



AIDE MEMOIRE

Talking points for oral Cabinet item on New Zealand's membership of the Square Kilometre Array Radio Telescope

Date:	21 June 2019	Priority:	Medium
Security classification:	In Confidence	Tracking number:	3918 18-19

Information for Minister
Hon Dr Megan Woods Minister of Research, Science and Innovation

Contact for telephone discussion (if required)			
Name	Position	Telephone	1st contact
Simon Rae	Manager, International Science Partnerships	Privacy [redacted]	✓
Zachary Clarke	Graduate Policy Advisor	04 901 8753	

The following departments/agencies have been consulted

Minister's office to complete:

Approved

Declined

Noted

Needs change

Seen

Overtaken by Events

See Minister's Notes

Withdrawn

Comments



AIDE MEMOIRE

Title

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Purpose

This aide memoire provides talking points for an oral Cabinet item on 24 June 2019, during which you will communicate to your colleagues that New Zealand will not join the SKA Observatory, and that consequently our involvement in the SKA project will end in 2020.

Privacy of natural persons

Simon Ra
Manager, International Science Partnerships
Labour, Science and Enterprise, MBIE

21 / 06 / 2019

New Zealand will not join the SKA Observatory

1. In response to our briefing of 30 May (briefing 3582 18-19 refers), you agreed that New Zealand should not participate in the construction phase of the Square Kilometre Array (SKA), and that consequently you would not be seeking Cabinet approval for a mandate to negotiate an associate membership arrangement with the SKA Observatory (SKAO).
2. You had previously advised Cabinet on 30 April 2018 (aide memoire 3095 17-18 refers) of your decision not to become a full member of the SKAO, and to explore the feasibility of associate membership. As you have now concluded that pursuing an associate membership agreement is not in New Zealand's best interests, you decided to return to Cabinet to have this decision noted.

The case for joining the SKA Observatory is not compelling

3. We advised you that, because of the small size of New Zealand's radio astronomy community, our participation in the construction phase of the SKA would need to be supported by a complementary investment in astronomy research in order to obtain sufficient science value from the completed telescope. Given the competing priorities in the RS&I portfolio, we considered that investment difficult to justify.
4. As our involvement in the SKA's design phase was primarily based around the rationale of supporting the development of big data capability in our ICT industry, we provided advice on the ICT benefits from our potential participation in the construction phase.

5. Ultimately, we judged that the ICT benefits of participating in SKA's construction phase did not outweigh the associated costs. While some future benefits would be available from our ongoing participation, they are more uncertain, would mostly accrue only to the participating organisations, and would come at a greater cost to the taxpayer. Participating in the procurement process for the construction of a radio telescope is not a viable way to design an ICT research investment.

New Zealand's involvement in SKA project will end in 2020.

6. New Zealand is a member of the SKAO's precursor, the SKA Organisation. The SKA Organisation is overseeing the design phase of the SKA and will wind up when the Convention setting up the SKAO enters into force, expected to be in 2020.
7. We have provided separate advice to your office on a communications plan for this decision. In summary, the first step will be to inform the SKA Organisation itself of your decision. Following that, we would inform domestic stakeholders and make the decision public. We recommend undertaking this process prior to the SKA Board Meeting on 10 and 11 July so that we can use that opportunity to explain the decision to our international partners face-to-face.
8. This decision is likely to be criticised by a small but vocal set of stakeholders involved in SKA design work. We have engaged extensively with supporters and opponents of New Zealand's involvement in the SKA in providing our advice to you.

You have indicated that you intend to inform Cabinet by way of an oral item on 24 June

9. In our meeting with you on 4 June you indicated that you would like to take an oral item to Cabinet in order to inform your colleagues of your decision and that this decision will soon be made public. This aide memoire provides you with talking points and reactive questions and answers for that item.

Annexes

Annex One: Talking points for oral Cabinet item on New Zealand's membership of the Square Kilometre Array Radio Telescope

Annex Two: Reactive questions and answers for oral Cabinet item

Annex One: Talking points for oral Cabinet item on New Zealand's membership of the Square Kilometre Array Radio Telescope

- Last year I informed you of my decision that New Zealand would not become a full member of the Square Kilometre Array Observatory, an international organisation set up to construct and operate the SKA, a large radio telescope to be built in Australia and South Africa.
- I instead directed officials to explore the feasibility of becoming an associate member of the Observatory. Having now completed this process, I have decided that pursuing an associate membership arrangement is not in New Zealand's best interests.
- New Zealand has been involved in the Square Kilometre Array through its design phase for several years, as the project required the development of new software technologies to manage the substantial data processing requirements of the completed telescope. We originally joined this phase to support and develop our ICT industry through engaging with one of the world's largest science projects.
- We have now achieved our objectives from participating in the project and the SKA's design phase is scheduled to end next year. Several of New Zealand's universities and software companies have significantly developed their capability in dealing with 'big data' and we have built on our existing science relationships in Australia and internationally.
- Having now achieved our objectives, I have decided that New Zealand will not participate in the upcoming construction phase of the project. With the design phase complete, participating in the next stage of the project will provide few improvements to New Zealand's software capabilities relative to the scale and duration of the necessary financial commitment. Joining this phase only makes sense if we wish to buy a share in a radio telescope.
- There is limited domestic demand for the completed SKA as New Zealand's radio astronomy community is small. In a best case scenario, we would be required to contribute \$1 million per annum to fund our associate membership in the project.
- In order to obtain sufficient science value from the completed telescope, we would also need to ensure that we had a sustainable and cohesive platform for astronomy research. Officials have advised that this would likely require the investment of a further \$2-3 million per annum.
- Combining these figures, I do not believe that this project is the best use of funds in the research, science and innovation portfolio. There are more immediate priorities in the New Zealand science system where an investment of this scale would provide greater benefits to New Zealand.
- International Relations
[Redacted]
[Redacted]
[Redacted]
[Redacted]

Annex Two: Reactive questions and answers

Q: Are we missing an opportunity by not joining the SKAO?

No. New Zealand joined the SKA's design phase to support the immediate development of new and innovative ICT technologies. Full membership of the Square Kilometre Array Observatory is a much longer term commitment, and involves buying a share of a radio telescope for nearly 50 years. Our continued involvement therefore needs to answer the question of whether we want to buy that telescope.

I do not believe that this purchase would be the best investment we could make in ICT research at this time. The greatest benefits for ICT capability development came from the design phase, which is scheduled to end next year. Further benefits are available, but they are more uncertain and would come at a higher cost to the taxpayer.

Q: Will the Government be criticised for this decision?

There is a small but vocal group of domestic supporters for New Zealand's participation in the SKA who are likely to criticise my decision. Officials have engaged extensively with these supporters over the past two years, and their criticisms were evaluated when making this decision.

Q: How does this decision impact our relationship with Australia?

International Relations

[Redacted text]

Q: Will this decision damage New Zealand's standing in the international science community or our relationships with the other members of the SKA Organisation?

New Zealand has fulfilled all of the commitments we made to the SKA Organisation and we have made a valuable contribution to the design phase of the project. All countries considering membership of the SKA Observatory must make judgements about the prioritisation of their science infrastructure expenditure, and our partner countries understand that governments sometimes have to make hard decisions around funding.

Q: How will you inform our international partners?

International Relations

[Redacted text] They will also arrange a video conference call with the Director General of the SKA Organisation to inform him and explain this decision. MBIE officials will be attending the SKA Organisation's board meeting on 10 and 11 July where they will explain this decision to our partners face-to-face.

Q: How does this decision relate to wider plans to support the ICT industry? Will the ICT capability developed from participating in the SKA be lost?

The enduring value of the ICT research capability developed through the SKA lies in its ability to be applied to problems in addition to radio astronomy. There will continue to be opportunities for those researchers to demonstrate their ability to do great science through contestable funding processes. For instance, registrations have recently closed for MBIE's Data Science Research Programmes, will see up to \$49 million invested into this broader science area over the next seven years.

Q: Are we leaving the ICT companies involved in the lurch?

Government funding for SKA design work has only ever funded part of New Zealand's overall contributions to the project, and there was never any promise that this funding would be indefinite. Our participation in the design stage has enabled the companies involved to develop useful capabilities that can already be applied to pursuing other commercial opportunities.

Q: What consultation have you done with the research community for this decision?

Officials have engaged extensively with supporters and opponents of New Zealand's participation in the Square Kilometre Array project over the last two years. A wide range of views were considered when making my decision.

Q: What is your plan for communicating your decision to the research community?

My office has been working closely with officials to develop a plan for communicating this decision to the research community. Stakeholders will be informed by letter of my decision, with officials available to discuss it in person.

Q: Is this really about buying a telescope and supporting radio astronomy? Isn't the point of membership to support an ICT project?

This difference is effectively an illusion. If the SKA's construction phase is considered on its merits as an ICT project, we're still left with the question of whether the Government wants to buy a share of a highly specialised computer. I do not consider that participating in the procurement process for the construction of a radio telescope is a viable way to design an ICT research investment.

Q: Doesn't MBIE's cost benefit analysis suggest that this is a good investment?

MBIE contracted Sapere to undertake a cost-benefit analysis in 2016, which suggested cost-benefit ratios between 2.1 to 5.2 for every dollar invested. While these numbers look impressive, they are fairly conservative ratios compared to a generic science investment.

The analysis was also sensitive to a number of assumptions about how New Zealand's involvement in the project would develop. Three years later, we are now able to make better judgments about some of those assumptions. For instance, we now have a clearer understanding of the share of contracts New Zealand is likely to obtain and the extent to which those contracts should be considered "research" for the purposes of a cost-benefit model. This share is lower than anticipated in the Sapere report.