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"PARTICIPATORY RESEARCH PROJECT"

A CASE STUDY ON "APPROPRIATE TECHNOLOGY FOR GRAIN STORAGE AT DWAKIRA  
CHINI VILLAGE MOROGORO DISTRICT" PRESENTED AT THE AFRICAN ADULT  
EDUCATION ASSOCIATION REGIONAL WORKSHOP HELD AT IDM MZUMBE  
FROM 2nd - 7th JULY, 1979

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E.K. MDUMA.

"It is not a question of forcing our people to change their habits. It is a question of providing good leadership. It is a question of education and free participation. It is a question of all of us making reality of the principles of equality and freedom which are enshrined in our policy of socialism!"

Nyerere, J.K. OUP p.144.

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Background to the Pilot Project:

Grain Storage has been identified as one of the most pressing problems in the third world and Tanzania in particular. It is estimated that as much as 30 - 40% of all the grain is lost during storage annually. Much of this loss is attributed to poor grain storages at family or micro levels. It is a great concern to both the peasant farmers and leadership at all administrative levels and as such, some considerable thought and attempts have been made against this problem leading to establishment of a number of innovations. Such innovations have been put to test and adopted with a hope of at least reducing the losses by 10 - 20%.

In 1975 interested persons and most Tanzanian Institutions were obliged to give a much more critical thought on the problem. The ruling party by then TANU had launched a mass campaign known as "Life or Death Farming Campaign" (Kilimo cha Kufa na Kuona). This campaign was necessarily initiated by the party as a result of two disastrous harvest seasons the previous years which led the nation to starvation. The country was forced to spend almost every cent in its foreign exchange reserve for buying **grain** to offset the shortage. The campaign therefore, was aimed at increasing the nation's capacity for foreign exchange.

The campaign was well taken into account by peasant farmers throughout the country, institutions and offices too. Reports coming from all corners of the country indicated that a good harvest would be forthcoming as a result of the campaign supported by favourable weather. Ideas of developing appropriate storages at micro level brewed seriously. Urgent reviewing of the problem was necessiated.

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While the problem was taken care of by the government at national, regional and district levels, special appeal was made to every sincere person to try to improve grain storages at both family and village levels. It was anticipated that at the end of the harvest season every family would be able to have adequate and safe stock till next season.

It was from this juncture that the idea of conducting this project on grain storage came into existence and was in May 1975. The immediate question was how this massive problem could be attacked. With the belief that villagers could go along way towards solving their own development problems on the basis of own skills and available resources, it was proposed therefore to attack the storage problem at family and village levels with tactics guided by the above philosophy. Thus, it was necessary to begin by looking at the already existing local storage structures and to build improve and new innovations together with the peasants.

Participating individuals and Institutions:

As already indicated above, the idea of stepping up efforts geared to improving small scale grain storages at micro level started regenerating among many in anticipation of bumper harvest at a result of life or death farming campaign. Individuals, government officials, parastatal organizations and International bodies all alike, exerted more pressure on their operational systems to facilitate some extra participation in combating the problem of grain storage.

In this context, the Community Development Trust Fund of Tanzania based in D'Salaam, and the Institute of Adult Education deserve special regard. It is important to note here that the former is an independent and a voluntary agency while the later is a National Educational Institution.

Obviously the two institutions though based in D'Salaam Tanzania, still they all had their individual development programmes and their annual operations quite different from each other. Least of all, none of the two had within its annual or quarterly plans the idea of researching or conducting a project on grain storage anywhere in Morogoro District. The two Institutions one being funded by individuals and independent bodies within and without (abroad) the Republic of Tanzania and the second (Institute of Adult Education) being funded by the treasury may surely differ in the scopes of operation, ethics, and even abilities to operate freely in accordance to set objectives and targets.

In view of all the above and other factors withstanding, one would not wonder how Bureaucracy could have lead to wider operational gap between the two bodies. One would surely expect either of the two to show up as a financier and a supervisor to projects initiated by the same or the other. One would probably share a feeling of some hardships in convincing the bureaucrats to equally work together in a small development project at micro level.

Co-operation for development at this level had been a philosophy employed by the heads of the two institutions which enabled them to share ideas and experiences in such developmental problems. At this level, dialogue evolved as a means to solve the problem. As stated earlier, foreign bodies were also concerned and they participated either through the government or local institutions. In this respect the Economic Development Bureau (EDB) through (CDTF) Community Development Trust Fund of Tanzania actively participated in the project by providing manpower and finances. It is obvious that by now we have trained technical manpower and financial resources from three Institutions. They are at this juncture dialoguing on the problem of grain storage in Tanzania. How then to Morogoro Region, Morogoro District and Dwakira Chini Village the actual site of the pilot project?

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The Community Development Trust Fund of D'Salaam Tanzania being an experienced organization for rural development problems and a financier of a few of such projects in some parts of the country, had already in its pending requests a request for finances on grain storage projects at Morogoro District. The initial request was to provide either materials for storages or finance for similar activities. This was therefore the base line for the choice of Morogoro Region and Morogoro District. Having looked at the migre resources and previous experience on finance handling in the regions and the impact of most supported development projects a new approach was thought. Instead of releasing lumps of money to build storages of alien type at villages and or supporting projects at family level of alien nature those involve thought of conducting a pilot project in one village first. The elien structures and experiences supported by financial or material inputs would be merged into local expertise and experiences to develop a proto-type structure suited for local conditions. So peoples' know how and environmental conditions were of much importance to these new efforts.

Selection of Dwakira Chini Village - The Project Site:

We have already seen how the project was centred at Morogoro Region and Morogoro District. The choice of Dwakira Chini Village in particular is a question deserving a mention here. The selection of the project site.

"When all the powers remain at the centre therefore, local problems can remain and fester, while local people who are aware of them are prevented from using their initiative in finding solutions!"

Nyerere, J.K. NPC May 1972.

"Decentralisation!"

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One of the major purposes of the exercise of decentralization is to ensure that development projects stem from the people and serve the people directly. In practising decentralization announced in 1972, proposals of village development programmes and projects, emerged and assumed a down-top trend instead of the former top-down trend inherited since independence. The new exercise therefore enabled the Morogoro District Development Director to have among many developmental project requests from all its villages. Food grain storage problems are prevalent in almost all villages of the above District though they differ in degree. There was and is hardly any place in the district that can be excluded from this problem. However, as problems in villages differ in degree and as long as each village according to decentralization has mandate to plan, budget and execute according to priorities and immediate felt needs, Dwakira Chini Village had this problem as a top priority. It had already applied for help having felt the need at family level long time ago. So the village had its project request already at district level. Other factors were surely considered before final selection. Dwakira Chini had all the major food grain crops like maize, soghum, rice and legumes. Not only food crops but also cash crops which needed storage at least for a day or so before they were sold to the National Corporations which normally have their representatives at villages. Such cash crops include cotton, and oil seeds. Another reason for the selection is the availability of expertise from both the University of D'Salaam - Faculty of Agriculture/Forestry and Veterinary Sciences and the Ilong Research Station. The above Institutions have manpower<sup>r</sup> and facilities exposed to all practices aimed against the problem of grain storage. Previous researches and efforts had been initiated, conducted by these two institutions and their experiences were of most significance and relevant to the success of this project. Communication wise from D'Salaam the headquarters of both CDTF and IAE were favourable. A great deal of travelling by Staff of the above institutions and those from the EDB mentioned earlier would have to

be done regularly with less costs in terms of time, and finance, Lastly to the question of selection, it was felt that the District authorities in Morogoro were already sympathetic to the villagers at Dwakira-Chini. The objectives both long term and short term as shall be seen later together with the approach which we proposed to employ were supported the leadership. Dialogue has by now moved to the District level from the headquarters in D'Salaam. Discussions between the D'Salaam team and that of Morogoro decided to contact both the village administration right at the village and other resource persons as felt necessary.

#### Workforce and Time:

We have already seen the multisectoral ambitions in workforce combination. Institutions down to village level aimed at one goal. Dialoguing for a better grain structure suitable for conditions at Dwakira Chini Village. A working force was therefore composed of representatives from the Institute of Adult Education with its Resident Tutor in Morogoro, Community Development Trust Fund represented by its planning officer, an expert on environmental health from economic development bureau and District authorities. Consultant services were sought from the Faculty of Agriculture/Forestry and Veterinary Science, Ilonga Research Station, TFNC and IDM. The above workforce formed the core of the team which lived with the Villagers from the beginning of the project to the stage of actual construction of the agreed structure evolved in the dialogue. The team spent a total of eight weeks in the project site from July, to the end of August 1976. Fortunately the time spent coincided with the harvest season in the village when interest in storage was at its height. Though the villagers were rather busy, they were engaged in activities related to the issues being discussed in the project. The period of eight weeks which was available had both advantages and disadvantages. Developments which emerged during this short period of dialogue were very visible and became part of the consciousness of all who participated.

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Villagers realised the possibilities of making real changes and the impact and results so obtained were directly attributed to the methodology used. However, time limitations meant that the outside team could not always wait for the level of group consciousness to rise to a certain level of understanding about a particular problem before moving to the next. Time allocated for identifying and examining critically various local storage structures and related them with the objectives before presentation to the discussion groups was always insufficient and therefore had affected negatively the potency of the dialogue experience for all participants.

The Village Dialogue approach:

"I want to be quite sure that our technical and practical education is an education for creators, not for creatures!"

Nyerere, J.K. (Development Dialogue 1974) (No. 2) p. 46.

Masisi Y.C. in his paper titled "Comprehensive, Integrated Village Planning and the Role of Adult Education", presented at a Workshop on Agricultural Extension in Ujamaa Village Development held at University of Dar es Salaam Faculty of Agriculture/Forestry and Veterinary Science Morogoro from 22nd through 27th September 1975 had this among other things.

Quote:

"As an adult educator the extension worker should be both a learner and a teacher. He has to learn from the peasants the nature of the environment within which they live and how they have adapted themselves to it. Under normal circumstances,

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the peasants know their environment very well. In addition to that, they also know, what they need. What is lacking is the knowledge of how they can meet these needs. Since the extensionist has more knowledge in this respect, he should learn from the peasants what they know, and from this both can decide on what path to take!

The roles of the experts are therefore complementary to those of villagers rather than antagonistic. Outsiders should regard themselves as co-workers in a peasantry nature and not alien redeemers of peasants in their localities. Tanzanian policy encourages mass participation in decision making and the use of adult education as a vehicle for liberation. (Hall B. 1975; Mongi, 1976; Mbunda, 1976). The relationships among adult education, participation in decision - making and human liberation has been acknowledged by Tanzanian planners at all levels. The discussion group approach had been developed intensively and extensively during previous mass adult education campaigns namely, "The Choice is Yours" (1970) "Man is Health" (1973), and "Food is Life" (1975). Such discussion groups provided the possibility for engaging in the social act of naming the world (Freire, 1971) through which individuals' awareness of their own reality increases as does their confidence that they can themselves improve their situation. When discussion groups are also action implementation groups, the balance between mobilization of human energies and action are on a vast scale. The methods used in this project were grounded in the experiences of the discussion group approach mentioned above. The team attempted to elicit from the villagers in a series of discussion meetings and visits their perception of the reality surrounding local food supply and storage problems. As specified in the village act, 1975 each registered village had a government with five committees.

Dwakira Chini Village was no exceptional. Among the five Committees there is a committee known as the committee for economic planning and production. This committee is responsible for planning both developmental and economic projects and supervises the implementation. A sub-committee on storage was immediately appointed by the village council to supervise the activities of the project. It was charged with the responsibilities of reporting to the council the progress, problems encountered during project implementation and especially during discussion meetings. Such instrument for liaison with a self-selected and voluntary sub-committee of villagers was a vital check on the outside teams's possible misunderstandings of the villagers' perceptions put across during meetings as well as an invaluable contribution to the understanding of the problem in the context of village reality. In order to build villagers' confidence within themselves, the team systematised, summarised and returned everything the discussion groups mentioned. They were able to see themselves as possessing a concrete science and technology. According to dialogue methodology, it was at this moment that the team could begin to make contributions of modern science and technology suited for micro level experienced elsewhere.

Having aroused their awareness of the problem and aroused their confidence in their own abilities and resources, the village storage committee including the outside team could then present possible modifications of existing local technology. Villagers reactions to such suggestions were in most cases very critical. During dialogue group members were able to choose among elements of their own and those introduced. In this way the systems finally designed were in fact their own and were therefore easier to put into practice. In summary, the team and the sub-committee on grain storage had in the village dialogue the functions of examining the situation in the village and to identify systems related to storage, present the identified themes to the villagers in a dialogical form, to systematize the information accumulated during discussions and return them to groups and lastly participate fully in the action emerged from group discussions.

*Formation of village  
grain storage committee*

Formation of the Sub-Committee/Tactics, values and limitations:

The existence of this committee on the project has already, been mentioned. Some of its functions have also been pointed already. This committee being a vital linking device deserves **thorough** analysis. Its formation was actually the first real step of the dialogue. It was chosen at an extra - ordinary meeting of the Village. Council (Village Government) during which the outside team explained the aims and intentions of their visit based on the problem of grain storage whereby a pilot project there was to try and find possible solutions. The selection process of the storage Committee pre-determined its anatomy. The Village council team itself was almost composed of middle class and influential peasants with only a minner representation of few poor peasants and women. Given the task of selecting the storage committee from among its own members, the village council automatically appointed the rich or already progressive farmers who were like-wise aggressively interested in agricultural innovations. With this feature, there was therefore a danger that the committee might merely turn into a vehicle for these progressive elements to make storage innovations which were only appropriate to themselves and not the masses. The team quickly took note of this danger and carefully steered the committee to the mass-approach. It continuously emphasized the need to hear from a cross-section of peasants in the village and to design together structures which would meet their needs. The political commitment of the team was extremely important on this issue as the content and direction of the dialogue depend on the political intent and input of those who identify the themes and lead the group discussions. The committee members worked closely with the team in planning meetings. Listening to tape recordings (see below) of discussion group meetings and screening the ideas and designs that emerged from the dialogue. The job of leading the discussion group meetings fell entirely upon the storage committee under its elected chairman.

For the purpose of conducting effective dialogue, the committee divided the village into four zones of settlement. This was an alternative to the original idea of conducting the discussions, in the ten-family adult education study groups. It was thought that these small adult education groups would have a higher level of co-operation and therefore, a greater possibility of discussing and implementing real changes. It was however, realised that due to time constraints on the part of the outside team and the elapsing of the harvesting season the small adult education study groups would not be appropriately visited and assisted on critical problem analysis and implementation. It was stressed that full and thorough coverage of the village was essential. Zonal groups were therefore ideal and applicable. Although most group discussions were very successful, on occasion, it was necessary for committee members to round up those potential participants for meetings. When ever this happened, observations showed that it was not really attributed to lack of interest among the villagers or group participants, but rather due to poor organization and preparation. In another effort to activate discussions during project period, and to preserve history, all formal group discussions were tape-recorded. It was the intention of the educationists to later transcribe the discussions and preserve them in print. It was also intended to develop follow-up reading materials of different levels for post-literates in the project site and the surrounding villages. It was necessary however to obtain the consent of group members before recording and the recording was normally tuned after the meeting for the participants to hear some of all they had been discussing. This was an admirable exercise for chances of by passing some important remarks made during group discussions did not arise. Members of the team also used the recordings to critically analyse the discussions in camp and took note of essential remarks and points which were thought to be of much importance and deserved regeneration or further discussions by the discussants.

Pictures were also drawn by the team artist after participating in discussions and observing the surroundings and descriptions in the dialogue. The pictures were also drawn by using the tape recorded information at the camp which were later used in the next meetings. These pictures also served to stimulate discussions when they seemed to be lagging.

Another limitation which deserves a mention here is that of women poor participation. Dwakira Chini Village is situated in the Rufiji Basin with a coastal nature. The attitudes and behaviour of women at the project site were (and are) of coastal identity. It was difficult for women to participate first in the village administration for men in the first hand did not give them chance. There was only one woman in the village council by the time the project started. Even this one, did not know actually what was the government operational perimeters. She was shy and could not contribute much even in the first council meeting on the project apart from fully supporting everything put across in the meetings and especially that of the chairman. Great efforts and special appeals were made by the committee to involve the women knowing very well that they had an important role to play in the project. It is the women according to the village tradition who look after the grain storages and therefore it is them who know well the losses of the family stock. Seating arrangements were reorganised to suit their conveniences and the group leadership gave more chances to women than men with a deliberate attempt to stimulate and activate them to contribute fully for more valuable information. All efforts did not help much although their attendance to the meeting greatly improved as days went by. Lack of full participation by women was one of the major shortcomings of the project although they stood to gain more, them being controllers of the grain storages in the families. In any case the dialogue method or the interpersonal communication system as some people call it, had a direct effect. It stimulated ideas among villagers many of whom did not know even what storage systems their neighbours were using.

In the course of more than twenty formal group discussion meetings over eight weeks, more than ten traditional storages were analysed. While analysing the local storages, group discussants also analysed other environmental problems. Among such problems include all pests and animals, thieves, rainfall and rainfall patterns, crop production in relation to village by-laws, customs and beliefs, land distribution credit facilities, and all other production, market and storage relations.

Practical outcome/benefits and problems solved:

While continuing with elicitation of village realities, analysis of both existing local storages and suggesting possible alternatives, villagers started implementation of agreed structure with modifications. Among others, three major streams of modifications were agreed upon by groups and villagers started implementation under the supervision of the storage committee. The most common among the three however was the outside structure (dungu) which was elevated above 4 feet, rat proofed (with rat guards above 3 ft) and rain protected. Other precautions noted included wind direction, distance from the main house or trees and other agents which might help rats or insect infestations.

The project had three ranges of objectives out of which villagers were to benefit. Immediate benefits of the project include the construction of more than fifteen improved, rat proofed structures with a capacity of 25 tons and use of insecticide by peasants the malathion 1%. The estimated value of crops saved from destruction by rats and insects and possibly thieves through the construction of such improved structure within the first six months was T. Shs. 10,000/=. Obviously, though the value looks small, it is a great achievement to a village at a rural area which is more than 100 km. from the Regional centre. Medium range benefit include a greater awareness and understanding on the part of villagers of the principles of grain storage and technical

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and social variables which affect grain storage within their locality. The cration of the storage committee would serve as a resource group and a mechanism for evaluation. The committee will continue mobilization duties of villagers and supervise input distribution and repayment of credits. For long range objectives, vallages would benefit from the development of village dialogue methodology. Training institutions for adult educators or extension staff have the opportunity of applying the methodology to equip the staff for effective rural communication. The tape recorded information would help in production of post-literacy reading materials for rural consumption. Writers workshops would be organised to produce such books and manuals and possibly be distributed to villages within the project site and those surrounding villages. The improvements though not necessarily directly applicable to other villages in the country, the information and experiences may serve as a reference or a baseline for new developments fit for isolated localities.

Other educational teaching aids could also be developed from the collection from the project site. So for villages, the new structure has set them free from rat-infestation due to fixation of rat-guards, insect destruction as insecticides could now safely be applied, fungi destruction which was equally serious due to high moisture content in grain harvested earlier due to wild pests and thieves. The new structure is able to continue drying grain and is also safe from fire as it was agreed that construction sites should be at court-yard compounds of main houses which are normally fenced. They should be complete separate units. Surely, some more technical details were discussed, agreed upon and therefore taken care of during construction.

#### Final Project analysis;

We have seen how much effort was put to the project. We have seen the effect of this effort and the effect of the methodology. The eight weeks spent had developed an improved structure whose construction began

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within the eight weeks and continued thereafter. Both team members from outside the village and the project committee worked tirelessly in a tight programme to that end. We had seen how dialogue enabled different national institutions, regional, district and village authorities liaison and conduct such a profitable project of that scale. Having analysed the problem and agreed to work together, appropriate and necessary data was collected even before the team settled at the village. The first week in the village was an opportunity for team mates to familiarise themselves with the new environment, to explain to the village council the intensions of the project, to discuss storage problems in general and the formation of the vital project committee whose duties had been explained. In forming the project committee it was first thought that two members from the five committee of the village council could make a good team. It was however, noted later the necessity to include a few individuals with personal interest in the problem of storage. It was also thought necessary to include a few outstanding individuals who had the full respect of the entire community due to wisdom or traditional formalities. Technical government servants within the village surrounding were also included. A joint programme was then worked out after the formation of the project co-ordinating committee. Directives from the village council were analysed first before creating zones and forming discussion groups. Having formed discussion groups, timetables were drawn and schedules of meetings began at the third week through to design and construction of the improved structure. The committee that developed a continuing relationship with such outside resources as the Faculty of Agriculture in Morogoro sought technical expertise. Laboratories of the faculty were used to analyse the effects of some herbs from the site purpoted to have some effects on insects. A professor to antemology helped seting up tests at the village school which helped studies on life cycle of some weevelsand the effects malathion dust 1%. Later the project committee was invited to lead a seminar at the faculty of Agriculture on experiences based on the project on the problem of grain storage.

As assumed before, dialogue had managed to raise peoples' consciousness towards the problem of grain storage. It had helped to mobilise the people and helped them discuss the problem and create better solutions and solved the problems. It had closed the gap between the village and other institutions and personalities outside. Villagers had developed a permanent manpower resource group at village level and created system for credits from outside and benefited directly from this exercise.

In looking at the political implication of the exercise one would give credit in view of the fact that project generation was done at village level and forwarded upwards as per decentralization policy. Party committees and seatings discussed the project proposals and supervised the Implementation. Group discussions were effective in raising consciousness since previous mass mobilisation campaign like the choice is yours and others. It was therefore a good test as to the potency of the methodology which could be used in later days for similar purposes. The integration of personnel and activities in this project deserve a mention. Both Tanzanians non-Tanzanians collaborated well to fight a common enemy.

New people from around the site had just joined the village as a result of the villagization exercise where by every Tanzanian had to be in a Village. This exercise strengthened by the 1975 villagization act proved a good opportunity to practice democracy for the benefit of all the villagers. Although things went on well, there was suspicion among some members of the village and even the village council. The presence of the non-Tanzanians was looked at with a suspicious eye especially in the beginning. This attitude changed gradually as days went by. This was however very natural and had very little effect. Another fundamental observation which had a political implication, was the influences of the project committee chairman gained during the eight weeks. It was evident that due to frequent and regular meetings with villagers the project chairman become very influential among the peasants.

It was by coincidence that around that time there were party leadership elections. The project chairman having gained enough support and influence contested the seat against the former chairman. This new development had adverse relations between the new candidate and former party leader at the village. It was unfortunate that this change of attitudes within the leadership affected the proceedings of the project. Other programmes however helped to stabilise the situation. Within the follow-up programme, the project committee successfully conducted a seminar at the village on the subject of proper grain storage. This seminar was a unique one because it was the first seminar ever to be conducted at the village. Participants included representatives from fifteen surrounding villages, extension staff from the villages and political leaders. The seminar was officially opened by the Member of Parliament (MP) for Morogoro Rural and was closed by the Chairman of the Bwakira Chini Village Council. It was a unique experience to both villagers, leaders and all technical staff of the project. The experience was fastened when the committee members from the village led a seminar of third year BSc. Agriculture Students at the Faculty of Agriculture on experiences on appropriate technologies for grain storage at micro levels.

The objective of developing an appropriate grain storage at family level suited to the local conditions had been achieved. Manpower development ambitions had also been accomplished by the formation and training of the storage project committee to serve as a permanent resource group at the village. Experiences on the part of extension staff and other technical staff engaged in the project had developed significantly. Information linkages had also been developed to a stage that villagers now look at the collaborating Institutions as theirs and very accessible to them. Regular visits to the institutions are now made by the villagers for purposes related to the project and many other things. While it is true that the application of the methodology is time consuming and tiresome, it is also evident that its effects are unique.

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It helps participants generate and raise awareness towards a problem, leads them to metabolise solutions for the problem. Beneficiaries are able to combine efforts and resources from conception to effectation. Alien ideas, technical know-how and experiences are brewed during dialogue. However, practising dialogue needs trained and committed manpower. Yet the best way to train a person in the use of dialogical approach is to have him/her experience the practice of the methodology.

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