Research and Development Methodology

- Ethics
- Research Methods
Ethic

- Aim of research should be clear
- Relevant
- True and not superficial
- Leading to do-able result at scale
- Group that benefits is engaged and its voice is heard
- Work with diverse people
- Make sure that all feel free to take part
- Do not assume that the reality is only what you see
- No risk to anyone
- Open access and actively shared
Essential Ingredients of Relevant Research

**The issues:**
What problem(s) does the research address? what are the objectives?

**The research design:**
how will the research achieve its target objectives?

**The benefits:**
What will the research contribute?
Discussion: who would you agree with this?

- Policy-makers and managers often complain that researchers are out of touch.

- Researchers often complain that policy-makers and managers make poorly informed decisions

- Actively building & maintaining relationships with key individuals through discussions, meetings, workshops or field days will increase the likelihood that research outcomes will inform policy decisions.
For consideration:

- Do only policy makers matter? Should they get all on a plate?
- What is a ‘policy maker’ – can you give an example of someone and is he guided by research?
- Should we not give voice to poor and help think with them/for them on things to can be done better by many (not only policy makers). Are we not a bridge?
True - Getting confidence and verifiable

- Triangulation (the picture matches)
- Asking feedback and confirmation
- Rule of large numbers (statistics)
True – don’t be superficial

Questions to get deeper
• Why not like this
• How in the past
• Who is better off, who is worst off – why
• What is your opinion
• When did it happen, when did it started to change
Leading to results:
The output of a research and development is at best as good as its objective

Setting concrete and well-considered research objectives is imperative to ensuring that your research is going to be meaningful, and that efforts aren't wasted on objectives that don't make sense or are impractical.

*The key question here is: how do I formulate such objectives?*
Go beyond

The Standard Story

Source: http://alethonews.files.wordpress.com/2010/01/making-ethanol-cartoon.png?w=249&h=293
Solutions or problems?

- Solution-oriented research objectives are often about providing *more focus or specific details*, looking at *how and why*, rather than the more typical science question about whether the effect exists.
Examples of research topics and objectives

Research topic: Water harvesting for groundwater recharge and flood mitigation

Research objectives

- Develop a water harvesting manual that details the different techniques that are necessary to improve groundwater recharge and mitigate floods
- Identify the three most effective practical water harvesting systems that have the potential to:
  - reduce the imbalance between groundwater recharge and use by 50%
  - Cut by 75% the frequency of large destructive floods.
Do and don’t

• Do not research what you can read somewhere
• Give voice to the unheard
• Go for real impact
• Don’t be vague
• Don’t put yourself too high

How would you define impact?
How much to do we need to know before we can act?

Optimum ignorance?

Research methods - general

• Be clear about intention – do not create false expectations

• Triangulation – confirm observation from different sources and angles

• Comparative analysis – understanding what makes the difference between areas – understanding the ‘driving forces’

• Do not rely on one method only (=triangulation)

• Understand the hidden interests and games (detective)
Methods

• Interviews (well-being method)
• Special persons interviews
• Focus group discussion and participatory appraisal
• Joint activities and doing together
• Observation
• Reading grey material

Making the voice heard
 Interviews
Three stages
Focus group discussion

- Engages stakeholders – discussion and feedback
- Allows researcher to listen with open ear, absorbing new issues
- More relaxed and natural
- Can lead to action planning

But be careful:
- Who is there
- Who is talking, who react to who?
Focus group discussions

(1) Introduction

(2) Discussion
  • Mapping
  • Open discussion
  • Transect walk
  • Problem tree analysis
  • Trend analysis
  Information sharing

(3) Feedback and validation
1. Introduction

- Whom to invite and engage?
  - Those that matter
  - Those whose voice is often forgotten
  - Make sure people feel relaxed and speak freely

- What status to give to the discussion
  - Be clear about intentions

- Observe who is talking, who react to whom
Resource map

- Prepare map using paper or coloured powder
- Indicate (in different colours) for instance
  - Roads
  - Main buildings
  - Good/ bad lands
  - Safe/ unsafe spots
  - Areas with special issues
Resource mapping
Transect walks

- Systematic route through the area
  - Stop at each special point,
  - Small discussions
- Making observations at all water points
- Summarize findings
Transect walk

Systematically visiting all water points
Trend analysis

• Discuss with group situation now and in the past
• Take 3-4 points in time (related to political events) and discuss:
  • Population numbers
  • Livestock numbers
  • Type of crops
  • Type and number of floods
  • Condition of tanks, terraces and other structures
  • Depth of water table
  • Quality of water
Trend analysis

Discuss how did things change
Information sharing – for instance legal and institutional awareness

- Many legal provision and institutional arrangements and support facilities exists
- But usually no one knows - so no one will use
- So explain what to water users what legal instruments or investment opportunities they have
3. Feedback and synthesizing

• Compare results from different methods
• Verify
• Identify what should be done:
Discussions of findings – to share and validate