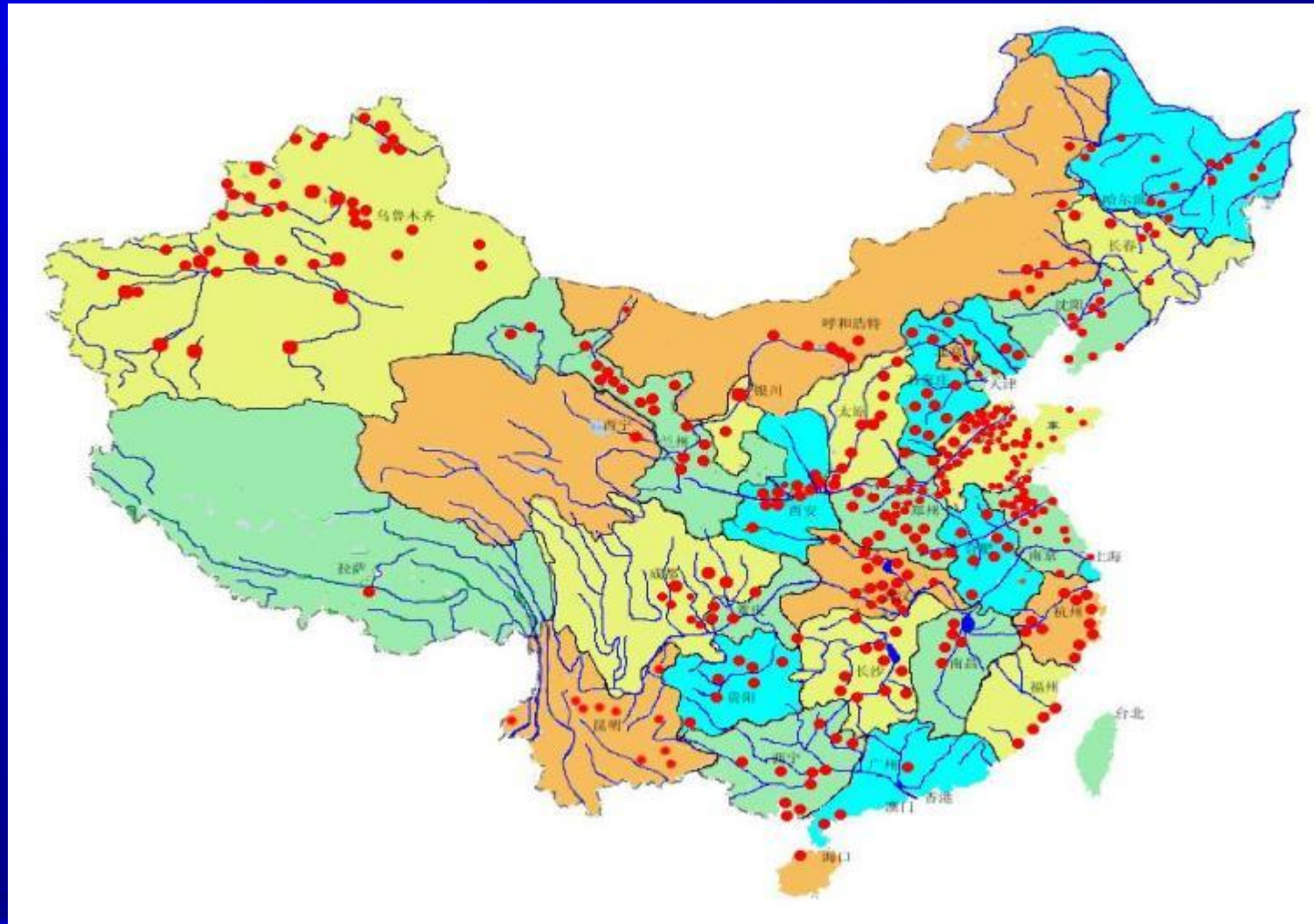


Understanding Multiple Uses of Water in China Using the MASSMUS Approach

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**National Centre for Efficient Irrigation
Technology Research**
June 1st, 2011

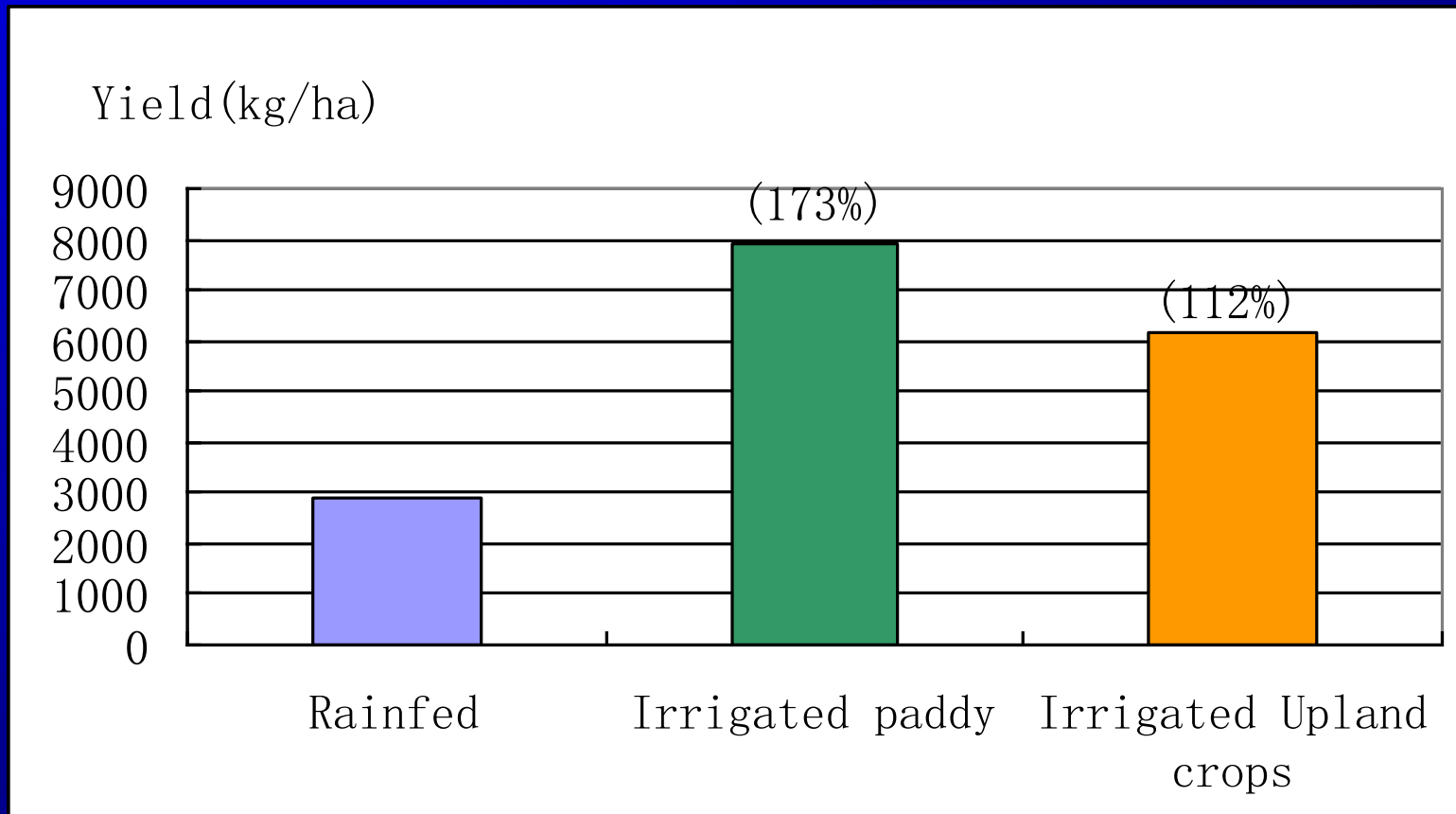


Distribution of large irrigation districts



Roles of Irrigation Schemes

1. Increasing crop yield



2. Industrial and domestic Water supply

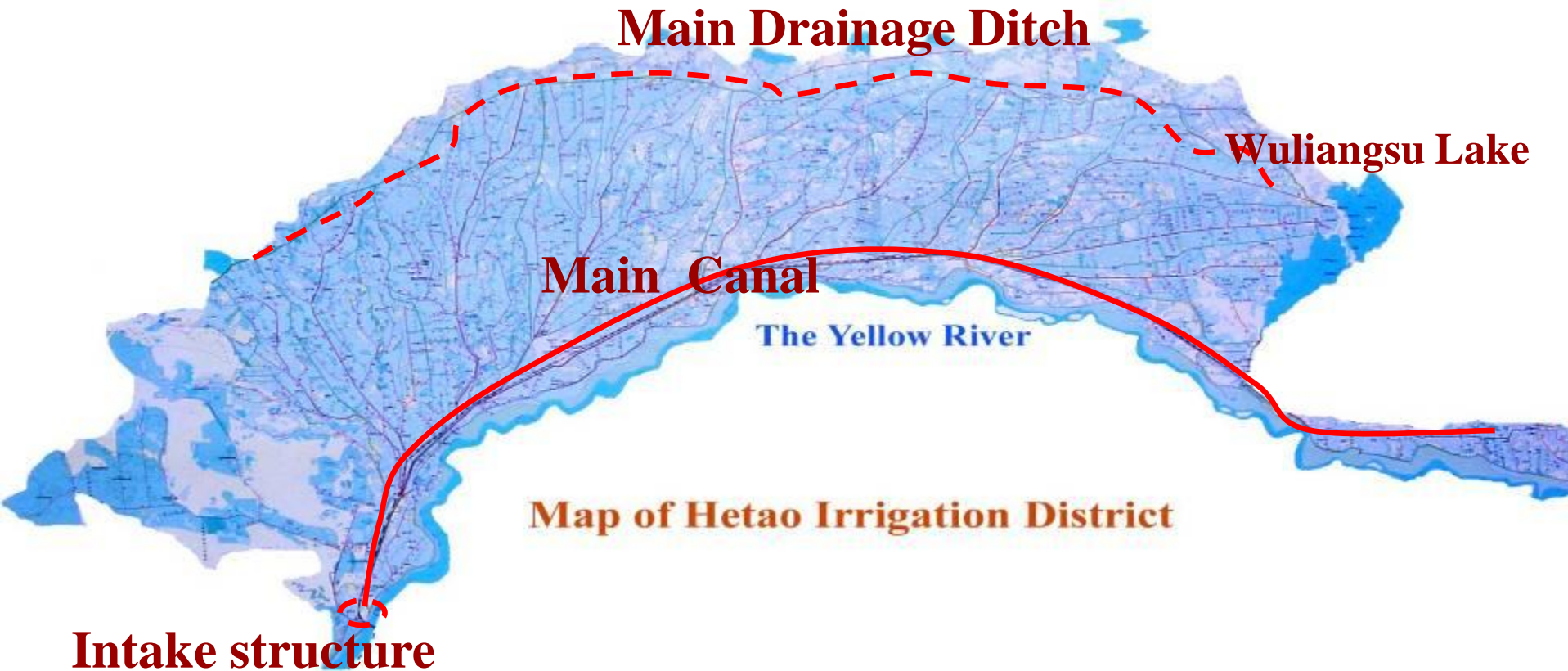


3. Ecological System Improvement

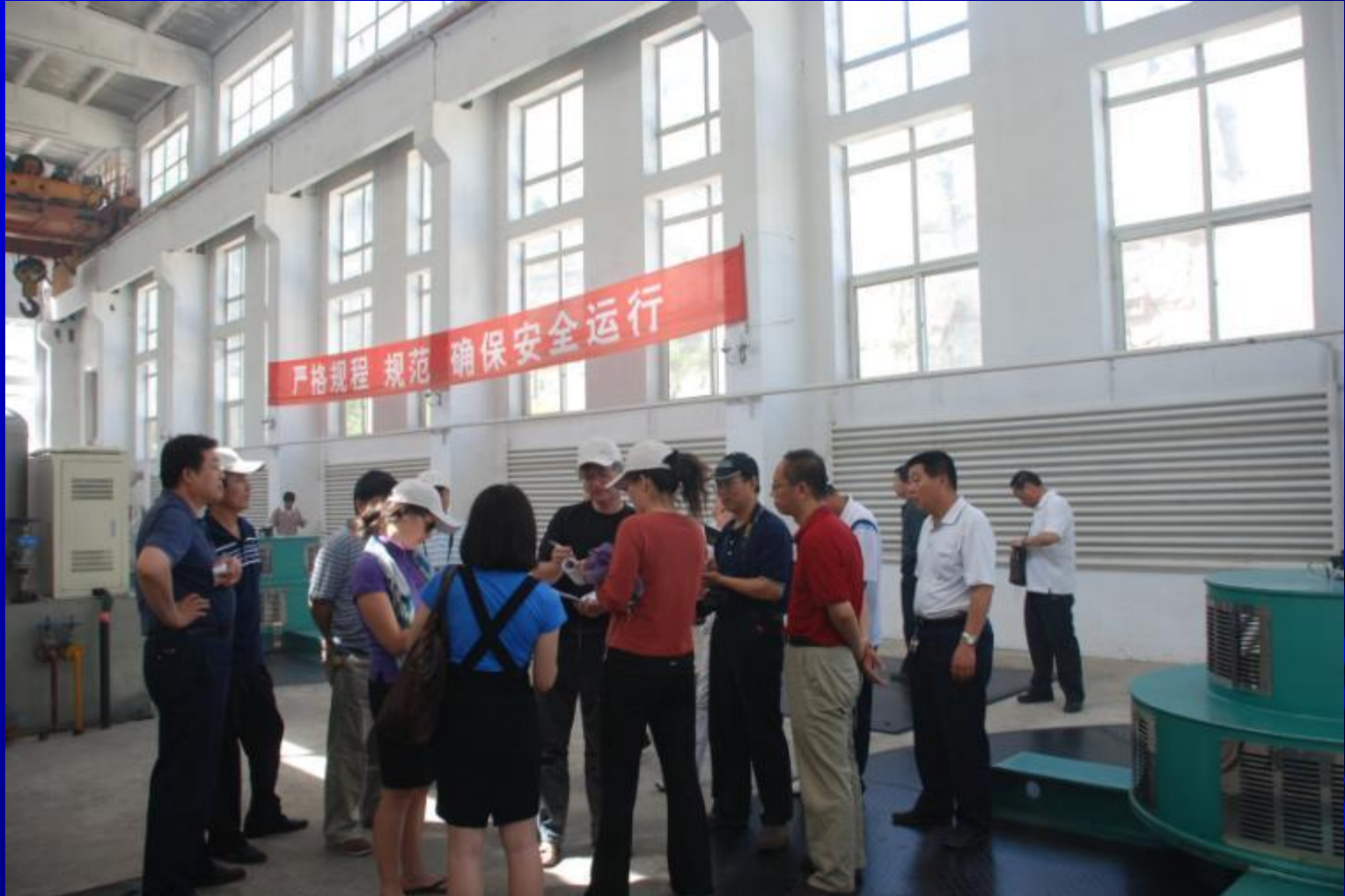
In Northwest China, large areas of desert have become into oasis by development of irrigation



4. Wetland Protection



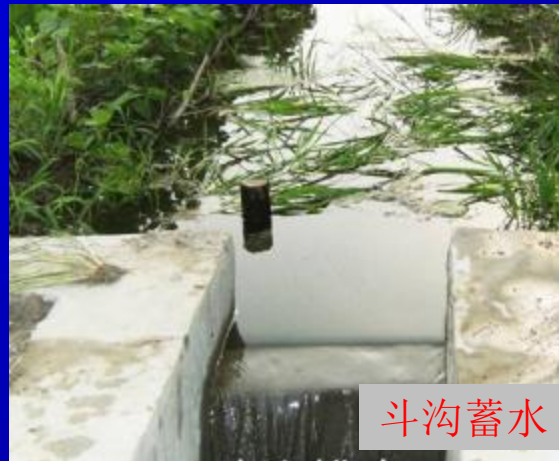
5. Hydropower Generation



6. Groundwater Recharge



7. Integrated Waste Water Use and Management



Canal lining save water and reduce groundwater recharge



Training on MASSMUS Methodology

1. June 14 to 25, 2010 by Mr. Daniel Renault
2. November 29 to December 9, by Ms. Robina Wahaj



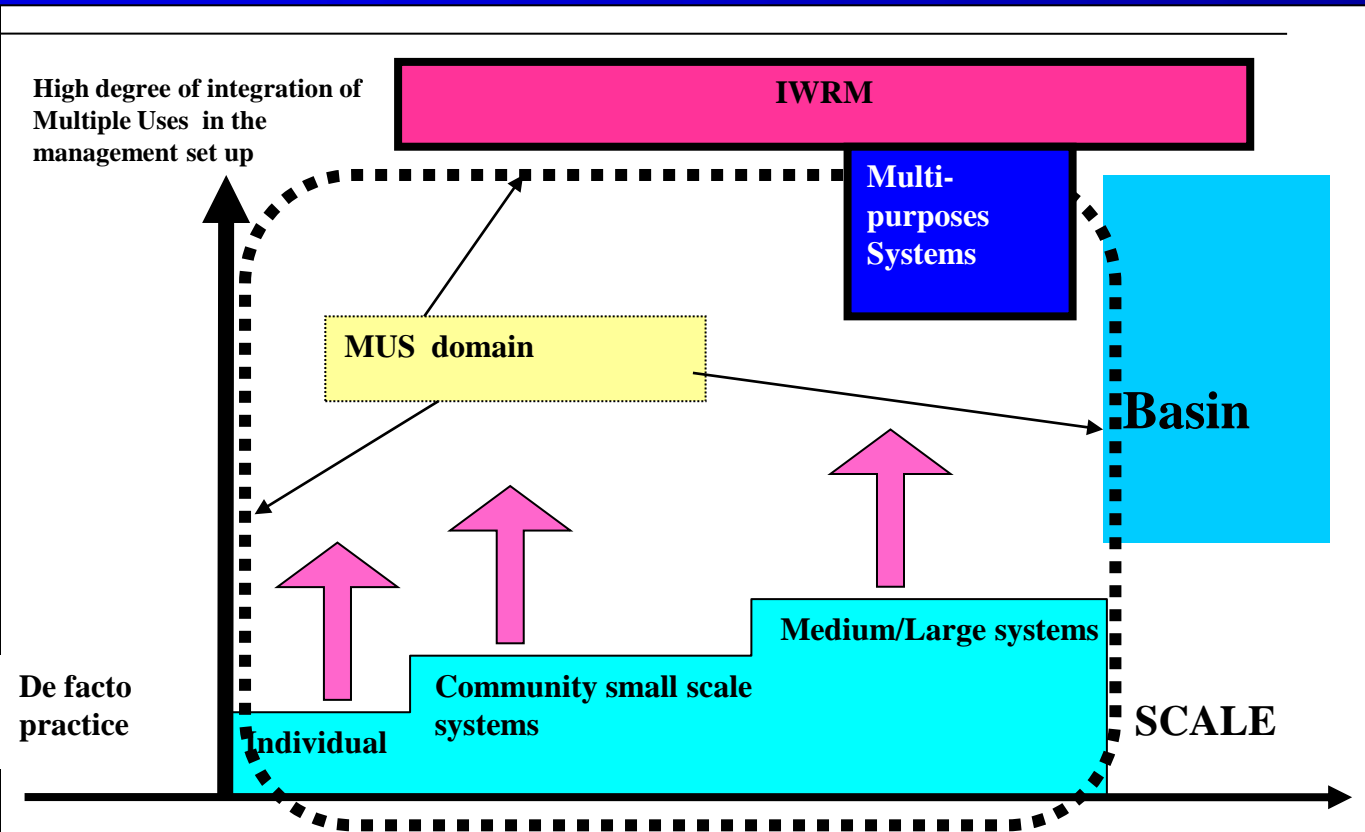
Conceptual approach: MUS & IWRM

IWRM = Principles of water allocation among sectors at basin level.

MUS = Local practice by users/managers sharing the same infrastructure to produce more services



Conceptual approach: MUS & IWRM



MUS and IWRM *Extract of the WWF5 Istanbul Water Guide (2009) Item No 54*

Recognize the interrelationship between multiple uses and functions of water services and integrated water resources management.

Multiple uses practices are an inherent element of the Integrated Water Resource Management (IWRM) approach, which should be strengthened. Management agencies of large irrigation systems are often the only water services providers, notably during dry periods. Sound governance of these systems should be ensured to encompass the principles of IWRM and to recognize the needs of all stakeholders.

Steps for MASSMUS

(11) PLAN FOR MODERNIZATION MONITORING & EVALUATION

(10) Aggregating - Consolidating
& Design of Information System

(9) Canal Operation
Improvements

(8) Mapping the demand
for Operation

(7) Mapping Management Units

(6) Mapping Services to Users

(1) Rapid Appraisal Procedure
(RAP)

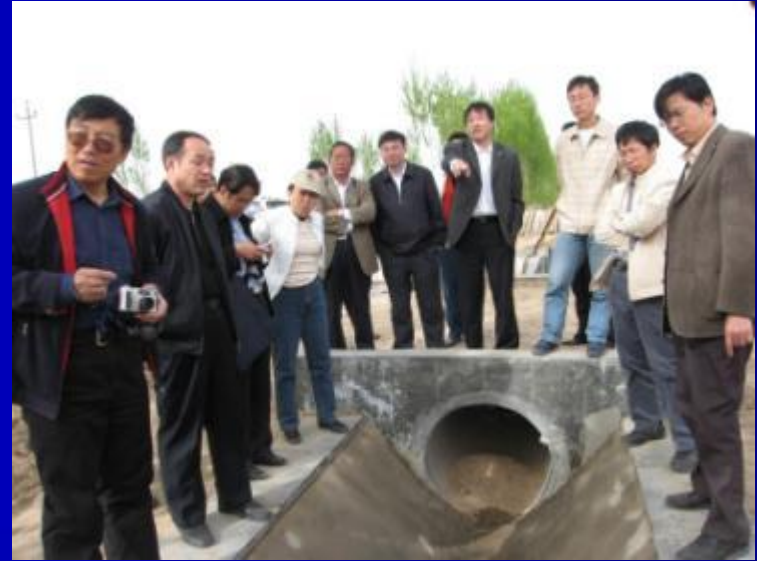
(2) System capacity & behaviour
Sensitivity

(3) Mapping perturbations

(4) Mapping the Water Shares
and Benefits

(5) Mapping the COST

Field Visit



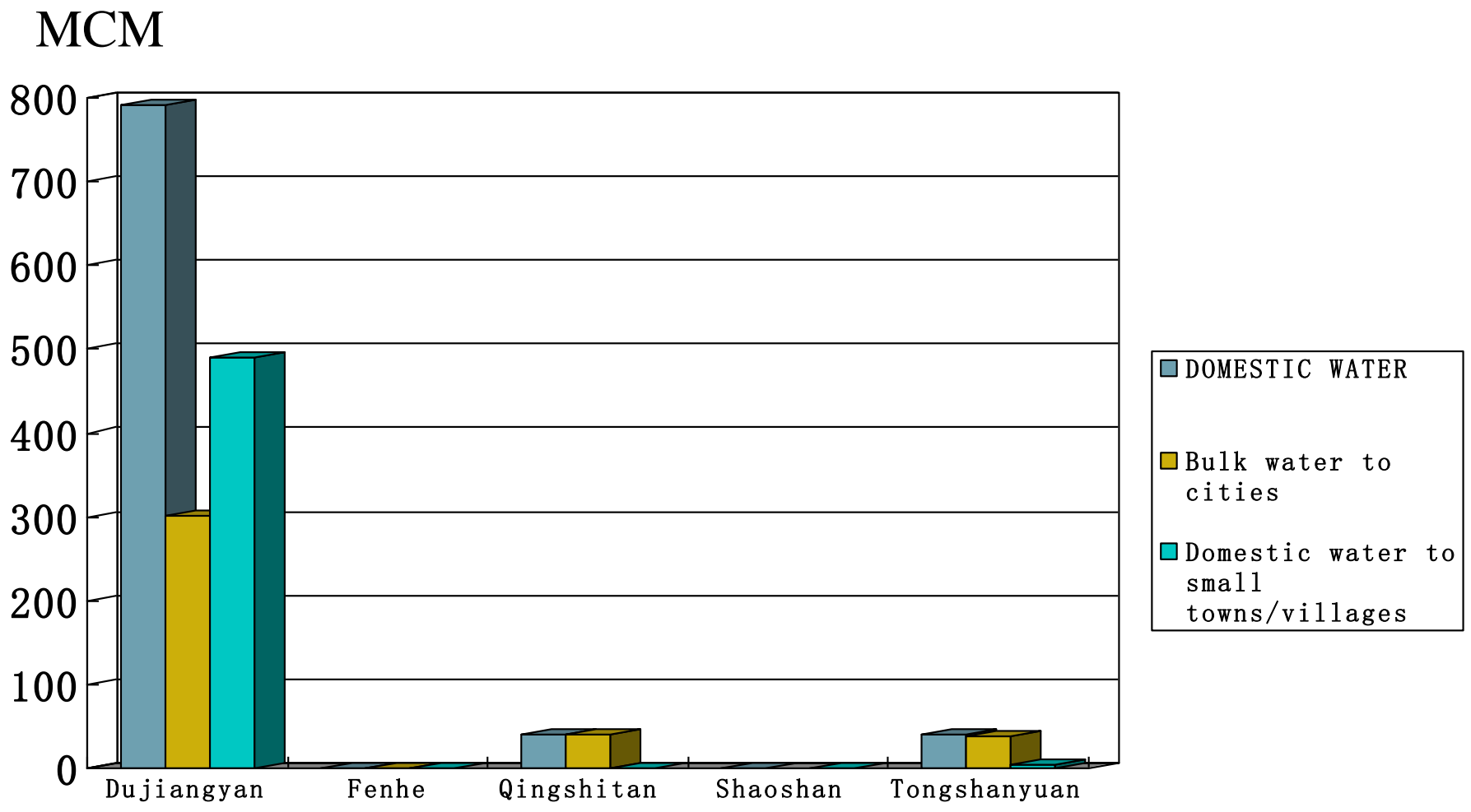
Application of MASSMUS in China

- **Dujiangyan irrigation district;**
- **Fenhe irrigation district**
- **Qingshitan irrigation district;**
- **Shaoshan irrigation dirtrict;**
- **Tongshanyuan Irrigation District**



Results of MASSMUS Application in China

1. Domestic Water Supply

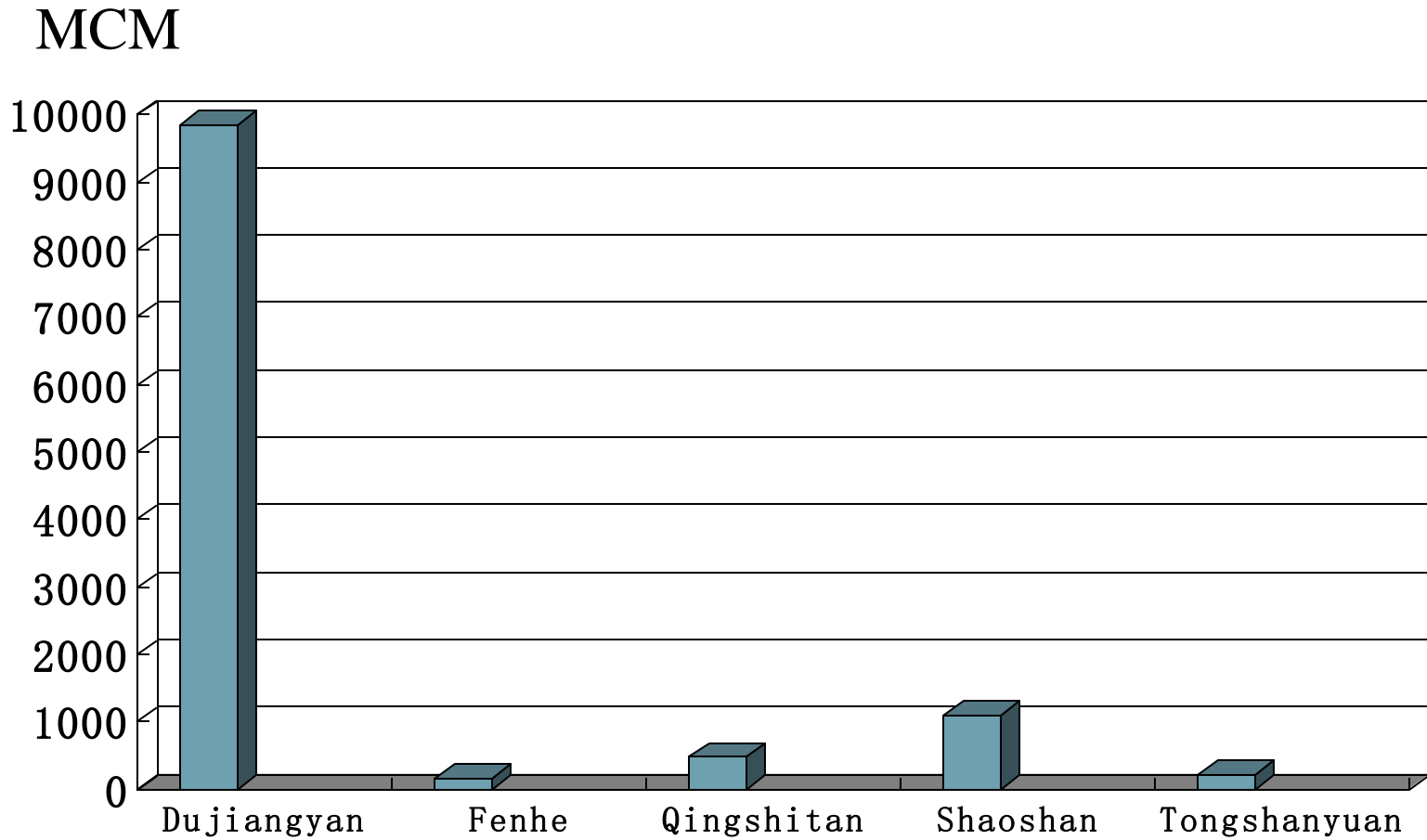


2. Water for Animal

MCM

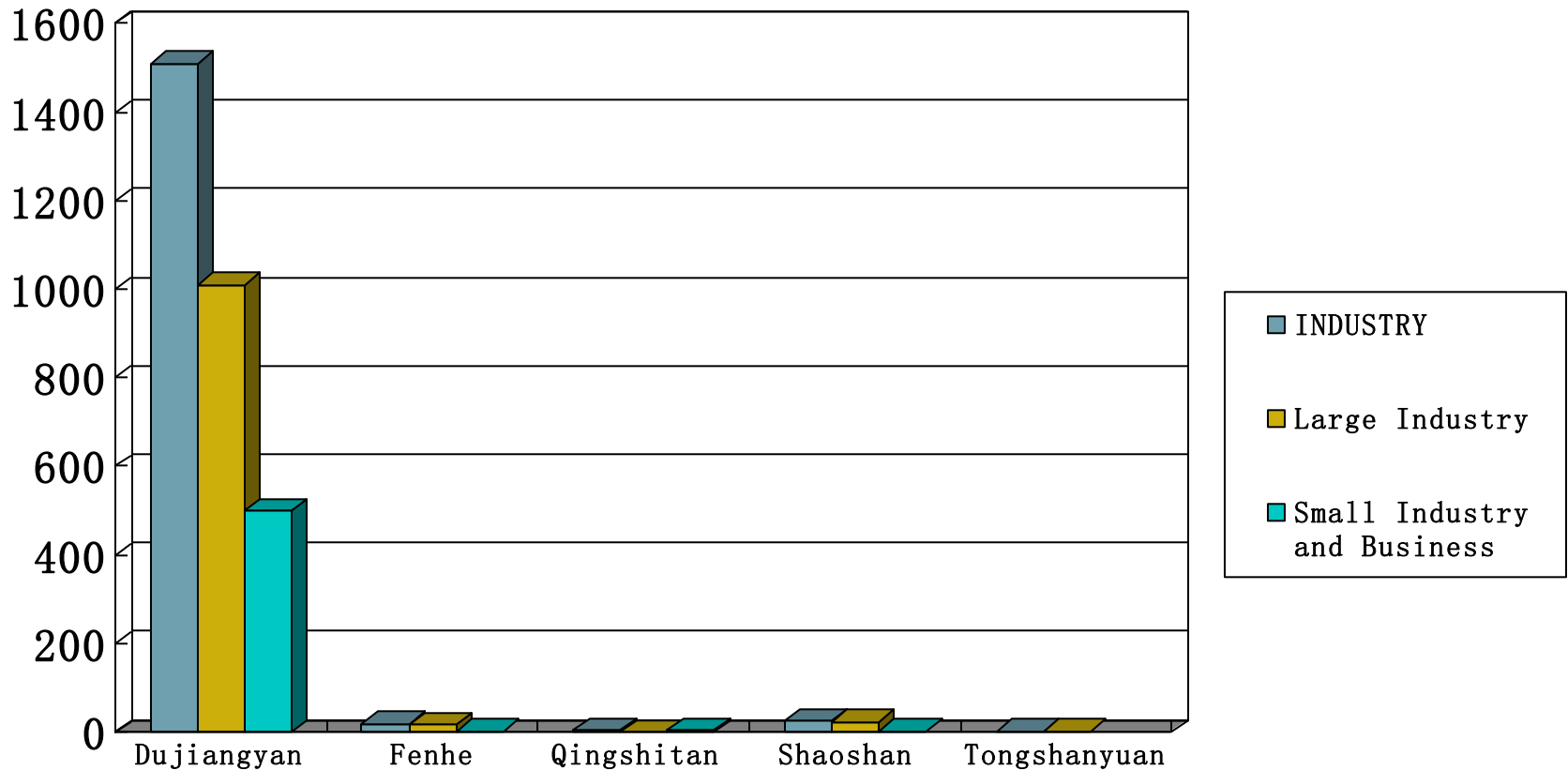


3. Water Hydropower



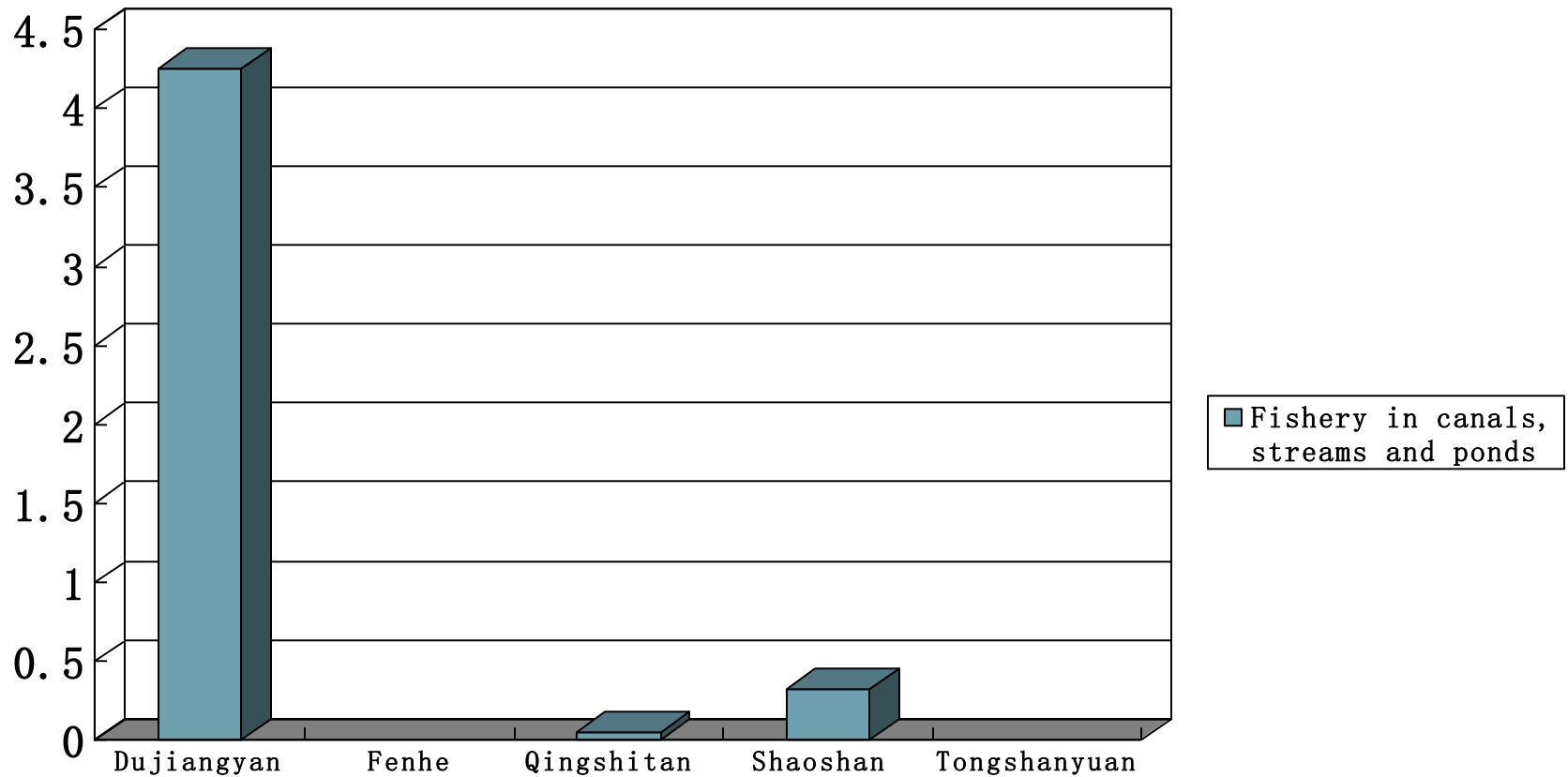
4. Water for Industry

MCM



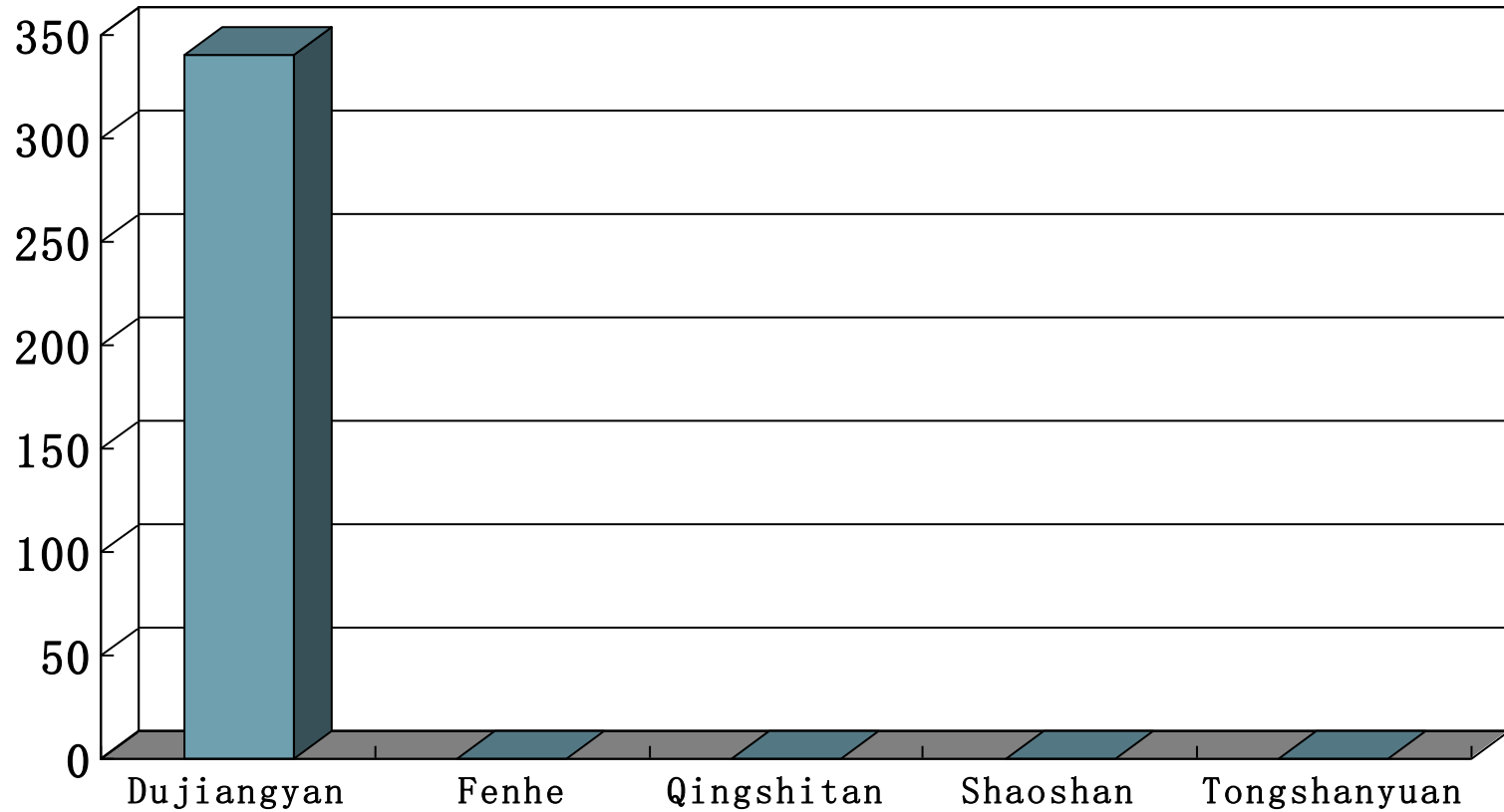
5. Water for Fishery

MCM



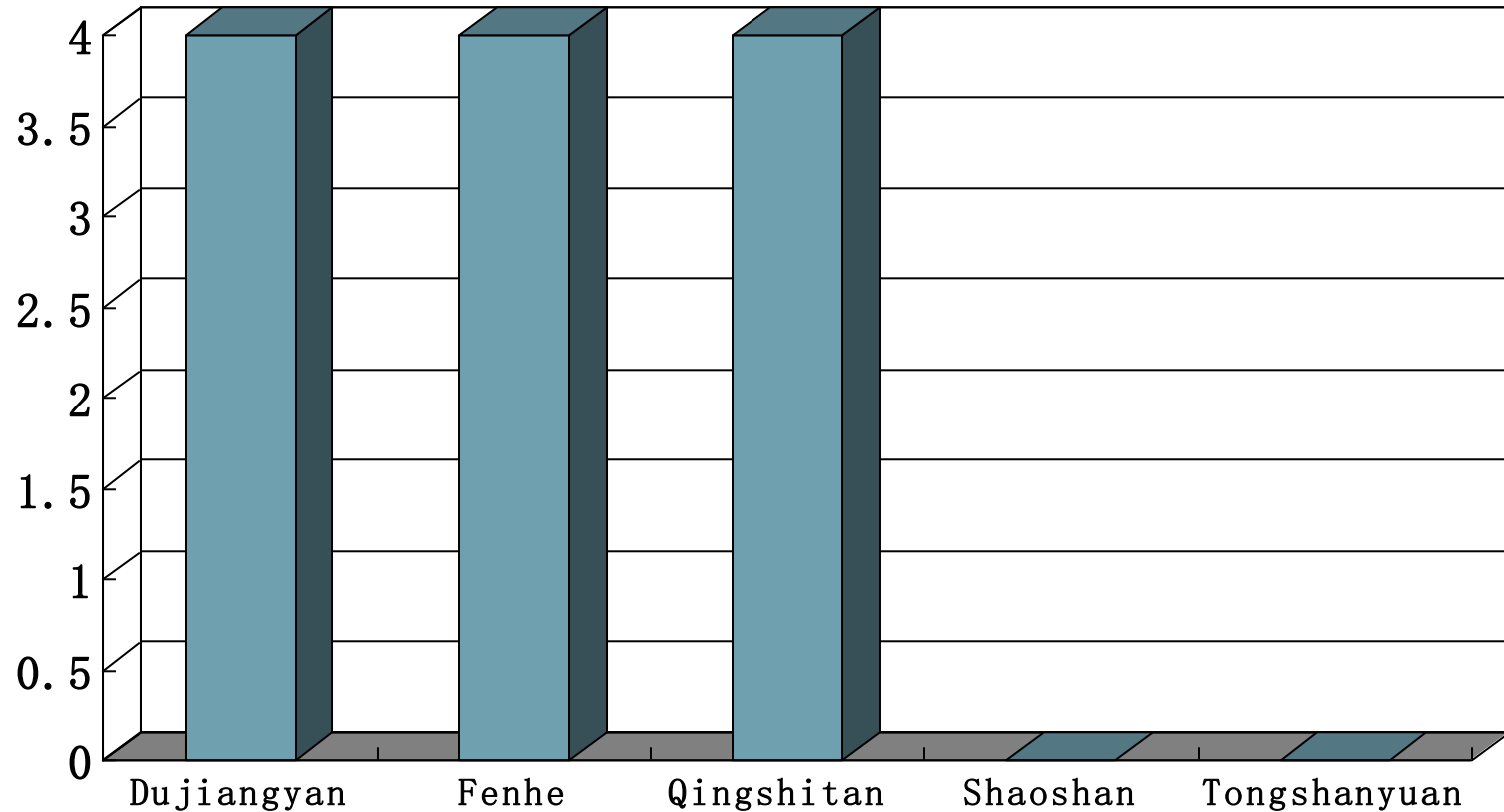
6. Environment flows

MCM



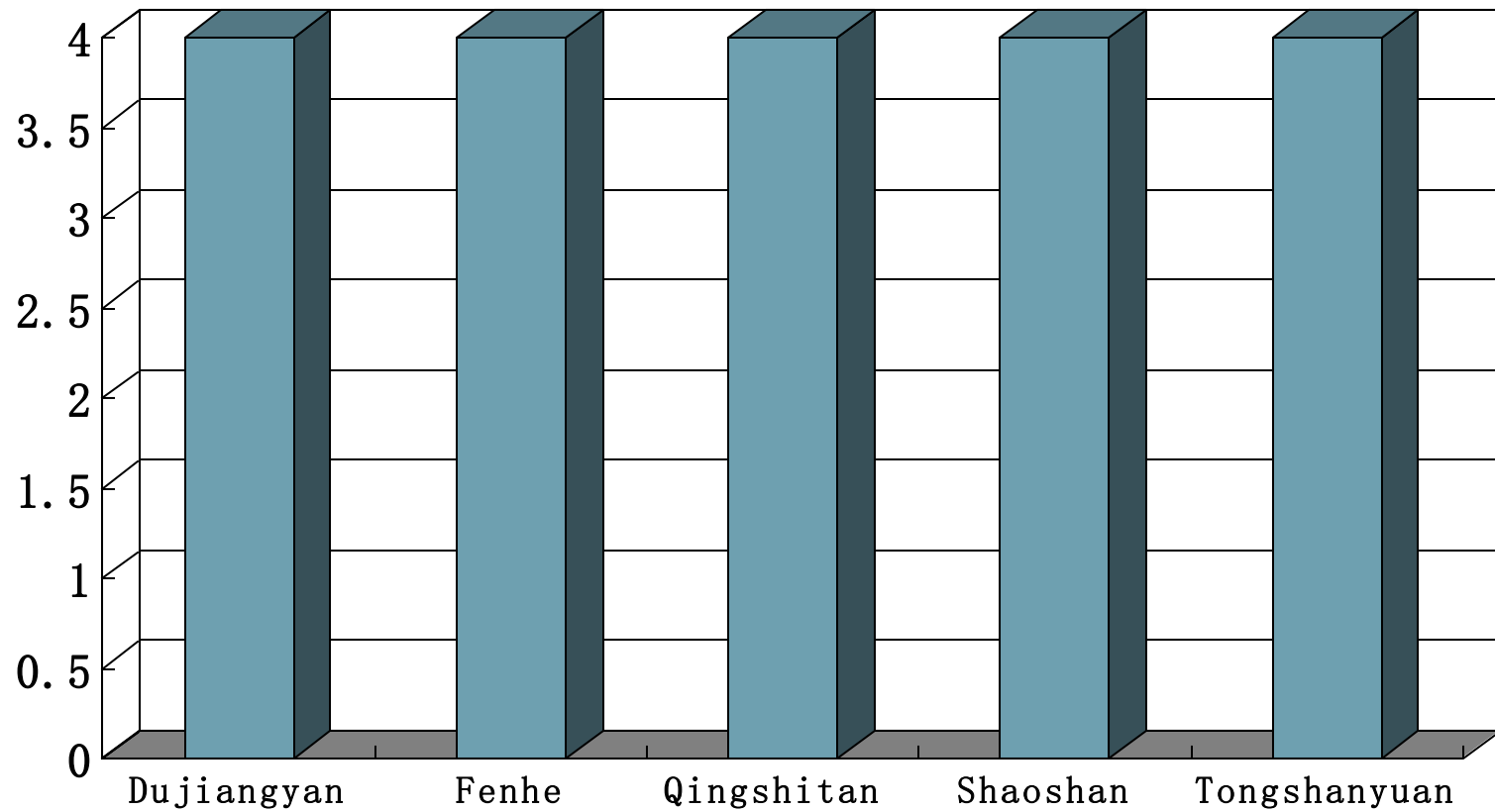
7. Water for Tourism

4=highly important



8. Flood Protection Service

4=highly important



MASMUSS help to improve planning for the modernization of irrigation schemes



Improvement of M US

- **Further improvement of MASSMUS to suite the local condition, and consider the reuse of water, and linkage among sectors;**
- **Setting proper priorities of water supply for various water users, and strategies for avoiding water conflicts among water users.**



Follow-up Action

- **MASSMUS is an useful tool for comprehensive planning of modernization of irrigation schemes;**
- **For next 10 to 20 years China will modernize and rehabilitate of all large irrigation schemes and the major medium irrigation schemes. There is need and good opportunity to apply MASSMUS;**
- **The MASSMUS methodology and application results will be presented to decision makers. More training programs will be organized.**





Thank you!