

PARTICIPATORY IRRIGATION APPROACH IN NANGGROE ACEH DARUSSALAM – THE CASE OF INTRODUCING CONCRETE CANAL LINING THROUGH PARTICIPATORY CONSTRUCTION

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Figure 1: Community Plenary Meeting # 1 assessing existing problems, identification of existing local institution (DI Tanah Bara, Aceh Singkil)

Plenary Meetings” have been introduced to agree on the design and to decide which works are to be undertaken through community contracts, called *Surat Perjanjian Pemberian Pekerjaan* (SP3), and those through contracts awarded to civil works contractors using local competitive bidding (LCB) but with community involvement. The LCB contracts with community involvement are commonly known as *Kerjasama Operasional* (KSO) and the community involvement can involve supply of materials, provision of labour or both to the contractor. SP3 contracts are mostly applied for the smaller civil works at the level of tertiary and secondary canals. Typically, the value of SP3 contracts is in the range of IDR 50.000.000 to 299.000.000-, and about one to 33 WUAs usually participate in the construction works.



Figure 2: A member of Water User Association (WUA) in DI Alue Ubay, Aceh Utara is actively constructing their own secondary canals. Usually, the Secondary canal is constructed by professional contractors

Empowerment of the irrigators through Water Users Associations (WUAs) is the central theme of the irrigation component of the ADB-financed Earthquake and Tsunami Emergency Support Project (ETESP). In Aceh, these WUAs are popularly known as *Perkumpulan Petani Pemakai Air Kejreun Blang* (P3A).

Under the ETESP irrigation component, irrigators are involved right from beginning in the design and implementation of the

reconstruction and improvement of their irrigation systems. “Community

“Community



Figure 3: A Field Staff of B & V Consultant , Koordinator Tenaga Pendamping Petani (KTPP), is providing a technical assistance to the members of WUAs during the construction in DI Alue Ubay, Aceh Utara

During the early implementation stage, the Engineering Design Team of the Consultant engaged under the ETESP irrigation component proposed to use structural wire mesh reinforced concrete instead of the traditional stone masonry for canal lining construction. The main consideration was the resistance against earthquakes combined with simplicity of construction and reduced costs. However, the proposal initially resulted in some scepticism, particularly from some of the project

managers of the agency in charge of the irrigation reconstruction program (the Badan Rehabilitasi dan Rekonstruksi – BRR). They were concerned that the WUAs would not have the capacity and knowledge to build the works of a satisfactory quality. Previously, farmers had never used wire

mesh reinforced concrete in the construction of canal lining. Furthermore, the agency staff also had limited experience in using wire mesh construction for canal lining. Discussions in the field by the Consultant's Sociology Team revealed that in general WUAs were not immediately ready to carry out canal lining using wire mesh. The WUAs stated they had considerable experience and skills in using stone masonry but not in wire mesh reinforced concrete lining. This was not surprising as ETESP is the first project in Indonesia to involve WUAs in the construction of this type of canal lining.



Figure 4: Four WUA's members in DI Krueng Tuang, Aceh Utara is "gotong royong " using a concrete mixer to prepare required materials needed to complete construction of tertiary canals

Being “the first”, constructing wire mesh reinforced concrete lining successfully through WUAs was a challenge for everybody involved in the ETESP irrigation component. This challenge motivated and encouraged all team members, including the BRR project management staff and the Consultant’s teams. The BRR inspectors and the Consultant’s Construction Monitoring Team in conjunction with the Sociology Team made frequent visits and provided on-site technical assistance to the WUAs during the construction phase to ensure the correct construction methods and quality.



Figure 5: Water User Association (WUAs) are able to construct high quality secondary canals, instead of tertiary ones. (DI. Alue Ubay, Aceh

canals will provide us with adequate water. Therefore it was important for us to do the best possible job”. Clearly, a new experience has been gained, and an innovative technique introduced and implemented through participatory construction. WUAs involved in the participatory construction stated that constructing canal lining using wire mesh reinforced concrete was faster and easier than using stone masonry.....and that it should be stronger too.

This successful implementation encouraged all project team members to apply wire mesh reinforced concrete lining for other planned irrigation reconstruction and improvement works. Based on this first experience, BRR’s project management staff and the Consultant’s teams have become confident of the ability of WUAs to build works with a satisfactory quality. The experience has taught us that introducing a new technique to the rural communities is possible but that it requires strong motivation, patience, and hard work from all parties involved. It has also helped to strengthen the cooperation between team members. Because of this experience another 340 contracts will be executed through the WUAs under the ETESP irrigation component.

The participatory construction phase is now being followed up by the participatory Operation and Maintenance (O&M) phase. The Consultant’s Sociology Team is preparing the training for O&M and during the training, the team will try to ensure further involvement of the WUAs in the operation and maintenance activities for the irrigation schemes where the WUAs have assisted in the schemes’ reconstruction. .

Finally, learning by doing real work is more meaningful and powerful rather than a thousand words in classical training. *“We heard and then we forgot. We saw and now we remember. We did and so we can”.*

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WUAs have now completed wire mesh reinforced canal lining for 12 kilometers of secondary canals (usually the construction of secondary canals is done by contractors) and also for 17 kilometers of tertiary canals in 10 irrigation schemes in 8 districts in Nanggroe Aceh Darussalam Province. The quality of the construction is relatively good – usually better than that of works carried out by contractors. But perhaps most importantly, the WUAs involved have now a sense of ownership and a feeling of responsibility. As the Head of the WUA Putra Barona, in the Krueng Tuan scheme said. **“This is our asset and these**