Indigenous Livelihoods Policy Reference Group: research priorities identified from the first meeting, 28\textsuperscript{th} April 2010

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1. INTRODUCTION

1.1 Indigenous Livelihoods Project

The CSIRO Indigenous Livelihoods Project sought to work with Indigenous communities, government and non-government stakeholders to bring together western science and Indigenous knowledge in order to understand the potential livelihood benefits of enterprises based on natural resource management.

The research focus was to enhance livelihood opportunities for Indigenous communities derived from new enterprises and activities based on natural resource management in regional and remote Australia. Underpinning outcomes were:

• Identification of effective policy and institutional arrangements required to establish and maintain sustainable livelihoods;
• Improved systems understanding of factors that enhance or inhibit sustainable livelihoods based on natural resource management;
• Tools and methods for measuring the livelihood benefits of natural resource management;
• Education, training, employment and capacity building for Indigenous communities and researchers.

1.2 Policy Reference Group

The governance of the Indigenous Livelihoods project consisted of four key levels and is illustrated in Figure 1. The Policy Reference Group was intended to provide a forum for research engagement with relevant government policy stakeholders. The group held its first meeting on Wednesday 28th March 2010. The following government stakeholders joined the CSIRO authors of this report:

• Catriona Murray (Manager, Indigenous Economic Opportunities, Family, Housing, Community Services and Indigenous Affairs);
• James Haughton (Policy Officer, Remote Service Delivery, Family, Housing, Community Services and Indigenous Affairs);
• Charlie Zammit (Assistant Secretary, Department of Environment, Water, Heritage and the Arts);
• Phil Richardson (Indigenous Policy and Performance, Queensland Department of Communities);
• Gerry Barabos (Indigenous Business Australia).
The Case Studies at the bottom were comprised of community-driven NRM projects overseen by project reference groups. Lessons learnt were shared horizontally with other case studies and vertically with the working groups, project management and reference groups. The four working groups facilitated the synthesis of learnings in the key areas. Both case studies and working groups shared their understanding directly with the management team which in turn facilitated dialogue with the Flagship, CSIRO and the Policy Reference group (the latter is the focus of this report).

The objective of the meeting was to advance the Indigenous Livelihoods Project by:

- Establishing representatives on the Policy Reference Group to contribute to the research design and analysis of case studies;
- Evaluating the livelihood and biodiversity benefits of government programs such as Working on Country and Caring for Our Country;
- Discussing opportunities for collaboration in future research.
1.3 Guidance for Using this Report

This report was developed to provide strategic direction for CSIRO’s engagement with Indigenous communities. Section 2 describes the activities undertaken as part of the workshop to both elicit research priorities and to deliberate over the role of the Policy Reference Group. Section 3 goes on to report on the research priorities developed in collaboration with policy makers and the ways in which the existing Indigenous Livelihoods projects either addressed or could address these priorities. This is followed by Section 4 that discusses strategic directions and Section 5 that proposes specific next steps in order to promote this strategic direction.
2. METHODS

The workshop agenda is shown in appendix A, and is comprised of three main components:

1. Presentations on Indigenous livelihood concepts and research outcomes to date;

2. Session on future research questions, priorities and opportunities;


The first component involved a presentation of the Indigenous livelihoods framework, engagement strategy and a brief overview of projects to the workshop participants. Yiheyis Maru also provided a more in-depth look at research coming out of the modelling working group. After CSIRO presented their research, policy makers were invited to reflect on their perspectives on the issues and current approaches.

The second component around identifying and prioritising future research priorities was undertaken as part of an exercise around social learning and is discussed in detail section 2.1.

The third component was undertaken at the beginning and end of the workshop in two parts. It sought to share first impressions of what the Policy Reference Group could be used for and at the end of the day to discuss future directions for the Policy Reference Group and is discussed in section 2.2.

2.1 Identifying future research priorities

During the social learning session, the policy makers and the researchers were invited to share their perspectives on what were the key issues, in order to debate and deliberate over future action research priorities in order to facilitate collection action towards addressing these issues. To this end, workshop participants were given 10 minutes to list responses to the following question:

“What types of issues need to be researched around sustainable livelihoods in remote Indigenous communities, families, enterprises and individuals?”

After issues were listed on post-it notes, the concept of the Cynefin Sense-Making Framework (Snowden 2002) of simple, complicated, complex and chaotic systems or domains was introduced to the whole group (Appendix B). This framework provides a lens through which to analyse problems or issues and systems from a fresh perspective. Together the group worked through a worked example of how an issue could be categorised using this framework. After this they were separated into four groups to sort their responses to the question, with policy makers in two separate groups and CSIRO researchers in two other groups, one for CSIRO managers and the other for CSIRO researchers and communication and engagement officers.

All groups took the list of issues they had produced in response to the question (above) and categorised them on large pieces of butcher paper in terms of whether they were ‘simple’, ‘complicated’, ‘complex’ or ‘chaotic’. Issues placed in the simple domain were those that were
perceived to be the easiest to analyse and solve. Cause-and-effect relationships were clear and, as such, there were evident solutions. Complicated issues had multiple cause and effects that were possible to predict but would require someone with expert knowledge to further analyse prior to finding a solution. On the other hand, those in the complex domain were issues whose patterns could only be analysed retrospectively but not predicted in advance. Chaotic issues were those where relationships between cause and effect were impossible to determine and which would require quick action to address or resolve them.

After the groups had categorised their issues independently, the four groups were brought back together and a discussion was facilitated around key issues that had emerged. There was also a discussion around commonalities and differences in the way each group had sorted their issues. The Cynefin framework helps participants understand the complex nature of the issues being explored and hence the complexity of solution. In understanding that most intractable Indigenous issues are highly complex it directs the policy maker to solutions that use small ‘safe-fail’ experiments in collaboration amongst different groups/people (this is discussed further in Appendix B). This approach for ‘complex systems’ is in stark contrast to that used for merely ‘complicated systems’ relying on expert knowledge to identify exactly what the sources/causes of the problem are and how to fix it.

Workshop participants were then asked to use coloured dots to prioritise issues that they would like to see addressed in the future. They were not given a limit on the number of dots they could use and were free to use as many as they wanted. The policy officers used around 6 dots each while the CSIRO employees used around 2 dots per person.

2.2 Future of the Policy Reference Group

James Butler facilitated an open discussion around:

- Which areas policy makers regarded as priorities, and how they related to the goals of the Indigenous Livelihoods Project
- What role the Policy Reference Group could potentially play in the Indigenous Livelihoods Project
- Potential opportunities for collaboration between researchers and policy makers, and avenues for funding.
3. FINDINGS

3.1 Indigenous livelihood issues for future research

3.1.1 Simple, complicated, complex, and chaotic issues

In three (one policy and two CSIRO) of the four groups, the majority of issues were sorted into the complex domain with only some categorised into the complicated domain (Appendix C). The remaining group (policy) used a broader spread, with issues categorised across all four domains. The dominance of issues in the complex domain was not surprising considering that both policy makers and scientists are working predominantly on intractable Indigenous livelihood issues that include both Indigenous and non-Indigenous perspectives. On the other hand, there were not many issues listed in the chaotic domain at the start. In a few cases although these were originally categorised as chaotic, upon further reflection they were re-categorised into the complex domain.

3.1.2 Priority research issues

At one level there were similarities between researchers and policy makers in that they believed the range of issues identified by the other group were equally relevant. However at another level there were also differences in the way the two groups prioritised these issues with particular issues finding a stronger resonance with one group more so than the other.

The research priorities (identified by a blue dot) and policy priorities (identified by a green dot) (see photos in Appendix C) were evenly spread over the four workgroup sheets independent of whether they were first proposed by a researcher or policy officer. In other words, the CSIRO researchers chose issues on workgroup sheets developed by policy officers and vice versa. This is illustrated in Figure 3 which although developed by a policy reference group, has both blue dots and green dots indicating that both policy officers and researchers believed the issues first identified by policy officers were relevant to all.

However, CSIRO employees and policy officers chose different priority issues within each of the four workgroup sheets. While there was no preference for who developed the issues there was a preference for particular priorities on the sheet. In other words, there was limited overlap between research and policy priority issues. This is illustrated in Appendix C where there is a similar number of green dots and blue dots on each groups sheet however the green dots and the blue dots are clustered around different issues on each of the sheets. This is particularly evident in Figure 3 where CSIRO employees prioritised complex and chaotic issues while the policy officers prioritised only the complicated issues.

The actual priority issues raised and the ways in which the Indigenous Livelihoods Project has been addressing them are documented in Tables 1 – 3 and discussed further in the section below.

Issues prioritised by both groups focussed on:
• How communities can become sustainable and how research in this area can be evaluated;

• Understanding values, particularly differences between Indigenous and mainstream perspectives of well-being as well as differences between Indigenous youth and the broader population.

There were also priorities selected individually by both policy and research groups that upon closer inspection focussed on similar issues which could have been grouped together. These were:

• The need to understand whether sustainable livelihoods actually address disadvantage;

• How communities can be independent of ongoing external (government) support.

While there were some similarities between the groups, there were also differences with the policy makers, who focussed more on opportunities and ways of measuring sustainable livelihoods, while the researchers mostly identified challenges to be overcome, and technological opportunities. Policy makers were interested in the following issues:

• Whether a NRM-based livelihood was part of the answer to disadvantage in communities;

• How communities can be independent from external support in the short and long term, and how;

• How a sustainable livelihood can be measured.

Most of the research challenges identified by policy makers centred on:

• Opportunities for helping to achieve sustainable livelihoods;

• How Indigenous knowledge could be integrated with both science and market opportunities to achieve sustainable livelihoods;

• Whether there were any models (e.g. a typology of livelihood opportunities), incentives, management mechanisms, systems for regionalisation or approaches to resources ownership which could help achieve sustainable livelihoods;

• The application of resilience theory to identify thresholds in systems which have to be addressed before a system can move into a new desirable state.

CSIRO researchers were also interested in a similar research questions, including:

• Problems such as barriers to economic participation;

• Issues about scale (community level, family, individual) and mobility;

• The role of technology such as harnessing Information and Communication Technologies (ICT) to address “remoteness”
### Table 1: Policy maker and CSIRO research priorities

<table>
<thead>
<tr>
<th>Priority research issue</th>
<th>Indigenous livelihood projects that address this issue</th>
<th>Future research projects</th>
<th>Contact for more information</th>
</tr>
</thead>
</table>
| Can discrete Indigenous communities become sustainable?                                 | Case study: Warraber and Darnley Island hand collectable fisheries, Torres Strait, QLD, which is investigating long term sustainable economic development opportunities from the utilisation of multiple commercial and subsistence marine resources, and adding value to these resources on the islands.  
Case study: Palm Island, QLD, which is examining local community perceptions of possible livelihood futures on the island based on self-sufficiency in agricultural and marine produce, and commercial ventures such as tourism and aquaculture.  
Case study: Mungalla Station, Ingham, QLD, which is assessing an alternative model for sustainable development, whereby a cattle station is being reconfigured for multiple use (e.g. wetland tourism, training courses) for the non-resident Nywaigi community. | This case study is a trial which may be extended to other Torres Strait islands in 2010-2013.  
This project is ongoing                                                                 | James Butler, CSIRO  
Erin Bohensky, CSIRO  
Tony Grice, Mike Nicholas, CSIRO                                                                 |
| Evaluating “winning” research investment in Sustainable Indigenous Livelihoods?          | Case study: Lajamanu Stories inland, NT. This project has applied the Sustainable Livelihoods Framework in a participatory format with the local Indigenous community to identify the impact of Desert Knowledge CRC research on the livelihood assets and needs of the community. | This approach has been extended to the Yuendumu community, NT  
This project will be extended to the Kuku Nyukal community at Wujal Wujal, Wet Tropics in 2010-11.               | Michael LaFlamme, CSIRO  
Tony Grice, Mike Nicholas, CSIRO                                                                 |
<p>| Understanding values: conflict between indigenous perspectives of well-being versus mainstream perspectives | Case study: the Mallambarra Yidinji River Restoration project in the Wet Tropics, QLD, has analysed the differences between the local community’s perspectives of human and ecological well-being, and those of contemporary society and science. | This project is struggling to continue without external funding                                                                 | James Butler, CSIRO                                                                 |</p>
<table>
<thead>
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<tbody>
<tr>
<td>• What are the views of indigenous youth in remote communities about their future livelihoods?</td>
<td>Case study: Lajamanu Stories inland, NT. This project has identified that the education of the community youth in traditional lore was central to future sustainable livelihoods, and brought together elders and youth to engage in planning the future of the community.</td>
<td></td>
<td>Michael laFlamme, CSIRO</td>
</tr>
<tr>
<td>Priority research issue</td>
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<tr>
<td>Are NRM-base livelihood options adequate to reduce poverty and disadvantage among indigenous settlements in remote Australia?</td>
<td>This is a core question for the Indigenous Livelihoods Project, and the case studies are explicitly addressing the issue.</td>
<td>Some of these case studies may not continue due to external funding constraints (e.g. Mungalla Station), but most will continue</td>
<td>James Butler, CSIRO</td>
</tr>
<tr>
<td>Translating Indigenous knowledge to market opportunities</td>
<td>Case study: the Mallambarra Yidinji River Restoration project in the Wet Tropics, QLD, has investigated the opportunities for fee-for-service application of Indigenous knowledge of controlling invasive pests and weeds.</td>
<td>This project will continue in 2010-11</td>
<td>James Butler, CSIRO</td>
</tr>
<tr>
<td>How Indigenous knowledge can be integrated with science?</td>
<td>This is also a key theme of the Indigenous Livelihoods Project, with the Knowledge Integration Working Group publishing a special feature of the journal Ecology &amp; Society on Australian experiences in 2010-11.</td>
<td>This work will be completed in 2010-11</td>
<td>Erin Bohensky, CSIRO</td>
</tr>
<tr>
<td>Can a Sustainable Livelihood be measured?</td>
<td>This is also a key theme of the Indigenous Livelihoods Project, with the Livelihoods Modelling Working Group investigating the sustainability of some case studies.</td>
<td>This work may continue in the Torres Strait case studies in 2010-2013.</td>
<td>Yiheyis Maru, CSIRO</td>
</tr>
<tr>
<td>How can sustainable livelihoods produce economic diversification away from sole government support?</td>
<td>This is a core question for the Indigenous Livelihoods Project, and the case studies are explicitly addressing the issue. The diversification being assessed is NRM-based enterprises.</td>
<td>This work may continue in the Torres Strait case studies in 2010-2013.</td>
<td>James Butler, CSIRO</td>
</tr>
<tr>
<td>What level of external support is required to make a sustainable livelihood project work in the long term?</td>
<td>As above</td>
<td></td>
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<tr>
<td>Priority research issue</td>
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<tr>
<td>To what extent do links and access to regional and urban centres aid/impact upon remote community and potential for sustainability?</td>
<td>This is a key question for the Indigenous Livelihoods Project, with the Livelihoods Modelling Working Group investigating the systems dynamics of some case studies. This question is being addressed by the Torres Strait and Mallambarra Yidinji case studies, where co-management of fisheries and Wet Tropics World Heritage Area may be key to achieving sustainable livelihoods.</td>
<td>This work may continue in the Torres Strait case studies in 2010-2013.</td>
<td>Yiheyis Maru, CSIRO</td>
</tr>
<tr>
<td>Identifying thresholds in systems?</td>
<td>This is a key question for the Indigenous Livelihoods Project, with the Livelihoods Modelling Working Group investigating the systems dynamics of some case studies, and the types of change required to shift the livelihood systems from ‘bad’ to ‘better’ basins of attraction.</td>
<td>This work may continue in the Torres Strait case studies in 2010-2013, and in the Wet Tropics in 2010-2011.</td>
<td>James Butler, CSIRO</td>
</tr>
<tr>
<td>Solutions to natural resource ownership e.g. co-management native title?</td>
<td>This is a core question for the Indigenous Livelihoods Project, and the case studies are explicitly addressing the issue. The wide range of case studies’ social and geographical contexts allows an analysis of potential typologies.</td>
<td>This work is likely to conclude in 2010-2011 due to funding constraints.</td>
<td>Samantha Stone-Jovicich, CSIRO</td>
</tr>
<tr>
<td>What are the drivers/ incentives for change (from current poor circumstances)?</td>
<td></td>
<td>This work is likely to conclude in 2010-2011 due to funding constraints.</td>
<td>James Butler, CSIRO</td>
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<td>What are the biggest risks and what mechanisms can help to anticipate/ manage them?</td>
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<tr>
<td>Can a typology of Sustainable Livelihood opportunities be developed for particular socio-economic circumstances?</td>
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### Table 3: CSIRO priorities

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<tr>
<th>Priority research issue</th>
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</tr>
</thead>
<tbody>
<tr>
<td>• Can sustainable livelihood knowledge be used to perform government service delivery and interactions with and actions upon Indigenous people?</td>
<td>Case study: Lajamanu Stories inland, NT. This project has applied the Sustainable Livelihoods Framework in a participatory format with the local Indigenous community to identify the livelihood issues that require service delivery, and the mode of delivery, which has contributed to the local planning for FaHCSIA’s Remote Service Delivery Program.</td>
<td>This approach has been extended to the Yuendumu community, NT</td>
<td>Michael LaFlamme, CSIRO</td>
</tr>
<tr>
<td>• How does a sustainable livelihood approach overcome barriers to economic participation or turn barriers into strengths?</td>
<td>As above</td>
<td></td>
<td>As above</td>
</tr>
<tr>
<td>• How can we create positive interaction between a sustainable livelihoods point of view at Indigenous community level and broader individual or family, market economy and ‘the mainstream’?</td>
<td>This is a core question for the Indigenous Livelihoods Project, and the case studies have been explicitly addressing the issue.</td>
<td></td>
<td>James Butler, CSIRO</td>
</tr>
<tr>
<td>• Can sustainable livelihoods overcome or contribute to overcoming social pathologies? (Drug, crime, petrol sniffing, suicide, sexual assault, etc)</td>
<td>This is a key question for the Indigenous Livelihoods Project, with the Livelihoods Modelling and Impact Indicators Working Groups investigating the systems dynamics of some case studies, and the multi-dimensional impacts of NRM-based enterprises on social pathologies.</td>
<td></td>
<td>Yiheyis Maru, Michael LaFlamme, CSIRO</td>
</tr>
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<tr>
<td>• Harnessing Information and Communication Technologies (ICT) important for addressing “remoteness” individual/family/community or simple/complicated</td>
<td>This is not being addressed by the project or case studies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To what extent does “mobility” and related service provision impact on potential for sustainability?</td>
<td>This is not being addressed by the project or case studies.</td>
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</table>
4. DISCUSSION

4.1 Aligning policy and research priorities

The majority of issues identified were considered to be in the ‘complex’ domain and as such the use of small ‘safe-fail’ experiments would be appropriate. The Indigenous Livelihoods framework provides such experiments through livelihood ‘trials’ in case studies. The lessons learnt from these trials are shared between the various groups at all levels through the framework in figure 1. This need for ‘trials’ is reflected in a strong interest shared amongst both policy makers and researchers for further research into sustainable livelihoods for rural and remote Indigenous communities. This was identified as important at multiple scales targeting the individual, family, community and other social groupings. There were many common issues identified by both the policy and CSIRO researcher groups around whether sustainable livelihoods address disadvantage and the barriers or opportunities for more sustainable livelihoods in Indigenous communities.

Despite strong similarities around the types of issues identified, there was a difference in the priorities between the two groups, or at least in the way that they were framed as research problems. This indicates the need for using the full (un-prioritised) list as a starting point for ongoing dialogue between policy makers and researchers to explore alternative framing of issues and identify common ground.

4.2 Future directions in policy relevant research

All participants considered the two research questions listed in section 3.1.2 along with the directions in Appendix D as priorities. These were categorised into 6 key strategic directions as illustrated in Appendix E. The directions were:

- Assessing policy actions, outcomes and identifying indicators for sustainable livelihoods;
- Researching Indigenous values and norms e.g. around mobility, or appropriate engagement processes and how these vary between groups (eg Indigenous youth);
- Resilience thinking and modelling including policy gaps, best ‘entry points’, thresholds and current programs;
- Economic development opportunities that consider economic, social and cultural rather than purely NRM-based enterprises. These may include economic diversification and ‘on-farm’ enterprise mixes, a market economy framework, or ‘business model thinking’. It should also consider the impact of market failure occurs in communities;
- Regional strategies (outstations/homelands, Remote Service Delivery);
- Co-management including identifying remote assets, negotiating caring for these assets, sharing knowledge and building capacity;

Tables 1 – 3 show that the Indigenous Livelihoods Project case studies have been directly addressing many of the key strategic directions identified. Specific actions from these case studies that could further progress shared priorities (researchers and policy makers) include:
• Warraber and Darnley Island hand collectable fisheries extended to other Torres Strait Islands,
• Ongoing support Indigenous Livelihoods research around commercial and agricultural ventures on the Palm Island,
• Ongoing support for the Mungalla Station sustainable development
• Expansion of the Lajamanu Stories (identified impact of Desert Knowledge CRC) to Yuendumu and other communities
• Expansion of the Mallambarra Yidinji River Restoration to the Kuku Nyukal and other communities

In addition to support for these case studies, it is important to look for opportunities to share the current learning from the case studies with policy makers. Options include conferences or workshops with key policy makers bringing together researchers both within and external to CSIRO. This would help link Indigenous livelihoods work with other networks or agendas such as:

• COAG priorities including ‘Closing the Gap’
• The NRM Ministerial Council’s Working Group for Advising Indigenous NRM
• Better linkages to the Torres Strait
• The Indigenous Economic Strategy 2010

These strategic directions, actions within the case studies and networks or agendas are all summarised in the framework in Figure 2 below.
Figure 2  Framework to address research priorities in the Indigenous Livelihoods structure. Headings in red indicate key strategic directions and networks identified in the workshop. Case studies in blue were identified after the workshop by the project management team.
5. NEXT STEPS

The meeting identify strategic research directions and linkages to policy networks and agendas. Contingent on future funding, it will be necessary to further explore the research questions identified at the first workshop. This would include sorting and combining research problems, distilling key research areas and planning future research.

The facilitated discussion around the importance of continuing the Policy Reference Group as a conduit for science and policy linkages was well received and generated interest amongst the policy makers. In order to progress policy-relevant research a number of broad options were discussed:

1. Bring together policy makers, Indigenous livelihoods researchers and other researchers working on Indigenous issues through a conference or workshop around ‘Action Research around Indigenous Community Development’;
2. Develop agency-specific training packages for policy makers based around research in Indigenous livelihoods;
3. Develop strategies to develop and resource action research projects to build upon existing research in areas identified as research priorities;
4. Depending on which strategies are more broadly supported, consider processes for ongoing dialogue between policy makers and researchers, potentially through developing a formal reference group with its own terms of reference.
REFERENCES


APPENDIX A – AGENDA

CSIRO Indigenous Livelihoods Project
Policy Reference Group Workshop

Wednesday 28th April 2010
CSIRO Sustainable Ecosystems (Room 7.124, Level 7)
Queensland Biosciences Precinct, 306 Carmody Road, St. Lucia, Brisbane

Attendees:
Charlie Zammit (DEWHA)
Catriona Murray, James Haughton (FaHCSIA)
Gerry Barabos (Indigenous Business Australia)
Phil Richardson (QLD Aboriginal and Torres Strait Islander Affairs)
James Butler (CSIRO)
Bronwyn Hatch (CSIRO)
Peter Carberry (CSIRO)
Jim Walker (CSIRO)
Larelle McMillan (CSIRO)
Yiheyis Maru (CSIRO)
Emma Yuen (CSIRO)

AGENDA

9:30 Welcome and introductions (James Butler, Jim Walker)
10:00 Overview of Indigenous Engagement Strategy and Livelihoods Project
(Jim Walker, James Butler, Yiheyis Maru)
10:30 Presentation on Indigenous livelihoods modelling
10:45 Tea
11:00 Government perspectives of Indigenous Livelihoods issues (facilitated
discussion)
11:30 Policy Reference Group structure, remit
12:30 Social learning exercise introduction (Emma Yuen)
1:00 Lunch
2:00 Social learning exercise cont.
3:00 Policy Reference Group structure, remit
3:30 Tea
4:00 Next steps
4:30 End
APPENDIX B – CYNEFIN FRAMEWORK OVERVIEW

1. **SIMPLE PROBLEMS/ISSUES**
   - **Sources/causes**: of the problem are well-known and predictable: there is a cause-effect relationship (i.e. do x and always get y; no matter how many times you do it, you get the same result)
   - **Solutions**: because know what is behind the problem, finding a solution is fairly easy and straightforward (simple)
   - **Most appropriate approaches to solving the problem**: just do it, “best practices”, “standard operating procedures”, rules and regulations; simple coordination and implementation of actions aimed at solving the problem

2. **COMPLICATED PROBLEMS/ISSUES**
   - **Sources/causes**: Know there is a relationship between cause and effect but not so clear or immediate
   - **Solutions**: Requires analysis and application of expert knowledge (e.g. scientists) to identify exactly what the sources/causes of the problem are and how to fix it
   - **Most appropriate approaches to solving the problem**: expert analyses; co-operation between different groups of people with different expertise/knowledge (e.g. decision-maker, sociologist)

3. **COMPLEX PROBLEMS/ISSUES**
• **Sources/causes:** Problems that have no coherent chain of cause and effect; cause and effect relationship is so intertwined that it becomes clear only hindsight; unpredictable and different outcomes every time it (or something similar) happens

• **Solutions:** There is no obvious right or wrong set of solutions because there is no simple logic of cause and effect, or even a complicated logic. The standard ways we analyse things (including expert/scientific analyses) will also not necessarily pick up the cause, or find a feasible solution.

• **Most appropriate approaches to solving the problem:** Have to go out on a limb and experiment with a series of small “safe-fail” experiments (they are a bit of a risk and can fail but they are “safe to fail” because they should be designed to be small, not costly, and show results fairly quickly); need collaboration among different groups/people to come up with ideas of possible experiments and to implement and analyse them

4. **CHAOTIC PROBLEMS/ISSUES**

• **Sources/causes:** No relationships between anything appear to be at work; seems absolute chaos

• **Solutions & most appropriate approaches to solving the problem:** none; need to just act immediately (take drastic measures to reduce the chaos)
POLICY GROUP 1

Group members:
Catriona Murray (FaHCSIA)
Charlie Zammit (DEWHA)

Figure 3  Policy Group 1 sorting of issues

SIMPLE:
-  

COMPLICATED:
- “How long is sustainable?” and at what point does one say a community is “sustainable”
- What are the realisable economic opportunities for discrete Indigenous Communities? Business opportunities? Sectors?
- What kinds of measures of success would be needed?

COMPLEX:
- Can discrete Indigenous communities become sustainable [2 x policy, 1 x CSIRO]
- What are the drivers/ incentives for change (from current poor circumstances)? [1 x policy]
• To what extent do links and access to regional and urban centres aid/impact upon remote community and potential for sustainability? [1 x policy]
• To what extent does “mobility” and related service provision impact on potential for sustainability? [1 x CSIRO]
• What are the biggest risks what mechanisms can help to anticipate/manage them? [1 x policy]
• Can a typology of Sustainable Livelihood opportunities be developed for particular socio-economic circumstance? [1 x policy]
• What kinds of capacities are most critical for: individuals/families; SME’s (small and medium enterprises); Remote communities; to create sustainable livelihoods?

CHAOTIC (on the border with COMPLEX):
• Is it possible to draw up a “norms gap” chart that can be applied to any community? (gap between Indigenous and Western norms)
POLICY GROUP 2

Group members:
Phil Richardson (QLD ATSA),
Gerry Barabos (IBA)
James Haughton (FaHCSIA)

Figure 4  Policy Group 2 sorting of issues

SIMPLE:
• Can communities financially sustain or maintain existing projects?
• What is already working in the communities?
• How do we explain the sustainable livelihoods paradigm to policy makers?

COMPLICATED:
• Can a Sustainable Livelihood be measured? [2 x policy]
• What impacts does sustainable livelihood have on closing the gap targets?
• What level of external support (short term and ongoing) is required to make a sustainable livelihood project work in the long term? [1 x policy]
• To what extent can communities rely on ‘sustainable livelihoods’ for employment or income generation versus other nodes of economic participation (eg waged employment)
• How does a sustainable livelihood approach support the closing the gap agenda?  
  (Contextual issue)

COMPLICATED (on the border with COMPLEX):

• How do you find the motivating factor for individuals to success?
• How can sustainable livelihoods produce economic diversification away from sole govt support? [1 x policy]
APPENDIX C – CYNEFIN FRAMEWORK: GROUP RESULTS

COMPLEX:
- Can a sustainable livelihood knowledge be used to perform government service delivery and interactions with and actions upon Indigenous people? [1 x CSIRO]
- How does a sustainable livelihood approach overcome barriers to economic participation (eg networks, competition, institutions) or turn barriers into strengths? [1 x CSIRO]

CHAOTIC:
- Building/bonding networks: How can we create positive interaction between sustainable livelihoods point of view at Indigenous community level and broader individual or family; market economy; ‘the mainstream’? [1 x CSIRO]
- Can sustainable livelihood overcome or contribute to overcoming social pathologies? (Drug, crime, petrol sniffing, suicide, sexual assault, etc) [1 x CSIRO]
RESEARCHER GROUP 1

Group members:
James Butler (CSIRO Sustainable Ecosystems)
Bronwyn Hatch (Sustainable Agriculture Flagship)
Peter Carberry (Sustainable Agriculture Flagship)

**Figure 5** Research Group 3 sorting of issues

---

**SIMPLE:**

-  

**COMPLICATED:**

- Understanding values: conflict between indigenous perspectives of well-being versus mainstream perspectives [2 x policy, 1 x CSIRO]
- Harnessing Information and Communication Technologies (ICT) important for addressing “remoteness” individual/family/community or simple/complicated [1 x CSIRO]
- No overseas learning: International learning in development overseas - how to apply tools/approaches in Australia.
- How can we measure ‘sustainability’ in Indigenous livelihood
- Check attitudes to income wants, needs, aspirations, opportunities
- Who are the change agents in each community and what is their scope?
- What will attract private sector interest/funding to Indigenous Livelihoods?
APPENDIX C – CYNEFIN FRAMEWORK: GROUP RESULTS

COMPLEX:
- How Indigenous knowledge can be integrated with science? [2 x policy]
- Solutions to natural resource ownership eg co-management native title? [1 x policy]
- Identifying thresholds in systems? [1 x policy]
- How to experiment with alternative livelihood models in a ‘safe’ policy environment
- Connecting to country: maintaining strength of cultural linkages to natural resources

- What are the desired/ expected benefits / dis-benefits from research intervention?
  Evaluating “winning” (relevant) research investment in Sustainable Indigenous Livelihoods? [2 x policy, 1 x CSIRO]
- Can the market create the opportunities spill-in’s drivers of change?
- What lessons have been learnt from 50 years intervention in Indigenous Livelihoods?
- Benchmark/ understand current livelihood strategies

CHAOTIC:
-
APPENDIX C – CYNEFIN FRAMEWORK: GROUP RESULTS

RESEARCHER GROUP 2

Group members:
Jim Walker (CSIRO Office of Indigenous Engagement)
Larelle McMillan (CSIRO Sustainable Ecosystems)
Yiheyis Maru (CSIRO Sustainable Ecosystems)

Figure 6 Research Group 1 sorting of issues

SIMPLE:
-

COMPLICATED:
-

COMPLICATED (on the border with COMPLEX):
• How are people engaged in remote communities

COMPLEX:
• What are the economics of scale issues for communities
• What is the influence/impact of regional/local government have on remote discrete communities?
• How can succession planning be catered for (leadership, governance)?
• Translating Indigenous knowledge to market opportunities [3 x policy]
• Family obligations/ responsibility
• Individual development in the context of community
• Sharing knowledge within communities
• Shared access to assets and liabilities
• Are NRM-base livelihood options adequate to reduce poverty and disadvantage among indigenous settlements in remote Australia? [3 x policy]
• What are the views of indigenous youth in remote communities about their future livelihoods? [1 x policy, 1 x CSIRO]

CHAOTIC:
-
APPENDIX D – FUTURE RESEARCH DIRECTIONS

General ideas from a discussion at the end on future policy relevant research projects:

- Indigenous economic development opportunities that consider economic, social, cultural rather than a NRM focus
- Regional strategies (outstations/homelands RSD & economic development)
- Research synergies with ‘Mobility Strategy’
- Gaps with policy makers and the best ‘entry point’ for policy development
- Assessing decision-making and evidence-based policy and visual understanding of ‘bottlenecks’ and differences in social norms
- Economic diversification or a market economy framework
- ‘On farm’ enterprise mix
- ‘Business model thinking’
- ‘Market failures’ in Indigenous Communities
- ID remote assets and negotiate ‘caring for assets’ with communities
- Undertaking modelling within current programs
- Knowledge building: eg Education in understanding participatory models (to Government), adaptable institutions
- Capacity building: enabling communities
## APPENDIX E – STRATEGIC DIRECTIONS AND RESEARCH QUESTIONS

<table>
<thead>
<tr>
<th>Issue identified</th>
<th>category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT IS IT?</strong></td>
<td>Asssessing policy actions, outcomes and identifying indicators for sustainable livelihoods;</td>
</tr>
<tr>
<td>“How long is sustainable?” and at what point does one say a community is “sustainable” (P1)</td>
<td></td>
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<tr>
<td>Can a typology of Sustainable Livelihood opportunities be developed for particular socio-economic circumstance? (P1) [1 x policy]</td>
<td></td>
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<tr>
<td>How do we explain the sustainable livelihoods paradigm to policy makers? (P2)</td>
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<tr>
<td><strong>WHAT DOES A SUSTAINABLE LIVELIHOOD ADDRESS?</strong></td>
<td></td>
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<tr>
<td>Can sustainable livelihood overcome or contribute to overcoming social pathologies? (Drug, crime, petrol sniffing, suicide, sexual assault, etc) (P2) [1 x CSIRO]</td>
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<tr>
<td>What impacts does sustainable livelihood have on closing the gap targets? (P2)</td>
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<tr>
<td>How does a sustainable livelihood approach support the closing the gap agenda? (Contextual issue) (P2)</td>
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<tr>
<td>What are the desired/ expected benefits / dis-benefits from research intervention? Evaluating “winning” (relevant) research investment in Sustainable Indigenous Livelihoods? (R3) [2 x policy, 1 x CSIRO]</td>
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<tr>
<td><strong>HOW DO WE KNOW WE ARE THERE?</strong></td>
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<tr>
<td>Benchmark/ understand current livelihood strategies (R3)</td>
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<tr>
<td>What kinds of measures of success would be needed? (P1)</td>
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<tr>
<td>Can a Sustainable Livelihood be measured? (P2) [2 x policy]</td>
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<tr>
<td>How can we measure ‘sustainability’ in Indigenous livelihood (R3)</td>
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<tr>
<td><strong>IS IT POSSIBLE?</strong></td>
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<tr>
<td>Can discrete Indigenous communities become sustainable (P1) [2 x policy, 1 x CSIRO]</td>
<td></td>
</tr>
<tr>
<td><strong>COMPARING INDIGENOUS AND MAINSTREAM</strong></td>
<td>Researching Indigenous values and norms e.g. around mobility, or appropriate engagement processes and how these vary between groups (eg Indigenous youth)</td>
</tr>
<tr>
<td>Is it possible to draw up a “norms gap” chart that can be applied to any community? (gap between Indigenous and Western norms) (P1)</td>
<td></td>
</tr>
<tr>
<td>Understanding values: conflict between indigenous perspectives of well-being versus mainstream perspectives (R3) [2 x policy, 1 x CSIRO]</td>
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<tr>
<td>Building/bonding networks: How can we create positive interaction between sustainable livelihoods point of view at Indigenous community level and broader individual or family; market economy; ‘the mainstream’? (P2) [1 x CSIRO]</td>
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<tr>
<td><strong>MOTIVATION</strong></td>
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<tr>
<td>Check attitudes to income wants, needs, aspirations,</td>
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<tr>
<td>Category</td>
<td>Questions</td>
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<td>----------</td>
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</tbody>
</table>
| **opportunities**(R3) | • How do you find the motivating factor for individuals to success? (P2)  
• Connecting to country: maintaining strength of cultural linkages to natural resources (R3) |
| **MOBILITY** | • To what extent does “mobility” and related service provision impact on potential for sustainability? (P1) [1 x CSIRO] |
| **THRESHOLDS** | • Identifying thresholds in systems? (R3) [1 x policy] |
| **WHAT IS WORKING ALREADY** | • What is already working in the communities? (P2)  
• No overseas learning: International learning in development overseas - how to apply tools/approaches in Australia. (R3)  
• What lessons have been learnt from 50 years intervention in Indigenous Livelihoods? (R3) |
| **DRIVERS FOR CHANGE** | • What kinds of capacities are most critical for: individuals/families; SME’s (small and medium enterprises); Remote communities; to create sustainable livelihoods? (P1)  
• Who are the change agents in each community and what is their scope? (R3)  
• How are people engaged in remote communities (R4)  
• How can succession planning be catered for (leadership, governance)? (R4)  
• What are the drivers/incentives for change (from current poor circumstances)? (P1) [1 x policy] |
| **OPPORTUNITIES THROUGH NEW KNOWLEDGE OR TECHNOLOGIES** | • How Indigenous knowledge can be integrated with science? (R3) [2 x policy]  
• Harnessing Information and Communication Technologies (ICT) important for addressing “remoteness” individual/family/community or simple/complicated (R3) [1 x CSIRO] |
| **BARRIERS TO CHANGE** | • How to experiment with alternative livelihood models in a ‘safe’ policy environment (R3)  
• What are the biggest risks what mechanisms can help to anticipate/manage them? (P1) [1 x policy] |
| **TO WHAT END IS ECONOMIC SUSTAINABILITY SOUGHT** | • Can communities financially sustain or maintain existing projects? (P2)  
• What level of external support (short term and ongoing) is required to |

**Resilience thinking and modelling including policy gaps, best ‘entry points’, thresholds and current programs**
### APPENDIX E – STRATEGIC DIRECTIONS AND RESEARCH QUESTIONS

**Indigenous Livelihoods Policy Reference Group: research priorities identified from the first meeting, 28th April 2010**

**How do you make it more economically sustainable?**

<table>
<thead>
<tr>
<th>Priority</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>What are the realisable economic opportunities for discrete Indigenous Communities? Business opportunities? Sectors?</td>
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<td>P2</td>
<td>How can sustainable livelihoods produce economic diversification away from sole govt support?</td>
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<td>P2</td>
<td>How does a sustainable livelihood approach overcome barriers to economic participation (eg networks, competition, institutions) or turn barriers into strengths?</td>
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<tr>
<td>P2</td>
<td>What will attract private sector interest/funding to Indigenous Livelihoods?</td>
</tr>
<tr>
<td>R3</td>
<td>What will attract private sector interest/funding to Indigenous Livelihoods?</td>
</tr>
<tr>
<td>R4</td>
<td>Translating Indigenous knowledge to market opportunities</td>
</tr>
<tr>
<td>R4</td>
<td>What are the economics of scale issues for communities</td>
</tr>
</tbody>
</table>

**What is the influence/impact of regional/local government have on remote discrete communities?**

- Regional strategies (outstations/home lands, Remote Service Delivery)

**Solutions to natural resource ownership eg co-management native title?**

- Co-management including identifying remote assets, negotiating caring for these assets, sharing knowledge and building capacity;

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P1 – Policy (group 1)
P2 - Policy (group 2)
R3 - Research (group 3)
R4 - Research (group 4)
CSIRO and the Flagships program

Australia is funding its future on science and innovation. Its national science agency, CSIRO, is a powerhouse of ideas, technologies and skills. CSIRO initiated the National Research Flagships to address Australia’s major research challenges and opportunities. They apply large scale, long term, multidisciplinary science and aim for widespread adoption of solutions.