

Do's and don'ts in spate irrigation management: the case of Rod-e-Kanwanh

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The document below comes from the land settlement in Teshil (subdistrict) Sanghar in Dera Ghazi Khan district in Pakistan. It describes the water rights and agreed water management practices on the Kawanh spate river (Rod-e-Kanwanh). The practices were documented in the shape of do's and don'ts during the settlement of 1918/1919

The Kawanh spate river/ torrent originates from the Neilak and Qaisrani Mountains - that are part of the Suleiman Range. The hill torrent is fed by two branches. Water from northern branch is sweet and the water from the southern branch is characterized as 'bitter' - the reason is the alkaloid soil in this part of the mountain range. quality. The two branches join for the first time at a location called 'doo-mail'. The river is braided and the stream join again 1.5 kilometer downstream of the doo-mail at the Rod-e-Kanwanh darra (pass).

There is no perennial spring in side the torrent. All flow depends upon rainfall in the mountain catchment only. The spate flow goes to the mouza (village) of Kot Qasirani, Birot Mandvani and others. The total length of the river is approximately 35 kilometer in east-westerly direction. Usually water flows in Rod-e-Kanwanh at the end of month of 'haar' (June-July) and August. Most water usually comes in August. Lands located inside the mountain zones (called 'kachhi') is also irrigated through this torrent. When water comes out of pass, a large bund is built within of 300 meters from the pass. The bund or 'ghand' is constructed across the river bed in south-north direction. The name of the ghand is Koharwali.

Two groups are entitled to water from the Koharwali Bund. They jointly undertake the works required to maintain the structures. This common effort is called 'kamara'. The work is equally divided between these two groups - Sharnanai and Waswani. The flood channels that branches off from Koharwali irrigates land up to a field called 'Kohar Sharnanai Wala number 16'. When irrigation is done up to this field, Ghand Koharwali is breached according to the agreed water rights system.

Subsequently the water of the Kanwanh flows in two passages. Half of the water goes to the northern part of the torrent and remaining half flows in southern portion of same torrent. To distribute this water a common distribution (called wanda) is made with the consent of land owners on the southern and northern branch is made The site is selected jointly and 'kamara' work is shared equally . There are 10 branches on southern side of torrent and 14 branches on northern side.

Do's and don'ts

The following 'Riwaj- Aam' (general practices) apply to the management of the spate water of the Rod-e-Kawanh and related sub torrents in Mouza Kot Qaisrani, according to settlement of 1918-19. They give a detailed account of the do's and don'ts with respect to the construction of structures, the distribution of water and the organization of work. They were co-signed by the settlement officer and the leaders of the main villages. They are translated below.

	Subject	Question	Answer
1	Ghand (bund)	In case a constructed Ghand has been broken, can the owners reconstruct it or not?	Surely - owners can reconstruct their bund. It is not forbidden
2		The specified site of the Ghand can it be changed or not?	Surely - with mutual consent the site can be changed
3		What practice applies when a channel (flood channel), which was flowing without constructing a Ghand, can no longer flow without it <i>or</i> when a channel previously commanded by a Ghand, can now flow without it?	No channel bigger than the bund can be constructed. If the bund is smaller than the channel and water flows automatically then Ghand is not needed. The passage will remain open so that channel can flow naturally
4	Wakra (diversion structures in flood channels)	Is ownership of the flood channel based on ownership of the adjacent fields or of the wakra?	The ownership is based on the adjacent fields. The wakra is not considered.
5		Who owns the trees inside wakra or flood channel or on the flood channel boundary?	- as above -
6		When a land owner cultivates land on the flood diversion structure, what can he do if during a second irrigation this land is damaged?	The land owner can't do anything. A second irrigation may cause damage but so be it..
7		One flood diversion structure serves several fields. Does the area inbetween two diversion structures belong to one field or to all? Cultivation of the flood channel bed and ownership of trees is shared or not.	If fields are irrigated from the same inlet, then all land owners share ownership. If fields are placed one after the other along the channels, then ownership is on the basis of field embankments alongside the channel. The same applies to the cultivation and ownership of trees.

8		A diversion structure should be constructed on one's own land or can others land be used as well?	There is no difference of own or other land. Wherever most suitable a diversion structure can be constructed there
9		In case the site where a diversion structure is constructed incase is no longer suitable, can the location be changed then?	No doubt. The site can be changed.
10		Can a field be supplied by more than one diversion structure?	This is not possible.
11		When a diversion structure has been washed away during irrigation, is it allowed to construct a new diversion although water is already reaching other fields?	If possible a diversion structure should be constructed at that time. A wakra owner has a right not to care the other's field irrigation
12		Who will maintain and strengthen both side banks in the area between two diversion structures? The owner of same field facing the bank or all water users on this stretch?	Strengthening the banks of flood channels is the responsibility of the concerned individual land owner.
13		Who is responsible to construct or repair the flood embankments close to a main bund (ghanda) - as the risk of breaching or damage is larger. Are the adjacent land woners responsible or all water users that depend on the ghanda.	To maintain this site is the responsibility of all users of the ghanda
14		After filling his own field a land owner delays breaching his diversion structure. Meanwhile a nearby field is destroyed: who is responsible?	Such loss will be met from the person who did not breach the diversion structure in time
15	Water allocation in the plains (pachhad)	What is the water distribution system?	Water system is Sar-paand. It starts from the head and tehn goes to the tail.

16		When after a first irrigation the upstream are watered, but the downstream fields are not irrigated sufficiently - who will be entitled to the second flow: the upstream areas which was sufficiently irrigated or the down fields that were not irrigated enough?	Incase of need upstream field always take precedence. In case there is no need then tail-end areas have rights
17		Is there limit for repeatedly irrigation of upstream field(s) - on how deep the upstream fields are filled, before water is pass to the downstream areas?	There is no limit. It depends upon.
18		Is a field filled for 'Rej' once or more times ?	Usually Rej fields are irrigated once but for wheat cultivation it can be irrigated twice.
19	Water distribution	How is the distribution of water done?	On the middle of the distribution point a lathh (embankment) or a batala (hurdle) is constructed and water is distributed according to capacity
20		In case the distribution of water is inequally distributed, will it be compensated on the second flow?	As much as possible the distribution is correctly performed in the first place, but if not compensation is made on second flow
21		If water distribution was insufficient during the first floods will it be possible to change the distribution of water to the tail	No - it is not possible
22		In case water distribution structures have been destroyed is it possible to change the location if these structures?	If required, the location of the distribution point may change
23		Is it possible to construct a new branch canal (flood channel/flood channeli)? In case it is possible how much will the new flood channel receive? According to the land ownership or new method can	No body has right to construct new branch/flood channel/flood channeli that deviates from the prevailing situation. However, in case the passage has changed naturally then a new flood channel can be constructed,

		be applied?	provided the earlier flood channel is completely damaged.
24	Changes in mouth of flood channel/flood channeli	When the head of flood channel is disturbed, is it possible to change the site with consensus of water users or will it depend only on owner of the section of the flood channel?	If required, the head of the flood channel can be changed with the consensus of the users
25		Is it possible to change the head of a flood channel, if it has deepened and risks depriving other areas of water?	In this case the flood channel can be changed and brought in accordance with the water requirements from the bund.
26	Compensation of land came under flood channel	Will a land owner be compensated, if his land is used for the construction of a new flood channel or the course of a flood channel has changed naturally and occupied his land? On what basis? Cash or in kind?	No body can construct a new flood channel, unless exception such as rule 22 apply. If the land owner is a share holder in the new channel, he will not be compensated. Otherwise he will be compensated by an equal share of land
27	Water rights	If field(s) remain barren for long period then does the right to irrigation remains valid or not?	The right of irrigation (peeche) of barren field(s) remains valid
28		If some one develops barren land for the first time then how much water he will get? Will it be considered, as a separate land or some other law will be applied?	Initially no one can irrigate A newly developed field of barren land. However, a fixed size of land (minimum) attached with older field can be irrigated together
29		A farmer that irrigated his field from a flood channel is forced to take water from another channel by favor or otherwise, because his earlier channel was destroyed. Can he at one stage again take water from his original flood channel ?	The owner has the right to irrigate field from his original flood channel
30		When owner irrigates field from other than his original flood channel then will he take water from both flood channel at the same time Or the other	Water can be taken from both flood channel. He will take water from original flood channel

		share holders of original flood channel will have objection to it?	
31		Can any body sell or donate water of his flood channel to another or not?	No body can sell his share of water nor he can donate
32		Is it possible that one person can take his turn of water from one field to another one	No body has a right to divert water of one field to other field
33		When a person sells his land then do water rights stand automatically transferred too?	In land transactions no doubt water is transferred (sold) as well
34		One wakra irrigates two fields. One field has a higher intake and a second has a intake. In this situation who has the first right to irrigate?	Water will be applied first to higher land.
35		Is there any rule of taking and giving water as privilege?	We don't have system of taking and giving water in our spate system by privilege.
36	Silting up of lands	Is it possible to silt up a field with water from the flood channels - i.e. water entering from one side and again drained from the other side of field, where it joins the same section of the flood channel	No such system/practice is in place.
37	Distribution of common work (kamara)	The distribution of Kamara Ghand and wakra is based on attached area or cumulative area?	We usually distribute the common work on shares of land but in Kot Qaisrani kamara is performed on the basis of area of land
38		When one field is irrigated from two flood channels then will the land owner contribute in the kamara at the bigger flood channel or will he give half his share to both flood channel?	In this area no such land exists.
39		How shareholders take part in kamara? Through DIQ or SOHR?	Usually kamara is performed on DIQ but can be performed with SOHR with consensus also
40		When one shareholder does not contribute in the common labour during the specific	The defaulter shareholder will not get right of water in the current year. In case he wants to

		period, is it possible that he can take water after giving his share of kamara later?	contribute in future then first he will have the compensate the previous year costs of common labour and also a fine of eight days
41		Upon the first flood some fields were irrigated from the bund, but others were not. Meanwhile the bund was washed away. Will land owners whose land was already irrigated contribute to the common labor for the construction of bund for a second time?	All shareholders will take part in construction of ghand and no one can abstain. If those whose fields were irrigated from first flow, don't take part in Kamar then will be fined Rs. ¼ per pair of oxen on daily basis.
42		One field has several shareholder/owners and one of these shareholder has not taken part in the common labour. In this case what is the practice to deal with him?	The defaulter will not cultivate his land in that season. He can take share of produce from his land only as per practice.
43		Is the common work for the bund or the cleaning of flood channel the responsibility of owner or tenant?	The tenant is responsible - not the owner.
44		Does the common labor/kamara also apply to owners of fields that are irrigated by natural flow (after the ghand has been broken naturally or purposely)?	Such owners are not included in the common labor.
45		If one field has four embankments (Gaan), will the landowners take part in kamara according to size of four embankments or on one?	He will take part on the basis of one field and embankments have nothing to do with it
46		Who is responsible for damage to public roads, caused by spate rivers.	The government will get such damaged repaired and will pay the required wages
47		Will landowners whose fields are irrigated through overflow (chal) and not through bunds and embankments take part in the kamara?	Such owners are not taking part in kamara
48		Those fields situated in the	There is no as such situation here

		bed of torrent in the shape of islands and water reaches there automatically whether these owners will also take part in Kamara?	
49	Runoff water (Dagar)	Which fields have the right of runoff water coming from barren lands?	Old fields have right
50		If a landowner want to develop barren land which is on the path of run-off/ sheet flows, can he do this or not.	Any land owner has the right to develop barren land but wil have to leave a flow passage for the field which is irrigated through runoff
51	Engagement of specialized contractor	Is there a specialized contractor to implement the spate irrigation works? If so how is he remunerated?	There is no such contractor
52		Which duties does the contractor have?	There is no such contractor
53		The hiring and firing of constructor is by shareholders or government does have some interventions?	There is no such contractor
54	Filling of water tanks situated in this area	Is there any tank, pucca or katcha, government owned, privately owned in the command area of the spate system? If so then how are these tanks filled? As field are filled or on a special priority basis?	Tanks are filled on the same lines as fields are filled
55	Trees	What types of trees occur in the command area - do they generate some income or not?	There are ber, kareen, lai, tolha, jal, phog. No monetary income is derived
56	Fine on loss on damage to fields	Are fines imposed on persons that intentionally destroy a bunded field filled with water? What is the rate of loss compensation?	When a person intentionally destroy the water then according to common loss is recovered both for the loss of water and the destruction of the field
57	Persian wheels	In case of perennial flow - is it possible to install a Persian wheel or water retention structure??	There is no perennial flow.
58	Land erosion	If a land owner has lost field/land due to erosion, yet it	On reappearance of eroded land, the rights are vested with the

		has again appeared, will the original owner will have right to this land or the land owner who faces this land? Is there a system of concession by the government?	original owner. The government has no system of concession.
59		When eroded land has reappeared, but it is more than its original size, will the original owners be sole owner or only according to his original size?	The original owners will have the right exactly equal to his eroded land. The remaining land will be handed over to other owners
60		Can any land owner lay claim to the land of the river bed adjacent to his fields? If he still does what penalties do apply?	No body can expand his land by encroaching the river bed.
61	Ownership of disused flood channels	If a flood channel is no longer operational, who can lay claim to the land?	Ownership of such flood channel can be calimed by land owners of adjacent fields
62	Water rights of broken field	When field is broken toward other side then is it possible that lower level field can break himself that field towards his direction on a separate site?	In such situation he can break the field toward his field direction and breaking person is responsible for the construction of embankments. However, in village Buzdar shareholder say that such embankment will be repaired/constructed by the owners themselves.
63	Filling of unauthorized field through usual procedures	One owner has two fields adjacent to each other, The middle embankment is same. Each field is irrigated by a different flood channel. If the owner combines both fields and removes the central embankment, how will he irrigate the combined field.	The owner has right to irrigate from any one flood channel at a time, but he cannot irrigate the field from both flood channels.

Note verification of Owners

We have listened the entry (documentation) of irrigation rights. We have found the map according to situation and our present practice is according to it. The sources of Rod-e-Kohi are often changed. Incase water flow has changed it passage then it will be not possible to follow this index and map exactly and as such. Due to change in the direction of torrent the sources are also changed from time to time. The Deputy Commissioner

Sahib has a right to issue an order for cutting and stopping any Ghnad/Ghanda where found appropriate under minor canal act so that righteous (shareholders) people can irrigate their lands.

Signature from Mouza Kot Qasirani

Signature from Mouza Pookhan

Signature from Mouza Chapri

Signature from Mouza village Buzdar

Signature from Mouza Birot Mandwani

Signature from Mouza Dona

Signature from Mouza Nari

Note verified by Dewan Maheedaas sahib, Tehsildar Settlements Sanghar

I have verified the entry (documentation) of respective irrigation file in the presence of owners and other relateds (stakeholders). I am satisfied that entry of respective file is rightly according to action and location. Therefore, I prove this certificate.

Signature (in English)

Stamped

In the presents of Sheikh sahib Sheikh Khusthid Ahmad Saihb Bhadar MA Extra Assistant commissioner,

district DG Khan

Riwajat (practices) irrigation pertaining to legal settlement are verified in the from of file irrigation. Since then and till now nature has brought changes or stakeholders have agreed and distributed or present rulers have felt necessary and accordingly. These have been verified Mouza wise and torrent wise under the minor canals act in the current settlement. Entries of irrigation file have been recited in the presence of owners and verified. Therefore, it is ordered to submit a copy at district level and another copy at Tehsil level.

Signature (in English)