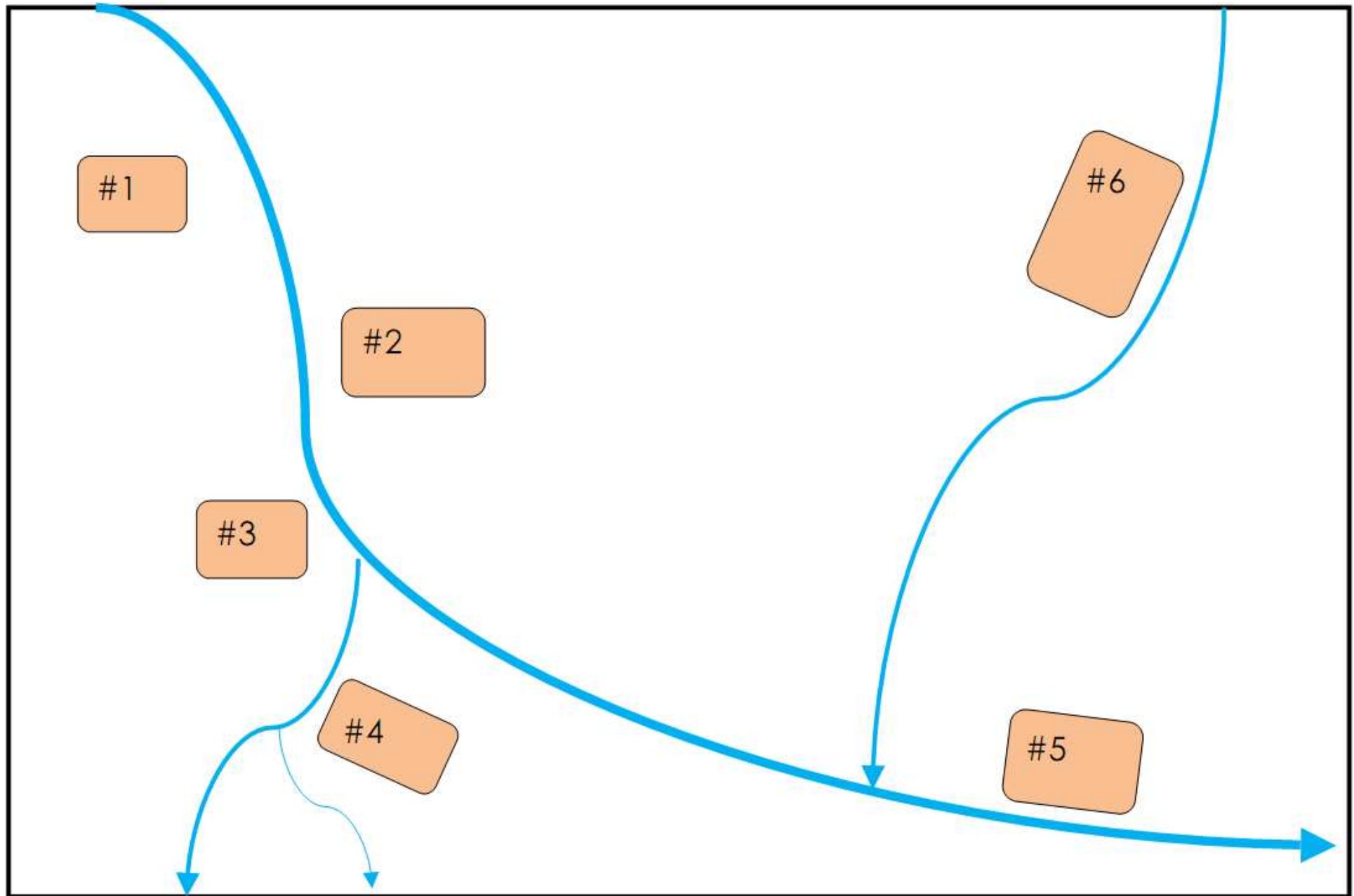
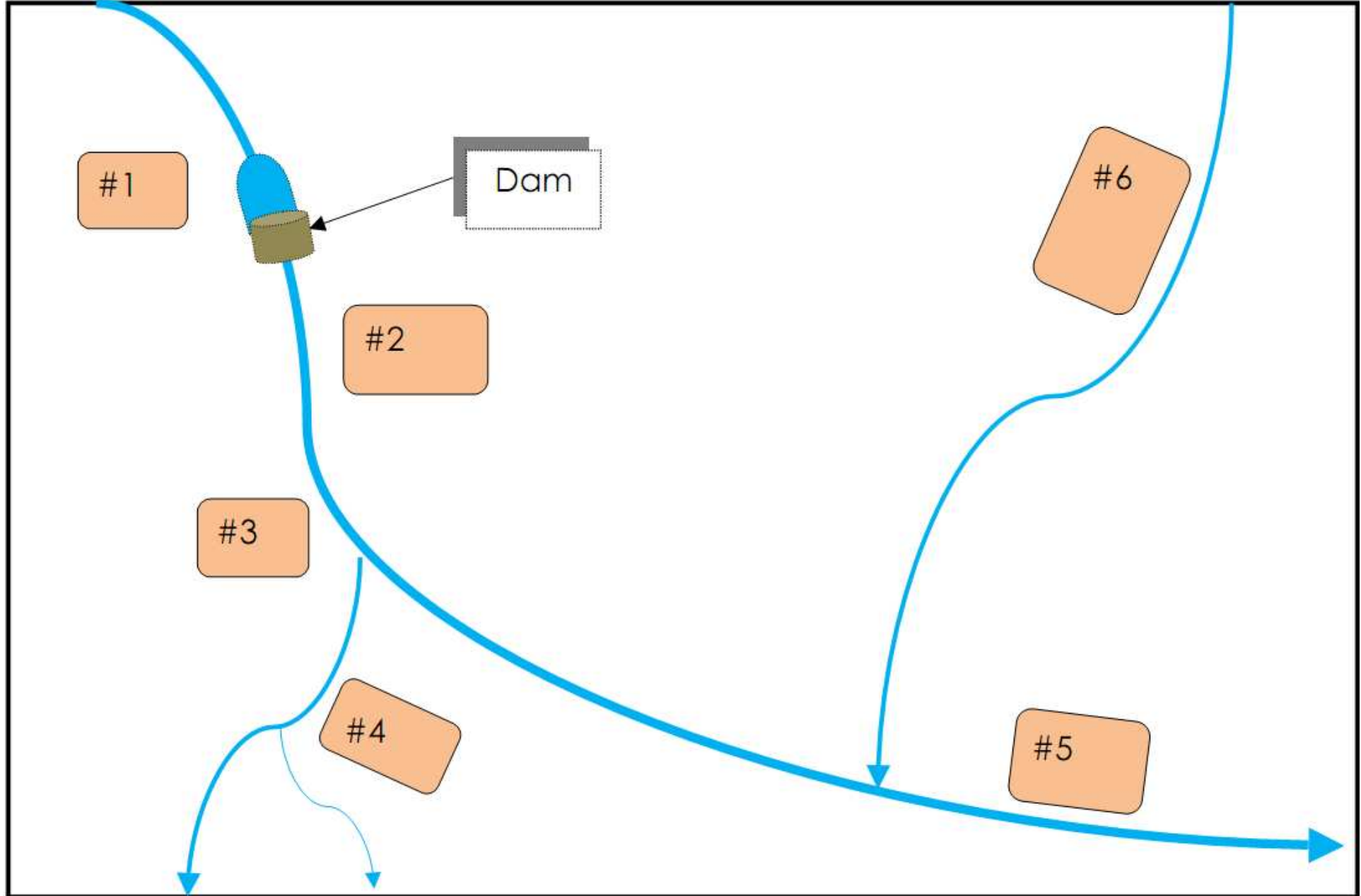


- Thus there are potentially large benefits for agriculture from irrigation
- But, Africa as a continent has much lower percent of cropland irrigation (8%) than other developing countries (17%)
- However, Africa has a much lower number of dams than other continents → potentially large benefits from dam construction
- Nevertheless, the question of the distributional effects remains an important issue in policy circles....
- In this paper we want to examine the distributional effects in terms of agricultural productivity

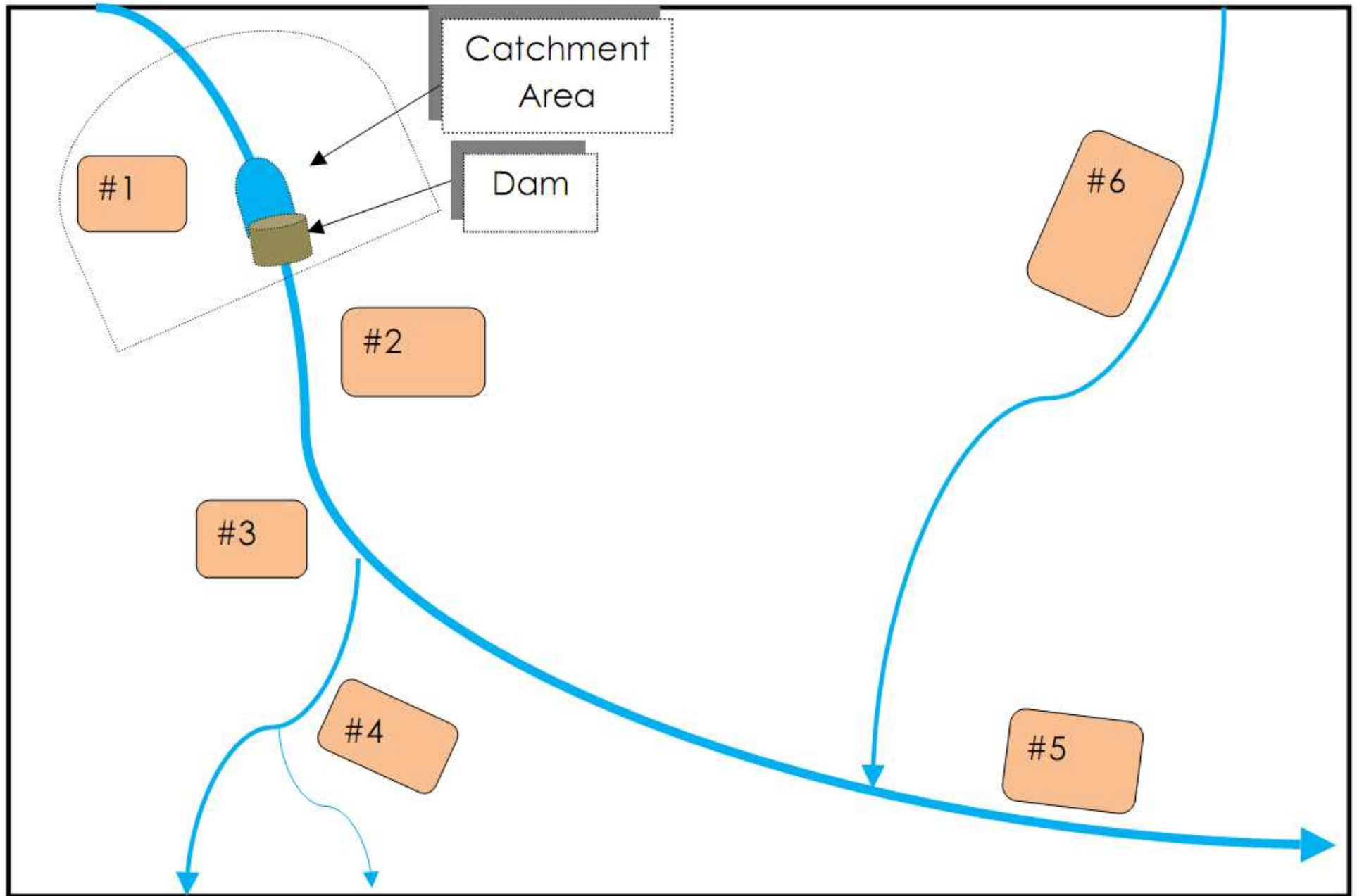
Empirical Framework



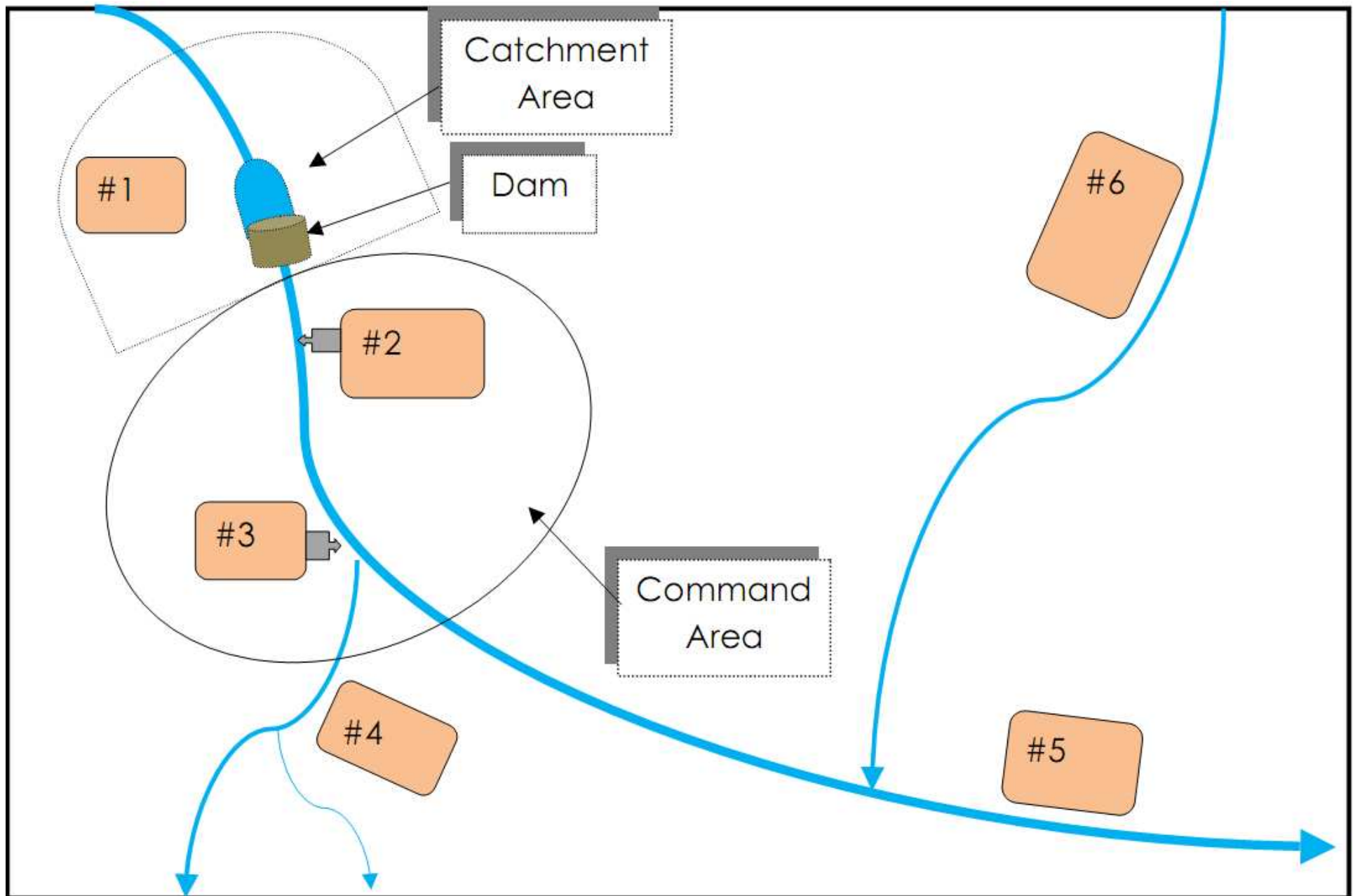
Empirical Framework



Empirical Framework



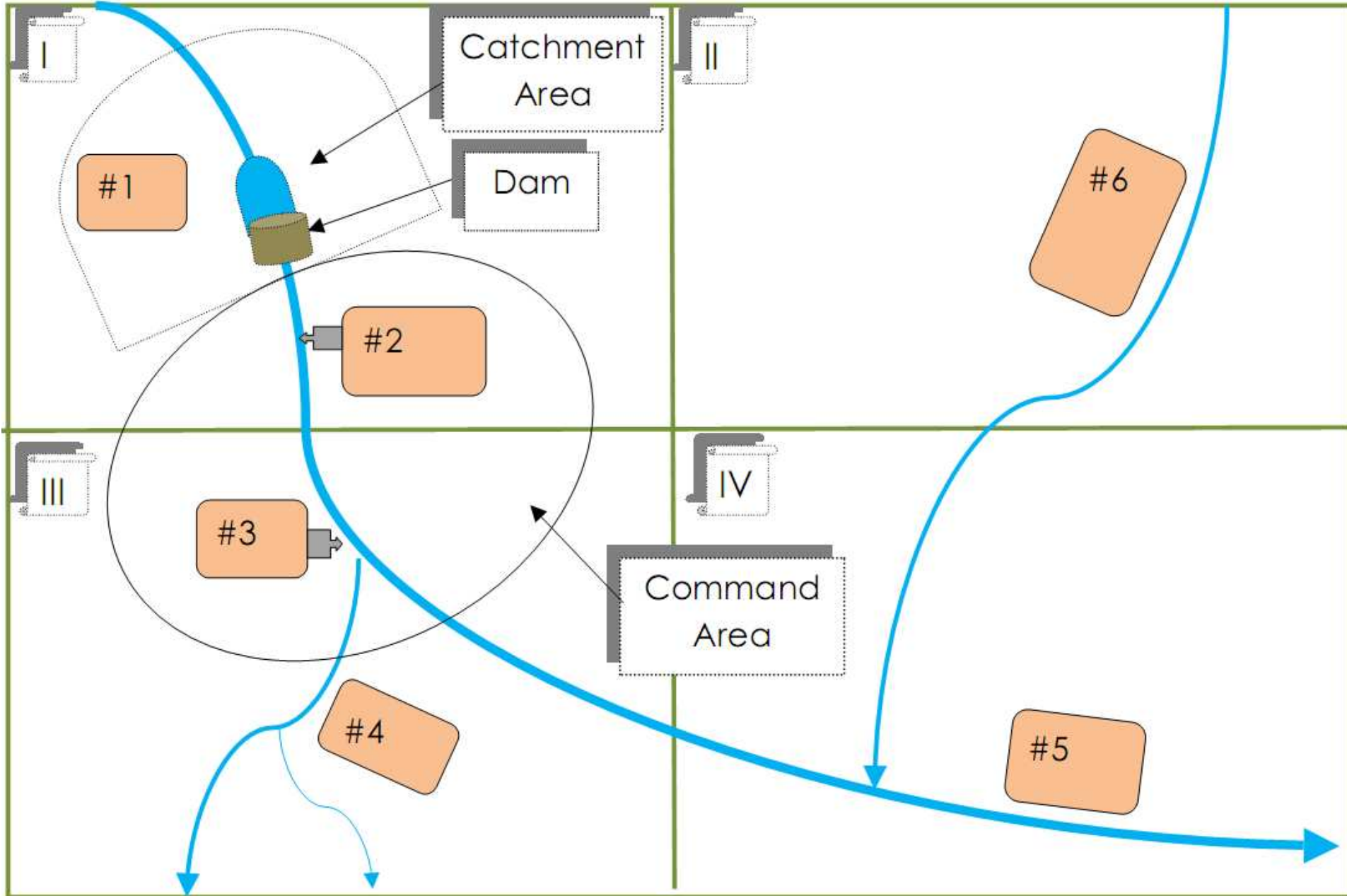
Empirical Framework



Empirical Framework

- So ideally we would like to know what agricultural land lies within the catchment area, command area, and downstream from dams
- But unfortunately no comprehensive spatial data on catchment/command areas exists
- If one, however, could classify the region into sub-regions that are up- and downstream from each other...

Empirical Framework



- In other words, the problem boils down to estimating:

$$\text{CropProd}_{it} = \alpha + \beta_1 \text{Dams}_{it} + \beta_2 \text{UDams}_{it} + \beta_3 X_{it} + \varepsilon_{it}$$

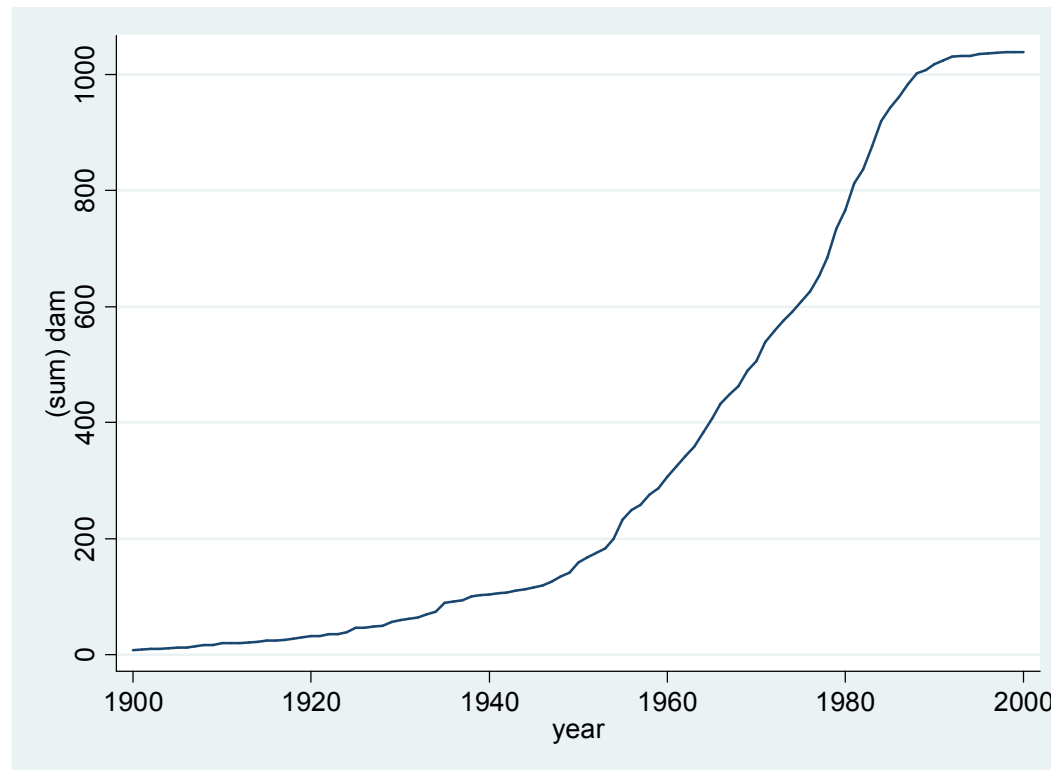
- A priori expectations on β_2 and β_1 : ambiguous

Challenges in estimating above:

1. Data on dams and their location
2. Identifying the 'correct' unit of analysis i
3. Finding proxies for CropProd_{it}
4. Are $E(\beta_1 \varepsilon) = 0$ and $E(\beta_2 \varepsilon) = 0$?

Dams in Africa

- Data Source: FAO's African Major Dams Database
- List of all major dams in Africa including exact location, year of completion, capacity, and major purpose – covers around 1,200 dams
- Year of completion:



Dams in Africa

- Major purpose: note that (a) about 15 % have none listed, (b) many are multipurpose

Irrigation: 65%

Hydropower: 15%

Hydropower & No Irrigation: 7%

- But further search suggests that almost all enable some irrigation as well