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2 **Supplementary Information for**

3 **Water resource utilization regimes at a basin scale: transition framework and development** 4 **traps**

5 **Shuang Song, Shuai Wang, Bojie Fu, Xutong Wu (complete author list)**

6 **Shuai Wang.**

7 **E-mail: shuaiwang@bnu.edu.cn**

8 **This PDF file includes:**

9 Supplementary text

10 Figs. S1 to S6

11 Table S1

12 Legends for Dataset S1 to S2

13 **Other supplementary materials for this manuscript include the following:**

14 Datasets S1 to S2

15 **Supporting Information Text**

16 test

17 **Methods S1. Definition of study area**

18 The study area is the Yellow River Basin (YRB), which has experienced the most intense water exploitation and the most
19 dramatic shifts of management regime (Supplementary Fig. 1A). According to ecological zoning, landscapes types, water
20 resource zoning et al., the Yellow River Basin can be divided into four different regions (supplementary Fig. 1B), which has
21 been widely recognized (ref.). Using this division, there are also some differences of nature between different regions regarding
22 water utilization regimes (supplementary Fig. 2):

- 23 • **Source Region (SR):** Over 50% of natural runoff was produced in this region. The most ecology function here is water
24 conservation, as sparsely populated and less economically developed.
- 25 • **Upper Region (UR):** With the highest per capita irrigated land area, there are numbers of large irrigation lands in
26 this region. However, because of backward production methods, efficiency of irrigation are used to be very low.
- 27 • **Middle Region (MR):** Crossing Loess Plateau, famous rich-sand area, Yellow River loads most of its sediments here
28 with the highest soil erosion risk. To reverse this situation, the grain for green project changed the water utilization here
29 strikingly.
- 30 • **Lower Region (LR):** With dense population and the traditional agricultural trajectory, lower region used to be the
31 largest water use region. However, as the industrial transformation going, proportion of agriculture keeps decreasing,
32 but LR is still the largest water use region in each aspect.

33 **Introduction of Yellow River Basin.**

34 **Subarea of Yellow River Basin.**

35 **General situation of water use in the YRB.**

36 **Methods S2. Detailed information on dataset and processing**

37 Since the Yellow River Basin consists of ten provincial areas, the above division can also maintain broad consistency with
38 administrative divisions. Add a materials' subsection if you need to.

39 **Methods S3. Water Utilization Regime Index**

40 Add a methods subsection if you need to.

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Fig. S1. Yellow River Basin

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Fig. S2. Different regions

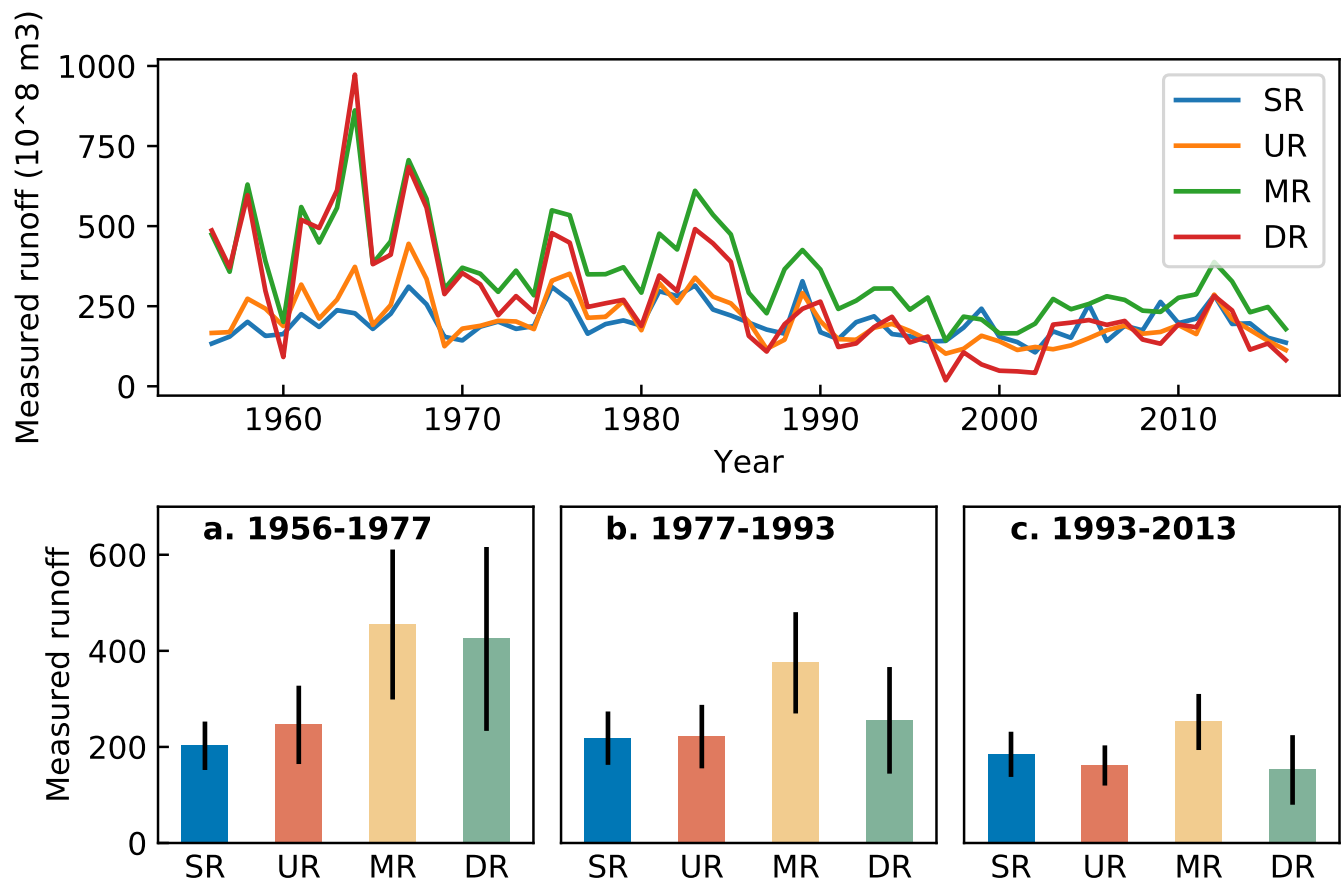


Fig. S3. Natural measured runoff of Yellow River within different periods.

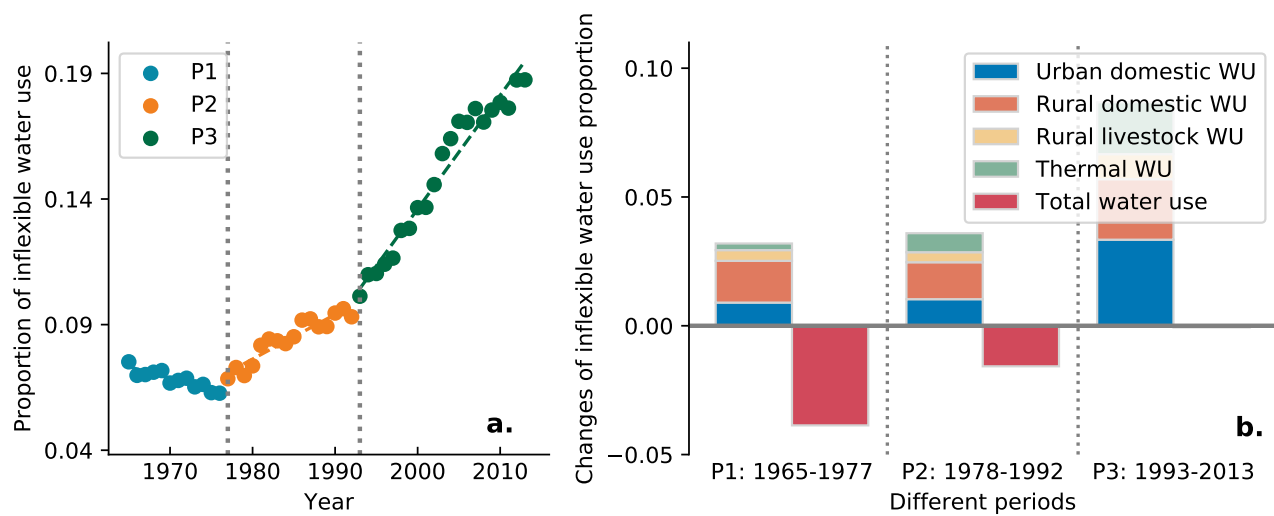


Fig. S4. Flexibility

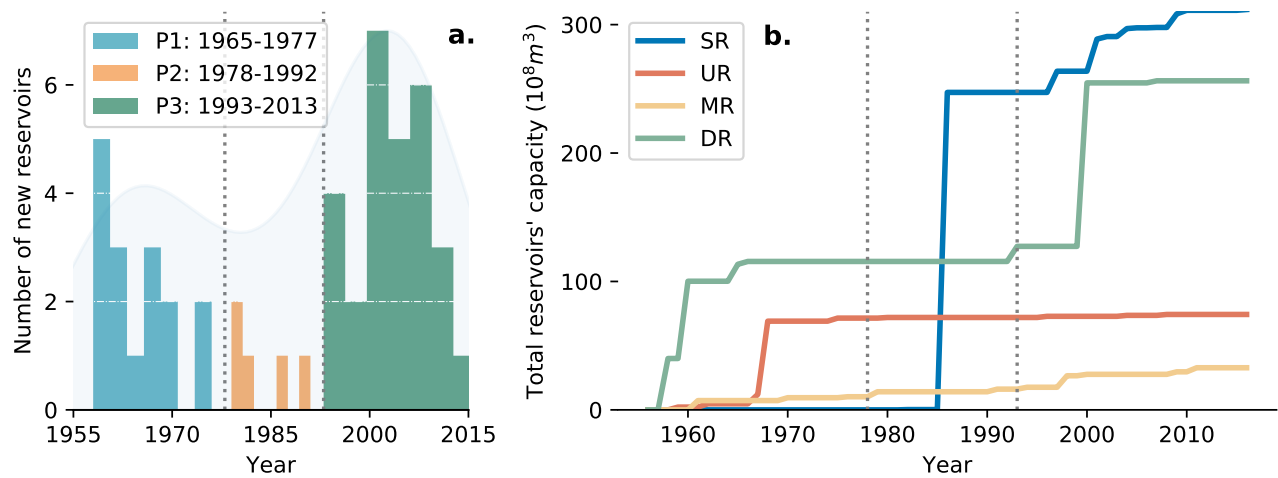


Fig. S5. Reservoirs and accumulated storage

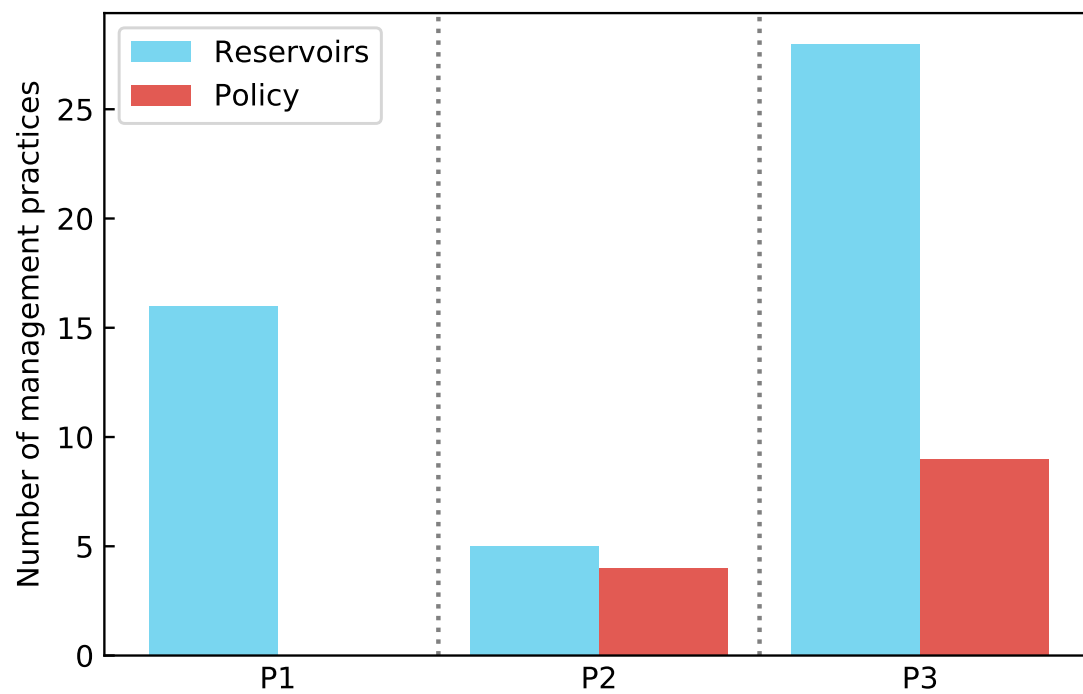


Fig. S6. Number of management practices in different periods, including policy and reservoirs.

Table S1. This is a table

Species	CBS	CV	G3
1. Acetaldehyde	0.0	0.0	0.0
2. Vinyl alcohol	9.1	9.6	13.5
3. Hydroxyethylidene	50.8	51.2	54.0

41 **SI Dataset S1 (dataset_one.txt)**

42 Type or paste legend here.

43 **SI Dataset S2 (dataset_two.txt)**

44 Type or paste legend here. Adding longer text to show what happens, to decide on alignment and/or indentations for
45 multi-line or paragraph captions.