

Mixed Methods research in IWRM

Vishal Narain, January 30, 2025



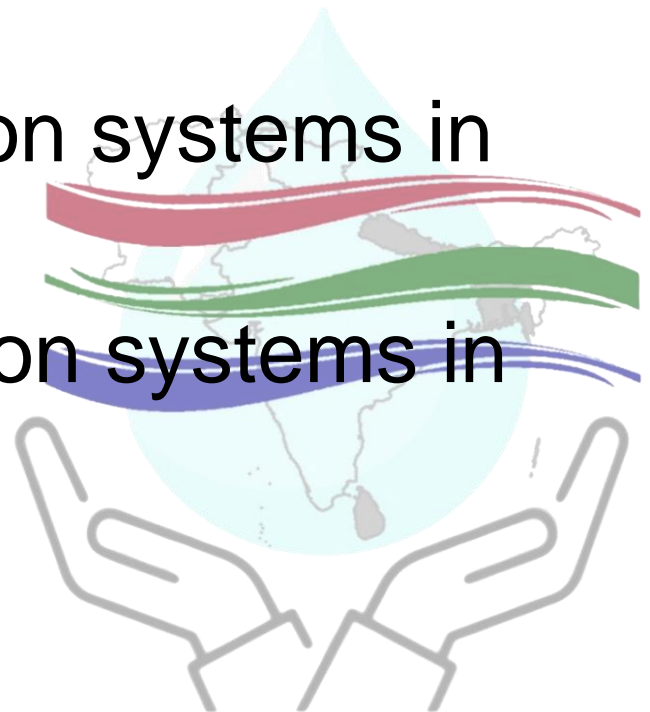
What we will learn today

- What is mixed methods research ?
- Why do mixed methods research ?
- How to do mixed methods research in IWRM ?
- Some examples



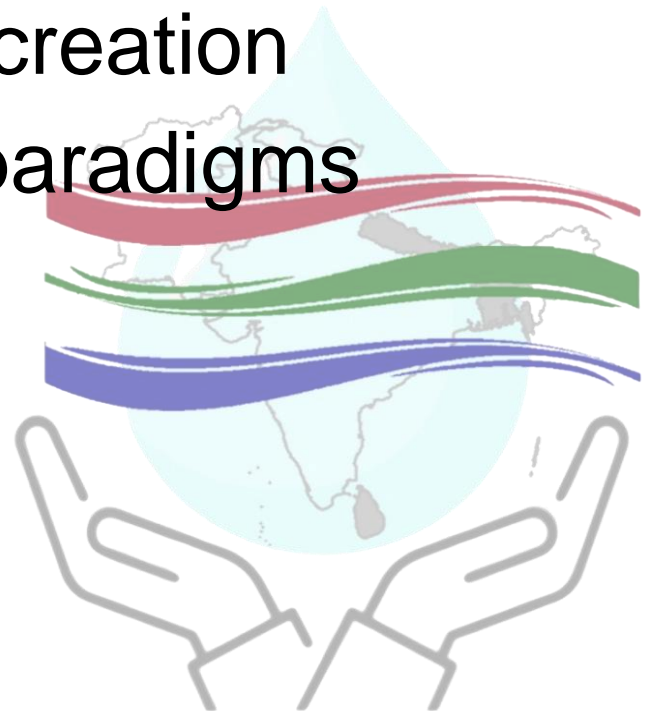
But what is research in IWRM ?

- Unravel the links between the physical, technological and social dimensions of water
- Eg. Tanks in Sri Lanka
- Farmer managed irrigation systems in Nepal
- Large scale canal irrigation systems in India, Bangladesh



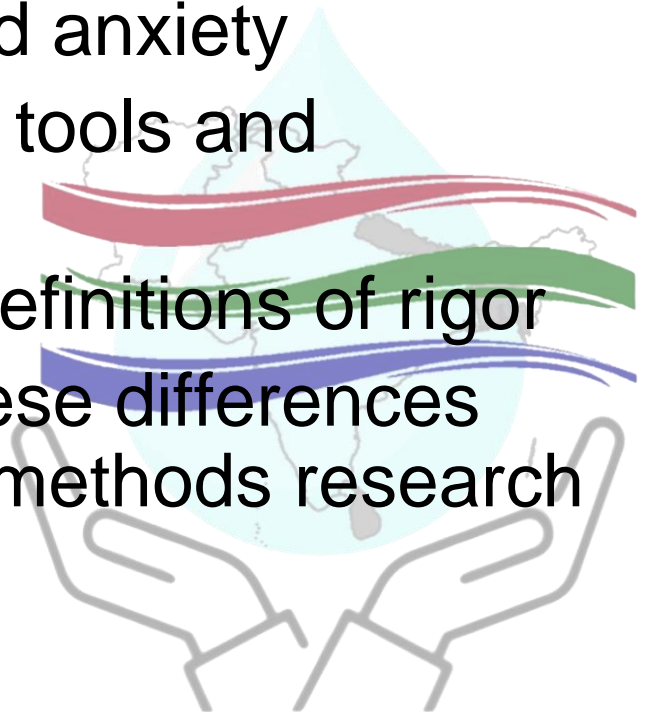
But before that...

- We need to understand epistemology
- Episteme (knowledge)
- The study of knowledge creation
- Involves understanding paradigms



Familiarity with paradigms

- What is a paradigm ?
- Different paradigms inform different approaches to social science research
- They are never explicitly stated but can be the cause of much confusion and anxiety
- Influence choice of research tools and techniques of data collection
- Have different elements or definitions of rigor
- Necessary to understand these differences before embarking on mixed methods research



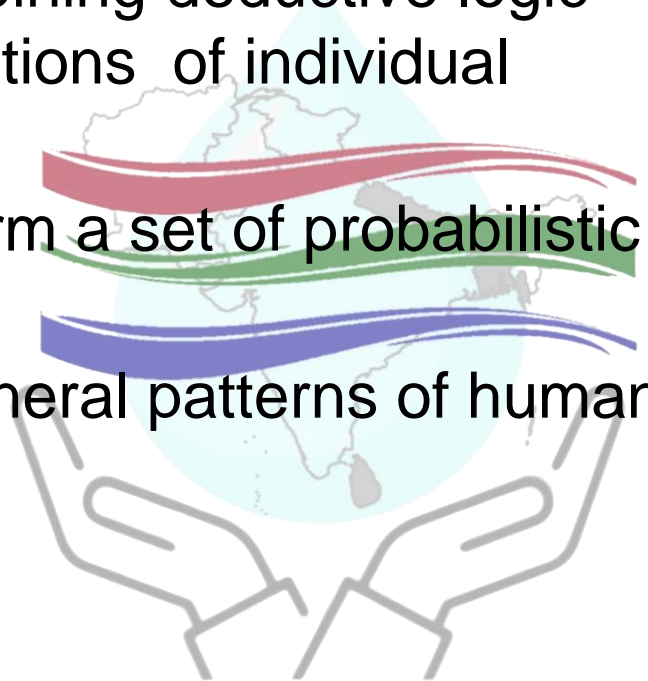
The three basic paradigms

- Positivism
- Interpretivism
- Critical social science research



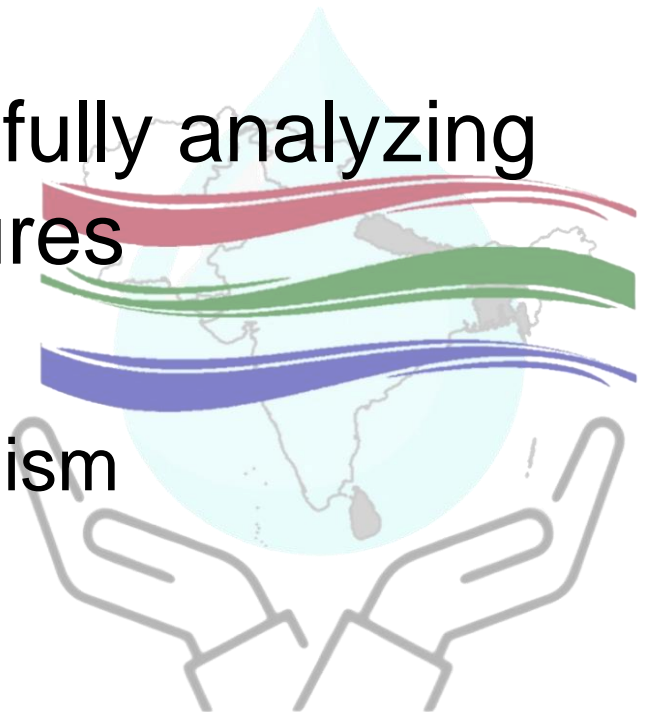
Positivism

- Approach of the natural sciences
 - Physics, chemistry, biology, zoology
- Sees social science as
 - an organized method for combining deductive logic with precise empirical observations of individual behavior
 - in order to discover and confirm a set of probabilistic causal laws
 - that can be used to predict general patterns of human activity



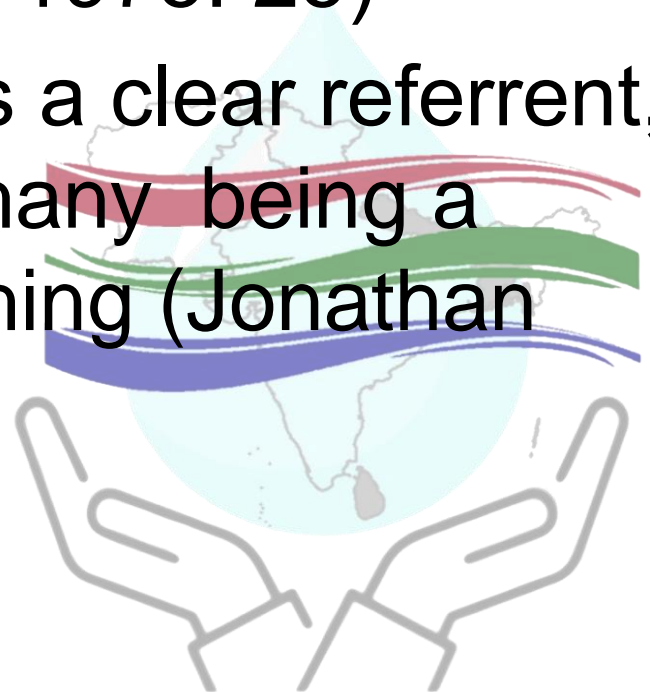
Characteristics and tools of positivist research

- Uses quantitative data, surveys, experiments, statistics
- Relies on rigorous, exact measurements, and 'objective' research
- Tests hypothesis by carefully analyzing numbers from the measures
- Alternative labels:
 - logical empiricism, naturalism



What some people say...

- Positivism says that “ there is only one logic of science, to which any intellectual activity aspiring to the title of science must conform’ (Keat and Urry, 1975: 25)
- “Positivism no longer has a clear referent, but it is evident that for many being a positivist is not a good thing (Jonathan Turner: 1992: 1511)



Why some don't like it...

- Limitations and criticisms
 - Critics argue that positivism reduces people to numbers; it is instrumental in its orientation
 - Its concerns with abstract laws or formulas are not relevant to actual lives of people
 - Many people think that positivist research is the only kind of research that can be engaged with, and remain closed or oblivious to other approaches



Interpretivism

- The interpretive approach is the systematic analysis of socially meaningful action
- through the direct detailed observation of people in natural settings
- in order to arrive at understandings and interpretations of how people create and maintain their social worlds



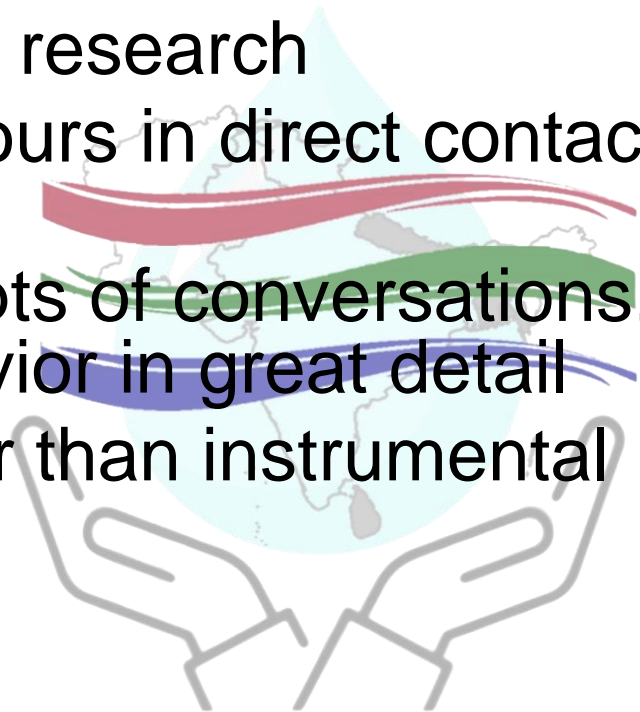
The basic premise

- Social science needs to study meaningful social action or social action with a purpose
- Interpretive social science is related to hermeneutics
 - Focuses on discovering meaning within texts; each reader brings his own subjective experience to this text
 - True meaning is not obvious on the surface



Characteristics and tools of interpretive research

- Called the qualitative method of research
 - Concerned with how people interact with or relate to each other
- Focus on direct observation of people in their natural settings
- Participant observation; field research
- Researchers spend many hours in direct contact with those being researched
- Ethnography, study transcripts of conversations, or study videotapes of behavior in great detail
- Orientation is practical rather than instrumental



Relevance of this discussion

- As researchers, we need to understand where we are coming from
- We need to make this more explicit in our work
 - Influences our modes of enquiry and tools of analysis
- Domain of generalization
 - Analytic vs statistical generalization
- Be sympathetic to intellectual traditions other than our own



Towards mixed methods research

- Can we combine positivist with interpretive research ?
- Qualitative and quantitative approaches



Why should we do this and how ?

- Some aspects of water management can be objectively quantified, measured
- Others can not, but have to be understood as people's lived and contextualized experiences



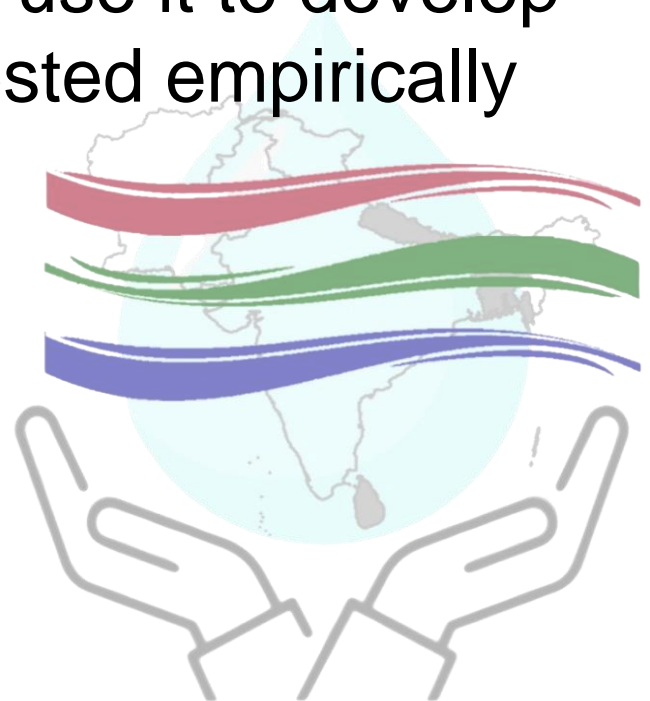
We should not do this simply because..

- One supervisor likes qualitative and one supervisor likes quantitative
- Or because we shy away from purely quantitative or purely qualitative work
- We should have a convincing logic for combining the two



Mixed methods research

- Can be done in two ways
 - Sequentially
 - Start with a qualitative, interpretive and exploratory approach and use it to develop hypotheses that can be tested empirically using quantitative tools
 - In parallel



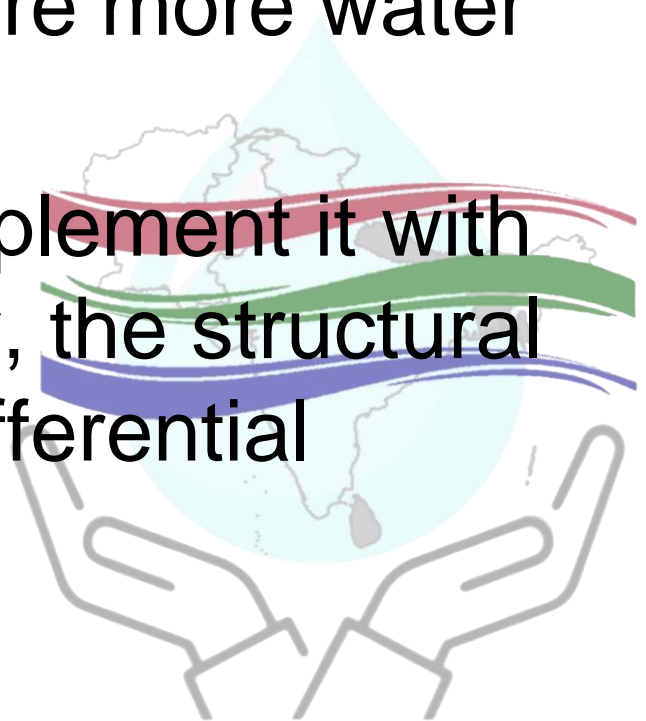
In parallel

- Use a positivist design to quantify and a qualitative research design to contextualize, or gain deeper understanding



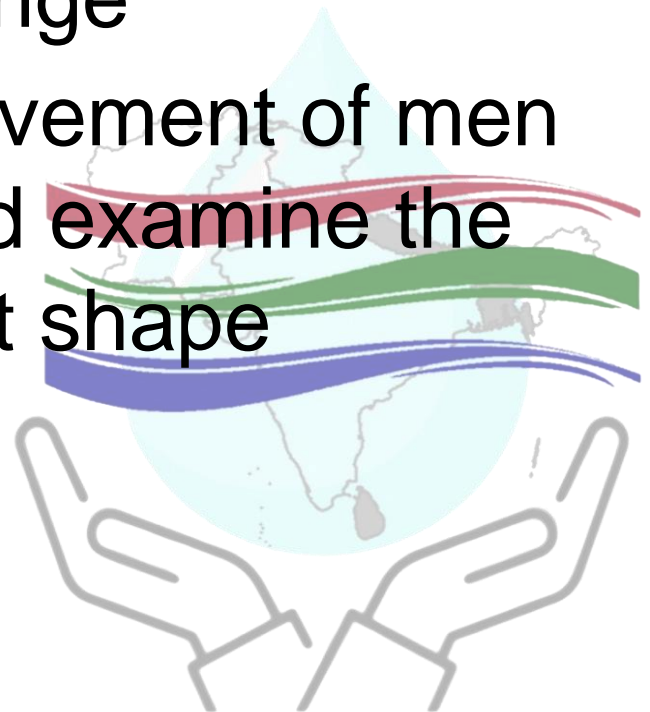
Examples

- Construct a water security index and then use qualitative research design to understand why some communities, social groups, men or women are more water insecure than others
- Construct a VCI and supplement it with narratives of vulnerability, the structural constraints that shape differential vulnerability



Examples

- Collect and analyse hydro-meteorological data from secondary sources and juxtapose with people's perceptions and narratives of climate change
- Quantify differential involvement of men and women in WUAs and examine the structural constraints that shape differential participation



But more important

- If you don't know where you are going, any road will take you there
- Method is a means to an end, not an end in itself
- To start with, choose a good topic that lends itself to inter-disciplinary analysis, and not just a social component in a technical study, or vice - versa



Time for group work

- In the three papers circulated for this session, how is a mixed methods approach use ?
- How is a quantitative research design used ?
- How is a qualitative research design used ?
- What is the value of combining them ?

