Great Expectations

Managing the Challenges of Irrigation Rehabilitation

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Qinghai Rural Water Resources Management Project

- Background
- Local Livelihoods
- Design, Quality and Appropriateness of Infrastructure
- Institutional Environment
- Management Arrangements
- Subsistence or commercial agriculture
- Future trends
- Critical considerations

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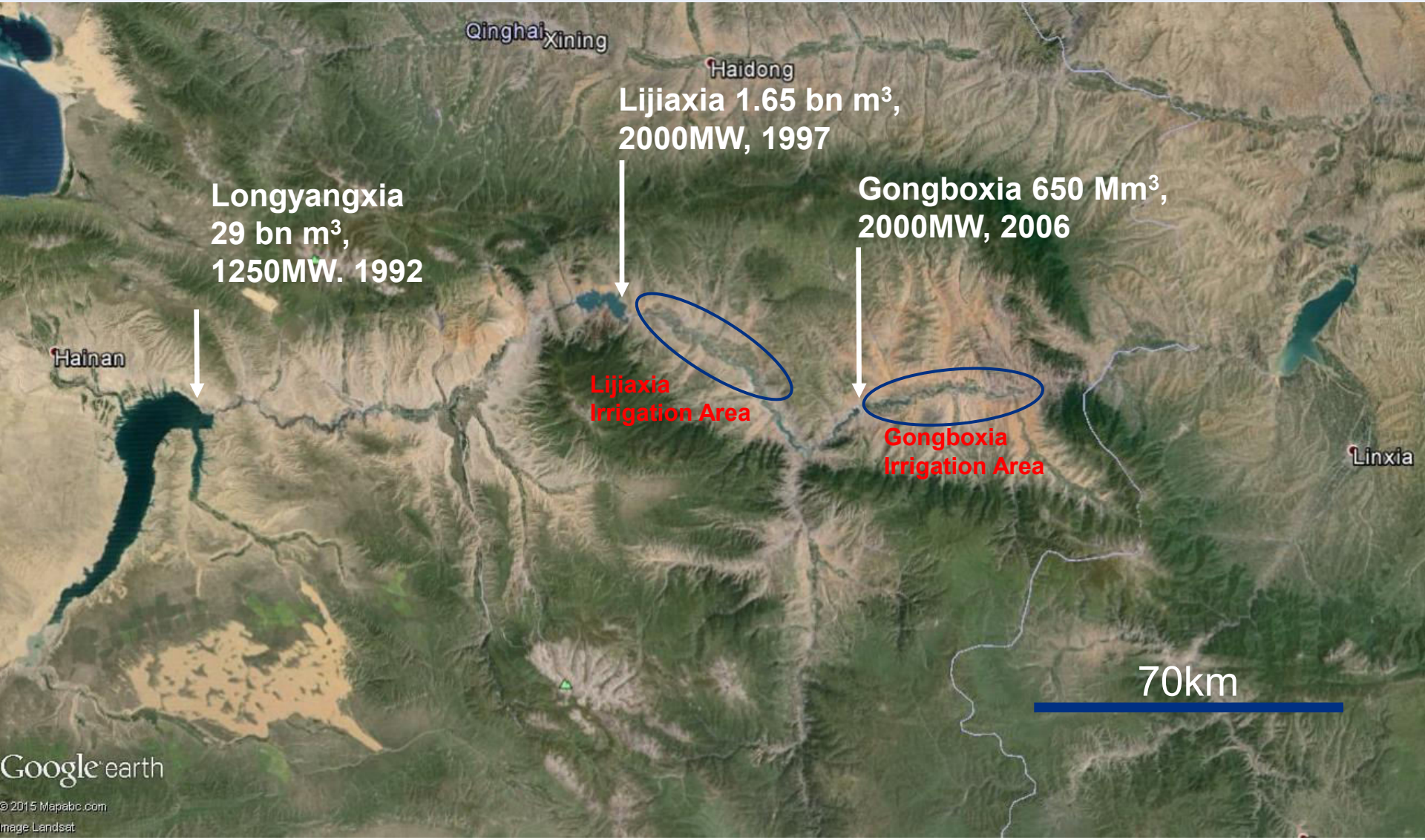
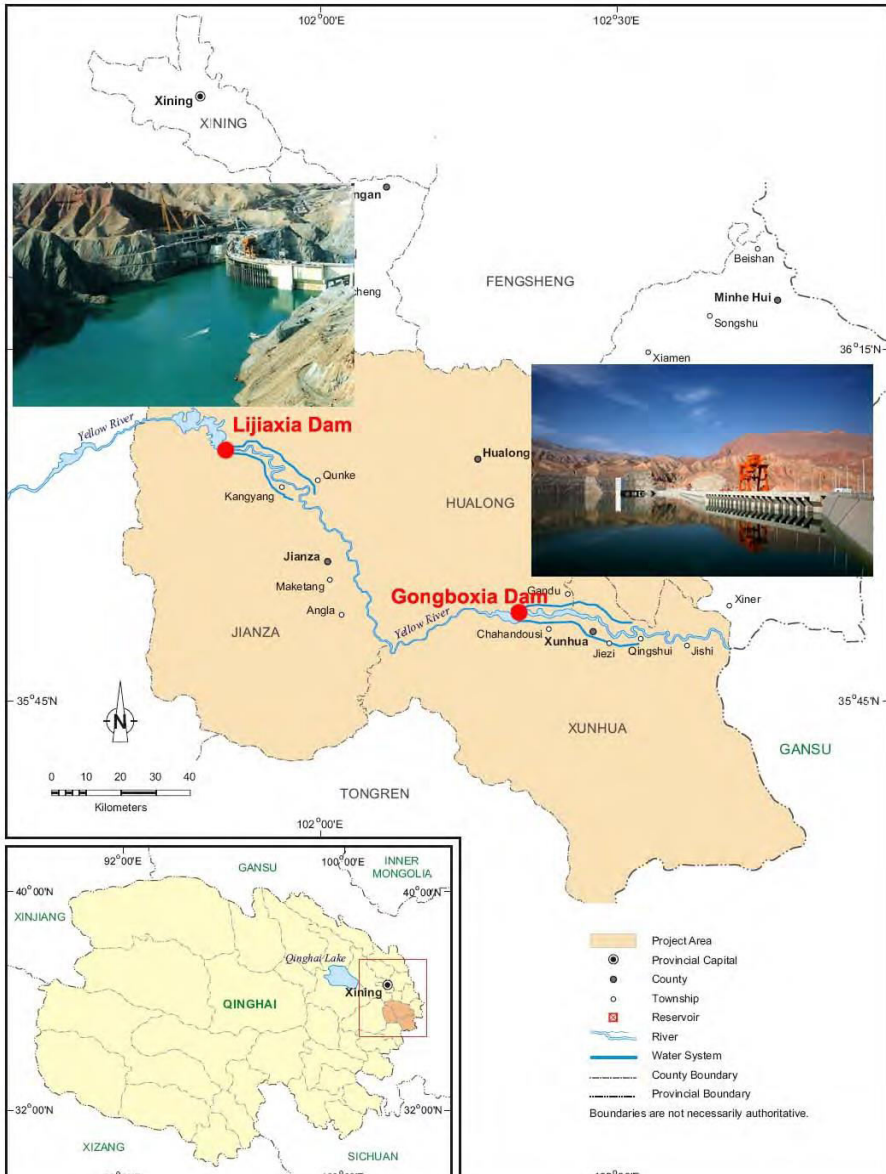
Qinghai
Yellow River
RUSSIA
KAZAKHSTAN
MONGOLIA
CHINA
INDIA
NEPAL
BHUTAN
BANGLADESH
BURMA
LAOS
TAIWAN
JAPAN
NORTH KOREA
SOUTH KOREA
KYRGYZSTAN
TAJIKISTAN
Astana
Qaraghandy (Karaganda)
Novosibirsk
Irkutsk
Lake Baikal
Khabarovsk
Harbin
Changchun
Shenyang
Ulaanbaatar
ALTAY MTS.
GOBI DESERT
DA HINGGAN LING
MANCHURIAN PLAIN
SIKHOTE-ALIN
Aral Sea
Lake Balkhash
Almaty
Bishkek
Tashkent
Dushanbe
Kashi
Ürümqi
TIEN SHAN
TAKLA MAKAN DESERT
KUNLUN MOUNTAINS
Indian claim
Line of Control
Chinese line of control
Kabul
Islāmābād
Quetta
Lahore
New Delhi
Jaipur
Lucknow
Kānpur
Ahmadābād
Surat
Mumbai (Bombay)
Pune
Nagpur
Hyderābād
DECCAN
EASTERN GHATS
QING ZANG GAOYUAN
Mt. Everest
(highest point in the world, 8850 m)
HIMALAYAS
Lhasa
Kāthmāndu
Thimphu
Dhaka
Kolkata (Calcutta)
Chittagong
Mandalay
Rangoon
HENGDUAN SHAN
Lanzhou
Baotou
Beijing
Tianjin
Jinan
Taiyuan
Xi'an
Zhengzhou
Nanjing
Shanghai
Wuhan
Hangzhou
Chengdu
Chongqing
Changsha
Nanchang
Guiyang
Kunming
Guangzhou
Nanning
Hong Kong S.A.R.
Macau S.A.R.
Hanoi
Haiphong
Vientiane
Hue
Hainan Dao
Taipei
Dalian
Qingdao
P'yongyang
Seoul
Pusan
Demarcation Line
Yellow Sea
East China Sea
Okinawa
Luzon
Manila
South
Vladivos
Sea o
Tropic
THAILAND

Yellow River In Qinghai



Irrigation systems

- Gongboxia/Lijiaxia
  - Ample water in Yellow River, much hydropower
  - 12,000 ha, mostly wheat, mostly pumped (up to 100m lift)
  - Old pumped systems built 1960s – 2010s
- Agriculture
  - Marginal – high altitude, cold, low yields
  - Scope for diversification
- Social
  - High poverty incidence
  - Minority groups – Salar, Tibetan, Hui
- Irrigation
  - High capital cost
  - Need to increase area and diversify to justify investment
  - Avoid pumping cost and maintenance, but other challenges
  - Objective to reduce poverty



Old systems

New canal

Livelihoods

- Few can survive on cereal crop cultivation. Most households rely on remittances, rural-urban migration, and off farm employment
- Very small land holdings, but lots of abandoned land – can't afford to pump water
- Can high value agriculture be developed by smallholders?
- Some consolidation and commercial development (esp for chillies and vegetables) – but risk that landholders will just be employed as casual labourers
- *But* - is agriculture sustainable if smallholders do not remain dominant population?

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Diversified cropping

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Diversification, intensification and commercialisation

- Vegetables, chillies, livestock, walnuts – for sale in Xining and Lanzhou – roads now good
- Investment costs, subsidies but only relatively rich can access
- Poor need off-farm employment so don't have time for intensive agriculture
- Most crops marginal, but remember food security (and quality) considerations

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Infrastructure

- Infrastructure should be
  - Planned jointly with management arrangements
  - Simple but appropriate
  - Flexible and adaptable to changing requirements
  - Manageable by users

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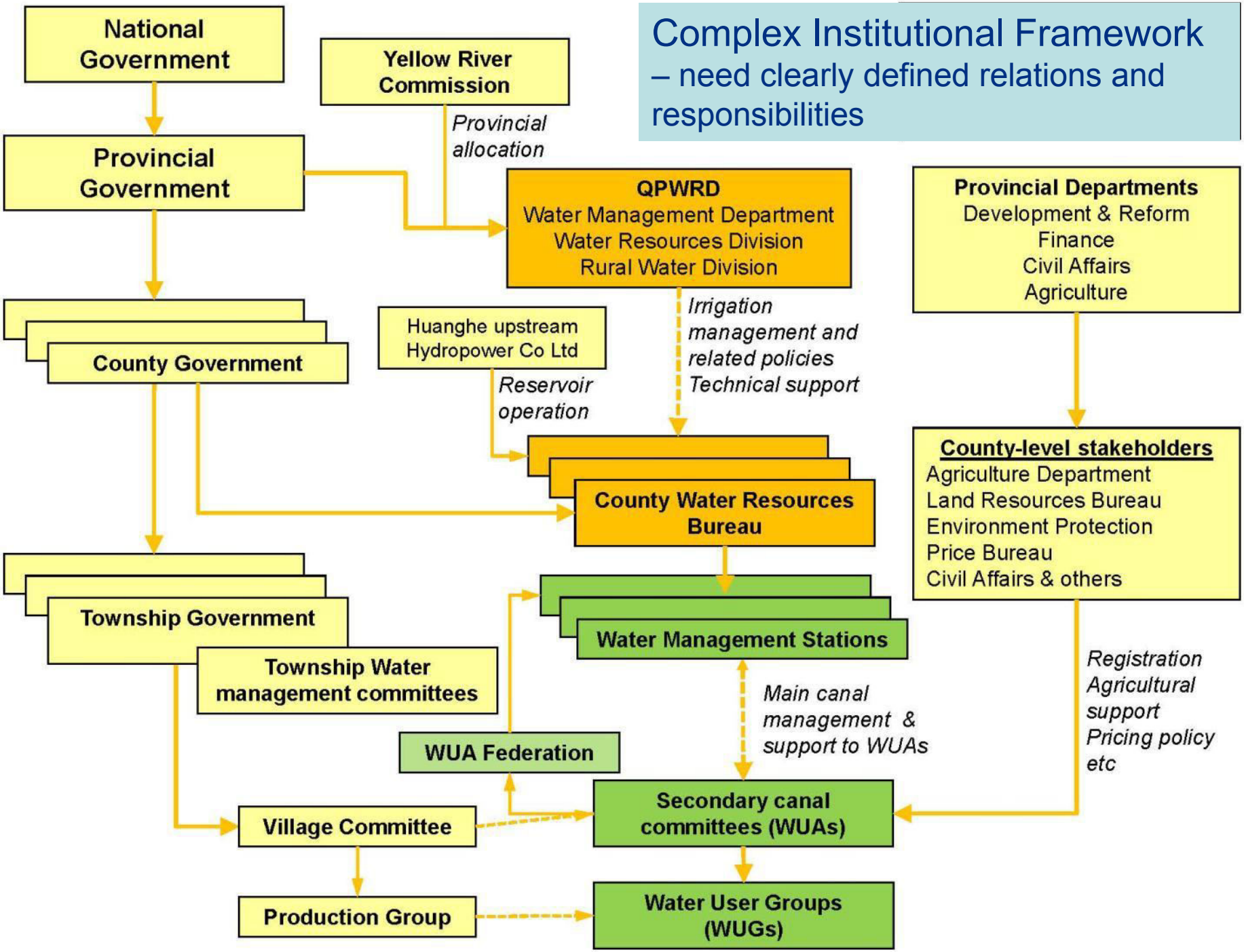
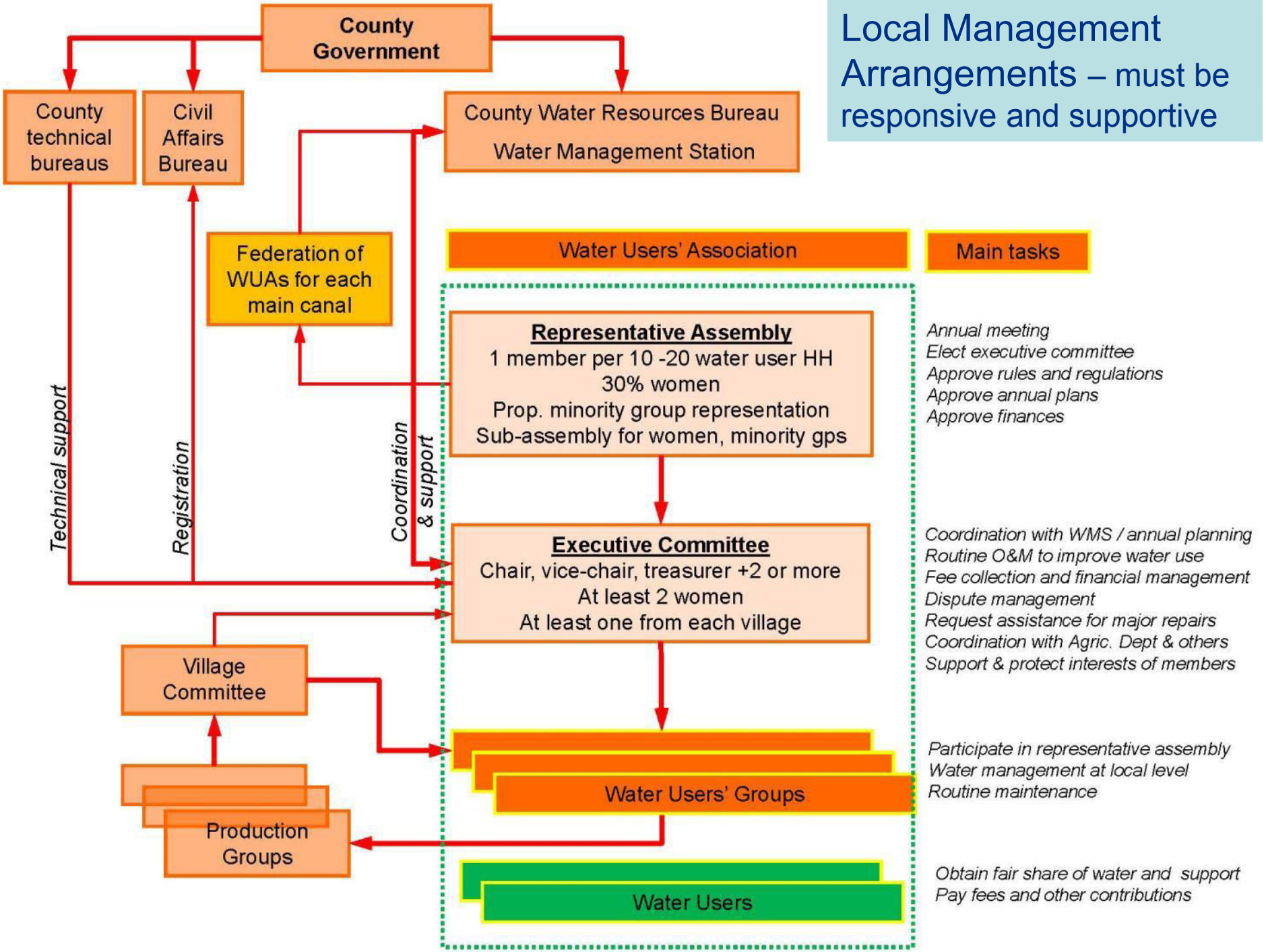
Complex Institutional Framework – need clearly defined relations and responsibilities



Local Management Arrangements – must be responsive and supportive



Future trends

- Livelihoods will become more diverse
- Decreasing importance for subsistence agriculture – but it will remain on a small-scale
- Economic opportunities for the rich likely to be in other sectors (industry, tourism)
- Middle ground - diversified agriculture – yet to be developed
  - Value chain development
  - Targeted subsidies
  - Technical support

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Critical considerations - 1

- Understand what is wanted and solve these problems, not meet a preconceived idea of rehabilitation needs
- Strengthen communications between county water resource bureaus (WRBs), management stations and users;
- Plan design and management arrangements together
- Build up local management organisations in a way that does not overburden them administratively or financially;
- Remember that irrigation is a means to an end – plan for sufficient agricultural support

Critical considerations - 2

- Small problems can easily become critical, but can be resolved if there is sufficient timely consultation and understanding
- Pressures to seek simple technical solutions to complex problems should be resisted, and solutions should match management capacity.
- Ensure a complete solution before starting construction, otherwise the incentives for compromise may be lost
- Participatory development is time-consuming: a patient approach is needed to understand and accommodate farmers' views;
- Reliable information should be provided at all stages so that farmers can understand what is proposed - social mapping is a good tool.
- Flexibility, with review and modification throughout implementation is important.

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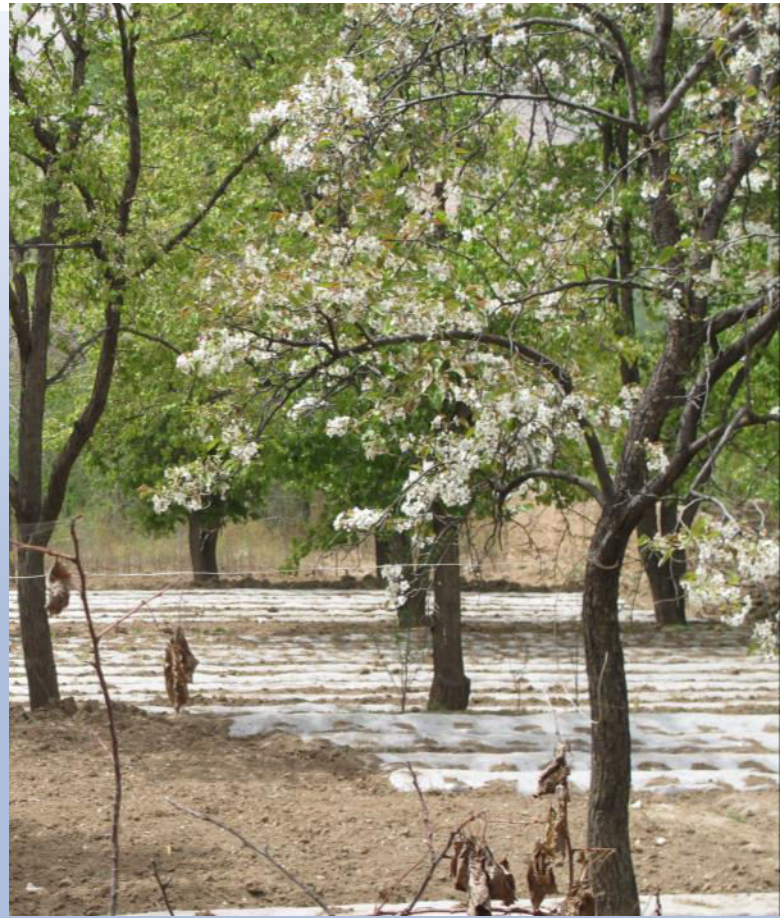
Critical considerations - 3

- Provide training on agricultural value chains which fit in with local livelihood strategies (which are dominated by migration and off-farm employment);
- Balance quasi-commercial agriculture, creating local employment and investment opportunities, with smallholder agriculture in support of multiple livelihoods;
- Recognize constraints of smallholders who are not homogeneous group and may not be traditional decision-makers (poor, elderly, disabled, or female household heads);
- Resettlement is critical – if land needs to be taken there must be compensation.



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Conclusions

- Identify and solve the real problems, (don't simply rehabilitate what exists), and understand the diversity of livelihoods
- Need clear understanding and agreement of project scope as well as the details – even terminology is important. Manage expectations
- Involve farmers in designs from the outset – participation in management is not possible without participation in design
- Irrigation in marginal environments is valuable – but only if there is commitment to manage it, and to support smallholders, as well as commercial farmers

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