

# **Gash Sustainable Livelihoods Regeneration Project (GSLRP)**

## **Kassala, The Republic of Sudan**

GSLRP is an IFAD funded project for Gash started in August 2004 and is expected to be closed by mid 2012. Most of the civil work has been completed and remaining is in progress.

The overall goal of the project is to regenerate the livelihoods of a majority of the people (both sedentary and nomadic) in and around the Gash Delta which has been in decline due to several non compatible policies and institutional issues in the past. The present project is aimed to address this with efficient and sustainable use of the land and water resources based upon a shared vision of development and the stability of the related institutional arrangements. The purpose of the project is to ensure the efficient, equitable and sustainable operation of the Gash Agricultural Scheme (GAS) and the integration of the scheme into the local economy, further contributing toward overall national goals.

The GSLRP implementation approach relies on using investments to support reforms in the governance of land and water resources that are expected to have a higher impact on livelihoods and sustainability of the flood irrigation scheme in terms of people ownership, secure and legitimate tenure and pride at community level. The reform package proposed for land and water governance includes re-allocation of land to eligible tenants based on a set of poverty criteria keeping in view the historical and viable claims and current ground realities. This project deserves appreciation for starting allocation of lands although it was a difficult process; it has partially been performed, especially keeping in view the sensitive political situation always associated with resources and assets re-allocation in any country. Most of civil engineering related work completed. The land allotment at misga level has been carried out, though at lower level still (within misga) issues remain and need prompt action from government side before these lead toward any turmoil.

Based on progress so far, there is a need to further consolidate and initiate various works required for overall development. A bottom up approach is an essential part of this project for partnership with government agencies, ownership feelings and sustainability in the long run. The establishment and strengthening of Water Users Associations (WUAs) is an ongoing process. So far 92 (WUAs') at Misga level have been formed in five blocks out of the six blocks of the GAS. Moreover five WUAs at the block level in the five blocks and one high level WUA at Apex level has also been formed.

The development of WUAs has provided the basis for the development of the GAS with fixed tenancies of three feddans per farmer. The former land holdings at Misga level had been divided into Misga units of between 900 feddans and 2,000 feddans with an average of about 1,500 feddans. Each WUA farms two alternate Misgas in a two year rotation. In theory, the WUAs have one Misga in the upper reaches of the main canal and one in the lower reaches. At full development there will be a total of 107 WUAs at misga level although only 92 have been formed at present, with Hadaliya block still remaining. The overall area targeted to be irrigated after

completion of all civil work will be 120,000 feddans as compared to previous figure of 80,000. As a result the settlement pattern in the project area is now more towards permanent villages and project partners (WUAs members and general population) are receiving benefits of schools, health centres, drinking water supply schemes, agriculture and livestock services, road networks, mobility and various other amenities.

Two main major issues have been pointed out through mission visit, i.e. irrigation water management and tenancy fixation and these need attention of engineers and government. The issue of tenancy fixation is related entirely with government and water distribution need different thoughts to solve it based on ground realities.

## **Establishment of Water User Associations' (WUAs)**

For the purpose of long term sustainability and viability it was envisaged during project formulation that the improved irrigation system should be jointly managed by WUAs and GAS. Therefore these local organizations needed to be formed with maximum membership of residents (beneficiaries) of the area. Up to now 92 WUAs at Misga level have been established in 5 blocks and formation is awaited for Hadaliya. Besides this, 5 WUAs at Block level and one higher WUA at Apex level were formed during 2010-11.

According to the WUAs Coordination Office, during the flood season of 2011, it was observed that many of these WUAs have performed better than as compared to previous year. This is a direct result of training and awareness of WUAs and better coordination of project/GAS. This progress will be highly helpful in handing over the irrigation management to WUAs in the near future.

Although progress of WUAs is evident in several aspects and is improving, few issues remain still which need further attention and response from project and GAS. The present progress is the result of hard work by the team working at field level. This team needs more exposure to the local level organizations development, equipment, manpower and logistic support. Further coordination on a regular basis from PCU with CTT, engineers, monitoring and evaluation unit and community development office in the form of monthly/bi-monthly meetings will improve the work quality. Some of the issues which need further attention are mentioned below. There is a need to regularly monitor the progress of these WUAs so that changes or modification can be made to strengthen them. For this, training in monitoring aspects, monthly/bimonthly/periodic meetings need to be part of the working system. The monitoring system needs to cover achievements against targets, monitoring indicators and means of verification etc. Registrar Office has concerns about present methods of assessment like the selection of criteria and its success standard. Therefore, WUA Coordination Office team need further meetings with Registrar, CDO and Monitoring Section to have a common definition of such standards and success. The assessment should be done by keeping all sections informed and agreed to avoid any misunderstanding and for this monthly progress planning and meetings, within GAS, are essential.

Coordination meetings and information flow is needed between different components and sectors of project/GAS to avoid duplication, overlapping and in order to share common resources such as manpower, expertise, and other resources. GAS leadership should have overall responsibility.

**Table 1: Issues Relating to Strengthening of WUAs<sup>1</sup>**

	<b>Description</b>
1.	Water reaches Misga level through deployment of workers by WUAs. Correct levelling, additional intakes, lengthening of sub canals are equally important to cover the entire Misga in an efficient manner – both time wise and quantity of water.
2.	Delay of infrastructure work is due to late disbursement of government funds. An appropriate plan of the entire irrigation management needs to be coordinated with relevant ministry. In order to achieve better planning, it is extremely important that information is shared with WUAs concerning the latest status of the release of funds.
3.	Although tenancy fixing aspects are progressing at misga level, pending issues within misga (individual entitlement with location etc.) need better home work and soon to be started. Legal ministry and project/GAS need to work further on this issue.
4.	To avoid duplication, overlapping and to help WUAs it is necessary to chalk out the role and responsibilities of all stakeholders and partners, i.e. GAS, GRTU, WUAs and GAS Engineering. This can be thoroughly discussed at a forum such as a general meeting of WUA Block and Apex by each individual stakeholder, also during training and a copy of these roles could be given to WUAs.
5.	Further improvement needs to be made on cropping patterns, efficient use of water and other field level efforts so that farmers can produce and earn more. Therefore, experiments in new and improved crops are necessary. Again it should be discussed at a general meeting of WUAs where agriculturist should participate. One of the criteria for assessment of WUA should be positive results through adaptation of these varieties and skills.
6.	Funds have been released to further improve the canal networks (sub canal, misga intake etc.) and survey work is starting in September and October. Therefore, consultation and participation of WUAs, from engineer' side, is essential to discuss, clarify and incorporate their ideas for improvement of irrigation system. Engineers need exposure to participatory approaches and further coordination with CDO and WUA Coordination Office.
7.	An appropriate irrigation plan needs to be made jointly by Engineers, the field team and WUAs so that spate flow information (magnitude/volume, velocity etc.) at different sites is provided to farmers so they can respond to it accordingly. To achieve this, proper field preparation plan and irrigation plan is required. Moreover better communication system between GRTU, WUAs of block and Apex level is necessary. Engineers need to come up with irrigation plan according to flood volume. This has been discussed with engineers during the orientation exclusively with them to prepare a plan of scarcity and access flow. A small write up on this topic has been provided to them. Further improvement can be made by discussion with WUAs, PCU and GAS
8.	Support for farm level activities, such as better management practices and regular meetings and follow up, would help to boost the morale and confidence of WUAs and their members. Concerning the Trainings, what has been done by

<sup>1</sup> Prepared with the help of CDO (MS. Asha) and Coordinator of WUAs (Mohammed Issa) and his team, September 2011.

GLSLP should be reflected in order to be considered as a basic sustainability factor of activities and WUAs.
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Monitoring and evaluation of all activities including WUAs is important for sustainability and is required on a periodic basis (monthly, quarterly, half yearly and yearly). For this the WUA Coordinator and his team need more training. More progress has been made in WUA performance when compared to last years. During the mission the WUA Coordinator and his team assessed performance which demonstrates enhanced and positive changes.

Initial work for the establishment of Apex Office in Aroma is in progress and NO Objection has been obtained and lowest responsive bidders notified. Further work will start soon. Similarly 5 offices for selected misga level WUAs, 1 from each of the 5 blocks have been agreed in principle through discussions with respective WUAs. An important decision is that GAS/Project will support in kind/material only and the rest is to be borne by WUAs from their own funds. This was initiated by WUAs themselves and it shows their development as an organization and willingness to fully participate in the irrigation management system. These offices will be for each misga level WUAs and will serve as multipurpose centres where members' meetings, coordination events, training sessions and similar activities will be performed. Since these will be in each respective area, it should be easier for members, EC and others to reach them.

Apex WUA needs more clarification of roles and responsibilities and understanding of flood flow at different levels. Engineering department could fill this gap by providing training and necessary skills. Moreover, Apex needs to know the importance of networking and contacts with different development organizations. The WUA coordinator and Registrar could help them in this regard. Apex WUA could be involved in supporting and monitoring development work in the area such as alignment of canal, construction/excavation work, mesquite eradication etc. Before starting such work, planning to address issues such as need assessment and the role of Apex WUA is necessary. GSLRP is linking Apex WUA training with the University of Kassala which will be helpful for strengthening this body. Apex is concerned that the 10% share of fee is not given them in time or in the correct amount, which affects negatively its motivation and morale to influence WUAs members to collect these fee. WUAs at block level have not been given full responsibility for fee collection.

Presently CTT is working and their inputs have been valued by many WUAs at all levels. However, it is necessary to include additional specialists in income generation activities and saving and credit who have experience of NGO sector for local institutional development along the lines of NGOs. Gradually these activities need to be linked with agriculture extension wing of the state ministry for sustainability and continuity. DG GAS together with the Registrar can play an important role in this regard.

The success of WUAs and improvement of irrigation system go side by side. In time, reliable and adequate irrigation supply will result in confidence building, in addition to increased income. Therefore, WUAs always look towards better and efficient overall irrigation system in GAS area. De-silting of canals, sub canals, re-modelling of some

structures, more intakes at misga level and lengthening of canals will play a key role in achieving this result. However, it should be done with close consultation and feedback of WUAs and according to need and appropriateness. On the other hand training and meetings need to involve engineers and agriculturists who explain to farmers the concepts of proper and adequate irrigation, the dangers of over irrigation and changed requirements for water application of the various new crops and varieties.

CTT, WUA Coordination Office, CDO, PCU and Registrar are trying their best to strengthen WUAs but issues revolve and remain around irrigation aspects which is purely engineering subject. These professionals are not able to cover this topic in their meetings and discussions. Because of this, engineers having participatory approaches are needed to better chalk out details of irrigation flow at various levels and its dynamics in a user friendly way so that it can be fully understood by WUAs. For example, the issue of installing measuring devices (which have already been purchased) is pending. Engineers think that this device is too complicated for WUA members to benefit. In that case an alternative system needs to be installed which is user friendly. At the same time technical staff need to understand and appreciate the participation of WUAs in managing the irrigation system. This information and training of measuring flow will directly encourage WUAs and their members to have an active and positive role in the scheme. It will also help in minimising conflicts arising from inadequate irrigation allocation and distribution. A practical demonstration of land levelling according to consumptive use of each crop needs to be demonstrated to overcome the problem of over irrigation. Similarly, a practical demonstration of land levelling through making a map which follows the contours of misga, will be helpful to guide water during irrigation and will result in savings of water, effort and time.

### **Issues and Points raised by Monitoring and Evaluation Unit**

Some misgas have not been able to receive water due to weeds, mesquite and improper levelling. This data needs to be further discussed in details with concerned WUAs to rectify these problems.

According to data compiled 78,000 feddans is being irrigated. Serious attention needs to be paid to data collection OR needs to be addressed in irrigation planning capacity. Additionally it needs to be considered whether this is enough for 56,000 farmers or not?

The opening of more than one intake at a time in the same misga has created problems of over irrigation and in some cases has even resulted in decreased production. Agriculturists need to discuss this issue with WUA providing required technical and scientific information.

Inequity of irrigation within misga is observed by some farmers and this is something which needs to be exclusively a matter of serious attention for WUAs to which field staff need to pay attention during meetings.

Land and water fees have not been paid during the year by 10,000 feddans and this matter needs to be followed up by staff and leadership of WUAs.

Over the last many years (before the project interventions) WUAs members have not been involved very much in agricultural activities and now they need a lot of practical skills and exposure to such activities.

Some of WUAs Executive Committee members are also employee of GAS, a situation which could hinder their work and efficiency in both sectors.

Despite being given much training in the past, WUAs members still need specialised training to increase farm productivity. Therefore the content of training programmes requires consideration so as to provide further improvement according to needs.

The GAS engineering section should bear increased responsibility for water distribution together with WUAs and a reward system should be agreed that irrigation will only be applied to properly levelled fields free from mesquite and weeds and number of irrigation days/time need to be adjusted accordingly.

Simple devices are required to measure irrigation flow, cropped field, GPS etc. along with providing training to WUAs and field staff. This should make accurate measurement possible so that correct fees can be charged accordingly.

Tenancy fixing needs further work to eradicate duplication of ownership by a single person using multiple fake names etc. Moreover, tenancy fixation within misga is still pending. Failure to develop misga land by allottee should have reward and probation period to expedite the development process and smoothening of irrigation application.

### **Positive Aspects of WUAs**

Many farmers believe that they are better off than before and have received secure tenancy rights.

Farmers now feel more connected to their land and abode than when they followed the semi nomadic life pattern of landlessness before the project.

Farmers have found some of the training activities in the agriculture sector useful. They now have more choices to select various improved seeds and technologies. However, it needs further monitoring and evaluation to see the impact.

Farmers are ready to form marketing groups in order to get more profit through economies of scale.

Marketing can be carried out through the community development organizations or the WUAs

At some sites WUAs members work together with engineers and staff in water distribution aspects.

WUAs feel the importance of meeting as a forum for joint and collaborative activities in the future.

**Table 2: Assessment of WUA Performance for Year 2011**

<b>Criteria</b>	<b>Category A (the best)</b>	<b>Category B (the average)</b>	<b>Category C (the below average)</b>
<b>Allocation of land</b> <b>Organising Sub Groups</b> <b>Helping in Collection of Fees</b> <b>Holding of meetings</b>	Allocate 2-3 fed/ tenant No tenant is excluded from land allocation Actively participate in water spreading and bunding with WUA in the supervisory role Organize members into sub-groups (7 groups) during the flooding season The group leader collects the water and land fees and pays them to GAS They pay more than 80% of the water and land fees. The WUA committee holds 5-8 meetings They clean mesquite At least one woman in the WUA membership At least 2/3 of the Misga area cultivated.	Allocate 1-1.5 fed/ tenant as average over 2 years Cleaned mesquite but did not uproot it. Hold 3-4 meetings/ year No organization into smaller groups The rate of payment of water and land fees is 50% 50% of the Misga area is cultivated Weak mobilization during water spreading and for agriculture	Waiting for GAS or Government to do all operations for them. No cleaning of mesquite. Blocks inspector is working on the bunding. Usually leaders are of higher socio-economic standards or incompetent and illiterate. Usually the WUA committee is not renewed.
<b>Adaptation of Improved Sorghum</b>	Becoming High	Medium	Low
<b>Sub Groups for Crop Protection</b>	High	Medium	Low
<b>Land preparation before flood season</b>	High	Medium	Low
<b>Improvements</b>	Tenancy fixation access to credit	Awards for best performing WUA Exchange visits among WUAs Training	The GAS Director to mobilize to resolve this dependency behaviour.
<b>Role of Sheikh Al Misga</b>	Role focuses mainly on arbitration of conflicts with farmers who are at the tail end of the Misga WUA does most of the water spreading work	Sheikh Al Misga leading in the spreading and bunding	Sheikh Al Misga and Block Inspector in charge of spreading and bunding
<b>Concerned</b>	Kassala block: 1, 6, 11, 5	Kassala block: 7, 8,	Kassala block: 2,

<b>WUA</b>	(4/13), 3, 9, 13 Degain block: 4, 1, 16, 5, 8, 12, 13, 14, 15  Tendelai block: 1, 2, 3, 8, 4, 6, 7, 11  Mekali 4, 5, 6, 7, 20, 11, 16, 17, 20  Metateib 10, 11, 12, 13, 16, 18, 5, 14, 17, 9	12, 14, 4 Degain block: 19,10, 2, 7, 10, 11  Tendelai block: 13, 14, 19,10,12, 13, 14, 5, 15, 9  1, 2, 3, 6, 8, 9, 10, 13, 14, 18, 19, 21, 22, 24  7, 6, 15, 8	10 Degain block: 3, 6, 9, 17, 18  Tendelai: 16, 17 18 (WUA 18 has a water problem)  12, 23  1, 2, 3, 4
<b>Percentage 2011</b>	45.30%	37.8%	16.8%
<b>Percentage 2010</b>	30%	50%	20%

**Note:** Compiled from WUA Coordinator Team and CDO during mission in September 2011.

- Data for 2010 has been taken from Mr. Ian Report of July/August 2010
- In addition to previous years mission, WUA Coordination Office team has added three more indicators this year.

However, during meeting with Registrar Office following points were discussed to be included in future assessment:

- Regular meeting of WUAs and record/documentations
- Decision made during meetings and documentation and follow up
- Criteria of maintaining WUAs are followed including audit report and financial issues. Moreover, positive verification for in time and full fees paid through accountant/GAS is required.
- Results achieved through implementation of trainings such as income enhancements, skills used in positive ways, water, crop plan made and successfully completed. For example the level of increase in income should be specifically indicated from how much to how much.
- More monitoring and scientific information is needed for the technical side particularly for the irrigation system.
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## Land and Water Charges

The fee payment is evident from figures below, i.e. this year (till September) and previous years. Although farmers usually pay after the harvest, it is expected that the present rate of increase will surpass the figures of previous years. However, it needs further analysis in the shape of disaggregated data to fully know the picture of this year fee payment cumulative figure. This will be helpful to discuss in detail during meetings and support needed from WUAs to clarify and resolve related issues. Present figures show the capacity and willingness to pay fees is increasing in project area. The credit also goes to the ability to collect fees by GAS and WUAs. Still full responsibility of fee collection has not been transferred to WUA at block level and needs consideration from GAS as it will help to increase on time recovery and at the same time recognising the legitimacy of WUA among members.

Apex organization has pointed out that the promise to pay 10% for its services has not been fulfilled. Moreover, members are not fully aware of utilisation of these fee funds as it goes into joint account of GAS. GAS needs to discuss this issue at WUA level for transparency and confidence building. It has been mentioned in previous reports that transparent sharing of information about the funds and expenditures will help to increase the fee rate as members will be more confident in paying it.

**Table 3: Collection of Water Fees by Block in 2009 (based on SDG 22/fd)**

Kassala	Mekali	Degain	Tendelai	Metateib	Hadaliya*	Overall
218 078	200 998	123 532	205 653	123 885	27 424	899 570
84%	96%	45%	70%	81%	20%	69%

**Note:** \*Hadaliya Block has not yet benefitted from irrigation system rehabilitation

**Table 4: Collection of Water Fees by Block in 2011**

Block	Area Feddan	Fee SGD
Kassala	14006	223,996
Mekali	12659	175,390
Degain	11140	119,868
Tendelai	12140	184,788
Metateib	690	99,000
<b>Total</b>	<b>56,573</b>	<b>803,043</b>

## Requirements for Sustainability

### Institutional support to GAS – Engineering

In time, improvement of the irrigation system in terms of further widening and alignment of canals/sub canals and more intakes, de-silting, repair and maintenance are crucial aspects of project interventions. This would lead towards appropriate water distribution at field level and better planning in terms of sowing season and other preparation work. Presently engineering aspects of this scheme are mainly

dealt with conventional irrigation (perennial) approaches. During high floods canals are closed and water is allowed to drain downstream. When something goes wrong in canal during flood season then it takes more than 10 days to fix and thus flush flood utilization is reduced. The conventional approach of irrigation is to protect infrastructure from damage by flood water while the spate irrigation approach is to utilise floods in the best possible manner.

Following an agreement signed on June 2011 between GAS and MOIWR five engineers have been assigned on a temporary basis for all 6 blocks. They should be regularised in GAS, stay at Aroma and should be provided with full facilities for smooth work/output. Survey work is going to be started soon (September-October 2011) and design process during November 2011 to January 2012) and followed by tendering process before February and actual work is expected just after March 2011. The survey and plan for irrigation system improvement needs to be discussed and clarified with WUAs and APEX level WUA is the best option for this. A copy of such plan must be given to WUAs. Management needs to expedite the hiring process for a qualified spate irrigation engineering expatriate to support this work.

It has been discussed here about allocation and reallocation of water when it is less than normal flow and when it exceeds normal flow. Allocation process is somewhat different than distribution and needs further clarification from engineers. It needs allocation formula which will determine distribution formula in actual terms according to flood volume, area under first rotation and second rotation, flow distribution according to canal capacity and requirement at misga level. Here it is important to notice that this plan needs further work, clarification and dialogue between WUAs, GAS, agriculturists and engineering section. Engineers need to be acquainted with participatory approaches when working with farmers and associations. Agriculturists role comes in as field demonstrations are required to show optimal water application (and consumptive use) by practical means followed by cropping and harvesting (the impact). Farmers will only be convinced when fact, figures coupled with demonstration/ experiments are held with their involvement in local conditions. Proper record keeping of each irrigation turn is important to further re-plan for areas those could not be irrigated during first spate and thus will have priority next time. During flood season daily monitoring of flood flow capacity at different diversion/distribution needs to be monitored and further communicated through WUA Coordinator Team/Block Officer to WUAs and member.

Under previous rules of irrigation, area irrigated during first rotation or flood has to be excluded for immediate next flood. This was a better system than present when each misga needs to be irrigated fully and then water is released to next. The issue becomes serious during scarcity of water. Hence, it has been discussed with engineers and PCU that once canal network is completed then water need to be allocated to each canal and sub canal accordingly on the basis of its availability and not on the basis of land. This allocation is according to each flood volume. So water quantity and availability will determine how much land should be cultivated and not the vice versa. This is practiced in several other systems in the world. For this proper data about flow, distribution system capacity to discharge flow, and agreements with WUAs are needed. The availability of water will also determine how much irrigation in term of depth/height need to be applied to cover the given amount of land and which crops to be grown then accordingly. This approach also helps to save water in its use, encourage land levelling, clearing of weeds and unwanted vegetation etc. As far as land coverage is concerned member of WUA at misga level anyway distribute

land according to customary laws and has provision of land distribution on equity. Practically it means land within misga will be distributed in each season on its wetted area by WUAs itself. And this will vary accordingly at each misga and during the season.

Once all canals are aligned then it will be easier to estimate flow dynamics, distribution into sub canal and further at misga level. According to GRTU engineers will soon start survey work. Whatsoever initiatives are taken it is vital that WUAs be involved, especially Block and Apex level, for the viability and sustainability of the whole system.

### **Water Users Associations (WUAs)**

The project is near to completion and the irrigation system needs to be handed over to WUAs under an exit strategy. Presently this strategy is not consolidated and not fully known to WUAs at all levels. It is expected that part of operation and maintenance costs will be paid by farmers as needed, and technical support still will come from engineers which will include service charges. Increase in water/land fees will be required and for this WUAs should have the provision of their own joint saving fund. Efficient and reliable irrigation coupled with strengthening of WUAs will be advantageous to create this system in GAS. Moreover, formal WUA Coordination with stakeholders will help to acquire services from these ministries and departments.

Organizational aspects of Apex need further study and close consultation from WUA Coordinator, Registrar and CDO to help in election and re-election process and give them support and suggestions. Role of Apex in helping fee collection needs to be clarified and agreed with WUA block level and GAS management. WUAs at Apex level is suitable body to take care of smooth flood flow by policing the system throughout the flood season and for this coordination mechanism with engineers and WUAs is pre requisite. Accountability system (reward and punishment) needs to be introduced by WUAs for violation/breaching irrigation rights.

The recently commenced GIS system will be helpful in understanding the field situation and will serve as a planning tool for WUAs, GAS and other stakeholders. It is recommended that field staff, including engineers, participate in an orientation session explaining its benefits and utility. It will help WUAs to understand better the situation and bring transparency and accountability.

### **Recommendations:**

- Training section need to be based in GAS and its management should take responsibility to form a team as regular component. CDO, WUA Coordinator Office, and registrar should be involved in it.
- Continuous training would be the best strategy to further strengthen WUAs in the future. This should be demand driven as training needs are discussed by members, facilitated by staff during regular meetings and then coordinated with service providers.

- WUAs desire training in water management, better understanding of spate flows and its distribution system to cater for their needs effectively. Here the role of engineers having participatory approaches and spate irrigation experience is essential and training is needed for them.

- More emphasis should be placed on scaling up, based on present experience within the GASH scheme –

- a) Clear timeline for phasing out and handing over responsibilities,
- b) Active role of Apex by strengthening it,
- c) Communication system for flood alerts and tracking progress of flush flows from upstream to downstream and its planning accordingly.

- In the short term it is recommended that a report summary should be translated and a 1-2 days workshop is organised in which each and every relevant point should be considered for the formulation of a working plan to implement these steps. Outcome of workshop should include where we are standing now in terms of achievements and where more focus is needed in coming days based on priorities, time left and resources available. Based on this and other steps further planning is necessary.

- In the medium term the training section needs to work within GAS for sustainability, as ultimately the short term approach will be over. The training section within GAS can have role of Registrar, CDO, and technical professionals for training and strengthening purposes. Team will need training in data collection, basic planning, monitoring, evaluation, report writing and participatory approaches.

1. Staff need exposure to other countries using the spate irrigation system. Spate Irrigation Network and UNESCO IHE could be organizations to discuss further.
2. Meetings between WUAs and Engineers in GAP are needed for more coordination.
3. For the future program, internal exposure for farmers and staff can be done to taken Delta experience in managing mesquite (Model project SPCR).
4. Training modules have been improved by adding new information and some additional work is also prepared. It also includes water sharing plan, irrigation plan, crop plan, maintenance plan, repair plan and several other important steps which need to be followed by training team and based on these plans further planning is recommended.
5. Several sections are working independently and performing their individual roles. There is the need for better coordination, information flow and joint planning to achieve desired results and for thus monthly/bimonthly coordination meetings are required.
6. As the project will end, serious thought is needed for its further extension with the help of donors or National and State governments and links and relevancies need to be considered to approach Global Environment Facility (GEF)/UNDP, as GEF/UNDP projects in Pakistan include spate irrigation as part of climate change

and land degradation issues.

All facts needs to be seen by DG GAS and a Training Unit should be part of GAS for sustainability as CTT and such other arrangements are not permanent. CDO and Registrar should also be involved in coordination of training activities

**WORK PLAN**

ACTIVITIES	TIME FRAME												RESPONSIBILITY
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	
Translation of Report Summary													
Revise criteria of WUA for Assessment													
Training of Apex Level													
Training of Sub Groups													
Visits and Meeting with WUAs													
Planning sessions with WUAs													
Demonstration of Activities at Filed													
Linkages with Women Groups to see their savings													
MoU between GAS and WUAs													
Monthly planning, coordination and monitoring meetings at office													
Assessment of WUAs													
Exit Strategy													
Land Tenancy Fixation													

### Work Plan

ACTIVITIES	TIME FRAME												RESPONSIBILITY
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	
Translation of Proposed and revised training material													
Revision and finalization of Training material													
Coordination with Field Staff for training events													
Training implementation													
Monitoring and follow up visits													
Demonstration and Experiments													
Follow up Visits													

**WORK PLAN TRAINING ENGINEERS**

ACTIVITIES	TIME FRAME												RESPONSIBILITY
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	
Translation of Proposed and revised training material													
Revision and finalization of Training material													
Coordination with Field Staff for training events													
Training implementation													
Monitoring and follow up visits													
Installation of Measuring Devices													
Water Allocation Plan Preparation													
Water Allocation Plan implementation													