

PD-AAU1-469

ISN 52487

MEMO

TO: J ANDERSON, DD

FROM: A NEWMAN, ARD

THROUGH: T MAHCNEY

SUBJECT: PROJECT COMPLETION REPORT-SEDERHANA IRRIGATION PROJECT

Attached for your review is the project completion report for the Sederhana Irrigation Project II (497-0252).

Date of Agreement : AUGUST 31, 1978

PACD : DECEMBER 31, 1985

USAID FUNDING : \$31.8 MILLION
LOAN : (\$21.2 MILLION)
GRANT : (\$10.6 MILLION)

GOI CONTRIBUTION : \$22.8 MILLION

Seen 6/3/87

for for
to

- 1 -

PROJECT COMPLETION REPORT
SEDERHANA IRRIGATION PROJECT II
PROJECT NO. 497-0253

1. Project Objectives and Principal Components

The objective of the Sederhana program in the Government of Indonesia's eyes was to increase food production, especially rice, by undertaking small (usually less than 1,000 ha.), relatively unsophisticated irrigation systems which could be completed quickly. The GOI began the program on its own in IFY 1974/1975 and IFY 1975/76, scheduling a total of 325 subprojects with a potential irrigable area of over 88,000 hectares. AID's assistance to the program began in 1976 following satisfaction of conditions precedent in the Sederhana I loan. Sederhana II followed in 1979.

The purpose of AID's assistance to the Sederhana program was three-fold: (1) to improve the capability of the Ministry of Public Works (PU) and the Ministry of Agriculture (MOA) to plan and implement small-scale irrigation schemes, including both the physical systems and the social infrastructure essential for Operations and Maintenance (O&M); (2) to increase rice production; and (3) to increase incomes and employment opportunities for the rural poor. The Sederhana program took advantage of numerous previously unutilized freshwater streams throughout the archipelago by diverting them onto nearby arable lands by means of simple gravity distribution systems. Much of Indonesia's topography is appropriate for gravity systems, and the generally fertile volcanic soils are potentially productive year-round if water supply is adequate. While the project encouraged rice production, areas which receive limited water supply during the dry season benefit from production of secondary food crops when readily available markets exist. The Sederhana program was concentrated in small, more difficult to cultivate areas because, in general, the better areas had already been irrigated. These areas were inhabited by relatively poorer farmers. Where Sederhana projects were constructed in existing paddy-to-paddy systems, farmers at the tail-end of the systems, whose productivity had been affected adversely by lack of water, were often the major beneficiaries when water distribution was improved.

The main construction phase of each Sederhana subproject consisted of using labor-intensive methods to construct a diversion weir and primary and secondary canals (the major works), which were designed to serve an area populated primarily by small land-holders (2 hectares or less). This work was carried out by PU. Tertiary canal construction was the responsibility of the MOA until the IFY 1978/79 program, when PU was assigned the responsibility under Sederhana II.

Technical assistance and training co-financed by AID and the GOI was intended primarily to increase the competence of GOI professional staff to ensure better design and quality of physical irrigation infrastructure.

In 1982 the High Performance Sederhana Irrigation System (HPSIS) component was defined and funded under the Sederhana project. In addition to building and managing small-scale irrigation systems, the High Performance Sederhana Irrigation Systems Project allowed for the introduction, testing, and refinement of a participatory approach to development projects. In this approach, farmers were involved in decisions and activities that were usually the responsibility of the Government of Indonesia or its contractors.

The basis for the HPSIS component was the participatory irrigation development model which described the linkages that were supposed to occur in participatory irrigation projects. The model sought to measure the benefits that are thought to result from increasing farmer participation in such projects, primarily in terms of physical changes at the sites and changes in water distribution.

2. Project Status and Outputs

Sederhana II constructed approximately 500 small irrigation systems. In virtually every system a water user's organization was formed to facilitate communication with the government. The creation of a manual of standard design details was another project output. Approximately 400 provincial engineers and over 3000 non-technical staff were given short term and long term training. In connection with HPSIS, over 500 farmers were trained in the operation and purpose of water user associations.

3. Lessons Learned

The major problem areas identified in the poor systems were: adverse physical and/or water supply conditions, unfavorable site selection in terms of crop systems and farmers' preferences, the irrigation of lands in the design area that were already well irrigated before the project, over-reliance on rehabilitating existing physical systems instead of creating new diversion and conveyance systems to serve new areas, and too large a design area for the system and/or water supply.

The Sederhana project showed that there are still excellent returns to be gained from investments in irrigation infrastructure, mainly from system development in areas currently without irrigation. Second, the major problems of non-operational or partially operational systems stemmed from poor site selection. Significant problems did not result from poor construction or negligence in O&M.

In fact, the "average" results of the Sederhana assessment study belie the generally excellent assessments of the systems which functioned properly. In other words, the systems which functioned as designed, did extremely well. The systems which functioned poorly generally did so because of poor site selection. These systems should not have been constructed because soil or water conditions were not right, or the farmers did not want the systems to begin with.

The HPSIS component of the Sederhana project successfully introduced farmer participation in the development of pilot small-scale government irrigation systems in Indonesia. This is evidenced by several measures. First, farmers were able to negotiate several important design changes with the Ministry of Public Works (PU) and constructed or rebuilt parts of the irrigation systems themselves. This gave farmers confidence in making their views known to the government and led the government to take the farmers' views more seriously. Second, when farmers actively participated in system design and construction, significantly better irrigation systems generally resulted; for example, the number of main system canals in good condition rose from 38 percent at the beginning of the project to 85 percent at the end. Third, the project changed the ways in which irrigation-related decisions are made at project sites by increasing information, resources, and the farmers' roles. Fourth, the project changed the attitude of PU staff toward farmer participation: they became more receptive to farmers' suggestions and more encouraging about their role. Fifth, the project improved relations and coordination among the Ministries of Agriculture, Public Works, and Home Affairs at the provincial and kabupaten levels. Sixth, as has been occurring increasingly in participatory development projects, a non-governmental organization had an essential management and communication role in HPSIS.

HPSIS showed that community organizers help promote discussions among farmers about technical aspects of survey, design and construction, as well as on issues of future O&M and water management. They also facilitate interaction between water user associations and Public Works officials. Originally the community organizer role was conceived of as non-technical, but HPSIS shows that they are more effective mediators if they have a basic understanding of technical issues and thus are better able to communicate with Public Works engineers and contractors.

The results of the Sederhana project provided considerable guidance in planning the follow-on Small Scale Irrigation Management Project.

4. Financial Status

Project funding was originally planned at \$21.7 million in loan funds and \$10.6 million in grant funds. Of the loan funds, approximately \$20.0 million was obligated and disbursed for construction. An additional \$1.2 million was used for training and the purchase of commodities. The remainder, slightly under \$0.5 million was deobligated. Virtually all of the grant funds were used for technical assistance (\$8.8 out of \$10.6) and (\$0.89) for the HPSIS component of the project. Training disbursed \$ 0.42, leaving a deobligation of \$0.5 million in grant funds. Therefore total funds disbursed under Sederhana II equal \$21.2 million in loan funds, \$10.1 million in grant funds and \$1.0 million was deobligated.

Approved in draft by:

T. Mahoney
M. Hanratty
R. Cobb
T. Diedrich

ANewman:mr:5592a