

Transformation of Antarctica Science Diplomacy into the Malaysian Environmental Protection Policy

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Abstract: The study addresses the role of Antarctica in global environment. The study focuses on how Antarctica science protects its environment and reduces the effect of global warming to the region. The science explorations in Antarctica are acknowledged able to contribute to development of better forecasting of weather and climate variability in the global environment. Hence, the knowledge is the vital diplomacy that can assist any state to protect and sustains its environmental. At present Malaysia has no policy on environmental protection. Transforming the science diplomacy from Antarctica environmental protection policy will improve the present situation and reduces deterioration of resources and environment in Malaysia.

Key words: Antarctica, policy, environment, diplomacy, Malaysia

INTRODUCTION

The research addresses the impact of global warming on the Antarctic and the connectivity of these changes to the equatorial region such as in the state of Malaysia. The Antarctica regions are experiencing the most rapid warming in the world. It now shows a very strong signal on the impact of such climate change on its environment and the lesson learned by scientists from Antarctica indirect impact of global warming and its adaptability to the impact can be used as tools to recognize the possible changes that can occur in the region and around the globe. The experiences learned by scientists on Antarctica will contribute to developing forecasting of weather and climate variability in the environment. Hence, the knowledge learned from Antarctica can help any state to secure or strengthen its policy on environmental protection.

In 2011, Malaysia who is already an observer by invitation to the ATCM, signed the Antarctica Treaty 1957, making it the 39th country members. The implication of this assent is that Malaysia will have to meet the obligation of transforming the Antarctica Treaty 1957 alongside its protocol and Annexes which focus is to protect the environment of Antarctica, continent dedicated to scientific explorations and land with no sovereignty and incorporate this Antarctica science diplomacy into the Malaysian international policy on environmental law. The transformation of Antarctica

environmental protection policy will adhere to the federal constitution and other local laws and international policy that bind Malaysia. At present Malaysia has no policy on environmental protection. Transforming Malaysia general policy on the environment in line with the Antarctica environmental protection policy will benefit the future generation and improve the present situation of global warming, climate change and reduces deterioration of global environment.

MATERIALS AND METHODS

This is a socio-legal study using qualitative research methods that hope to highlight the importance of successful implementation of the Antarctic treaty system along with the 1991 Madrid protocol in safeguarding the global environment. Tepper and Haward in his study explores the conceptual relationship between quality of life, sustainable development and the 1991 Madrid protocol and considers whether the provisions of the Protocol can help the international community to understand the wider implications of the concept fully. Thus, it will have a positive impact for quality living either in the urban or the rural scenario. The qualitative methodology using primary and secondary data will assist identification of the appropriate policy to deal with the desire to maintain Antarctica as a scientists Paradise for peaceful purposes to sustain the best quality of life for the rest of the world. The findings will allow for legal

updating of related laws and policy governance on sustaining the present environment of the Antarctic. In addressing the research questions in this project, the methodological approach chosen is a qualitative method which particularly employs a theoretical study on the policy making technique in international law and environmental law for the benefit of Malaysia nationals when researching and dealing with Antarctica issues.

Five units of analysis have been chosen based on the fact that they represent policymaking bodies. Rohan stated that the analysis of data will be generated from the interviews of the relevant regional states representative at the institutional level is the best instrument to established best practices among states. In analyzing the primary data such data will be transcribed and coded into their respective themes. This qualitative study will use methodological triangulation to examine the needed steps toward institutionalization of Antarctica research finding from scientist diplomacy which encourages certain finding to be mandatory in the National Policy. The approach to theory construction is guided by case study methodology (Yin, 1998) involving standard social science methods such as document analysis, elite interviews, focused group discussion and participant observation. The analysis of these data will influence the drafting of the actual national policy itself. (Yin, 1998).

RESULTS AND DISCUSSION

The role Antarctica in global environment: Antarctic research is not novel. About 10,287 studies on science and non-science have been published since the year 1980s. The interest in Antarctica has never waned especially on its unique intrinsic values resulting in the protocol on environmental protection to the Antarctic treaty signed in Madrid, Spain in 1991 by the parties to the Antarctic treaty. Other than for sports fishing and tourism activities, Antarctica is identified as an ideal station for making accurate astronomical and other scientific observations. Through the Antarctic treaty consultative parties, Malaysia has highlighted that Antarctic resources were common property and thereby should not be expropriated by any single state. As such, the world has yet to determine the political, legal and management implications of ensuring Antarctica environment is sustained. From the ethical standpoint, this issue is rather complex as commercially beneficial activities and sharing the rewards with other non-contribution members should not be regarded as unethical. The coldest and fifth largest continent

Antarctica is an integral part of the global earth system because it is the origin of fundamental climatic, biological and physical processes. Therefore, polar research can provide insight into processes of crucial importance for the earthly environment and climate. Furthermore, studying these regions may provide an early warning of serious planetary changes. For instance, since average temperatures in the antarctic have fluctuated on various time scales (from orbital to millennial and to sub-annual), further study of ice and sediment cores will provide a more accurate picture of the ice sheet behavior during warmer intervals of earth's history. Because earth was warmer in the distant geologic past, studies should shed light on the future effects of global warming. Similarly in the field of biology, a recent inventory of land and sea creatures living around a group of antarctic islands reveals that the region is richer in biodiversity than the Galapagos Islands. It is contrary to the conventional wisdom that biodiversity is richest in the tropics and then declines as we get closer to the polar regions.

Antarctica has been primarily an arena for exploration and science from the beginning of time the continent was first explored. Over the years, many bases have been established in Antarctica for the purpose of conducting research in trying to understand the continent itself and more recently to monitor changes in the global environment. The vast area of Antarctica continent is governed by The Antarctic Treaty 1959. The Treaty applies to an exceptionally large area of no permanent population which include not only the Antarctica circle but also all ice shelves, including all landmass and all water within the latitudes of 60° North to 33 South. The legal status of Antarctica is unique. Seven states claim sovereignty over parts of it (Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom). The claims are for sectors (often termed the pie-slice) consisting of areas bounded by lines of longitudes covering as far as the South Pole. Some countries, like Russia and the USA have not made actual claims but each asserts that it has a basis of claim and may make a claim at any time. Even so, there is still, a larger sector of Antarctica continent that is left unclaimed (Watts, 1992).

Malaysia connection with Antarctica: The Cabinet Ministers on the 24th August 2011 decided that Malaysia will accede to the Antarctica Treaty 1956 and the Antarctica environmental protection protocol. Simultaneously with this decision, a new Bill was proposed to incorporate the obligations of the Antarctica laws and to anticipate Malaysia's position as one of the consultative members in the Antarctica treaty. The study will examine the effectiveness of the transformation of

science diplomacy suggested by the international science community in protecting the Antarctica's environment as well as to protecting Malaysia interest in the matter. This research will investigate the role of science diplomacy in the other jurisdiction (Australian and New Zealand and Germany experiences). Finally, the research aims to propose the best practice and code of conduct for the science Diplomacy on new policy on environmental protection for Malaysia

International involvement in Antarctica is now rising. These developments pose a potential threat to the fragility of the Antarctica pristine environment. However, with the accuracy and confidence acquired by the scientist for the last 50 years we now know the challenges confronting the nature. With the discovery of the scientists, we now know the complexities of the degrading environment. Scientists devotion to the story finally managed to convince the public that the ozone layers of the world need careful consideration to undertake a practical framework for future generation. It is imperative for any state to set up an established policy that are available, combining scientists research finding with law on Environmental Protection in order to protect the Antarctica environment.

The Antarctic Treaty 1959 and the Madrid Environmental Protocol of 1991 are dedicated laws to preserving the area unique environment with an emphasis to protect unique atmosphere of Antarctica. Significance of the laws serves other nations to create its own law in order to assist and support Antarctica as a "Scientists Paradise" or to justify reasons for better quality of life through Antarctica. Much has been achieved from the work of scientists in Antarctica since the launching of International Polar Year. Still, with all those technical reports and growth it is necessary for the policy makers to investigate and understand the physical and chemical climate system of the Antarctic region. The policy makers in most states had taken seriously of this information and had formulated new rules on the basis of preserving, preventing and guarding the following conditions of Antarctica as dictates by the Antarctic Treaty System and the Madrid Protocol 1991. There is no question that all states governments, not just state members of Antarctic treaty system must have a strategy to tackle this critical quest and to avoid worst-case climate change scenarios-where the future social-ecological systems are badly damaged and beyond human control. The time to start preparing for these changes is now and thus, Malaysia, who has been a supporter of the concept that Antarctica is a common heritage of mankind, is now ready to make the transformation to the local legislation to adopt the Protocol to the Environmental Protection of the

Antarctic Treaty (Madrid Protocol) 1991 as part of Malaysia National Climate Change Policy once Malaysia gives it assents to the Antarctic treaty. Nevertheless, some of the Malaysia local law and policy are not yet keeping up with the need for the idea of full transformation but they are focusing on deterrence and rehabilitation of ecosystem habitat instead of prevention and reservation of further damages when drafting their Malaysia Antarctica Act recently.

Antarctica science diplomacy: The Antarctica science diplomacy in international environmental policy designed from the AT and MP. Scientists can uniquely contribute to diplomatic efforts on issues such as climate change, by informing elected officials and policymakers of the latest evidence, opinion and analysis. Increasingly, science is recognized by most industrialized nations for its less personal contributions to foreign policy. Regardless of jurisdiction issues on Antarctica, the hope of the scientists that their research findings to be taken into account before any other interests when drafting legislation and building a public policy of preservation of the environment. Antarctic scientists diplomacy have through dialogue had envisaged the institute of marine sanctuaries and individual protected areas and legislated most of the scientific suggestion to counter the vulnerable impact of urbanization activities and the impact of climate change as stated by Christopher Joyner, in 2009.

Malaysia has a limited audience and capacity on Antarctica still (RM Malaysia participates and plays her role, locally and internationally as a state that is genuine concern with maintenance of the environment. Malaysia since 2011 agreed to accession to the Antarctica Treaty 1959 and now drafting its Antarctica Act to incorporate scientists recommendations adopted through the comprehensive Protocol on Environmental Protection to the Antarctic treaty to conserve the Antarctic continent for future generations as the current conservation place on Earth. The study will indicate the areas where Malaysia needs to upgrade from its expected priority of interest when drawing Malaysia Antarctica policy. The policy must incorporate into its National Security Policy statement and strategic policy thinking on every commitment and participation.

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through Antarctica. Much has been achieved from the work of scientists in Antarctica since the launching of International Polar Year. Still with all those technical reports and growth it is necessary for the policy makers to investigate and understand the physical and chemical climate system of the Antarctic region. The policy makers in most states had taken seriously of this information and had formulated new rules by preserving, preventing and guarding the following conditions of Antarctica as dictated by the Antarctic Treaty System and the Madrid Protocol 1991. 'The Polluter Pays Principle which the determination must be part of the transformatio. Marthias Resse argues that to amend the law to protect the environment and restrict future damages the proposed new rule must renew its resolution of environmental law and natural resources management into a more resilience to social-ecological systems. In so doing, it lays its influence on the amount of its local law, one public policy and one united vision of the government planning. The new legislation must be able to transform and promote scientific findings and technological flexibility when dealing with climate change impacts, seriously impacts that affect baseline ecological conditions such as temperature and at the same time that justice must be committed to the precautionary principle of Polluters Pay' as acceptable measures.

Today, 1959 Antarctica is essential to the rest of the world for at least three reasons. Firstly, Antarctica is necessary to the scientists. Secondly, Antarctica is essential to the rest of the world when referring to the significant role it plays in stabilizing the planetary rising temperature due to global warming from urbanization activities. Lastly, Antarctica is essential to the rest of the world because it is the only one of the last remaining wilderness areas of earth, left for the future generation to understand the meaning of true wilderness (Rahman *et al.*, 2015).

These activities will be the main content of the new policy on Environmental Protection Policy. The protocol on environmental protection to the Antarctic Treaty or the Madrid Protocol is part of the Antarctic Treaty System. It provides for comprehensive protection of the Antarctic environment and dependent and associated ecosystems. It opened for signature on October 15 to December 1, 1959 and entered into force in January 14th of 1998. The treaty will be open for review in 2048. The key activities that state member will have to abide are found in several provision of the Protocols. In Article 3 states that protection of the Antarctic environment as a wilderness with aesthetic and scientific value shall be a "fundamental consideration" of activities in the area. Whereas in Article 7 states that "Any activity relating to mineral resources

other than scientific research shall be prohibited." This provision contrasts with the rejected convention on the regulation of Antarctic mineral resource activities which would have allowed mining under the control and taxation of an international managing body similar to the International Seabed Authority. Article 8 requires an environmental assessment for all activities, including tourism. Article 11 creates a committee for environmental protection for the continent. Article 15 calls for member states to be prepared for emergency response actions in the area. Articles 18-20 arrange for arbitration of international disputes regarding Antarctica. Article 25(5) states that the Article 7 ban on mining may not be repealed unless a future treaty establishes a binding regulatory framework for such activity.

The precautionary principle has been codified in several international on the protection of natural resources. As expressed in Principle 15 of the 1992 Rio de Janeiro declaration. To protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. According to the precautionary principle, states and their nationals conducting activities relating to natural resources must use extra caution when the result or outcome of the activity is uncertain. The Principle is particularly relevant to fragile environments. The two authors, Bastmeijer observe that the principle deals more with managing uncertain risks than with preventing known risks. They conclude that the precautionary principle applies to Antarctica stated Dingwerth. The precautionary principle has been codified in several international on the protection of natural resources. As expressed in principle 15 of the 1992 Rio de Janeiro declaration. To protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. According to the precautionary principle, states and their nationals conducting activities relating to natural resources must use extra caution when he result or outcome of the activity is uncertain. The principle is particularly relevant to fragile environments. Secondly, the Polluters Pay Principle. According to Richards Tol, 2006, in environmental situation, polluters pay principle on to deal with the liabilities for greenhouse gas emissions. This principle may be the best solution attempts to establish liability for greenhouse gas

emissions would have reduced emissions in rich countries but, if drawn to its logical conclusion would increase emissions in poor countries and way well increase global emissions. Only if joint and several liabilities are established would global emissions go down. Joint and several liabilities, however would imply that the victims of climate change are compensated many times over this is unlikely. It appears that establishing liability for greenhouse gas emissions is not the solution to the climate problem.

CONCLUSION

Malaysia has a limited audience and capacity on Antarctica still, Malaysia participates and plays her role, locally and internationally as a state that is genuine concern with maintenance of the environment. Malaysia since 2011 agreed to accession to the Antarctica Treaty 1959 and now drafting its Antarctica Act to incorporate scientists recommendations adopted through the comprehensive Protocol on Environmental Protection to the Antarctic treaty to conserve the Antarctic continent for future generations as the current conservation place on Earth. The study will indicate the areas where Malaysia needs to upgrade from its expected priority of interest when drawing Malaysia Antarctica policy. The policy must incorporate into its national security policy statement and strategic policy thinking on every commitment and participation (Shah and Husin, 2013; Shah *et al.*, 2015).

In 1991, the Madrid Protocol on environmental protection in Antarctica was added to the Antarctic treaty system. The Madrid Protocol was adopted in response to proposals that the wide range of provisions relating to protection of the Antarctic environment should be harmonised in a comprehensive and legally binding form of local law. The environmental principles in the Protocol also include requirements for prior assessment of the environmental impacts of all activities and regular and effective monitoring to assess predicted impacts towards the quality of life as an important concept in the field of international development (the development of greater quality of life for humans) and it allows development to be analyzed on a measure broader than standard of living. Antarctica faces a number of challenges, many of which have significant environmental implications and without the support of local law this ambition is not achievable.

The first move Malaysia had taken beyond territorial boundary on environmental protection was expressed by Tun Mahathir at the 38th United Nation General Assembly (UNGA) in 1983, the "Question of Antarctica".

This issue was taken up in the United Nation (UN) as a resolution on the Question on Antarctica. Since Malaysia first initiated the 'Question of Antarctica' much has changed. At first the Malaysian initiative created a sharp division between the ATCP (Antarctic Treaty Consultative Parties) and the international communities. Malaysia's position was that Antarctica should be regarded as a global common similar to the deep-sea bed and should be managed by UN for the good of mankind. The ATCPs countries had weathered the criticism well. There is a consensus of the ATCPs under the Madrid Protocol of upholding Antarctica as "a natural reserve devoted to peace and science" and access is open to all. Up until today, Collaborations on Atmospheric Sciences with Byrd Polar Institute, USA; British Antarctic survey, UK and Antarctica New Zealand with several Malaysian Universities have been done. Atmospheric Sciences or the study on the role of gravity waves on the stable Antarctic Boundary Layer or the study of Katabatic severe wind in the Ross Ice Shelf are important in establishing what and how human activities may have some role in changing the atmospheric flow.

At international level, ever since the scientific initiatives on Antarctica begun, achievements of Malaysian Sciences are now better known and recognized in the international community. This recognition allows Malaysia to increase Malaysian involvement in international Earth System Research efforts (IPY) especially on developing numerical Modeling. It also leads to an increase in Malaysian scientific contributions on global issues such as climate change and environmental conservation. This scientific collaboration has strengthen our stake in promoting Antarctica as a common heritage for all mankind in UN and other international forum. Establishment of the Malaysian Antarctic research program and the visit of the then Malaysian Prime Minister to Antarctic in 2002 has rekindled interest of Malaysian on Antarctica not only from the point of science but also of diplomacy. Our scientific endeavor is facilitated by more number of bilateral scientific agreements with Antarctica claimant's countries who has kindly offered the use of their Antarctic logistic and facilities. Malaysia is now an active associate member of SCAR and a member of the International Antarctic institute consortium. The Antarctica science diplomacy created positive impact on "local scientific" development too. There is increased in the number of Human resource development. Now there are more postgraduates to do fundamental sciences research focusing on the effect of humanities on environment, on bio-diversity and on the fragile eco system. That same achievement help increase the public

awareness on Antarctica and the public may now learn the inter-connection between the two environments. New Cross fertilization of Malaysian sciences in the field of space weather and marine sciences were enhanced and it increase Malaysian capacity to undertake more major scientific expedition in the Antarctica region and also in Asia region. Most of all, the understanding that there is a relationship between human activities outside Antarctica will affect Antarctica environment, if this is properly understood, then a legal measure will be effective. Hence, if the law requires that the use of CFCs or HCFCs is to be reduced (as encourage by the Montreal Protocol 455 1987 and the Madrid Protocol 1991 and the new Antarctica Act in 2012) due to its effects on ozone and temperatures of Antarctica environment that law will only be effective if the users understood the connection. With the help of science that is not impossible, now. All the weakness of local implementations of environmental law and policy may be overcome. Due to Malaysia's leadership in the question of Antarctica in the UN and our active Antarctic sciences there are now pressure from the ATCP that Malaysia should accedes to the Antarctica treaty and prove worthy of its stand by ratifying Madrid Protocol 1991. This pressure is soon release; Cabinet Ministers have made a decision on the 24th of August 2011 to accede to the Treaty and the Madrid Protocol.

Without science diplomacy, the feasibility study of setting up of a Malaysian Antarctic research institute developing world class scientists or the desire to increase the number of resilient scientists and world standard research projects in Malaysia and Antarctica may not materialized. With science diplomacy, scientific projects were able to acquire new sources of funds from both governments and private sectors and interested parties and may also strengthen Malaysians present in Antarctica region, secure a seat in the world class scientific communities of Antarctica research and be invited as Antarctica Treaty Consultative Members. Malaysia stand that Antarctica pristine environment is a common heritage of mankind and worth protecting it

together with the rest of the original Governors of Antarctica (ATCP and ATCM) may stand tall in local and international area. Malaysia has shown that the her scientific community has responded to the opportunities and challenges and was able to rapidly develop a significant scientific program in polar sciences. With their recognized role as provider of information sufficient to develop effective state law on protecting environmental, that law will protect Malaysian activities in Antarctica, the pristine environment of Antarctica and simultaneously protect and preserve global environment for the benefit of all mankind.

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