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Exchange of Notes constituting an Agreement to extend the Agreement between the Government of Australia and the Government of the United States of America concerning the Conduct of Scientific Balloon Flights for Civil Research Purposes of 16 February 2006

Introduction

7.1 On 24 November 2011, the *Exchange of Notes constituting an Agreement to extend the Agreement between the Government of Australia and the Government of the United States of America concerning the Conduct of Scientific Balloon Flights for Civil Research Purposes of 16 February 2006* was tabled in the Commonwealth Parliament.

7.2 This treaty action extends the 2006 Agreement, which provides NASA the use of facilities and services for balloon launchings and recoveries in Australian territory, tracking and telemetering of information from each balloon, and the recording and sharing of information from these flights.[1]

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1 National Interest Analysis [2011] ATNIA 35 with attachment on consultation *Exchange of Notes constituting an Agreement to extend the Agreement between the Government of Australia and the Government of the United States of America concerning the Conduct of Scientific Balloon Flights for Civil Research Purposes of 16 February 2006* done at Canberra[2011] ATNIF 26, (Hereafter referred to as 'NIA'), para 4.

Background

7.3 The 50th anniversary of treaty-level cooperation between the United States (US) and Australia in civil space vehicle tracking was celebrated in 2010. Operational-level cooperation with the US on space-related activities began in 1957 with the establishment of facilities at Woomera in South Australia, to track US satellites. This was broadened to include additional scientific facilities set up by the US National Aeronautics and Space Administration (NASA) in 1960.[2]

7.4 Since then, the civil space relationship between Australia and the US has been the subject of a succession of agreements and exchanges of notes between the two countries. Under these instruments, NASA has spent in excess of $740 million on space-related activities in Australia since 1960.

7.5 The Agreement being considered here is the *Exchange of Notes constituting an Agreement to extend the Agreement between the Government of Australia and the Government of the United States of America concerning the Conduct of Scientific Balloon Flights for Civil Research Purposes of 16 February 2006* (the Exchange of Notes).

7.6 Australia first entered into an agreement with the Government of the United States regarding the conduct of scientific ballooning activities in Australia in 1984. In 1985, a further agreement was concluded that related to the launching of long duration balloon flights beyond Australia. In 1992 these two agreements were merged and renewed for a further ten years. Following the expiry of the 1992 Agreement in 2002, a new and updated agreement was concluded in 2006 at the request of the US Government (the '2006 Agreement').[3]

Reasons for Australia to take the proposed treaty action

7.7 Australia has derived significant scientific and economic benefits from activities conducted under the 2006 Agreement, especially through encouraging collaboration between Australian and NASA scientists.

7.8 Extending the 2006 Agreement would allow NASA to conduct scientific balloon launchings and recoveries in Australia and to continue the productive fifty-four year cooperation in space-related activities between the two countries.[4]

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2 NIA, para 3.

3 NIA, para 8.

4 NIA, para 6.

7.9 Over the last three decades, NASA has conducted many ballooning operations from the Alice Springs Ballooning Facility, allowing Australian scientists to be involved in, and take advantage of, these flights. Individual ballooning operations have included the launch of up to six different scientific experimental payloads requiring six different scientific teams to base themselves in Alice Springs, sometimes for up to four months. The teams' experiments study matters as exotic as black holes and quasars, to more familiar atmospheric and environmental science.

7.10 Australia's geographical position offers a unique perspective to the galaxy and our contribution should not be underestimated.

> The centre of our galaxy can be seen virtually overhead from the latitudes of Alice Springs, rather than from the Antarctic, and you cannot see it from the Northern Hemisphere. So, if you want to do high-energy astrophysics, which is looking at the physics of black holes, neutron stars and so on, this is the place to do it from, which is why there is such a great interest in Australia.[5]

7.11 The Australian scientific community is highly supportive of continued participation in NASA's balloon program.[6] Australian scientists have also flown their own experiments or have been collaborators with other scientists. Extending the Agreement would enable Australian scientists to continue this research and will further ensure that Australia remains entitled to receive data from these experiments.

7.12 Furthermore, new projects are being considered, and Australia is being approached to contribute.

> Quite independent of the program from Alice Springs, NASA recently approached me to do a feasibility study on a project called the Supersonic Inflatable Aerodynamic Decelerator, or SIAD. This is a module that they are developing to carry probes to different planets in our solar system—not just Mars or Venus; this is a general unit that they are developing to land their interplanetary probes on different planets. They want to carry out these tests in Woomera or Maralinga about the end of next year.[7]

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5 Associate Professor Ravi Sood, Station Director, Balloon Launching Station, Alice Springs, School of Physical, Environmental and Mathematical Sciences, University of New South Wales, Australian Defence Force Academy, *Committee Hansard*, 6 February 2012, p. 6.

6 NIA, para 9.

7 Associate Professor Ravi Sood, Station Director, Balloon Launching Station, Alice Springs, School of Physical, Environmental and Mathematical Sciences, University of New South Wales, Australian Defence Force Academy, *Committee Hansard*, 6 February 2012, p. 6.

7.13 The scientists involved in each balloon campaign are supported by a NASA launch team, which in turn receives local support from the the University of New South Wales' Australian Defence Force Academy and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), which is responsible for managing NASA's deep space tracking and scientific ballooning activities. The direct economic benefits to Australia of this activity are estimated by CSIRO to contribute $5 million to the domestic economy for each balloon flight. [8] Some of this money flows through to local communities:

> The last two balloon campaigns that we had in Alice Springs were NASA campaigns. They would have spent approximately $5 million in Australia during those two campaigns. That is a direct benefit to Australia. A lot of that benefit is to the remote communities up in Central Australia...
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> As far as the remote communities outside Alice Springs are concerned, their involvement usually happens when we go and pick up an instrument. We have to get approval from the Central Land Council, or whoever is responsible for a particular community, so that we can actually enter that area to recover our payload. We have to go through a formal agreement with them. What we find is that every time we have to do that the support that we have from the remote communities is absolutely fantastic...
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> Obviously, we give them the money to dispose of the balloon and so on and pay for their services. But generally they are very happy to support what we are doing. [9]

7.14 In addition to the scientific and economic benefits gained from continued cooperation, the 2006 Agreement's extension would also confirm on a political level our strong commitment to research on space and scientific matters with the US.[10]

The proposed extension

7.15 The proposed extension provides for the continuation of the 2006 Agreement until 12 June 2022. The proposed extension will continue Australia's long-standing relationship with NASA, and provides for

8 NIA, para 10.

9 Associate Professor Ravi Sood, Station Director, Balloon Launching Station, Alice Springs, School of Physical, Environmental and Mathematical Sciences, University of New South Wales, Australian Defence Force Academy, *Committee Hansard*, 6 February 2012, p. 6.

10 NIA, para 11.

cooperation in scientific balloon flights for the next ten years, extending the period of cooperation well into its fourth decade.[11]

Obligations

7.16 The proposed extension would allow the 2006 Agreement to run until 12 June 2022. Existing arrangements for the exchange of technical data, facilitation of the entry into and exit from Australia of US personnel, and the duty-free import of personal and household effects of US personnel will remain unchanged. The taxation of US personnel continues to be governed by the *Convention between the Government of Australia and the Government of the United States of America for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on Income*.[12]

7.17 The 2006 Agreement explicitly provides for further (non-treaty) arrangements between NASA and CSIRO, as the cooperating agencies, in respect of the establishment and operation of scientific balloon activities (Article 1). These arrangements encompass funding procedures, liabilities, the provision of services for balloon launchings and recoveries in Australian territory, tracking and telemetering of information from each balloon and the recording and sharing of information.

7.18 NASA is currently entitled to an exemption from duties, taxes and like charges, including Goods and Services Tax (GST), which will also be extended.[13]

Implementation

7.19 No changes are required to existing legislation to implement the proposed extension.[14]

Costs

7.20 No additional costs are anticipated as a consequence of this treaty action. NASA funds the total cost of the establishment, operation and maintenance of the balloon launching facilities in Australia through its contractual arrangements with CSIRO.

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11 NIA, paras 12-13.

12 NIA, paras 14-15.

13 NIA, para 16.

14 NIA, para 17.

7.21 NASA is also responsible for remediation work in relation to its facilities. Any additional activities or the set-up of new facilities under the proposed extension would not impose any additional costs on the Australian Government or the respective State and Territory Governments.[15]

The April 2010 balloon launch accident

7.22 In April 2010, a NASA balloon became involved in an accident at launch, and the Committee was very interested to hear what measures had been put in place to ensure such an incident wasn't repeated.

7.23 In summary, the balloon was set to carry a gamma-ray telescope designed to look for distant galaxies from high in Earth's upper atmosphere. The balloon broke free from the crane holding it during the launch. The balloon's payload was dragged by the balloon through the airport fence and into an unoccupied vehicle that was owned by a spectator. No-one was injured or killed but this appears to have been essentially the result of good fortune.

7.24 The NASA investigation of the incident[16] listed twenty-five causes, including insufficient risk analysis, government oversight and public safety shortfalls. In response to the Committee's inquiries at the public hearing, the following issues were identified:

> There were three reasons why the launch failed. The first was the launch mechanism, which has now been redesigned. The second reason was the uneven surface of the launch area. The launch track automatically shut down the traction on three of the four axles. That is computer controlled. That has been addressed now. The uneven surface area at Alice Springs Airport is now earmarked to be developed and made more suitable for balloon launches. The third reason why the fight failed was low-level winds which suddenly came up. That is something we cannot do much about. In order to further improve public safety, when a launch takes place at Alice Springs the Northern Territory Police now put roadblocks onto the main approach route and there is no public traffic in the area at all. [17]

15 NIA, para 18.

16 The NASA report can be found at: http://www.nasa.gov/centers/goddard/business/foia/balloon_mishap.html

17 Associate Professor Ravi Sood, Station Director, Balloon Launching Station, Alice Springs, School of Physical, Environmental and Mathematical Sciences, University of New South Wales, Australian Defence Force Academy, *Committee Hansard*, 6 February 2012, p. 2.

7.25 It was also noted by the Committee that in the course of the investigation, NASA's Mishap Investigation Board concluded that there were surprisingly few documented procedures for balloon launches. The Committee was assured that:

> Procedures have [now] been put in place and they are all documented. In addition to the documentation and the following of procedures, NASA send out two safety officers who oversee different aspects of their balloon flights.[18]

7.26 Finally, there was a question of government oversight of the balloon launches. In response to Committee questioning Australian officials assured the committee that Australian government agencies had acted properly.

> [The Civil Aviation Safety Authority] CASA is not only consulted... but actually issues an instrument to permit those fights to take place. The flights only take place after CASA has issued its permit and Airservices Australia has also issued its permit. The flights take place with complete real time communication with air traffic control as well. So the flight cannot be launched without proper documented procedures being undertaken...
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> That might have been on the part of the United States government but certainly not on the part of our government. In fact, our agreement with NASA clearly stipulates that Australian interests will be represented by the presence of one of our representatives, who is in charge of the balloon flight. NASA is not in charge of the balloon flight. [19]

7.27 Subsequent evidence supplied to the Committee provided an overview of the thorough procedures followed by the University of New South Wales' Balloon Launching Station at Alice Springs.[20]

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18 Associate Professor Ravi Sood, Station Director, Balloon Launching Station, Alice Springs, School of Physical, Environmental and Mathematical Sciences, University of New South Wales, Australian Defence Force Academy, *Committee Hansard*, 6 February 2012, p. 2.

19 Associate Professor Ravi Sood, Station Director, Balloon Launching Station, Alice Springs, School of Physical, Environmental and Mathematical Sciences, University of New South Wales, Australian Defence Force Academy, *Committee Hansard*, 6 February 2012, p. 2.

20 Associate Professor Ravi Sood, *Submission No 1*.

Conclusion

7.28 Notwithstanding the events of April 2010, the agreement facilitating scientific balloon launches by NASA in Australia is of positive benefit to Australia. The economic, scientific and political benefits certainly justify continuing this relationship.

7.29 The Committee is, of course, concerned about the April 2010 accident. Balloon launches are essentially a risky activity and are facilitated by this agreement. We need to be certain that the lessons of the 2010 incident have been learnt if the launches are to continue in the future. From the evidence presented it appears that appropriate corrective procedures have been put into place. Nonetheless, the agencies involved must remain vigilant against the complacency that was identified as one of the causes of the accident.

7.30 Given the longevity and overall success of the program – some 100 launches have been concluded successfully[21] – and the benefits it brings, the Committee believes the agreement should be renewed.

Recommendation 9

The Committee supports the *Exchange of Notes constituting an Agreement to extend the Agreement between the Government of Australia and the Government of the United States of America concerning the Conduct of Scientific Balloon Flights for Civil Research Purposes of 16 February 2006* and recommends that binding treaty action be taken.

Kelvin Thomson MP

Chair

21 Associate Professor Ravi Sood, Station Director, Balloon Launching Station, Alice Springs, School of Physical, Environmental and Mathematical Sciences, University of New South Wales, Australian Defence Force Academy, *Committee Hansard*, 6 February 2012, pp. 4 – 5.