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1985

FINAL REPORT ON SMALL SCALE SALT PROJECT AT DASILAMI, JOKADU DISTRICT, THE GAMBIA.

I. Name of the Project:- Small scale Village type Solar Salt Project.

Date of commencement :- 7th March, 1985.
Date of completion :- 28th June, 1985.
Composition of the Indian Team:-

1. Mr. S.[illegible] - Team Leader
2. Mr. P. Govindasamy — Workers.
3. Mrs. Saroja Govindasamy — Workers.
4. Mr. M. Kaliyappan — Workers.
5. Mrs. [illegible] Kaliyappan — Workers.

19982

II. Details of work done:-

1) Construction of Units:-

(a)(i) No. of Units constructed : 17 of varying sizes
(ii) No. of units consolidated: 14
(iii) No. of units in which salt was scraped 11

(b) Incomplete Units:- 3

(i) Crystallisers alone remain to be constructed in these three Units. This could not be completed as the labourers could not be employed with effect from 1-6-'85 due to paucity of funds.

(ii) Time and labour required to complete the construction and consolidation of the 3 units: 15 men for 10 days, 20 women for 20 days.

An amount of D.2,800/- (Dalasis Two thousand eight hundred only) will be required to complete the three Units.

2) Description of the Units:-

S.No.	Length x breadth	No. of Condensers	No. of Crystallisers	Total area.
I	150' x 60'	7	12	9,000 Sq.ft
II	150' x 70'	4+9	17	10,500 "
III	130 x 45	7+4	10	5,650 "
IV	110' x 85'	10	8	9,350 "
V	200' x 80'	2+11	8	16,000 "
VI	190' x 100'	8	32	19,000 "
VII	170' x 100'	15	10	17,000 "
VIII	190' x 180'	12	24	34,200 "
IX	200' x 120'	12	30	24,000 "
X	130' x 60'	13	10	7,800 "
XI	130' x 60'	16	10	7,800 "
XII	130' x 60'	13	10	[illegible] "
XIII	130' x 60'	13	10	[illegible] "
XIV	130' x 60'	13	10	[illegible] "
Incomplete Units:-				
XV	[illegible] x 180'	[illegible]	not constructed	[illegible],000 "
XVI	200' x 60'	[illegible]	- do -	[illegible] "
XVII	[illegible] x 60'	[illegible]	- do -	[illegible] "

Units XV, XVI and XVII are incomplete units. [illegible]

3) [illegible] Mr. M. Judt, at Banjul. However, another set of plans are enclosed.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

INTEROFFICE MEMORANDUM

To: Ms. Tchakmakorian-Aeschbacher, Acting Head, IO/CHEM
Date: 13 August 1985

Attn.: Mr. Judt

From: D. Gardellin, Acting Head, Purchase and Contract Service, Division of Industrial Operations
Ref.: MK/ho

Subject: Final Report - SI/GAM/84/801 - Establishment of a Village-Type Solar Sea Salt Production - Contract No. 85/1

1. In accordance with the stipulations of paragraph 5. of Contract No. 85/1, Salt Consultancy Services, India have provided this Office with five (5) copies in English of the final version of their report on the subject project.

2. We are forwarding herewith three (3) copies in English of the Contractor's report under consideration.

3. We would appreciate your reviewing this report as soon as feasible and your advising this Section of its acceptability.

4. If the Contractor's report is acceptable, copies should be distributed in accordance with the instructions contained in the UNDP Policies and Procedures Manual (UNDP/PPM/TL/2 of 27 January 1978, Section 4.0, paragraph 5, pages 9-14).

5. Please note that:

a) one (1) copy of the Contractor's report is being sent to Registry for their own records, and that

b) one (1) copy is being sent to Mr. E. Remmert who, upon perusal, will transfer it to the Library for micro-filming.

6. We would also appreciate your completing and returning the enclosed copy of the "Evaluation of Contractor's Performance" form.

cc.: Mr. E. Remmert (with one (1) copy of the report under consideration)
Registry (with one (1) copy of the report under consideration)

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III. Consolidation work cum Training:-

(i) Consolidation:- The sites selected in the North and South blocks were cleared of all mangrove trees along with the roots and the land picked with pick-axes manually. The different units were marked according to the availability of the land in each block and utilised to the fullest extent. Ther different compartments of each Unit were marked. Construction of the peripheral bunds for each Unit was taken up first and then internal bunds for the Condensers and crystallisers, excavation of brine supply and bittern channels, ridges, pathways, etc., were comple-ted. Then, consolidation of the condensers and crystalli-sers was done by women labourers by puddling with foot for over 15 days in each unit and then sand was spread and rammed with wooden rammers. The entire construction and consolidationwork took nearly 25 days for each Unit. 2 or 3 units were taken up simultaneously and the work completed. On an average, 20 men and 30 women were employed daily.

During the construction period, baling of creek water (sea water or brine) from the brine pits was also done by both men and women by sling baskets tofill up the condensers in each unit for condensation.

(ii) Training:- The men were trained in excavating brine pits and channels, construction of the various components of each unit, which involved cutting and removal of mangrove trees and roots, tilling of the land with pick-axes, excavtion of clay and transport by wheel-barrows for the construction of bunds, etc., and all other connected items of work.

Women were also trained in the above items of work; but, they were largely assisted by men as this item of work is tiresome and the women get fatigued. The women were fully trained in baling of water from the brine pits and creek channels, consolidation of the condensers and crystallisers by puddling with foot, spreading of sand in the crystalliser pans and ramming with wooden rammers, etc.

Women were also trained to charge the required depth of brine in the condensers and crystallisers scraping of salt, collection of salt on the ridges, washing of salt, transport of salt to the drying ground, flushing out of bitterns from the crystallisers, etc.

(iii) Scraping of Salt:-

North Block:- Units I to V - 6 times
Units VI & VII - 3 "
South Block:- Units VIII to IX - 2 "
Units X to XIV - 1 "
Incomplete Units - XV, XVI and XVII - No scraping of salt as the crystal-lisers remain tobe constructed.

Total quantity of salt scraped is about 600 bags of 50 Kg. each. Nearly 200 bags of salt was lost due to the failure of the allottees to scrape the salt in time in the initial stages and that too immediately after the allotments of the Units.

V. Manufacture of salt by the labour independently after the ~~attmkt~~ allotments of the Units:-

No. of Units allotted : 14.

Details of Units allotted:-

		No. of scrapings done	Salt scraped
Allotted during May'85.			
North Block:-			
Unit No. I	allotted to 4 women	6	100 bags
II	" 4	6	75 "
III	" 4	6	60 "
IV	" 4	6	100 "
V	" 4	6	75 "
Allotted during June'85:-			
VI A	" 4 | 10	3	20 "
VI B	" 6 |	3	20 "
VII	" 6	3	20 "
South Block:-			
VIII A	" 6	2	10 "
VIII B	" 6	2	10 "
IX	" 12	2	10 "
X	" 6	2	5 "
XI	" 6	2	5 "
XII	" 6	1	•
XIII	" 6	1	
XIV	" 6	1	

• - First intial scraping only was done. No appreciable quantity of salt was scraped. The precipated salt was rammed in order to consolidate the pan floor.

Total:	14 units	90 women	510 bags

Scraping of salt before the allotment of the Units ... 150 "

Wastage due to rains and rejection of salt on account of accumulation of dust during dust storm, etc. 660 "

(-) 60 "

Salt available for ~~marketting~~ marketting ..... 600 bags

The salt harvested prior to the allotment of the Units on 6-5-85 was of good quality and white in colour as the scraping was done by the Indian workers with a few local women. After the units were allotted, the women were indifferent ~~fmm~~ and were not working enthusiastically as they have done while they were paid. They were not baling the required quantity of water and maintaing the depth in the sundenesys and crystalliseys and were also not scraping the salt on the appointed date. They apprehended ~~that~~ deprival of their earnings as they have been removed from the wage and time sheet. As a result of persuasions and reassurance that they will not lose their earnings by the sale proceeds of the salt scraped and will accrue to them and that they may be earning much more than the daily paid labourers, they showed working with due diligence and enthusiasm. Their apathy in the initial stages has resulted in the loss of about 100 bags of salt.

As the manufacturing season advanced, the yield of salt also increased and the allottees were able to appreciate that they scrape more quantity of salt under the Indian Technology when compared to the no. of bags of salt collected by them from the traditional pits

VI. T e/ L bour Schedule:-

Approximate ~~af~~ break-up of men and women engaged on different items of work during the salt season of 1985.

	MEN	WOMEN
(a) Construction of units from 7-5-85 to 31-5-85-	750	100
(b) Consolidation of Units from 20.3.85 to 15.6.85	16	1550
(c) Baling of water from 15.3 85 to 20.6.85.	400	150
(d) Manufacture of salt from 1. .85 t 22.6.85	/ 10	31
	1,176	1831
(e) Women allottees engaged in the Units from 6.5.85 to 22. .85	-	868
Total :	1,176	2699

There was a heavy down pour of rain on 22. .85 night and consequently all manufacturing operations for 1985 came to a halt.

VII. General attitude of the women labourers In the Solar Salt Works -

The women of Dasilami, who are habituated to collect impure salt from the pits could appreciate the advantages of the Indian type Solar Salt manufacture system as they found that the yield of salt will be much more than from the pits. Their income under the new system will be 6 to 8 times more than in the past. The labour is generally co-operative and enthusiastic and worked whole-heartedly. This being the first year of product--ion of salt under the Indian System, the yield will not be quite appreciable. But, as the salt works get stabilised, the yield will increase gradually year after year and in the ~~thr third year~~ third year, the yield will reach 3 25 to 30 M.T. per acre and will further ~~escalate~~ escalate as the year advances to touch the optimum production of 50 M.T. per acre.

~~XXX~~

VIII. Utilisation of the Indian Team:-

The Indian Team comprising of a Team Leader and 4 workers - 2 men and 2 women were engaged in supervision, training of the local labour and working with them in the construction of the Salt Units, consolidation, scraping of salt, collection and washing of salt, transport of salt, etc. The local labour was assisted by the Indian workers in all avenues of work.

IX. Miscellaneous items of work performed by the Indian Team of workers:-

Supervision over construction of salt works, consolidation, spreading of sand, ramming the crystall--isers, excavation of channels from the creek-channel to the brine-pits, widening and deepening of brine pits, digging of brine-pits, baling of water from the creek channel and brine pits, repairing the salt baskets and p po ses, bag of , etc.

X. Difficulties experienced by the Indian Team:-

No major difficulty was experienced except the absence of a transport from 7-3-85 to 4-4-85 again from 23-5-85 to 28-6-85, which was keenly felt and the non-availability of the transport has resulted in avoidable fatigue due to trekking the distance by foot to and fro the village to the salt works every day.

Non-availability of a truck to transport sand for consolidation purposed during March85 has retarded the progress of salt manufacture.

XI. Improvements required to stabilise the Salt Works:-

The allottees would by now received the sale proceeds of the salt produced by them and they would have seen that their earnings will be much more than in the past. Consequently, they may be devoting much of their time and energy to work their Units enthusiastically and may also employ additional labour for the execution of preliminary operations, repairing of the bunds, consolidation of crystalliser pans, etc. Baling of water from the brine pits by mechanical means by installing oil-engines and pumps may perhaps be resorted to from next year onwards.

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XII. Supply of Tools:-

(a) Inventory of tools brought from India:

1. Wooden scrapers for harvesting Salt and levelling blades	.....	48 Nos.
2. Wooden rammer blocks	.....	6 "
3. Wooden rakers	.....	3 "
4. Sling baskets for baling water	.....	12 "
5. Pouches for pouring water	.....	12 "
6. Baskets for earth-work	.....	4 "
7. Baskets for collection and transport of salt	.....	8 "
8. Iron pulleys	.....	2 "
9. Hydrometer	.....	12 "
10. Measuring Tape - 100 Mtr. & 50 Mtr.	..	2 "
11. Polythene sheets for covering salt 6 Mtr. width	.....	6 Nos.
12. Mammoties for earth-work	.....	4 "
13. Garden water sprayer	.....	2 "
14. Spring balance- clock type- for weighing salt bags	.....	1 "

(b) Inventory of tools supplied locally:-

1. Pick axe	.. ..	15 "
2. Showel	.....	15 "
3. Spade	.....	20 "
4. Wheel-barrows	.....	15 "
5. Galvanized iron bucket	.....	12 "
6. Nylon rope - 12 mm.	.....	1 Roll
7. Nylon rope - 6 mm.	.....	1 "
8. Sledge hammer - 1 kg.	.....	1 No.
9. " " - 2 kg.	.....	1 "
10. Hacksaw blade	.....	1 "
11. " Blade	.....	12 "
12. Carpenter's saw	.....	1 "
13. Measuring tape 50 Mtr.	.....	1 "
14. Plastic can - 35 litres- for water...		4 Nos.

(c) Consumable stores:-

(c) Consumable stores:-

(i) Petrol: Supplied by the Community Development Dept. as and when the supply is exhausted. About 500 litres of petrol would have been supplied. to the vehicle UN 123.

(ii) Diesel Oil: 215 l[illegible]s used up by the hired truck deploy[illegible] for the transport of sand.

(iii)Sand:- 72 truck load of sand and 7 truck load of gravel were transported bt the hired truck.

XIII. Findings:- A vast saline tract is available at Dasilami and adjacent village- Bakhan-endowed with good plastic clay, bright and hot sun-shine [illegible] copious supply of sea water. Solar salt manufacture will prove tobe highly remunerat--ive. The residents of the village are highly enthusiastic and cooperative and evirce interest in the Indian Technology.

XIV. Recommendations:-

Baling of sea water from the brine pits involve lot of fatigue as the women have to bale out water manually by sling baskets for 4 to 5 years daily. With the result the required quantity of water is not being baled and the condensers are not charged to the required depth and the supply replenished properly in time. This has affected the yield of salt. 16,500 gallons of sea water is required to yield 1 M.T. of salt. Hence, enormous quantity of sea water has tobe pumped daily during the manufacturing season. Provision of Oil-engine and pump is an imperative necessity to step up the yield of salt in the following years. Atleast 4 oil-engines and pumps may be provided for the year 1966.

Working capital loan should be arranged for each unit as the women have to employ labour for carrying out preliminary operations repairing of bunds, consolidation of crystal--liser pans, etc.

The Cooperative Union may be requested to purchase the salt at the site and market it. At the time of purchase, 75% of the sale proceeds of salt may be given to the producer and the balance 25% at the end of the year after deducting the working capital loan, thrift deposit, incidental charges,etc

Xv. Conclusion:-

I am confident that the women of the Dasilami, who have been trained in the various process of salt manufacture will not hesitate to work year after year whole-h--heartedly as they have been assured of increased income. Their earnings will gradually register an appreciable amount as the salt works get stabilised yearafter year and the production may go upto 30M.T. per acre in the third year of manufacture.