



SESSION 5 Change Mapping

At the end of this session, you will be able to:

- > Scope a 'change' to a current situation
- > Define the additional information needed to understand the current situation and to map future changes
- > Identify the pathway that an impact or intervention may have from the local to the community scale
- > Identify ways this tool may be used to increase understanding and develop better ways to manage change.



1. Setting the Scene

Why change mapping?

One of the uses of change mapping is to predict the pathway of impacts or the effects of change to a current situation. The change may arise as a result of an impact or an intervention in the current situation for any specific group or area. One analogy for this change process and the mapping of it is the 'domino effect' – where the flow of impacts takes place when the first domino falls against the next one, and so on.

Change mapping is a tool for predicting what the impacts will be from a change. Prediction of impacts from the change can give us greater understanding. Greater understanding affords us the possibility of intervention:

- to reduce the negative effects,
- to deal with groups who are impacted negatively, or
- to provide support to expedite the change needed.

Change mapping and NRM

Change mapping is a process-mapping exercise which can provide insights into the impacts of changes.

- The change itself may be a short sharp change e.g. Cyclone Larry or a low level ongoing change e.g. weed control.
- The change can be acute or chronic. The change may be both a negative one (e.g. continued soil erosion), or a positive one (e.g. riparian corridor is replanted to a 15 metre width throughout the stream's length).
- Change mapping can work with both negative and positive impacts from a change.

Change mapping works with understandings and information developed out of the other SEIA tools in the course – from regional profiling and stakeholder analysis to decision-support. Its value is increased with the use of these tools as well as other tools such as interviews, surveys and communication with groups whose participation is sought in regional NRM.



2. The Basics

Key Elements

- Clearly defining the nature and extent of the change you want to track
- Identifying the elements of the impact pathway and how these vary in scale and effects
- Drawing on the necessary information which allows you to track these impacts
- Developing your strategy for responding to the effects of that change process – to **enhance** them if they provide multiple benefits, to **reduce** them if they are a hazard, or **minimise side-effects** where the effects vary between groups or over time.

Information, Data and Expertise Needs:

- Community profiles
- Stakeholder analysis information
- Information about the nature of the change and the nature of the various impacts and responses to change
- Information about possible interventions (lessons from elsewhere)

Possible Applications:

Examples here include using change mapping to analyse and to develop strategies for:

- the positive and negative impacts of continued degradation of natural resources (salinity, bank erosion)
- targets and the effects those targets may have on groups or areas where programs will be employed to achieve them
- incentives or other specific interventions to deliver on resource condition targets
- defining indicators for monitoring and evaluation – short and long term.

Strengths and Limitations:

- Change mapping adds depth of understanding to program design, project delivery as well as strategic NRM planning
- Change mapping can be undertaken with the target populations or in-house – it is a learning process and the
- It is a process based largely on interpretation of available information – quantitative and qualitative information. It therefore works best when the understanding of various groups is employed in the exercise
- More quantitative (evidence-based) uses of change mapping are possible and this will enable refinement of the change mapping methodology over time. An initial change mapping exercise will work mostly with people's understandings and assumptions rather than hard data...but this can be improved over time.
- Impacts of an NRM change might be difficult to separate out from a background level of change for example after a Cyclone, or a prolonged drought, or a price drop / hike for a crop.
- You will need to choose the scale of the exercise – property, project, sub-catchment or regional scales?

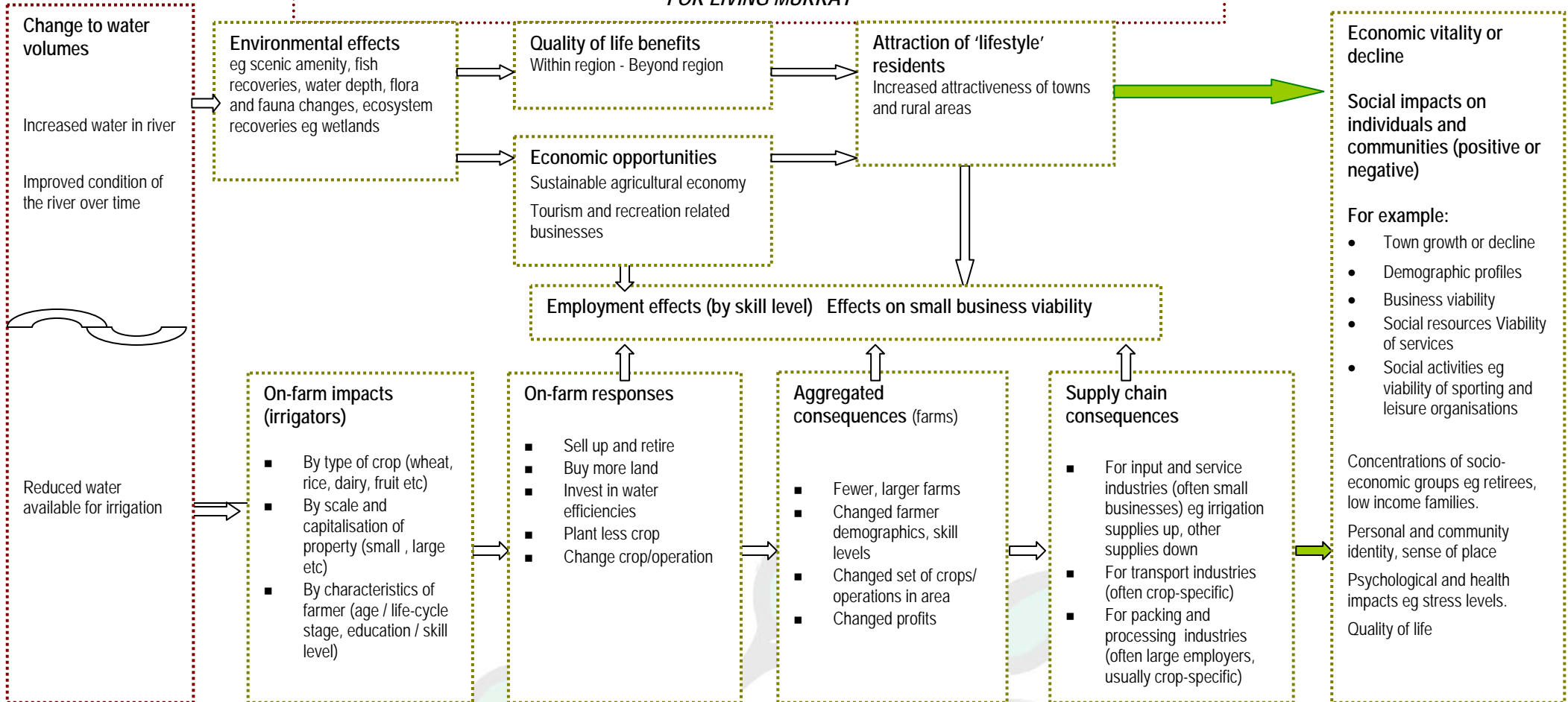


Consider the value of change mapping in managing impacts of change for example, changes in a community moving from small rural holdings to large forestry plantations, or the introduction of water trading in various catchments, or the uptake of Grazing Land Management across the region? What improvements to your capacity would occur as a result of such analysis? What short and long term impacts would need to be understood? What communication would be needed and with whom?



3. Out in the Real World¹

CHANGE MAPPING CASE STUDY- REDUCTION IN VOLUMES FOR IRRIGATION, INCREASE IN VOLUMES FOR LIVING MURRAY



¹ Hassall & Associates, Ross H, Maher M, (2003) *Scoping Study Report: Social Impact Assessment Of Possible Increased Environmental Flow Allocations to the River Murray System*, Murray Darling Basin Commission



Questions for change mapping case study based on the change: reduced volumes of water for irrigation, increased volumes for Living Murray

Refer to the previous page:

Top set of boxes = effects of more water in the river

- Who benefits from the increased river water and improved natural condition of the river?
- How long might these benefits take to be realised?
- Agricultural benefits – how long might they take to be realised? How might the impacts of these benefits be speeded up?

Bottom set = effects of less water for irrigation

- What are the immediate effects and who experiences these?
- How do on-farm effects accumulate into larger ones?
- What are the effects on the supply chain?
- How do economic effects translate into social effects?
- Where might efforts be placed to mitigate the negative short term effects?



Complete these questions for the Living Murray Case Study

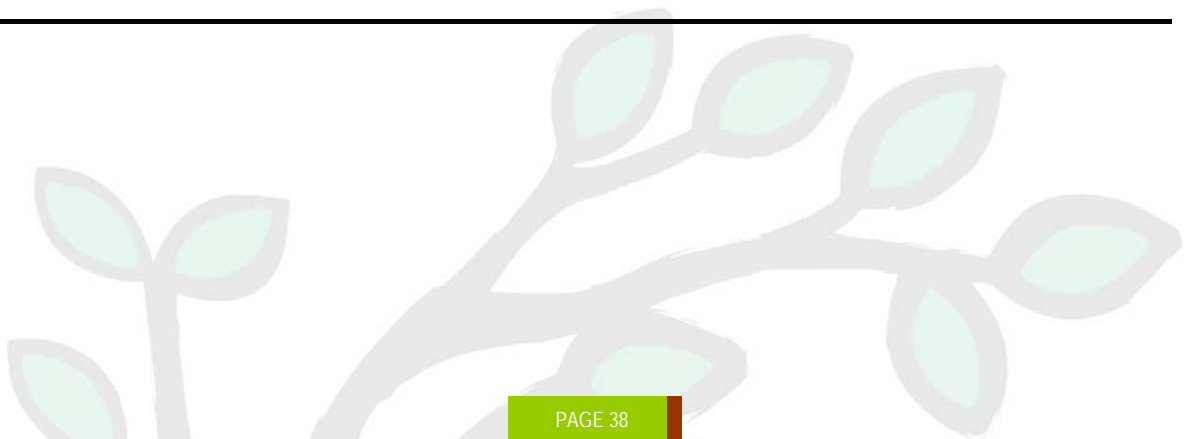
Group Exercise - Tracing the effects that the uptake of grazing land management (GLM) could have in your region

Description of some features of GLM for the exercise

Using case studies from <http://www.deh.gov.au/land/publications/rangelands-financial-environmental/pubs/financial-environmental14-41.pdf>, the key features of GLM in the Mitchell grass area and their social and economic dimensions are that GLM in the Mitchell grass area were as follows (*participants are to use these for the exercises below*):

- GLM altered the landholders' stocking rates; this had little economic impact, big ecological plus
- GLM introduced specific weed control and burning regimes = a minor economic plus
- GLM introduced strong control of stock access to riparian areas = major economic loss and a major ecological gain both on and off-farm

One - Describe the change to be explored - *a 20% uptake of Grazing Land Management Practices in the region by 2010*





Group Exercise - Tracing the effects that the uptake of grazing land management could have in your region

Two - Property level impacts

- List of the effects, positive or negative, which that level of adoption of GLM could or will generate.

Nature of the change and of its impacts at individual property level	
Positive	Negative

Three – Property level responses

What will be the on-farm responses:

- Which aspect will mean most to them?
- Why do they care (financial, community, other interests)?

Nature of the property owners/managers response	
Positive	Negative

Four – Aggregated (the group of graziers) responses


- When you multiply this by all the people in your targeted group of graziers (say 20 – 40 properties) what is the likely response? You will need to allow for differences in responses.

Nature of the aggregated responses – the whole of sector or industry group responses	
Positive	Negative

Five – Flow-on effects

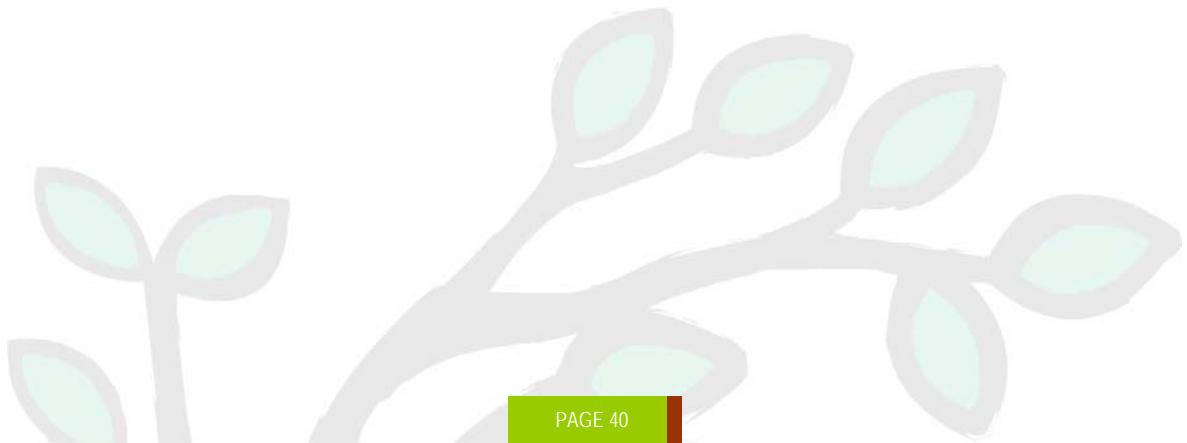
- Consider flow on effects - what will be the impact on the broader economy – truck haulage, town services such as banks and medical services, number and diversity of sporting or other community organisations, numbers of teachers etc?



 Complete the table below by broadly describing flow-on effects of the area where the change occurs

	Positive	Negative
Commercial and retail activity (shops, dentists, accountants)		
Agricultural suppliers and haulage services		
Government services – schools, hospitals		
Community activities – sporting, cultural, churches, events, care services		

This page can also be used to record change mapping from the GLM adoption.





Six - Consider some actions which could mitigate negative impacts, or maximise positive responses of GLM adoption

Look back at the water case study and consider what might be the role of mitigation or adjustment strategies such as employment training, extension work, demonstration of alternative crops, rural adjustment funds?

In your GLM case study, consider:

- Influences on farmer responses – e.g. drought, seasonality, debt levels, ownership of the land, lease conditions?
- Existing or new partnerships or potential to share resources - to share the benefits or any losses?
- Possible mitigation actions – what, when, how and with whom? e.g. would you slow down the adoption process or increase it?
- On-ground actions to mitigate impacts
- Your capacity to influence the impact pathway – through information, education, communication, monitoring, demonstration, promotion of leaders or the design and delivery of incentives.



4. Your region, your projects and this tool

Communities best able to deal with negative changes are considered to be resilient. Resilient communities have an ability to organise themselves and cooperate to meet a threat or opportunity. Communities unable to deal well with change are considered vulnerable. Change mapping can assist with the analysis of a community's resilience or its vulnerability.

***Resilient communities* are those with features such as diversity of production and economic interests, a range of community activities and care functions, strong networks, good information access and distribution, and a range of leaders and volunteer support. Vulnerable communities are the opposite.**



Questions to Consider:

- When might I use change mapping?

- Where will get the information I need?

- How much effort will be involved? What level of detail will I work with?

- Who should be involved in the exercise?

- How will it help me improve the effectiveness of my projects?



5. Summing up

List two insights you have gained from the session

1

2

List two actions you would take to kick-start a change mapping exercise for an NRM initiative

1

2



Further Information

Ross H, McGee, T, Conceptual Frameworks for Social Impact Assessment Revisited: Interpretation of a Cumulative Effects Case Study on Lead Contamination and Economic Change, Impact Assessment and Project Appraisal, June 2006, p 139-149

The best way is to search the Net under terms such as *Impact Pathway* analysis or social impact assessment.