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Spate water rights and distribution rules

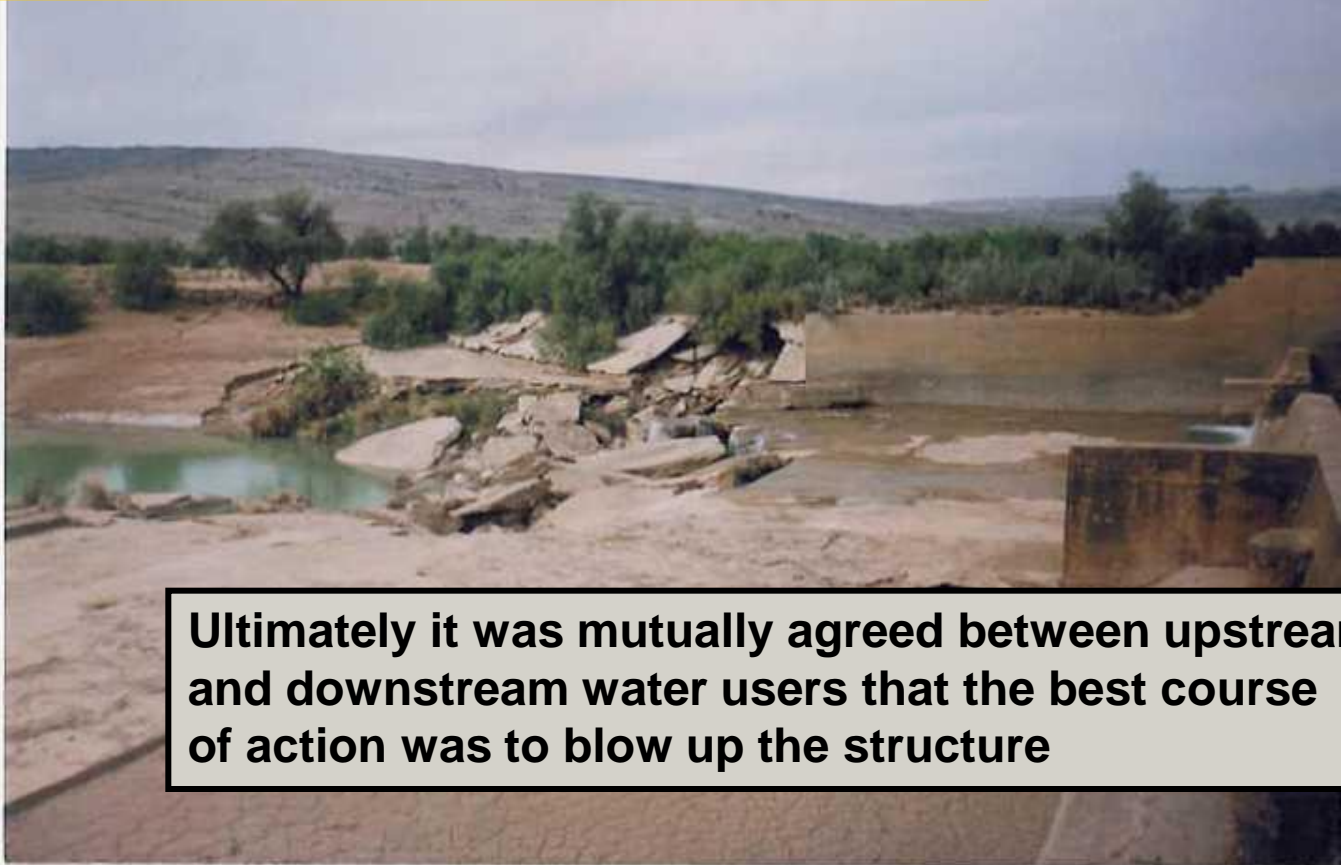


This is Anambar Weir, Balochistan (Pakistan)

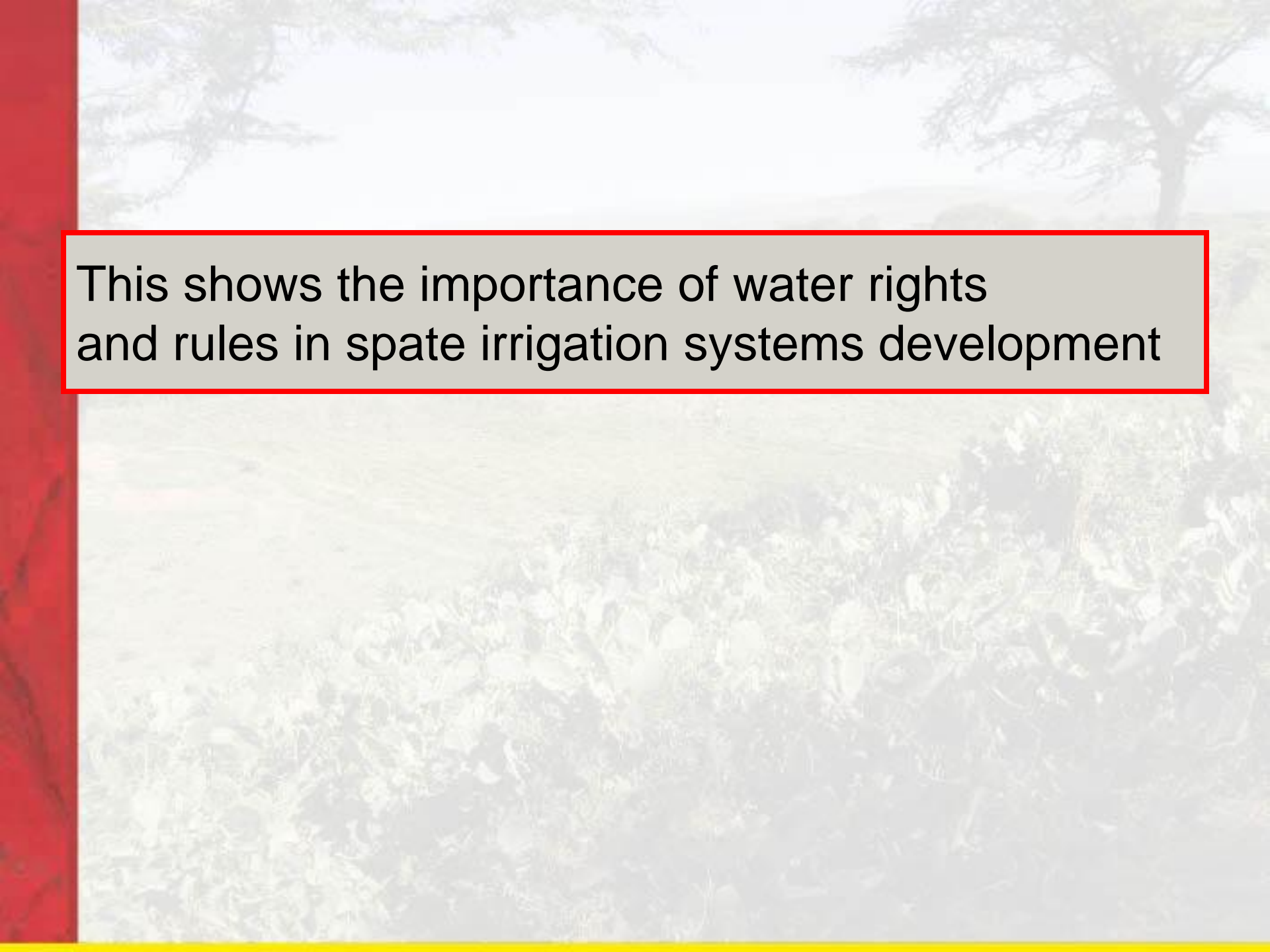


What happened here?

This newly constructed weir interfered with the water rights of the downstream landowners



Ultimately it was mutually agreed between upstream and downstream water users that the best course of action was to blow up the structure



This shows the importance of water rights and rules in spate irrigation systems development

Water rights and rules in spate irrigation systems ...

- Create predicatability and equity, as such
 - Encourages land preparation and
 - Facilitates cooperation in maintenance
- Are reactive – in other words they deal with situations that are every time different
 - Floods are different every year
 - In the long run there are changes to river bed and level of land that need to be dealt with
- Usually not all rules are described in detail
 - “many of the disputes seem to lie dormant, though not forgotten...they can spring to vigorous life with some new turn of circumstances” (Sergeant 1980)
- For this reason it is not easy to deal with water rights in developing spate systems – if you change the capacity to control the floods the water distribution rules will change as well



**Sons of large landlords
in Wadi Zabid, Yemen**

**When there are large differences in landholdings,
there tends to be more inequity and disregard of
agreed water distribution rules**

There are several categories of water distribution rules in spate irrigation systems:

1. Demarcation of land entitled to irrigation
2. Rules on breaking of diversion bunds
3. Proportion of flow going to different flood channels and fields
4. Sequence in which fields along a channel are watered
5. Depth of irrigation that each field is to receive
6. Rules on second and third water turns
7. Special preference rules
8. Rules on small and big floods

Usually there is a combination of some of these rules

In addition there are several other related rules that regulate changes in the command area and the shape of the system:

1. Rules on maintenance of bunds and field boundaries
2. Rules on adjusting the location of intakes
3. Rules on manipulating the bed of rivers and flood channel (scour and siltation)
4. Compensation for lost land

Rules on demarcation of command area

- Define which areas is allowed to be irrigated
- Protect existing areas against new land development upstream
- Ensure that 'overspill areas' do not develop into new areas
- In some systems there are even rules that put penalties on neglecting the maintenance of bunds as this would cause floods to escape to other areas
- In some systems there are 'sanctioned' overspill areas – excessive floods are allowed to escape at predetermined points



**Disputed new area development in
Sheeb Kateen in Wadi Laba, Eritrea**

DEMARICATION RULES ARE IMPORTANT BECAUSE THEY DEFINE THE SIZE OF THE IRRIGATED LAND IN COMPARISON TO THE AMOUNT OF WATER AND HENCE THE LIKELIHOOD OF SECOND AND THIRD IRRIGATION TURNS

Rules on breaking of diversion bunds

or timing of water rights

- Especially where traditional bunds block the entire rivers, rules may be in place on the breaking of these bunds

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Rules on flow division

- Determine the proportion of water going to different channels
- Often rather simple structures – using brushwood to adjust
- In many cases a large degree of flexibility to adjust to changing bed levels and variations in the flow
- Sometimes when floods are small all the flood is directed to one channel – if flood is large spread over several channels



Sequence rules

- Order in which fields are irrigated
- Sometimes also dependent on flood level – some higher areas only served by larger floods
- Most common head-to-tail: ‘ala’ala fala’ala’ or ‘rada’ah’ (Yemen) or ‘saroba paina’ or ‘numberwar’ (Pakistan)
- In some areas however priority for downstream areas

Rules on depth of irrigation

- Depth of irrigation - related to height of field bund
- Common in systems with field to field irrigation
- Ruling of Prophet Mohammed PBUH – amount of flow should be ‘two ankles deep’
- Height of bund also related to:
 - Crop: sorghum requires less water – lower field bund
 - Location in the system – tail end areas usually depend on one flood only, and field bunds are usually higher



Rules on second or third irrigation turns

- Common in spate systems that receive several floods:
 - Either new flood start from head again
 - Or new flood start from areas that were not yet irrigated
- The degree to which the rules are applied depends on the timing and size of the second floods
 - If too small may not reach tail areas
 - If too late may damage standing crops or brings pests and diseases

Special preference rules

- Special preference for high value crops or important food crops, for instance mango (Wadi Siham) or red sorghum (Tuban) or wheat (Rod Kanwah, Pakistan)



Rules on large and small floods

Example Wadi Tuban:

- **When spate is small to upstream command area**
- **When spate is medium-sized to middle command area**
- **When spate is large to either one of the tail command areas**
- **When spate is very large to both tail command areas**

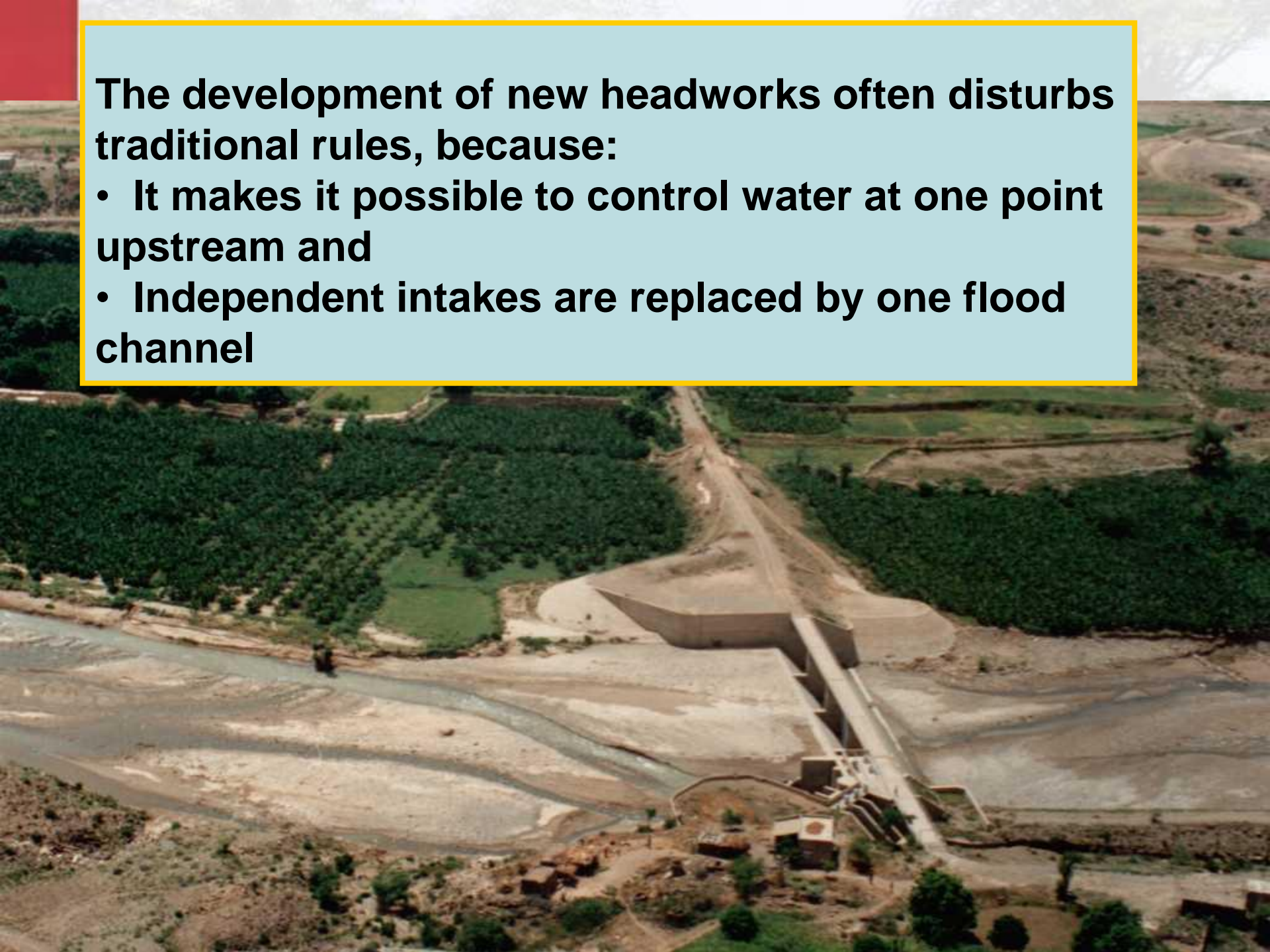


SPATE WATER RIGHTS AND RULES

- It is important to look at the effect of improving the spate irrigation system on the traditional water rights and rules
- It is important to register water rights and water distribution rules, as this creates more predictability and reduces the chance of power games

The development of new headworks often disturbs traditional rules, because:

- It makes it possible to control water at one point upstream and**
- Independent intakes are replaced by one flood channel**



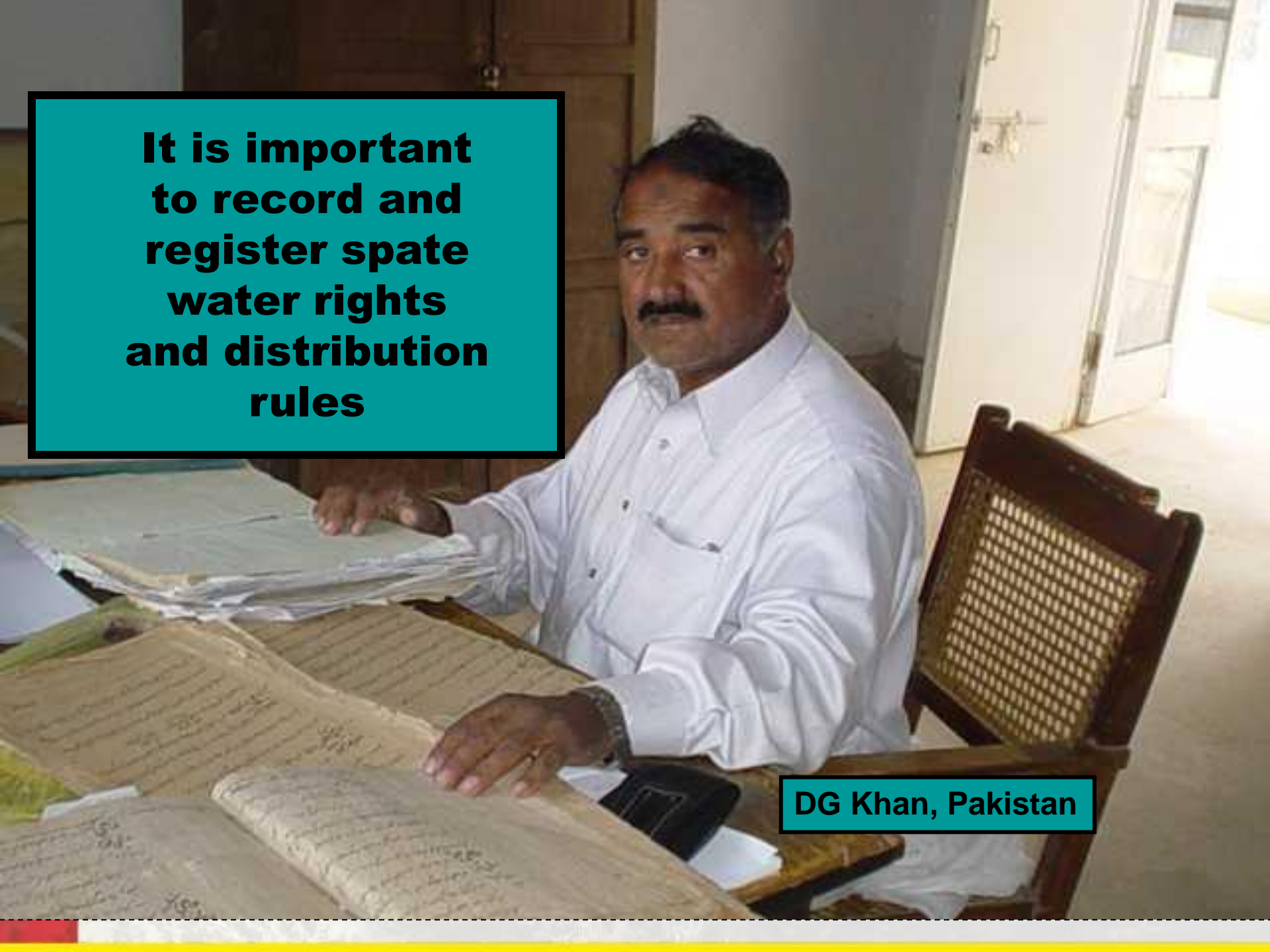
Sometimes new agreements are made on water rights after the improvement.

However, when there is no strong local organization and there is a lot of inequity, these new rules may not be respected.

Often it is better to improve traditional systems rather than building new structures



**It is important
to record and
register spate
water rights
and distribution
rules**



DG Khan, Pakistan

**To avoid conflicts
and powerplay**

**Local tax
official
administers
water
distribution**

**Water rights recorded
in 1872 still used daily**

**In enforcing water rules
it is often useful if this
done with the local
government**



IN FACT THE SYSTEM OF CO-MANAGEMENT BY LOCAL GOVERNMENT AND FARMERS AS EXISTED IN PAKISTAN WAS A 'BEST PRACTICE'



Vehoa Records
of 1901