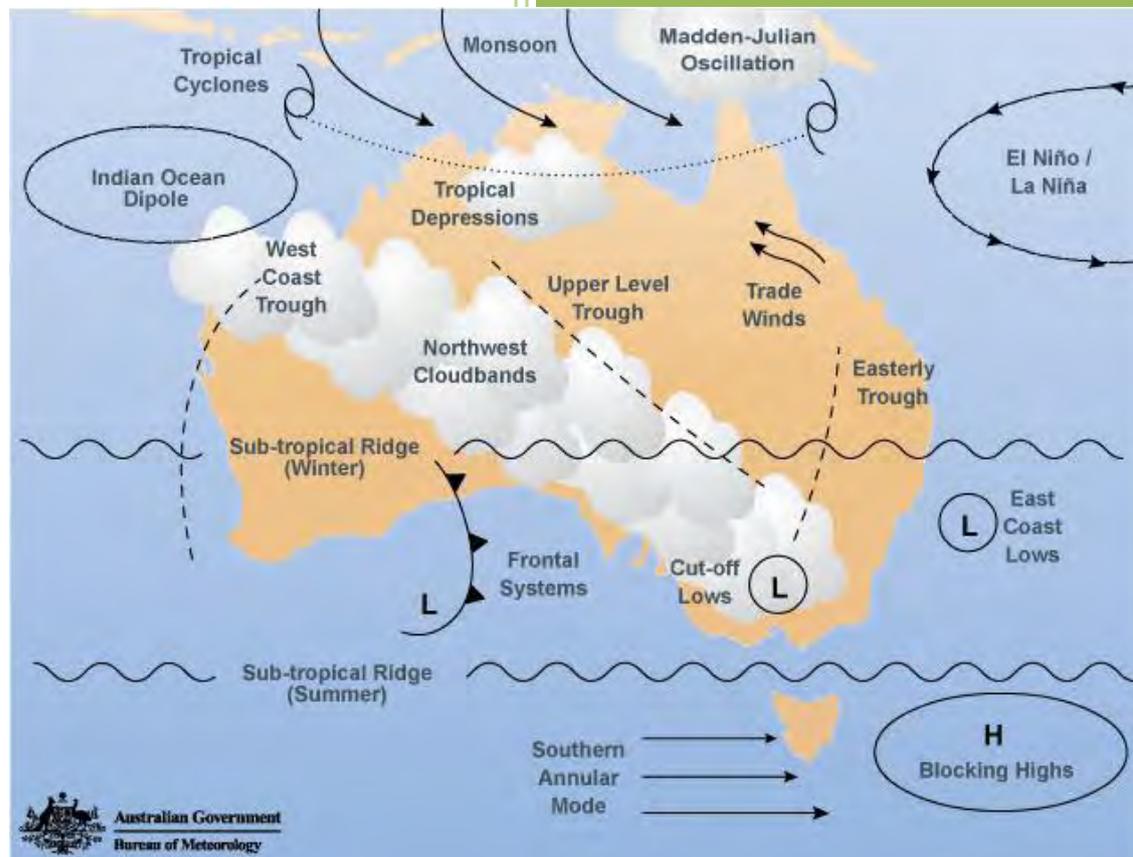


2012

Managing Climate Variability Program Investment Planning Workshop



Beverley Henry
Science Coordinator.
Managing Climate Variability Program
September 2012

Managing Climate Variability Program Investment Planning Workshop

**Bureau of Meteorology Regional Office,
14 Childers St, Canberra**

21 – 22 August 2012

Workshop Report

prepared for Management Climate Variability Program Management Committee by:

Beverley Henry
MCVP Science Coordinator



Managing
Coordinator

1. SUMMARY

MCVP Investment Planning Workshop

Over two decades, the Managing Climate Variability Program (MCVP) and its predecessor, Climate Variability in Agriculture Program (CVAP), has been the lead research and development program for providing practical climate information and tools to help farmers and other natural resource managers to manage the risks and optimise the opportunities presented by Australia's variable climate.

To plan the next three-year investment phase for MCVP commencing 1st July 2013, approximately 30 current and prospective program partners, researchers and other stakeholders participated in a workshop held on 21 – 22 August 2012 that was focused on:

- Identifying current and emerging priorities for seasonal climate forecast information and tools to assist primary producers to incorporate climate understanding into farm management decisions.
- Discussing investment opportunities for RDCs and other users of climate information in MCVP's program of research, tool development and communication so as to better meet the climate risk management needs of a wider range of industry stakeholders.

Support for Managing Climate Variability Program

The workshop participants, who included climate scientists and climate applications researchers, representatives of industry and farmer communities and communication experts, demonstrated support for the achievements of MCVP and enthusiasm for continuation of the program. This support extended across the 'end-to-end' systems from climate science and services to farmer tools and to knowledge and communications. In reviewing past efforts of MCVP, there was strong endorsement of the strategy developed in 2010 for MCV III, coupled with a recognition that it was timely to consider current needs, new knowledge and emerging priorities in planning for the next phase of investment.

The cross-RDC collaboration that has characterised MCVP and CVAP for two decades remains a critical strength of the program. The primary target for MCVP information and products will remain agricultural industries and specifically farmers, but a strong theme throughout the workshop was the need to put effort into increasing the funding base for the work of MCVP to reflect the flow-on benefits beyond agricultural industries to other sectors that are guided by seasonal climate forecasting.

Managing Climate Variability investment strategy 2013 – 2016

Preliminary non-binding indications from RDCs are for an increase in funding in 2013 – 2016 in the order of 20% to around \$1.2M. Importantly Dairy Australia, Cotton Research and Development Corporation and Australian Wool Innovation who were not directly engaged in MCV III have indicated an intent to join with Grains Research and Development Corporation, Meat and Livestock Australia, Rural Industries Research and Development Corporation and Sugar Research and Development Corporation in investing in MCV IV.

Draft wording for the objective of Managing Climate Variability Program in 2013 – 16 adapted from the goals of MCV III is:

To help primary producers and natural resource managers manage the risks and exploit opportunities, resulting from Australia's variable and changing climate, by:

- Improving the accuracy of forecasting on timeframes of value for primary production
- Providing climate products, services and tools for managing climate risk
- Increasing knowledge and confidence to adopt climate risk management.

Priorities for MCV IV investment

The following priorities for investment in managing climate variability to meet the goals outlined above for 2013 – 2016 reflect the discussions of participants in the MCVP Investment Planning Workshop. These priorities will be further refined by the MCVP Program Management Committee in the light of the final budget and partnerships, and consultation with key research providers on climate science progress and technological and communications capacity.

Priorities for Theme 1: Climate forecasting research

Proposed level of investment for MCVP: 40 – 45% of annual budget

Participants at the Workshop recognised the value of investment by MCVP in climate forecasting research over the past decade, and supported continued investment in the development of dynamical modelling. Areas of climate forecasting research targeted as providing the best returns for agriculture were:

1. Accuracy of the forecasts, particularly improvements on 2 – 8 week and 3 – 6 month timescales, towards the 70% skill level sought by farmers to provide confidence in decision-making. Specific research priorities include:
 - a. Continued research to improve the POAMA-ACCESS representation of regional drivers of climate across Australia;
 - b. Forecasting the severity and period of long timescale extreme events such as extended droughts;
 - c. Probabilities of frost, heat waves and other short-term extremes.
2. Ease of use of forecasts, in particular:
 - Seamless forecasting across weather, multi-week and seasonal timeframes;
 - Characterisation of the skill of forecasts on a regional and temporal basis.
 - Exploring the value of hybrid statistical/dynamical forecasts as being developed in the CSIRO Adaptation Flagship as an interim step to downscaled dynamical forecasts. While dynamical forecasts are the way of the future, the skill and regional specificity mean that a 'statistical' system may provide the best forecast in the near term.

Hence, investment in POAMA is acknowledged as having value despite slow realisation of the benefits in terms of clear pathway to operational farmer-friendly products. All developed countries are moving to implement dynamical forecasts and Australia needs to be part of this development. MCVP has had a modest but significant influence on development of dynamical forecasting in Australia and has insured that timeframes and products of value for agriculture are considered, e.g. multi-week and wind forecasts.

Priorities for Theme 2: Climate forecasting services

Proposed level of investment: 20 – 25% of annual budget

To help farmers, other primary producers and natural resource managers realise the benefits of the improvements in climate forecasts, MCVP will continue to invest in translating the outputs from climate research into accessible and useful products. A primary focus will be ongoing support for the *Water and the Land* website.

The Water and the Land (WATL) website now provides a range of weather and climate products of value for agriculture that have been integrated from various areas of the Bureau of Meteorology's R&D. Continued support is needed for maintenance and enhancement of the site to maximise access to useful and up-to-date information for primary producers.

Specifying products of value for agriculture through consultation between climate scientists and end users will help to ensure user-driven products that are consistent and 'simple' and that are linked to key decision-making needs. The Climate Champion farmers are a valuable resource for providing user feedback.

Seamless forecasts across weather and seasonal timeframes is a development identified by both agricultural and climate scientists as being a high priority to facilitate use by farmers making climate-dependent decisions, e.g. fertiliser applications, sowing or stocking rates, across this timeframe.

Assigning skill levels to climate forecast products on the WATL site would assist farmers, their advisers and other users to make more informed decisions on climate risk management and would assist in maintaining confidence over periods and in locations where there is currently low skill. This service would require support through educational materials and training.

New or enhanced products and services, e.g. soil moisture and extreme event forecasts were identified as important. For example, information on soil moisture, such as that now becoming more reliably available from remote sensing technologies, would be a powerful decision support variable when linked to crop or pasture growth models.

Priorities for Theme 3: Climate risk management for agriculture

Proposed level of investment: 15 – 20% of annual budget

There was a general interest in increasing funding for climate risk management tools and decision support in the light of increased skill in forecasting and industry interest. Further consideration will be given to how best to work with industry and commodity-specific groups to achieve uptake of tools.

Market research to guide investment in tools appears an essential first step if there is to be a renewed focus on decision support systems. Market research would assist in understanding how tools could contribute to actual decisions for managing climate risks and opportunities more effectively than in the past.

Considerations for further investment in tools include (but are not limited to) the following:

- Better integration of tools and decision support systems with climate products and services (e.g. those available on WATL) and on training in interpretation
- Three-way communication between users, tool developers and climate researchers
- Translation of tools to have more location and commodity specific relevance
- Linking to economic modeling to enhance the value for decision support.

Future relevance of tools and decision support systems depends on an evaluation of what the ‘young guns’ of the farming community need (e.g. smart phone or tablet apps), and requires that tools are developed so that dynamical forecasting (POAMA) can be the interface.

Priorities for Theme 4: Climate knowledge and communication

Proposed level of investment: 15 – 20% of annual budget

The growing reliance in agriculture on private consultants, industry representatives and other farmers to provide extension services such as use of up-to-date climate knowledge, the high interest in climate (due in part to media on climate change and recent drought and floods), and the rapid developments in seasonal climate forecasting science all point to a need for better education and training on climate forecasting science and climate risk management. MCVP provision of farmer-relevant seasonal climate knowledge that is credible, timely and accurate is critical to successfully meeting program goals. The focus remains providing multi-week to seasonal forecasts and tools via web-sites (MCV, WATL, Climate Kelpie), paper publication (Climag), industry-relevant articles, Climate Champion farmers and input to field days. A new priority for Theme 4 is communication and engagement with potential investors from other sectors who also benefit from the outputs of MCVP-funded R&D.

Training of advisers and agronomists in how to use products and risk management was identified at the Workshop as a current gap in the provision of seasonal climate forecasting knowledge. This training could be provided via MCVP-run 1 or 2 day sessions bringing together climate scientists, application scientists and advisers/agronomists. These could be annual or on-demand events.

Climag and other ‘hard-copy’ products remain of value in MCV’s communication portfolio. Similarly many stakeholders rely on articles in industry magazines as a trusted source of credible information on climate as well as commodity-related information.

Climate Champion farmers have been of value in raising awareness of climate risk management amongst farmers. Climate Champion farmers are also a beneficial source of feedback to researchers in developing climate information and products for farmers.

The MCV and Climate Kelpie websites provide basic information on the program and access to background and links to seasonal climate tools and knowledge, respectively. Maintaining the sites and updating information on Climate Kelpie requires ongoing investment.

Field days provide an opportunity for more strategic communication of climate knowledge and promotion of adoption of risk management. MCVP’s contribution to Field Days is enhanced by participation of Climate Champion farmers, industry leaders and researchers.

Potential investors in climate forecasting research, products and services outside of the agricultural sector represent an important but challenging area for communication. Opportunities will be sought to discuss the *Managing Climate Variability Program* and climate forecasting development and products with potential investors in sectors such as forestry, fishing, mining, tourism, health, emergency services, construction, finance (including banking and insurance), and with international agencies, particularly ACIAR, with investment in Pacific island nations and Africa.

Next steps

Following further review and endorsement of investment priorities set out in this paper by the MCVP Program Management Committee, communication with industry partners and research providers will continue to assist in defining specific project areas for 2013 – 2016. A more definite budget for MCV IV will be known as RDCs undertake their internal planning from December to February. The MCVP Program Management Committee would like to undertake targeted calls for R&D early in 2013 with the objective of commencing new projects from July 2013.

2. WORKSHOP DETAILS

TITLE: Managing Climate Variability Program Investment Planning Workshop

DATE / LOCATION: 21-22 August 2012 at Bureau of Meteorology Regional Office, 14 Childers St, Canberra

FACILITATOR: Martin Blumenthal

PEOPLE PRESENT:

Rural Research and Development Corporations

Martin Blumenthal	GRDC (MCV PMC)
Simon Winter	RIRDC (MCV PMC)
Bianca Cairns	SRDC (MCV PMC)
Janine Price	APL
Catherine Phelps	DA
Tom Davison	MLA (MCV PMC)
Peter Melville	HAL
Anwen Lovett	RIRDC
Ian McClelland	Independent Chair MCV PMC
Tom Langley	GRDC (Project Officer, MCV)
Lucinda Corrigan	Board Member, MLA
Rob Taylor	GRDC Panel Member
Mike Ewing	GRDC Panel Member
Chris Blanchard	GRDC Panel Member
Beverley Henry	MCV

Bureau of Meteorology

Peter May
Harry Hendon
David Jones
Oscar Alves
Andrew Watkins
Neil Plummer

CSIRO

Steve Crimp

Peter McIntosh

State Agency Officers/Researchers

Peter Hayman	SARDI
Rohan Nelson	UTas
Chris Sounness	VDPI
David Bowran	DAFWA (Attended by teleconference)
Michael Cashen	NSW DPI

National Farmers Federation

David McKeon

Research Community

Peter Hayman	SARDI
Rohan Nelson	UTas
Chris Sounness	VDPI

Communications

Sarah Cole	EConnect Communications
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Apologies

Holger Meinke	UTAS
Ken Day	QLD DSITIA
Rob Young	NSW DPI
Andrew Ash	CSIRO Adaptation Flagship
Bruce Pyke	CRDC
Angela Bradburn	CRDC
Jenni Metcalfe	EConnect Communications
Kimberley Green	DAFF
Deb Kerr	NFF
Elise Hayes	GWRDC

Other Invitees

Carolyn Stewardson	FRDC
Angus Crossan	AECL
Julie Gaglia	DAFF
Lee Nelson	DAFF
Sarah Bridges	DCCEE
John Higgens	DCCEE
Dean Knudson	SEWPAC
Chris Lafferty	FWPA
Conrad Blaney	AMPC

3. PURPOSE OF WORKSHOP

3.1 Background

MCV (formerly called Climate Variability in Agriculture Program, CVAP) has been functioning since 1992 as the lead research and development program for providing practical climate information and tools to help farmers and other natural resource managers to manage the risks and exploit the opportunities presented by Australia's variable and changing climate.

The Managing Climate Variability Program (MCVP) and its management agency, the Grains Research and Development Corporation, convened a workshop on 21st – 22nd August 2012 to plan the next three-year investment phase which commences in July 2013.

A range of current and prospective Program partners, researchers and other stakeholders were invited to the Workshop which focused on:

- Identifying current and emerging priorities for seasonal climate forecast information and tools for agriculture, fishing and forest industries to assist primary producers to incorporate climate understanding into farm and other enterprise business decisions.
- Discussing investment opportunities for RDCs and other users of climate information in MCV's program of research, tool development and communication so as to better meet the climate risk management needs of a wider range of primary industries.

3.1.1 MCVP Goals and Objectives (2010-2013)

The goal of Managing Climate Variability Program 2010-13:

To help farmers and natural resource managers manage risks and exploit opportunities, given Australia's variable and changing climate, by:

- Improving forecasting – accuracy, lead time and ease of use
- Providing tools and services for managing climate risk
- Increasing adoption of climate risk management.

3.1.2 MCVP Investment Strategy 2010 – 2013

1. Climate forecasting research

We are allocating up to 50% of our budget to climate science projects aimed at improving the skill of forecasts, from multi-week to seasonal.

2. Climate forecasting development and services

We continue to invest at least 15%, and up to 25%, of our budget to translating climate forecasting research outputs into climate forecasting products for Australian agriculture. Most of this investment will be in partnership with the Bureau of Meteorology to continuously improve *Water and the Land*.

3. Climate risk management for agriculture

We are allocating about 10% of our budget to decision-support applications.

4. Climate knowledge, adoption and communication

We are allocating up to 15% of our budget to knowledge and communication. Most of this investment will be on fostering increased adoption of climate-risk management on farm through, for example, the Climate Champion program and Climate Kelpie website.

3.1.3 Workshop Objectives

The specific objectives of the workshop were to:

- Demonstrate to Research and Development Corporations and other stakeholders the strategy and achievements of the Managing Climate Variability Program over the past 10 years.
- Against the background of extreme variability in seasonal conditions over the past decade, and changing regional trends in climate (e.g. south-west of Western Australia), highlight advances that have been made in providing better forecasts and climate risk management products and tools for Australia's primary producers.
- Identify the prospects for future improvements in the accuracy and value of seasonal climate forecast information over the next decade and the investment necessary to deliver the future Managing Climate Variability Program priorities for the benefit of all Australian primary industries.

4.6.1.1 Objectives for MCVP 2013 – 2016

The Planning workshop participants were supportive of continuation of the high level goals of MCV III. There was, however, an interest in including the interests to the forestry and fishing industries. Although these industries did not accept the invitation to participate in the planning workshop it remains of interest to engage with in future.

Preliminary draft wording for the goal of Managing Climate Variability Program 2013 – 16 is:

To help primary producers and natural resource managers manage risks and exploit opportunities, resulting from Australia's variable and changing climate, by:

- Improving the accuracy of forecasting on timeframes of value for primary production
- Providing climate products, services and tools for managing climate risk
- Increasing knowledge and confidence to adopt climate risk management.

4.6.2 Priorities for MCV IV investment

The following synthesis of proposed priorities for investment in managing climate variability to meet the goals outlined above for 2013 – 2016 reflects the discussions of participants in the MCV Investment Planning Workshop. These priorities will be subject to further discussion and refinement through the MCV Program Management Committee in the light of the final budget and partnerships, and consultation with key research providers on climate science progress and technological capacity.

4.6.2.1 Climate forecasting research

Participants at the Workshop expressed support for investment by MCV in climate forecasting research over the past decade, and for continued investment in the development of dynamical forecasting. Areas of climate forecasting research targeted as of most value for agriculture were:

Accuracy of the forecasts remains a priority as it represents a major barrier to adoption of climate risk management in agriculture, natural resource management and other sectors.

- Improvements in the accuracy of forecasts on timescales from 2 to 8 weeks and 3 to 6 months towards the 70% skill level sought by farmers for confidence in decision-making.
- Continued research to improve the POAMA-ACCESS representation of regional drivers of climate across Australia.

Extreme events pose a major risk for farmers and their year-to-year income and longer-term planning. Predictability of these extreme conditions cuts across weather and climate timescales and the need for understanding of complex interactions between climate drivers

- Forecasting the severity and period of long timescale events such as extended drought periods would assist both environmental and economic outcomes, e.g. through destocking early.
- Probabilities of frost, heat waves and other short-term extremes assist in managing the risks of devastating losses in production for many crops and may have animal welfare implications.

Ease of use of forecasts will be facilitated by greater clarity in the outputs.

- Seamless forecasting across weather, multi-week and seasonal timeframes, and, of secondary importance, extending to longer time climate change.
- Characterisation of the skill of forecasts on a regional and temporal basis.
- Because there remain regions and times when dynamical modelling is not yet able to provide forecast accuracy to match existing statistical systems, there was some interest in exploring whether the best information available to some farmers, as an interim measure, may be from a hybrid statistical/dynamical forecasts as being developed in the CSIRO Adaptation Flagship.

Level of investment in Climate Forecasting Research

The Workshop expressed a preference for investment in projects targeting improvements in climate forecasting in specific areas of value to agriculture. There was also a feeling that there was a greater focus required on making forecasts more accessible and 'useable' for farmers. On this basis it is proposed that approximately 40% of the MCV budget for 2013 – 2016 be allocated to Theme 1 Climate Forecasting Research with a view to:

- Maintaining actual MCV investment in climate forecasting research at approximately the same level as for MCV III;
- Continuing support for POAMA development in a way that will provide a significant contribution to the total investment in POAMA as part of an end-to-end system as described by Dr Alves.
- Increasing MCV assistance for farmers and other land managers to capitalise on the improvements in forecasting made to date by additional support for access to knowledge that links forecasting skill to decision making.

Specific research areas will be discussed with BoM and CAWCR with consideration given to progress in converting the operational forecast system to POAMA and the achievements and prospects of current projects. The BoM POAMA Research Workshop in November will provide an opportunity to refine understanding of the most prospective research directions.

4.6.2.2 Climate forecasting services

To help farmers, other primary producers and natural resource managers to realise the benefits of the improvements in climate forecasts achieved over the past decade and future advances, MCV will continue to invest in translating the outputs from climate research into accessible and useful products. The primary focus will be ongoing support for the Water and the Land website.

Water and the Land (WATL) website now provides a range of weather and climate products, integrated from various areas of the Bureau of Meteorology R&D, of value for agriculture. These products and services are also of wider interest as indicated by the high level of utilisation with the WATL site now receiving up to 200,000 hits per month, and the positive comments back to

BoM. However it is important that MCV continues to support maintenance and enhancement of the site to maximise the value to primary producers, including those in remote areas now receiving upgraded broadband access.

Specifying products of value for agriculture requires consultation between climate scientists and end users. Workshop participants emphasised the need for products to be consistent and 'simple', linked to key decision-making needs and user-driven. The Climate Champion farmers are a valuable resource for providing feedback to the Bureau on the ease of interpretation of existing products on the WATL site and in the planning and trial of new products and services. The current MCV-funded project to add multi-week forecasts to WATL has benefited from input from the Climate Champions on preferred formats and will provide more opportunities in future.

Seamless forecasts across weather and seasonal timeframes is a development identified by both agricultural and climate scientists as being a high priority. The current delivery of different forms of outlooks for 1 to 7 days (weather) and 2 to 8 weeks (intra-seasonal) does not facilitate use by farmers wishing to make climate-dependent decisions, e.g. fertiliser application or sowing, across this timeframe.

Assigning skill levels to climate forecast products on the WATL site would assist farmers, their advisers and other users to make informed decisions on climate risk management and would assist in maintaining confidence over periods and in locations where there is currently low skill. This service would require support through educational materials and training. It will also require consideration in the light of a future change in the operational system from statistical to dynamical forecasting.

New products and services, e.g. soil moisture and extreme events were specified as of interest to workshop participants and their industries or organizations. It was noted that information on soil moisture, such as that now becoming more reliably available from remote sensing technologies, would be a powerful decision support variable when linked to crop or pasture growth models.

Level of investment in Climate Forecasting Services

The level of investment in climate products and services will depend in part on the BoM process for updating the WATL site, on progress in climate forecast research, including on operationalising dynamical forecasts, and on any success in attracting funding for products and services from other sectors. The importance of seeking co-investment in products of broader interest such as those for extreme events (e.g. from the tourism or mining sectors) was a recurring theme. MCV III investment of 15% could be increased to 20 – 25% to enable an increase in services and products for agriculture.

4.6.2.3 Climate risk management for agriculture

The workshop reviewed the current low level of investment in tools and decision support services in the light of the significant increase in skill of dynamical forecasts on the multi-week to seasonal timescales over the past few years and the prospects for continued improvements with greater access to supercomputing resources from 2013. There was a general interest in increasing the support for climate risk management tools and decision-making but various views on how to achieve useful products that would be taken up by various commodity areas.

Market research to guide investment in tools appears a necessary first step in a renewed focus on decision support systems. This research would assist in understanding how tools could

contribute to actual decisions made in an effort to manage the risks and realise opportunities of a variable climate, and importantly why they haven't been more widely adopted in the past.

Considerations for further investment in tools include (but are not limited to) the following:

- Better integration of tools and decision support systems with climate products and services (e.g. on WATL) and on training in interpretation
- Continued communication and feedback from users to application developers and climate researchers
- Translation of tools to location and commodity specific relevance (i.e. for my paddock)
- Linking to economic modeling would provide enhanced value for decision support.

Future relevance of tools and decision support systems will require an evaluation of what the 'young guns' of the farming community need in terms of both products and delivery (e.g. smart phone or tablet apps). It will also require that tool development now ensures that dynamical forecasting (POAMA) can be the interface rather than being restricted to statistical systems.

Level of investment in Climate Risk Management

There appeared a consensus view that it was timely for MCV to increase the level of investment in tools and decision support systems for climate risk management. This view was driven in part by recognition that climate forecasting has improved and will continue to increase in accuracy. There was also some discussion about emerging pressure on farmers for proactive risk management for drought as the policy around exceptional circumstances support is reformed and to ensure preparedness for climate change adaptation as trends towards warmer (and in some regions, drier) conditions are being documented in some regions. Increasing investment from the MCV III level of 10% of budget to 15 – 20% should be guided by initial robust market research. Co-investment by industries in commodity and location specific tools and systems and in on-going support, training and feedback programs would be highly desirable if not essential for success.

4.6.2.4 Climate knowledge and communication

As extension services provided by state agencies continues to decline, there is a growing reliance on private consultants, industry representatives and other farmers to deliver information and provide advice and up-to-date knowledge to farmers. At the same time focus in the public media on climate change together with extreme conditions of drought and flood in Australia has raised interest in climate more generally. As skill in seasonal climate forecasting increases and climate services and risk management tools and support develop it is important that advisers, agronomists and farmers are equipped with the latest knowledge and that support is provided in a way that will foster adoption of climate risk management.

MCV provision of farmer-relevant climate risk management knowledge that is credible, timely and accurate is critical the MCV program successfully meeting its goals, including adoption of climate risk management by farmers and natural resource managers. The focus of this knowledge is on the real need for multi-week to seasonal timescales that are relevant to current and year-to-year decisions for agricultural production. This does not deny the importance of adaptation to and mitigation of climate change but rather acknowledges that other resources are being invested in longer-term information. Provision of seasonal climate knowledge may be via web-sites (MCV, WATL, Climate Kelpie), publication (Climag), industry-

relevant articles (e.g. for Groundcover), training of advisers, support for Climate Champion farmers and input to field days.

Training of advisers and agronomists was identified at the Workshop as a current gap in the provision of knowledge of seasonal climate forecasting, how to use products and risk management. It was felt that a significant proportion of advisers were not aware of recent developments in these areas or where to access up-to-date information. This training could be provided via 1 or 2 day dedicated sessions that brought together climate scientists, application scientists and advisers/agronomists in an annual or on-demand event. Such events if managed by MCV would also help to raise awareness of the program and hopefully increase support.

Climag and other 'hard-copy' products remain of value in MCV's communication portfolio. Climag circulation remains high and often initiates feedback or questions from farmers, industry representatives and researchers. A CSIRO scientist working with the cotton industry said recently that Climag was his primary source of information on new developments in climate science for agriculture. Similarly many stakeholders rely on articles in industry magazines as a trusted source of credible information on climate as well as commodity-related information.

Climate Champion farmers have proved to be of importance in raising awareness of climate risk management amongst farmers. By providing training and frequently updated information to the Climate Champion farmers knowledge is able to reach a wider audience. Climate Champion farmers are also a valuable source of feedback to researchers on climate information needs and the types of services that will most assist in adoption of products.

The MCV and Climate Kelpie websites provide basic information on the program and access to background and links to seasonal climate tools and knowledge, respectively. Climate Kelpie is meeting the needs of farmers and others who independently seek climate information via the internet. The challenge of upgrading the site and ensuring a system for maintaining and updating information on this site is being addressed by MCV in 2012 but will require ongoing investment.

Field days provide an opportunity for more strategic communication of climate knowledge and promotion of adoption of risk management. Both the Climate Champion farmers and industry leaders have a role directly and indirectly through inviting participation by researchers. Livestock producers and growers are asking more questions and requiring a more sophisticated level of information than previously and this provides both a challenge and an opportunity for MCV. It will be particularly important to meet the knowledge needs of the more innovative younger farmers.

Potential investors in climate forecasting research, products and services outside of the agricultural sector are recognised as important clients of MCV communication strategy. They also represent a challenging area because, in the great majority of cases, they will not previously have considered the need to invest in development of seasonal climate knowledge, although in recent years many will have been encouraged to invest in climate change or possibly weather products. Opportunities will be sought to discuss the Managing Climate Variability Program and climate forecasting development and products with potential investors in sectors such as mining, tourism, health, emergency services, construction, financial services (including banking and insurance) and international interests, particularly through ACIAR investment in Pacific island nations and Africa.

Level of investment in Climate knowledge, Adoption and Communication

The focus of communications for MCV is provision of credible up-to-date seasonal climate information that will promote adoption in agriculture of climate management strategies and practices to minimise risks and exploit opportunities in a variable [and changing] climate. Provision of the new knowledge services, including training events for advisers and agronomists may require additional investment above the 15% allocated in MCV III. Consideration of increasing investment to 20% should be made in the context of alternatives such as a 'user pay' system for training of advisers and in actively (and successfully) seeking additional investment from other sectors or industries.

4.7 Concluding remarks

The workshop participants from climate science, industry and farmer areas all demonstrated strong support for the work of MCV and enthusiasm for continued work of the program in providing climate risk management information. This support extends across the 'end-to-end' approach of MCV from climate science to applications to farmer tools and knowledge and communications. All theme areas received endorsement as having current and future value in climate risk management for primary producers.

In reviewing past achievements of MCVP, there was a strong endorsement of the appropriateness of the strategy developed in 2010 for MCV III, together with a recognition that it was timely to consider current needs in planning for the next phase of investment. New challenges include the longer term trends in temperature, rainfall and seasonality that are recognised in some regions, including south-west Western Australia and parts of Victoria and these add even greater urgency to the need to provide seasonal climate forecasting knowledge and tools that will support farmers to adopt management practices that minimise the risk and optimise opportunities in a variable climate.

The cross-RDC collaboration that has characterised the Managing Climate Variability Program and Climate variability in Agriculture Programs for two decades is a critical strength of the Program. It is an excellent example of the collaboration that has been recommended for RDCs in the Rural Research and Development Policy Statement (July 2012) for "increased focus on cross-sectoral research"¹. The primary target for MCV information and products will remain agricultural industries but a strong theme throughout the workshop was the need to put effort into increasing the funding base for the work of MCVP, both from additional agricultural industries and from other sectors that benefit from improvements in seasonal climate forecasting.

4.7.1 Next steps

Following the endorsement of investment priorities set out in this paper, communication between MCVP, industry partners and research providers will continue to assist in further defining specific project areas for 2013-16. A more definite budget for MCV IV will be known as RDCs undertake planning in the period from December to February. The MCVP Program Management Committee would like to undertake targeted calls for R&D with the objective of commencing new projects from July 2013.

¹ http://www.daff.gov.au/_data/assets/pdf_file/0004/2176222/research-and-development-policy-statement.pdf



MCV Investment Planning Workshop 2:00pm 21st – 3:00pm 22nd August, 2012

Bureau of Meteorology Regional Office,
14 Childers St, Canberra
Facilitator: Martin Blumenthal, GRDC

Welcome and Overview

Welcome and introductions (Ian McClelland).

Session 1: Context and purpose – objectives and key outputs desired 21st August, 2:00pm – 5:30pm: Short presentations followed by discussion

The Purpose of the workshop is to:

- Demonstrate to Research and Development Corporations and other stakeholders the strategy and achievements of the Managing Climate Variability Program over the past 10 years.
- Against the background of extreme variability in seasonal conditions over the past decade, and changing regional trends in climate (e.g. south-west of Western Australia), highlight advances that have been made in providing better forecasts and climate risk management products and tools for Australia's primary producers.
- Identify the prospects for future improvements in the accuracy and value of seasonal climate forecast information over the next decade and the investment necessary to deliver the future Managing Climate Variability Program priorities for the benefit of all Australian primary industries.

Presentations and Discussion

What is MCVP? (Martin Blumenthal)

- i. Structure and governance
- ii. Why does an RDC such as GRDC invest in MCVP
- iii. Evaluation of MCVP 2008 and preliminary results 2012

MCVP – 10 years of projects and achievements (Beverley Henry)

- i. Overview of program strategy and projects
- ii. Example key achievements

MCVP investment in improved seasonal forecasts (BoM)

- i. MCVP projects in the development of POAMA
- ii. How has forecasting improved
- iii. Emerging areas of research for more accurate seasonal forecasts

- Climate products providing value for primary producers (BoM)
- i. MCVP influence on product development and availability over the past 10 years
 - ii. New products on the horizon
- How do farmers use seasonal climate forecast information and tools (Peter Hayman)
- i. How do farmers consider climate risk management on farm

Workshop Dinner – 6:45pm for 7:00pm (Lemongrass Thai, London Circuit)

An opportunity to continue discussions and ask questions of presenters and others

Session 2: Priorities and planning for MCVP (July 2013 - June 2016)

22nd August, 8:30am – 13:30pm: Table discussions followed by plenary reporting

Introduction (Martin Blumenthal)

- Summary of key points from Session 1 discussion
- MCVP's Investment Strategy – changes in context over the last 3 years
- Priorities identified by participating RDCs

Discussion in Tables

Participants will break into Tables. Current PMC members will lead discussion on the current MCVP theme areas and on needs and gaps, asking the questions:

3. What are the issues for your industry in relation to climate variability?
4. What is the outcome you would like to achieve in relation to these issues? What are the outputs required to achieve the outcome?
5. Report back

Morning tea 10.30

6. Is the MCV strategy right are the themes applicable going forward
7. What issues are the highest priority for 2013-16
8. How should MCV link to their organisations and investments in managing climate?
9. What further information is needed and what are the timelines to help RDCs decide on investment in climate variability?

Lunch: 13:00 – 13:45pm

Synthesis and Wrap-up Session: 13:45 – 15:00pm

Synthesis of discussions; preliminary draft strategy for investment 2013-16 (Martin)

MCVP Goals and Objectives (2010-2013)

Goal of Managing Climate Variability Program 2010-13:

To help farmers and natural resource managers manage risks and exploit opportunities, given Australia's variable and changing climate, by:

- Improving forecasting – accuracy, lead time and ease of use
- Providing tools and services for managing climate risk
- Increasing adoption of climate risk management.

MCVP Investment Strategy 2010 – 2013

1. Climate forecasting research

We are allocating up to 50% of our budget to climate science projects aimed at improving the skill of forecasts, from multi-week to seasonal.

2. Climate forecasting development and services

We continue to invest at least 15%, and up to 25%, of our budget to translating climate forecasting research outputs into climate forecasting products for Australian agriculture. Most of this investment will be in partnership with the Bureau of Meteorology to continuously improve Water and the Land.

3. Climate risk management for agriculture

We are allocating about 10% of our budget to decision-support applications.

4. Climate knowledge, adoption and communication

We are allocating up to 15% of our budget to knowledge and communication. Most of this investment will be on fostering increased adoption of climate-risk management on farm through, for example, the Climate Champion program and Climate Kelpie website.