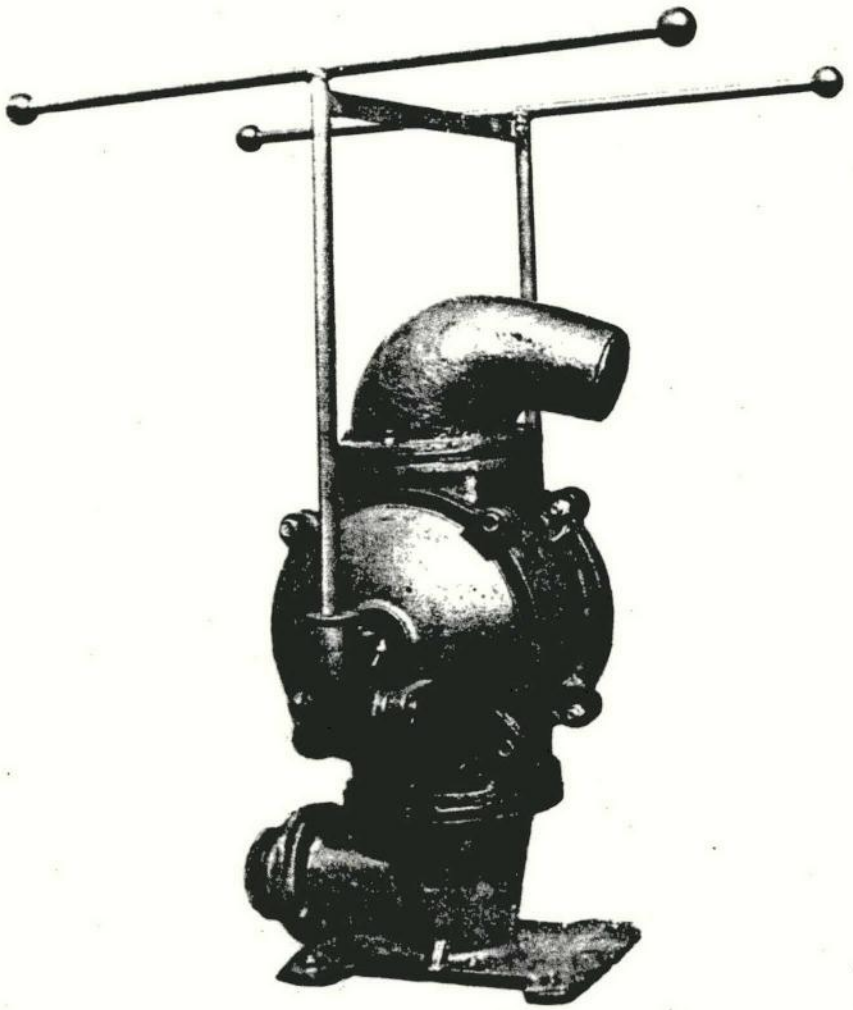
name: SB100-1 type hand pump
flowrate: 1.5 m^3/h
discharge head:
suction head: 9 m
required power: one person
principle: piston type
construction: to consist of pump body, piston, check valve and handle etc
dimensions: 765 x 210 x 650 mm
weight: 11.5 kg
manufacturer: Xinjian Second Factory of Agricultural Machinery in Jiangxi



name: 3DB-25 type hand-roker pump
flowrate: 0.84 m^3/h (rock 36 time/min)
discharge head: 15m
suction head: 6m
required power: one person hand-roker
principle: valve vane type
construction: to consist of casing, roker-shaft, roker-vane, valve vane, valve seat, cover, foot valve and handle etc.
dimensions: 540 x 200 x 300 mm
weight: 13kg
manufacturer: Tongan factory of agricultural machinery in Fujian

name: handpump
flowrate: $2m^3/h$
discharge head:
suction head: 8.5m
required power: one person with hand
principle: piston type
construction: to consist of pump body, piston, check valve and handle etc.
dimensions: 820 x 140 x 408 mm
weight: 11kg
manufacturer: Longhai repair and manufacture factory of agricultural machinery in Fujian





name : 3½ SGB type diaphragm hand pump

flowrate : IO m^3/h

discharge head :

suction head : 7 m

required power : two person

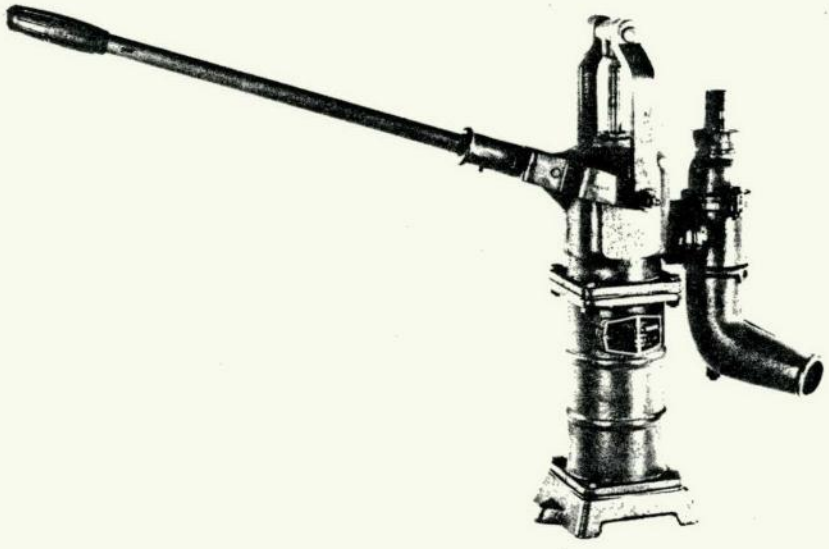
principle : diaphragm type

construction : to consist of valve, rubber membrane, cylinder and handle etc.

dimensions :

weight : 98 kg

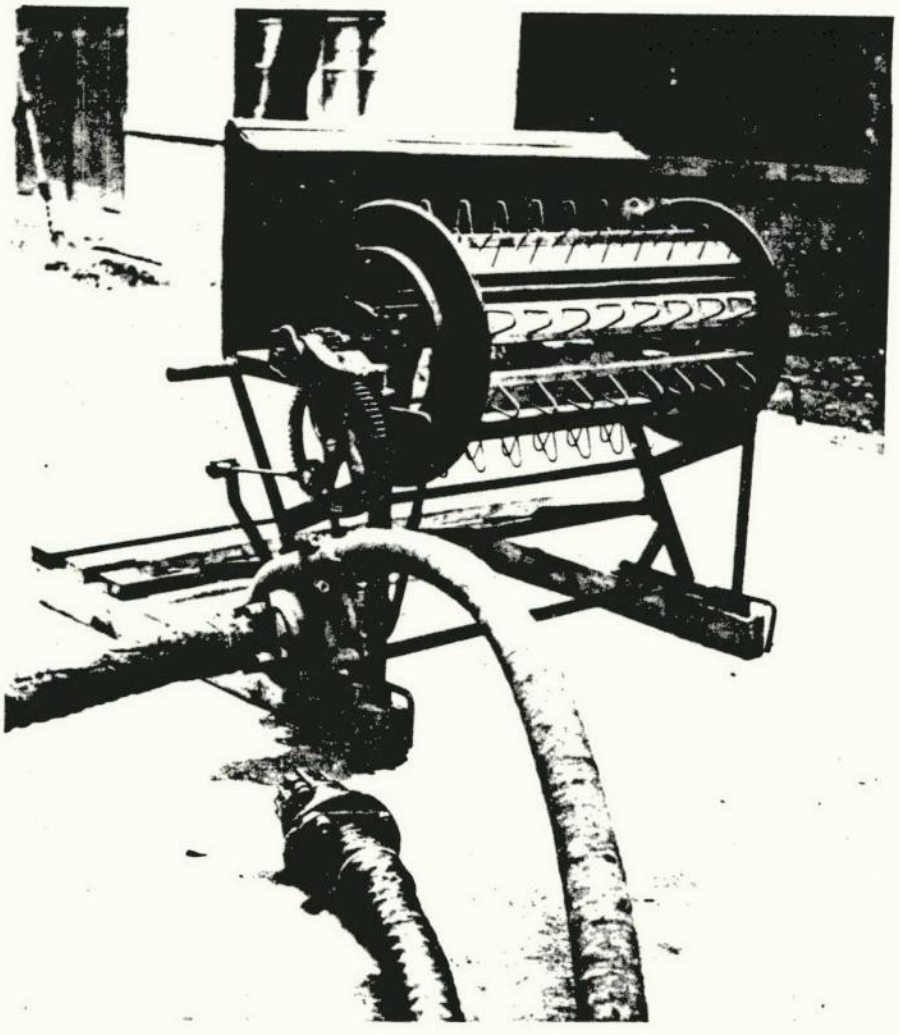
manufacturer : Yancheng pump factory in Jiangsu



name: SB40-4 type handpump
flowrate: 1.56 m^3/h
discharge head: 20m
suction head: 9m
required power: one person with hand
principle: piston type
construction: to consist of suction valve, cylinder, piston, casing, water discharge valve and handle etc.
dimensions: 360 x 200 x 480 mm
weight: 20kg
manufacturer: Xianju machine factory in Zhejiang

name: paddly thrashing foot-paddle pump
flowrate: 10-12 m^3/h
discharge head: 1.5-2m
suction head:
required power: two person, foot-paddle
principle: centrifugal type
construction: transmission by thrashing machine, addtional speed centrifugal pump driven by pulley.

dimensions: 200 x 250 mm
weight: 10kg (pump)
manufacturer: Luling Lujiang machinery factory in Hunan



name: BX40-2.5$_S$ type foot-paddle pump

flowrate: 6-9 m^3 /h

discharge head: 2-3 m

suction head:

required power: one person

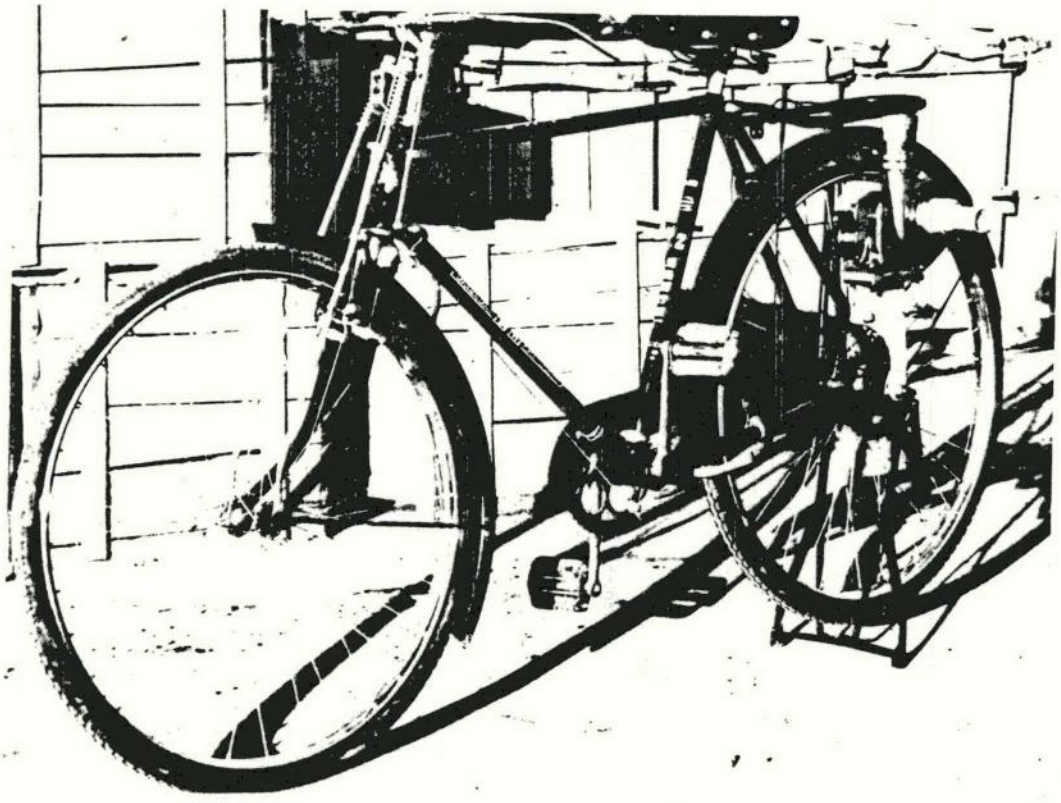
principle : centrifugal type

construction: both hand and foot-paddle, gearing up

dimensions: 464 x 235 x 310 mm

weight: 15 kg (foot-paddle 20kg)

manufacturer: Hengnan factory of agricultural machinery in Hunan



name: bike pump

flowrate: $3m^3/h$

discharge head: 8m

suction head:

required power: one person, foot-paddle

principle: centrifugal type

construction: from 30 rpm to 1500 rpm by chain wheel and gears with 5-step speed increase

dimensions:

weight: 3 kg

manufacturer: Zhenjiang Rushan factory of sprinkle-irrigation machinery in Jiangsu.

name: TL-I20 type: double-action plunger pump

flowrate: 6.8 m^3/h (50 time/min)

discharge head: I3m

suction head: 7m

required power: two person operation

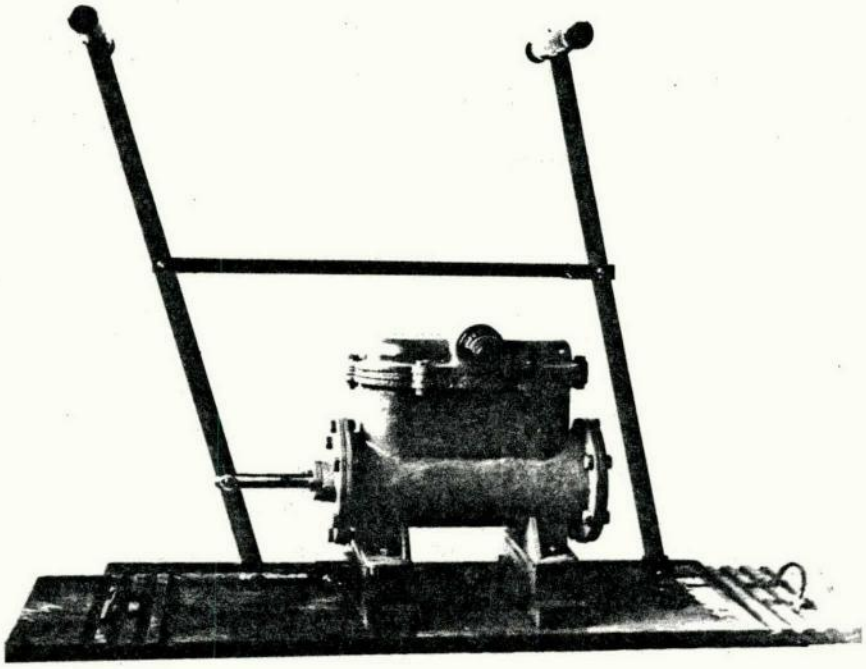
priciple: plunger type

construction: to consist of pump body, plunger, check valve and handle etc.

dimensions: 500x 300x 330 mm

weight: 44kg

manufacturer: Daiyu factory of agricultural machinery in Giangxi



4. GLO/80/004 has been established to investigate, demonstrate and promote integrated resource recovery. The objective is to achieve replicable health, environmental, economic and financial benefits and to increase supplies of energy, raw materials and protein through integrated resource recovery projects and to assemble and disseminate technological, economic and financial information on resource recovery projects. For this purpose, GLO/80/004 will document state of the art reviews, conduct and document case studies, develop protocols for monitoring and appraisal of integrated resource recovery programs, participate in the design, install, monitor and evaluate a limited number of demonstration projects for which funds from bilateral and other sources can be obtained, and prepare terms of reference and guidelines for full scale projects to be implemented by others.

Previous Mission

5. Mr. C. Gunnerson, Senior Project Officer, GLO/80/004, visited China in March 1982 to initiate discussions following an expression of interest by China to participate in the project. Regrettably, Mr. Gunnerson had to terminate his mission after a few days in Shanghai and without completing discussions, due to illness. However, the visit did confirm a mutual interest in the project and Shanghai municipal staff provided Mr. Gunnerson with background documentation on existing waste reuse practices and a research project proposal.

Shanghai Research Project Proposal

6. The "Research Project for Retrieving and Utilizing Municipal Wastes" dated March 1982 covers six areas: (i) recovery and utilization of waste paper; (ii) recovery and utilization of waste plastics; (iii) recovery and utilization of waste non-ferrous metals; (iv) recovery and utilization of waste electric wire; (v) utilization of domestic refuse and excrement; and (vi) use of human excrement. The proposal identifies for items (i) to (iv) the need to improve materials handling, extracting technologies and efficiencies, for items (v) and (vi) the need to more effectively sort domestic refuse, to improve environmental health conditions and to increase energy, livestock and crop production.

7. To achieve the objectives, the project proposes the visit of six experts to Shanghai for a period of one month each to advise municipal staff on how to improve recycling of waste material. The project further suggests that Chinese personnel study and practice abroad. The total time for such study is estimated at 40 staff months. Finally, the project provides for the supply of waste sorting and processing equipment and laboratory apparatus.

ANNEX 4

PROPOSED COLLABORATION BETWEEN UNDP/WB GLO/80/004 RESEARCH AND DEVELOPMENT IN INTEGRATED RESOURCE RECOVERY AND SHANGHAI'S RESOURCE RECOVERY ACTIVITIES

Introduction

1. A UNDP/World Bank mission visited the People's Republic of China from July 1-6 to discuss with PRC officials possible cooperation in resource recovery demonstration projects for the purpose of supporting Chinese efforts at increasing the effectiveness of existing recycling activities and obtaining Chinese assistance for the promotion of recycling projects in less developed countries based on the accomplishments China has achieved in this sector.

2. The mission composed of Mr. S. Arlosoroff, GLO/80/004 Project Manager and Mr. J. Kalbermatten, Senior Adviser, Water and Wastes, of the World Bank Transport and Water Department, and Mr. M. Potashnik, Senior Programme Officer of UNDP's Division for Global and Interregional Projects, visited Hangzhou, Souzhou and Shanghai to observe local waste reuse practices. In Shanghai, extensive discussions were held about the municipality's plans for the improvement of recycling and reuse efficiency with a team headed by Mr. Shui Zhong Quan, Deputy Director and Chief Engineer of the Municipal Construction Bureau of Shanghai. This report describes the missions' observations and recommends a plan of action for cooperative activities by GLO/80/004 and Shanghai in support of the municipality's plans for recycling of water. The recommendations represent the mission's understanding of the views expressed by those participating in the discussions in Shanghai. Mr. King Wu, Vice Chairman, China Energy Research Association and Deputy Head, Technology Committee Ministry of Coal Industry and Mr. Kang, Ministry of Foreign Economic Relations, accompanied the mission, organized its itinerary and assisted its work with helpful advice.

Background

UNDP GLO/80/004 Project

3. The collection and disposal of human, municipal and industrial wastes require as much as 20 percent of the municipal budgets in many cities of developing countries. Detrimental environmental and health impacts of ineffective waste disposal can be serious and are expected to grow worse as greater affluence results in increased waste production. Recovery and reuse of waste material would improve environmental health conditions and provide income to at least partially offset the cost of waste collection and disposal. In many cases, waste recycling and multipurpose reuse can be an economically viable enterprise.

8. The research project is well conceived and its need is supported by requisite background documentation. Nevertheless, its estimated cost of US$615,000 places it beyond the financial capability of GLO/80/004, whose budget is less than US$2,000,000 for a period of 36 months and activities in some 20 developing countries. As a consequence, China was informed that the scope of the research project proposed by Shanghai exceeded GLO/80/004 resources. A two phase approach was suggested instead, under which GLO/80/004 would provide experts to design necessary improvements and recommend equipment under phase one, with training of Chinese staff, provision of equipment and implementation of improvements to take palce during the second phase. GLO/80/004 would, however, attempt to identify sources of finance for phase 2.

UNDP/World Bank Mission

9. The purpose of the mission was to follow up,in fact, complete the interrupted visit by Mr. Gunnerson, and to reach preliminary agreement on further activites based on the GLO/80/004 evaluation and response to the Shanghai's research project proposal. The mission visit also offered the opportunity to broaden the understanding of and knowledge about Shanghai's recycling and waste reuse activites and, in view of GLO/80/004 limited resources, reach agreement on the priority of the various activities discussed in the Shanghai's research project proposal. The mission further offered the opportunity to determine whether other cities in China identified as potential project participants could be included and to explore the suitability of reformulating the project for a two stage approach.

MISSION FINDINGS

Recycling in Shanghai

10. The mission had the opportunity to visit a variety of waste collection stations, sorting and recycling plants, nightsoil and garbage transfer stations and a community biogas plant. Some of these facilities had previously been visited by Mr. Gunnerson, others were seen for the first time. The mission was therefore able to independently confirm that Shanghai has indeed reached a very high level of waste collection and recycling and has developed a strong, capable and efficient waste management agency. The mission concurs with Shanghai staff that the most urgent need is the improvement in the efficiency in processing and production of reusable material through the application of up to date methods, technology and equipment. Increased mechanization would further permit the processing and reuse of increased quantities of waste materials.

Other Municipalities

11. The mission visited Hangzhou and Suzhou to observe recycling activities. Hangzhou appears to be the more promising of the two as a participant in GLO/80/004. Municipal authorities are interested in improving biogas and compost production and have just completed the construction of a biogas (mesophilic) pilot plant and have an aerobic

composting facility at the same site. Officials operating the pilot plant are interested in receiving advice and assistance from GLO/80/004.

The Shanghai Program

Existing Plans and Priorities

12. During discussions in Shanghai, Mr. Shui Zhong Quan explained waste collection activities, plans for expansion and priorities for GLO/80/004 participation. Priorities for improvements are in the following areas:

(i) rare metals recovery, plastics recycling and waste paper reuse.
(ii) organic waste utilization.
(iii) sorting of domestic refuse and public dustbin contents.

13. Plans have been prepared for items (i) and (ii) calling respectively, for the investment of US$1.3 and 15.5 million. The objective for item (i) is to increase recovery and reuse efficiency, both quantitatively and qualitatively. The purpose of the second item is to provide 140,000 suburban (farm) families with energy (biogas) and increase agricultural productivity through an increased supply of digester slurry and compost. Plans for item (ii) include pilot projects to promote and popularize the co-digestion and co-composting of excreta and garbage.

14. Item (iii) requires further study and planning. The intention is to increase waste recovery, especially paper, through increased mechanization with which the municipality has so far little experience.

15. Overall, Shanghai officials stressed the importance of protecting the health of worker and user and improving the environment through increased waste recovery efficiency.

GLO/80/004 Participation

16. Shanghai's existing and planned waste recovery activities provide many opportunities for GLO/80/004 to cooperate with Shanghai in an effort to improve and extend waste reuse, even though this participation cannot be as extensive as originally assumed in the Research Project Proposal. During the discussions, the following approach finally emerged.

Plan of Action

18. In view of GLO/80/004 financial constraints, the programme would be undertaken in two phases, preparation and implementation.

Phase 1: Preparation

i. Evaluation of existing processes in the sectors identified (see para. 13)

ii. Identification of improvements including recommendations for process modifications and increased mechanization to increase the quantity of recycled materials and improve the quality of end product.

iii. Identification of study trips and training opportunities for Chinese staff; initial study trip abroad of Chinese project manager.

iv. Preparation of Project Documents providing plans of processes, specifications of equipment and details of operation of recommended alternatives for selection by Shanghai.

19. This work could begin October or November 1982, with the visit of high level experts in biomass conversion, materials handling and process engineering under the supervision of GLO/80/004 project management.

20. At the conclusion of Phase 1, GLO/80/004 management and Chinese counterparts will jointly identify potential sources of financing for training and equipment. Further, during Phase 1, GLO/80/004 will attempt to identify sources of funds so that training activities can begin as soon as possible. Phase 1 activities will be financed by GLO/80/004.

Phase 2: Implementation

i. Training abroad of Chinese staff, if resources are not obtained for training during phase 1.

ii. Selection and purchase of equipment.

iii. Implementation of alternatives selected (see para 18 iv).

Budget

21. GLO/80/004 is budgeting:

(i) a visit to Shanghai of up to 3 weeks for each expert with a one week period of following work in their home offices.

(ii) a one month study trip for the project manager to Japan, Europe and North America to observe relevant recycling and reuse processes recommended by experts. To minimize costs, it is assumed that the Chinese embassy in the country concerned would provide necessary translation services.

(i) The number of technical experts to be provided by GLO/80/004 would be reduced to three, one each to be experienced in materials handling, process chemical engineering, and biomass conversion. Their tasks would be to provide advice on plastic and paper recycling, on mechanical sorting and processing of refuse and on co-digestion and co-composting of organic waste. In addition, a public utility financial analyst will be provided by GLO/80/004 (see par. 23 (ii)).

(ii) Study trips and training abroad for Chinese staff would be provided for one rare metal specialist, one plastics specialist and two organic waste reuse specialists. GLO/80/004 staff will review resource availability to determine whether the project can finance any of these training trips and if not, will attempt to locate other sources of support.

(iii) Laboratory and production equipment to increase waste recovery efficiency would be financed by other sources. GLO/80/004 will attempt to identify these sources as soon as plans and specifications have been prepared with the participation of experts.

Programme Objectives

17. The aim of GLO/80/004 participation would be to:

(i) Contribute to the planning of effective recycling and waste reuse projects in the sectors identified in para B. These projects are initial efforts at improvements to demonstrate more efficient processes for replication elsewhere in Shanghai and China.

(ii) Assist in identifying sources of funds for the implementation of these projects and their execution.

(iii) Disseminate results of these efforts and existing activities to other countries and help them, with the assistance of Chinese experts, in the preparation and implementation of similar projects.

Technical Cooperation among Developing Countries (TCDC)

22. China has achieved high levels of waste collection and reuse in both urban and rural areas and developed competent and effective institutions for this purpose. Shanghai is but one example of this. While benefiting from GLO/80/004 technical experts in improving recycling efficiency through the use of more advanced technology and increased mechanization, China could make a very significant contribution to developing countries by sharing its expertise in organizing waste recycling activities. TCDC activities of China as part of GLO/80/004 activities could take the several forms described below.

Shanghai Case Study

23. Shanghai has a cost effective waste collection and sanitation system employing a variety of technologies reflecting local conditions. A report describing the system would be a valuable instructional tool to assist developing country municipalities in the development of their own waste collection and sanitation systems and the selection of the appropriate technologies to be used. GLO/80/004 would assist Shanghai in the preparation of such a report by providing:

(i) A suggested annotated report outline indicating, inter alia, data to be presented and format of presentation.

(ii) A Chinese speaking public utility financial analyst to participate in development of the document, assist in the presentation of financial and economic aspects during a four week visit to Shanghai (preferrably during the October or November GLO/80/004 mission),to translate the document from Chinese to English, and participate in final review and drafting of the document.

(iii) Publication of the document and distribution to officials and professional active in the waste collection and sanitation sectors in developing countries.

Seminar on Chinese Waste Collection and Sanitation Practices

24. A one week seminar would be organized in Shanghai for 20 key sector officials from developing countries and 10 from China to review - and learn from - Chinese experience. Each participant would be expected to briefly describe major problems. A panel of Shanghai and GLO/80/004 staff would then analyze interesting problems presented and suggest possible solutions on the basis of experience in Shanghai and elsewhere. Working groups may be formed to evaluate and solve specific examples.

25. A second week would be devoted to field visits in China to observe specific relevant sanitation and waste reuse projects.

26. GLO/80/004 would finance from its own and other resources the cost of foreign participants. It is asumed that Chinese participants would be funded by their respective organizations.

27. The seminar would preferrably held in the spring of 1984 and in any event not before fall 1983 to provide sufficient time for planning. Details will be worked out in consultation between Chinese government and Shanghai officials and staff of GLO/80/004.

Chinese Experts for GLO/80/004 Consulting Assignments

28. Given the expertise of Chinese municipal staff in the organization of waste recovery and sanitation activities, developing countries would benefit from their participation in GLO/80/004 as short term consultants. GLO/80/004 would welcome the opportunity to employ such experts and hopes to receive a list of such staff, with curriculum vitae, with ability to communicate in English or French. GLO/80/004 would then direct requests for short term assignments of experts to the Ministry of Foreign Economic Relations. A preliminary estimate indicates that several assignments up to a total time of 9 staff months could be expected during the next 18 months.

Recommendations

29. The mission believes that participation by GLO/80/004 Shanghai's waste recycling activites would benefit not only Shanghai and China, but through GLO/80/004, many of the developing countries facing similar problems. The mission therefore recommends that GLO/80/004 undertake the activities described in this report in cooperation with Shanghai. Subject to concurrence by the government of China and the municipal authorities of Shanghai, GLO/80/004 will:

(i) Identify suitable experts
(ii) Organize mission of experts in October or November 1982 if authorization from China is received by September 1, or two months after such authorization is received.
(iii) Provide Shanghai with Case Study Report outline and arrange for visit of financial analyst to coincide with expert mission.
(iv) Prepare plan for Chinese project manager study trip.
(v) Make initial contacts leading to the identification of financial resources for Phase Two of programme.

30. The mission further recommends the organic waste reuse activities of Hangzhou be included in the program, given the about to be initiated pilot project in Hangzhou, by having the biomass conversion expert visit Hangzhou and by inviting the resonsible Hangzhou officials to participate in experts activities discussions/project design in Shanghai.

31. The mission also recommends that the Research and Training Center for Biogas Development and Extension, Chengdu, Si-Chuan and the PRC/FAO, Regional Research Center for Integrated Fish Farming, Wuxi, be asked to participate in the biomass conversion activities. These activities are a substantial part of the proposal, and will include at least one technology (thermophilic digestion) which produces large amounts of biogas and excellent fish and cattle feed but are not widely known in China. Thus, the institutes would not only contribute technical knowhow to the program, but also benefit from collaboration with it. At the same time, the great knowledge and excellent results of the two institutes could be disseminated more extensively through GLO/80/004. Future participation of the appropriate agricultural research and extension institute should also be considered.

32. This document will be forwarded to the UNDP Resident Representative in Beijing for transmittal to the Ministry of Foreign Economic Relations and discusions leading to a decision on future GLO/80/004 activities in China.

2.2 I emphasized that considerable interest is being shown in the pump monitor. It is important to give the device as much publicity as possible to ensure that everyone involved with handpumps is aware that it is available and can be used to provide valuable data for the performance and financial analyses of handpump programmes - e.g. in cost/benefit analyses.

The monitors may also be applied in other water schemes - e.g. irrigation and regular water supply systems.

The need for high resistance to vandalism was emphasized. Not all vandalism is malicious - some interference is likely to be caused by nothing more than curiosity. At the other extreme, however, some adults and children may deliberately attack the device for one reason or another. Safeguards are therefore proposed.

The staff described the proposed design for a production monitor with an acetal housing. Before going into production, CATR wishes to make a prototype and carry out a series of tests to assess impact resistance, etc. If the acetal housing is not strong enough, then we could go to polycarbonate, or even metal. The vandalism problem could possibly be reduced by designing the device to blend in with the pumpstand, and by installing it at the same time as the pump so that it does not have "novelty value."

It was agreed that copies of the drawings will be sent to Tim Journey and Ken Gibbs for their comments.

2.3 I expressed that in my view, it might still be possible to design a unit which would fit inside the pumpstand. CATR does not believe this possible, because of the lack of interior space and the difficulties of access for installation and readings.

2.4 It was emphasized that the pump monitor is a device which detects the presence of water and thereby measures pumping time. From knowledge of the flow characteristics of the pumps under various conditions, the quantity of water pumped can be estimated. The accuracy of these estimates would probably be improved by running some "calibration" tests on the monitors after they have been installed in the field. CATR will be able to advise on suitable test methods.

It was stressed that many operators of water projects in the world, especially in the rural and agricultural areas, have no means of reasonably measuring water quantities as standard water meters cannot be used. The Terms of Reference for the pump monitor are given in Annex V-C.

3. UPDATE FOR BATCHES 1, 2 AND 3

3.1 Endurance tests - updated summary sheets were given to us for our comments.

ANNEX V

MEETING WITH THE CONSUMERS' ASSOCIATION AT GOSFIELD
AND A VISIT TO THE TESTING FACILITIES

July 16, 1982

Present Morning: Alan Kragh, Chris Evans, John M. Keen, Don Unwin, John Reynolds
Afternoon: Kragh, Unwin, Ken Mills, Reynolds, John Kingham
(For Agenda, see Annex V-A)

1. LESOTHO FIELD TRIAL

1.1 It was agreed that Chris Evans' final visit to Lesotho should be timed to coincide with the Advisory Panel meeting in Malawi, scheduled for December 6-10, so that he will be able to stop over on his return and report on the Lesotho Field Trial. A telex was received from the Lesotho government requesting further expansion of the field trial monitoring; I responded that WB funding could be made available to expand the Lesotho trial to full status, provided a suitable monitor was located by them and the number of pumps justified such expansion. CATR will inform us on developments.

1.2 The WB does not require a full field trial protocol, but feels a 6- to 8-page operations manual for the in-country team would be important. CATR was asked to submit an outline and costing as soon as possible.

1.3 The possibility of CATR's future involvement in field trials in a training and supervisory role was discussed. It was envisaged that a CATR staff member, preferably English and French speaking, would make visits of about seven days to each of 10-15 field trials to assist in training and supporting the monitoring teams. Most visits would be made within the next 12-18 months, with a likely extension for another year. CATR will submit a proposal for these services.

1.4 The contribution of the financial and social analyses was discussed. It was explained that a financial-economic survey was to be undertaken in selected developing countries to compare the costs of gravity feed, mechanically pumped, conventional handpumps, and VLOM pump water supplies. The WB expects CATR to contribute to this work by long-term maintenance requirements and therefore costs on the basis of laboratory testing results.

2, HANDPUMP MONITORS

2.1 It was agreed that the Project Progress Report dated 9.7.82 be considered a draft report. (See Annex V-B.) A final report will be issued as soon as possible after results from Batch 3 user trials and other tests have been analyzed. It is anticipated that the Final Report will be issued within two months.

3.2 Pump Failure Alerts (PFA) - latest version was passed to us for comment, with the explanation that the PFA for other clients differ in detail from those for the World Bank. (See Annex V-D.) I emphasized that the PFA should reflect the fact that the results of all CATR pump work, for whatever clients, should be available to the World Bank without the need for specific authorization from the client. We made this clear when agreeing that CATR should accept pump work from other clients with this specification as a condition of acceptance.

I expressed my views that pump manufacturers should not be allowed to censor the results so that only favourable data is published. If the information that they were allowed to do so "leaked out," our credibility would be seriously damaged.

It was agreed that the manufacturers' right of censorship might not be desirable in principle, but in cases where we are asked to assist in the development of a new design or a series of designs, it would be unreasonable to insist that results be published. It was emphasized that the proposal was unusual and that manufacturers might reasonably object to it. If they pay for the R&D work, they expect the results to be confidential. I agreed that the matter was complex and suggested that it should be subsequently reconsidered. We will inform them of our views as soon as possible. (We have since done so.)

3.3 Delivery Lift versus Final Performance Test - I agreed that it would be much more useful to carry out a final full-performance test on all the pumps - using the strain gauged handles to measure operating efforts, work input and pump efficiency - rather than a delivery lift test on the few pumps equipped for tank filling. In either case, the tests would be an addition to the agreed terms of reference, which call for a volume flow test only at the end of endurance, but within the existing project budget. In all my travels in developing countries, I could recall only one example of a handpump used to fill an overhead tank.

4. BOREHOLE

4.1 It was agreed that a borehole is essential for R&D work in the plastic belowground elements. I described two methods used in Israel to obtain variable water level in boreholes:

a) Using a large diameter borehole, with a submersible pump in parallel with the pump under test - adequate for high static water levels, although some hydraulic problems exist. Two casings, with the inner one perforated, present better operating conditions.

b) Using a second borehole near the test borehole with a high-capacity pump to draw down the water level in the test borehole.

We decided on a scheme to use a closed borehole to avoid licensing and pollution problems; this borehole will have a level detection system and a recirculation system for pumped water. It was suggested, however, that the recirculated water should be returned below the static water level in a separate pipe.

5. PLASTIC PUMP DEVELOPMENT

I was given copies of the visit reports (see Annex V-E), and we discussed the various schemes. We particularly stressed our latest scheme, in which we are using a long piston made from standard pipe with the piston seal working against the smooth outer surface. I was interested in CA's alternative design schemes, but was anxious that Ken McLeod's design be tested as is. CA assured me that they are actively developing the McLeod scheme, and that they already have a prototype to test in conjunction with the Malawi head. Ken McLeod's presence and direct participation during the R&D phase was stressed. I informed them of our plans to post him in U.K. for 6-12 months for this purpose.

6, CONTENTS OF THE FINAL REPORT

6.1 John Kingham felt that the weighting scheme used for the ODA report would also be appropriate and useful for the current project. The system could perhaps be improved, however:

a) Every topic must be rated, from one to ten for example, on a quasi-linear scale, although in certain cases it is inappropriate. For some topics, it would be reasonable to introduce the concept of unacceptability at a particular level. For example, although pump performance is not a very significant factor in the total weighting scheme (as low performance ratings have only a small effect on the final overall rating), it must nevertheless be at least adequate. The above example argues for a filter stage, to "weed out" pumps that are inadequate.

b) Laboratory test data alone are not enough to define the suitability of pumps for particular applications. More information, e.g. field results, is needed to form likely conditions of use to make a proper selection.

It was agreed that the weighting scheme used for the ODA report might have been satisfactory; however, we must "stick our necks out" in an effort to predict future pump durability, performance, maintenance costs, etc., if our project is to be meaningful. Based on laboratory testing, we must try to predict the frequency of future breakdowns requiring maintenance or repair. The costs of spare parts will probably be much less significant than the frequency at which the maintenance team is required to visit the pump. (See sensitivity examinations in the draft financial analysis.)

6.2 I have explained our desire to compare the costs of four models for pump maintenance systems for conventional (i.e. non-VLOM) pumps:

a) "Firefighting" - on a call-out basis (Ivory Coast model and others)

b) "Pump rebuilding" over time, i.e. firefighting repairs combined with an element of preventative maintenance (Malawi model)

c) "Routine maintenance" on a fixed timetable (Finnwater model - Tanzania)

d) "Three-tier" system (India model).

I proposed three possible weighting levels:

a) Similar to the ODA report

b) With an added filter stage

c) With a speculative element, predicting future breakdowns.

In cases where manufacturers have incorporated our suggested design improvements, the Bank wishes to comment on their likely benefits and, hence, their effect on the pump's overall rating.

6.3 It was agreed that the final report should be published in two forms:

a) A comprehensive technical report, including the force/displacement diagrams, etc.

b) A summary "highlight" report.

Ken Mills will bring a draft of the final report(s) when he visits us in Washington in mid-October.

7. SHOCK-LOADS TESTING

The subject was discussed at length after several comments were received from a number of experts stressing this as a weakness of our program. It was concluded that we should test the pumps for the effects of shock loads on the handle bump stops. The extra funds will be made available. CATR agreed to prepare and submit Terms of Reference and an estimate of cost. (See Annex VI-F.)

Harpenden Rise Laboratory
Harpenden Rise
Harpenden
Hertfordshire
AL5 3BJ
England

Tel: 05827-64411
Telex: 826619 CALAB G

The Control Tower
Gosfield Airfield
Gosfield
Halstead
Essex CO9 1SA
England
Tel: 0787-472688
[redacted]

CA TESTING AND RESEARCH

(1)

Reply to: at:
Our Ref: Date:
Your Ref:
Your communication of:

c.c. PEC JMK
JMR JAK
DJU File
AMK
CDE

A G E N D A ANNEX V-A

Title: MEETING WITH S. ARLOSOROFF
AT GOSFIELD
ON 16 JULY, 1982

10.45	Lesotho Field Trial monitoring forms, CATR's future involvement.	CHRIS EVANS
11.15	Handpump Monitors. Report on Lab. testing, vandal-proof housing, costs etc.	JOHN KEEN
11.45	Up Date on position of Lab. tests for Batches 1, 2 and 3.	JOHN REYNOLDS
12.15	Discussion on borehole with artificial water levels. Consider best site and hear SA's experiences.	
12.30	LUNCH	
13.45	Plastics Project - update and future activity.	JOHN REYNOLDS
14.15	Discussion on form and content of final report on Batches 1 and 2, to include discussion of points in SA's memo, 7 June attached. Specific points Alpha - Delta to be discussed.	
	Performance Analysis and Weighting Trees in ODA report -	JOHN KINGHAM
16.40	SA to return to Braintree Station to catch 16.56 train to London.	

NOTE: JMR to pick up SA from Braintree Station 10.30 a.m. if trains are running. If not then JMR to pick up SA from Epping Central Line Station at 9.30 a.m. and return him to Epping at end of meeting please.

KJM/EJW
9.7.82

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WASHINGTON DC 07 JUN 82
PAGE 1 OF 1
TO:
MR. KEN MILLS,

HARPENDEN HERTFORDSHIRE, ENGLAND.
OUR TELEX 208. RE: INT/81/025. AAA. DURING OUR PROPOSED MEETINGS JULY 16 AND 19 WE WILL HAVE TO HAVE TO DEAL BETWEEN ALL OTHER SUBJECTS WITH ALFA. THE ANALYSIS OF QUOTE ANTICIPATED MAINTENANCE COSTS AND PROBLEMS UNQUOTE ON EACH OF THE PUMPS BEIN G TESTED. BETA. BASED ON THE LAB TESTING RESULTS, FORECAST THE NATURE AND FREQUENCY OF BREAKDOWNS IN FUTURE YEARS FOR EACH PUMP. GAMA. SIMULATING SHOCK LOADS AS OCCURRING UNDER FIELD CONDITIONS AT UPPER AND LOWER POINTS OF STROKES. DELTA. THE COORDINATION BETWEEN YOUR FINAL REPORT AND OUR DATA ANALYSIS. BEE. WE CLEARLY UNDERSTAND THE DIFFICULTIES IN COPING WITH ALFA AND BETA MAINLY BUT WE MUST PROVIDE PROPER ANSWERS TO THESE ESSENTIAL ASPECTS. CCC. I HAVE MET REPRESENTATIVE OF DEMCO. THEY WILL GET IN TOUCH WITH YOU. I ASKED THEM TO SHOW YOU DRAWINGS OF THEIR MK II PUMP BEFORE MANUFACTURING TO AVOID MORE MISTAKES. TOLD THEM TESTING WILL HAVE TO BE FUNDED BY THEM. AGREED TO MEET THEIR DIRECTOR GENERAL FOR ONE HOUR AT THE CAVENDISH ON JULY 16 AFTER RETURNING FROM GOSFIELD. DDD. TAKING OFF FOR CHINA, TURKEY, LONDON ON JUNE 18. OFFICE WILL BE IN CONTACT WITH ME AT ALL TIMES. REGARDS. ARLOSCROFF.
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Z
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PROJECT PROGRESS AT 9.7.82

HANDPUMP MONITOR

A final project report will be produced when data from Batch 3 User Trials has been analysed. This report summarises results available to date. Information in the previous project progress report (15 March 1982) has been updated where necessary. Sub-headings refer to Terms of Reference dated 2 March 1982. (See attached copy).

2. PRODUCTION OF MONITORS

The 12 pump monitors built by CATR have been undergoing various tests during recent months. These pre-production devices have been constructed from galvanised pipe fittings. Although ideal for carrying out Laboratory tests on a small batch, they are bulky, expensive to produce and very vulnerable to vandalism. The 3/8 inch BSP fixing system has proved a satisfactory method of attaching the units to most of the pumps so far encountered.

3. LABORATORY CALIBRATION

All 12 devices (6 digital and 6 electro-chemical) were tested for a 2 week period on the Laboratory rig designed to simulate water flow conditions in a handpump. It proved difficult to obtain readings from the chemical devices due to the very small scale movements involved. Of the digital devices, one stopped operating during the test due to electrode contamination. The remaining 5 performed well - all were reading within $\pm 2\%$ of simulated pump operating time.

4. FITTING TO PUMPS IN THE LABORATORY

4.1 A digital unit was fitted to each of the Batch 1 pumps (i.e. Bandung, Briau, Korat, Nira, New No. 6 and the Moyno). The pump was operated at full stroke at various pumping rates, in an attempt to determine a relationship between monitor reading, pump operating time and quantity of water, and to gain information on optimum positioning on pump.

When analysed the results showed that:

For the three pumping rates chosen for the experiment, the relationship between monitor reading and time taken to fill the bucket can vary in different ways for different pumps. So that, for example, for the Bandung and Briau pumps, the monitor reading corresponds most closely with the pumping time when the rate of 10 strokes/min is used, but exceeds the pumping time as the stroke rate increases. For the Nira and Moyno the monitor reading corresponds most closely with actual pumping time when a stroke rate of 30 strokes/min is used but underestimates the pumping time at lower stroke rates.

Much useful information was gained on the method of fixing the device.

Orientation on the outlet spout and depth of immersion of the electrodes are important. The monitor must not be activated by residual water retained in the delivery pipe after pumping has ceased. Equally the device must be able to detect low flow rates when the depth of water in the pipe may be relatively small.

On some pumps the top of the pump stand fills with water to the level of the delivery spout (e.g. Consallen). In these cases the monitor can be fitted direct to the pump stand at a point just above the level of the bottom of the outlet spout. This method calls for considerable accuracy in the positioning of the monitor and is unlikely to be suitable for use in the field.

Instructions on installation will be provided for each type of pump tested in Batch 1, 2 and 3. These will consist of close up photographs of the monitor installed on the pump, augmented by drawings showing important dimensions.

4.2 (a) Long Term Accuracy

Six pump monitors (3 electro-chemical, 3 digital) have been tested on Batch 1, and a further five (3 electro-chemical, 2 digital) have been tested on Batch 2. The pumps have been operating continuously on the various phases of the endurance tests with only occasional stops for inspections and adjustments. Total pumping time on Batch 1 was around 1600 hours, on Batch 2 about 800 hours.

During these tests one electro-chemical unit and 1 digital unit stopped operating due to electrode contamination. Of the remaining 5 electro-chemical units, four gave results well within ±10% of pump operating time, with the fifth within ±14%. Three of the digital units were within ±10% with a fourth at ±20%.

(b) Contamination of Electrodes

Contamination of the electrodes was observed on all the monitors, and appears due to three district causes:

(i) Electrolytic action had caused some corrosion of the tinned-copper electrodes. This was more noticeable on the electro-chemical types which have a higher potential across the electrodes. The possibility of using stainless steel electrodes to overcome these problems is being investigated.

(ii) The electrodes assemblies on all the monitors had a coating of a scale-like material. This is probably due to the deposition of material from dissolved salts and/or from finely divided particulate matter in the water. This coating proved easy to remove.

(iii) The electrode assembly on one pump was badly encrusted with what appeared to be rust. This was found to be due to finely divided iron particles from the pump operating mechanism falling into the pump stand and contacting the electrodes as water passed through the delivery pipe. (CODE M).

(c) Battery Life

No problems have been experienced with battery life in the course of the work. Monitors on Batch 1 have run for a total of around 1600 hours. This is equivalent in running time to a pump operating 8 hours a day for about 6 months. It is hoped that a battery life of 1 year will be obtainable from digital types. The re-chargeable batteries in the electro-chemical types have proved to be capable of driving the indicator column to its full scale reading.

(d) Reading Accuracy

The digital type readout is of course intrinsically accurate. The chemical type can easily be read to half of one division, that is ±5% of full scale reading. (50 hours on our devices which were set at 1000 hours full scale).

5. EXAMINATION OF PUMP FLOW CHARACTERISTICS

This work is continuing and has been extended to include information from Batch 3 User Trials which will have digital monitors fitted. Data is now being examined under two headings:

(a) Data which enables a relationship between pumping time and pump water output to be obtained (i.e. Batch 1 and 2 User Trial data).

(b) Data which enables a relationship between pump operating time and monitor reading to be obtained. The only results available prior to User Trial 3 are from tests carried out on Batch 1 pumps - see 4.1. Since the water output is also known for these tests, a relationship between monitor reading and pump water output can also be investigated. The advantage of using data from Batch 3 User Trial pumps is that a relationship can be estimated which is not constrained by the controlled conditions of the tests in 4.1 (i.e. specified stroke rates).

Results for men will be presented separately from women and children following statistical analysis.

We are concerned about possible statistical differences between Western users (in our User Trials), and users in Developing Countries, and suggest that to improve accuracy it may be necessary to carry out a 'User Trial' in the field in order to obtain a 'pump flow characteristic' value applicable to local users and conditions.

7. PRODUCTION MONITORS

(a) A monitor using a plastic moulded body for cheap mass production has been designed and preliminary costings are being obtained from sub-contractors. Before the design is finalised a prototype would need to be built to test impact strength, resistance to vandalism, ease of fitting and taking readings, etc.

(b) Future Development

1. If electro-chemical readout monitors are used in the field, facilities are needed to re-zero the indicator columns and re-charge the batteries. These facilities could probably be partially automated and designed to accommodate several monitors at a time, if necessary.

   It may be possible to eliminate the need to zero the readouts by having the indicator cartridge itself replaceable. A further possibility would be to fit replaceable batteries to the electro-chemical and eliminate the recharging requirement altogether. More work needs to be carried out to establish exactly what the requirements would be, and what power sources are available in the field.

2. A future development might be to develop a version of the digital monitor which uses an alternating current potential at the sensing electrodes instead of direct current. This has some advantages in simplifying the circuit and should reduce problems due to electrolytic action at the electrodes.

3. At present it is necessary to remove the watch module from the monitor case and press a button to obtain a reading. Simultaneously the monitor electrodes must be in contact with water. A modified design for production monitors would incorporate a magnetic reed switch in the monitor housing. A magnet placed manually on the case of the monitor would cause a reading to be displayed automatically without the necessity of wetting the electrodes, or removing the watch module.

8. REPORT

Following Batch 3 User Trials a final report will be prepared with conclusions on accuracy of the devices and the relative merits of the two-types, based on our experience with the 12 prototypes.

Proposals and estimated costs for a production device will be included together with recommendations on modifications to be incorporated in the design.

John Keen

JMK/EJW
12.7.82

JMK

HANDPUMP WATER FLOW MONITORS - 12 OFF

ANNEX V-C

TERMS OF REFERENCE

1. INTRODUCTION

The handpump monitor is designed to measure and record the total operating time of a handpump. It is actuated by the presence of water in the pump outlet spout, or other suitable part of the pump.

By reference to known parameters of the pump, the integrated time figure can be used to provide an estimate of total water delivered by the pump. This information is useful when assessing pump reliability and patterns of use in Developing Countries.

The device is designed for easy fitting to a variety of pumps. The integrated time readout is either by an analogue moving column indicator, or a liquid crystal digital display.

This project provides for the following work to be carried out:

2. PRODUCTION OF MONITORS

Twelve off water flow monitors will be made, based on the prototypes already developed and tested. Six devices will be fitted with a digital display, while the others will have the electro-chemical moving-column readout. All units will have 3/8 inch BSP (male) fixing.

3. LABORATORY CALIBRATION

Simultaneously, other samples will be fitted to a special test rig which is designed to simulate water flow conditions in the outlet spout of a typical hand pump. The test cycle to be used will be as follows:

(a) Overall cycle representing day/night pump use - 16 hours in use, 8 hours not in use.

(b) Pump operating cycle during 16 hours on period will be 1 minute pumping, 4 minutes standing idle.

(c) Water flow rate during "pumping" part of test cycle will be approximately 12 litres per minute. Total test time will be approximately 350 hours.

The test is designed to examine the accuracy of the devices under controlled conditions.

...../

4. FITTING TO PUMPS IN THE LABORATORY

4.1 A digital readout unit will be fitted to each of the 12 handpumps in the test in the pump tower at Gosfield.(See Appendix). The purpose of this test is as follows:

(a) To determine optimum position and method of fixing to each pump design.

(b) To test whether the accuracy of pumping time measurement of the unit is within the expected limits of ± 10% over a range of manual pumping stroke rates and corresponding water flow rates.

(c) To enable sketches and instructions to be provided for fitting the units to pumps under field conditions.

4.2 All 12 monitors will then be fitted to the Batch 1 and 2 World Bank pumps during the Laboratory endurance tests. This phase of the work will be continued for as long as possible and is designed to provide information on the following:

(a) Long term accuracy of devices

(b) Possible contamination of electrodes due to impurities in water or debris from pump.

(c) To check the expectations on battery life are correct.

(d) To determine the accuracy with which readings may be obtained from the units (particularly the electro-chemical analogue type), and to determine any other difficulties associated with taking readings.

5. EXAMINATION OF PUMP FLOW CHARACTERISTICS

This part of the work is designed to obtain a detailed knowledge of the flow characteristics of the various pumps over a typical range of operating conditions so that the integrated time figure obtained from the monitors can be used to obtain an indication of total water quantity. Information from User Trials and Performance Tests on World Bank pumps will be used, and an attempt will be made to relate basic pump parameters such as cylinder diameter or handle height to the pump flow characteristic. In this way it should be possible to obtain a value for the flow characteristic for any pump by reference to a set of known parameters. The above analysis will be carried out on a statistical basis. User trial and performance data related to women and children will be particularly relevant, since it is these people who normally operate handpumps in Developing Countries.

...../

6. COSTS OF 12 OFF HANDPUMP WATER FLOW MONITORS
as per our quotation to Mr. Saul Arlosoroff dated 28 May, 1981 ..... £1635

7. COSTS AND TIMING PROPOSALS FOR PRODUCTION OF 200/400/1000 OFF PUMP MONITORS

Following the above work a set of proposals will be produced which will include the following:

(a) Suggested design(s) and costs for full-scale production of 200, 400 and 100- units.

(b) Proposals for future development work.

8. REPORT

A report will be produced covering the work carried out.

KJM/JMK/EJW
2.3.82

APPENDIX

BATCH ONE and BATCH TWO HANDPUMPS

BATCH 1

KORAT
NIRA
MOYNO
BRIAU
BANDUNG
NEW NO. 6

BATCH 2

DRAGON
JETMATIC
BATTELLE
ETHIOPIA
KENYA
VEW

BATCH 3

ABI-VERGNET (HYBRID)
VOLANTA
PETRO (NEW DESIGN)
MALDEV (AFRIDEV)
ROWER (PLASTICS)
U.S. AID - LATIN AMERICA

PUMP FAILURE ALERT - PART A

Project No:

☐ Inspection ☐ Performance test

Pump Code:

☐ Engineering Ass't ☐ User Trial

☐ Impact test ☐ Endurance - state hours: Elapsed Hours:

1. MODE OF FAILURE Tester(s): Date:

☐ Photographed? Verified by: Date:

2. REMEDIAL ACTION TAKEN Verified by: Date:

Actioned by: Date:

☐ Photographed? Checked by: Date:

3. DESIGN IMPROVEMENT SUGGESTED? ☐ No ☐ Yes - describe:

4. CIRCULATION

☐ Saul Arlosoroff - World Bank

☐ Ken Mills)

☐ Pump Manufacturer

) CA Testing & Research

☐ Don Unwin)

☐ Project File

PFA No:

Project No:

Pump Code:

PUMP FAILURE ALERT - PART B

ANNEX V-D

Please complete and return to:
C A Testing and Research,
The Control Tower, Gosfield Airfield,
Gosfield, Halstead, Essex CO9 1SA, England

5. CLIENT'S COMMENTS and RECOMMENDATIONS

(a) Remedial action agreed? ☐ Yes ☐ No - give reason(s):

(b) Further comments and recommendations:

Signature: Date:

6. MANUFACTURER'S COMMENTS and RECOMMENDATIONS

(a) Design improvement agreed? ☐ Yes ☐ No - give reason(s):

(b) Has this feature of the pump been modified in any way? ☐ No ☐ Yes - describe briefly:

(c) Are any other modifications under consideration? ☐ No ☐ Yes - describe briefly:

(d) Further comments and recommendations:

Signature: Date:

VISIT REPORT - to ICI PLASTICS

Date: 17 May 1982

Address: Imperial Chemical Industries Ltd
Petrochemicals and Plastics Divn.
Welwyn Garden City
Herts. AL7 1HD

Phone: Welwyn Garden (07073) 23400

Telex: 264251 ICIPLAST WELWYN

Contact: Dr R C McGregor
Technical Advisor - Development Department

For CATR: JMR JMK

---

1. Background

We described the background to CATR's involvement in testing hand operated water pumps, with both the ODA and The World Bank/UNDP, and outlined the ongoing pump test programme.

We stressed the Bank's commitment to the VLOM principle. We briefly outlined the plastic pump development project and introduced Ken McLeod's paper and his design ideas.

We told him that we had already spoken to Hepworth Plastics and planned to talk with Dunlop. We stressed that we were keen to have advice and design help across a broad spectrum of materials and processes, but didn't want too many conflicting interests to be involved.

2. Cylinder

Dr McGregor felt that uPVC would be a sound choice of material for the cylinder and drop pipe. He listed its advantages and disadvantages:

For	Against
Easy to extrude	Poor high temperature performance
Readily available worldwide	Notch sensitive
Easy to join (particularly with solvent adhesives)	Easily scratched

The poor high temperature performance would be unlikely to create problems in use, however, provided the PVC was underground. There could be difficulties in storage and transportation, though, and where the PVC is attached to the hot pumpstand.

2. Cylinder (cont)

PVC's notch sensitivity would only be a problem if threaded joints were used. PVC is easy to join using solvent welding techniques, and Dr McG. liked Ken McLeod's idea of supporting the rising main on the bottom of the borehole.

PVC would be easily scratched by any abrasive particles in the water, but I was able to point out that the piston could be adjusted to a different position to combat wear, provided that the 'cylinder' is long enough.

The 'high strength' PVC pipe made by IMI, developed at ICI Welwyn, might not be suitable. In reprocessing the extruded pipe to improve its hoop strength there was inevitably some loss of longtitudinal properties. This would not be desirable in our proposed application.

There should be no fundamental problem in extruding smooth bore PVC pipe, though it is intrinsically easier to control the O/D in manufacture. Smoothness in the bore will be determined by the extrusion machine itself and by the manufacturer's quality control. It's likely that there will always be some inconsistencies in the bore, compared with metal extrusions, for example.

Other possible candidate materials for the cylinder and drop pipe might be polyethylene (PE), in high or low density, polypropylene (PP), or ABS. Each has something to offer, but Dr McGregor felt that PVC offered the best overall 'package' or properties. The polyolefines would not be suitable - they would not be stiff enough and have very poor high temperature resistance.

2. Piston

The material for the piston should be softer than the cylinder, both for wear resistance and to conform to any dimensional inconsistencies. It was particularly important that if a PVC cylinder were used, the piston must not be PVC.

Dr McGregor felt that HDPE would be a good choice, despite the fact that ICI do not make it! The only UK manufacturer of HDPE are BP Chemicals. Rubber may also be suitable - Dr McGregor suggested either nitrile or urethane rubbers.

Polypropylene might be considered - it would be stiffer and offers better creep resistance, but higher levels of sliding friction. PP may be a better choice for the foot valve.

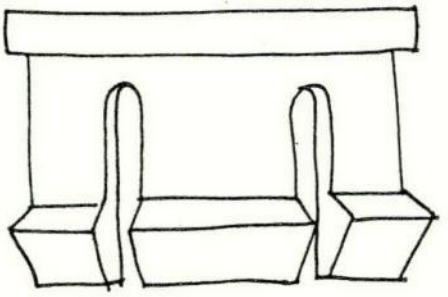
3. Foot Valve

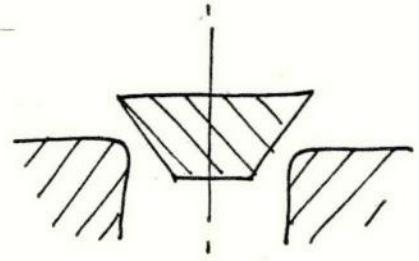
Dr McGregor felt that PP would be preferable to HDPE for the foot valve,

3. Foot Valve (cont)

particularly if a snap fit were used. PP is well-established in snap fit applications - we were shown a pair of arterial forceps for example - because of its creep resistance. But some reservations were expressed about the design of snap fit shown in Ken McLeod's scheme; the receiver would be difficult to make, and sealing may be unreliable.

We discussed a possible alternative design, as shown in the sketch (right). ICI would be glad to help in the detailed design of a suitable snap fit.





Dr McGregor also felt that valves based on the sketch shown (left) might be more effective and reliable than disc valves.

4. Pump Rod

Dr McGregor felt that PVC or similar materials would not be suitable as pump rods in deep well pumps - around 30 metres, say. However, he suggested we might consider using nylon rope with a gravity return piston, or perhaps glass fibre reinforced plastic rod. GRP rod can be made continuously by 'pultrusion', a relatively straightforward process. The resins used are thermosetting, however, and joints may be difficult to make.

We discussed the idea of making simple, foolproof joints for conventional pump rods, to replace threaded joints. Dr McGregor felt that if suitable mouldings could be designed, either PP or nylon would be suitable materials.

5. Pump Handle Bearings

Dr McGregor liked Ken McLeod's idea of using plastic bearings simply sawn off a length of tube. He suggested that nylon might be the preferred material.

6. ICI's Involvement

ICI have been obliged to reduce their involvement in projects like this, even for their bigger customers. When we have detailed designs to present, Dr McGregor will arrange discussions with individual product specialists. They will certainly be able to help with the design - of

6. ICI's Involvement (cont)

the foot valve snap fit, for example - but it's unlikely that they would be prepared to finance prototype mouldings. They may provide a limited amount of suitable materials, however.

In this case, Dr McGregor thought that prototypes machined from the solid would be representative of final mouldings, provided that they were correctly designed as mouldings in the first instance. The principal requirements are that no section should be thicker than 12 mm, corners should be radiussed wherever possible, and the moulding dies should be simple and straightforward. Finally, the design must take account of the maximum shot weight and closing pressure of the available moulding machines.

We agreed that we would return for further and more detailed discussions as soon as we had design proposals 'on paper'.

JMR 17.5.82

VISIT REPORT - to AMCEL PLASTICS

ANNEX V-E (ii)

Date: 14 June 1982

Address: 78/80 St Albans Road
Watford, Herts WD2 4AP

Phone: Watford (0923) 33616 Telex: 922446

Contact: Mr Fred Bloombridge
Senior Development Engineer

For CATR: JMR JMK

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1. Background

We described the background to CATR's involvement in testing hand operated water pumps, with both the ODA and the World Bank/UNDP, and outlined the ongoing pump test programme.

I described how my recent visit to Malawi had reinforced our commitment to the VLOM principle. We briefly outlined the plastic pump development project and introduced Ken McLeod's paper and his design ideas.

We told him we had already spoken to Hepworth Plastics and to ICI, and planned to meet BP Plastics and Dunlop. We stressed that we were keen to have design help across a broad spectrum of materials and processes, but didn't want too many conflicting interests to be involved, at least in this early stage.

Fred Bloombridge agreed that we should consult Dunlop - he felt that rubbers are bound to have a place in a water pump. He has worked for both Dunlop and ICI in the past, and also served on the National Water Council Approvals Board, to advise on the use of plastics. He advised us to consult plastics manufacturers rather than processors or moulders, however. The expertise in the use of materials lies mainly with the manufacturers, and they would be more likely to be able to offer practical help with both design and prototype manufacture.

2. Design Concepts

Fred Bloombridge urged us to question the use of a sliding piston or plunger in the pump. It's clear that the water cannot be guaranteed to be free of sand, and sand will inevitably accelerate the wear of sliding parts. He suggested that we work from first principles, examining the required rate of flow from the pump, and its relationship to operating speed, to minimise the internal stresses in the pump components. He favours the diaphragm principle, avoiding the need for sliding fits, though he recognised that because the down-hole diameter is restricted, the diaphragm may need to be of the rolling type.

He's convinced that for the structural components of the pump mechanism, where good fatigue life is essential, we must use crystalline materials like acetal or nylon. Of these, acetal would be the better.

For corrosion resistance, polyethylene is often chosen for its cheapness, but its mechanical properties are poor. For good mechanical properties combined with good corrosion resistance, choose acetal. Acetal is used for high-quality water fittings, taps and so on.

2. Rising Main

FB agreed that for practical reasons of light weight, availability and price, uPVC would be the obvious choice, though polyethylene might be a possible alternative if its comparative lack of rigidity could be allowed for in the design.

I described the problems I'd seen in Malawi in removing 25 metres or so of 75mm uPVC rising main in one piece. We agreed that these problems might be solved by fitting snap-together or bayonet plastic connectors at every third joint, say. These would be adhesed to the uPVC pipe, avoiding screw threads, but would enable the rising main to be extracted in 9 metre lengths, for ease of handling.

3. Cylinder

FB did not like the idea of using uPVC rising main as the cylinder material - the rate of wear would inevitably be high. He would prefer a scheme with a self-contained cylinder assembly within the rising main - possibly designed to be replaced as a whole rather than in its parts.

4. Plunger and Foot Valve (or equivalents)

FB was convinced that acetal would be the ideal material for the main internal components of the cylinder, whether it be a sliding plunger or his preferred diaphragm type. He felt that acetal has an excellent 'portfolio' of properties, and a proven record in water applications. Unlike some other materials, acetal/acetal sliding interfaces are acceptable with water as a lubricant.

He advised against the use of nylon in structural components. Nylon's absorption of water produces dimensional changes and a marked fall-off in mechanical properties.

He will be happy to review our design alternatives, and it's likely that Amcel would be prepared to manufacture prototype mouldings at their own expense. The tooling would probably be aluminium, and could be used to make several hundred prototype mouldings if necessary. I know from experience that Amcel have very good in-house prototyping facilities. He advised against making prototypes from solid bar. Because the pressures used to make bar are much lower than those for injection moulding, the properties of bar tend to be significantly lower, and the material may

even be porous at its centre.

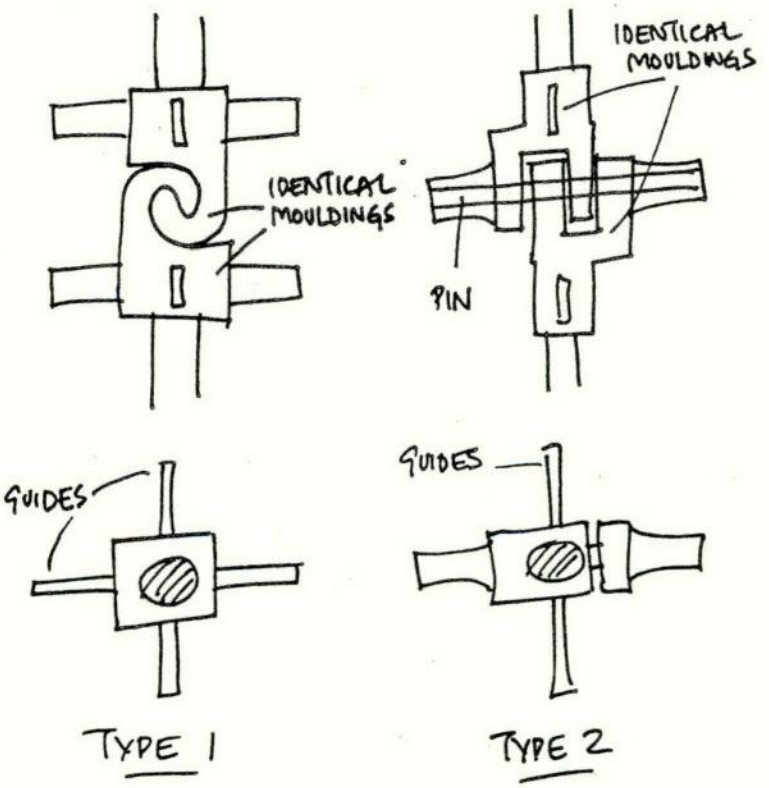
FB warned against the use of flat valve surfaces. No moulding can ever be perfectly flat, because of the effects of cooling in the mould. Just as Dr McGregor of ICI had done, he suggested that the valves should be conical.

FB felt that Ken McLeod's proposed foot valve snap-in would not be reliable in this application. It would inevitably be affected by sand and the pull-out load would be very unpredictable. Amcel could offer expert help in the design of an alternative retaining mechanism.

5. Pump Rods and Connectors

FB had no personal experience in the use of glass fibre rods. However, he felt that the lack of torsional rigidity in fibreglass might make it difficult to locate and attach a screw-on foot valve like that in the McLeod scheme.

He felt our proposed pump rod connectors (illustrated right) had some promise, and that acetal would once again be a suitable material. Joining the moulded connectors to the pump rodding might be tricky, though. He agreed that one way might be to mould the connectors directly onto the ends of the rod. The acetal would accept a thread, however, and would be very strong. Therefore, in the short term at least, we might make acetal connectors designed to be threaded onto the ends of the rods, but which could be disconnected without undoing the threads. This might be useful for testing prototypes, at least.



6. Accelerated Testing

I asked for advice on the pitfalls of accelerated testing with plastics. FB replied that the principal problems arose when accelerated testing produced unrealistically high internal temperatures in plastic components. Most plastics have a critical temperature beyond which their properties are dramatically reduced. Therefore, a few degrees can mean a substantial difference in performance.

7. Plastic Bearings in the Pump Stand

I described the interest in Malawi and elsewhere in the potential use of plastic bearings in the pump stand, to replace ball races. I explained that although I did not know the likely temperatures of a pump in full tropical sun, they were likely to be relatively high. In spite of this, FB felt that silicone loaded acetal might be suitable. Unfilled acetal has a PV value (PV = pressure.volume) of around 4000. With silicone loading, this value is increased to 15000 or more. Amcel will supply 2% silicone loaded acetal bar from which bushes could be machined for the Malawi team to test in the field. But we should take care to allow sufficient clearance in the bushes for thermal expansion - acetal expands 1 'thou' per inch per 10°C rise in temperature.

- - - oOo - - -

Fred Bloombridge of Amcel clearly found the idea of a plastics water pump for developing countries an exciting one. He was very co-operative and helpful, and I'm sure that the offer of prototyping facilities will be very valuable.

I invited him to visit Gosfield to see the existing pump testing and further discuss our ideas for the plastic pump. I propose to arrange this visit for mid-July.

JMR 15.6.82

VISIT REPORT - to BP PLASTICS

ANNEX V-E (iii)

Date: 23 June 1982

Address: BP Chemicals Ltd.
Hayes Road
Sully
Penarth
S. Glamorgan CF6 2YU

Phone: 0446 732321

Telex: 498276

Contacts: John Cann, J. Bower, M. Cawood, A. Gray

For CATR: JMR JMK KJM

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1. Background

KJM described the background to CATR's involvement in testing hand operated water pumps, with both the ODA and the World Bank/UNDP, and outlined the ongoing pump test programme.

I described how my recent visit to Malawi had reinforced our commitment to the VLOM principle. We briefly outlined the plastic pump development project, and described the advantages that we believe plastics can offer in the development of a VLOM-type pump:

- ease of installation, maintenance and repair: plastics mouldings could be designed to prevent incorrect assembly, and be robust yet easy to handle. Their light weight would be crucial in the VLOM context.

- low cost: the potentially low costs of moulded plastics pump parts would allow worn parts to be replaced rather than refurbished. Spares would be easy to store and distribute.

- corrosion resistance: many of the waters where pumps are needed are very aggressive.

- ease of manufacture in a developing country: many developing countries have, or would be keen to develop, plastics process industries. The quality of a plastics moulding is likely to be less operator-dependent than a conventional machined pump component.

We told BP that we had already spoken to Hepworth Plastics, ICI and Amcel, and planned to meet Dunlop. We stressed that we were keen to have design help across a broad spectrum of materials and processes, but didn't want too many conflicting interests to be involved, at least in this early stage.

2. BP's Expertise and Interests

Until recently, BP Plastics manufactured all five 'commodity' plastics:

- PVC
- High Density Polyethylene (HDPE)
- Low Density Polyethylene (LDPE)
- Polypropylene (PP)
- Polystyrene (PS)

in addition to nitrile rubbers, urethanes, polyesters, epoxies and several 'speciality' plastics. They are not involved with the so-called 'engineering' thermoplastics like nylon, polyacetal, polycarbonate and so on, but would argue that HDPE and PS have important engineering properties in their own right. John Cann claimed that BP had often been able to replace 'engineering' by 'commodity' materials, without any sacrifice in product performance. Careful design and thorough understanding of material properties can enable a relatively humble plastic to do an 'engineering' job, in preference to a more sophisticated and more costly material.

The recent rationalisation of the UK plastics industry means that BP is no longer involved in PVC or PP. But they retain their previous expertise in the use of these materials, nonetheless.

Sully is BP's research and development centre for polymer engineering. Although traditionally they have dealt with processors rather than directly with the manufacturers of consumer products, they have always recognised that the material manufacturer has been expected to advise on the complete manufacturing chain from raw material to finished product. This experience has brought home that most problems arise from inadequate appreciation of material properties, die design and manufacturing techniques. BP has therefore been obliged to develop an in-depth understanding of all aspects of thermoplastics processing, including even the design of moulding machines. This basic R & D has been expanded into the post-reactor modification of plastics, for specialised applications.

BP must direct their expertise towards identifying new product applications, particularly for specialised materials where they might hope to enjoy a monopoly of supply.

3. Pipes and Water

Although BP no longer make PVC, they have a long history of involvement in pipework systems. We were told that PVC water pipes had been a troublesome and unprofitable business, however. The standards are inexact, and because PVC water pipe is so freely available there has been virtually no control over the end use.

Polyethylene gas pipe in the UK has been very different, with a very demanding customer insisting on consistently high standards. This has been easier for BP to cope with than the undemanding market for PVC water pipe, and they have been able to develop pipes of very high quality

capable of very high levels of performance. BP have tried to encourage the water industry to be very much more demanding, because they believe that PVC pipework of much better quality than at present could be developed. BP remain very interested in pipe systems, and anything connected with the transport of fluids.

4. Design Concepts

We described existing water pump designs, and outlined the evolution of Ken McLeod's design scheme for a plastic pump. I described the problems of sand ingress that I'd seen in Malawi.

I sketched some alternative ideas for pump designs using plastics - BP had thoughtfully provided a blackboard at one end of the conference room! The idea of a long piston, relying on its length for its seal in the cylinder, was well-received as a potentially appropriate use of plastics. More reservations were expressed about rolling diaphragms or bellows schemes, because of their inevitable susceptibility to fatigue.

John Cann felt that a very simple approach is likely to be the most successful, and urged us to try to eliminate the need for conventional pump rods. A plastics to metal interface is bound to be problematic, not least because of the different rates of thermal expansion, but also because stress tends to be concentrated at the interface between dissimilar materials.

5. Candidate Materials

Rising Main: While recognising that the very availability of PVC pipe makes it the prime candidate for the rising main, John Cann urged us not to ignore other materials. In particular, HDPE is remarkably tough and resilient, and as BP have done with gas pipe, its properties can be highly developed in a particular application.

Pump Rod: John Cann would like to eliminate the need for rigid pump rods by innovative design. Otherwise few plastics could offer the axial stiffness that would be required, and even for joints between steel rods, there would be problems of attachment to the steel. He took a copy of my drawing of a plastic pump rod connector, however, for consideration by BP's appropriate experts.

Plunger etc. Both PVC and HDPE are well-established in potable water applications, though care will be needed to make the best use of their mechanical properties. Recent development enable both materials to be offered in foamed forms, with good strength-to-weight ratios, and PVC can be processed in such a way as to offer plasticised and unplasticised material in the same component. This is used for PVC window frames, for example, to provide a rigid framework with a flexible seal in a single extrusion.

Other BP materials: polyurethanes, nitriles, phenolics, epoxies, LDPE, EVA, EEA, may have a place in this project.

Bearings: Contact 'Polypenco'.

6. Wear Tests

BP felt that we would find little relevant information in existing literature on the wear characteristics of plastics. Furthermore, they advised that a simple wear test rig, with small samples of various materials rubbing on a drum, for example, would be unlikely to produce meaningful results. There was simply no short cut to testing under the real conditions of use - the properties of the materials would depend crucially on their configuration.

7. Further Progress

We agreed to reconvene when we had more concrete design proposals for discussion. Meanwhile, BP would be pleased to arrange a comprehensive seminar for a half-day or so, dealing with all aspects of plastics material specification, design and manufacture, if we would find it useful.

JMR 24.6.82

TERMS OF REFERENCE

SHOCK TESTING OF HAND PUMPS

X.1361

1. Object

The present endurance test is designed to carry out over 10 million strokes avoiding hitting the stops, since it was not considered feasible or desirable to introduce uncontrolled shock loads. However, now the endurance test has been completed on the first batch of pumps, a controlled shock load test can be applied to determine the way in which a pump breaks down under this form of abuse.

2. Method

An electro-pneumatic test rig will be built and mounted as appropriate on each of the pumps. A drive will be taken from the rig to the same point on the pump handle, selected for the main endurance test.

By using pneumatics, simple, accurate and variable control can be exercised on the handle velocity and the force at which the handle hits the stops. A pneumatic cylinder is of low mass and acts as an air spring which has a resilience similar to a human arm.

Initially, using the strain gauged handle prepared for each pump, an operator will carry out a number of strokes of varying force so that knowledge of a broad spectrum of impact energies can be obtained.

It is considered that in the field a user could hit the handle stops, top and bottom, at the start of a pumping cycle, in order to determine the length of the pump stroke. Because of the unpleasant jarring to the arm, it is very unlikely that a user will continue to strike the stops while filling a container. Thus, allowing say 50 strokes to fill a 25 litre container with two impacts at the start, 4% of the strokes could provide shock loads.

Due to the very wide variation of the arc of movement of the handles of pumps on test, the impacts will be provided as close to the normal user pattern as possible. Where a user can easily hit the top and bottom stop in one stroke, this pattern will be followed as far as possible. Where however, in the case of the Dragon pump, the arc of movement is very large, so that a user is liable to hit only one stop in one stroke, then this pattern will be followed. In this latter case, it is anticipated that a 1000 strokes will be carried out in the bottom stop, followed by say 1000 impacts on the top stop. This regime will then be repeated.

3. Operation of Test

From the information gained on impact energy supplied by a user, four levels will be selected. As in the endurance test, deep well pumps will be operated at 40 strokes per minute and shallow well pumps will be operated at 30 strokes per minute. A total of 25,000 strokes will be carried out at each of the levels of impact energy selected, or until some part of the pump fails, when the test will cease.

4. Timing

It is anticipated that the test rig could be manufactured by mid September and the results ready for inclusion in the final report due in mid October.

KJM/EJW
3.8.82

ANNEX VI

MEETING AT BP PLASTICS, WALES

July 19, 1982

Present World Bank: Saul Arlosoroff

CATR: Don Unwin, John Kingham, John Keen, John Reynolds

BP Research & Development Division: John M. Cann, Polymer Sciences Manager; Dr. M. Cawood, Group Leader, Performance Testing; Dr. A. Gray, Section Leader, Test Development; G. Pitman, Polymer Science Division; J. Stewart, Polymer Science Division.
(For Agenda, see Annex VI-A)

In the previous visit of CA to BP Plastics, BP had offered to set up a one-day seminar on thermo-plastics if we believed that it would be useful. I had also asked Ken Mills to arrange such a teach-in during my U.K. visit, as well as arranging discussions with BP staff members on potential collaboration in the R&D of our plastic handpumps.

John Cann opened the meeting with a general discussion on the nature of thermo-plastics. Thermo-plastics are visco-elastic, i.e. as solids, their mechanical properties depend upon time as well as stress. They are also visco-elastic in their melted condition, which leads to residual stress in mouldings. They are compounds with long chain carbon-based molecules; are inflammable in the sense that they are all consumable by fire; are electrical insulators, heat insulators, and generally resistant to inorganic chemicals; are somewhat absorbent of liquids; and are generally permeable to fluids (although these latter effects may be small enough to be negligible). They tend to crack under environmental stress and are light-weight; they are not very stiff or strong, although they do tend to be very tough. It is important to design around these properties and not to compare them directly with conventional materials. The methods of processing allow for very complex one-piece products.

Dr. Mike Cawood discussed the nature of the deformation of thermo-plastics. Thermo-plastics are not only visco-elastic, but their visco-elasticity is non-linear. They exhibit creep, recovery and stress relaxation. The sheer complexity of their performance under stress makes it difficult to quantify the effect of particular stress in a particular design. For this reason, it is often difficult to predict how a plastic will perform in a particular application; there is no substitute for prototype testing.

Under higher frequency cyclic stress, fatigue effects tend to take over from the creep, recovery effects. This may prove to be significant for pumps.

Dr. Alan Gray has discussed the fracture characteristics of plastics. There are three distinct modes of fracture: slow fracture under sustained stress, fracture due to impact and fracture due to fatigue. Different materials have very different fracture properties, and it is quite possible to get three different types of behavior in one material (rubber or styrene,

for example) where the mode of failure is crucially dependent on temperature. These processes have been thoroughly researched at BP, however, and the staff members would be happy to advise us on any potential pump design.

Mr. Gary Pitman dealt with the extrusion of thermo-plastics. The most common extruding machine uses a single screw. There are, however, two types of twin-screw machines, one with contra-rotating screws used only for PVC and the other with co-rotating screws used only by chemical companies for making pellets. The design of the extrusion screw itself is crucial to the success of an extruding operation. In the past, and possibly still in the present, these designs have left a great deal to be desired, and BP has had to become involved in the design of extrusion screws.

Poor control of the extrusion process and the subsequent cooling of the pipe can lead to internal residual stresses and possible voids in the material. However, under properly controlled conditions, it should be possible to extrude a pipe with a fairly smooth bore, although it will probably never be as good as the outside diameter.

Mr. John Stewart discussed injection moulding. The most important aspects of his talk in terms of component design were (1) points of stress concentration should be avoided in much the same way as they should for traditional materials, and (2) the cross-section of the finished product should ideally be constant throughout. In any event, components with thicknesses greater than about 12mm or so are likely to be very difficult to achieve without distortion.

Discussion was initiated on the recycling of plastics waste (for the Shanghai program). We were told that a great deal of work had been done on this subject in Japan at a Plastics Waste Management Research Institute, although most contracts had since been terminated. Warren Spring Laboratory at Stevenage or the Plastics and Rubber Institute might provide aid. International interest in plastics recycling tended to wane because of the problems of obtaining uncontaminated, good quality material. It was pointed out, however, that China has the manpower to manually separate the different types of plastics, and thereby get the best from the recycling of plastics materials.

Finally, we discussed with the entire BP team design ideas that have possibly developed since they were last briefed on our project. John Cann still favours the idea of a hydraulic connection between the pumphead and the cylinder, thereby avoiding a mechanical link; however, he had no detailed design to offer. Mike Cawood felt that if a rod was used for deep settings, there would probably be no viable alternative to steel. Plastic rods are probably not stiff enough; they suggested that we think again about cables. We were concerned about keeping the cable in tension; therefore, they suggested using two cables, one for the power stroke and one for the return so that they would always be in tension.

John Cann pointed out that BP is under considerable financial pressure and could not offer us much more concrete assistance at this juncture. He suggested that it might be helpful to meet executives in their Head Office in London in an effort to convince them to invest money and efforts in the pump market.

ANNEX VI-A

TEACH IN ON PLASTICS FOR

CONSUMER ASSOCIATION ENGINEERS AND

MR. SAUL ARLOSOROFF OF THE WORLD BANK.

19.7.82	L.13A CONFERENCE ROOM	
11.20	General introduction to plastics.	Mr. J. M. Cann
11.40	Deformation behaviour and design.	Dr. Mike Cawood
12.20	L U N C H	
1.45	Fracture behaviour and design.	Dr. Alan Gray
2.20	Extrusion of thermoplastics.	Dr. Gary Pitman
2.55	Injection moulding.	Mr. John Stewart
3.20	General discussions.	JMC, MJC, AG, GLP, JS.
3.45	Tour of laboratories.	

ANNEX VII

MEETING WITH UNDP/OPE, NEW YORK

July 26, 1982

On July 26, 1982, I met and discussed budgetary issues with Mr. M. Potashnik; we were later joined by Mr. Bruce Gross. We also met with Messrs. John Cella, Senior Director of UNDP's Office for Projects Execution, and Mr. Anders Bjorgung of OPE.

1. Meeting with M. Potashnik. The present situation of the INT/81/026 and GLO/80/004 projects were discussed, based on budgetary estimates prepared by Carmen del Castillo.

I briefed Mr. Potashnik on all outstanding commitments and potential expenditures in the pipeline in both projects. It seems that if things move ahead as planned, there will be no need for a significant carry-over in 1983. We do have the problem of China, as we must reserve funds for high-level consultants for the Shanghai programme. We may also need to disburse funds for the Handpump Programme, as the expected funds from the Ministry in Bonn may not be available until 1983. On November 1, I will reevaluate the position of our China projects, as well as our other commitments, and clarify the position in a memo.

We also discussed the possibility of needed carry-overs being divided between 1983 and 1984.

2. Meeting with J. Cella and A. Bjorgung. UNDP has proposed to use the services of OPE when a complex project execution is envisaged, i.e. when a donor agency is providing the funds, as SIDA is doing in Kenya. Mr. Cella has agreed to act as our executing mechanism, although he did so rather reluctantly as he feels OPE should play a more substantive role in our project. I am, however, worried about delays that could hamper our highly complicated operations.

I will observe the services that OPE provides for us; if problems develop, we will reevaluate their involvement. The SIDA-Kenya Project will be our initial case study (if, with God's help, things begin moving in Kenya).

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(2) M. ROTIVAL

INTBAFRAD (TELEX 969-3533)

ABIDJAN, IVORY COAST #1085

(3) M. GUETTA

INTBAFRAD (TELEX 969-3533)

ABIDJAN, IVORY COAST

(4) M. GBOZIA

INTBAFRAD (TELEX 969-3533)

ABIDJAN, IVORY COAST

(5) MR. LANGENEGGER

UNDEVPRO (TELEX 5251 UV)

OUAGADOUGOU, UPPER VOLTA

(6) M. SELA

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TEL AVIV, ISRAEL

35744 seca insurance

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PAGE 1 OF 2

EXTENSION 61790

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TO: ATTENTION M. DJOUKA, DIRECTEUR, CENTRAL DE L'HYDRAULIQUE, ABIDJAN. COPIE A: M. ROTIVAL, PNUD, ABIDJAN, M. GUETTA, INTBAFRAD, ABIDJAN, M. GBOZIA, DIRECTEUR GENERAL CAA, ABIDJAN. INFO LANGENEGGER VIA WIDSTRAND, UNDEVPRO, OUAGADOUGOU, UPPER VOLTA, SELA, TEL AVIV, ISRAEL. REFERENCE PROJET POMPES A MAIN. UNDP INT/81/026 A INSERER DANS COMPUSANTE ALIMENTATION EN EAU VILLAGEOISE (DEUXIEME PR PROJET EAU POTABLE: PRET N.2130-IVC). SUITE REUNIONS TENUES LE 30 JUIN ET PREMIER JUILLET 1982 ENTRE VOUS ET M. CALEGARI NOUS AVONS L'HONNEUR DE VOUS COMMUNIQUER LE COMPLEMENT D'INFORMATION SUR LE CURRICULUM VITAE DE M. SELA RAMI QUE VOUS AVEZ BIEN VOULU NOUS DEMANDER. AA. ECOLE D'INGENIEUR FREQUENTEE: BRITISH INSTITUTE OF ENGINEERING TECHNOLOGY (BIET). BB. ACTIVITE EN 1961-62: PLUSIEURS MISSIONS DE CONSEILLER INDUSTRIEL EN GUINNEE (CONARRY) POUR LE COMPTE DE L'AGENCE D'AIDE BILATERALE ISRAELIENNE. CC. ACTIVITE DANS LA PERIODE 1969-1980: 1969-75: MIROMIT THERMAL AND SOLAR ENERGY INDUSTRY, ISRAEL. 1976-77: TUNZINI, ABIDJAN. 1977-1980: ONSP ABIDJAN. 1980: UNIDO (TOGO). DD. REFERENCE GENERALE SUPPLEMENTAIRE: INSPECTEUR PRIVAT PRESIDENT, ABIDJAN. POUR ACCELERER PROCEDURE DE RECRUTEMENT NOUS NOUS PERMETTONS DE VOUS SUGGERER DE BIEN VOULOIR INTERROGER DIRECTEMENT M. SELA RAMI. SI VOUS ESTIMER QUE CELA EST NECESSAIRE ET SI VOUS ETES D'ACCORD, NOUS

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PAGE 2 OF 2

EXTENSION 61790

MESSAGE NUMBER

TEST NUMBER (FOR CASHIER'S USE ONLY)

START HERE

SOMMES PRETS A PAYER A M. SELA SES FRAIS DE VOYAGE ET SEJOUR POUR UNE VISITE DE COURTE DUREE A ABIDJAN. PRIERE NOUS INFORMER SI CELA EST FAISABLE CONVIENNDRONT. AVEC NOS MEILLEURES SALUTATIONS. ARLOSOROFF, INTBAFRAD.

END OF TEXT

NOT TO BE TRANSMITTED

CLASS OF SERVICE: TELEX

TELEX NO.:

DATE: SEPT. 8, 1982

SUBJECT:

DRAFTED BY: SCALEGARI:LM

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PAGE 1 OF 1

EXTENSION 61790

MESSAGE NUMBER 2468

TEST NUMBER (FOR CASHIER'S USE ONLY)

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TO: JOURNEY, INTBAFRAD, DACCA, BANGLADESH

OUR TELEX 349. RE YOUR TELEX 2038 PROPOSED MISSION DATES OF SEPTEMBER 20-24 CONFIRMED. RE YOURS 2054 FOLLOWING SAME NUMBERING. AAA BRUCE IS TRYING TO SORT OUT. NOT SO SIMPLE ON OUR END. SOME COMPLICATION IN REGARD TO FAMILY COSTS WHEN ACCOMPANYING YOU TO WASHINGTON AND LONDON. BBB CCC CONFIRM YOUR PROPOSAL. HOWEVER ONLY ONE HOUR FOR YOUR JOINT PRESENTATION ON THURSDAY. ON FRIDAY DURING DISCUSSION BOTH OF YOU MAY TAKE ANOTHER TEN-FIFTEEN MINUTES FOR SUPPLEMENTARY COMMENTS. DDD DO SO PLEASE. EEE ALL THE BEST FOR SUCCESSFUL OPERATION. REGARDS, ARLOSOROFF, INTBAFRAD

END OF TEXT

NOT TO BE TRANSMITTED

CLASS OF SERVICE: TELEX TELEX NO.: 950-5523 DATE: SEPT.9,1982

SUBJECT:

DRAFTED BY: SARLOSOROFF:PHM S.Arl

CLEARANCES AND COPY DISTRIBUTION:
cc: Mr. B. Gross

AUTHORIZED BY (Name and Signature): S.ARLOSOROFF S. Arl

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PAGE 1 OF 1

EXTENSION 61169

MESSAGE NUMBER 3388

TEST NUMBER (FOR CASHIER'S USE ONLY)

START HERE

TO: INTBAFRAD

INT/81/026

NAIROBI, KENYA

FOR DAVID LOOS. RE UNDP INT/81/026. AAA WE PLANNING TO TRANSFER KEN MCLEOD, EAST AFRICA REGIONAL PROJECT OFFICER FOR HANDPUMPS TESTING PROGRAM, TO ENGLAND EFFECTIVE NOVEMBER 1, 1982. REPLACING MCLEOD WILL BE DAVID GREY, WHO IS CURRENTLY WORKING IN MALAWI WITH ODA. GREY WILL NOT TAKE UP FULL-TIME POST IN NAIROBI UNTIL FEBRUARY 1983 BUT WILL ASSIST US ON INTERMITTENT CONSULTANT BASIS FROM NOW THROUGH LATE 1982. BBB WE HAVE GREATLY APPRECIATED ASSISTANCE AND COOPERATION RECEIVED FROM YOU AND RMEA STAFF IN SUPPORTING MCLEOD AND HIS WORK. TRUST WE CAN EXPECT YOUR CONTINUED ASSISTANCE AND COOPERATION AS WE MOVE THROUGH THIS TRANSITION FROM ONE REGIONAL PROJECT OFFICER TO ANOTHER AND AFTER GREY TAKES UP HIS POST NEXT YEAR. REGARDS, ARLOSOROFF, INTBAFRAD.

END OF TEXT

NOT TO BE TRANSMITTED

CLASS OF SERVICE: TELEX TELEX NO.: DATE: 9/8/82

SUBJECT: INT/81/026

DRAFTED BY: BRUCE GROSS

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1982 SEP 10 AM 4:08
CABLE SECTION

INT | 81/026
CC 240/80/004.

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Mr. Saul Arlosoroff, UNDP Projects Manager (TWD) DATE: September 8, 1982

FROM: Joseph B. Baky, Acting Senior Adviser, TWD

SUBJECT: Terms of Reference to Helsinki, Stockholm and Copenhagen: September 20-25, 1982

You will leave on mission from your home leave in Tel Aviv between September 20-25, 1982 to:

Helsinki: To attend meetings with representatives of four Nordic governments regarding the UNDP Projects.

Stockholm: For discussions with officials from SIDA and on Kenya and other potential countries - well drill - manufacturers of PETRO pump and rigs.

Copenhagen: To discuss Ms. K. Jorgensen's findings in Ethiopia and Senegal and her TOR for her mission to East Africa.

After completion of your home leave you will return to Washington on October 6 and present a back-to-office report on your mission findings.

SArlosoroff:phm

cc: Mr. J. Kalbermatten

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TO: BOOK OF TWO

(1) INTBAFRAD (TELEX NO. 950-5523) #2447 4/c

DACCA, BANGLADESH

(2) INTBAFRAD (TELEX NO. 963-22022) #3367

NAIROBI, KENYA

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CLASS OF SERVICE: TELEX NO.: DATE: 9-8

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ATTENTION JOURNEY, INTBAFRAD, AND VIA TO KEN GIBBS. INFORMATION FOR MCLEOD. OUR REFERENCE TELEX 346. SUB: GLOBAL TRAINING AND DISSEMINATION - UNDP GLOBAL PROJECT MANAGED BY KALBERMATTEN, FUNDED BY CIDA. AAA THIS IS TO FOLLOW MY SENTENCE ON THE REQUEST BY KALBERMATTEN AND ME THAT YOU AND K. GIBBS PREPARE THE MODULE ON HANDPUMPS FOR THIS PROJECT. BBB ALL COSTS TO BE CHARGED TO INT/81/026. CCC PROJECT CONSULTANTS ARE MCGARRY AND MCPHERSON. YOU WILL SOON RECEIVE BACKGROUND MATERIAL FROM THEM AND FROM ME. DDD THE PROJECT WILL PREPARE A NUMBER OF TRAINING MODULES INTENDED TO INSTRUCT TRAINERS IN DEVELOPING COUNTRIES, ENGINEERS, ENGINEERING STUDENTS IN COLLEGES AND UNIVERSITIES, NGO PROFESSIONALS, DONOR AGENCIES AND GOVT. PROFESSIONALS INVOLVED IN RURAL WATER SUPPLY. EEE STEPS: ALPHA AN OUTLINE BY MID-OCTOBER. BETA STORYBOARD BY EARLY DECEMBER. GAMMA COMPLETION BY MARCH. FFF THE MATERIAL TO INCLUDE SLIDE-SOUND INCORPORATING 80 SLIDES DURING A HALF-HOUR PRESENTATION. PLEASE DO NOT ARGUE ABOUT IT; THIS IS A DECISION OF EXPERTS PRESUMABLY HAVING EXPERIENCE WHO BELIEVE THAT QUICK CHANGE OF SLIDES WITH FEW SENTENCES OF BACKGROUND IS BETTER THAN SLOWER RATE OF SLIDE MOVEMENT. THEREFORE, THE TWO OF YOU HAVE TO PREPARE 80 SLIDES PLUS BACKGROUND

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EXTENSION 61790

MESSAGE NUMBER

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TO:

WORDING. THE OTHER MATERIAL SHOULD BE A WRITTEN INSTRUCTION FOR THE INSTRUCTOR TO CONDUCT DISCUSSION ON THE SUBJECT FOR A HALF-HOUR. GGG EACH OF THE MODULES IN THE PROJECT HAS ONE HOUR OF PRESENTATION AND DISCUSSION. HHH THE REVIEW OF YOUR MATERIAL WILL BE DONE BY MCLEOD AND BY ME. III BUDGET WILL COVER ONE SPECIAL TRIP FOR YOU AND KEN TO DISCUSSIONS ON THE MODULE AND PRESENTATION OF MODULE WITH THE OTHER MODULES DEALING WITH WELLS AND BOREHOLES BEING PREPARED BY THE MALAWI GROUP - EDWARDS, GREY, CHILTON. KKK MCGARRY, MCPHERSON TELEX NO. 0533988. YOU MAY COMMUNICATE WITH THEM DIRECTLY WITH INFO TO ME. LLL LEAVING OFFICE ON SEPT. 14-OCT. 7. WILL BE IN CONTACT WITH OFFICE. GERHARD TSCHANNERL WILL BE IN OFFICE ALL THE TIME TO HANDLE ALL MATTERS. MY TELEX NUMBER DURING SHORT HOME LEAVE WITH INTER-RUPTIONS IS 341667 RMYM ISRAEL, ATT MAOT/931 FOR ARLOSOROFF. MMM YOURS 1877. RE FFF DR. GILL IS LEAVING SOON. OUTSIDERS ARE OPTIMISTIC ON THE CONTINUATION OF DR. GOH WITH THEM. LET'S WAIT AND SEE. RE HHH TOP PRIORITY FOR MCLEOD'S WORK IN THE NEXT SIX MONTHS IS THE COMPLETION OF R&D AND TESTING OF PLASTIC BELOWGROUND FOR THE INTERMEDIATE AND DEEP APPLICATIONS CONNECTED TO THE MALDEV (AFRIDEV) PUMPHEAD. TENS OF THOUSANDS OF PUMPS ARE GOING TO BE INSTALLED IN THE NEXT 2-5 YEARS, IN DYNAMIC

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WATER TABLES LOWER THAN 40-50 METERS IN THE SUDAN, MALI, NIGERIA, CHAD, MAURITANIA, ETC. THE AGENCIES ARE WAITING FOR US TO PROVIDE THEM WITH A VLOM SOLUTION. I PRAY EVERY DAY THAT WE SHALL NOT DISAPPOINT THEM. IN JUNE WE SHALL CONSIDER ANY REASONABLE PROPOSAL FOR KEN'S POST. REGARDS, ARLOSOROFF, INTBAFRAD.

END OF TEXT

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CLASS OF SERVICE: TELEX TELEX NO.: DATE: 09/08/82

SUBJECT: INT/81/026

DRAFTED BY: S. Arlosoroff:kb

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cc: Messrs. Kalbermatten, McGarry, McPherson, Tschannerl, Listorti

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EXTENSION 61790

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TO: MS. ANSTEE, DEPARTMENT OF TECHNICAL COOPERATION FOR DEVELOPMENT, ROOM DC-1228, UNITED NATIONS, NEW YORK, NEW YORK 10017. OUR TELEX 344. RE MALAWI RURAL WATER SUPPLY MEETING. FOLLOWING BORTHWICKS'S REQUEST I QUOTE HERE OUR TELEX TO HIM NO. 311 DATED AUGUST 24, 1982. QUOTE AAA THANKS FOR YOUR DETAILED INFORMATION. BBB WE HAVE ALREADY NOTIFIED MEMBERS OF ADVISORY PANEL ON THE MEETING TO BE HELD ON DECEMBER 9 AND 10. CCC DECEMBER 9 TO BE AN OPEN MEETING OF THE PANEL REVIEWING OUR PROGRESS AND PROBLEMS IN ALL ACTIVE REGIONS. DECEMBER 10 TO BE A CLOSED MEETING OF THE PANEL PLUS LIMITED NUMBER OF OBSERVERS. YOU ARE CORDIALLY INVITED. DDD AS THERE IS SOME CONFLICT BETWEEN OUR ITINERARY AND YOURS (RE. YOURS DECEMBER 10) I SUGGEST THAT WE EITHER START OUR PANEL MEETING IN PARALLEL TO YOUR DISCUSSIONS OR INITIATE A CHANGE TO HAVE YOUR DISCUSSIONS AS PART OF OPTIONAL SITE VISITS DURING SATURDAY AND SUNDAY. BUT AS YOU KNOW WE SHALL NOT MAKE AN ISSUE AND YOUR DECISION WILL BE ACCEPTED. EEE AT PRESENT WE ARE EXPECTING THE PARTICIPATION OF APPROXIMATELY 30 PERSONS AS FOLLOWING. ALPHA MEMBERS OF PANEL (1) BEYER, UNICEF, N.Y. (2) POTASHNIK, UNDP, N.Y. (3) DR. L. OBENG, UNEP, NAIROBI

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(4) DR. BALANCE, WHO; GENEVE (5) MR. HOFKES, IRC, NETHERLANDS (6) MR. M. MCGARRY, UNDP CONSULTANT, OTTAWA (7) MR. F. MCJUNKIN, USAID, WASHINGTON (8) MR. K. MILLS, CATR, U.K. (9) ARLOSOROFF. BETA PANEL OBSERVERS (1) J. KALBERMATTEN, WB, WASHINGTON (2) MS. K. JORGENSEN, DENMARK, CONSULTANT TO INT/81/026 ON SOCIAL CULTURAL ASPECTS (3) KEN MCLEOD (4) TIM JOURNEY, OUR REGIONAL OFFICER FOR SOUTH ASIA (HE MAY BE ON HOME LEAVE). (5) MR. K. GIBBS, UNICEF, DACCA WILL PRESENT OUR JOINT WORKS IN SOUTH ASIA (6) O. LANGENEGGER, OUR REGIONAL OFFICER FOR WEST AFRICA (7) G. TSCHANNERL, INT/81/026 PROJECT OFFICER, WASHINGTON, AND ACTING REGIONAL OFFICER FOR EAST ASIA AND PACIFIC. GAMMA SENIOR PROFESSIONALS INVITED AND PAID BY US FROM FIELD TRIAL COUNTRIES KENYA, SUDAN, TANZANIA, IVORY COAST, NIGER, UPPER VOLTA IF SUITABLE ENGLISH SPEAKING PROFESSIONALS WILL BE IDENTIFIED. (ARE YOU PLANNING TO HAVE FRENCH TRANSLATION FOR YOUR SUB-SAHELIAN INVITEES?) GHANA, BANGLADESH, INDIA, SRI LANKA, THAILAND, CHINA AND PHILIPPINES. FFF IF IT WILL BE POSSIBLE FROM YOUR POINT OF VIEW (SIZE OF HALL, ROOMS, TRANSPORT TO FIELD VISITS, ETC.) WE PLAN TO INITIATE INVITATIONS WITH YOU TOGETHER TO THE FOLLOWING: ROSENHALL (UNICEF, SUDAN), KEN GREY (UNICEF, INDIA), AMAL (UNICEF,

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PHILIPPINES), PLUS ACTIVE RURAL WATER SUPPLY PROFESSIONALS FROM DANIDA (2), SIDA (2), FINNIDA (2), NORAD (2), GTZ (2), NETHERLANDS (2), CIDA (2) AND FEW OTHERS ALTOGETHER APPROXIMATELY 20-25 PERSONS, ALL EXPENSES PAID BY THEIR ORGANIZATIONS. THROUGH THESE THE MAXIMUM IMPACT OF MALAWI EXPERIENCE CAN BE ACHIEVED TO THEIR ONGOING OR PLANNED RURAL WATER SUPPLY PROJECTS AROUND THE WORLD. GGG OUR BUDGET WILL COVER ALL TRAVEL AND PER DIEM COSTS OF PARA EEE (GAMMA) PARA EEE (BETA) AND PART OF EEE (ALPHA) ALTOGETHER AROUND 70-100,000 US DOLLARS, WHICH EXHAUSTS MY BUDGET SERIOUSLY AND STILL WE FEEL THE COSTS ARE WORTHWHILE BECAUSE OF THE IMPORTANCE OF THE MEETING AND THE VALUABLE EXPERIENCE GAINED. PLEASE LET US KNOW IF WE CAN STILL ASSIST YOU IN ANY WAY. UNQUOTE.

REGARDS, ARLOSOROFF, INTBAFRAD.

END OF TEXT

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DATE: 09/08/82

SUBJECT: INT/81/026

DRAFTED BY: S. Arlosoroff:kb

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TO: BOOK OF FOUR (SEE MESSAGES ATTACHED)

988

(1) UNDEVPRO (TELEX NO. 4466)

LILONGWE 3, MALAWI

(2) DEPT. OF TECHNICAL COOPERATION FOR DEVELOPMENT

ROOM DC-1228, UNITED NATIONS ~~(CABLE)~~ 12 5980

NEW YORK, NEW YORK 10017

(3) INTBAFRAD (TELEX NO. 963-22022) # 3346

NAIROBI, KENYA

(4) INTBAFRAD (TELEX NO. 950-5523)

DACCA, BANGLADESH # 2429

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ATTENTION BORTHWICK, TO UNDEVPRO, MALAWI. FOR INFORMATION ANSTEE, UNTCD, NEW YORK; MCLEOD, INTBAFRAD, NAIROBI; JOURNEY, INTBAFRAD, DACCA. OUR REFERENCE TELEX 340. RE. MALAWI RWS MEETING. THANKS FOR YOURS 1743. YOURS AAA CONFIRMED. WE SHALL DELAY OUR DEPARTURE TO ACCOMODATE SATURDAY PROGRAM. YOURS BBB WE ASSUME YOU MAY RUN INTO PRESSURES FROM SUB-SAHEL GOVTS AND WEST AFRICA TO HAVE SIMULTANEOUS FRENCH TRANSLATION. IT IS IMPORTANT FOR US TO KNOW ASAP AS WE PLAN TO INVITE THREE PERSONS FROM IVORY COAST, NIGER, AND UPPER VOLTA; OUR FIRST PRIORITY PROPOSALS DO NOT SPEAK ENGLISH. YOURS CCC CONFIRMED. YOURS DDD ALPHA POUCHING YOU 100 COPIES EACH OF NEW BROCHURES DESCRIBING THE HANDPUMPS PROGRAM AND THE RESEARCH RECOVERY (GLO/80/004) DEALING WITH RECYCLING AND SANITA- ON TION. THE BROCHURE ON INT/81/026 MAY BE USED AS A BACKGROUND PAPER. BETA TENTATIVE PROGRAM FOR THURSDAY, DECEMBER 9: 8AM - OPENING, MR. M. BEYER, CHAIRMAN OF THE ADVISORY PANEL; 8:15 AM - OVERVIEW OF INT/81/026, OBJECTIVES, GOALS, PROGRESS - ARLOSOROFF; 9:30 AM - LAB TESTING INTERIM RESULTS - KEN MILLS, CATR; 10:30 AM - TEA/COFFEE; 11 AM - EAST AFRICA PROGRESS REPORT - MCLEOD, WB; NOON - WEST AFRICA PROGRESS REPORT - MR. O. LANGENEGGER, WB; 1:00 PM - LUNCH; 2 PM - SOUTH ASIA PROGRESS REPORT - W.K. JOURNEY, WB, AND/OR K. GIBBS, UNICEF, DACCA; 3 PM - CHINA, EAST ASIA,

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LATIN AMERICA PROGRESS REPORT - MR. G. TSCHANNERL, WB; 4 PM - TEA/COFFEE; 4:30 PM - LOW COST RURAL WATER SUPPLY STRATEGIES - J. KALBERMATTEN, WB; 5:30 - DISCUSSION; 6:30 - CONCLUSION. GAMMA FRIDAY, DECEMBER 10 - CLOSED MEETING OF ADVISORY PANEL WITH A VERY LIMITED NUMBER OF INVITED OBSERVERS. YOU AND MS. ANSTEE WILL BE MORE THAN WELCOME. A TOTAL OF TWENTY PARTICIPANTS WILL BE SEATED AROUND A SQUARE SET OF TABLES. PROGRAM: 8 AM - NOON - PROPOSED WORK PLAN FOR 1983, POLICY FOR MONITORING AND EVALUATION; 1 - 2 PM - LUNCH; 2 - 5 PM - DISCUSSION, COMMENTS, ETC. ON PROGRESS REPORTS (1982) AND WORK PLAN (1983); 5 PM - HAPPY HOUR AND LIGHTING OF THE CANDLES. YOURS EEE THE MOMENT WE RECEIVE YOUR FINAL DRAFT, WE SHALL MAIL IT TO OUR DIRECT COLLEAGUES IN UNICEF, DONOR AGENCIES, ETC. ALTOGETHER AS OUTLINED IN OUR TELEX. ALL WILL BE COPIED TO YOU AND EACH WILL BE ASKED TO TELEX YOUR OFFICE THEIR PARTICIPATION, DATES OF ARRIVAL, ETC. AS SOON AS POSSIBLE. FFF TELEXED OUR 311 TO MS. ANSTEE. GGG IN FEW DAYS TIME, WILL TELEX TO ALL THOSE WE INITIATE THEIR PARTICIPATION PAID BY THEMSELVES. ALSO TO THOSE TO BE PAID BY US. WILL POUCH TO YOU ALL COPIES. REGARDS, ARLOSOROFF, INTBAFRAD.

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CLASS OF SERVICE: TELEX NO.: DATE: 09/08/82

SUBJECT: INT/81/026

DRAFTED BY: S. Arlosoroff:kb

CLEARANCES AND COPY DISTRIBUTION: cc: Messrs. Kalbermatten, Potashnik, Beyer, Tschannerl, Langenegger, Freedman

AUTHORIZED BY (Name and Signature): S. Arlosoroff

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INT/81/026

September 8, 1982

Mrs. Kathryn C. Hach
Hach Company
P.O. Box 389
Loveland, CO 80539

Dear Mrs. Hach:

Re: UNDP/WB INT/81/026, Rural Water Supply Handpumps Project

I read with great interest a copy of your letter to the International Affairs Committee, AWWA, of August 18, together with enclosures on the contribution of Zonta in Sri Lanka. We have just concluded an agreement with UNICEF, the Gesellschaft fur Technische Zusammenarbeit (GTZ, FRG), and the Government of Sri Lanka for a joint monitoring activity on some of the handpumps that will be installed by the UNICEF, Zonta and GTZ assisted programs.

As you can see from the enclosed brochure and article, the aim of our interregional handpumps testing and development project is to assist governments, donor agencies, and manufacturers in the development of better handpumps, which are both durable and can be maintained on the village level with only a minimal back-up service, are relatively low-cost, and which can be manufactured also in the developing countries. The field trials in Sri Lanka will be part of a global testing program, covering some 20 developing countries.

I would like to add that in your brochure you do not mention the GTZ, even though it is a major contributor to the Mahaweli development program.

Sincerely,

Gerhard Tschannerl
Project Officer
UNDP Handpumps Project

Enclosures

Copy: International Affairs Committee, AWWA
Mr. Klaus Kresse, GTZ

GTschannerl:lm

FORM NO. 27 - OCR
(3/82)

WORLD BANK OUTGOING MESSAGE FORM Telegram, Cable, Telex

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PAGE 1 OF

EXTENSION 61790

MESSAGE NUMBER

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START HERE

TO: BOOK OF SIX

(1) MR. FINN

UNDEVPRO (TELEX UNDP 28 96 20)

GENEVA, SWITZERLAND

(2) MR. MUBANDA

UNDEVPRO (TELEX 974 2195) LT/IT

ACCRA, GHANA

(3) MR. PRATTLEY

UNDEVPRO (TELEX TH 788 82392)

BANGKOK, THAILAND

(4) MR. KIM

UNDEVPRO (TELEX COLOMBO 21210) 954

COLOMBO, SRI LANKA

(5) MR. JOURNEY

INTBAFRAD(TELEX 950 5523)

DACCA, BANGLADESH #2427

(6) MR. AP REES

UNDEVPRO (TELEX 970 22 214 UNDP SD)

KHARTOUM, SUDAN

END OF TEXT

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CLASS OF SERVICE: TELEX NO.: DATE: SEPT. 7, 1982

SUBJECT:

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TO

ATTENTION FINN, UNV GENEVA. INFO MUBANDA, UNDEVPRO, ACCRA (PARA AAA), PRATTLEY, UNDEVPRO, BANGKOK, KIM, UNDEVPRO, COLOMBO (PARA DDD), JOURNEY, INTBAFRAD, DACCA, AP REES, UNDEVPRO, KHARTOUM. OUR REF 335. RE INT/81/026 HANDPUMPS PROJECT. YOUR TELEX GEN12566. AAA. WE ARE GLAD THAT THE GOVMT OF GHANA HAS ACCEPTED THINT MYAT. PLEASE PROCEED WITH HIS RECRUITMENT AND INFORM US OF THE DATE WHEN HE IS AVAILABLE FOR FIELDING. HIS DUTY STATION WILL BE KUMASI. WE REQUEST YOU NOT TO GIVE HIM THE TRAVEL AUTHORIZATION UNTIL YOU RECEIVE OUR CONFIRMATION THAT HE CAN GO THERE. OUR REGIONAL PROJECT OFFICER, OTTO LANGENEGGER, WILL BE IN GHANA IN A FEW DAYS TIME AND WILL LET US KNOW WHEN THE FIELD TRIALS CAN START THERE. BBB. WE STILL WANT TO KEEP THE POSSIBILITY OPEN TO ROUTE BOTH KHIN MAUNG THAN AND THINT MYAT THROUGH DACCA FOR A BRIEF INTRODUCTION TO THE PROJECT ON THEIR WAY TO THEIR DUTY STATIONS. HOWEVER WE NEED TO KNOW THEIR PROPOSED DATES FOR FIELDING TO SEE IF TIM JOURNEY, OUR REGIONAL OFFICER IN DACCA IS AVAILABLE AT THAT TIME. IT WOULD BE PREFERABLE FOR BOTH OF THEM TO BE IN DACCA TOGETHER. CCC. MR. TSCHANNERL WILL BE IN DACCA OCT. 22-26. HE AND MR. JOURNEY WILL BE TOGETHER IN BANGKOK FROM OCT. 26 TO NOV. 7. KHIN MAUNG THAN SHOULD PREFERABLY BE THERE ALSO ON THESE DATES OR EARLIER. DDD. SRI LANKA, RE OUR TELEX 306 PARA DDD. PLEASE

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TO

INFORM GOVMT OF SRI LANKA THAT THINT MYAT IS NO LONGER AVAILABLE. EEE. SUDAN RE OUR TELEX 285. NO UNV WILL BE NEEDED FOR THE SUDAN SINCE THE MONITORING WILL BE CARRIED OUT THERE AS AN INTEGRAL PART OF THE WATER SUPPLY PROJECT. FFF. NEW CANDIDATES. WE EXPECT TO CONCLUDE THE AGREEMENT WITH THE PHILIPPINES BY NOVEMBER AND WILL REQUIRE A UNV TO BE POSTED THERE. PRELIMINARY NEGOTIATIONS ABOUT FIELD TRIALS ARE ALSO IN PROGRESS WITH SEVERAL OTHER COUNTRIES. WE THEREFORE REQUEST YOU TO GIVE PRIORITY TO SENDING US THE PHS OF NEW CANDIDATES FOR CLEARANCE. GGG. WE PROPOSE REVISED DATES FOR GERHARD TSCHANNERL TO MEET WITH YOU IN GENEVA: ARRIVAL GENEVA OCT. 19 1210 PM SWISSAIR 815, DEPARTURE GENEVA OCT. 21 MORNING. PLEASE LET US KNOW IF THESE DATES ARE CONVENIENT. HHH. CANDIDATE J. A. OJUMU, REF YOUR UNVGRAM OF MAY 26. WE FIND HIM UNSUITABLE. REGARDS, ARLOSOROFF, INTBAFRAD.

END OF TEXT

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CLASS OF SERVICE: TELEX

TELEX NO.:

DATE: SEPT. 7, 1982

SUBJECT:

DRAFTED BY: GTSCHANNERL:LM

CLEARANCES AND COPY DISTRIBUTION: O. LANGENEGGER

AUTHORIZED BY (Name and Signature): S.ARLOSOROFF

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TO: BOOK OF FIVE

INT/81/026.

(1) MR. MUBANDA LT/191

UNDEVPRO (TELEX 974 2195)

ACCRA, GHANA

(2) MS. KOFI

INTBAFRAD #213 LT/115

ACCRA, GHANA

(3) MR. LANGE

KREDITANSTALT FUER WIEDERAUFBAU (TELEX 41-1352)

FRANKFURT AM MAIN, FEDERAL REPUBLIC OF GERMANY

(4) MR. FINN

UNDEVPRO (TELEX UNDP 28 96 20)

GENEVA, SWITZERLAND

(5) MR. LANGENEGGER

UNDEVPRO (TELEX 5251 UV)

OUAGADOUGOU, UPPER VOLTA

VIA ,BOAD

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CLASS OF SERVICE: TELEX NO.: DATE: 9-7-82

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FOR MR. MUBANDA, UNDP. INFO. MS. KOFI, INTBAFRAD, MR. LANGE, KFW, MR. FINN, UNV GENEVA, MR. LANGENEGGER, UNDP. OUR TELEX 337. RE UNDP INT/81/026 HANDPUMPS PROJECT. AAA. WE WERE PLEASED TO LEARN BY TELEX FROM UNV GENEVA (REF GEN12566) ABOUT THE ACCEPTANCE OF UNV CANDIDATE THINT MYAT BY THE GOVMT OF GHANA, AND ARE REQUESTING UNV GENEVA BY SEPARATE TELEX TO CONTRACT HIM FOR FIELDING AT AN EARLY DATE. BBB. MR. LANGENEGGER, OUR PROJECT OFFICER FOR WEST AFRICA, IS PLANNING TO BE IN GHANA ON OCTOBER 10 AND WILL STAY UP TO TWO WEEKS. THE PURPOSE OF HIS MISSION IS TO FOLLOW UP PREPARATORY WORK FOR THE FIELD TRIAL WITHIN THE 3000 WELL DRILLING PROGRAM. WE KINDLY ASK YOU TO ADVISE US ON MR. LANGENEGGER'S MISSION AND TO INFORM GWSC AND THE CONSULTANT IDC (MESSRS. SCHOETTLER AND WOLLSCHIED) OF IT. MR. LANGENEGGER WILL ASLO MEET THE CIDA PROJECT MANAGER IN THE UPPER REGION AS WE ARE NEGOTIATING WITH CIDA, OTTAWA A PACKAGE SUPPORT TO INT/81/026 OF WHICH GHANA IS ONE OF THE COUNTRIES. THANK YOU FOR YOUR SUPPORT AND COOPERATION. REGARDS, ARLOSOROFF, INTBAFRAD.

END OF TEXT

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CLASS OF SERVICE: TELEX

TELEX NO.:

DATE: SEPT. 7, 1982

SUBJECT: INT/81/026

DRAFTED BY: OLANGENEGGER:LM

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MS. VITAGLIANO-CASTELLI (WA1)

AUTHORIZED BY (Name and Signature): S. ARLOSOROFF

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TO: BOOK OF THREE

INT/P1/026

(1) MR. GUETTA

TLX INTBAFRAD (TELEX 9693533) #1075

ABIDJAN, IVORY COAST

(2) MR. ROTIVAL

TLX UNDEVPRO (TELEX 9693639)

ABIDJAN, IVORY COAST

(3) MR. LANGENEGGER

C/C UNDEVPRO (TELEX 5251 UV)

OUAGADOUGOU, UPPER VOLTA

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FOR MR. GUETTA, INTBAFRAD. INFO MR. ROTIVAL, UNDP, MR. LANGENEGGER, UNDP. OUR TELEX 339. RE UNDP INT/81/026 HANDPUMPS PROJECT. AAA. MR. LANGENEGGER, OUR PROJECT OFFICER FOR WEST AFRICA, IS PLANNING TO BE IN ABIDJAN FROM OCT. 23-27, 1982. THE PURPOSE OF HIS MISSION IS TO FOLLOW UP PREPARATORY WORK FOR THE INT/81/026 FIELD TRIAL IN IVORY COAST AND TO ORGANIZE HIS REGIONAL OFFICE FOR WEST AFRICA IN ABIDJAN. MR. OWUSU WILL MAKE PRELIMINARY OFFICE ARRANGEMENTS WITH MR. GUETTA. MR. LOEWEN WILL FOLLOW UP ON ADMINISTRATIVE MATTERS. BBB. WE KINDLY ASK MR. ROTIVAL TO INFORM THE DIRECTION CENTRALE D'HYDRAULIQUE (DCH) OF MR. LANGENEGGER'S MISSION. CCC. WE APPRECIATE YOUR ASSISTANCE AND COOPERATION. REGARDS, ARLOSOROFF, INTBAFRAD.

END OF TEXT

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CLASS OF SERVICE: TELEX TELEX NO.: DATE: SEPT. 7, 1982

SUBJECT: INT/81/026

DRAFTED BY: OLANGENEGGER:LM

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TO: BOOK OF FOUR

INT|81|026

(1) MR. SEMERDJAN

UNDEVPRO (TELEX 5232NI)

NIAMEY, NIGER

(2) MR. GERVAIS

INTBAFRAD (TELEX 5355 NI) #394

NIAMEY, NIGER

(3) MR. KRESSE

GTZ (TELEX 415230 GTZ)

FRANKFURT AM MAIN, WEST GERMANY

(4) MR. LANGENEGGER

UNDEVPRO (~~TELEX 5251 UV~~) √IA | BRD

OUAGADOUGOU, UPPER VOLTA

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FOR MR. SEMERDJAN, UNDP. INFO MR. GERVAIS, INTBAFRAD, MR. KRESSE, GTZ, MR. LANGENEGGER, UPPER VOLTA. OUR TELEX 336. RE UNDP INT/81/026 HANDPUMPS PROJECT. AAA. MR. LANGENEGGER, OUR PROJECT OFFICER FOR WEST AFRICA, IS PLANNING TO BE IN NIAMEY ON SEPTEMBER 8 UNTIL OCTOBER 8, 1982. THE PURPOSE OF HIS MISSION IS TO FOLLOW UP PREPARATORY WORK FOR THE INT/81/026 FIELD TRIAL IN NIGER. BBB. WE KINDLY ASK YOU TO INFORM THE MINISTRY OF HYDRAULICS (MR. GAGARA), GTZ (MR. GREINER) AND THE BELGIAN AID ORGANIZATION AGCD (MR. MENTEN) OF MR. LANGENEGGER'S MISSION. CCC. THANK YOU FOR YOUR SUPPORT AND COOPERATION. REGARDS, ARLOSOROFF, INTBAFRAD.

END OF TEXT

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CLASS OF SERVICE: TELEX TELEX NO.: DATE: SEPT. 7, 1982

SUBJECT: INT/81/026

DRAFTED BY: OLANGENEGGER:LM

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TO: CIDA, HULL, CANADA K1A OG4

ATTENTION DIRECTOR OF AREA COORDINATION GROUP - CODE BPD

SUBJECT UNDP/WB INT/81/026 HANDPUMPS TESTING AND TECHNOLOGICAL DEVELOPMENT. OUR TELEX 341. AAA FOLLOWING THE DISCUSSIONS HELD IN OTTAWA WE HEREBY REQUEST THE SUPPORT OF CIDA TO THE INTERREGIONAL HANDPUMP PROGRAM INTENDED TO IMPROVE AND PROMOTE RURAL WATER SUPPLY SCHEMES IN DEVELOPING COUNTRIES WHERE OVER 1.2 BILLION PEOPLE LACK THIS BASIC NEED. BBB IT IS EXPECTED THAT CIDA'S CONTRIBUTION TO THE PROGRAM WILL BE SUBMITTED VIA AN AGREEMENT WITH UNDP TO BE EXECUTED BY THE WORLD BANK/TWD OFFICE OF THE SENIOR ADVISER FOR WATER AND WASTES. CCC THE PACKAGE AGREEMENT WILL BE DIVIDED INTO 5 SUBPROJECTS AS FOLLOWS: ALPHA BANGLADESH TOTALLING 580,000 CD TO INCLUDE ALL ASPECTS AS DETAILED IN THE PROJECT DOCUMENT SUBMITTED TO THE HIGH COMMISSION OF CANADA ON APRIL 24, 1982. THE BUDGET INCLUDES 50,000 CD FOR FIELD SUPPORT TECHNICAL ASSISTANCE AND SUPERVISION COSTS BY OUR REGIONAL PROJECT OFFICER AND OUR GLOBAL TECHNICAL ASSISTANCE EXPERTS. 30,000 INFLATION ADJUSTMENT SHOULD BE ADDED AS DISBURSEMENTS WILL BE DURING 82/83, 83/84, 84/85. BETA IVORY COAST. TOTALLING 460,000 CD TO INCLUDE (111) 82/83

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100,000 CD FOR PUMPS (CANADIANS AND FEW OTHERS FROM DEVELOPING COUNTRIES). 10,000 CD FOR A VEHICLE, 15,000 FOR THE MONITOR, 5,000 FOR O & M (OPERATION AND MAINTENANCE COSTS), 10,000 FOR SUPPORT, TECHNICAL ASSISTANCE AND SUPERVISION (STS) ALTOGETHER 140,000 CD. (222) 83/84 100,000 FOR PUMPS, 15,000 FOR O & M 45,000 FOR THE MONITOR, 20,000 FOR STS, 25,000 FOR INFLATION ADJUSTMENT AND SUNDRY ALTOGETHER 205,000 (333) 84/85 15,000 FOR O & M, 45,000 FOR MONITOR 25,000 FOR STS, 30,000 FOR INFLATION ADJUSTMENT AND SUNDRY, ALTOGETHER 115,000 CD. IF AGREEMENT CANNOT BE REACHED IN TIME FOR EXECUTION IN IVORY COAST, THE PROJECT WILL BE EXECUTED IN NIGER AND/OR UPPER VOLTA BY EXTENDING THE SCOPES OF THE ONGOING FIELD TRIALS THERE. GAMMA GHANA. THE BASIC ASSUMPTION FOR OUR OPERATION THERE IS TO INTEGRATE OUR FIELD TRIAL IN THE ONGOING RURAL WATER SUPPLY ACTIVITY OF CIDA IN THE UPPER REGION. THE TOTAL NECESSARY BUDGET IS 155,000 CD TO INCLUDE THE FOLLOWING. ALPHA 82/83 10,000 FOR PUMPS, 10,000 FOR A VEHICLE, 5,000 FOR O & M, 10,000 FOR MONITORING, 5,000 FOR STS TOTALLING 40,000. BETA 83/84 10,000 FOR PUMPS, 10,000 FOR O & M, 25,000 FOR MONITORING, 10,000 FOR STS TOTALLING 55,000. GAMMA

END OF TEXT

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~~84/85 10,000 FOR O~~ TO & M 25,000 FOR MONITORING 10,000 FOR STS TOTALLING 45,000 DELTA FOR 83/84, 84/85 ADDITIONAL 15,000 FOR INFLATION ADJUSTMENT AND SUNDRY. DELTA SRI LANKA. THE FUNDS WILL BE USED TO EXTEND AND SUPPORT OUR PLANNED ACTIVITIES IN SRI LANKA IN KALUTARA REGION WITH UNICEF AND ALSO IN VAVINIA (MAHAWALI VALLEY) WITH THE GTZ. TOTAL BUDGET NECESSARY 130,000 ALPHA 82/83 NO DISBURSEMENTS FOLLOWING YOUR INSTRUCTIONS. 83/84 TOTALLING 75,000 CD FOR PUMPS 30,000, VEHICLE 10,000, MONITORING 10,000, O & M 10,000, STS 10,000, SUNDRY AND INFLATION 5,000. 84/85 TOTALLING 55,000 FOR PUMPS 15,000, O & M 10,000 MONITORING 10,000 STS 10,000, SUNDRY AND INFLATION 10,000. IN CASE AGREEMENTS CANNOT BE REACHED IN TIME WE PROPOSE TO USE THE FUNDS FOR OUR SUPPORT TO OUR OPERATION IN INDIA AND/OR THAILAND. EPSILON HAITI. TOTAL BUDGET NEEDED 130,000 CD TO BE DISBURSED AS FOLLOWING (111) 82/83 FOR PUMPS 20,000, VEHICLE 10,000, MONITORING 10,000, STS 5,000 TOTALLING 45,000 (222) 83/84 FOR PUMPS 10,000, FOR O & M 10,000 FOR MONITORING 20,000, STS AND SUNDRY 5,000, TOTALLING 45,000. (333) 84/85 FOR O & M 10,000 FOR MONITORING 20,000, STS AND SUNDRY 10,000 TOTALLING 40,000. IN CASE AN AGREEMENT CANNOT BE REACHED IN

END OF TEXT

~~HC~~

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TO:

TIME THE FUNDS WILL BE DISBURSED TO PROMOTE OUR PLANNED ACTIVITIES IN DOMINICAN REPUBLIC AND/OR HONDURAS. FOR GENERAL MANAGEMENT, SUPPORT SERVICES AND ADMINISTRATION TOTAL SUM OF 58,000 CD. DDD THE TOTAL REQUESTED FUNDS ARE THEREFORE 1,513,000 CD. EEE THE AGREEMENT WILL BE SUB-DIVIDED INTO 5 SECTIONS. ADVANCES WILL BE DEPOSITED UP TO 250,000 PER COUNTRY WHEN TOTAL BUDGET EXCEEDS THIS SUM. THE BALANCE TO BE DEPOSITED AFTER RECEIVING FINANCIAL REPORTS INDICATING THE USE OF FUNDS HAS REACHED 250,000. (RELEVANT ONLY TO BANGLADESH AND IVORY COAST). FFF PROGRESS REPORTS WILL BE SUBMITTED TWICE A YEAR SIGNED BY THE PROJECT MANAGER. GGG INTERIM FINANCIAL REPORTS TO BE SUBMITTED TWICE A YEAR FOR THE PERIOD OF APRIL-SEPTEMBER AND OCTOBER-MARCH. OFFICIAL REPORTS WILL BE SUBMITTED BY UNDP ONCE A YEAR. WE ARE LOOKING FORWARD FOR YOUR PARTICIPATION AS SOON AS POSSIBLE. WE ARE READY TO START THE NECESSARY ARRANGEMENTS AND WILL ADVANCE MONEY FROM OUR OWN BUDGET UPON YOUR PRIOR APPROVAL SO AS TO PREVENT ANY UNNECESSARY DELAYS IN THE EXECUTION. REGARDS, KALBERMATTEN/ARLOSOROFF, INTBAFRAD

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TELEX NO.:

DATE: SEPT. 7, 1982

SUBJECT:

DRAFTED BY: SARLOSOROFF:PHM

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cc: Messrs.C.Willoughby, J. Kalbermatten, G.Tschannerl, M.Loewen, R. Middleton, W.Mashler, M.Potashnik, M.Beyer, B.Gross Ms.C.del Castillo

AUTHORIZED BY (Name and Signature): S.ARLOSOROFF

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GLO/79/010
cc. INT/81/026

The World Bank / 1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Telephone: (202) 477-1234 • Cables: INTBAFRAD

Le 3 septembre 1982

Objet : Projet de pompes à main pour l'alimentation en eau des communautés rurales - Essais en laboratoire et sur le terrain et mise au point technique
(UNDP GLO/79/010 et INT/81/026)

Messieurs,

Nous apprécions vivement les efforts déployés par les Gouvernements voltaïque et néerlandais, dans le cadre de la Décennie de l'eau des Nations Unies de façon générale et, plus précisément à l'occasion des essais sur le terrain et de la mise au point technique des pompes à main pour l'alimentation des communautés rurales.

Comme suite à la visite rendue du 12 au 17 juillet 1981 par M. Arlosoroff, Directeur du projet, aux missions effectuées par M. Langenegger et moi en Haute-Volta du 17 au 22 avril et du 27 avril au 1er mai 1982, et à l'échange de lettres entre le Ministère du développement rural et l'Ambassade des Pays-Bas les 17 et 3 juin 1982 respectivement, nous confirmons par la présente que la Banque participera au projet suivant les modalités définies au paragraphe 11.c de la page 7 du document juridique ci-joint. Ledit document résume en outre les activités et les responsabilités du Ministère du développement rural, par l'intermédiaire de la Direction de l'hydraulique et de l'équipement rural (HER), et celles du Gouvernement néerlandais, par l'intermédiaire du Projet d'alimentation en eau des communautés rurales dans le Département de la Volta Noire.

Les frais pour la Banque d'un volontaire des Nations Unies, ajoutés aux frais annexes pour l'assistance technique, les essais en laboratoire, la supervision sur le terrain, l'administration du projet et la préparation et

Secrétaire d'Etat
Ministère du développement rural
Ouagadougou (Haute Volta)

M. P. Sciarone
Deuxième Secrétaire
Ambassade des Pays-Bas
Ouagadougou (Haute-Volta)

la diffusion des rapports, se montent à environ 150.000 dollars par an par essai sur le terrain, soit environ 300.000 dollars pour les deux années du projet intéressant la Haute-Volta. Ces dépenses incombant à la Banque sont financées par le PNUD, dans le cadre de l'appui qu'il fournit aux initiatives visant à améliorer l'alimentation en eau et l'assainissement dans le monde entier.

Vous trouverez ci-joint copie de chacun des lettres et documents ci-après, qui sont des éléments de cette entente tripartite : 1) Accord de projet, 2) lettre du 17 mai 1982, adressée par le Ministère du développement rural à l'Ambassade des Pays-Bas, 3) lettre du 3 juin 1982, envoyée par l'Ambassade des Pays-Bas au Ministère du développement rural et 4) copie du document de projet du PNUD.

Le projet étant désormais entré en vigueur, M. Langenegger, en tant que chargé de projets pour la région Afrique de l'Ouest, prendra contact avec la HER et l'Ambassade des Pays-Bas pour la conclusion des arrangements relatifs à l'exécution. Il se trouvera en principe à Ouagadougou du 13 au 25 septembre. Nous suggérons, pour gagner du temps, que M. Sciarone prenne les dispositions appropriées concernant l'acquisition de l'automobile destinée à l'équipe de suivi. Nous souhaiterions être informés de la date approximative à laquelle ce véhicule arrivera en Haute-Volta.

Nous sommes convaincus qu'une collaboration étroite s'établira entre vos deux organisations et la Banque, et nous espérons que les essais sur le terrain qui seront effectués en Haute-Volta représenteront un grand progrès dans les travaux associés à la Décennie de l'eau.

Veuillez agréer, Messieurs, l'assurance de ma considération distinguée.

Le Coordonnateur des projets spéciaux
Département des transports et de l'eau

Melvin J. Loewen

GLO/79/010
cc INT/81/026

The World Bank / 1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Telephone: (202) 477-1234 • Cables: INTBAFRAD

September 3, 1982

Mr. B. D. Ido
Secretary of State
Ministry of Rural Development
Ouagadougou, Upper Volta

Mr. P. Sciarone
Second Secretary
Embassy of the Netherlands
Ouagadougou, Upper Volta

Dear Sirs:

Subject: Rural Water Supply Handpumps Project--
Laboratory Testing, Field Trials and
Technological Development
(UNDP GLO/79/010 and INT/81/026)

We appreciate the contributions that both the governments of Upper Volta and the Netherlands are making to the UN Water Decade in general and more specifically to the field trials and technological development of village water supply handpumps.

In follow-up to the visit on July 12-17, 1981 of Mr. Arlosoroff, Project Manager, and to Mr. Langenegger's and my mission to Upper Volta on April 17-22 and April 27-May 1, 1982, and the exchange of letters between the Ministry of Rural Development and the Embassy of the Netherlands of May 17 and June 3, 1982, respectively, we hereby confirm the Bank's contribution as spelled out in paragraph 11.c on page 7 of the attached agreement document. This document also summarizes the contributions and responsibilities of the Ministry of Rural Development through la Direction de L'Hydraulique et de l'Equipement Rurale (HER) and the government of the Netherlands through their Rural Water Supply Project in the Department Volta Noire.

The cost to the Bank of the UN volunteer together with the support costs for technical assistance, laboratory testing, field supervision, project management, and preparation and dissemination of reports runs to about US $150,000 per year per field trial; or about US $300,000 for the two-year project in Upper Volta. These Bank expenditures are funded by UNDP as part of its support to the effort to improve water supply and sanitation throughout the world.

We attach one copy of each of the following letters and documents to form part of this tripartite understanding: 1) Project Agreement, 2) letter of May 17, 1982 from the Ministry of Rural Development to the Embassy of the Netherlands, 3) letter of June 3, 1982, from the Embassy of the Netherlands to the Ministry of Rural Development, and 4) a copy of the UNDP Project Document.

Now that the project is effective, Mr. Langenegger, as the West Africa Regional Project Officer, will contact HER and the Embassy of the Netherlands to conclude implementation arrangements. He is expected to be in Ouagadougou September 13 to 25. To gain time, we suggest that Mr. Sciarone make appropriate arrangements regarding procurement of the car for the monitoring team. We would appreciate being informed of the approximate date when this vehicle would be available in Upper Volta.

We look forward to close collaboration with both of your organizations in the hope that the Upper Volta field trial will make an important contribution to the global Water Decade

Sincerely yours,

Melvin J. Loewen
Special Projects Coordinator
Transportation and Water Department

Attachments:

1. Project Agreement
2. Letter of Ministry of Rural Development to Embassy of the Netherlands of May 17, 1982.
3. Letter of Embassy of the Netherlands to Ministry of Rural Development of June 3, 1982.
4. UNDP Project Document, signed April 22, 1982.

Copy with attachments to:

Mr. D. Nikiema, Director, HER, Ouagadougou
Mr. W. Mashler, Senior Director, DGIP, UNDP New York
Mr. C. Widstrand, Resident Representative, UNDP Ouagadougou
Mr. H. Nabulsi, Executive Coordinator, UNV, Geneva
Mr. M. Dia, Resident Representative, World Bank, Ouagadougou

cl/cc: Messrs. Arlosoroff, Tschannerl, Langenegger (TWD);
cc: Kalbermatten, (TWD); Al-Khafaji/Motte (WAP);
Hinkle/Molineus (WAI); Riley (IRD)

IN7/81/026

12
Sep. 21, 82

TELEPHONE PLAZA 4-1234

CABLE ADDRESS UNICEF

UNICEF

UNITED NATIONS CHILDREN'S FUND · FONDS DES NATIONS UNIES POUR L'ENFANCE

UNITED NATIONS, NEW YORK

WET/674/82 3 September 1982

Dear Mr. Arlosoroff,

Thank you for yesterday's telephone conversation and our fruitful discussion. I would also like to thank you for your interest in my innovated double walled screen-filter with perforated joint and would be very grateful to you personally and to your organization if you will include the double walled screen-filter in your testing programme, and to inform, in writing, UNICEF and other UN Agencies about your findings.

Action. 9T

I personally very much support your programme on testing screen-filters and believe that will be very important for proper selection of screen-filters in the future, as well as for determination of water well efficiency and reduction of the problems caused to the pumps (fast wearing and high cost of maintenance and repair).

I share your opinion that the developing countries should be assisted in the promotion of local production.

I hope that the enclosed letters (dated 2 July and 25 August) are self-explanatory with regard to this subject for both UN Agencies and developing countries.

I am also enclosing the complete documentation related to this double walled screen-filter with a perforated joint. As you will see from the explanation, this type of screen-filter is very simple and can be made of different material and types of screens.

/...

Mr. Shaul Arlosoroff
UNDP Projects Manager (TWD)
World Bank
1818 H Street, N.W.
Washington, D.C. 20433

During my recent visit to the University of Maryland, I had a long discussion with Prof. Y.M. Stenberg (who I assume you know very well) about field tests of the single Roboscreen and the double walled screen-filter made of the Roboscreen (outer and inner screen) in Bangladesh or in some other developing country and I hope that both, Prof. Y. Stenberg and myself will have the opportunity, before the end of this year. I am delighted with Roboscreen construction, and believe that Roboscreen will be more efficient in the construction of the double walled screen-filter for protection of sanding in.

If you have any further requests or questions, please do not hesitate to contact me. I would like to continue cooperation with you personally and with your organization, and I will be at your disposal at any time.

Regards.

Yours sincerely,

Dr. B. Kojic

Dr. B. Kojic
Adviser
Water and Environemtnal
Sanitation Team, WET

UNICEF

UNITED NATIONS CHILDREN'S FUND
FONDS DES NATIONS UNIES POUR L'ENFANCE

INTEROFFICE MEMORANDUM

TO: Mr. Padamjit Singh
Chief, Personnel Services Section

DATE: 2 July 1982

FROM: Dr. Bozidar Kojicic Dr B. Kojicic
Senior Project Officer, WET

FILE NO.: WET/530/82

SUBJECT: Clarification on the rights of patent royalties

As we discussed on 30 June 1982 in your office and today about a/m subject and at your request, I am submitting to you the following additional written information along with selected important enclosures relating to this matter.

1. The innovation for the double wall screen-filter was developed by me in 1976, i.e. before I had joined UNICEF or any UN organization (my contract with UNICEF started on 15 June 1977).

2. The first trial with the double wall screen-filter was made in 1976 in Yugoslavia in one water well at Zmajevo villiage during my service with Geozavod Co. in Beograd-Yugoslavia (see enclosed declarations).

3. Following the functioning of this type of screen and obtaining excellent results I decided to register this innovation as a Patent, which I did on 6 August 1981 under the No. P-1921/81 (enclosed are copies of the original document in Yugoslav language and the English translation). Before registration of this Patent, i.e., on 11 June 1981, I wrote a proposal to Mr. M. Beyer, Chief of Water Section, NYHQ, under the subject "Improved Water Well Technology for Greater Reliability, Better Yields and Considerable Savings, file No. WS/538/81 (see enclosed copy), suggesting the use of the double wall screen for some UNICEF water well projects, and mentioning that this type of screen-filter has been successfully used in Yugoslavia (page 5, para. 3).

4. The patent document for this screen-filter was notorized by Mr. D. Hall in UNICEF.

5. The document for this filter was registered in West Germany on 16 June 1982 under the numbers P 3222627.6 and G 8217372.9 (enclosed is a copy) and is under registration in U.S.A. and in ten European countries- European Patent.

6. During my official visit to some German Companies which are manufacturing different types of screens for wells, three of them had shown great interest in manufacturing double wall screen-filter and offered me an Agreement (enclosed are copies) with prescribed conditions.

As you can see from the enclosed agreement I did not sign any of them, simply because I do not know my rights and obligations as a UNICEF project staff member.

But even if I have the right to any royalties, I wish to exclude roylaties from all UN agencies and all developing countries where UN projects for water wells are under execution or will be executed in the future, particularly if those countries would locally manufacture this type of screen-filter. I believe that this is one of the ways in which we can best assist developing countries and to promote local production, since this type of the screen-filter can be easily manufactured locally in many developing countries from different types of material.

Thank you very much for your effort in clarifing this subject with the UN legal office.

cc: Mr. R. Jolly
Ms. M. Catley-Carlson
Dr. Nyi Nyi
Mr. M. Beyer

UNICEF

UNITED NATIONS CHILDREN'S FUND
FONDS DES NATIONS UNIES POUR L'ENFANCE

INTEROFFICE MEMORANDUM

DATE: 25 August 1982

FILE NO.:

TO: Mr. Joseph Acar
Personnel Officer

FROM: Dr. B. Kojicic Dr B. Kojicic
Senior Project Officer

SUBJECT: Patent Rights

Thank you for your memo dated 24 August 1982, in reply to my memo of the same date.

At your advise I called Mr. J. De Saram, and at his request I met with Mr. J. Truman, UN Legal Adviser and had a discussion about refining the licence and the Patent rights (enclosed is a copy of his handwritten statement, in reply to this subject). In reply to your questions, I am stating again the willingness to exclude royalties from all UN Agencies and all developing countries where UN projects for water wells are under execution or will be executed in the future, particularly if those countries would locally manufacture this type of screen-filter, for unlimited local use. However, for joint companies in developing countries, limitation will be related only to UN/UNICEF projects, because among the partners of those joint companies will be some companies from developed countries with whom I will have already signed an agreement.

Could you please be so kind as to confirm in writing that UNICEF has no objection to my concluding an agreement with companies to licence the use of the double walled screen-filter with lower perforated joints.

Dr. Bozidar Kojicic
30 Lincoln Plaza, New York, NY 10023

DOUBLE WALLED SCREEN-FILTER WITH PERFORATED JOINTS

Technical Field

The present innovation relates to well strainers, screen-filters, such as we employed in equipping oil, gas and water wells.

It is the object of the innovation to provide a well strainer, i.e., screen-filter, so constructed as to enable proper well development, highest transmitting capacity under laminar flow condition, eliminating sanding and silting in, either by pressure flow or pumping conditions. When the construction is made from proper materials, incrustation and corrosion should be reduced or eliminated.

Background Art

Conventional screen-filters are used in many gas, oil and water wells to reduce sanding and silting in. They are mainly used with artificial gravel pack poured into annular space between wall of the borehole and outside space

of the screen or by formed gravel pack from the formation gravel grains during development of the wells or by gravel grains or grains from the other materials as the bonded-on pack into the slots of the screen or bonded-on as coated pack on the outside space of the single screen with special type of resin.

The wells with gravel pack into annular space must be drilled with large diameter to accommodate a minimum of a 3 inch gravel pack thickness from each side and to ensure that a required envelope of gravel will surround the entire screen. But very seldom even in the large diameter or hole, with enough space in the annular, gravel is usually improperly packed. Therefore, it is costly, not effective in view of sanding and silting in, particularly for deeper wells.

A pack formed by development only, from formation gravel grains, also requires a large hole diameter with a very strong and special type of screen for long lasting development and very often without full success. Therefore, it is more costly and not effective, particularly not for protection of sanding and silting in.

A pack bonded-on outside or bonded-on into the screen openings from the gravel grains or the grains from the other materials is very costly, fragile and very sensitive for transportation and installation into the borehole.

Such tightly packed grains reduce about three times the free flow areas, compared with the loosely packed system.

Fine sand and silt entering into any of these gravel or other packs will drastically reduce porosity and permeability of the filtering system. When fine particles occupy openings between the coarser particles of the artificial gravel pack, i.e., when porosity and permeability are reduced, the velocity of the fluid flowing through the screen-filter will be drastically increased, causing abrasion and incrustation of the screen, reduction of the yield, and contributing to the collapse of the screen or casing.

Cleaning and maintenance of such well's screen-filters are very costly and hazardous. Therefore, the key to good well efficiency is effective screen-filter functioning which depends in turn upon the screen design.

Disclosure of Innovation

Double walled screen-filter, according to the present innovation, comprises a pair of substantially spaced concentric and cylindrical perforated or punched or slotted or wrapped screen members positioned to define annular filtering space there between, the lower perforated joints-rings, filtrating material filled up into annulus between two screens and upper cover cap, capable of being installed in borehole of a diameter just a little bit larger than the outside diameter of this new screen-filter.

Drilling borehole with smaller diameter is faster, easier and cheaper. Enlargement of a diameter of a hole considerably increases drilling cost but inadequately contributes to the increase of the water yield (see enclosed diagram: Relation of yield to water well diameter after Prinze).

The inner and outer screen members can be made of different materials, as for example, different type of polymer (PVC or other), fiber glass, carbon steel, stainless steel or alloy.

The outer screen should always be made of a stronger material and the inner screen can be made from a weaker material, because the outer screen is exposed to all pressure and tension and the inner is generally supporting only gravel or polymer's ball pack.

The inner and outer screen can be manufactured from the pipes or metal sheets, by perforation, punching and slotting or formed from metal bars and wires wrapped around the bars. The collapse strength of the double walled screen will be increased because of two jointed screens and therefore the total open area of both outer and inner screens can be accommodated and increased to the maximum, which in turn, means increase of the screen's transmitting capacity.

Possibility of manufacturing screen's members of the double walled screen from non-corrosive and inexpensive plastic materials, such as PVC, with high total open area, i.e., with a high transmitting capacity, according to the innovation represents a big advantage in both design of the screen and economy. The transmitting capacity is the most important property of any screen and depends upon the total open area per foot (or per meter) of the screen, i.e. of the total open area per total length of the screen, quality of the screen and the hydraulic properties of the aquifer and filtrating materials (gravel or polymer's balls pack). The most favorable screen's transmitting capacity is expressed as gallons per minute per foot, or liters

per minute per meter, at the entrance velocity of 0.1 ft/sec or 0.03 m/sec (laminar flow), and therefore can be easily calculated from the total open area of the screen by multiplying the number of square inches of open area per foot by a factor of 0.31. Thus for the memebers of the double walled screen (inner and outer screens) total open area (over 10 percent and more) can be very easily adjusted, even for small diameter of outer and inner screens, in order to obtain the most favorable transmitting capacity.

Due to this fact, according to the innovation, the total length and diameter of the double walled screen-filter can be considerably reduced, because of the possibility of obtaining the same quantity of fluid under favorable hydraulic conditions. This represents also the decreasing of the cost for the screen-filter, as compared to any other existing type of screen-filter, which is an important issue because the construction of the screen-filter is always the most expensive part of any well's construction.

Vertically perforated lower joints and upper solid cover cap can also be made from the same or different materials as the inner and outer screen members.

Vertically perforated lower joint is used to join inner and outer screen, to support gravel or polymer's balls pack material, to enable proper development of the well and to transfer finest particles into sedimentation tube (sand trap), which enter from the aquifer through outer screen to the gravel or polymer's balls pack.

The strength of the vertically perforated lower joint depends on the materials to be made, the length and diameter of the screen's segment, the annular space between two screen (inner and outer), type of pack materials, i.e., its total weight, depth and other conditions of the well.

Vertically perforated lower joint can therefore be attached to screens (inner and outer), by threads, inside and outside, or outside only, by welding or by cementing (for screen members made of PVC materials), or by other means.

Vertically perforated lower joint even with threads can be incorporated very easily between the threads of the ordinary threaded pipes and screen's threads, without any changes of the threads of joint system on the existing pipes and screens.

Vertical openings on the lower perforated joints have numerous holes. The size of the holes on the vertically perforated lower joints must be the same as slot openings of the outer screen, and the number depends upon the quality of the materials and space, although preferable to be as many as possible.

The filtering materials, gravel or polymer's balls pack, must be equally filled up in the annular space between inner and outer screen members. The size of these pack's grains depend upon the aquifer conditions (determined on the base of sieve analyses of the aquifer grain sizes), and must be bigger than slot sizes of screen's members. The filtering materials (gravel or

polymer's balls pack) may be filled on the spot into screen's annular space during installation of the double walled screen, with the grain sizes as required by the bearing formation, thus making it possible to also fill in segment filtrating materials of different size in accordance to the changes of the granulation of the bearing formation column.

For example, the lowest part can be filled up with largest size of the gravel or polymer's balls, and above this column pack smaller grain sizes can be filled up, or vice versa.

Such loose filtrating materials (gravel or polymer's balls), particularly when they are well rounded grains and uniform, will possess more than double of a free flow area, or transmitting capacity than any densely packed filtrating material or almost three times higher free flow area or transmitting capacity than bonded-on screen either of the gravel or polymer's balls granules. Laboratory and field tests proved that the thickness of the filtrating materials (gravel or polymer's ball pack) filled up into the annular space between inner and outer screens could be very modest, i.e., about 1" (25.4 mm) and successfully retains the finest formation particles regardless of the velocity of fluid tending to carry these fine particles through filtrating materials.

The upper joint, as solid cover cap on the top of the double walled screen-filter, is used only to seal filtrating materials in the annular filtrating space. It can be made from the same materials as the other members of the double walled screen, and connected only with the threads or by welding or by cementing or by other means for the inner screen.

Several field test performed in water wells with double walled screen-filter (with gravel pack as filtrating materials), but without lower perforated joints did not give satisfactory results, neither during well development nor during pumping water, because of clogging filtrating materials with the fine particles from the water bearing formation. Further tests with lower perforated joint did not cause any clogging or similar problems.

The tests have shown very clearly that the most important member of the double walled screen-filter construction and improvement of its construction are lower perforated joints, which enable proper cleaning and development of the bearing formation and cleaning of filtrating materials (gravel or polymer's ball pack) from the fine particles entering into filtrating materials from the bearing formation during development of the well, and makes possible easy and free passages of the finest particles into sedimenation part of the well (sedimentation pipe or sand trap) during pumping or lifting of fluids, thereby maintaining the effectiveness of the filtrating material for reliable double screen-filter operation.

Such double walled screen-filter with perforated lower joint, filtrating material and upper cover cap, according to the innovation, can be constructed on the spot, during installation into the borehole, which also represents a considerable savings with repect to transport expenses and installation.

The construction of this new innovated screen-filter may also fully satisfy all technical requirements related to mechanical strength, as for example: resistance to pressure, tension and stress during installation into borehole, including the resistance to denting from the effect of inside and

outside pressure caused by formation conditions or by pressure and flow from aquifer through the screen-filter segments; or by a differencial pressure into the well caused by any reason.

When the members of the double walled screen-filter are made of polymer materials, they are fully resistant to corrosion and destruction by bacteria and considerably resistant to incrustation.

The members of the double walled screen-filter with lower perforated joints to be installed in the deep wells, according to the innovation, can be constructed from different materials. For example, the outside screen and lower perforated joint (particularly when the double walled screen is composed from only one segment) can be made from steel materials of a corresponding strength (preferable non-corrosive) as the sedimentation pipe and protecting casing, and inner screen and upper cover caps to be made from polymer material (such as PVC). Then, if the inner screen and upper cover cap are made of polymer material it would serve properly for the purpose of the double walled-screen, and if required for any reason can be easily destroyed and replaced together with filtrating material without any danger to the well.

The members of the double walled screen-filter and filtrating material (either from gravel or polymer's ball pack) made from polymer can also be very easily destroyed and replaced when it is installed as construction into telescopic type of well and particularly when the upper part of the well is cased with a steel casing.

Another very important aspect of the innovation is possibly the mixing of concentrated dry chlorine pellets with filtrating materials in order to desinfect the well, chlorinate the water, destroy iron bacteria and inhibit incrustation.

This further contributes essentially to a prolongation of the life expectance of the screen-filter and well, and improves a well's performance.

Further benefits, features and aspects of the innovation will be apparent from the following description of the drawings.

Brief Description of Drawings

Fig. 1 is a general view of the double walled screen-filter segment according to the innovation.

Fig. 2 is a longitudinal cross-sectional view of the double walled screen-filter in accordance with one embodiment of the present innovation.

Fig. 3 is a sectional view taken through the line a-a of Figure 2.

Fig. 4 is a partial longitudinal cross-sectional view of double walled screen members.

Fig. 5 is a longitudinal cross-sectional view of the double walled screen-filter with joints when installed in a straight type of well construction.

Fig. 6 is a longitudinal cross-sectional view of the double walled screen-filter with joints when installed in a telescopic type of well construction.

Fig. 7 is a longitudinal cross-sectional view of the double walled screen-filter with joints when installed in an existing well.

Fig.8 a, b is a longitudinal cross-sectional view of the double walled screen-filter which can be installed in the well point and/or in the small diameter hole.

Best Mode for Carrying Out the Innovation

Referring to Figures 1 to 4, the numeral 1 represents an outer screen with its slot openings; 2 represents an inner screen with its slot openings; 3 is a loosely packed filtrating material (gravel or polymer's balls pack); 4 a lower perforated joint; 5 an upper joint cover cap; 6 are slots (holes); 7 are threads of joints; A is free space between upper part of screen threads and upper part of sedimenation tube threads when lower perforated joint is incorporated into existing threads of screen-sedimentation pipe and B is same as A, but for upper joint 5, between screen and casing.

Referring to Figures 5 to 8, the numeral 8 represents sedimenation tube, or cone (sand trap); 9 is bottom cap of the well construction with the threads or other connection on the side; 10 is a hole with left hand threaded in the middle of bottom cap; 11 represents protective pipe-casing above double walled screen-filters; 12 is cement ring (seal); J is upper part of the double walled

screen-filter construction for installation into the borehole by hook; 13 is borehole; 14 is previously installed sedimenation tube; 15 is previously installed screen; 16 is previously installed or formed gravel pack; 17 is previously installed protective pipe-casing; 18 is new sedimentation tube; 19 is lower packer; 20 is upper packer; 21 is newly installed double walled screen-filter construction; 22 are driven pipes; 23 is drive cone for wall point; 24 is jetting nozzles; 25 is threaded joints; and, 26 is spire.

The embodiment, as illustrated in Fig. 4, shows that the lower perforated joint(s) is threaded outside and inside and incorporated into existing threads of screen-pipe in order to couple inner and outer screen, although it can be threaded only outside for connection with the outer screen and other side for connection with the inner screen to be adjusted accordingly so that the lower perforated joint will serve as supporter only of the inner screen and filtrating materials, or both sides of the lower perforated joint(s) to be connected with the inner and outer screen by welding or cementing, as already explained. The upper joint-ring, as cover cap, shown in Fig. 4 is threaded only outside. It can also be connected to inner and outer screen by welding or cementing, or by other means.

The embodiment, as illustrated in Fig. 5 shows the double walled screen-filter construction is directly connected with protective pipe-casing, in so called straight well construction. The bottom cap with a hole in the middle with left hand threads is connected to the sedimentation tube 8. The purpose of such bottom cap construction is generally for the installation of the whole well construction and well development with direct circulation.

Installation of the whole well construction (or only screen-filter construction in case of telescopic type of a well), clearing and development of the well is performed through the pipe with left hand threads connected to the bottom cap before final setting down of the well construction using any corresponding fluid, so that the double walled screen and the walls of the well, particularly in the bearing formation, are properly washed. Later on, when the whole well construction is properly lowered down at the borehole bottom, and left hand pipes unscrewed from the bottom cap, washing may also be performed inside, in order to make sure of proper cleaning of the double walled screen-filter construction.

Fig. 6 shows a telescopic type of well construction with installed double walled screen-filter in the lower part of a hole with a J slit for the installation with a hook assembly attached to the lowering pipes. The upper part of the double walled screen-filter construction is sealed with rubber packer (20) in order to prevent entrance of formation materials into the well through the annular space of the protective pipe-casing 11 and outside of the upper part of the double walled screen-filter construction. Therefore, when the double walled screen-filter construction is made of polymer's materials (such as PVC or similar) and installed into cased borehole, particularly with steel pipe-casing (as upper part of the well construction), it may be easily demolished should any problems occur during the installation or later on and will, at the same time, preserve the water well from any damage. The lower part of the borehole should only be recleaned and a new double walled screen-filter construction system installed again.

In Figure 7 is shown how the double walled screen-filter construction is installed in an existing well when sanding up represents serious problem to either the fluid production or wearing out of the well pump, or screen.

The double walled screen-filter is installed inside the existing well screen with two packers 19 and 20. The lower 19 and upper 20 packers seal the annular space between the existing pipe-casing (sedimenation tube and protective pipe-casing) and the double walled screer-filter construction.

A redevelopment of the well and recleaning of the double walled screen-filter may be performed easily through the lower perforated joint(s), with any corresponding fluid.

In Figure 8 - a, b is shown how the double walled screen-filter is used in well point or in the small diameter hole.

Therefore, for well point, i.e., for driven wells, either inner or outer screen can be made of perforated or slotted steel tube or similar construction of different diameter, attached to the well point cone (which is used also as driving tool and later on as sand trap) and to driving pipe on the top, and construction with other screen-filter members as any other double walled screen-filter.

For drive well point according to the innovation, as shown in Fig. 8 - a, the outer screen of 2-1/2" (63.5 mm) and inner of 1" (25.4 mm) of nominal diameters, with threaded joint approximately 3" (76.2 mm) outside diameter and

drive cone with jetting nozzles on the cone and different slot sizes (0.1-2 mm or over 2 mm) on the screens and proper granulus of the filtrating materials (gravel or polymer's loose balls pack) will prevent any sanding and silting in.

Similar construction of the double walled screen-filter but with spire as shown in Fig. 8 - b can be used for small diameter of any kind of hole.

Summarized, the advantages of the double walled screen-filter construction are as follows:

1. Production of fluids free of sand and silt from the wells under favorable hydraulic conditions.

2. Economy with regard to the drilling cost of wells; selection of the materials and manufacturing screen-filter; transportation, installation and maintenance of the screen-filter; prolongation of life expectancy of screen-filter and the complete well construction; prelongation of the life expectancy of the pumping units and water distribution system.

3. Reducation of the screen's length and diameter due to the possibility of obtaining a high total open area and the most favorable hydraulic characteristics of the screen-filter; reduction to the screen's construction weight and resistance to corrosion and bacteria distruction, when using polymer materials.

4. Easy well development and maintenance of the double walled screen construction during production.

5. The possibility of replacing the entire lower part of the well construction (double walled screen-filter) when manufactured from polymer materials.

6. Using faster, more effective and cheaper well disinfection, water chlorination, and protection of well construction against bateria and incrustation.

7. The possibility of manufacturing the same type of double walled screen-filter construction from considerably more resistant materials and under reasonable cost and using it in deep oil, gas or geothermal wells, where it is necessary to prevent sanding up.

Claims

1. Double-walled screen for wells made of the same or different materials, joined in segments, the annular space of which is filled with gravel or ball grains and characterized by a lower perforated joint (4).

2. Double-walled screen according to claim 1, and the lower perforated joint (4) with the holes the same size as the size of the slots of the outside screen (1), which will enable proper well development and passage of the fine particles to the sedimentation tube.

3. Double-walled screen according to claim 1 or 2, characterized in that the perforated joint (4) is used to connect inner screen (2) and outer screen (1).

4. Double-walled screen according to any one of claims 1 to 3 characterized in that the perforated joint (4) supports loose gravel balls.

5. Double-walled screen according to any one of claims 1 to 4 characterized in that the perforated joint (4) supports loose polymer balls.

6. Double-walled screen according to any one of claims 4 to 5 characterized in that the grains (3) are of different size.

7. Double-walled screen according to any one of claims 1 to 6 characterized in that said gravel or ball grains (3) are admixed with concentrated dry chlorine pellets.

Abstract

A well screen-filter includes a pair of substantially spaced concentric screens defining an annular filtrating space there between, connected with perforated joint(s) closing the lower end of the filtrating space, annular space filled up with filtrating materials (gravel or synthetic balls) as a pack and upper joints as cover caps of the annular filtrating space (seal of the pack). A lower perforated joint includes holes for passage of the fine particles to the sedimentation tube, preventing clogging of the pack and enables proper functioning of the double walled screen-filter.

Fig. 1

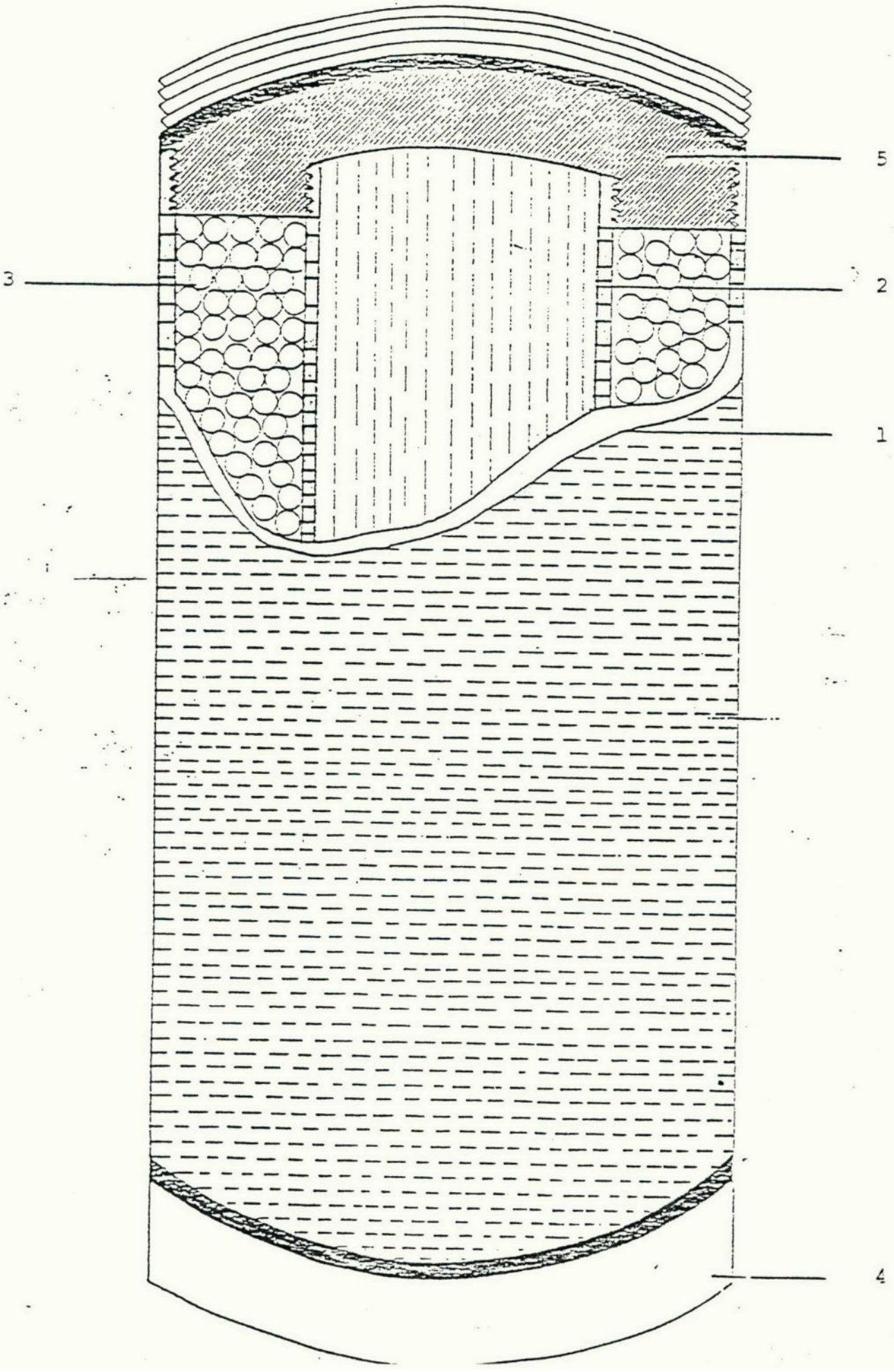


Fig. 2

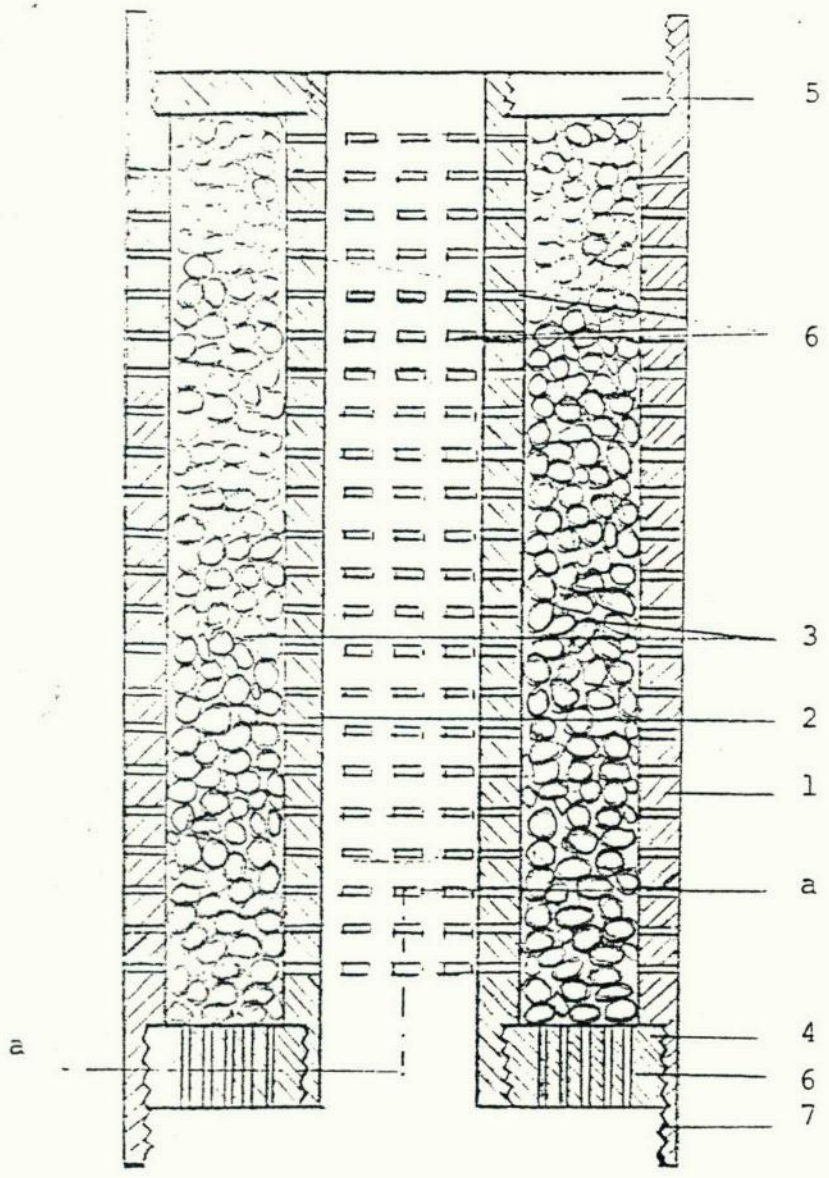


Fig. 3

a - a

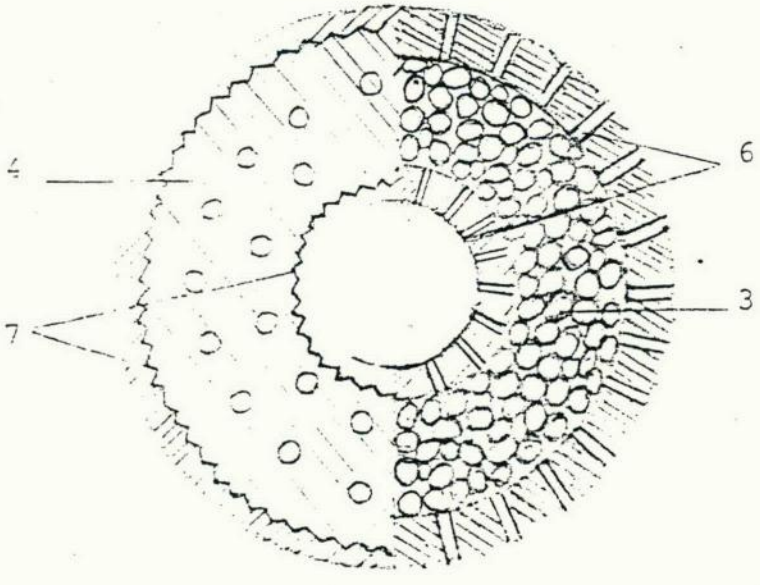


Fig. 4

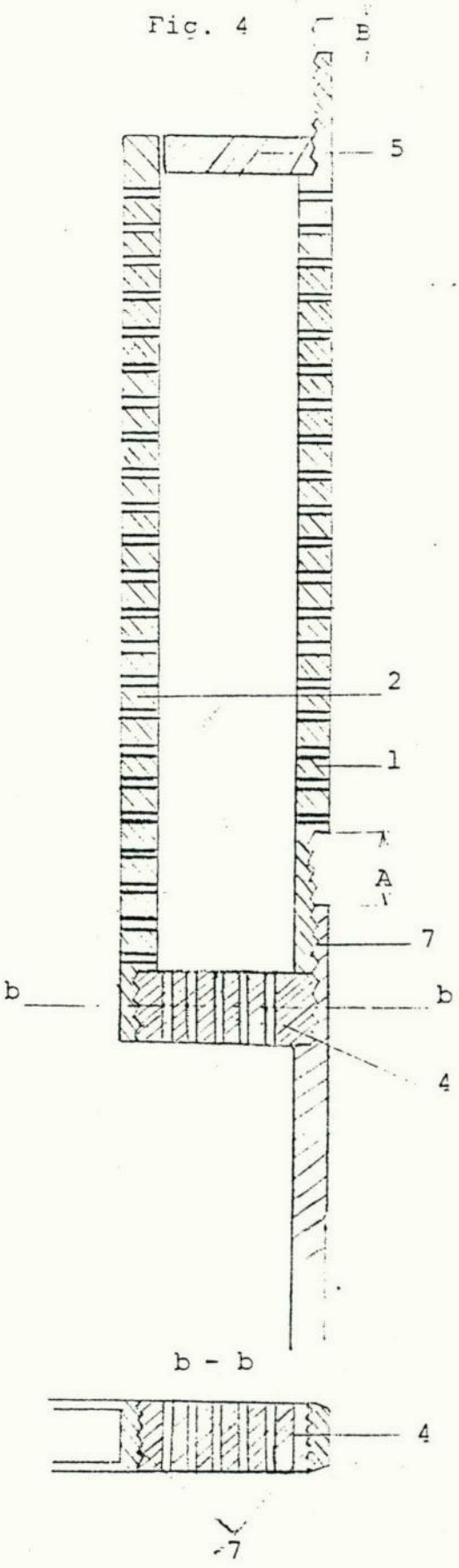


Fig. 5

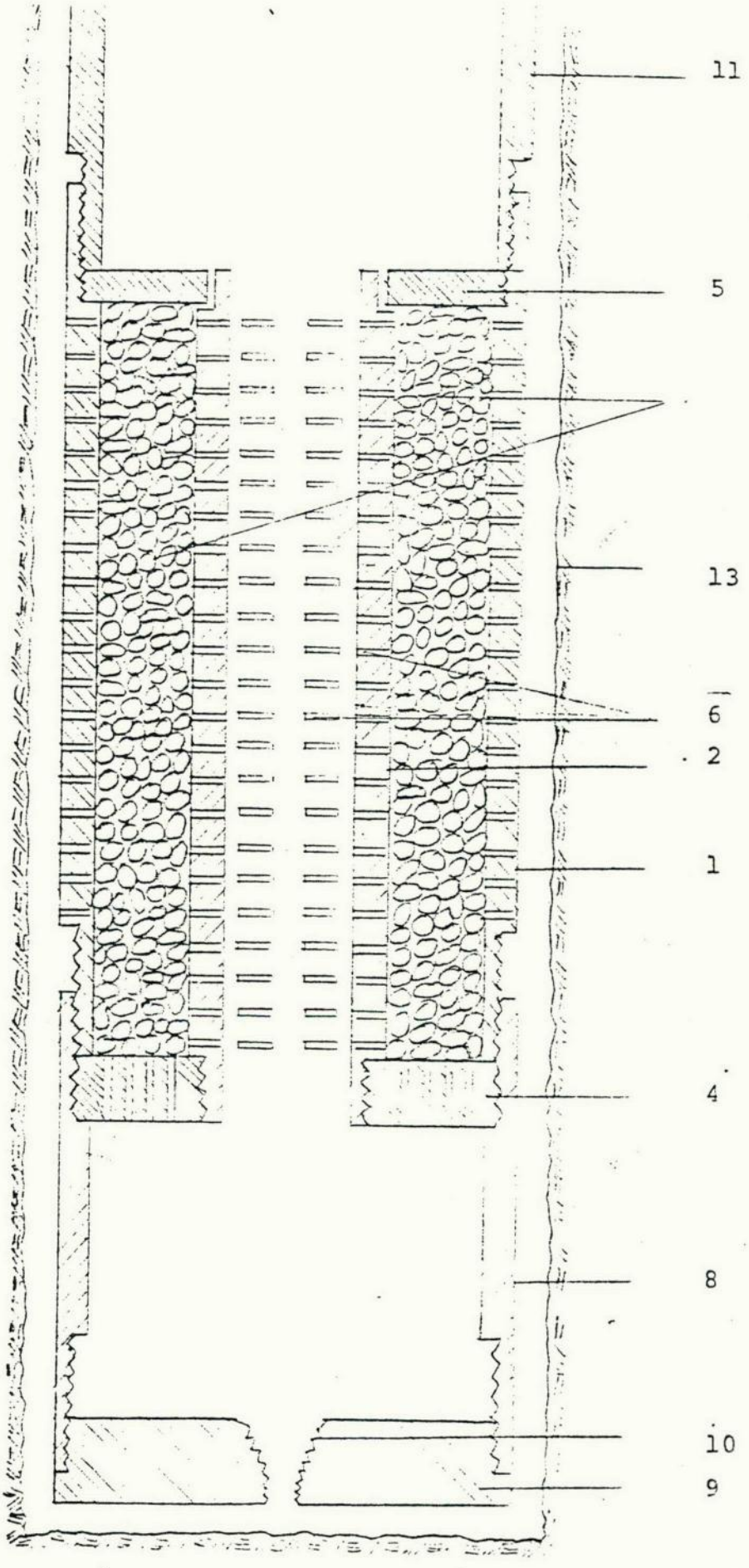


Fig. 6

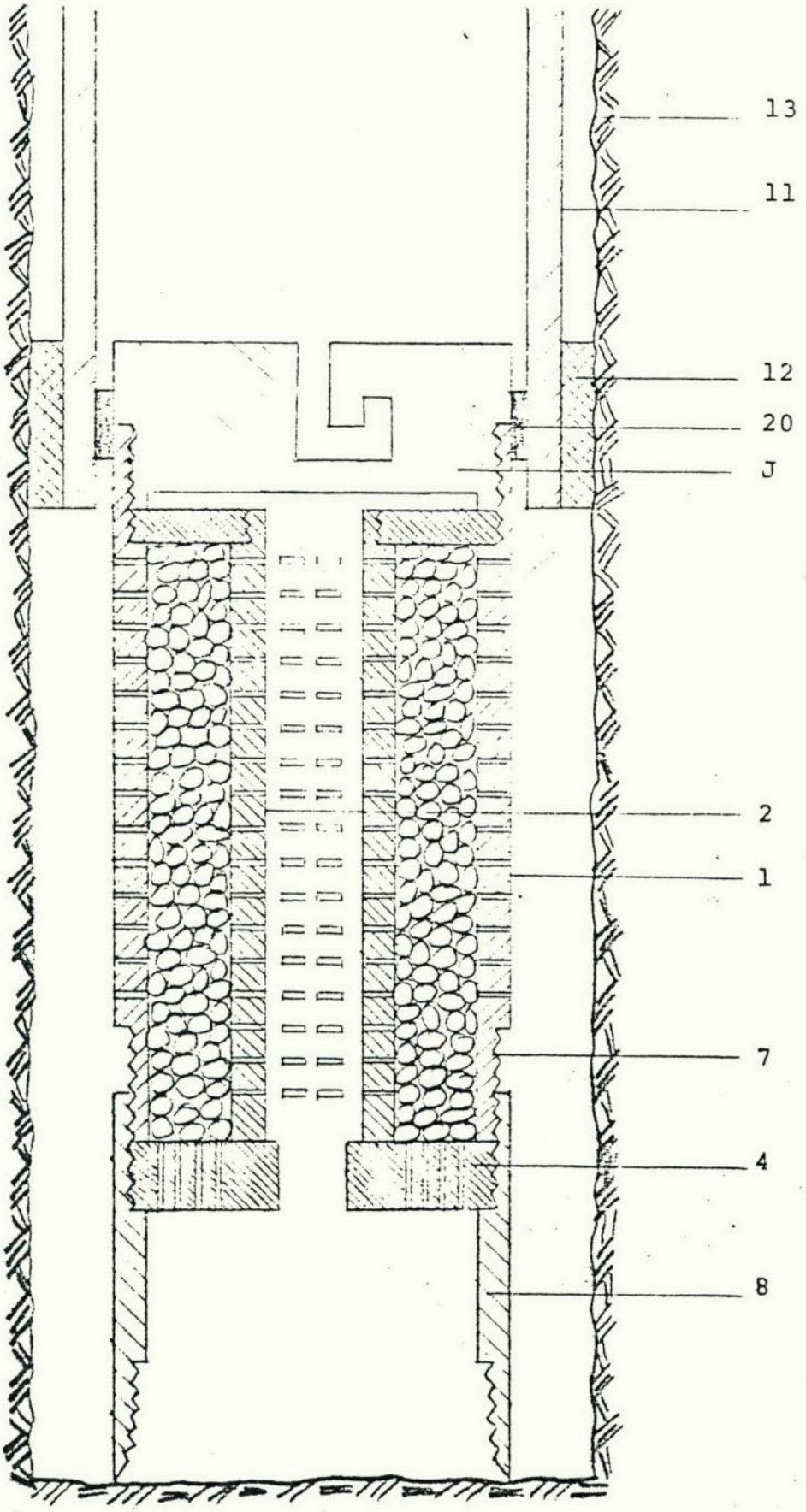
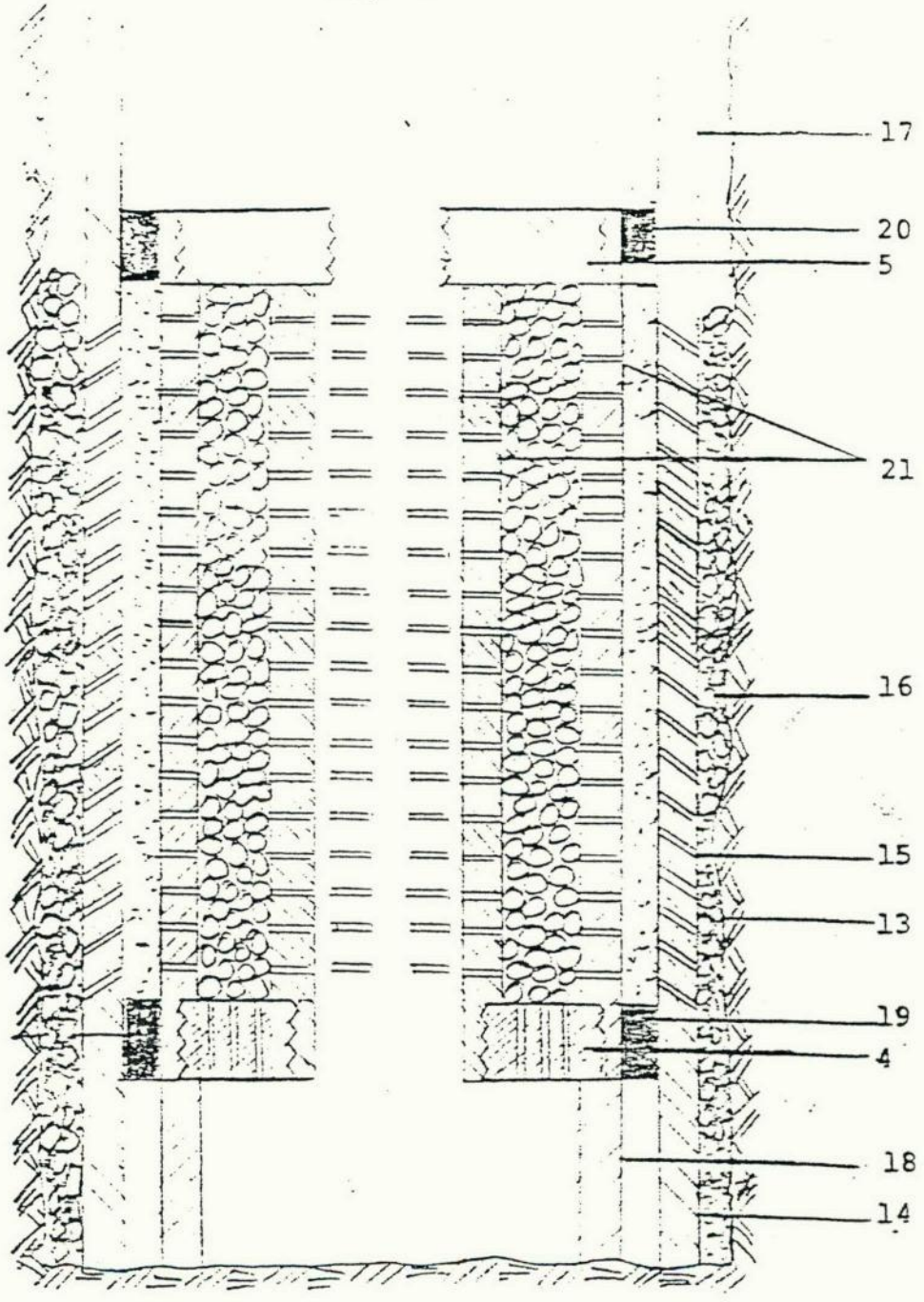


Fig. 7



IN7/81/026

September 3, 1982

HACH Company
International Service Department
P.O. Box 389
Loveland, CO 80537

Dear Sirs:

Subject: Return of Equipment

I am referring to my verbally-placed order of August 23, 1982 comprising of the following items:

1		DR 100 Colorimeter for Nitrate Testing, high range 0-30 mg/l, battery supply, Cat. No. 41100-12
2	x 100	NitraVer 5 Reagent, Cat. No. 21061-69
6		Empty cartridges for Digital Titrator, Cat. No. 14495-01
2	x 50	Diphenycarbazone Reagent, Cat. No. 836-99
2		Cartridges Mercuric Nitrate 2.256 N, Cat. No. 921-01

Unfortunately, two of the above listed items were sent incorrectly, namely: (a) Cat. No. 1836-06 instead of Cat. No. 836-99, and (b) Cat. No. 41100-02 instead of Cat. No. 41100-12.

Item (a) was sorted out by your staff without my intervention and item (b) with regard to my phone call of August 31.

In the meanwhile, I have received all of the items ordered. However, I would like to return tne non-ordered ones, the DR 100 colorimeter for chlorine, model 41100-02 and the 2 x 100 reagent 1836-66 which are being sent to you under separate cover.

As I will be out of the country until the end of October, 1982, I am enclosing a check amounting to $230 dollars, and I kindly ask you to consider the returned items on your invoice. I will settle the balance after my return.

Thank you for your prompt service and for your understanding.

Yours sincerely,

Otto Langenegger
Project Officer
UNDP Handpumps Project

Enclosures: 1 check No. 107 (Bank-Fund Staff Federal Credit Union)
1 DR 100 Colorimeter for Chlorine Testing
(under separate cover)
2 x 100 Reagent Cat. No. 1836-66
(under separate cover)

cc: S. Arlosoroff

OLangenegger:lm

INT/81/026

September 3, 1982

Mr. B. D. Ido
Secretary of State
Ministry of Rural Development
Ouagadougou, Upper Volta

Mr. P. Sciarone
Second Secretary
Embassy of the Netherlands
Ouagadougou, Upper Volta

Dear Sirs:

Subject: Rural Water Supply Handpumps Project--
Laboratory Testing, Field Trials and
Technological Development
(UNDP GLO/79/010 and INT/81/026)

We appreciate the contributions that both the governments of Upper Volta and the Netherlands are making to the UN Water Decade in general and more specifically to the field trials and technological development of village water supply handpumps.

In follow-up to the visit on July 12-17, 1981 of Mr. Arlosoroff, Project Manager, and to Mr. Langenegger's and my mission to Upper Volta on April 17-22 and April 27-May 1, 1982, and the exchange of letters between the Ministry of Rural Development and the Embassy of the Netherlands of May 17 and June 3, 1982, respectively, we hereby confirm the Bank's contribution as spelled out in paragraph 11.c on page 7 of the attached agreement document. This document also summarizes the contributions and responsibilities of the Ministry of Rural Development through la Direction de L'Hydraulique et de l'Equipement Rurale (HER) and the government of the Netherlands through their Rural Water Supply Project in the Department Volta Noire.

The cost to the Bank of the UN volunteer together with the support costs for technical assistance, laboratory testing, field supervision, project management, and preparation and dissemination of reports runs to about US $150,000 per year per field trial; or about US $300,000 for the two-year project in Upper Volta. These Bank expenditures are funded by UNDP as part of its support to the effort to improve water supply and sanitation throughout the world.

We attach one copy of each of the following letters and documents to form part of this tripartite understanding: 1) Project Agreement, 2) letter of May 17, 1982 from the Ministry of Rural Development to the Embassy of the Netherlands, 3) letter of June 3, 1982, from the Embassy of the Netherlands to the Ministry of Rural Development, and 4) a copy of the UNDP Project Document.

Now that the project is effective, Mr. Langenegger, as the West Africa Regional Project Officer, will contact HER and the Embassy of the Netherlands to conclude implementation arrangements. He is expected to be in Ouagadougou September 13 to 25. To gain time, we suggest that Mr. Sciarone make appropriate arrangements regarding procurement of the car for the monitoring team. We would appreciate being informed of the approximate date when this vehicle would be available in Upper Volta.

We look forward to close collaboration with both of your organizations in the hope that the Upper Volta field trial will make an important contribution to the global Water Decade

Sincerely yours,

Melvin J. Loewen
Special Projects Coordinator
Transportation and Water Department

Attachments:

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Copy with attachments to:

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Mr. W. Mashler, Senior Director, DGIP, UNDP New York
Mr. C. Widstrand, Resident Representative, UNDP Ouagadougou
Mr. H. Nabulsi, Executive Coordinator, UNV, Geneva
Mr. M. Dia, Resident Representative, World Bank, Ouagadougou

cl/cc: Messrs. Arlosoroff, Tschannerl, Langenegger (TWD);
cc: Kalbermatten, (TWD); Al-Khafaji/Motte (WAP);
Hinkle/Molineus (WAI); Riley (IRD)

The World Bank / 1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Telephone: (202) 477-1234 • Cables: INTBAFRAD

September 3, 1982

(INT/81/026
CC GLO/79/010

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cc: Kalbermatten, (TWD); Al-Khafaji/Motte (WAP);
Hinkle/Molineus (WAI); Riley (IRD)

PROGRAMME DES NATIONS UNIES POUR LE DEVELOPPEMENT

République de Haute-Volta

Accord de projet avec le
Gouvernement néerlandais

TITRE : Essais sur le terrain de pompes manuelles, Projet d'hydraulique villageoise

LIEU : Départements du Centre, du Centre-Ouest, de la Volta Noire, des Hauts-Bassins et du Nord

ORGANISME PUBLIC CHARGE DU PROJET : Ministère du développement rural, par l'intermédiaire de la Direction de l'hydraulique et de l'équipement rural (HER)

DUREE ESTIMATIVE : 27 mois, de juillet 1982 à septembre 1984

PARTICIPANTS :

1. Gouvernement voltaïque par l'intermédiaire du Ministère du développement rural
2. Gouvernement néerlandais par l'intermédiaire du Projet d'hydraulique villageoise, Département de la Volta Noire
3. Equipe du Projet de pompes manuelles financé par le PNUD et exécuté par la Banque mondiale

INTRODUCTION

1. La Haute-Volta participe à l'action entreprise à l'occasion de la DIEPA (Décennie internationale de l'eau potable et de l'assainissement) en vue d'améliorer l'approvisionnement en eau potable et l'assainissement au cours des années 80. Cette action, qui s'étendra sur 10 ans, a été lancée par l'Assemblée générale de l'ONU en novembre 1980. Son objectif est d'approvisionner tous les habitants de la planète en eau potable et de les faire bénéficier de services d'assainissement convenables d'ici à 1990. Ce programme, qui touchera tous les secteurs de la société, y compris la périphérie des villes et les zones rurales, prévoit l'exploitation des sources d'eau salubre,

l'amélioration de l'entretien des réseaux de pompage, la recherche de méthodes peu coûteuses de traitement des excréments et l'amélioration du ramassage et du recyclage des déchets urbains. Le problème de l'approvisionnement en eau des zones rurales affecte plus de 1 500 millions de personnes. Pour la plupart d'entre elles, la seule solution pratique consiste à creuser des forages ou des puits recouverts équipés d'une pompe manuelle. On estime qu'il faudra installer au cours de la DIEPA de 8 à 10 millions de pompes manuelles pour que les objectifs de la décennie soient atteints. De graves problèmes ayant été constatés au niveau de l'utilisation et de l'entretien des pompes manuelles dans toutes les régions des pays en développement, le PNUD et la Banque mondiale ont décidé de lancer un programme global/interrégional qui devrait permettre d'améliorer les pompes et de mieux approvisionner les régions rurales.

2. L'un des aspects de ce vaste programme consiste à promouvoir le développement de pompes locales susceptibles d'être entretenues par les villageois. La Banque mondiale exécute un projet financé par le PNUD consistant à essayer des pompes manuelles en situation de laboratoire contrôlée (Projet No GLO/79/010 du PNUD) et un projet consistant à essayer ces pompes, ainsi que d'autres modèles, sur le terrain dans les zones rurales (Projet No INT/81/026 du PNUD), de façon à promouvoir la diffusion de pompes convenant aux besoins et à la capacité industrielle de chaque pays. Ces deux projets devraient permettre d'améliorer la conception et la fabrication des pompes et de créer une nouvelle génération de pompes pouvant être entretenues par les villageois. Ils devraient en outre promouvoir la fabrication de pompes adaptées au contexte local, (conditions physiques, capacité industrielle, aspects socio-culturels, coût et facilité d'entretien, etc.).

ZONE DES ESSAIS

3. Pour les essais en Haute-Volta, on a déterminé une zone située dans les Départements du Centre, du Centre-Ouest, de la Volta Noire, des Hauts-Bassins et du Nord, sur une partie de laquelle se déroule un projet de l'organisation néerlandaise d'assistance bilatérale et d'autres projets d'hydraulique villageoise.

4. Les essais sur le terrain seront intégrés aux projets en cours, de façon que l'installation et l'entretien des pompes étudiés soient effectués par les agents compétents des projets, en coopération avec la HER.

5. Les sources d'eau de la région sont de mauvaise qualité et insuffisantes; on peut donc espérer que la population locale réservera un accueil positif au projet et acceptera d'y participer. Il est prévu que le Gouvernement et les organismes concernés expliqueront, dans le cadre d'une campagne éducative, l'importance globale du projet et les dommages que peuvent causer aux pompes les mauvais traitements ou une utilisation défectueuse.

6. Le personnel chargé des essais sur le terrain (Equipe de suivi) est basé à Ouagadougou. La HER a nommé le Chef du service des eaux souterraines au poste de Coordinateur du Projet.

OBJECTIFS DU PROJET

7. Les objectifs du projet sont résumés ci-après :

a) Assurer les essais sur le terrain et le suivi de 150 à 200 pompes manuelles de 3 ou 4 modèles différents, montées sur des forages ou des puits, dans le cadre des projets d'hydraulique rurale susmentionnés.

b) Réunir et évaluer les résultats des essais et apporter les modifications et améliorations éventuellement nécessaires.

c) Recommander les modèles et pièces de pompes convenant aux besoins des villages et promouvoir la fabrication sur place des modèles sélectionnés.

d) Aider à la formation des villageois qui seront chargés de l'exploitation des pompes.

e) Faire connaître les résultats des essais sur le terrain effectués à l'étranger et des essais en laboratoire aux gouvernements, aux organismes bilatéraux et autres institutions intéressés par l'approvisionnement en eau des zones rurales.

ORGANISATION ET ACTIVITES

8. Le Ministère du développement rural, par l'intermédiaire de la HER, sera responsable du projet pour le Gouvernement. Il recevra de l'organisation d'aide bilatérale des Pays-Bas et du personnel des projets du PNUD dont la Banque mondiale est l'agent d'exécution, les biens et services énumérés ci-dessous.

9. Le personnel local et expatrié du projet, sous la houlette du Coordinateur, établira dans le mois suivant le commencement du projet, un plan de travail qui doit en principe comprendre les activités suivantes :

a) Sélection de 150-200 forages et puits équipés ou devant être équipés de pompes manuelles dans la zone des essais. On essaiera 30 à 50 pompes de chaque modèle (sans doute India MK-II, Moyno, Vergnet, Volanta).

b) Constitution de l'Equipe de suivi, qui comprendra un volontaire (des Nations Unies peut-être), un technicien et un chauffeur.

c) Achat d'une automobile, d'outils, de matériel de camping, de matériel d'analyse de l'eau et des puits et autre matériel pour l'Equipe de suivi.

d) Formation de l'Equipe de suivi et assistance pour la sélection et la formation des villageois qui s'occuperont des pompes, en coopération avec la HER. Ces activités seront coordonnées avec celles des projets en cours.

e) Suivi des essais, au moyen de données réunies systématiquement grâce à des formulaires fournis par la direction du projet.

f) Analyse des données.

g) Formulation de recommandations sur les pièces que doivent comporter les pompes pour répondre aux divers besoins des villages de la zone et, dans toute la mesure du possible, d'autres régions de Haute-Volta.

h) Collaboration avec les fabricants locaux éventuels de pompes, en vue de développer la capacité nationale de production de pompes ou de pièces détachées.

CONTRIBUTION DES PARTICIPANTS

10. Les pompes seront installées et contrôlées dans le cadre des projets en cours et donc seront achetées, installées et entretenues par les organismes responsables, conformément à l'accord avec la HER.

11. Les contributions additionnelles spécifiques qui seront apportées au programme de suivi et de mise au point des pompes seront les suivantes :

a) Le Ministère du développement rural, par l'intermédiaire de la HER, fournira :

i) Un coordinateur du projet (à temps partiel);

ii) La coordination de :

- l'intégration de l'Equipe de suivi aux projets en cours dans la zone des essais;

- l'installation et de l'entretien des pompes dans la zone des essais, en collaboration avec les cadres compétents des différents projets.

b) Le Gouvernement néerlandais, par l'intermédiaire du projet d'hydraulique rurale qu'il finance en Haute-Volta, contribuera au financement des essais sur le terrain pour un montant d'environ 65 000 dollars, sur une période de 27 mois, selon le budget ci-joint. Son aide comprendra :

i) Des fonds pour les éléments suivants :

- achat d'une automobile (modèle proposé : Peugeot 404 bâchée);
- achat d'outillage, de matériel de camping, de matériel d'analyse de l'eau et de puits, conformément aux spécifications qui seront établies lors de la préparation du plan de travail (voir par. 9);
- achat d'articles divers pour l'Equipe de suivi;
- frais d'exploitation de l'automobile.

ii) Du personnel (qui sera recruté en consultation avec la HER);

- un technicien (plein temps)
- uun chauffeur (plein temps)

iii) Des installations :

- bureaux (en consultation avec la HER)
- logement pour le volontaire des Nations Unies (en consultation avec la HER et le bureau du Représentant résident du PNUD)

iv) L'assistance à l'Equipe de suivi, en vue de faciliter les essais sur le terrain.

Les modalités administratives régissant les contributions ci-dessus seront définies par les Gouvernements voltaïque et néerlandais.

c) Le PNUD/Banque mondiale assureront :

i) Une assistance dans les domaines suivants :

- mise au point de systèmes de suivi des pompes;
- diffusion des renseignements fournis par les essais sur le terrain se déroulant dans d'autres pays et aux essais en laboratoire;
- supervision générale du volontaire des Nations Unies affecté dans la zone du projet.

ii) Le recrutement et l'allocation de subsistance d'un volontaire des Nations Unies qui travaillera sous l'égide du Coordinateur du Projet et sous la direction générale des cadres du projet PNUD/Banque mondiale.

Ses attributions seront les suivantes :

- diriger l'Equipe de suivi;
- mettre au point le système local de suivi et d'évaluation des pompes;
- signaler les pannes aux équipes d'entretien qui devront se rendre immédiatement sur place, et aider les équipes à réparer et régler les pompes. Si une pompe doit être démontée pour des raisons soit d'entretien soit d'évaluation, on tâchera de le faire à un moment où cela dérangera le moins les usagers;
- rassembler des données et des renseignements sur les défauts des pompes et les réparations qui auront été faites dans les ateliers de la HER et les ateliers bilatéraux de la région;
- participer à la formation et à la supervision des villageois responsables des pompes;

- participer à la mise au point et au contrôle de la qualité des pièces produites localement;
- analyser les résultats et faire rapport au Coordinateur du projet, au Chef du projet des Pays-Bas et au Chef du projet PNUD/Banque mondiale.

EXAMEN ET EVALUATION

12. Le volontaire des Nations Unies et le Coordinateur du projet rédigeront des rapports mensuels. La HER organisera des réunions trimestrielles afin de passer en revue les résultats du suivi et pour définir les plans d'action futurs avec les Chefs du projet d'hydraulique villageoise des Pays-Bas et l'équipe PNUD/Banque mondiale.

PROJET "POMPES A MAIN"

CONTRIBUTION DU GOUVERNEMENT DES PAYS BAS

	1982 (6 mois) CFAF	1983 (12 mois) CFAF	1984 (9 mois) CFAF	Total (27 mois) CFAF
1. Personnel				
Salaires				
Technicien Supérieur	560.000	1.230.000	1.000.000	2.790.000
Chauffeur	240.000	550.000	450.000	1.240.000
Indemnités de terrain				
Technicien Supérieur	360.000	720.000	540.000	1.620.000
Chauffeur	140.000	300.000	210.000	650.000
Total Personnel	1.300.000	2.800.000	2.200.000	6.300.000
2. Matériel				
Voiture de liaison (404 "Bâchée")	2.000.000			
Outillage	300.000			
Matériel de campement	200.000			
Equipement de bureau	600.000			
Equipement sur terrain pour analyse d'eau	600.000			
Total Matériel	3.700.000			3.700.000
3. Divers				
Réparation du véhicule	300.000	400.000	600.000	1.300.000
Carburant, lubrifiant	900.000	2.000.000	1.650.000	4.550.000
Location de bureau	300.000	600.000	450.000	1.350.000
Autres dépenses, Imprévus	200.000	200.000	200.000	600.000
Total Divers	1.700.000	3.200.000	2.900.000	7.800.000
TOTAL PROJET	6.700.000	6.000.000	5.100.000	17.800.000

Equivalent en dollars approx. 65.000.

Remark: Housing for UNV is not included in this budget.

/HER

Monsieur Le Chargé d'Affaires de
l'Ambassade Royale des Pays-Bas
s/c de Monsieur le Ministre du Plan
et de la Coopération

Projet Global
PNUD/BANQUE MONDIALE
Essais sur le terrain et
en laboratoire de pompes
à main pour l'alimenta-
xxx tion en eau de communau-
tés rurales

PNUD GLO 79/010
INT/81/026

Monsieur le Chargé d'Affaires,

Me référant à l'objet ci-dessus mentionné, j'ai l'honneur de rappeler à votre attention qu'un volet de ce projet est prévu en Haute-Volta.

Par ailleurs, il a été retenu que le Gouvernement Néerlandais participerait à ce projet et cette contribution est évaluée à 65 000 dollars environ dont la répartition s'établit ainsi que l'indique le tableau ci-joint.

Je vous serais obligé de bien vouloir me confirmer dans les délais que vous estimerez les meilleurs, si vous demeurez disposé à supporter le financement requis.

Veuillez agréer, Monsieur le Chargé d'Affaires, l'assurance de ma considération distinguée.

P. Le Ministre du Développement
Rural

Le Secrétaire d'Etat

IDO Batia Dominique

PROJET "POMPES A MAIN"

CONTRIBUTION DU GOUVERNEMENT DES PAYS BAS

	1982 (6 mois) CFAF	1983 (12 mois) CFAF	1984 (9 mois) CFAF	Total (27 mois) CFAF
1. Personnel				
Salaires				
Technicien Supérieur	560.000	1.230.000	1.000.000	2.790.000
Chauffeur	240.000	550.000	450.000	1.240.000
Indemnités de terrain				
Technicien Supérieur	360.000	720.000	540.000	1.620.000
Chauffeur	140.000	300.000	210.000	650.000
Total Personnel	1.300.000	2.800.000	2.200.000	6.300.000
2. Matériel				
Voiture de liaison (404 "Bûchée")	2.000.000			
Outillage	300.000			
Matériel de campement	200.000			
Equipement de bureau	600.000			
Equipement sur terrain pour analyse d'eau	600.000			
Total Matériel	3.700.000			3.700.000
3. Divers				
Réparation du véhicule	300.000	400.000	600.000	1.300.000
Carburant, lubrifiant	900.000	2.000.000	1.650.000	4.550.000
Location de bureau	300.000	600.000	450.000	1.350.000
Autres dépenses, Imprévus	200.000	200.000	200.000	600.000
Total Divers	1.700.000	3.200.000	2.900.000	7.800.000
TOTAL PROJET	6.700.000	6.000.000	5.100.000	17.800.000

Equivalent en dollars approx. 65.000.

Remark: Housing for UNV is not included in this budget.

2256

No. .....

Ouagadougou, le 3 juin 1982.

Monsieur le Ministre,

Objet : Projet Global PNUD/Banque Mondiale - Essais sur le terrain et en laboratoire de pompes à main pour l'alimentation en eau de communautés rurales PNUD GLO 79/010 INT/81/026.

Me référant à votre lettre N°00611/CNRPN/MEP/SG/DCTF/AB du 17 mai 1982 relatif au projet pré-cité, j'ai l'honneur de vous communiquer mon accord pour assumer les frais de cette activité estimée à US $ 65.000 (soixante-cinq mille). Ce budget sera imputé au projet d'Hydraulique Villageoise dans le département de la Volta Noire, qui est en cours d'exécution depuis 1980 et qui permettra le financement souhaité.

Veuillez croire, Monsieur le Ministre, à l'assurance de ma haute considération.

Le Chargé d'Affaires a.i.
des Pays-Bas :

G. Storm.

S.E. le Ministre de l'Economie et du Plan.

cc : Monsieur C. Langenegger
Projet UNDP/INT/81/026 "Handpumps"
S/C de Monsieur le Représentant Résident
du PNUD en Haute-Volta.

9043-8-74

PROGRAMME DES NATIONS UNIES POUR LE DEVELOPPEMENT

PROJET INTERREGIONAL

DOCUMENT DE PROJET

Titre : Mise au point et essais sur le terrain de pompes à main pour l'alimentation en eau des communautés rurales

Numéro : INT/81/026/B/01/42 Durée : 48 mois

Secteur : Santé (25)

Sous-secteur : Services de santé publique (2530)

Organismes de coopération du Gouvernement : A identifier

Agence d'exécution : Banque mondiale

Date de soumission : Mars 1982 (la phase d'assistance préparatoire a été approuvée en août 1981 et incluse dans le projet)

Date de démarrage : (Phase d'assistance préparatoire) Juillet 1981

Contribution du Gouvernement : A déterminer pour chaque pays

Contribution du PNUD : 4,390 millions de dollars

Signé : _____ Date : 22 avril 1982
Au nom de l'agence d'exécution

Signé : _____ Date : 3 mai, 1982
Au nom du PNUD

ESSAIS DE POMPES A MAIN POUR L'ALIMENTATION EN EAU DES COMMUNAUTES RURALES

PHASE II

ESSAIS SUR LE TERRAIN

PARTIE I : CONTEXTE JURIDIQUE

1. Ce projet exige que, dans un certain nombre de pays, plusieurs sites et centres régionaux soient réservés à l'installation, la mise au point et l'évaluation des pompes à main. Dans chacun des pays intéressés, les accords seront officialisés par un échange de lettres entre le Gouvernement et l'agence d'exécution.

2. Le projet permettra de négocier les accords appropriés entre les organismes d'aide bilatérale et les gouvernements des pays en développement participant au projet.

PARTIE II : OBJECTIF DE DEVELOPPEMENT

A. Objectifs à long terme. Les objectifs à long terme sont les suivants :

3. i) soutenir les efforts globaux pour aménager des réseaux appropriés d'alimentation en eau et d'assainissement qui permettront à tous les gouvernements participants d'alimenter en eau potable et d'équiper en installations sanitaires la majeure partie de leur population d'ici à 1990;

ii) réduire le coût et accroitre la sécurité de l'approvisionnement en eau des communautés rurales qui doivent utiliser des pompes à main pour extraire l'eau des puits et forages.

B. Objectifs immédiats

4. Les objectifs immédiats du projet sont les suivants :

i) essayer sur le terrain les pompes à main et éléments qui, d'après la Phase I (Projet d'essais en laboratoire financé par le PNUD dans le cadre du Projet GLO/79/010 jusqu'en décembre 1981), semblent les plus prometteuses ainsi que d'autres pompes qui pourraient être adaptées aux conditions des pays en développement;

ii) normaliser les méthodes d'essai et d'évaluation des pompes à main qui permettront aux pays en développement de répéter les mêmes essais et de les comparer aux résultats obtenus au cours d'autres expériences;

iii) encourager la fabrication dans les pays en développement d'une nouvelle génération de pompes à main légères et simples conçues de telle manière que les utilisateurs villageois soient capables de les entretenir et de les réparer, ce qui permettrait aux pays en développement d'éviter des frais élevés et d'améliorer la gestion de l'alimentation en eau en milieu rural;

iv) mettre au point un guide sur le choix des pompes à main les plus appropriées et de leurs éléments en fonction des installations, des emplacements, du contexte culturel et des applications; et

v) diffuser un manuel général sur l'installation, le fonctionnement et l'entretien des pompes à main.

C. Considérations particulières

5. Les pays qui participent à la "Décennie internationale de l'eau potable et de l'assainissement" pourront réaliser les objectifs fixés pour cette décennie s'ils ont les moyens d'aménager des installations d'alimentation en eau plus modernes et d'entretenir les installations déjà en service ou qui viennent d'être construites. Pour que le milliard et demi de ruraux pauvres qui n'ont pas d'eau potable soient desservis d'ici à 1990, les pays devront installer et entretenir un grand nombre de pompes à main en milieu rural. Le projet cherche à promouvoir et déterminer les techniques qui permettront de réduire le coût des pompes à main, d'en améliorer la fiabilité et de mettre au point des guides pour que les autorités puissent, d'une part, choisir des pompes à main utilisables dans de diverses conditions et, d'autre part, les faire fonctionner, les entretenir et les réparer. Le projet devrait ainsi améliorer les chances qu'auront les pays d'atteindre d'ici à 1990 les objectifs fixés pour l'alimentation en eau des communautés rurales.

D. Eléments d'appréciation et justification

6. En 1980, sur le milliard et demi de ruraux vivant dans les pays en développement, moins de 30 % avaient l'eau potable. Dans le monde, près de 80 % des maladies sont liées aux insuffisances de l'approvisionnement en eau et de l'assainissement. En 1976, la Conférence sur les établissements humains qui s'était tenue à Vancouver s'était fixé le but ambitieux de viser l'approvisionnement en eau potable de toute la population de la planète d'ici à 1990. Cet objectif a été confirmé en 1977 à la Conférence des Nations Unies sur l'eau qui a eu lieu en Argentine. L'Assemblée générale des Nations Unies a fait sien cet

objectif et a proclamé officiellement les années 80 "Décennie internationale de l'eau potable et de l'assainissement" au cours d'une session extraordinaire qui s'est tenue le 10 novembre 1980.

7. Ce projet constitue la Phase II d'un programme de plus grande envergure. Au cours de la Phase I du projet, lancée dans le cadre du Projet PNUD GLO/79/010, un petit nombre de pompes (18) a fait l'objet d'une série d'essais sérieux en laboratoire qui se poursuivront dans le cadre de ce projet et se termineront vers la fin de 1982.

8. Pour dégager des essais en laboratoire des conclusions définitives, il faudra attendre l'achèvement de tous les essais pratiqués sur les 18 pompes, dont certaines correspondent déjà au nouveau concept, celui des pompes pouvant être utilisées et entretenues dans les villages. Cependant, des conclusions préliminaires indiquent qu'on a souvent retenu les techniques de conception qui conviennent aux pays industrialisés sans tenir compte des populations des pays en développement qui utiliseront ces pompes, des possibilités de fabrication dans ces pays ou des moyens d'entretenir et de réparer ce matériel sur le terrain. Il faut concevoir avec soin les éléments fragiles tels que les joints, les ressorts et les parties élastiques appelés à être utilisés dans des conditions exceptionnelles; les coussinets ne doivent pas nécessiter de fréquentes opérations de lubrification, la résistance à la corrosion doit être bien calculée; enfin, la fabrication des pompes pour pouvoir se réaliser dans des pays en développement et à un coût raisonnable doit admettre des tolérances larges et ne pas exiger l'emploi de machines-outils complexes.

9. Les conclusions de la Phase I (essais en laboratoire) se fondaient sur des essais réalisés sur certains types de pompes fabriquées dans des pays industrialisés et des pays en développement. Ces essais, bien qu'indispensables

pour signaler les défauts de conception et d'autres problèmes apparaissant dans des conditions bien maîtrisées ne peuvent pas simuler les efforts auxquels les pompes sont soumises sur le terrain. Les essais sur le terrain de la Phase II se poursuivront sur des milliers de pompes et porteront comme les essais en laboratoire de la Phase I sur la performance, la fiabilité, la facilité de l'installation, de l'entretien et des réparations, la possibilité de fabrication dans le pays et sur les coûts. Cependant, ils fourniront des renseignements beaucoup plus détaillés que les essais en laboratoire sur les conditions réelles d'emploi. Les problèmes d'entretien et de réparation, par exemple, sont très différents sur le terrain où les conditions sont très diverses. Les essais sur le terrain permettront d'évaluer des facteurs de gestion de l'alimentation en eau des communautés rurales tels que les modes de distribution des pièces détachées et les services de réparation qui sont essentiels au succès de l'exploitation de réseaux d'eau avec utilisation de pompes à main. Seul un emploi prolongé sur le terrain permettra de déterminer comment les gens reçoivent et acceptent différents types de pompes, de têtes et de montages.

10. Les résultats des essais en laboratoire et sur le terrain seront inclus dans un rapport définitif contenant des directives à l'attention des pays en développement sur le choix des pompes en fonction des divers emplacements, des conditions et des méthodes d'entretien. D'après les conclusions préliminaires et les rapports d'études sur le terrain, il faudrait mettre au point, essayer et proposer des pompes qui puissent être utilisées et entretenues au niveau des villages, c'est-à-dire des pompes que des utilisateurs villageois puissent, après formation, retirer du puits et réparer. Les pompes pouvant être utilisées et entretenues dans les villages devraient être de conception

et de fabrication simples; elles devraient être légères; elles devraient pouvoir être réalisées avec des machines-outils normales et des presses fabriquées avec des matériaux couramment disponibles dans la plupart des pays en développement ou susceptibles d'être obtenus localement avec des mises de fonds relativement faibles.

11. La mise au point de pompes répondant à ces exigences et les améliorations apportées aux pompes conventionnelles et mises à l'essai serviront de base à l'assistance à accorder aux pays en développement qui souhaitent fabriquer des pompes à main ou en fabriquent déjà.

12. Les premières de ces pompes apparaissent déjà sur le marché : le Malawi, l'Ethiopie, la Bolivie, la Thaïlande, la Malaisie, Sri Lanka et les Philippines produisent des modèles en matière plastique (de conception canadienne). Cependant, il faudra encore d'importantes modifications, notamment au niveau de la tête, de la partie enterrée, de la conception, des matériaux, des procédés de fabrication, surtout pour l'utilisation à grande profondeur. La nouvelle génération de ces pompes appartient déjà au groupe de pompes qui doit faire l'objet des essais en laboratoire de la Phase I.

13. En comprenant ces pompes parmi celles qui font l'objet d'essais en laboratoire et sur le terrain, il devient possible de s'occuper à la fois pour le long terme et pour le court terme d'améliorer l'alimentation en eau dans le monde en développement. A court terme, le projet consistera essentiellement en essais sur le terrain des pompes existantes; des milliers de ces pompes ont été installées et le seront encore en grand nombre puisqu'elles sont commercialisées et qu'elles sont le seul moyen permettant une installation généralisée, seule solution pratique pour satisfaire les besoins en eau des communautés rurales de la plupart des pays. Les résultats des essais de ces pompes en

laboratoire et sur le terrain seront essentiels pour apporter les modifications et améliorations permettant de les installer d'abord, de les entretenir et réparer plus facilement ensuite dans les pays en développement.

14. Parallèlement, on peut également, dans le cadre de ce projet, s'occuper du long terme et promouvoir ainsi la mise au point de nouveaux types de pompes, les essayer, les modifier et enfin les fabriquer sur place. L'idée même d'une pompe pouvant être utilisée et entretenue dans les villages ouvre la perspective d'une solution à long terme des besoins ruraux si certaines conditions sont réunies, à savoir :

i) la pompe devrait être de bonne qualité et d'un prix raisonnable. La meilleure façon d'atteindre cet objectif est de mettre en concurrence plusieurs fabricants produisant la même pompe après avoir fixé les spécifications techniques et mis en place des systèmes de contrôle de qualité satisfaisants;

ii) les utilisateurs villageois ont appris à entretenir et à réparer les pompes. A l'avenir, on s'attachera aussi à former les femmes puisque en cas de panne, elles ont le devoir d'assurer l'approvisionnement en eau de leur famille et cela sans interruption;

iii) les pièces détachées devraient être distribuées au village, ou stockées en des points accessibles à bicyclette;

iv) un service mobile d'entretien au niveau du district est créé et son financement est assuré par les villages du district. Lorsque le village s'occupera de l'entretien, sa contribution financière pour l'entretien et les réparations diminuera beaucoup;

v) des campagnes massives de formation et de socialisation ont été organisées avant l'introduction des pompes et sont reprises régulièrement. Dans de nombreuses cultures africaines et asiatiques, il peut être long de faire admettre qu'une femme, en tant qu'utilisatrice, soit chargée de l'entretien et de la réparation de la pompe. Lorsque ce concept aura été introduit et accepté dans une région, on peut espérer que d'autres régions puis d'autres pays l'adopteront à leur tour.

15. Au cours de la Phase II des essais sur le terrain et de la mise au point technique, le projet s'ouvrira à des activités visant le court terme et le long terme, ce qui aidera les pays en développement à se procurer les renseignements dont ils ont besoin sur le choix et l'entretien des pompes à main existantes. En même temps, seront menées les recherches voulues et rassemblées les données nécessaires pour promouvoir la mise au point et la fabrication locale de pompes suffisamment solides et pouvant être utilisées, entretenues et réparées dans les villages des pays en développement.

16. On prévoit d'effectuer des essais sur le terrain dans 15 pays environ, quatre ou cinq pays en Afrique de l'Ouest, trois ou quatre en Afrique de l'Est, quatre ou cinq en Asie, deux ou trois en Amérique latine et en Océanie. Les agents régionaux du projet résideront en Afrique de l'Est et de l'Ouest, en Asie de l'Est et du Sud; ils seront chargés d'exécuter, de suivre et de superviser les essais sur le terrain, et d'apporter leur assistance pour la recherche, la mise au point et la fabrication sur place des pompes. Des volontaires des Nations Unies seront employés en tant qu'agents dans le pays afin d'aider le personnel du projet pour le suivi et la mise au point technique. Les essais porteront au total sur 2.000 à 3.000 pompes. Pour l'achat des

pompes et une assistance complémentaire au cours de la phase d'exécution, les responsables du projet devront compter essentiellement sur la contribution financière d'organismes d'aide bilatérale qui ont des programmes du même type dans la zone du projet.

E. Résultats

17. Ce projet relatif aux essais sur le terrain et à la mise au point technique de pompes à main devrait permettre :

i) d'établir des documents présentant les conclusions des essais en laboratoire et sur le terrain pour des pompes fabriquées dans le pays ou la région ou à l'extérieur et identifiant les pompes qui doivent faire l'objet d'autres essais ainsi que les pièces critiques qui doivent être améliorées ou essayées encore;

ii) de rédiger un rapport final comparant les essais obtenus sur le terrain et en laboratoire et établissant une série de directives relatives au choix des pompes en fonction de considérations techniques, de la facilité d'entretien et des conditions locales;

iii) d'évaluer les conditions locales jugées essentielles pour la fabrication dans les pays en développement de toutes les pièces de certaines pompes à main ou de quelques-unes d'entre elles; de diffuser les conclusions, les plans, les instructions relatives à la fabrication pour inciter et aider les gouvernements qui veulent fabriquer des pompes utilisables et susceptibles d'être entretenues dans les villages ou améliorer leur production;

iv) dans le cadre du rapport final, de faire une évaluation des types de pompes qui pourraient être nécessaires et disponibles pour cette décennie et un exposé des mesures à prendre pour encourager la fabrication de pompes répondant aux spécifications envisagées;

v) de rédiger un manuel sur les travaux d'aménagement des puits et d'installation de pompes;

vi) d'établir des directives pour les essais en laboratoire et sur le terrain et pour le contrôle du rendement des pompes à eau;

vii) de faire une évaluation des mesures ultérieures que les institutions internationales devront prendre en collaboration avec les organismes d'assistance bilatérale pour continuer à améliorer les pompes servant dans les installations d'alimentation en eau du monde (sous les rapports de la conception, de la fabrication, de l'entretien et des réparations) et encourager une généralisation des forages de puits de divers modèles et des installations de pompes.

F. Activités

18. Pour obtenir ces résultats, il faudra :

i) déterminer les pompes qui feront l'objet d'essais sur le terrain et élaborer un descriptif des essais sur le terrain à respecter pour l'évaluation de la conception et de la construction des pompes;

ii) s'entretenir, pendant la Phase I des essais en laboratoire, avec les organismes intéressés en vue de mobiliser leur soutien et les inciter à participer à la phase des essais sur le terrain. On identifiera des zones de pays en développement où d'autres projets, réalisés ou récents, ont été exécutés et qui pourraient convenir aux essais de pompes sur le terrain;

iii) déterminer dans quels pays et à quels endroits les essais auront lieu. On retiendra en priorité les pays où l'intérêt pour les résultats des essais est le plus vif, où les informations sur ce secteur sont satisfaisantes, où des organismes de coopération locaux sont déjà en place, où les conditions hydrologiques et culturelles et la demande sont suffisamment diversifiées;

iv) choisir les techniques, types de supports d'aménagement à utiliser pour chaque sorte de puits en fonction de l'emplacement;

v) acheter et installer les pompes à main. Les essais sur le terrain porteront sur 2.000 à 3.000 pompes, dont quelques-unes seulement pourront être fournies dans le cadre de ce projet car le budget couvre essentiellement les frais de personnel, de direction, d'assistance technique, etc. La plupart de ces pompes devront provenir des organismes associés au projet exécutant des programmes du même type ou seront fournies dans le cadre d'accords particuliers d'aide au projet;

vi) en collaboration avec les fabricants de pompes, exécuter des travaux de recherche et de mise au point technique ainsi que la promotion et l'assistance pour la fabrication locale de pompes à main surtout de modèles pouvant être utilisés et entretenus dans les villages;

vii) fournir une assistance technique pour les essais en laboratoire de pompes produites sur place ou régionalement par les moyens visés à l'alinéa (vi), et établir des rapports sur les résultats de ces essais;

viii) veiller à ce que, conformément à l'alinéa (ii), les organismes collaborant au projet contrôlent les essais sur le terrain selon les procédures convenues;

ix) mettre au point les directives et spécifications finales des pompes à main ainsi que les plans d'aménagement des puits pour intégrer les résultats et conclusions des essais en laboratoire et sur le terrain dans un document d'ensemble;

x) formuler des recommandations et établir des directives en vue d'encourager la fabrication de pompes dans les pays en développement.

G. Apports

19. Apports des gouvernements : Toutes les opérations sur le terrain seront programmées et coordonnées par l'agence d'exécution, en consultation et en collaboration avec les gouvernements participants. Les apports des gouvernements varieront d'un pays à un autre mais en règle générale, les pays participants seront invités à faire une contribution en nature consistant notamment :

i) en personnels et responsables homologues pour aider à la programmation et à l'exécution des essais sur le terrain;

ii) en installations d'entretien, bureaux, concours au personnel homologue, et véhicules pour les visites organisées aux endroits où sont effectués les essais, etc.;

iii) en appuis partiels à l'équipe de suivi.

Le volume de la contribution de chaque pays dépendra de l'envergure des essais sur le terrain et des moyens disponibles dans le pays. Si un pays envisage de participer à la Phase II mais ne le peut pas par suite de difficultés financières, le personnel du projet essaiera d'obtenir les ressources nécessaires auprès d'organes d'aide bilatérale opérant dans ce pays.

20. Apports des organismes d'aide bilatérale : On s'adressera à des organismes d'aide bilatérale qui s'occupent de l'alimentation en eau et de l'assainissement dans les pays qui participent aux essais sur le terrain pour obtenir une aide directe et notamment :

i) pour l'achat de pompes à main et de pièces détachées, le fonçage de puits (le cas échéant), l'installation des pompes, l'achat de véhicules, d'outils et le financement des frais de fonctionnement de l'équipe de suivi. Le projet a un budget extrêmement limité pour ces dépenses et dépendra donc d'une aide bilatérale pour presque tous les essais sur le terrain. Les organismes d'aide bilatérale ont intérêt à participer au projet car ils recevront des informations en retour immédiatement et obtiendront des résultats essentiels pour prendre des décisions touchant l'exécution de projets d'alimentation en eau auxquels ils participent dans les communautés rurales de pays en développement;

ii) pour les essais sur le terrain (entretien, réparations, etc.) surtout dans les cas où ces essais font partie d'un projet de pompes à main financé par un organisme d'aide bilatérale. Cet apport pourrait également inclure l'assistance de techniciens financée par l'organisme d'aide bilatérale;

iii) d'autre part, le budget total d'exécution du projet (essais sur le terrain et mise au point technique) à financer par les pays, les organismes d'aide bilatérale, les fabricants et le PNUD est estimé à quelque 13 à 17 millions de dollars.

21. Apports du PNUD : Un budget détaillé pour les quatre années d'exécution du projet est présenté à la Partie IV du document. Il est demandé au PNUD d'y affecter 4,390 millions de dollars. Sur ce montant total, 744.000 dollars ont été approuvés pour une phase d'assistance préparatoire initiale de douze mois allant de juillet 1981 à juin 1982. Les éléments inclus dans la Partie IV du budget du projet sont les suivants :

Postes du budget	Dollars
10. Personnel	
11. Experts	
Directeur du projet : 25,5 mois (dont 50 % à la charge de ce projet et 50 % à celle du projet GLO/80/004)	211.777
Ingénieur : 44 mois (en poste à Washington, D.C.)	293.700
Economiste et assistant : 19 mois (50 % à la charge de ce projet et 50 % à celle du projet GLO/80/004)	122.883
Quatre agents régionaux de projet : 147 mois (Afrique de l'Est, Afrique de l'Ouest, Asie de l'Est et Asie du Sud)	1.094.147
Consultants : 27 mois	225.071
- Pour le suivi des essais en Amérique latine (9 mois, 1982-85)	
- Economistes (6 mois)	
- Experts du domaine des matières plastiques (6 mois)	
- Pour aider à mettre en place la fabrication locale de pompes à main (6 mois)	
Responsable administratif : 10,5 mois (dont une partie pour le Bureau spécial des projets, 25 % à la charge de ce projet, 25 % à celle du projet GLO/80/004 et 50 % à celle du projet INT/81/047)	63.000
Soutien à l'investissement	45.000
13. Personnel de soutien	230.000
Services de secrétariat pour le projet plus 25 % des frais du Bureau spécial des projets (assistant chargé du budget et services de secrétariat)	
14. Volontaires des Nations Unies	701.404
430 mois (joueront le rôle d'agents dans le pays pour le suivi des essais sur le terrain : 6 volontaires des Nations Unies en 1982, 15 en 1983, 13 en 1984 et 5 en 1985)	

Postes du budget (suite)		Dollars
15.	Voyage des experts	306.018
	- Personnel du projet et consultants (266.018 dollars)	
	- Comité consultatif (20.000 dollars)	
	- Réunions régionales (20.000 dollars)	
16.	Coûts des missions du PNUD	30.000
	Pour le suivi des projets : 5.000 dollars en 1982, 1984 et 1985; 15.000 dollars en 1983 pour l'évaluation à mi-course de l'exécution du projet	
19.	Sous-total de l'élément personnel : 703 mois	3.323.000
20.	Contrats de sous-traitance	
	21.01 Etudes sociales et de comportement liées à l'emploi de pompes à main; autres études	121.000
	21.02 Rédaction, mise en forme et traduction de rapports	38.000
	21.03 Achèvement des essais en laboratoire de la Phase I commencés dans le cadre du projet GLO/79/010 (166.000 dollars en 1982 et un montant supplémentaire de 30.000 dollars pour essayer d'autres pompes; recherche et mise au point de pompes pouvant être utilisées et entretenues dans les villages)	301.000
	21.04 Contrat de programmation informatique avec DWP S.A. pour le système de suivi du projet	6.000
	29. Total	466.000
30.	Formation	
	32. Formation des volontaires des Nations Unies, des équipes de contrôle et de quelques villageois	67.000
	39. Total	67.000

Postes du budget (suite)		Dollars
40.	Matériel	
41.	Matériel non récupérable (pompes à main et pièces détachées)	111.222
42.01	Matériel récupérable à la fin du projet (véhicules)	105.000
42.02	Matériel permettant de transférer les techniques et la conception des procédures d'essais en laboratoire	42.000
42.03	Equipement de bureau du siège (machines de traitement de textes MICOM, ordinateur Apple II : utilisation pour le projet)	1.000
43.	Locaux et soutien pour les agents régionaux des projets	181.000
49.	Total	440.222
50.	Divers	
53.	Frais divers et imprévus	93.778
59.	Total	93.778
99.	TOTAL GENERAL	4.390.000

H. Plan de travail

22. Le plan de travail présenté à l'Annexe 1 porte sur la période d'exécution du projet et présente le calendrier des différentes activités. Des programmes de travail détaillés seront préparés et régulièrement mis à jour.

I. Cadre de la participation effective du personnel national et étranger au projet

23. Les activités nécessaires pour donner les résultats susmentionnés et réaliser les objectifs immédiats du projet seront exercées conjointement par le personnel national et le personnel étranger détaché pour l'exécution du

projet. Les rôles respectifs du personnel national et du personnel international seront déterminés contradictoirement au moment où les accords avec les pays participant au projet seront conclus.

J. Communication relative à l'aide pour la mise au point

24. La programmation et la mise en oeuvre des essais sur le terrain nécessiteront la coopération et le soutien des communautés dans lesquelles ces essais seront effectués. L'agent régional de projet s'occupera avec les organismes gouvernementaux appropriés d'obtenir le concours des assistants sanitaires ou sociaux, pour expliquer et interpréter l'objectif et la méthodologie des essais sur le terrain et assurer la coopération et la participation de la communauté dans la zone d'essais sur le terrain. Le volontaire des Nations Unies et l'équipe désignée pour suivre les essais sur le terrain chercheront à faire participer la communauté; pour cela, ils agiront en étroite collaboration avec les assistants sanitaires et sociaux affectés à la région intéressée.

K. Cadre institutionnel

25. Le projet sera exécuté sous la supervision de l'agence d'exécution et selon les procédures administratives habituelles de cette agence.

26. Un groupe consultatif, composé d'experts des différents organismes intéressés, sera chargé de l'orientation et de la coordination non seulement de ce projet, mais également d'autres programmes internationaux intéressant la zone rurale où l'alimentation en eau est en cause. Ce groupe procédera à un examen critique de l'état d'avancement du programme d'essais sur le terrain, des conclusions que l'on en aura tirées et des mesures recommandées. Il recevra des rapports de routine et d'autres documents appropriés pour avis et commentaires au fur et à mesure de l'avancement du projet. Ce groupe consultatif,

dont la composition pourra varier en fonction des besoins, comprendra en principe des ingénieurs de haut niveau spécialistes de l'alimentation en eau et des gestionnaires de l'UNICEF, du PNUD, du PNUE, de l'OMS, du CIR et de la Banque mondiale, spécialisés dans le domaine de l'alimentation en eau. D'autres organismes ayant une grande expérience dans ce secteur seront appelés à en faire partie ou seront consultés le cas échéant.

27. Les responsables du projet concluront des accords par échange de lettres avec les gouvernements sur les activités du projet à entreprendre dans les territoires relevant de leur juridiction. Ces accords préciseront notamment les contributions (le cas échéant) que le gouvernement se propose d'affecter à la réalisation du projet, l'ampleur et la localisation des essais sur le terrain; ils concerneront également la désignation d'un organisme local homologue et les prévisions du gouvernement en ce qui concerne les communications et les rapports en cours. Les responsables officiels seront tenus informés de toutes les activités du projet. Le projet amènera également les gouvernements intéressés et les organismes d'aide bilatérale à conclure des accords le concernant.

L. Obligations et conditions préalables

28. Néant.

M. Assistance future

29. Les objectifs définis pour le projet conduiront à mettre au point des directives pour choisir les pompes les plus rentables et les mieux adaptées aux diverses conditions d'utilisation. Cependant, à tout projet doit correspondre un calendrier à respecter pour les mesures à prendre et les résultats à obtenir. Comme le projet porte sur la recherche et la mise au point technique de pompes, ce qui habituellement est un long processus jusqu'à ce que les produits

soient modifiés, il est probable que les résultats obtenus après l'achèvement du projet ne seront pas enregistrés. Cela sera certainement le cas pour la Phase II du projet. Les pompes à main mises au point et installées dans les deux premières années du projet pourront être évaluées après deux ou trois ans mais l'expérience acquise au-delà de cette période est extrêmement importante. Or, prolonger la période d'exécution de la Phase II au-delà de quatre années serait très peu pratique et très coûteux. On envisage donc d'apprécier vers la fin de cette période les méthodes de suivi nécessaires et les moyens à mettre en oeuvre pour obtenir et diffuser par la suite les renseignements voulus. Cette évaluation est extrêmement importante pour la nouvelle génération de pompes pouvant être utilisées et entretenues dans les villages, pour le contrôle de la qualité de la fabrication sur place et pour les modalités de la gestion envisagées pour les réseaux d'eau lorsque les pompes seront installées et entretenues par des villageois préalablement formés.

PARTIE III : Calendrier du suivi, de l'évaluation et de la présentation des rapports

A. Contrôle tripartite

30. Le projet sera soumis à des examens périodiques conformément aux politiques et procédures du PNUD pour le suivi des projets et l'exécution des programmes.

Annexe 1

PLAN DE TRAVAIL

Tâches/Activités (voir Section F-18)	1980	1981	1982	1983	1984	1985
A1/ Essais en laboratoire et recherche et développement (GLO/79/010 et INI/81/026)	———	———	———	———		
B2/ Assistance préparatoire		———				
B.1 Choix initial des pompes/recrutement/premiers entretiens avec les pays		———				
B.2 Premiers essais sur le terrain - travaux préparatoires		———				
F-18 i) Choix des pompes et élaboration du projet de protocole sur le suivi des essais sur le terrain		———				
ii) Discussions avec les organismes, les pays accordant une aide bilatérale		———	———			
iii) Choix des pays		———	———			
iv) Choix des méthodes			———	———		
v) Achat et installation des pompes à main			———			
vi) Assistance pour mettre en place les services d'essais recherche et développement			———	———	———	
vii) Assistance technique pour les services d'essais et la fabrication			———	———		
viii) Formation du personnel de contrôle et suivi des essais sur le terrain			———	———		
x) Elaboration des directives				———	———	
xi) Directives pour la fabrication				———	———	

1/ Phase d'essais en laboratoire (GLO/79/010) du programme.

2/ Phase d'assistance préparatoire (INI/81/026), 1er juillet 1981-30 juin 1983

PARTIE IV : APPORT DU PNUD

JUILLET 1981 - JUIN 1985

Date : 22 avril 1982
Projet No INT/81/026/B/01/42
Titre du projet : Essais sur le terrain et mise au point technique de pompes à main pour l'alimentation en eau des communautés rurales.

		Total		1981 /1		1982 /1		1983		1984		1985	
		Hommes-mois	Dollars	Hommes-mois	Dollars	Hommes-mois	Dollars	Hommes-mois	Dollars	Hommes-mois	Dollars	Hommes-mois	Dollars
10. Personnel													
11. Experts													
11.01	Directeur	25.5	211.777	4.5	3.777	6	48.000	6	60.000	6	65.000	3	35.000
11.02	Ingénieur	44	293.700	5	16.700	12	78.000	12	84.000	12	90.000	3	25.000
11.03	Agent régional de projet (Asie du Sud)	43	307.183	6	26.183	12	84.000	12	90.000	12	98.000	1	9.000
11.04	Consultants	27	225.071	7	53.071	8	63.000	5	40.000	5	50.000	2	19.000
11.05	Agent régional de projet (Afrique de l'Est)	42	308.964	5	27.964	12	84.000	12	90.000	12	98.000	1	9.000
11.06	Economiste	19	122.883	1	5.883	6	36.000	6	39.000	6	42.000		
11.07	Responsable administratif	10.5	63.000	1.5	9.000	3	16.000	3	18.000	3	20.000		
11.08	Agent régional de projet (Asie de l'Est)	31	239.000			6	42.000	12	90.000	12	98.000	1	9.000
11.09	Agent régional de projet (Afrique de l'Ouest)	31	239.000			6	42.000	12	90.000	12	98.000	1	9.000
11.10	Appui en matière d'investissement		45.000				13.000		13.000		13.000		6.000
11.99	Total	273	2.055.578	30	142.578	71	506.000	80	614.000	80	672.000	12	121.000
13.	Personnel de soutien		230.000		21.000		60.000		65.000		70.000		14.000
14.	Volontaires des Nations Unies	430	701.404	12	404	72	125.000	180	288.000	156	268.000	10	20.000
15.	Voyage des experts		306.018		18.018		84.000		82.000		82.000		40.000
16.	Coûts des missions du PNUD		30.000				5.000		15.000		5.000		5.00
18.	Corrections - derniers exercices												
19.	Total	703	3.323.000	42	182.000	143	780.000	260	1.064.000	236	1.097.000	22	200.000

20.	Contrats de sous-traitance											
21.01	Evaluation sociale et de comportement	121.000		80.000	10.000		10.000		13.000		8.000	
21.02	Mise en forme et traduction des rapports, etc.	38.000			10.000		10.000		5.000		13.000	
21.03	Essais en laboratoire Phase I; Mise au point de pompes adéquates	301.000			239.000		40.000		12.000		10.000	
21.04	Contrat de programmation avec DWP, S.A.	6.000			6.000							
28.	Corrections - derniers exercices											
29.	Total	466.000		80.000	265.000		60.000		30.000		31.000	
30.	Formation											
32.	Formation de groupe	67.000			27.000		25.000		15.000			
39.	Total	67.000			27.000		25.000		15.000			
40.	Matériel											
41.	Matériel non récupérable (pompes et pièces détachées)	111.222		26.222	50.000		35.000					
42.01	Matériel récupérable à la fin du projet (véhicules)	105.000			70.000		35.000					
42.02	Installations d'essais	42.000					20.000		22.000			
42.03	Matériel de bureau du siège (machines de traitement de textes, ordinateurs)	1.000			1.000							
43.	Locaux et soutien des agents régionaux du projet	181.000			40.000		61.000		66.000		14.000	
48.	Corrections - derniers exercices											
49.	Total	440.222		26.222	161.000		151.000		88.000		14.000	
50.	Divers											
53.	Frais divers	93.778		10.000	23.778		30.000		20.000		10.000	
59.	Total	93.778		10.000	23.778		30.000		20.000		10.000	
99.	TOTAL GENERAL	703 4.390.000	42	298.222	143 1.256.778	260	1.330.000	236	1.250.000	22	255.000	

/1 Pour les années 1981 et 1982, un montant de 744.000 dollars est prévu au budget pour la phase d'assistance préparatoire, dont 300.000 dollars du 1/7/81 au 31/12/81 et 444.000 dollars du 1/1/82 au 30/6/82.

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

INT|81|026

OFFICE MEMORANDUM

TO: Files

DATE: September 2, 1982

FROM: John M. Kalbermatten, Senior Adviser, TWDWW

SUBJECT: Conclusions of the Meeting with Representatives of CIDA, UNCHS, UNICEF, WHO, UNDP, the World Bank and Consultants on Project INT/81/026

At the end of the one-day meeting, Mr. W. Mashler, Senior Director, Division for Global and Interregional Projects, UNDP, New York, summarized discussions and agreements as follows:

1. Future review meetings should include the participation of the representatives of developing country governments and institutions if such arrangements can be made without undue financial problems.

2. WHO and UNICEF are expected to fully participate in the project activities, though details of their contributions either in kind or in funding of project activities will have to be worked out.

3. Project executing agency is to make efforts to obtain the participation of other bilateral agencies and NGOs. Their participation may consist of financial contributions, direct participation of staff and in particular, dissemination and training activities in LDCs in which they are active. The project team will prepare a brief five to six page paper which can be used to inform potential collaborating agencies of the project. The paper will include a tentative budget which shows funding gaps from which additional participants could select activities to finance. The paper will be reviewed by representatives of CIDA, Dr. Dowling of WHO and Mr. Mashler of UNDP.

4. UNDP Resident Representatives will participate as requested by the project team, namely they will (i) provide local transportation for filming related activities, (ii) assist in identifying government counterparts for filming and (iii) assist in clearing National Film Boards staff and equipment through customs.

5. The project team will further elaborate the dissemination phase of the project for a future meeting and in particular attempt to provide a matrix to illustrate how material prepared and target groups interrelate.

6. WHO has expressed particular interest to participate in technical and instructional editing and field testing.

7. The audiences of the material prepared by the project should be expanded to all levels of decision makers, that is, central, provincial and municipal governments as well as in the various ministries and institutions which have a role to play, whatever it may be in the promotion of low cost water supply and sanitation services.

8. The project should expand to the community level - provide material to inform, motivate, educate users of water and sanitation facilities, and instructional material to train community workers.

cc: Messrs. McGarry, Listorti

Mr. Fernando hand carried both letters plus attachments.
① MR. ENCARNACION.
② GRAL. DUMOL.

(M) INT/81/026

September 2, 1982

PI Rural Water Supply

Mr. Teodoro Encarnacion
Assistant Minister
Ministry of Public Works and Highways
MPW Building
Bonifacio Drive
Port Area
Manila, Philippines

NIRIC

Re: PHILIPPINES - First Rural Water Supply and Sanitation Project - Research in the testing of handpumps and well screens

Dear Teddy:

As you may be aware the processing of the proposed project is proceeding satisfactorily and is likely to be presented to the Board near the end of this month.

The next water supply mission would be visiting the Philippines in late October, when it will concentrate upon getting the project started off as quickly as possible. One of the items which needs urgent attention is the testing and selection of good hand pumps and well screens. In this regard we have been fortunate in having an offer of assistance from the UNDP INT/81/026. Rural Water Supply Handpump Field Trials and Technological Development Project.

Please find attached to this letter a provisional proposal describing the inputs to be expected from the UNDP Project and the upcoming First Rural Water Supply and Sanitation Project. There would also be a few inputs to be made by MPWH and RWDC. We are therefore copying this letter to General Dumol, General Manager of RWDC.

The first visit by technical experts under the UNDP project is tentatively scheduled for early October and we would appreciate having your acceptance in principle to these proposals. Since the technical experts require some time to make prepare for their visit we would appreciate a response by telex.

With best regards,

Inder K. Sud
Chief, Urban and Water Supply Division
Projects Department
East Asia and Pacific Regional Office

cc: General Dumol, Quezon

Cleared in substance and cc: Mr. Arlosoroff (TWD)

A.Saravanapavan:mvs.

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(3/82)

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TO:

Sep 2, 82

INT/AI/026
~~Dept~~ 02/P2

BOOK OF TWO

988

1. D. GREY, C/O BORTHWICK, UNDEVPRO, LILONGWE, MALAWI (TELEX 4466)

C/C

2. MCLEOD, INTBAFRAD, NAIROBI, KENYA (TELEX 963-22022) # 3324

END OF TEXT

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PAGE 1 OF 2

EXTENSION 61790

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ATTENTION D. GREY C/O BORTHWICK, UNDEVPRO, LILONGWE. INFORMATION MCLEOD, INTBAFRAD, NAIROBI. OUR TELEX 333. AAA WELCOME ABOARD. YOU WILL SOON RECEIVE NECESSARY DOCUMENTS FROM PERSONNEL. RELAYED YOUR THANKS FOR PROMPT AND PROPER HANDLING BY MRS. D. RINGLE. BBB THANKS FOR ALL THE MATERIAL RE MONITORING FORMS, MALDEV DRAWINGS AND WELL SCREENS WHICH I CIRCULATED TO OUR GROUP. CCC PEOPLE HERE FEEL WE SHOULD NOW CHANGE THE NAME MALDEV TO AFRIDEVP (AFRICAN DEEP VLOM PUMP) BEFORE IT CATCHES AND BECOMES TOO LATE. PEOPLE FEEL THAT FOR PROMOTION AND MARKETING THROUGHOUT THE CONTINENT AND ELSEWHERE THE NEW NAME WOULD INDICATE JOINT EFFORTS. AS WE PLAN TO INVOLVE KENYA, ZIMBABWE, TANZANIA AND OTHERS IN THE MANUFACTURING, THE CHANGE MAY BE MORE ACCEPTABLE. WHAT ARE THE GROUP VIEWS. AND IF POSITIVE WOULD YOU ISSUE A NEW SET OF DRAWINGS WITH NEW NAME. IN PARENTHESIS, WHAT IS THE ORIGIN OF THE NAME. DDD SHALL MEET DANIDA ON SEPTEMBER 21 IN HELSINKI AND COPENHAGEN. IF YOU WISH ME TO DO ANYTHING TELEX ME AS FOLLOWING SEPTEMBER 15-19 341667 RMYM, ISRAEL, ATT MAOT/931 OR SEPTEMBER 20-21 HELSINKI, INTERCONTINENTAL HOTEL OR SEPTEMBER 22 SHERATON HOTEL, STOCKHOLM. TAKING OFF FROM WASHINGTON ON SEPTEMBER 14 AND RETURNING OCTOBER 7, A RATHER SHORT HOMELEAVE.

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PAGE 2 OF 2

EXTENSION 61790

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TO:

EEE MONITORING FORMS. NOW I REALIZE MCLEOD DID NOT SHOW YOU OUR NEW VERSION WHICH IS QUITE DIFFERENT FROM THE ORIGINAL CATR. WE ARE STUDYING YOURS. INITIAL REACTION ALPHA PROJECT HAVE TO COMPROMISE ON DATA GATHERING. GIVE TOP PRIORITY TO HANDPUMPS PERFORMANCE OVER WELL POINT. DOMINANT CONSENSUS OF OUR EXTENDED GROUP. BETA FORMS TO BE COMPLETED BY UNVS OR OTHERS WHICH ARE NOT JUNIOR TECHNICIANS AND ARE PAID TO COMPLETE FORMS. GAMMA SIMPLE VERSION OF FORMS TO BE COMPLETED BY EXTERNAL PROJECTS. FFF RE NIGERIA. WE ARE GETTING INVOLVED IN THE OPERATION THERE. SHALL RELAY YOUR COMMENTS. MCLEOD MAY VISIT THEM AFTER MOVING TO U.K. DURING NOVEMBER. REGARDS, ARLOSOROFF, INTBAFRAD

END OF TEXT

NOT TO BE TRANSMITTED

CLASS OF SERVICE: TELEX

TELEX NO.: 4466

DATE: SEPTEMBER 2, 1982

SUBJECT:

DRAFTED BY: SARLOSOROFF:PHM

CLEARANCES AND COPY DISTRIBUTION:

cc: Messrs. J. Kalbermatten
G. Tschannerl
C. Des Bouvrie
Ms. D. Ringle

AUTHORIZED BY (Name and Signature): S.ARLOSOROFF

DEPARTMENT: TWD

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9W/80/004
cc ZN7/81/026

September 1, 1982

Mr. Bill Kovach
The New York Times
1000 Connecticut Avenue, N.W.
Washington, D.C. 20036

Dear Mr. Kovach:

Please find enclosed for your information one brochure each on two global projects dealing with research, testing, demonstration and technological promotion of solutions to acute problems of the developing countries. The first deals with Rural Water Supply Handpumps and the second with Integrated Resource Recovery (Recycling of Wastes). These two projects are being executed by the World Bank.

The projects are part of the global efforts to achieve the goals of the International Water Supply and Sanitation Decade. These goals call for the provision of adequate drinking water and improved waste management faciiities for all people in developing countries by 1990.

The two projects are stressing nonconventional, innovative methods of providdng low-cost water supply and integrated waste recycling.

We would appreciate your including information concerning our projects in developing countries in your newspaper. We are prepared to meet with any members of your staff and brief them on our programs and efforts.

We believe the subjects of water supply, sanitation and recycling are of the utmost importance and interest 66r your readers who have an interest in the developing world, its problems and the scientific efforts being made to solve these problems.

Thank you for your cooperation.

Sincerely yours,

S. Arlosoroff
UNDP Projects Manager (TWD)
(Handpumps Testing and Development)
(Integrated Resource Recovery)

Enclosures

INT/81/026
EC EVO/80/004

September 1, 1982

Foreign News Desk
The Los Angeles Times
Times-Mirror Square
Los Angeles, California 90053

Dear Sir/Madame:

Please find enclosed for your information one brochure each on two global projects dealing with research, testing, demonstration and technological promotion of solutions to acute problems of the developing countries. The first deals with Rural Water Supply Handpumps and the second with Integrated Resource Recovery (Recycling of Wastes). These two projects are being executed by the World Bank.

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Thank you for your cooperation.

Sincerely yours,

S. Arlosoroff
UNDP Projects Manager (TWD)
(Handpumps Testing and Development)
(Integrated Resource Recovery)

Enclosures

\ INT/81/026
cc EGI/80/004

September 1, 1982

Ms. Karen DeYoung
The Washington Post
1150 15th Street, N.W.
Washington, D.C. 20071

Dear Ms. DeYoung:

Please find enclosed for your information one brochure each on two global projects dealing with research, testing, demonstration and technological promotion of solutions to acute problems of the developing countries. The first deals with Rural Water Supply Handpumps and the second with Integrated Resource Recovery (Recycling of WAstes). These two projects are being executed by the World Bank.

The projects are part of the global efforts to achieve the goals of the International Water Supply and Sanitation Decade. These goals call for the provision of adequate drinking water and improved waste management facilities for all people in developing countries.by 1990.

The two projects are stressing nonconventional, innovative mehhods of providing low-cost water supply and integrated waste recycling.

We would appreciate your including information concerning our projects in developing countries in your newspaper. We are prepared to meet with any members of your staff and brief them on our programs and efforts.

We believe the subjects of water supply, sanitation and recycling are of the utmost importance and interest for your readers who have an interest in the developing world, its problems and the scientific efforts being made to solve these ppoblems.

Thank you for your cooperation.

Sincerely yours,

S. Arlosoroff
UNDP Projects Manager (TWD)
(Handpumps Testing and Development)
(Integrated Resource Recovery)

Enclosures

INT/81/026

Otto Langenegger, Project Officer, TWD/UNDP — September 1, 1982

S. Arlosoroff, Projects Manager, TWD/UNDP

Terms of Reference: UNDP Handpumps Project, INT/81/026
Czechoslovakia, Switzerland, Upper Volta, Niger, Ghana, Ivory Coast
September 5 - October 30, 1982

1. On or about September 5 you will proceed to Czechoslovakia to participate in the International Symposium of the International Association of Hydrogeologists on the Impact of Agricultural Activities on Ground Water, which will be held in Prague from September 5-11, 1982.

2. On or about September 8 you will proceed to Switzerland for discussions with Helvetas regarding cooperation related to handpumps field trials in Mali and Sri Lanka, and to participate in selected sessions of the IWSA Conference.

3. On or about September 12 you will continue to Upper Volta to introduce Mr. Guindo (UN Volunteer) into the INT/81/026 project and to get the field trial started. This includes, above all, well/pump selection, establishment of the monitoring team and integration of it into ongoing rural water supply projects. Until monitoring actually starts, Guindo can be employed in gathering data on handpumps performance and costs.

4. On or about September 27 you will proceed to Niger for preparation of the field trial within the GTZ "200 Well" Project area. This will comprise pump/well selection in cooperation with GTZ and the Ministry of Hydraulics as well as preparatory work for the setting up and operation of the of the monitoring team.

5. On or about October 10 you will go on to Ghana to make final arrangements regarding implementation of the field trial within the "3000 Well Drilling Programme." You should also contact CIDA in order to discuss the possibilities of having a secondary field trial in their project area in the Upper Region.

6. On or about October 25 you will continue to the Ivory Coast to organize the field trial, to finalize the recruitment procedure for the monitoring officers and to organize your regional office. You will also explore the possibilities of another field investigation in the Ivory Coast if CIDA funds become available.

7. On or about October 30 you will return to Washington and submit your Back-to-Office report to me within two weeks of your return.

8. If changes of this tentative program should be necessary during your mission, you shall make your own arrangements. However, you must first inform the World Bank (TWD) in Washington through my office of these changes, and we shall authorize the changes.

cc: Mr. M. Dia, WB Res. Rep., Ouagadougou; Mr. M. Gervais, WB Res. Rep., Niamey; Mr. S. Guetta, WB, Chief Regional Mission, Abidjan; Mrs. H. Kofi, WB Acting Res. Rep., Accra; Mr. A. Mubanda, UNDP Res. Rep., Accra; Mr. A. Rotival, UNDP Res. Rep., Abidjan; Mr. W. Semerdjian, UNDP Res. Rep., Niamey; Mr. C. Widstrand, UNDP Res. Rep., Ouagadougou

Cleared with and cc: Messrs. Kalbermatten, Loewen, (TWD); Al-Khafaji, (WAP); Gibbs, Hinkle, (WA1); Skillings, (WA2)

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INT/81/026

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Mr. John M. Kalbermatten, Senior Adviser, TWD DATE: September 1, 1982

FROM: S. Arlosoroff, UNDP Projects Manager, TWD

SUBJECT: UNDP Project INT/81/026 - Rural Water Supply Handpumps
(Testing and Technological Development)
OTTAWA, CANADA - Meetings with CIDA, August 28, 1982
Back-to-Office Report

On August 28, 1982, I held discussions with Mesdames Sutherland, Racicot and MacDonald, and later with Mesdames Racicot and MacDonald, on the proposed CIDA contribution to INT/81/026.

1. The bilateral department of CIDA has been delegated the responsibility of preparing and submitting the project document to CIDA's management decision. Ms. L. MacDonald is now handling the matter, and we will maintain direct communication with her during the project identification and approval phases.

2. A number of issues must be resolved during the process; any conflicting views could undermine the delicate negotiation. I would suggest that neither UNDP (Mashler and Potashnik) nor anyone in our office maintain contacts with CIDA unless cleared with me. Could you please ask Mashler, Potashnik and Loewen to follow this.

3. Following the meetings I attended at CIDA's office in March 1982 and later here, the provisional sums and countries included in the project identification document are as follows (FY of CIDA 4/1 - 3/31):

Country	Total Can. $
1. Bangladesh	500,000
2. Sri Lanka	100-150,000
3. Ghana	100,000
4. Ivory Coast	400,000
5. Haiti	100,000
	1.2 - 1.25 MCD

With the exception of Sri Lanka, disbursements are due to start in 82/83 and will take effect during 82/83, 83/84 and 84/85.

4. CIDA wishes us to take complete responsibility for the total administration and execution while they will maintain only a minimal monitoring involvement in the projects. I have, therefore, explained that the original concept must be changed so that the CIDA contribution will

provide for the necessary administrative and management costs at field level and at management level needed for the implementation and monitoring of these countries. I will include the necessary sums in our formal request. I estimate that the amount will be approximately 300,000 plus inflation of CD versus USD and the overhead percentages. The total sum could reach 1.7-1.8 MCD. I will urgently involve our group in the necessary discussions before we reply to CIDA.

5. As a result of the discussion we held on Friday morning when you were also present, we will have to include the overhead percentages that were introduced by Messrs. Mashler and Potashnik. I suggest clarifying the issue with Mashler as soon as possible and whatever percentages are agreed upon, the WB overhead allocation should be increased directly, as the INT/81/026 budget will not be changed.

6. After lengthy discussions, we managed to reach a consensus, subject to management approval, on the following points (which have yet to be formally agreed upon by the management of CIDA).

(a) The package agreement will be split into sub-paragraphs for each separate country. As we reach an agreement with the relevant country or institution (e.g. ICDDR, Bank), disbursements will begin for the country.

(b) Advance sums of 200-250 thousand CD will be disbursed per country. When invoices for that sum are submitted to CIDA, they will deposit the balance.

(c) In our request, we will include other optional countries, in case an agreement is delayed in any of the orginal countries. The following proposal was made:

(i) Sri Lanka and/or Thailand, India.

(ii) Ghana, Ivory Coast, and/or Upper Volta, Niger or Mali.

(iii) Haiti and/or Dominican Republic, Honduras.

(d) I could not commit ourselves to using Canadian pumps or vehicles, for such commitments are subject to agreements with the host governments. We must begin immediate contacts with Ivory Coast, Ghana, Sri Lanka and Haiti to clarify their positions.

7. Financial reports. CIDA requests that it receive a financial report twice a year for the period ending on 3/31 and 9/30. This point must be cleared with Controller. If it creates problems, I believe an agreement could be reached for an annual report.

8. Technical reports. CIDA will receive our progress report every six months.

9. We must send CIDA a telex as soon as possible to formally request their co-funding and to provide details of countries, FY disbursements, optional solutions, reporting, monitoring, management needs, overheads and estimated timetable.

10. An agreement is to be signed between CIDA and UNDP.

11. The project identification document must be submitted to CIDA management by September 14, 1982. If approved in principle, the project appraisal report will be submitted for final approval around October 15. If all goes well, we should receive the green light to begin operations by October 30. Advance payments are expected to be disbursed around January 1983.

12. We will wait for CIDA's management approval before we begin any recruiting and discussing details with host governments.

SArlosoroff:phm

cc: Messrs. R. Middleton
M. Loewen