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Using visual products derived from community research to inform natural resource management policy

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ABSTRACT

People living near remote protected areas seldom have their perspectives considered in decision-making on conservation and development. A consequent challenge for researchers and practitioners is engaging with policy-makers about local peoples' perspectives, in ways that will capture their attention and influence the decisions they make. Some authors claim that visual products have potential for providing such a means, i.e. in communicating 'local' messages to policy-makers. In this study we used action research to explore the use of visual products – derived from participatory community research – to communicate local perspectives to policy. Hypermedia DVDs, containing videos, photos, diagrams and text, were used with policy-stakeholders in interviews and group activities. Most participants reacted positively to the DVDs and indicated that visual products provided credible and valuable insight into findings, grounded in local knowledge. The main strength of the DVDs was to provide engaging messages, in a format that allowed integration of knowledge co-constructed by local people and researchers. They were found to be a versatile medium for use with a range of viewers with different needs, as well as a valuable platform to enhance discussion and understanding needed in developing sound policy in natural resource management. We also found the 'processes', used in creating DVDs and presenting them to policy-makers markedly influenced the effectiveness of visual products. We suggest that in working with broad and complex areas in NRM, these types of visual products have the best potential in shifting conceptual thinking and generating ideas and awareness among policy-stakeholders, rather than as a means of recommending specific policy.

Key words: *visual methods; communication; video; hypermedia; environmental management; participation.*

1. INTRODUCTION

1.1 Use of visual methods in research and practice

In development research and practice internationally, there has been a rapid growth in the use of participatory visual techniques, such as diagramming, photography, video, GIS and 3D landscape visualisations (Kindon, 2003; Pain and Francis, 2003; Vajjhala, 2006; Shaw et al., 2009; Sherren et al., 2010). Much of this growth in 'visual expression' has entailed the utilisation of participatory visual tools for promoting dialogue among local groups, in a form of action research aimed at community development. Benefits claimed include increased empowerment, improved power balance and mediation between groups, documentation of traditional knowledge and improved awareness and engagement on local issues (Shaw and Robertson, 1997; Wang et al., 2004)

Some practitioners and researchers suggest that 'products' such as film, photographs, maps and diagrams - developed from the use of visual methods in communities - can have valuable applications for communicating local messages and issues to policy-related stakeholders (Lunch and Lunch, 2006). An example of this approach is 'The Fogo process', where a series of participatory videos was made with people from Fogo Island, Canada. These contained statements on local preferences and concerns, and were shown to other community members and government decision-makers. This process was argued to have opened dialogue between community and Cabinet ministers and to help instigate public engagement on future options on land management for these islanders (Snowden, 1984). Another example is the 'Flint Photovoice Project', where youths and adults in Michigan, USA, participated in a photography project. The visual products from that project are claimed to have enabled youths to communicate their concerns about neighbourhood violence to policy-makers, and to have played a key role in community acquisition of funding for local protection against violence (Wang et al., 2004).

One argument made in support of using visual media in communication is the 'humanizing' potential of images (Ferreira, 2006). Many authors talk of the way video in particular, with moving image and sound, can provide more human representations to audiences. Supporting these claims, Hall (1991:191) states that video can create 'vivid, strong and often lasting impressions'. The implication is that visual and audio media can evoke greater emotive stimulus and feelings than processes using verbal or text only media (Sheppard, 2005) – especially when conditions cannot be visualised directly (e.g. famine in remote regions). The use of 'hypermedia', which integrates different visual media (such as photos, video, diagrams) as well as text and audio, has also generated interest because of the potential to communicate information to a range of viewers in an interactive way (Nielsen, 1990; Wang 2003). However, this medium is more commonly used in education than in community development, environmental management or policy applications.

Despite the evidence of the potential of visual products to enhance communication, some authors maintain that focussing too strongly on the goal of creating visual products can compromise the quality of the local 'processes' of dialogue in community research (Snowden, 1984). Because of ethical concerns that local people and their voices may be misrepresented through visual products (Braden, 1999), researchers and practitioners using participatory visual methods generally call for emphasis on robust processes[1] in the creation of visual products. As Mhando (2005: 14) states, '*the product, while being important in relaying communication can only be useful if the process by which the content was created was truly participatory*'. Consequently, most literature on the use of visual methods in social research and practice has concentrated on the use of visual techniques in the 'local process' with community participants, not the creation of visual products, nor the use of such products for informing policy. The few accounts of the use of visual products derived from participatory processes are found mainly in grey literature, such as project reports (e.g. Lunch and Lunch, 2006) and internet sites (e.g Insightshare , 2010; VideoVolunteers 2010). Some academic literature exists, but this is rarely supported by theory or connected to literature on policy. Within the field of natural resource management (NRM)

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[1] Here we view 'robust processes' as one where field-work has been carried out thorough and where participants have been included in a an ethical and fair manner.

in particular, there is very little documentation of studies exploring the use of visual products derived from social research and/or community participatory processes for informing policy.

1.2 Informing policy with research

There is a long-standing interest in the way land use and environmental research informs the policy debate and this interest continues to grow (Neilson, 2001; Sterk *et al*., 2009). Some authors refer to the utilisation of different types of research, such as '*instrumental'* and *'conceptual'* use (Caplan, 1979). *Instrumental* use involves 'acting on research in specific and direct ways' (Lavis *et al.*, 2003:228) and is commonly based on empirical data and associated with incremental decisions. For example, research data on water resources might be used in the design of irrigation policies. *Conceptual* use involves using research results to provide more indirect insight and is usually associated with macro-level decisions and based on findings from social research. Weiss (1991) incorporates the idea of conceptual use as a central component of her 'enlightenment function' of research. She contends that social research can help shift conceptual thinking about the way certain issues are framed - by providing new ideas and approaches to policy-makers and other groups. It is also held in this theory that policy is informed by 'multiple relations and reservoirs of knowledge' - as well as indirectly by research (Court and Young, 2003:8).

There are many reports of information from social science being used *indirectly* by policy-makers, or as a source of ideas and in the framing of issues (Webber, 1991; Sabatier and Jenkins-Smith, 1999; Nutley *et al.*, 2007). And much literature on the linkages between research and policy also now indicate a greater recognition of the non-linear and complex nature of information exchange in policy-making (e.g., Garrett and Islam, 1998; van Kerkhoff and Lebel, 2006; Shanley and Lopez, 2009). Despite growing recognition of the non-linear nature and conceptual value of social research, much interest and attention in environmental management literature still tends to be focused on approaches to best communicate research results to policy-makers in direct and instrumental ways.

There have been various attempts to understand the ways in which research can be more effectively 'fed upwards to policy'. Emphasis is commonly placed on the need to communicate research results in 'easy to understand' formats, and without jargon or too many technical terms (Pannell and Roberts, 2008) but not so simplified as to lose their depth of meaning or allow easy manipulation of messages (Crewe and Young, 2002). Credibility of both the researcher (Shonkoff, 2000) and the messages are also said to be important in influencing policy-makers (Crewe and Young, 2002).

The complex nature of information exchange in design of policy makes the study of the use of research by policy a difficult undertaking. The degree of influence that research has on policy is seldom measurable by researchers, and indirect influences may not be apparent even to policy-makers themselves. In the words of Weiss (1999:534) *'because the process is so indirect, it is not easily discernible. Outsiders cannot trace the effect of a particular finding or a specific study on a public decision'*. This intractability led us to adopt an action research approach in this project, in which social research methods of gathering and analysis of data were applied in real-world situations involving the use of visual products with policy-stakeholders.

1.3 This research

The aim of this study was to understand how information contained in 'visual products' derived from participatory research processes with communities, can be shared with various stakeholders to better inform policy-making in NRM. This work also explored ways in which social researchers in general can better interact with policy arenas. The visual products (and their content) used here were derived from earlier social research involving the use of visual methods to help facilitate learning and communication on NRM issues among indigenous[2] people living near protected areas in Vietnam and in northern Australia (Petheram and Campbell, 2010 and Petheram *et al.,* 2010). The two sets of products (from

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[2] In this research we see Indigenous people as *'…social groups with a social and cultural identity distinct from the dominant society that makes them vulnerable to being disadvantaged in the development process.'* (World Bank, 1991).

each country site) were used here in action research, to (a) communicate information on local conditions and perspectives, and (b) help facilitate discussion and reflection on these issues among policy-stakeholders. In this paper, we explore the effectiveness and potential of visual products and their content as a means of engaging with and informing NRM policy arenas, based on our observations and the opinions of policy-makers and other policy related stakeholders in NRM.

2. METHODS

In our conceptual framework for this research on visual methods we draw broadly from a variety of disciplines - mainly sociology, anthropology, development and communication. The images we used for the visual products were derived from processes we carried out in previous work with local people (i.e. living local to protected areas), where we drew from the theory and practice of 'participatory communication' – which involves local citizens in the creation, expression and sharing of knowledge (Cornish and Dunn, 2009).

Our focus in this paper is on the use of visual materials as a means to communicate information and concepts, as well as to instigate discussion and reflection among 'policy-maker' audiences. We hold that viewers of messages are not really 'receivers' but are instead 'constructors' of meaning (van Woerkum, 2000), and thus images can have different meanings to different audiences (Pink, 2006).

Following the epistemology of constructivism (Gujit *et al*., 2002) and also arguments by Pink (2006) and Buckingham (2009:635), we consider visual images as mediums for the development of new knowledge, and not as '*neutral reflections of reality*'. We see this new knowledge as being built in the policy arena - through the use of visual products (derived from field sites) to help facilitate discussion and learning among policy-stakeholders on NRM issues.

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Our research drew from principles and concepts of action research. Dick (1993) has described Action research as a *'a process by which change and understanding can be pursued at the one time'*. The approach has the unique benefit of being able to respond to emerging requirements of a situation or system and in a flexible manner that many other research methods cannot achieve (McNiff 1992). The visual products co-constructed from participatory learning processes were shared[3] with policy-stakeholders. This process was designed to open communication between local people, through researchers with policy arenas, in a real-world situation. Through presenting these visual products to policy-stakeholders, we promoted discussion on the messages conveyed by the products, as well as on the potential value of the visual products in informing policy on NRM. Associated with the research are two main types of process – 'local processes' in which the visual products had been developed (previously), and 'policy processes' in which the products were assessed in the current study.

2.1 Research process

As outlined in Section 1.3, the visual products used in the current study were derived from earlier studies in Vietnam and northern Australia, in which participatory visual techniques, such as video photography and diagramming, were used with mainly indigenous, local participants during 'local processes'. These techniques were used as tools to generate discussion and 'learning' among participants, for the creation and expression of knowledge on particular issues in the protected areas in which they live. In Vietnam the interest was in peoples' preferences for 'Payments for Environmental Services' (PES) schemes, while in Australia the topic of focus was 'Adaptation to Climate Change'. In this research, we viewed the outcomes of learning in the same way as Groot and Maarleveld (2000:4), who describe it as leading to '… *a deeper understanding about how complex issues work and why. It improves people's capacity to make sense of and adapt to an ever-changing world'* . The methods and results of the earlier study have been described elsewhere (Petheram and Campbell, 2010; Petheram *et al*., 2010 and Petheram *et al*.,

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[3] By shared we imply a form of communication that involves an exchange of knowledge.

unpublished). In this paper we focus on the use of visual products that arose from that community research, and their value as a means of communicating local messages to policy arenas.

The visual products (as DVDs) were presented to a range of actors in each country who had direct or indirect influence on policy-making for NRM. The products from the Vietnam field site were presented in Vietnam (to Vietnamese and International policy stakeholders), and the products from Australia presented in Australia (to only Australian policy stakeholders). Policy stakeholders included local and national government decision-makers, policy advisors, National Park officials, Non Government Organisation (NGO) representatives, public servants, consultants and researchers, and involved females and males ranging from 30 – 60 years old. The policy stakeholders had direct and indirect involvement in policy – primarily environmental, but also social development policy areas. Semi-structured interviews were conducted with 16 such stakeholders in Vietnam and Australia, and in Vietnam another 14 stakeholders took part in a two hour workshop. Initial selection of participants for interviews and group work was through recommendation by local research contacts. Follow-up interviews were conducted where needed, based on emergent data and theory, and on the availability of suitable participants.

2.2 The visual products, their content and use

The visual products utilized included photographs, diagrams, videos with audio, as well as interactive hypermedia (on DVDs) created by combining the individual audio-visual materials. The images and messages contained were co-constructed with communities during participatory processes where visual methods had been used with local people, such as diagramming and participant generated photography and video (Petheram *et a*l., unpublished).

At both sites, a pilot process was conducted involving interviews with three policy-stakeholders, using trial visual products. Initially in Vietnam, videos (7-12 minutes) and some photos and diagrams were

shown to policy-stakeholders. From these trials, the idea arose for the use of interactive, hypermedia DVDs (incorporating shorter video clips, photos, diagrams, text, and audio) - as a medium that could allow the integration of a range of images with text, as well as present a combination of images and information co-constructed by local participants and researchers. Following these trials, hypermedia DVDs were developed as a main medium for later interviews and group work in Vietnam and in Australia. The first DVD created was in Australia (based on field-work from Australia) and was used during pilot interviews with three policy stakeholders and their feedback was used to help guide the design and content for the next version. Another DVD based on field-work from Vietnam was created and presented to policy participants during interviews and a workshop in Vietnam. The interface of the DVDs was primarily designed by the researcher/s with input from local participants. The meanings expressed in the images derived from the local processes were primarily constructed by local people from 'local processes' (during interviews and workshops), but the meaning of images and text selected and utilised for use in the DVDs (for informing policy) represent a combination of views by local participants and researchers. After the DVDs were created they were taken back to the local participants for review and feedback and to ensure the messages were representative of the views expressed during local processes.

These DVDs were designed to provide information on context at the research sites, local peoples' perspectives on general issues, as well as local views on the specific NRM topic being studied. The DVD interface incorporated clickable buttons to take users to various pages containing textual information, short video clips, photos, diagrams, and voice or music. These media were chosen by the researcher and participants to create a representation of views (and feelings) expressed during the local processes. Music was included to help communicate the personality and feelings of participants. Additionally, lyrics within music were useful for expressing certain messages (e.g see Petheram *et al*., 2010). The DVDs were divided into various sections, relating to background information, research description, local perspectives on general and NRM issues, and general recommendations. The section on local perspectives was organised into themes that arose during interviews and workshops.

Recommendations were based on the views of community members and were in the form of general guiding statements for policy-makers. The text contained within the DVDs provided wider context and greater depth to the visuals, and also communicated key differences in opinion between participants. In the Vietnam DVD (based on local community perspectives on PES), an overarching video of the local region and general community perspectives was also included. The videos included English subtitles. We also created a version of the Vietnam DVD with Vietnamese text The Australia DVD contained about 50 non-linear linking pages, and the Vietnam DVD about 30 pages (which audiences could select from). The menu pages of two interactive DVDs are shown in Figure 1.

Figure 1. Screen shots of menus on the DVD from the Australia (left) and Vietnam (right) field sites

The detailed content of messages conveyed within the visual products is not the focus of this paper (see Petheram and Campbell, 2010; Petheram *et al*., 2010). However, one example of a message conveyed by visual products in Vietnam was the preference shown by community members to be paid for their involvement in activities to conserve the forest, rather than to be paid for avoiding deforestation alone, in any future PES schemes. Visual products from northern Australia included, for example, messages about the community desire for greater support for integrating traditional practices (e.g. food gathering) as one means towards their future adaptation to climate change.

2.3 Assessing the potential value of visual products

During individual interviews with policy-stakeholders, we initially explained the context of the research and then asked participants general questions on their previous exposure to (and views on) visual products. We then showed parts of an interactive DVD and gave a verbal commentary on contextual information. Participants were asked about their impressions of content, their reactions to the visual media and their preferences for other information and products of research relevant to policy-making. We also gave the opportunity for participants to self-navigate through the DVD.

When interactive DVDs were used in a workshop setting, the policy participants were divided into small 'buzz groups', each with a laptop computer and the DVD running. Participants were asked to explore specific parts of the DVD in their groups and questioned about the messages conveyed on NRM issues. They were also asked to comment on impressions conveyed about field sites, as well as the usefulness of the DVD in influencing policy. Participants then discussed their answers to these questions in the larger group. At the end of the workshop, participants completed a questionnaire based on similar questions asked in the individual interviews. Follow-up qualitative interviews were also conducted with five individuals to seek more in-depth information. Observations of participants and their interactions (and learning processes) with the visual products were recorded by researchers during interviews and workshops.

2.4 Data recording and analysis

In line with the action research approach of this study, some findings were also derived from background literature, observations during the research process, and discussions with other researchers, practitioners and government staff. We recorded data by means of hand written notes and audio recordings (later transcribed to word processor). Our research procedure involved continuous data gathering and analysis and drew on central ideas of Glaser's (1992) 'grounded theory' methodology. Analysis of data (i.e. words) involved 'substantive' and 'theoretical' coding for the identification of main themes and categories, and later the development of theories and frameworks (Fernandez, 2004).

3. RESULTS & DISCUSSION

Our research results are discussed below under the major themes that emerged from analysis of the data from interviews and group work with policy-stakeholders.

3.1 General responses to visual products, and perceived benefits

From responses and our observations in interviews and workshops, all policy participants showed interest in the potential of visual products for use in communicating local perspectives. When we first presented video (7-12 minutes), photos and diagrams to policy stakeholders during pilot interviews in Vietnam, we found there was general interest in the use of visuals, but little attention paid to longer videos. Also, individual collections of photos and diagrams were difficult to present individually to participants and appeared to be provide context to the background, and some participants misinterpreted their meaning. This indicated to us that a medium was needed to organise the various media into easily digestible sections and to include titles and text to provide greater context and meaning. Thus, after this point we began organising the media into interactive DVDs.

In the use of DVDs, we observed that participants generally became deeply engaged, and expressed interest in spending time viewing them. Many participants indicatedd that this was a novel form of communication that they were rarely exposed in their workplaces. During interviews, participants often expressed a desire to further explore the DVDs. All participants indicated they would like to see the use of visual products in raising awareness in policy arenas. Some believed DVDs could have a role in raising public awareness and wider education, and in design of development projects and NRM. Reservations about aspects of the visual products were also expressed and these primarily related to preferences for content, and design of the DVDs. These aspects are outlined within the following sub-sections.

Several participants in Vietnam, especially those working in the NGO sector or research organisations, requested copies of the interactive DVDs to show to colleagues, as well as advice on software they could use for similar approaches in other research and policy settings. A Vietnamese academic requested copies to show students examples of situations of people living in poverty in National Parks, and to

demonstrate examples of local views. Many also stated that it was 'refreshing' to have a different type of media to observe, rather than listening to verbal presentations or reading documents.

Several policy actors in Vietnam stated that they had never experienced remote communities, so were very interested in the contextual insight provided, and the local views depicted. Some stated that the visual and audio representations of real residents from field sites made the local messages and issues seem very 'real' and sometimes 'confronting'. Some viewers commonly remarked that images aroused quite emotional feelings, and helped them 'empathise' with views of local people.

3.2 Merits and types of visual products

Observations and interviews with participants indicate that presenting information within visual products can generate strong interest, discussion and reflection on important topics among certain audiences. Our observations of participant reactions tended to support the view of Sheppard (2005:638), who states that visuals can *'trigger innate and instant reflexes and feelings'*. We suggest that such responses can generate strong interest and increase viewers' empathy with other people – and thus encourage viewers to be more open to considering other perspectives in decision making. Supporting this theory, Bartels and Nelissen (2002) claim that emotions can play an important role in generating interest and helping people remember a message, and consequently can also have a strong influence on decision making.

While viewers were engaged by videos, photos and diagrams, our experience with policy audiences was that these individual products can be most effectively utilized within interactive hypermedia (DVDs). Our results indicated that DVDs can provide benefits in four main ways. They can: (1) integrate a range of images and supporting explanatory information, such as text or audio commentary; (2) offer different navigation styles for different users; (3) be easily adapted and modified for different purposes; and (4) allow viewers opportunity for discussion and reflection. In summary, hypermedia DVDs were shown to be valuable in helping viewers' make sense of information, as well as in helping to facilitate 'learning'

processes. In particular, the interactive nature of hypermedia can be valuable in helping to support collaborative learning among multiple viewers, as suggested also by other authors (e.g. Wang 2003).

3.3 Type of media contained within the products

The moving (video) components of visual products appeared to have greatest appeal among these policy audiences. If given time to navigate through interactive DVDs on their own, participants commonly selected video clips to view but sought text or verbal explanations in addition to images, in order to make sense of the images. Hence it was important for us to integrate contextual material, in the form of text, titles and labels with the visuals - to provide background information, and avoid misleading or confusing viewers. This was important because viewers may interpret a particular image as having a very different meaning to that which was expressed by the local people who selected the image.

When asked about ideal length of video components, most viewers suggested these should be 'short'. This view was confirmed by our observations, which showed that participants generally became distracted after more than ten minutes of viewing. When video film on its own was presented to policy and NRM management stakeholders in Vietnam, many lost concentration when viewing longer films, despite having indicated strong interest in the content. We found that individual videos within DVDs of 1-5 minutes duration were most appropriate – with the exception of summary videos, which required about 10 minutes. There was a preference for a variety of scenes and 'cut-aways' in videos, rather than long dialogue scenes for a 'richer insight into the local setting'.

3.4 Design and format of visual products

We found that participants preferred visual products to have a design that is clear and easy to follow so as to avoid feelings of 'disorientation'. In Australia when a trial DVD was presented to a mixed group (researchers, government and NGO representatives) they perceived the initial design as too 'busy' and

'confusing' to navigate. Another DVD developed with a simpler and cleaner interface proved to be more engaging and impactful. Beasley and Waugh (1995) suggest that placing more attention on clear navigational tools and structured overviews can help limit this type of disorientation. We also suggest that having a facilitator present to assist viewers in navigating through the hypermedia can be valuable, as well as group activities that can help break the DVD into 'digestible' segments.

The simpler and more organised DVDs were considered by all viewers to be 'aesthetically' adequate, and to require no further 'polish'. Some stated they preferred a more 'organic', 'raw' look because this made the messages appear authentic. People also said they understood the visual products were created with input from local participants and researchers with no formal training in video, media design, or communications - so a highly polished and professional products would be 'inappropriate' and 'unnecessary'.

We found that interactive DVDs are best designed so as to provide options for viewers to navigate through the information in one of two ways - either a more linear or non-linear manner. Some viewers preferred exploring the information in the non-linear format, while others wanted the option to see a clear 'more linear pathway' through the DVD. This pathway could include the clear numbering of pages and a guide to show how to move forward or backwards through the main messages. We observed that the most effective way for viewers to engage with the content of the information and to absorb messages was to encourage them to explore the DVD, rather than sit back without becoming fully involved (time permitting). However, some policy viewers suggested the DVDs should include one overarching, longer film summarising the information for those who preferred to 'sit back and watch', rather than 'work' (interact) to find the important messages. Hence we found that a DVD format could cater for different types of viewers by allowing different navigational styles and media and interaction (e.g. by including longer and shorter videos).

3.5 Content of the visual products

Another finding was the need for the text and other material accompanying the images to be very clear and concise. If contextual explanations in DVDs were too verbose or confusing, participants often lost interest. Many policy viewers emphasised lack of time available to people involved in policy-making, and hence the need for clear and engaging messaging. A policy advisor in Australia commented that '…*especially mid-upper policy-makers want something that takes little time and engages their attention'*. Nicholson-Cole (2005) suggests that clarity of messages plays an important role in the effective cognition by viewers; i.e., in helping make sense of messages. Similar lessons have been reported in the use of other (non-visual) approaches and techniques in engaging policy-makers and the general public (Pannell and Roberts, 2008).

Many participants stated that research in general is most effective in informing policy, if messages derived from results provide specific recommendations, with clear relevance to specific and current policy needs. Some viewers stated that verbal summaries in the video clips of local people talking within the DVDs viewed were not specific enough. However, the topics of Climate Change Adaptation and PES were very complex and multi-faceted, so it was considered inappropriate to develop very specific summaries or recommendations for inclusion in the DVDs (see Section 3.7 for further discussion). Despite the stakeholders having different policy interests, the fact that the DVD content related to different policy arenas did not arise as a problem.

Most said they found the visual products presented to be credible, and they particularly appreciated the accompanying explanation of the research process and visual material. Some defined 'credible messages' as views appearing to reflect community perspectives – not just individual perspectives. Generally, viewers felt that products containing images showing many different people discussing issues - gives the impression of sound representation and balance of views. Some policy-stakeholders, especially those with a research or science background, stated that when presented with the visual

products, they wanted to know how research was conducted, so as to further assess credibility and 'authenticity' of messages.

A number of the policy participants, particularly scientists, wanted more details on the scientific background, and a few wanted to see quantitative, empirical data and detailed information about the research process. Although such information could be incorporated into an interactive DVD, the resulting larger volume may detract from the main community messages within the DVD. Thus it may be sometimes be appropriate to produce a supplementary DVD or separate report containing more scientific information to give greater background or depth.

3.6 Robust 'local processes' for product development

The research showed that the use of visual products could only be justified in the policy arena if derived from robust learning and communication processes among community members. Policy respondents invariably wanted to know the origins of the messages conveyed, and gave greater credibility to information when the context and means of developing the products was made clear. We found that video footage of community members discussing issues helped to give credibility to the messages. Ferriera (2006:175) explains that in the case of video, one of its drawbacks '*also seems to be one of its strengths. Despite its limitations in terms of delivering comprehensive, complex and nuanced information in favour of story based evidence it may help minimize, erroneous or politicised interpretations by ensuring that the videos have been produced in collaboration with the policy subjects. In short there can be little question about credibility when the message is presented honestly and openly*'.

However, there is reason for caution, as local perspectives can easily be misrepresented or taken out of context - if insufficient supporting information (from primary processes) is incorporated. It is also

important to stress that local perspectives may be constantly changing, and thus it can be inadvisable for visual products to represent these voices in too conclusive a way.

3.7 Effective 'policy processes' - for distribution of visual products

The development of visual products does not provide a 'magic bullet' to communicating local perspectives to policy-makers. The way these products are introduced to the policy arena emerged as a critical factor likely to determine whether the products are viewed, the information is received, absorbed and used by stakeholders. We found that important factors for effective policy processes were the choice and accessibility of policy actors to view the visual products, the context and process for introducing the product, and the way this process was facilitated.

When asked about ways products of social research (visual or non-visual) could best reach policy audiences, several participants stressed the importance of timing and appropriate entry points. Many also talked of the value of utilising intermediaries, such as policy advisors, and staff of NGOs and government, in reaching policy-makers. In the action research context of our study, intermediaries and 'linking agencies' that brought together researchers, advisors, policy-makers and other stakeholders were found to be a valuable asset in reaching policy arenas. For example, a workshop organised in Vietnam by an international NGO was critical in drawing policy-makers together in this study. Neilson (2001) argues that building and utilizing relationships and networks across agencies is invaluable in providing links to policy-stakeholders. Individuals or agencies that help to act as knowledge 'brokers' to link researchers, practitioners, intermediaries and policy-makers and interpret, or communicate research results can provide practical and reliable ways to engage and link research with policy (Stone 2009). In our project, the existence of closer links between NRM agencies, researchers, NGOs and various policy agents, could have made it much easier and faster to access policy arenas, and their knowledge systems. The access and selection of participants for a workshop in Vietnam was mainly gained through a NRM

organisation in Hanoi. Without this contact organisation in Vietnam we would not have been able to access or select participants from such wide range of policy related backgrounds.

Securing interviews with policy-makers, especially at higher levels, was generally very difficult in both countries. On the other hand, policy advisors or other government staff and intermediaries were often more accessible and receptive to being asked their views on visual products of research and applications for policy. It is notable however, that visual products were sometimes able to act as novel tools to help arouse interest and hence lead to entry points to arrange meetings and interviews.

Working with intermediaries was also found to be valuable in gaining policy-relevant advice and generating new insight and accessing certain policy networks. Ahmed (2005) confirms that non-government organisations can play a vital role in framing policy debates. In order to develop an understanding of the main policy-stakeholders and their general needs for information and learning styles it is useful for researchers to engage with policy at early stages of research projects (van Woerkum, 2000). We found that the most effective ways to use DVDs was to present these personally to policy-stakeholders, together with a verbal narrative of the research process and summary of results (e.g. during interviews workshops and in meetings) – rather than allowing the policy stakeholders to view the DVDs on their own. In this way we could clarify certain aspects with policy stakeholders, explain parts of the research and explain the dynamic nature of the local perspectives.

3.7.1 Platforms for learning among policy audiences

We found that presenting information through visual products to participants during individual interviews was useful for generating discussion on the topics of interest. However, presenting visual products in group settings, such as a 'buzz group' workshops, was shown to be a valuable way of encouraging viewers to discuss and absorb ideas and concepts provided within the DVDs. During the workshops, the visual products were used as a tool in activities designed to encourage participants to

further discuss and explore the topics of interest. Encouraging 'buzz group' discussions on these topics allowed a greater depth, diversity and length of dialogue than was possible in interviews alone.

Participants in Vietnam felt that a workshop of more than two hours was needed to adequately discuss complex NRM issues. The hypermedia format of DVDs was shown to be beneficial in allowing viewers to select links at the pace required by their particular group, and provided time for reflection and discussion. The interactive format appeared to encourage greater interaction between viewers than when they were presented videos or photos alone. Ferreira (2006) supports the idea that visual products can be useful tools or platforms to help facilitate learning processes in group settings among policy relevant stakeholders. He claims that participatory video in particular, can act as an '…*organizing structure or even ground in which senior bureaucrats and politicians can form policy directives and influence other policy-makers*' (Ferreira, 2006:165). We found that the researcher had an essential role in presenting the visual products and narrative, as well as in facilitating the learning process with the policy audience. Ferreira (2006:183) also suggests skilled and committed facilitation is essential in this type of process; '*without an advocate, individual or agency pushing the agenda*' it is unlikely videos would have an *impac*t.

3.7.2 Two-way communication

In Vietnam we asked some policy participants if we could video record their response to community views, to take back and show to communities at the remote sites. We found this process useful for creating two-way communication between communities and policy-stakeholders. Local participants particularly valued such dialogue, and we believe it would have been valuable to further explore this potential if time and funding had allowed. Such an approach has been used in other programs such as the 'Fogo Process' in Canada. (Snowden, 1984), where policy-maker responses to local people were shown to communities as a means to promote dialogue.

In retrospect we also realise that it would have been helpful to engage policy-stakeholders (including higher levels) more strongly from the onset of this project, so that we better recognised policy needs, and gave policy-makers a greater stake and understanding of the project. Porter (1995) states that involvement and interaction by researchers with policy-makers from the start of a research project can greatly enhance interest and thus lead to more effective uptake of ideas arising from research, for policy purposes.

3.8 Specificity of messages conveyed in visual products

The two major NRM issues explored with local participants in this study were inherently complex. They were also topics unfamiliar to local participants, and policy participants. The use of visual products to stimulate dialogue in such a complex context proved particularly valuable in helping policy participants to develop initial thoughts and ideas about these new concepts, and to provide insight into local perspectives of the way other issues (e.g. livelihoods) may interact with these topic areas.

When asked about policy impacts of research in general, many policy actors, especially those involved directly in policy making, stressed their preference for results that could inform policy in direct and instrumental ways. However, from observations and responses given in interviews and group work, it appeared that messages in visual products in this study were seldom seen as providing specific policy solutions. Their greatest potential impact appeared to be in raising awareness and generating conceptual insight for policy-makers into the context of these NRM issues, i.e., to allow more informed decisions to be made. Weiss (1991) refers to such conceptual insight of research in the policy sphere as the 'enlightenment' function of research.

Our findings indicate that when working with complex topics in NRM, setting out to design visual products too specifically to meet preconceived policy needs may be both unrealistic and inadvisable. We would not expect participants in community learning processes to make very specific conclusions or

recommendations relating to particular NRM issues, but would rather provide general views and concerns and preferences related to those issues. In addition to this, policy-stakeholders indicated that very specific local messages from communities are unlikely to appear realistic or authentic, and hence would have low credibility. Also our observations in interviews and group-work indicate that very specific messages and accompanying recommendations conveyed in products are likely to inhibit discussion and generation of fresh ideas and insight among policy people. Finally, as local perspectives tend to be highly dynamic over time, it may be dangerous to include specific recommendations in messages covered by visual products.

This lack of prescription in messages co-constructed from social research was seen as a problem by some policy-stakeholders. In later parts of the research in Vietnam and Australia we engaged with policy-makers where possible, to try to identify the types of local information that were seen as most useful in meeting policy needs relating to Adaptation to Climate Change and PES. This interaction revealed that some policy-stakeholders often sought information on very exact topics they hoped would apply over very wide geographic regions. And often their focus was generally on specific information to guide the design of infrastructure or technological solutions. In seeking information, little consideration appeared to be given to seeking community-driven solutions, or background that would enable more informed policy-making. As mentioned previously, our results indicate that community research (and visual products) are much more valuable for purposes of providing robust background information and creating dialogue with policy-makers, than in providing specific answers for policy. This asymmetry in perceived policy needs and research outcomes highlights one of the difficulties for researchers in effectively engaging with policy-makers: but it also emphasises the critical need to seek ways of establishing effective dialogue with policy-stakeholders.

3.9 Future research

For future studies on ways visual products can inform policy, it would be useful to interview policy-stakeholders over a much longer period of time, and also to interview other people in policy networks to determine whether research messages (from these products) shift thinking among those who did not directly view the products. Other types of visual approaches and tools need to be explored in work with policy makers, such as digital story telling (Lambert 2009) and 3D visioning (Shaw *et al*. 2009). The latter approach may be useful in exploring ways of conveying information on specific policy needs. Additionally, it would also be useful to investigate the use of visual products as tools for helping facilitate interactive learning among a range of policy-related stakeholders.

4. CONCLUSIONS

Visual products were shown to have promising potential as means of allowing community voices to be heard in policy arenas. Such products have special value in the way that audio-visual images can elicit emotive responses and hence make remote situations more 'real', as well as authentic to people far from the scene. However, we also concluded that visual products cannot be legitimately used for informing policy if they are not constructed from robust local processes, and if clear reference to the background in which messages were derived and the context of the community research sites is not provided when products are presented. It is also important that the facilitators of policy processes understand policy audiences and trends within the wider political system they work within to be able to understand appropriate ways in which to engage and communicate with them. Mediums that can integrate images, as well as text or verbal information - such as interactive DVDs and other hypermedia - were particularly useful in providing rich context to the messages and in catering to different audience types. Their format was also useful in facilitating learning among policy-stakeholders – because they allowed users to explore issues through different media and pathways that promote reflection and discussion on the issues.

Many researchers, practitioners and policy-makers assume that 'good' research would have an impact on policy mainly through direct and instrumental means. This assumption devalues the *'enlightenment'* function of research and demonstrates a lack of understanding of the unique ways that social research can help shift conceptual and critical thinking. We conclude from this study that research need not set out to attempt to inform policy in only direct and instrumental ways - especially when issues are new, broad and complex – such as is often the case in NRM. The results of social research (and messages in visual products) seem much more likely to have value for 'conceptual use', i.e. in providing the contextual understandings that are needed in design of good NRM policy.

Our study showed that the type, design, and content of visual products used were critical. But the action research setting of this research among real-world policy-stakeholders also revealed the importance of seeking effective processes in communicating research results to policy arenas. The value of using intermediaries or linking agencies, and networks to support these processes, became very clear. The results also highlighted a major difficulty faced by social researchers in meeting the expectations held by many policy-makers for research results that provide specific solutions to (preconceived) policy questions.

We conclude that visual products derived from participatory social research processes can fill a very important need of policy-makers – to have access to a balance of information and emotive messages on the situations of people living local to protected areas, and their views and ideas for management of natural resources and their use. Visual products are unique in that that they can be engaging, evoke emotional responses and can help create dialogue and provide a platform for promoting lateral and deep thinking on new and complex concepts, in ways that are informed by local people's perspectives.

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Appendix 1: Verbal open-ended interview topic guide used with policy participants during interviews

General topics relating to background and views on community perspectives, community research and policy development

- What is your professional role in development (or influencing development) of policy?

- What is your awareness of current policy being formed for PES/Indigenous climate change adaptation[4] (for the region of interest)

- What are your views on local perspectives on PES/climate change adaptation? What do you think of their use for developing policy? Importance for informing policy?

- What is your preferred means and ways of receiving information on community research? Preferred means of communication with community? Researchers?

- What do you think is effective or good communication between policy stakeholders and community? Between policy stakeholders and researchers? Examples?

General views on visual products

- Have you had previous exposure to video, or other visual products from communities or researchers?

- What was your reaction? Did they help inform policy?

- Would you like to see more use of visual products for this purpose? Why, why not?

- What is the greatest potential of visual products for this purpose?

Specific reactions to the visual products

- What are your impressions/reactions to the visual products

- What are the strengths and weaknesses?

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[4] In Vietnam the topic investigated was PES, while in Australia, the topic of interest was climate change adaptation.

- What is the potential for this media to communicate local perspectives from the ground to policy?

- What is its potential in influencing or informing policy formation?

- In what ways can the media be improved? Should it contain more or less information? more or less video? More of less photos? More of less text? Contain animations? Other?

- Should it be accompanied by supporting documentation? (e.g summary and/or scientific report)? Should it appear more professional or polished?

- Was there any content/information in the DVD you found interesting or useful? Which?

- After viewing the visual product has your awareness of PES in Cat Tien National Park/or Indigenous climate change adaptation issues in the Northern Territory of Australia changed? Do you see these issues differently?

- What is the potential for this type of media to be used in policy (to communicate community research) in the future?

- Would you prefer other media or non-visual techniques?

- Would video alone be appropriate? Video type and length?

Appendix 2: Written questionnaire used in workshop with policy participants in Vietnam

1a) Do you think this workshop was useful? Please circle a number from 1-7

Least useful   1 2 3 4 5 6 7   Most useful

2a) What were the best aspects of the workshop?

2b) What were the negative aspects of the workshop?

3a) Do you think the interactive DVD was useful? Please circle a number from 1-7

Least useful   1 2 3 4 5 6 7   Most useful

3b) What were the best aspects of the DVD?

3c) What were the least positive aspects of the DVD?

4) What did you think of the use of video clips in this DVD?

5) Do you think the use of short video clips in this DVD helped to communicate messages from local people to you? Please circle a number

Strongly Disagree   1 2 3 4 5 6 7   Strongly Agree

6) Is it clearer to you what needs to be done to make PES a success - after this workshop? Please circle a number

Very unclear   1 2 3   4 5 6 7   Very clear

7) Would you like to see more use of video in the communication of local peoples' perspectives (in Natural Resource Management)?

Strongly Disagree   1 2 3 4 5 6 7   Strongly Agree

8) In your opinion, is it important to include local peoples' perspectives in the planning of PES schemes ?

Strongly Disagree   1 2 3 4 5 6 7   Strongly Agree

 Do you have any further comments? _____

9) What is your organization, and your role?