

# Integrating Religion Within Conservation: Islamic Beliefs and Sumatran Forest Management

*A Darwin Initiative Case Study*  
*Edited by Jeanne E McKay*





Duo Koto Mosque, Guguk Malalo, West Sumatra. Photograph by Jeanne E McKay.

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## Contributing authors

Yoan Dinata, Rudi Febriamansyah, Nurul Firmansyah,  
Stuart R Harrop, Erlinda Cahya Kartika, Fazlun M Khalid,  
Fachruddin M Mangunjaya, Jeanne E McKay,  
Yasser Premana, Rusdian P Ritonga, Feri Rolis,  
Jomi Suhendri, Ari Susanti and Sandra Winarsa

Published by Durrell Institute of Conservation and Ecology (DICE),  
University of Kent, Canterbury, Kent CT2 7NZ, United Kingdom.

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ISBN: 978-1-902671-83-3

The suggested citation:

McKay, J.E. (Editor) 2013. *Integrating Religion within Conservation: Islamic Beliefs and Sumatran Forest Management*.  
Durrell Institute of Conservation and Ecology, University of Kent, UK.

Front cover image by Gariel Setia (Winner of the 2011 Darwin Initiative Project's Book Cover Design Competition).

## Acknowledgements

The Darwin Initiative Project wishes to thank: Prof Dr Irwan Prayitno Psi MSc (Governor of West Sumatra), H Muzni Zakaria (Regent of Solok Selatan Regency), Ir Tri Handoyo (Head of the Solok Selatan Forestry and Plantation Office), Ir Hendri Octavia (Head of the Provincial Forestry Office of West Sumatra), Ir Agusril (Head of the Natural Resources Conservation Office of West Sumatra – BKSDA), Ir Indra Arinal, Alm H Shafwan Nawawi (ex-Chairman of West Sumatra Preachers Association – IKADI), Drs Syafrial Dt Bandaro Itam (State Islamic Institute of Imam Bonjol, Padang), Dasrizal Dahlan (State Islamic Institute of Imam Bonjol, Padang), Dr Raichul Amar (State Islamic Institute of Imam Bonjol, Padang), Prof Dr Ir Helmi MSc (UNAND), Mr Darmawan Lisawanto (Fauna & Flora International – Indonesia Programme), Dr Matthew Linkie (Fauna & Flora International – Aceh Programme), Debbie Martyr (Fauna and Flora International – Kerinci Seblat Programme), Chriswan Sungkono, Muhamin Syamsuddin (The British Council – Indonesia), Dr Wilson Novarino (UNAND), Dr Jabang Nurdin (UNAND), Dr Dewi I Roesma (UNAND), Pitra Akhriadi (UNAND), Hernawati (UNAND), Agus Winarno 'Boyce' (WCS – Indonesia Programme/PNPM-LMP), Ardiansyah, Dr Derek Petrey, Abidah Setiwayati, Elva Gemita, Yolamalinda, Indra Sakti, Maryati, Tomi Ariyanto and Realino Nurza.

Special thanks to: Wali Nagari Pakan Rabaa Timur, Rusdi Katik Marajo, Wali Nagari Guguk Malalo, Herman Sugianto and the communities of Guguk Malalo and Pakan Rabaa Timur, West Sumatra.

We also wish to thank the following organisations for their support: Lembaga Kerapatan Adat Minang (LKAAM), Propinsi Sumatera Barat/The Minang Customary Council of West Sumatra; Majelis Ulama Indonesia (MUI) Propinsi Sumatera Barat/The Islamic Council of Ulamas, West Sumatra Province; The Nature Lovers Club 'Winalsa', Solok Selatan – West Sumatra; the Conservation Society Institute (ICS), Solok Selatan – West Sumatra, the Indonesian Conservation Community – WARSI and the WCS Indonesia Programme.





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# Biographies of Contributing Authors

## Andalas University, Indonesia

- **Rudi Febriamansyah** is a Professor in Rural Development at the Department of Agriculture and Social Economics at Andalas University. He is the main supervisor of the Darwin Initiative postgraduate scholar, Feri Rolis. His specific research interest focuses on the utilisation of various academic disciplines to develop an integrated perspective for sustainable development of natural resources.
- **Nurul Firmansyah** is native to West Sumatra and is from the Minangkabau Piliang clan. He is a Darwin Initiative postgraduate scholar at Andalas University and is conducting his research on indigenous peoples' rights in natural resource management. He is the Executive Director of Qbar and his interests include environmental conservation and natural resource policies.
- **Feri Rolis** is native to West Sumatra and is from the Minangkabau Supanjang clan. He is a Darwin Initiative postgraduate scholar at Andalas University, with a specific interest in religion and sustainable development. He currently works for the District Government of Solok, West Sumatra, and hopes to promote the teaching of Islam as a fundamental component of sustainable development in Indonesia.

## British Council, Indonesia

- **Ari Susanti** is a Programme Manager for the British Council in Indonesia. Recommend changing to: She has previously worked for the World Bank in Jakarta as a Social Development Specialist and as a consultant for its National Anti-Poverty Programme in Rural Areas Project. Her main professional interests are: the effects of climate change in Indonesia and community-based rural

development and governance. She holds a degree in Mass Communication from the University of Indonesia and an MA in International Relations and Development Studies from the University of East Anglia, UK, through a Chevening Scholarship.

- **Sandra Winarsa** is a Programme Officer at the British Council in Indonesia, where she manages environmental projects such as Climate4Classrooms and E-idea. She has a degree in Marketing and Communication from the London School of Publications in Jakarta and professional interests in community development and environmental issues.

## Conservation International (CI), Indonesia

- **Fachruddin M Mangunjaya** leads the Conservation and Religion Initiative at CI and is a Lecturer at the Faculty of Biology at the National University in Jakarta. He holds a PhD in Natural Resource Management and Environmental Policy from the Bogor Agricultural University and is interested in the role that religion plays in protecting the environment. His current work focuses on Islam and ecology as part of UNESCO's Education for Sustainable Development.

## The Durrell Institute of Conservation and Ecology (DICE), UK

- **Jeanne E McKay** is a Research Associate at DICE and the Darwin Initiative Project Manager. Her research interests include natural resource use patterns of indigenous communities in the tropics, sustainable resource use and conserving ecosystem services as a basis for forest protection.

- **Stuart R Harrop** is a Professor of Biodiversity Law and the Director of DICE. He is the Principle Investigator for the Darwin Initiative project with research interests in the international regulation of traditional conservation practices and issues pertaining to agriculture and the environment in international law and policy.

### Fauna & Flora International (FFI), Indonesia

- **Yoan Dinata** received an MSc in Conservation Biology from DICE. Originally from Jambi in central Sumatra, he is the joint Field Manager for the Darwin Initiative project and Fauna & Flora International's tiger and gibbon conservation projects in West Sumatra. He has extensive experience working with local communities in West Sumatra and is particularly interested in conservation issues pertaining to the Sumatran tiger.
- **Yasser Premana** is the Community Livelihoods Coordinator for FFI's Aceh Programme. A graduate from the College of Forestry in Aceh, he is interested in sustainable community conservation and development activities.

### The Islamic Foundation for Ecology and Environmental Sciences (IFEES), UK

- **Fazlun M Khalid** is the founding Director of IFEES. A renowned eco-theologian, he is listed amongst the 500 Most Influential Muslims in the World by the Royal Islamic Strategic Studies Centre of Jordan.

### Qbar, Indonesia

- **Jomi Suhendri** is an environmental activist and an advocate of indigenous societies. A member of the Minangkabau Piliang clan, he was the Chairman of Qbar, a non-profit organisation focusing on community development and advocacy of indigenous rights in West Sumatra from 2006 to 2011. A postgraduate from the Faculty of Law at Andalas University, he is currently Chairman of the Conflict Committee at the National Forestry Board, Jakarta.

### West Sumatra Natural Resource Conservation Agency (*Balai Konservasi Sumber Daya Alam Sumatera Barat – BKSDA*), Indonesia

- **Erlinda C Kartika** is a forestry graduate from the Bogor Agricultural University, Indonesia. A staff member at BKSDA, she is also enrolled in a Masters degree programme in Forest and Nature Conservation at Wageningen University, in the Netherlands. Her research interests include wildlife conservation and human-wildlife conflict.
- **Rusdiyan P Ritonga** is a graduate of Taman Siswa University, Padang, West Sumatra, and is a Junior Researcher at BKSDA. Originally from North Sumatra, he is interested in all wildlife conservation issues.



# Foreword

## Fazlun M Khalid

Founder of the Islamic Foundation for Ecology and Environmental Sciences

The Darwin Initiative project, *Integrating Religion within Conservation: Islamic Beliefs and Sumatran Forest Management*, has been a groundbreaking endeavour in many ways and The Foundation for Ecology and Environmental Sciences (IFEES) is privileged to be a partner in this venture, implemented by the Durrell Institute of Conservation and Ecology (DICE). Collaborative ventures between secular and faith-based organisations in the field of environmental ethics, although not a new phenomenon, are still rare. Given the urgent nature of environmental concerns, these partnerships are of great value for two reasons. The first is that they open doors to a huge body of people who, by and large, are marginalised in the current environmental discourse. The second is that the main focus on faith-based ethical messages (in this case, Islam), and their application by a particular community of Muslims in the Islamic world can – and has been known to – produce positive results. In this sense, the Darwin Initiative is setting a benchmark for the future evolution of this work, particularly in regions where there are large Muslim populations.

Conservation is the act of keeping something whole and undamaged, and if a resource that is of value is threatened, it requires a considered act of protection by those who stand to lose by that threat. It is also an act of virtue based on the ethical framework of Islam to protect or conserve our natural surroundings for their own sake. Thus the ethos of conservation is as old as Islam itself. However, the idea of 'conserving the environment' as it is understood today is relatively new, having emerged as a matter of concern to the human race well into the latter half of the 20th century. It is now a worldwide phenomenon and has come about because human behaviour is increasingly threatening the *mizan* (balance) of life on earth. The two main causes of this are vastly increased global economic activity, which sees the earth exclusively as a consumable resource, and rapid population growth. Global Environment Outlook (GEO) 2000, a report published by the United Nations Environment

Programme (UNEP) says, 'A wasteful and invasive consumer society, coupled with continued population growth, is threatening to destroy [the] resources on which human life is based'. It also says that, 'time for a rational well-planned transition to a sustainable system is running out fast'.

As the human race pursues 'progress', it leaves in its wake a trail of destruction that threatens its own survival. People living far apart from each other are very closely linked by these processes. For example, deforestation causes habitat loss, species extinction, degrades the environment, and also contributes to climate change. At the same time, the lifestyles of people who live in the countries to which these logged trees are shipped have a direct bearing on climate change, which in turn affects rural peoples' lives.

Islam is an inherently environmental faith, and there could be interesting answers to the question as to how Muslims have lost that deep connection with the natural world. This is not a matter of exclusive concern to Muslims, as other traditions could also legitimately be posing this same question. Thus, it is enough to say that there is now a growing awareness of the tensions between economic growth and conservation, articulated in the debate surrounding the pursuit of sustainable development.

From the nearly three decades that IFEES has been involved in supporting conservation and development work under the auspices of Islamic teaching, we can say with reasonable certainty that Indonesia is the only majority Muslim country in the world to look seriously at environmental issues through an Islamic prism, and we are proud to have been part of supporting this process. The credit for opening this door must go to the Institute of Ecology at the Environment and Natural Resource Research Centre in Bandung, which invited me to deliver the keynote address on Islam and Ecology at a pioneering conference they organised in 1991.

IFEES has also been involved in a series of training exercises, which developed environmental themes based on the Qur'an for Islamic scholars, teachers, activists, and community leaders. The first two of these initiatives were supported by the World Bank and the Alliance of Religion and Conservation in 2002, and focused on raising awareness among communities living in the buffer zone around the Kerinci Seblat National Park in west-central Sumatra. The second workshop was held at the *Pesantren* Luhur al Wasilah, a religious Islamic boarding school in Garut, West Java. The second initiative was supported by Muslim Hands, a UK-based charity. Their support enabled us to repeat these workshops in 2006 amongst communities living around the Batang Gadis National Park, North Sumatra, and again with Islamic scholars in post-tsunami Aceh.

There are two other initiatives that deserve mention for promoting Islam-based teaching on the environment. The first of these was the translation of the IFEES training resource *Qur'an, Creation and Conservation* in 2006 into Indonesian. The second IFEES initiative was a colloquium on Islamic *Fiqh*<sup>1</sup> on the Environment, which we set up in 2007. This event was also supported by Muslim Hands and backed by the Jakarta-based State Islamic University (Universitas Islam Negeri Syarif Hidayatullah), Indonesia's Ministry of Environment, and Conservation International. Leading Indonesian scholars and their international counterparts were brought together to explore the basis of Islamic environmental law.

Now in 2012, this book represents the culmination of a three-year project based in Indonesia, which includes the material and methods used in several workshops that IFEES conducted on behalf of the Darwin Initiative for religious and community leaders in Padang, the provincial capital of West Sumatra, in April 2010. The workshops' objectives were to:

- introduce participants to environmental ethics in the Qur'an
- identify core environmental messages in the Qur'an
- identify methods of popularising Islamic environmental education
- identify areas for practical action.

These sessions in Padang were about demonstrating a unique and unfamiliar aspect of Qur'anic expression and from this there was, encouragingly, an immediate understanding of the environmental themes under discussion. Further discourse unlocked the knowledge that the participants themselves invariably have of the Qur'an, thus placing it into a context that is valid and urgent for our time. The evidence of success comes from the enthusiasm that the participants showed when they were working on solutions in the final session of the workshop, and their ongoing dissemination afterwards.

Muslims need to urgently recover the lost understanding of our relationship with the natural world and to recognise that we are irrevocably interwoven into its fabric. By damaging it, we damage ourselves. If the *Shari'a* can be described as a vast carpet with intricate patterns woven into it, what we are doing here is borrowing some of these patterns from the complex weave of the carpet, and making sense out of them. Let us say that one of these patterns represents an orchard with many groves of fruit. This orchard is *Ilm ul Khalq* (Knowledge of Creation), which are the environmental teachings of Islam. This is a vast teaching and what is attempted in the following pages is to provide an introduction to this subject which, *insya Allah*, will be built upon by those continuing to participate in both its theoretical and practical manifestations.

The uses of this book are manifold: as a means to support religious scholars in their daily activities with their congregations; as a resource to assist them in the delivery of Friday sermons; as a basis with which to encourage discussion in study circles; and as a means to teach students as they progress through their lessons in *pesantrens* and *madrassas*, as well as in public schools. However, all of this teaching will come to nothing unless it is turned into practical activities that give expression to them and ultimately result in positive changes in our attitudes to the natural world, of which we are very much a part. This book also provides examples of where this has been achieved and so is relevant for all who are interested in applying a faith-based approach to conservation.

## Bibliography

- Mangunjaya, F (ed) (2006). *Al Qur'an Ciptaan dan Konservasi*. Yamin, K (trans) (Conservation and Creation in the Qur'an). Conservation International (CI, Indonesia).  
 United Nations (1999). Global Environment Outlook (GEO) 2000. United Nations Programme Report. Nairobi, Kenya.

## Footnote

- 1 *Fiqh*, one of the areas of science in Islamic Law that specifically addresses various aspects of human life with God.

# Introduction

## Professor Stuart R Harrop

Director of the Durrell Institute of Conservation and Ecology, University of Kent

When the words 'nature', 'wild', 'wilderness' and other variants are used, we predominantly visualise an idyllic world and an environment utterly free from human influence and impacts. The implication is that where humans somehow alter or otherwise have an impact on pristine nature, the result is 'unnatural'. But we are part of nature and many of the so called 'wild' areas around the Earth at least partly derive their characteristics from human influence.

Of course mankind has been responsible for devastatingly negative effects on nature and both our past and present are replete with tales of habitat destruction and species elimination. Nevertheless, some groups of our ancestors learned that if we were to survive, we had to develop a sustainable relationship with the world around us. Thus many ancient and persisting practices of our predecessors have been responsible for contributing to the creation of what we would describe today as 'the natural world'. There are very few habitats in the world that are free from human influence. Indeed, many seemingly 'wild' habitats owe their structure and diversity in part to sustainable practices carried out by humans who seek to ensure that they have reliable access to rich stores of biodiversity as sources for food, medicines and other purposes. Many of these secondary habitats, often in the great rainforests of the world, are regarded by anthropologists and ecologists alike to be rich havens of biological diversity. Therefore, when we refer to 'nature', we may have to review our preconceptions and unashamedly include humanity as an integral component within natural ecosystems.

Contemporary approaches to conservation, in international law and policy, to conservation now widely recognise this human relationship with nature. The concepts used in law and policy that are designed to secure a balanced relationship between humans and nature, such as 'sustainable use' may sound newly invented but are, in truth, not new at all. Instead, such concepts were well known to ancient human communities and they evolved through traditions and

are also found in religious texts that speak of our responsibility as stewards of nature. These principles gave rise to effective and sophisticated practices, still carried out in part today by rural communities that exhibit remarkable resilience and adaptability. These practices are capable of contributing to the survival, welfare and well-being of humans whilst simultaneously contributing to and sustaining biological diversity.

These principles, found in customary law, stories and myths within local traditions and within the precepts and sacred texts of global religions, provide us with a heritage of sustainable practices that can potentially operate without the help of the state. Moreover, because of the strength of belief behind these ethics, there may be no need to strengthen their effect by bolstering them with obligations in national or international legal instruments. The power of religious belief may be all that is required to put conservation into effective practice.

The major faiths in the world have a very large number of followers and a great deal of them live in the most biologically rich and often economically challenged parts of the world. Thus in these biodiversity hotspots there is an opportunity to realise the full value of the heritage of traditional religious ethics and practices relating to nature conservation and thereby contribute to meeting the local and global needs to preserve biodiversity.

International law and policy already support the proposition that traditions within local practices and within religions should be harnessed with a view to conserving biodiversity. Deriving from the 1992 Earth Summit (United Nations Conference on Environment and Development), both Agenda 21 and particularly the Convention on Biological Diversity (CBD) advocate 'respect' for traditional knowledge and practices relevant for 'the conservation and sustainable use of biological diversity' (CBD, 1992, Article 8(j)). Further, the CBD also requires its member states to protect the

customary use of natural resources 'in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements' (Article 10 (c), CBD).

The word 'respect' within Article 8(j) of the CBD implies the perpetuation of traditional culture beyond the mere dust of museums or the voluminous research of historians and anthropologists. Instead, the context of the Article suggests that we should be actively teaching these traditions and practically deploying the knowledge in the field and within conservation and land use policy. Indeed the phrase has been described by CBD policy-makers to mean that 'traditional knowledge should be accorded the status in national life, comparable to that shown to scientific knowledge'<sup>1</sup>. This book derives from a project, funded by the UK Government's Darwin Initiative, which is designed to give this type of status to key traditional knowledge in the religion of Islam and to put this into practical effect in the local communities to which the project relates.

The Indonesian archipelago contains approximately 10 percent of the world's remaining rainforest and Sumatra, where the project is based, possesses some of the most biologically diverse rainforests in the world, with a vast range and diversity of endemic and threatened species and unique habitats. Beyond their intrinsic value, these globally important habitats support not only key species, but also have a critical role in providing ecosystem services for rural communities, operating as key water catchment areas and functioning as buffers against the effects of climate change. However, the rainforests of Sumatra are being relentlessly and rapidly degraded, mainly through small-scale and large-scale logging, agriculture and mining concessions. The island suffers from some of the highest rates of deforestation in the world. If behaviour patterns are to change, this may be more efficiently facilitated through ethical propositions that are meaningful rather than by calling on remote institutional precepts that may not resonate as strongly at the local level.

Sumatra still possesses a wealth of traditional practices that have been used since time immemorial to sustainably harvest the land and to ensure that key natural resources for food, fuel, water and medicines are available for both current and future generations. Moreover, Indonesia itself has more followers of Islam than any other country in the world. This religion, in the context of Sumatra, has the facility to integrate the traditional conservation practices operated by local governance institutions (known as *nagari*) through the many environmental principles contained within its precepts. Thus Islam already embodies the idea of sustainability within its doctrine of *Khalifah*, whereby Muslims are urged to be stewards of the Earth and thereby assume responsibility for all its resources within a sacred trust. In addition, the Qur'an contains numerous references that urge its followers to preserve and sustain the natural world, providing the potential to make a significant, positive impact through effectively imbuing daily life with specific practices that preserve

biodiversity. Unfortunately, the many conservation principles that exist within Islam are not necessarily well-known or disseminated throughout Sumatra at the local or national level. Therefore, one of the prime purposes of the project was to build local capacity by empowering and educating local teachers, religious leaders and community members to spread this important message in addition to putting the Islamic precepts and traditional knowledge into practice. Finally, the project was designed in such a way as to conduct the appropriate monitoring and follow-up required to ascertain how well the project's objectives succeeded at the local level.

I am merely setting the scene. The remainder of this book describes in detail how this project has approached these crucial requirements. In so doing, its text also records the successes and challenges resulting from the work done. Although this project was funded from a country halfway round the world, this book is the result of a team of highly motivated and enthusiastic local, national and international partners. All of the chapters, irrespective of the named authors, have been in effect made possible by the involvement of many people from the *nagari*s in West Sumatra and the local and international institutions and NGOs that supported the project from its conception to its completion. This book is therefore dedicated to them with our most ardent gratitude.

Finally, it is my fervent hope that this book will contribute to turning back the tide of forest destruction and unsustainable practices in Sumatra so that future generations may enjoy the health, well-being and sheer wonder that derives from the unique biodiversity of this wonderful land.

## Footnote

- 1 UNEP/CBD/TKBD//1/2 'Traditional knowledge and biological perversity' (note by the Executive Secretary), paragraph 83.

# Chapter I

## Islam and Natural Resource Management

Fachruddin M Mangunjaya



Mosque at Sunset. Photograph by Jeanne E McKay.



## Introduction

When Umar Ibnu Khaththab *radiyallahu anhu* (RA)<sup>1</sup> became Caliph (586–644) of the Muslim state of Madinah in the Arabian Peninsula, he observed the human interactions with natural resources from two standpoints: first, the environmental hazards due to overuse; and second, introducing measures that ensured the return of abandoned and unused land back to the community for productive use. Further, he did not allow any kind of over-exploitation of natural resources, as he considered them to belong to future generations. His strategy was to sustain natural resources and protect the rights of those generations.<sup>2</sup> He was also keen on the regular and efficient usage of land and took land back if the owner neglected it over a three-year period.<sup>3</sup> By doing so, not only did Umar redistribute land in a fair manner, he also maintained a high level of productivity.

As a means of protecting natural resources, the Prophet Muhammad discouraged the notion of unlimited ownership by any individual. In a *hadith*,<sup>4</sup> the Prophet said that people have the right to free access to three things: pasture, water, and fire. Therefore, individual dominance over these three resources was prohibited because they were intended to be made easily available for public use, for the good of the community.

The current ecological crisis is primarily caused by climate change, which originated in the Industrial Revolution of the 18th century, when fossil fuels such as coal and oil began to be used as a means to generate energy.<sup>5</sup> From this time onwards, the planet has experienced an accelerated rate of economic growth. Rapid technological advances that enabled the development of highly efficient machines such as tractors (which were originally used for farming) are now used to destroy large tracts of rainforest. Extractive industries such as mining have played no small part in accelerating environmental degradation. This continuing exploitation will ultimately disrupt the ecosystem's natural balance and eventually threaten God's creations, including humans themselves.

The three major challenges posed by the environmental crisis that humans must address in the 21st century are: population increase, degradation and loss of natural resources, and climate change. As Wilson stated (1986), 'Virtually all students of the extinction process agree that biological diversity is in the midst of its sixth major crisis, this time precipitated entirely by man.' Wilson estimated that 30,000 species become extinct every year, which translates to an even more astounding fact that three different species are lost every hour.<sup>6</sup>

Islam provides extensive guidelines on the balance of life and it addresses this challenge as a manifestation of *rahmatan lil'alamin* (mercy for the universe): 'We sent thee not, but as a Mercy for all creatures' (Qs 21:107). Thus Islam brings to the world a system of values that is capable of answering the challenges of our time, such as an alternative financial model. *Shari'a*-compliant finance does not allow for

the charging of interest payments (*riba*) and finance relies entirely on the idea of profit, loss and risk-sharing on the part of both the entrepreneur and the investor.<sup>7</sup> Water management and forest conservation are some of the other innovations that were introduced to the world by the early Muslims before conservation emerged as a concept<sup>8</sup>. Islam functions from a different value system and it thus provides an alternative look at the environment from the natural paradigm (*fitrah*). Richard Foltz (2010) asserted that across the world, traditional value systems that teach us to respect natural resources have been affected by the so-called 'religion of the market', whereby everything has been reduced to nothing more than a commodity for sale, he saw Islam as a faith that could balance this<sup>9</sup>. To substantiate this claim, however, it is necessary to accurately articulate and disseminate Islam's perspective on the environment.

This chapter, as well as the book in its entirety, aims to facilitate efforts to disseminate Islam's positive teachings and principles concerning the environment, as a foundation for conducting environmental activities. Learned religious scholars, such as Seyyed Husain Nasr (2003), Fazlun Khalid (1992; 2002), Yusuf Qardhawi (2006), Mustafa Abu Sway (2005), Ziauddin Sardar (1985), and Mawil Izzi Deen (1990) have concluded that Islam has given a comprehensive set of teachings on the foundations for environmental preservation. This means that Islam is a religion that advocates the preservation of the environment. However, the best practices from these teachings still need to be explored and demonstrated within Islamic society, as well as to others.

## Sustainable development

The World Commission for Sustainable Development (WCED, 1988) described sustainable development as 'developmental efforts that take into account the needs of the current generation without ignoring the needs of future generations'. In principle, it strives for a balance between economic sustainability, social sustainability, and ecological preservation.<sup>10</sup>

According to Muslim scientists like Hassan and Cajee (2002), sustainable development is not new to Islam and this could also be said for the whole of pre-industrial civilisation. There is however a difference in that Islam has codified the use of natural resources and ever since its birth, it has continued to improve practices in this area. This has been true until the advent of modernity but the Qur'an still continues to provide the ethical frame for this work, should we desire to return to a state of well-being. Abumoghli (2010) defined the sustainable development concept within Islam as, 'The balanced and simultaneous realisation of consumer welfare, economic efficiency, attainment of social justice, and ecological balance in the framework of an evolutionary knowledge-based socially interactive model defining the shuratic process.' He emphasises, 'The Shuratic process is the consultation or participatory ruling principle of Islam,' which means that Islam should be able to provide solutions and answers to sustainable development challenges based on science and



human knowledge that continue to evolve today and will continue to do so well into the future.

### Islamic principles of natural resource management

In order to observe the basic structure of the foundation of Islamic teachings regarding the environment, it is necessary to reflect upon the Qur'an. The term the Qur'an uses to describe our natural surroundings is *khalq* (creation). This word is derived from the root Kh L Q in Arabic and there are estimated to be 261 verses in the Qur'an that are derived from this root in its various grammatical forms. The very first revelation of the Qur'an contains the verb *khalaq* (created) derived from this root. This verse is translated thus: 'Read in the name of your Lord Who created' (Qs 96:1). The clear implication here is that we are part of the totality of the creational process, the responsibility for which has been Allah's. The Qur'an, which manifests this totality, is then a manual of life transaction for the human community. It lays down the foundations for the conduct of our affairs in creation. At one level it is about conserving the body and the soul and our relationships with the natural order; at another level it is about the communities of beings that fly and crawl and lope and swim; and at yet another it is about the cosmos, forests and rivers. The body of teaching in the Qur'an that deals with these matters may be described as *Ilm ul Khalq* (Knowledge of Creation), which predates the science of ecology by fourteen centuries.<sup>11</sup>

These teachings regarding the environment lend themselves to a flexibility of approach and we have chosen to represent them on the basis of the following four primary principles: (i) *Tawhîd* (Oneness), (ii) *Khalifah* (Guardian), (iii) *Mizan* (Balance), and (iv) *Fitrah* (Nature). These principles are themes in the Qur'an that could be explored to educate society and raise awareness about environmental and natural resource management. As we examine these principles, we will discuss them in the context of the Qur'an's universal environmental messages with reference to opinions from Islamic scientists and scholars.

#### Tawhîd (Oneness)

*Tawhîd* is an element of the principles of Islamic teaching for the environment that states that the belief in Allah Almighty is absolute, making Islam a monotheistic religion. *Tawhîd* is mentioned in Islam's principle of faith as a faith in the presence of God Almighty. By recognising *Tawhîd*, we admit that God is One and His creation also has the sense of 'Oneness', or unity (Khalid & Thani, 2010). Allah has created such that His creations will be treated as a means of worshiping Him (Qs 5:56). Allah is *al-Khaliq* (the Creator), who created the heaven and earth and everything within it. 'He is Allah, the Creator, the Evolver, the Bestower of Forms (or Colours). To Him belong the most beautiful names: whatever is in the heavens and on earth, doth declare His praises glory: and He is the Exalted in Might, the Wise' (Qs 59:24).

By recognising *Tawhîd*, we also recognise the common harmony of the Creator and that there is a cosmic law that has governed the rotation of the Earth, the sun, the moon, the stars, etc for billions of years without experiencing any incident. For billions of years, the Earth has never run into the moon, or the moon into the sun. Without the Almighty Order decreed by God, none of this would have happened, as it was He who determined the orbit for each:

*'It is He Who made the sun to be a shining glory and the moon to be a light (of beauty), and measured out stages for her; that ye might know the number of years and the count (of time). Nowise did Allah create this but in truth and righteousness. (Thus) doth He explain His signs in detail, for those who understand.'* (Qs 10:5)

*'It is not permitted to the sun to catch up the moon, nor can the night outstrip the day: Each (just) swims along in (its own) orbit (according to Law).'* (Yaa Siin [36]:40)

*'Men who celebrate the praises of Allah, standing, sitting, and lying down on their sides, and contemplate the (wonders of) creation in the heavens and the earth, (with the thought): "Our Lord! not for naught hast Thou created (all) this! Glory to Thee! Give us salvation from the penalty of the Fire.'* (Ali Imron [3]:191)

Bakar (2008) stated that being conscious of Allah's 'Oneness' means upholding the truth that God is one in His essence, in His names and properties, as well as His actions. Bakar deeply affirmed the definition of *Tawhîd* as a source and manifestation of the spirit of science within Islam:

'An important consequence of affirmation of this central truth is that people should embrace the objective reality of the universe's unity. As a source for knowledge, religion is being emphatic when saying that anything in this universe is interconnected through cosmic laws that govern them, within the network of the universe's unity. The cosmos consists of layers of realities, not only physically. But it creates a unified metaphysical origin, which in religion is called God.'

The Qur'an also firmly asserts that cosmic union is a fine example of God's oneness: *They celebrate His praises night and day, nor do they ever flag or intermit.* (Qs 21:20).

In the Islamic view, there is no difference between animate and inanimate; all are part of life and praying to Allah.

*'The seven heavens and the earth and all that is therein praise Him, and there is not a thing but hymneth His praise; but ye understand not their praise. Lo! He is ever clement, forgiving.'* (Qs 17:44).

Or in other *shurah* in the Qur'an:

*'Seest thou not that it is Allah who praises all beings in the heavens and on earth do celebrate, and the birds (of the air) with wings outspread? Each one knows its own (mode of) prayer and praise. And Allah knows well all that they do.'* (Qs 24:41)

*“And We made Solomon understand (the case); and unto each of them We gave judgment and knowledge. And We subdued the hills and the birds to hymn (His) praise along with David. We were the doers (thereof).”* (Qs 21:79)

All of Allah's creation praises and reflects their prayers to Allah (Qs 64:1), but not everyone understands this (Qs 17:44). This is also a reflection of oneness, whereby the purpose of the creation of mankind and nature is identical. Therefore, the essence of *Tawhīd* can be understood in that everything in this universe is unified (*al-wiḥdah*).

*‘If there were, in the heavens and the earth, other gods besides Allah, there would have been confusion in both! but glory to Allah, the Lord of the Throne: (High is He) above what they attribute to Him!’* (Qs 21:22).

There are two aspects within the *Tawhīd* that speak of nurturing the wholeness of the earth and the universe. The first aspect speaks of the essence of the Oneness of Allah Almighty, that He has no ally, that He stands alone, created by no one but instead is the Creator and man is prohibited from opposing Him by competing with anything that is His creation. Secondly, everything that Allah has created is a unity that cannot be separated. Allah has given perfection to all His creations within a well-organised and orderly system. Everything is related but there is no way for man to understand everything. For example, the wholeness of an ecosystem is based upon an order of things that cannot exist separately. It is a combination of various species, be it animal, plant, or microorganism, as well as minerals: things considered inanimate yet providing the soul to life.

Everything in an ecosystem is a creature, a creation, and they all kneel before Allah, as in His words:

*‘The seven heavens and the earth, and all beings therein, declare His glory: there is not a thing but celebrates His praise; and yet ye understand not how they declare His glory! Verily He is oft-forgiving, most forgiving!’* (Qs 17:44).

Therefore, all of Allah's creations submit to Him in their own ways. Ibnu Katsir (1301-1373) a classic Muslim scholar, affirms the verse ‘there is not a thing but celebrating His praise,’ which means that there are no creatures that are not chanting and praising Allah. ‘And yet ye understand not how they declare His glory!’ This means that human beings do not understand their chants, because they all speak in their own language as mentioned in *Sunan an-Nasa-i* quoted by Ibnu Katsir (2007), from Abdullah bin Amr, he said that the Prophet Muhammad forbade the killing of a frog saying, ‘Its sound is a chant.’ Therefore, the chants of God's creatures are a testimony of His Oneness, in God's *rububiyah* (organisation) and *ilahiyah* (divinity), Ibnu Katsir says: ‘In everything is a sign, which indicates that He (Allah) is one’.

Therefore, it is necessary to understand that as part of the universe's unity, man as well as other elements of the natural ecosystem, all submit to and obey the laws of God or what we today call nature's laws. As a logical consequence, mankind should respect nature. This means not viewing nature as an object for exploitation and destruction without truly understanding the meaning, essence, and function of its ecosystems and employing ways to sustain it. Similarly, if man's origin is destroyed, chaos will reign, just as the loss of one element in a perfectly balanced system would turn it into a disharmonious and damaged system (see *Mizan*).

### **Khalifah (Guardian)**

The Muslim scholar Madjid (1999) states that when God announced the creation of man, the event took place as a cosmic drama, a transaction of man's creation as depicted by the Qur'an, where Allah placed man as the guardian of the Earth.

*“Behold,” thy Lord said to the angels: “I will create a Vice Regent on earth.” They said: “Wilt Thou place therein one who will make mischief therein and shed blood? – whilst we do celebrate Thy praises and glorify Thy holy (name)?” He said: “I know what ye know not.”* ‘ (Qs 2:30).

Madjid explains the ‘cosmic drama’ that involved Allah, angels, man, and demons occurred at a primordial locus called *jannah* (the garden of heaven). This began with Allah ‘pronouncing’ that He would make mankind His guardian of the Earth, which was met with doubts from the angels, who were skeptical of man's ability to carry out their duties, considering man's predilection for destruction and shed blood. The angels' claims were dismissed by Allah, as they were unaware of His secret to teach Adam ‘all the names’ (*Wa allama al-asmaa' kullaha*).<sup>12</sup>

Madjid (1999) stated that in serving as a guardian:

- Man's dignity is related to a concept that nature in its entirety provides for man, becomes mankind's arable fields and the place to carry out man's duties.
- This dignity is also related to the universal values of humanity.
- To carry out his duties as God's guardian of the Earth, man is armed with science.
- Man's dignity is also complemented by freedom; with certain restrictions (all but the fruit from the forbidden tree is edible).
- Any breach of the limits degrades man.
- The impulse to breach the limit is called greed, ie the unquenchable feeling that all the gifts from God are inadequate.
- As science alone does not guarantee that man will not fall into degradation, direction from God is required as a spiritual safety net.

Within the concept of developing a dignified life, spirituality is crucial, as it provides a control over man's negative attitudes. A sense of humanity is eternal for men that hold onto their duties as guardians, complete with all of its dimensions (Madjid, 1999). In essence, guardianship is granted to man so that he acts responsibly in his management of the earth.

In managing the Earth, man is expected to act based on science and not his own desire (Qs 4:135; 23:71), as greed would result not only in short-term loss but also in environmental disasters. The daily depletion of natural resources is both a challenge for man, as well as a means to make him aware that his exploitation should not breach the limit for balance (see below) or destruction will result. Also, men are expected to keep their word while carrying out their mandate, as Allah has said:

*'We did indeed offer the trust to the heavens and the earth and the mountains; but they refused to undertake it, being afraid thereof: but man undertook it; He was indeed unjust and foolish.'* (Qs 33: 72).

### **Mizan (Balance)**

*Mizan*, according to the word's origin, means 'scale' or 'balance'. Allah provides a fundamental picture in the Qur'an that depicts the creation of a balanced heaven and earth, in that everything in the universe is created in pairs (Qs 36:36). For example, night and day, heaven and earth, hot and cold, rainy and dry seasons. Allah said in Surah al Rahman:

*'And the firmament has He raised high, and He has set up the balance in order that ye may not transgress (due) balance.'* (Qs 55:7-8).

Balance is created by God through constant gravitational forces working on celestial bodies so that planets remain in their orbits. Balance helps the earth and other planets within the solar system revolve around the sun consistently and unvaryingly. So too does the earth rotate on its own axis, without any interruption even for a second thanks to the balance and gravity that God Almighty has created.

What would happen if the gravitational force were greater than what we experience today? It would be difficult for us to walk, let alone run. Man and all creatures would consume more energy to merely walk. What would happen if gravity were to vanish? Everything would float into the air and we would find it very difficult to breathe on the Earth's surface. The speed of the rain would be dramatically reduced and it might even evaporate before touching the Earth's surface. Rivers would flow very slowly and it would be extremely difficult to generate electricity from rivers, as we are able to do today (Yahya, 2002).

Therefore Allah has established a very precise standard:

*'Verily, all things have We created in proportion and measure.'* (Qs 54:49).

Precise and accurate measures ensure the equilibrium of life on Earth, and as God created the world according to balance, the teachings of Islam are also based on balance and justice. Even the mind and conscience of man are created in harmony with its teachings (see **Fitrah**). Therefore, one should not lean too far to the right or to the left, but instead strive to achieve balance in all aspects of life.

In relation to conservation efforts, the idea of balance has been highly prioritised and assessed (Gore, 1992; Rostrom et al., 2009). Numerous damaging phenomena, such as landslides, flash floods, tornados and even current climate change, are considered the direct results of imbalance. When forested areas and lands with extreme slopes are cleared for cultivation purposes, they become unstable, leading to landslides. Floods occur because forested lands once acting as sponges in their capacity to retain water during rainy seasons, once destroyed, no longer act as retainers. Climate change occurs because the atmosphere is getting thicker by the day as man releases greenhouse gases, including, but not limited to, carbon dioxide (CO<sub>2</sub>) from vehicles and fossil-fueled industries. Gore (2010) recorded that man releases 90 million tons of CO<sub>2</sub> every day. To balance this, forests (and oceans) could absorb these emissions but it would take from 30 to 1,000 years to do so. Therefore, global warming is directly caused by man's destruction of balance through the pollution of the air with greenhouse gases. This destruction of balance is thus considered to be anthropogenic, or created by man.

### **Fitrah (Nature)**

*Fitrah* literally means 'origin', 'originality', or 'a natural state'. The proper definition of *fitrah* is the 'natural state or instinct that is found in man, animals or something that compels man or any creature to require such state.'

Followers of Islam believe that all of mankind is born Muslim and in a state of purity. A baby is born pure, devoid of any sins and born within its *fitrah*, as no one intervenes with its birth. If the baby dies, it dies in its purity. Therefore, whether someone becomes religious or not depends on how their parents educate them afterwards.

So, *fitrah*, in this case, is knowledge: since Allah has created mankind, they have already been recognised by Him. In the Qur'an, the word *fitrah* is found in *Surat al Rum* (Qs 30:30):

*'So set thou thy face steadily and truly to the faith: (establish) Allah's handiwork according to the pattern on which He has made mankind: no change (let there be) in the work (wrought) by Allah: that is the standard religion: but most among mankind understand not.'*

Ibnu Katsir argued that man is supposed to follow the *fitrah* that Allah has bestowed upon all creatures. God has bestowed the *fitrah* that He is One, that there is no other God (*Illah*) that is true (*haq*) but Him, according to Surah al Araf (7:172).

Ibn Katsir further added the statement, 'there is no alteration of Allah's *fitrah*', which means that man should not alter God's creations, nor should man alter the *fitrah* that He has bestowed upon man. According to Ibn Katsir, this means that Allah makes all of His creations equal by bestowing upon them the same *fitrah*, whereby there are no differences between one human being and another. Yasin Mohammed (1996) further defined *fitrah* as the following:

*'The concept of fitrah as original goodness, in my view, does not merely connote a passive receptivity to good and right action, but an active inclination and a natural innate predisposition to know Allah, to submit to Him and to do right. This is man's natural tendency in the absence of contrary factors. Although all children are born in a state of fitrah, the influence of the environment is decisive; parents may influence the religion of the child by making him a Christian, Jew or Magian. If there are no adverse influences, then the child will continuously manifest his fitrah as his true nature. Since many infants are born with gross physical deformities, the maiming referred to in this hadith is not meant in the physical sense; it means that all children are born spiritually pure, in a state of fitrah. The reference to animals born intact in the central hadith should be viewed as an analogy to illustrate the parallel spiritual wholeness of children at birth.'*

Thus, *fitrah* within the context of Islamic teachings on the environment means that Allah wants mankind to hold firmly to its promise according to the *fitrah* of Islam. These Islamic teachings provide moral boundaries that in essence stipulate that nothing should be done excessively, let alone to create destruction (Qs 3:147; 5:77; 6:141; 7:31).

### Islamic practice in conserving natural resources

Natural resources are classified into two categories: renewable and non-renewable. Non-renewable resources are natural resources that would eventually be depleted within a certain time period and may take hundreds or perhaps thousands of years to do so, such as carbon-based oils and minerals. On the other hand, renewable natural resources are considered to be largely inexhaustible. Or if they ever did become depleted, the search for their replacements or substitutes could be found in a relatively short time period. Examples of such renewable resources includes trees, food crops, agricultural and agroforestry by product (biomass) and other energy sources such as: geothermal, water, wind and solar.<sup>13</sup>

However, natural forests are better included in the non-renewable natural resources category, since modifications to these habitats also significantly alter their ecosystem functions (eg watersheds and carbon absorbers). Thus, maintaining natural forests is an essential consideration given that the process to restore them back to their original state could take hundreds – or even thousands – of years and there is still the risk that this might be impossible. Similarly, when mangrove forests vanish, their many other functions would also disappear including: carbon absorption, briny water filtration, prevention of sea water intrusion, breeding areas for crustaceans and fish, and the natural filtration system for toxic materials emitted along the coastlines.

Essentially, the adverse impacts of unsustainable management of natural resources result from excessive exploitation. This excessive exploitation could occur either because of a lack of knowledge or deliberately by following one's desire or greed.

Islam firmly forbids excessive exploitation without sufficient knowledge and responsibility. In the Qur'an, Allah says:

*'Nay, the wrong-doers (merely) follow their own lusts, being devoid of knowledge. But who will guide those whom Allah leaves astray? To them there will be no helpers.'* (Qs 30:29)

Also, Allah forbids man from carrying out any destructive activities on earth, be they direct or indirect:

*'But seek, with the (wealth) which Allah has bestowed on thee, the Home of the Hereafter, nor forget thy portion in this world: but do thou good, as Allah has been good to thee, and seek not (occasions for) mischief in the land: for Allah loves not those who do mischief.'* (Qs 28:77)

*'Do no mischief on the earth, after it hath been set in order.'* (Qs 7:56),

*'So eat and drink of the sustenance provided by Allah, and do no evil nor mischief on the (face of the) Earth.'* (2:60).

*'And withhold not things justly due to men, nor do evil in the land, working mischief.'* (26:183).

Dutton (1985) states that Islam provides three descriptions of land use: (1) developed lands (*amir*), (2) undeveloped lands (*mawat*), and (3) forbidden lands (*harim*). In Arabic, the word *amir* means 'alive', *mawat* means 'dead', and *harim* means 'forbidden' (from use). Developed lands are productive and usable areas, eg for buildings, houses, factories, farmlands, plantations and other uses, while *harim* lands are forbidden areas to be used only as protection or as a buffer to surrounding areas. Thus, *harim* can also serve as conservation areas.

### Developed land (*Amir*)

There are 2 types of *amir*:

- Owned land, where the government would not interfere, except for collecting its right or *zakat*. *Zakat* is a charitable payment, levied on all property (eg gold and silver, merchandise, income producing animals and land), which is required of all Muslims to purify both their wealth and themselves.
- Non-owned land, which can be utilised but belongs to the government for the benefit of the people.

### Undeveloped land (*Mawat*)

The fundamental rule of *mawat* is that if there is land without an owner, and someone comes and develops it, be it by planting, watering, or making it useful, then the land becomes their possession.



On *mawat*, al Mawardi underlined a point:

*'Whoever opens a new land is entitled to own the land, either with or without the consent of imams or authorities. However, according to Imam Abu Hanifah, the tiller of the land should obtain permission from the authorities, as according to the Prophet Muhammad: 'No one owns rights except Allah and His Prophet ...', which, as Al Mawardi explained, means that there no protection for land like the protection from Allah for the interest of the poor, the marginalised, and the entire Muslim community ... If a plot of land has officially been designated as a protected land (hima), then the undeveloped land (al-mawat) will continue to belong to the public, and to respect this designation, it must not be developed to be subsequently owned. If everyone in the society — the rich, the poor, Muslims and kafir dzimmi — gains equal rights to the hima land, then the grass on the land will be provided to their horses and other cattle.'*<sup>14</sup>

### Protective zones within developed areas (*Harim*)

*Harim* shares characteristics with both developed and undeveloped land. *Harim* is also defined as an inviolable sanctuary, used in protecting water resources and their ecosystem services. *Harim* land is always owned by the owner of the developed land with which it is associated. Dutton (1985) explained:

*'Every development whether it be a well, or a horse or a field full of crops, has its associated harim, or protective zone, and this zone necessarily varies in size. Around town, for instance, the harim is traditionally defined as the area that can be reached and returned from in the same day for the purposes of collecting fuel and /or pasturing livestock. For source of water, whether a well, spring or river that an area around the water that enables access by both people and livestock without causing either overcrowding, or damage to other people's land, or pollution of water itself. For crop and trees, etc, it is the area that is necessary for their roots to obtain sufficient water and it also enables the owner to have access, for example paths between properties.'*

### Protected areas (*Hima*)

Islam has a long tradition of protecting lands through *hima*. The *hima* is a protected area in accordance with Islamic teaching. Several *himas* that still exist today can be found in the Middle East and are included as Important Bird Areas (IBA) because over centuries they have become sanctuaries for bird populations.<sup>15</sup>

Developed in the Middle East and Arab regions 1,500 years ago, the *hima* approach is considered unique by environmentalists as it is based upon communal leadership and is maintained by the surrounding communities. The concept of *hima* was developed in the Middle East and there is no mention of it (to the extent of this writer's knowledge) in the teachings of Islam in south east Asia. For this reason, environmentalists are trying to introduce this model through initiatives like that of Conservation International Indonesia's (CI-Indonesia) *harim* zone programme in Bogor, West Java and the Darwin Initiative (DI) programme in West Sumatra.

In collaboration with Yayasan Owa Jawa (Javan Gibbon Foundation),<sup>16</sup> and the Daarul Ulum Lido Islamic boarding school, CI-Indonesia's project has piloted a *harim* zone system focusing on the protection of riverbeds.<sup>17</sup> The boarding school allocated half a hectare of land as a *harim* zone for riverbed protection, which is also used as an experimental site for students interested in studying the importance of biodiversity conservation within an Islamic context. Further, the Darwin Initiative has based its conservation work on Islamic teachings within the local Minangkabau culture, which has a strong history of promoting the preservation of nature, namely through the delineation of customary forests, forbidden forests, and forbidden water resources.

## Islam and natural resource management in Indonesia

In 1999, the Indonesian Ministry of Forestry and Plantations published a book entitled, *Pembangunan Hutan Berkelanjutan Cerminan Iman dan Taqwa (Sustainable Development of Forests, a Reflection of Iman and Taqwa)*. This book, aside from referring to preferred forest development practices, also discusses many aspects of the importance of faith and piety. This book aims at discovering the 'spirit' through which Islam provides strong moral guidelines on good forest management and sound environmental development practices. Unfortunately, this was not supported by actual examples, either through raising public awareness or through the provision of practical guidelines that eliminate the dichotomy between faith and policy. Thus from an Islamic standpoint, the unity of the mind, heart and human behavior have not been reflected properly in the implementation of many forestry policies in Indonesia.

The opinions of Indonesian Islamic scholars regarding their interpretation of the use of natural resources in Indonesia has not been sought either. In Kyai Ali Yafie's book, *Merintis Fiqh Lingkungan (Pioneering Environmental Fiqh)* (2006), he describes the importance of expanding the Shari'a principles (*maqasid al shariah*) from the original five principles used as the basis for the Islamic *fiqh*<sup>18</sup> (*al dharuriyat al khams*), to six principles (*al dharuriyat al sitt*) by adding the protection or conservation of the environment (*hifdh al bi'at al insan*). Therefore, the six components would be as follows: (1) protection of the soul (*hifdh al nafs*), (2) protection of the mind (*hifdh al-'aql*), (3) protection of wealth/property (*hifdh al mal*), (4) protection of heredity (*hifdh al-nasb*), (5) protection of religion (*hifdh al din*), and (6) protection of the environment (*hifdh al bi'ah*).

According to this, Yafie called for all levels of society to:

- Change their mindset from one that considers natural resources as an inheritance or a commodity that can be exploited to obtain material benefit, to instead being that of Allah's creation to maintain, preserve, and protect, so that the balance of the universe remains unadulterated.
- Change the paradigm of development, from one that is more oriented to economic growth to one that is more oriented on the welfare of the people (*mashalih al ra'iyah*), where welfare means not only the protection of the soul, mind, property, and religion, but also protection of the environment.

- Attain an environmentally-friendly form of development supported by the government.
- Recognise the importance of raising community awareness for participation in maintaining, protecting, and conserving the environment. This can be achieved both formally through religious institutions, lectures, Friday sermons, wedding sermons, and informally during other social gatherings.

In an institutional capacity, Indonesian scholars have shown their concern toward environmental issues, and this needs to be appreciated. Recently a *fatwa* (a non-binding Islamic legal opinion) on the environment, was developed as part of a moral responsibility to address many questions posed to them from various followers regarding current environmental issues in the community. The Indonesian Council of Ulama (MUI) issued two *fatwas* on the environment. The first *fatwa* (2006) banned forest burning, illegal mining and illegal logging in south Kalimantan: 'Logging and mining activities that are destroying the environment and harmful to society are also illegal within the state. All activities and income derived from such business are illegal and *haram* or prohibited. Law enforcement must act strictly in accordance with regulations and legislation applicable.'

The second *fatwa* (2011), written in collaboration with the Ministry of the Environment, contained a more detailed set of guidelines which was applied at the national level as follows:

- Encouraging the existing law enforcement, especially in order to manage the environmental damage in the mining sector.
- Providing a correct explanation and understanding about normative (religious) laws regarding several issues related to the environment to every member of the society.
- The implementation of ethical and moral sanctions by decision makers (including the communities themselves) towards the protection and management of the environment by the mining sector.

These two *fatwas* represent recent initiatives involving religious principles as stimuli for behavioural change, which prevents environmental destruction in Indonesia. Further, in 2011 the Ministry of Forestry – with 5,000 preachers – acted to prevent illegal logging at the grassroots level.<sup>19</sup>

## Conclusion

Islam teaches the management of natural resources and precautionary principles in order to keep the balance of life and the harmony of nature and of its natural resources based on: *Tawhīd* (Oneness), *khalifah* (stewardship), *mizan* (balance) and *fitrah* (nature). In practice, Islam introduces management systems such *hima* (protected areas), *harim* (protected zone), *ihya al-mawat* (reviving land) as means with which to do so instead of relying solely only on the government. Islam in Indonesia has become more active in supporting the sustainable uses of natural resources and to protect the environment. The activities recorded in these pages constitute an important collection of further examples developed by the DI project, which incorporate the Islamic 'spirit' within a locally appropriate and practical context.

## Bibliography

- The Holy Qur'an (1983). *The Holy Qur'an: Text, Translation and Commentary*. Ali, A Yusuf. Maryland, Amana Publications.
- Abu Sway, M (2005). *Towards an Islamic Jurisprudence of the Environment (Fiqh al Biah fi al Islam)*. Paper based on a lecture given at Belfast Mosque in February 1998. Available from: <http://homepages.iol.ie/~afifi/Articles/environment.htm> [Accessed 30 June 2005].
- Abumoghli, I (2010). 'Sustainable Development in Islam'. Available from: [www.waterwiki.net/sustainable\\_Development\\_in\\_Islamic\\_Law-Iyad\\_Abumoghi.do](http://www.waterwiki.net/sustainable_Development_in_Islamic_Law-Iyad_Abumoghi.do) [Accessed 7 June 2010].
- Al Hassani, S (2008). *1001 Inventions: Muslim Heritage in Our World*. Manchester, The Foundation of Science and Technology and Civilization.
- Al Hatitsi, J bin A (2006). *Al Fiqh al iqtishadi li Amiril Mukminin Umar Ibn Al Khaththab*. [Translated into Bahasa Indonesian as *Asmuni Sholihan Zamakshari*]. Jakarta, Khalifa.
- Al-Mawardi, Ibnu Hasan Ali bin Muhammad Habib al Bashri al Baghdadi (Imam al Mawardi) (2000). *Al-Ahkam as Sulthaniyyah fi al Wilayah al Diniyah* [Translated into Bahasa Indonesian as *Al Ahkam Assulthaniyyah: Prinsip-prinsip Penyelenggaraan Negara Islam* oleh Fadli Bahri]. Jakarta, Darul Falah.
- Bakar, O (2008). *Tawhīd and Science: Islamic Perspectives on Religion and Science*. 2nd ed. Jakarta, Pustaka Hidayah.
- Bruthland, G H (1987). *World Commission on Environment and Development. Our Common Future*. Oxford, Oxford University Press.
- Departemen Kehutanan & Perkebunan (1999). *Pembangunan Hutan Berkelanjutan Cerminan Iman dan Taqwa*. Jakarta, Departemen Kehutanan & Perkebunan.
- Eldredge, N (2001). *The Sixth Extinction*. Available from: [www.actionbioscience.org/newfrontiers/eldredge2.html](http://www.actionbioscience.org/newfrontiers/eldredge2.html) [Accessed 20 January 2012].
- Foltz, R C (2010). The Environmental Crisis and Global Violence: A Matter of Misplaced Values. *Journal of Islamic Perspective*, (3), pp 131–141.
- Gore, A (1992). *Earth in the Balance: Ecology and the Human Spirit*. Jakarta, Yayasan Obor Indonesia.



- Gore, A (2010). *Our Choice: A Plan to Solve the Climate Crises* [Translation of *Our Choice: Rencana untuk Memecahkan Krisis Iklim* by Hadi, Handono P]. Jakarta, Kanisius.
- Hassan, A & Cajee, Z A (2002). *Islam, Muslim and Sustainable Development: A Message from Johannesburg*. Available from: [www.imase.org/reading/reading-list-mainmenu-34/27-islam-muslims-and-sustainable-development-the-message-from-johannesburg-2002](http://www.imase.org/reading/reading-list-mainmenu-34/27-islam-muslims-and-sustainable-development-the-message-from-johannesburg-2002) [Accessed June 2010].
- Ibn Katsir Abi al Fida'i (2007). *Tafsir Ibnu Katstir*. [Translation: M A Ghoffa and Abu Ihsan al Atsari], Jakarta, Pustaka Imam Asy Syafii.
- Izzi Deen, M Y (1990). Islamic Environmental Ethics, Law and Society. In Engel, J R and Engel, J G (eds) *Ethics of Environmental Development*. London, Bellhaven Press.
- Khalid, F M & O'Brien, J (eds) (1992). *Islam and Ecology*. London, Cassell.
- Khalid, F M (2002). Islam and the Environment in Timmerman, P (ed), *Encyclopedia of Global Environmental Change: Social and Economic Dimensions of Global Environmental Change*. Vol 5, pp 332-339. Chichester, John Wiley & Sons.
- Khalid F & Thani, A KH (2008). *Teachers' Guide Book for Islamic Environmental Education*. Birmingham, IFEEs.
- Madjid, N (1999). *Cita-cita Politik Islam Era Reformasi*. Jakarta, Yayasan Wakaf Paramadina.
- Mangunjaya FM & McKay JE (2012). *Reviving an Islamic Approach for Environmental Conservation. Indonesia*. Worldviews: Global Religions, Culture, and Ecology, 16, 286-305.
- Nasr, S H (2003). Islam, the Contemporary Islamic World and the Environment. In Foltz, R, Denny F M and Baharuddin, A (eds). *Islam and Ecology: A Bestowed Trust*. pp. 86-105. Massachusetts, Harvard University Press.
- Qardhawi, Y (2006). *Ri'ayatul Bi'ah fi Syari'at al-Islam*. al Thobiah al T-saniah. Cairo, Dar al Syuruq.
- Rockström, J & 28 others (2009). A safe operating space for humanity. *Nature* 461, pp 472-475.
- Sardar, Z (1985). Toward an Islamic Theory of Environment. In Sardar, Z, *Islamic Futures: A Shape of Ideas to Come*. London, Mansell Publishing.
- Vigil, J M, Tomita, L E & Barros, M (2010). *Along the Many Paths of God IV: Intercontinental Liberation Theology of Religious Pluralism*. EATWOT, Ecumenical Association of Third World Theologians. Available from: <http://tiempoaxial.org/AlongTheManyPaths/EATWOT-AlongThrManyPathsIV-Bilingual.pdf>
- World Commission on Environment (1987). *Our Common Future*. Oxford, Oxford University Press.
- Yafie, Ali (2006). *Merintis Fikih Lingkungan Hidup*. Jakarta, Ufuk Press.
- Yahya, H (2002). *Design in Nature*. London, Ta-Ha Publishers.
- Yasien, M (1996). The Definition of Fitrah. In *Fitrah: The Islamic Concept of Human Nature*. London, Ta-Ha Publishers.

## Footnotes

- 1 *Radhiyallahu anhu*, means 'May Allah be pleased with him'. It is often represented by the acronym (RA). It is added after the names of the companions and wives of Prophet Muhammad, as a sign of respect.
- 2 See 'State's control on the economy', Al Hatitsi (2006), p715.
- 3 Al-Mawardi (2000), p 322.
- 4 Hadith refers to the words and deeds of the Prophet Muhammad and is second only to the Qur'an in Islamic law.
- 5 Gore emphasises that the cause of global warming largely comes from carbon-based energy, such as the burning of coal for heating and electricity, the burning of oil and gas based on fossil fuels, and that carbon dioxide is the biggest factor (43.1 percent) in climate and global warming, followed by methane (26.7 percent), black carbon (11.9 percent), halocarbon (7.6 percent), C.O and volatile organic compounds (6.7 percent) and nitrous oxide (3.8 percent).
- 6 Eldredge, N. 2001. 'The sixth extinction'.
- 7 See T Beck, A Demirgüç-Kunt and O Merrouche. 2010. 'The Islamic vs. conventional banking: business model, efficiency and stability'. The World Bank Development Research Group Finance and Private Sector Development Team. October 2010.
- 8 For a detailed coverage of Islam's contribution towards civilisation, science and technology, see Al Hassani (2008). *1001 Inventions: Muslim Heritage in Our World*. Manchester, The Foundation of Science and Technology and Civilization.
- 9 The religion of the market, according to Paul F Knitter (Vigil, 2010) is the religion of consumerism. One practises one's faith, one finds salvation, by consuming in the temples that are called shopping malls as a daily liturgy and worship, not confined to Sunday, Saturday or Friday.
- 10 Bruthland, G H (1987). World Commission on Environment and Development. *Our Common Future*. Oxford, Oxford University Press.
- 11 Fazlun Khalid. *Qur'an Creation and Conservation*. Islamic Foundation for Ecology and Environmental Sciences. Birmingham, UK. 1999.
- 12 An understanding of a concept normally stems from a process of nomenclature. Through a common recognition of names, man can express the same words and languages, and thence begets new innovations and discoveries arising from the recognition of such names, just as in science.
- 13 In accordance with the US Energy Information and Administration. Available at: [www.eia.gov/energyexplained/index.cfm?page=renewable\\_home](http://www.eia.gov/energyexplained/index.cfm?page=renewable_home)
- 14 Al-Mawardi (2000), p 313.
- 15 Kilani, Hala, Assaad Serhal, Othman Llewlyn, Al-Hima: A way of life. IUCN West Asia Regional Office. Amman, Jordan – SPNL Beirut, Lebanon. 2007. Available at: [http://cmsdata.iucn.org/downloads/al\\_hima.pdf](http://cmsdata.iucn.org/downloads/al_hima.pdf)
- 16 See their website: [www.yayasanowajawa.or.id](http://www.yayasanowajawa.or.id)
- 17 See Mangunjaya, F (2009) *Introducing the Islamic Hima and Harim System as a New Approach to Nature*.

*Conservation in Indonesia Phase II*. Final report to Rufford Foundation, UK. Available at: [www.ruffordsmallgrants.org/rsg/projects/fachruddin\\_mangunjaya\\_0](http://www.ruffordsmallgrants.org/rsg/projects/fachruddin_mangunjaya_0).

- 18 *Fiqh* is an expansion of the code of conduct (*Shari'a*) expounded in the Qur'an, often supplemented by tradition (*Sunnah*) and implemented by the rulings and interpretations of Islamic jurists.
- 19 Mangunjaya FM & McKay JE (2012). *Reviving an Islamic Approach for Environmental Conservation in Indonesia*. *Worldviews: Global Religions, Culture, and Ecology*, 16, 286-305.

# Chapter II

## The History of the Minangkabau

Yoan Dinata



A traditional communal family home, the *rumah gadang* (Minangkabau: big house) or *rumah bagonjong* (Minangkabau: spired roof house). The upwardly curving roof is thought to imitate the horns of the water buffalo. Photograph by Yoan Dinata.

## Minangkabau history

The term *Minangkabau* is taken from the words *minang*, which means 'victory', and *kabau*, which means 'the buffalo'. In other words, *Minangkabau* refers to 'the people of the victorious buffalo'. According to their *tambo* (traditional oral history), the people of West Sumatra entered into a territorial dispute with a neighbouring prince from Java in the 14th century. As they were greatly outnumbered, the local people proposed a fight to the death between two water buffalos to settle the dispute, instead of a battle between their parties. The prince agreed to the terms and chose the largest, most aggressive buffalo he could find. The Minangkabau put forward a hungry baby buffalo, which upon seeing the adult buffalo across the field, ran towards it searching for milk. Seeing no threat, the large buffalo paid no attention to it and allowed it to approach. When the baby buffalo thrust its head under the bull's belly in search of an udder, its small, previously sharpened horns punctured and mortally wounded the adult buffalo. Thus the Minangkabau won the contest and the land dispute.

There are various versions of the actual origins of the Minangkabau (commonly referred to as the *Minang*). Mansur (1970) stated that, based on the *tambo*, the Minang people descended from Maharajo Dirajo, the son of Alexander the Great, who sailed from Macedonia to South Asia and arrived in the Merapi Mountains of West Sumatra. Maharajo Dirajo and his soldiers came down from the mountains and established new villages, known throughout West Sumatra as *Luhak Nan Tigo* (three states), consisting of Agam, Tanah Datar and Lima Puluh Kota. Another version states that in the 13th century, a princess from the Melayu Kingdom in Sumatra married a prince from the Singasari Kingdom in Java. Later their son, Prince Adityawarman, became King and moved the capital of the Melayu Kingdom to Pagaruyung (what is now the Tanah Datar Regency of West Sumatra).

## The arrival of Islam and its effect on Minang customary law

In the mid 1600s, Islam was brought to the Pagaruyung Kingdom from Aceh by Arab traders. As the religious teachings spread throughout the kingdom, the power of both the king and the *adat* leaders lessened. It was not until the 19th century that the Minang culture and Islamic teachings became formally unified after the Padri War (1803-1837) (Navis, 1984).

The Padri War was fought between two Islamic Minangkabau factions: the *Adats*, traditionalists who wanted to continue to include indigenous pre-Islamic religious practices and social traditions within the practice of Islam; and the *Padris*, Islamic religious leaders and reformers who had made the *hajj* (pilgrimage to Mecca) and returned to replace traditional beliefs and practices considered un-Islamic (such as cock fighting, drinking alcohol and, most importantly for the *Adats*, the Minangkabau matrilineal system) with the teachings of the Qur'an and Shari'a law.

In the 1820s, the *Adats* enlisted the support of the Dutch, resulting in several short-term periods of peace until the signing of the Masang Agreement, which brought fighting to a halt for six years. However, it was not until 1837 that the war officially came to an end when Bonjol, the last stronghold of the *Padris*, finally fell and the *Padri* leader, Tuanko Imam Bonjol, was exiled. Whilst this victory increased Dutch control over West Sumatra, it also provided a positive legacy for the Minang, as tribal and religious leaders reconciled, culminating in the formal signing of the Marapalam Agreement in 1873 on Marapalam Hill (in present day Padang, the capital of West Sumatra). This is also the inception of the now popularly used phrase, '*adat basandi syara', syara' basandi kitabullah*' (local tradition is founded upon Islamic law, Islamic law is founded upon the Qur'an).

## Institutional customs

The basis of Minang *adat* (customary law) is influenced strongly by the concept that nature should be viewed as a teacher. The most important natural law is growth, which in nature is nurtured by the sun and the moon and in a human context, by the mother. Because a mother is closest to her children, she forms the character of present and future generations. Therefore, the Minang believe that their society will strengthen and flourish by providing women and



**Photo 1** Minangkabau woman in traditional dress. Photograph by Jeanne E McKay.



their female children a social and legal tie to the land. Thus the Minang culture has become the largest matrilineal society in the world, with property and rights to land use passing down from mother to daughter.

Religious and political affairs remain largely under the influence of the male family and community members. Young Minang males traditionally leave their homes to live and study in a *surau* (community centre and prayer house). When they become teenagers, they are then encouraged to leave the *nagari* (Sanskrit for 'country', but in this instance it refers to hometown or village) to search for knowledge and gain worldly experience to prepare them for their return to the *nagari*, where they become part of the 'Council of Uncles' that is responsible for managing family and village affairs (Maretin, 1961).

Of particular importance is that all elements comprising Minang culture are considered to be legal institutions supported by regulations, official offices and long-standing statutes. This includes the positions of clan leaders, rules applying to religious ceremonies (such as marriage) and customary laws.

Minang custom is divided into four main categories:

- *Adat nan sabana adat*: Natural laws and Allah's laws, based on the Qur'an.
- *Adat nan teradat*: Daily or hereditary practices (ie wedding ceremonies) that may be revised or even replaced by new ones.
- *Adat nan diadatkan*: Customs planned, designed, and compiled by the ancestors of the Minangkabau to be applied in daily life.
- *Adat istiadat*: Informal customs or customs based on interactions within the community.

Legally, the Minang customary law can be summarised through *Limbago nan Sapuluah* (ten institutions), which are:

- 1 *Cupak nan duo* (two quarts). *Cupak*, or quart, is a metaphor used to refer to measures or rules. *Cupak nan duo* (two quarts) consist of:
  - *Cupak usali* (original quart): rules that cannot be added to or subtracted from because they are based on Islam or Shari'a, and have been passed down from generation to generation. These rules pertain to the basic laws governing society, such as inheritance, settlements of disputes and social security.
  - *Cupak buatan* (artificial quart): customs newly established by the *nagari's* *cadiak pandai* (group of intellectuals) and *ninik mamak* (village elders), in response to new situations and changing times.

- 2 *Kato nan ampek* (four decisions or judgments). *Kato* is one of the most important institutions in Minang society, because the validity of a customary law is measured by whether or not a decision has been made based on one of the following:

- *Kato pusako* (hereditary decision): All Minangkabau customary laws that have been inherited from generation to generation and remain valid throughout the culture.
- *Kato mufakat* (agreement decision): A consensus between clan leaders and the village elders that must be obeyed and executed together (the decision must be unanimous and cannot be reached by vote).
- *Kato dahulu batapati* (previous/precedential decision): A decision that is made in preparation for a future event.
- *Kato kudian kato bacari* (new decision): A new agreement, made if a previous consensus has not been or could not be reached for certain reasons.

- 3 *Undang nan ampek* (four statutes):

- *Undang-undang luhak* (statutes pertaining to land within the main Pagarayung Kingdom) and *Undang-undang rantau* (statutes pertaining to land outside the Pagarayung Kingdom). *Luhak* land is governed by the *penghulu* (clan leader) and *rantau* land is governed by kings.
- *Undang-undang nagari*: (statutes describing the terms for founding a *nagari*)
- *Undang-undang dalam nagari*: (statutes within the *nagari* describing the rights and obligations of the people within the *nagari*).
- *Undang-undang nan duopuluh*: (statutes pertaining to criminal law).

In conclusion, these principles, decision-making mechanisms and statutes give a brief example of the integration of Islamic and customary laws within the world's largest matrilineal society.

## Bibliography

- Anonymous. *Minangkabau History*. Available at: <http://ranahminang-blog.blogspot.com/2008/12/minangkabau-history.html> [Accessed 20 March 2012. Page no longer available]
- Anonymous. *West Sumatra*. Available at: [http://en.wikipedia.org/wiki/West\\_Sumatra](http://en.wikipedia.org/wiki/West_Sumatra) [Accessed 16 March 2012]
- Anonymous. *Sejarah Minangkabau*. Available (in Indonesian) at: <http://udaeko.wordpress.com/2007/05/18/sejarah-minangkabau> [Accessed 16 March 2012]
- Mansur, M D (1970). *Sejarah Minangkabau*, Jakarta, Bharata.
- Maretin, J V (1961). Disappearance of matrilineal survivals in Minangkabau family and marriage relations. In *Bijdragen tot de Taal-, Land- en Volkenkunde* 117, pp 168-195.
- Navis, A A (1984). *Alam Berkembang Jadi Guru: Adat dan Kebudayaan Minangkabau*. Jakarta, Grafiti Pers.





# Chapter III

## **Biodiversity, Ecosystem Services and their Threats in West Sumatra**

**Erlinda C Kartika and Rusdiyan P Ritonga**



West Sumatran forest. Photograph courtesy of the DI project.

## Introduction

The Indonesian island of Sumatra is the sixth largest island in the world. It is divided into ten provinces, of which West Sumatra Province has an area of 4,229,700 ha and covers 9.55 percent of the island (BPS, 2012). The West Sumatra topography ranges from lowland plains predominated by farmlands to mountainous volcanic forests that straddle the Barisan mountain chain, which runs the entire length of the island. The West Sumatra coastline faces the Indian Ocean and stretches for 375 km from North Sumatra province in the north-west to Bengkulu in the south-west (MAP 1). Approximately 60 percent of West Sumatra Province is forested, consisting of conservation and protected areas (40 percent) and production areas (20 percent) (Ministry of Forestry, 2010).

Forests in West Sumatra are categorised as tropical and montane rainforest types (Whitten, 2000; Laumonier, 1997). Biodiversity in these forests is very high, making it globally important and emphasising a need for implementing sustainable forest management practices. Forest management in West Sumatra is divided between the central government, which is responsible for managing conservation areas, and local government, which is responsible for protection and production forests. Unfortunately, co-ordination between these two bodies has not been very effective. In West Sumatra, forests remain under threat from ongoing deforestation and forest degradation, which has the potential to result in local species extinctions. Here we focus on describing the biodiversity, ecosystem services and the

threats in West Sumatra, with a particular focus on conservation areas and the Indonesian government's efforts to tackle these threats.

## Conservation areas in West Sumatra

The designation of conservation areas in West Sumatra is based on a policy document from the Ministry of Forestry (*KepMenhut No 422/Kpts-III/1999*). In this document, these areas cover 846,175 ha or 20.2 percent of the province, which is divided into protection, preservation and sustainable-use zones. In order to maintain their various functions, the central government established a regional conservation office called *Balai Konservasi Sumber Daya Alam Sumatera Barat* (BKSDA; West Sumatra Natural Resource Conservation Office).

There are 22 conservation areas in West Sumatra, of which BKSDA is responsible for 20 (Table 1), with two exceptions: Siberut National Park and Kerinci Seblat National Park, which are managed by their respective national park authorities.

The key conservation area duties of BKSDA are to conduct routine field patrols, on average once every two months, to prevent illegal logging, respond to human-wildlife conflict issues (particularly those involving the Sumatran tiger), promote the importance of wildlife conservation in the local communities and prevent the illegal trade of wildlife. The results of information gathered during these patrols is shown below (Table 2).

## Biodiversity and its conservation in West Sumatra

West Sumatra is home to several threatened mammal species, such as the Sumatran tiger (*Panthera tigris sumatrae*), Asian tapir (*Tapirus indicus*), siamang (*Hylobates syndactylus*), pagai macaque (*Macaca pagensis*) agile gibbon (*Hylobates agilis*), Sumatran serow (*Caprinonis sumatrensis*), sambar deer (*Rusa unicolor*) and mitred langur (*Presbytis melalophos*), including endemics such as the Siberut macaque (*Macaca siberu*) and Kloss Gibbon (*Hylobates klossii*). Threatened plant species include pitcher plants (*Nepenthes sp.*), the andalas tree (*Morus macroura*), the titan arum (*Amorphophallus titanum*), which has the largest cluster of flowers arranged on a stem, and the corpse flower (*Rafflesia arnoldii*), which produces the largest flower on earth.

**Table 2** 2007-2009 law enforcement patrol and monitoring data from conservation forests under BKSDA management.

Patrol type	Number	Results
Forest encroachment	7	312 ha cleared
Illegal wildlife trading	1	1 tiger skin and bones
Forest fire	16	1,938 ha damaged

**Table 1** Conservation areas in West Sumatra.

No	Name	Status	Area (Ha)
1	Lembah Anai	Nature Reserve	221
2	Beringin Sakti	Nature Reserve	<1
3	Batang Palupuh	Nature Reserve	3
4	Rimbo Panti	Nature Reserve	2,550
5	Lembah Harau	Nature Reserve	271
6	Malampah	Nature Reserve	14,555
7	Alahan Panjang	Nature Reserve	22,364
8	Marapi	Nature Reserve	9,670
9	Singgalang Tandikat	Nature Reserve	9,658
10	Sago Malintang	Nature Reserve	5,486
11	Maninjau Utara Selatan	Nature Reserve	22,106
12	Arau Hilir	Nature Reserve	5,377
13	Bukit Barisan	Nature Reserve	7,4821
14	Air Tarusan	Nature Reserve	25,177
15	Air Putih	Nature Reserve	23,467
16	Batang Pangean I	Nature Reserve	12,200
17	Batang Pangean II	Nature Reserve	37,295
18	Mega Mendung	Nature Recreational Park	13
19	Harau	Nature Recreational Park	28
20	Rimbo Panti	Nature Recreational Park	570
21	Siberut	National Park	195,500
22	Kerinci Seblat*	National Park	343,125

\* Kerinci Seblat National Park covers four provinces: West Sumatra, Jambi, Bengkulu and South Sumatra.



**Map 1** Land cover of West Sumatra Province (Source: BKSDA, West Sumatra).



As representatives for the Ministry of Forestry in West Sumatra Province, BKSDA is responsible for conserving West Sumatra's rich biodiversity through developing conservation programmes that directly connect to conservation areas such as conducting routine patrols in conservation areas, updating forest inventories for effective biodiversity management, preventing forest fires and conducting media campaigns directed towards increasing local awareness about biodiversity conservation.

Activities such as biodiversity surveys and community-based conservation help both to raise conservation awareness and support local people to protect their natural resources. BKSDA also conducts conservation programmes in urban areas such as painting competitions for children, and advertising campaigns in local newspapers, radio and television, aimed at combating biodiversity degradation in West Sumatra.

BKSDA works on mitigating human-wildlife conflicts, such as livestock attacks by wild carnivores such as the Sumatran tiger and crop-raiding, mainly by ungulates and occasionally sun bears (*Helarctos malayanus*). Over the past decade, the competition for space and food resources between humans and wildlife has risen, resulting in high incidents of conflict. In West Sumatra Province, 65 livestock,

20 wild animals and 18 humans were killed from 2005–2010 (BKSDA, 2010). The results of human-wildlife conflicts may also extend beyond wildlife populations to affect entire ecosystems. The extinction of certain species will have unquantified biological and ecological impact on wild populations, as well as causing a significant demographic impact on small populations.

## Ecosystem services

The natural environment of West Sumatra delivers a vast array of ecosystem services. In general, ecosystem services are the benefits that people obtain from ecosystems directly and indirectly (De Groot, 1992, 2010), such as biomass production, pollination, biological control, habitat and waste assimilation, moderating weather extremes, mitigating drought and floods, protection from erosion, regeneration and preservation of soils, cycling and transport of nutrients. The components of biodiversity have certain influences in ecosystem services (Diaz, 2008). Increasing or maintaining plant biodiversity will have a positive effect on regulating ecosystem services such as erosion control and nutrient recycling (Balvanera et al, 2006). However, changes in land use (ie replacement of the tropical rainforest by palm oil plantations) will likely increase the risk of the extinction of critically endangered plant and animal species native to those ecosystems (Diaz, 2012).



**Photo 2** Deforestation and forest degradation in West Sumatra Province. Photograph by Erlinda C Kartika.

West Sumatra is dominated by tropical rainforests and converting them for other uses will affect the valuable ecosystem services that they provide. There are 51 watersheds spanning 2,191,668 ha into the neighbouring provinces. Along with illegal hunting, the loss of forests will also increase the vulnerability of already endangered species, such as the Sumatran tiger, to local extinction. The loss of large-bodied mammals such as Javan rhino (*Rhinoceros sondaicus*), Sumatran rhino (*Dicerorhinus sumatrensis*) and Asian elephant (*Elephas maximus*) already bear witness to this threat.

### Reducing Emissions from Deforestation and forest Degradation (REDD)

REDD is a proposed financial mechanism that would provide incentives for efforts to reduce forest sector emissions in developing countries and could become part of an international climate agreement currently under discussion within the United Nations Framework Convention on Climate Change (UNFCCC). This initiative provides increasing incentives for forest protection through carbon trade and with 60 percent of West Sumatra Province covered in tropical rainforest, the potential to receive benefits from this mechanism is high.

### Ecotourism

Maintaining biodiversity provides local benefits to humans through ecotourism revenue, ie the frequently visited Marapi and Harau nature reserves, which receive several hundred tourists a month. However, in West Sumatra, the rate of deforestation and forest degradation increases annually largely due to encroachment from small-scale farming, oil palm production, and mining. Between 2000 and 2009, the province experienced an average deforestation rate of 1.5 percent a year or 28,561 ha per year, much higher than the average rate of 0.9 percent a year that occurred between 1990 and 2000 (Uryu et al, 2010). This creates a large challenge in terms of finding ways to reduce this threat while providing sustainable economic alternatives for local communities that depend on forests for their livelihoods. Further, global warming and climate change issues have caused the Indonesian government to make several conservation policies that specifically deal with the regulation, management and utilisation of forests directly related to shifting agricultural practices such as government regulation number 61/2011 (*Perpres No 61, 2011*). As conservation policies should provide benefits to local communities, these policies will be difficult to implement if economic benefits are not received and shared equally by those who live in close proximity to the forest.

The concept of ecotourism as an alternative and sustainable form of revenue development is based on the assumption that it can substantially benefit local communities through the economic benefits it brings and jobs it creates. The financial benefits received from ecotourism can also change the negative perception forest edge communities may have about forest protection. In West Sumatra, there are three recreational parks: Harau, Mega Mendung and Rimbo Panti – all of which have high ecotourism potential if implemented together with

surrounding communities. BKSDA has particularly been involved in the Marapi Nature Reserve and the surrounding communities in Koto Baru, training youth groups on how to manage tourism activities in the area.

### Remaining challenges in biodiversity conservation and forest management

Since the adoption of the convention on Biological Diversity at the Earth Summit, which was held in Rio de Janeiro in 1992, tropical forest management has gradually shifted from timber extraction to more people-oriented directions (Sanderson and Redford, 2003). However, these global efforts have failed to prevent forest and biodiversity degradation caused by development. The increasing demand for land for development continues to convert natural forests into farm land, plantations and human settlements. Although the Government of Indonesia formulated a national conservation strategy that both advocates conservation and the sustainable use of biodiversity (Law No 32 of 2009 on the Protection and Management of the Environment), deforestation continues throughout the country. The Indonesian Government's Decentralisation Policy also failed to prevent forest and biodiversity degradation (Barr et al, 2006). In fact, until 2005, the focus of the local and central government was on natural resource exploitation for provincial and national revenues resulting in an increase in forest plantations and high intensity on commercial logging, which led to forest fires and encroachment (Linkie et al, 2003).

As a consequence, forest deforestation increased annually with the average deforestation rate in Indonesia from 2000-2005, reaching 1.09 million ha per year (Ministry of Forestry of Indonesia, 2010) with the highest rates in Sumatra during the same period (269,100 ha per year; Figure 1).

### BKSDA and the Darwin Initiative project

BKSDA's efforts to protect and preserve conservation areas through conducting forest patrols, environmental education outreach and law enforcement are carried out either directly by BKSDA officers, or in collaboration with local, national and international NGOs and conservation programmes, such as the Darwin Initiative, for which BKSDA provided a steering committee representative and joint collaboration in community-based activities such as biodiversity assessments and training. Further, BKSDA encourages the active participation of local communities in conserving biodiversity through local community empowerment programmes, such as establishing a tourism board to manage tourism activities surrounding nature reserves and through recruiting community members to serve as community forest rangers.



## Bibliography

- Balvanera, P, Pfisterer, A B, Buchmann, N, Jing-Shen He, Nakashizuka, T, Raffaelli, D & Schmid, B (2006). Quantifying the evidence for biodiversity effects on ecosystem functioning and services. *Ecology Letters* 9, pp 1146-1156.
- Barr, C, Resosudarmo, I A P, Dermawan, A & McCartly, J (eds), with Moeliono, M & Setiono, B (2006). *Decentralisation of forest administration in Indonesia: Implications for forest sustainability, economic development and community livelihoods*. Bogor, CIFOR.
- Biro Pusat Statistik Sumatera Barat – BPS (2012). Available at: <http://sumbar.bps.go.id> [Accessed 8 February 2012]
- BKSDA (2010). *Berbagi Peran dalam Penanggulangan Konflik Manusia – Satwa Liar di Provinsi Sumatera Barat. Workshop Penanggulangan Konflik Satwa di Sumatera Barat*. West Sumatra, Government Printer.
- De Groot, R S, Alkemade R, Braat, L, Hein, L & Willemsen, L (2010). Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making. *Ecological Complexity* Vol 7(3), pp 260–272.
- Diaz, S (2008). Biodiversity and Ecosystem Services. Earth portal community. Available at: <http://communities.earthportal.org> [Accessed 10 February 2012]
- Laumonier, Y (1997). *The Vegetation and Physiography of Sumatra*. Dordrecht, Kluwer Academic Publishers.
- Linkie, M, Martyr, D J, Holden, J, Yanuar, A, Hartana, A T, Sugardjito, J & Leader-Williams, N (2003). Habitat destruction and poaching threaten the Sumatran tiger in Kerinci Seblat National Park, Sumatra. *Oryx* 37, 41-48.
- Ministry of Forestry of Indonesia (2010). *Forestry Statistics of Indonesia*. Jakarta, Government Printer.
- Sanderson, S E & Redford, K H (2003). Contested relationships between biodiversity conservation and poverty alleviation. *Oryx*. 37, pp 389-390.
- Uryu, Y, Putrastuti, E, Laumonier, Y, Sunarto, Setiabudi, Budiman, A, Yulianto, K, Sudibyo, A, Hadian, O, Kosasih, D A & Stuwe, M (2010). *Sumatra's Forests, their Wildlife and the Climate – Windows in Time: 1985, 1990, 2000 and 2009: A quantitative assessment of some of Sumatra's natural resources submitted as technical report by invitation to the National Forestry Council (DKN) and to the National Development Planning Agency (BAPPENAS) of Indonesia*. Jakarta, WWF Indonesia.
- Whitten, T, Damanik, S J, Anwar, J & Hisyam, N (2000). *The Ecology of Sumatra. The Ecology of Indonesia Series*, Vol I. Clarendon, Tuttle Publishing.

# Chapter IV

## Part I – The Darwin Initiative and Project Intervention

Jeanne E McKay



First Darwin Initiative Project Stakeholders meeting, Padang, West Sumatra. Photograph by Zulfan Monika.

## The Darwin Initiative

Announced by the UK Government at the Rio Earth Summit in 1992, the objective of the Darwin Initiative (DI) is to assist countries that are rich in biodiversity but poor in financial resources and without the technical capacity to meet their objectives under one of the three major biodiversity conventions: the Convention on Biological Diversity (CBD); the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES); and the Convention on the Conservation of Migratory Species of Wild Animals (CMS). This is achieved through funding collaborative projects that draw upon UK biodiversity expertise.

Since its inception, the DI has invested over £80 million in 729 projects and 155 countries. At present, there are 105 active DI projects operating in 82 countries around the world. Over two thirds of these projects are located in the tropical continents of Africa, Asia and South America, reflecting current threats in internationally recognised global biodiversity 'hotspots'. The DI also supports a number of temperate projects, such as in Central America, Oceania, the Caribbean and the British Overseas Territories.

## The Durrell Institute of Conservation and Ecology

Founded in 1989 at the University of Kent, Canterbury, the Durrell Institute of Conservation and Ecology (DICE) offered its first MSc degree course in Conservation Biology in 1991. The vision behind DICE is to apply an interdisciplinary approach to conservation, by combining the natural and social sciences and encouraging conservationists to think practically and innovatively about ways to tackle the causes of biodiversity loss. This is achieved through building conservation capacity, implementing on-the-ground conservation projects and informing conservation policy development in the UK and around the world. To date, DICE has awarded over 400 postgraduate diplomas and degrees to students from all over the world and has successfully implemented 16 DI projects in 12 countries.

## Darwin Initiative project overview

The vast archipelago of Indonesia contains about 10 percent of the world's remaining tropical rainforest. This plays a critical role nationally by providing ecosystem services for rural communities and internationally by maintaining biodiversity and contributing to the regulation of the climate. Unfortunately, Indonesia, and in particular Sumatra, has some of the highest rates of tropical deforestation, especially beyond protected areas.

Indonesia urgently needs innovative approaches to community-based conservation and this might be found in its unique make-up. It has the world's largest Muslim population (88 percent of its 245,500,000 population follows Islam). Religion has a strong influence on daily life and within Islam there are several key principles (*Tawhîd*, *Khalifah*, *Mizan* and *Fitrah*) written in the Qur'an that underpin nature conservation and outline the human role in conserving natural resources.

West Sumatra contains some of the most pristine rainforest remaining in Indonesia, including watersheds that serve more than a million people. It is also home to the indigenous Minangkabau (or Minang) people. Strongly Islamic, the Minang have a rich heritage of religious and cultural (*adat*) traditions, which have strong connections to nature and a great influence on daily life. The intimate bond between *adat* and Islam is encapsulated in a popular Minang saying, '*adat basandi syara', syara' basandi kitabullah*,' which means that all rules and regulations within the community should be based on Islamic religious law and the Qur'an.

The potential for implementing a faith-based nature conservation project in West Sumatra was first explored in 2007–2008 through a Rufford Small Grant for Nature Award and a DI Scoping Award. Through initial discussions with local stakeholders, it was determined that faith-based teachings could be highly effective in conserving natural resources through changing behaviour, rather than just attitudes (which on their own do not guarantee improved conservation). It was also decided that this approach would be further strengthened by incorporating customary law and providing a greater focus on the ecosystem services that provide tangible benefits for rural communities.

Although West Sumatran customary law is specifically structured in line with Islamic law, focal groups interviewed agreed that a lack of awareness about Islamic teachings on the environment, its integration with customary law, and the institutional capacity to translate these into on-the-ground action hindered their effectiveness in the sustainable management of forests and their ecosystem services. Further discussions with the wider community, ie after Friday prayers and during village meetings, discussed three interrelated land-use management systems that apply Islamic principles within nature conservation:

- *Hima* – management zones established for sustainable natural resource use;
- *Harim* – inviolable sanctuaries used for protecting water resources and their services; and,
- *Ihya al-mawat* – reviving neglected land to become productive.

Workshops held with religious, traditional and village leaders, as well as representatives from several women's groups from three rural communities in West Sumatra found that the above systems were still being loosely practised within their *nagari*\*.

The valuable information gained during both the DI Scoping Award and pilot project found overwhelming support from a diverse group of local partners. Based on this high level of commitment and willingness, a full three-year DI proposal entitled, 'Integrating religion within conservation: Islamic beliefs and Sumatran forest management' was submitted by DICE and awarded in 2009.

\**Nagari*: an autonomous administrative unit below sub-district government in West Sumatra, which comprises several villages and different tribes of the Minangkabau ethnic group. Under the current formal administration, a *nagari* is led by a *wali nagari*, with support from a *setnag* (*nagari* secretary) and civil servants.

The aims of the DI project were to establish a multi-stakeholder committee to strengthen and integrate the religious management systems of *hima*, *harim* and *ihya al-mawat* through:

- Training – in forest and biodiversity monitoring, arboriculture, Islam and environmental outreach.
- Capacity building – of local institutions to manage and conserve forests and their ecosystem services through a locally developed governance framework.
- Research – into ecosystem services and forest and biodiversity monitoring.
- Environmental education and public awareness – through rural and urban community outreach programmes and an education curriculum.

To support these aims, a wide range of project activities were conducted in the project's two rural field sites and within Padang, the capital of West Sumatra province. The project worked with local religious leaders, teachers, community leaders, youth and women's groups to pilot a variety of conservation-themed activities during Ramadan<sup>1</sup> and provided the necessary support required for the two focal *nagaris* to formally apply to the provincial government for *hutan* (forest) *nagari* status, a legally recognised community-based forest management system.

The DI project's inception was timely because it coincided with the the President of Indonesia's pledge at the 2009 UN Climate Change Summit in Copenhagen to reduce the country's greenhouse gas emissions by 26 percent by 2020. Part of this national commitment led to Indonesia hosting the first Muslim Action on Climate Change Conference, in April 2010. During the conference, an agreement was reached which yielded, among others results, a set of recommendations that were sent to the Organization of Islamic Conference and all country members for follow-up and implementation. Finally, a growing movement in Indonesia amongst local religious leaders themselves has emerged in response to pressing environmental threats. This includes issuing *fatwas* (Islamic legal opinions) that denounce illegal forest activities, such as burning, logging and mining, as well as the deployment of 5,000 preachers by Presidential decree across Indonesia to stop illegal logging at the grassroots level.<sup>2</sup>

In light of this growing environmental movement and the important role the religious sector can play in supporting its aims, the following papers describe the DI conservation outreach model in greater detail and include materials, which it is hoped, will provide the basis for further replication in West Sumatra and across Indonesia.

## Footnotes

- 1 The ninth month of the Islamic calendar, when the Qur'an was revealed and which is signified by a holy month of fasting.
- 2 Ministry employs 5,000 preachers to preserve forests, *The Jakarta Post*. July 17, 2011. [www.thejakartapost.com/news/2011/07/17/ministry-employs-5000-preachers-preserve-forests.html](http://www.thejakartapost.com/news/2011/07/17/ministry-employs-5000-preachers-preserve-forests.html)

# Darwin Initiative project intervention

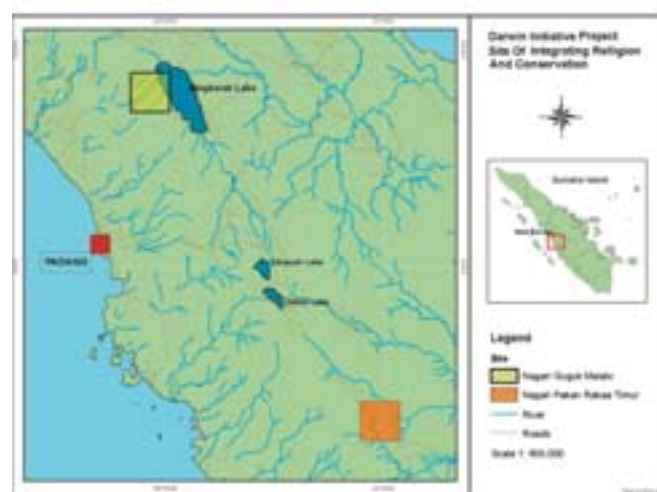
## Project partner meeting and site selection process

The DI project staff and partners held the first stakeholder meeting from 22-24 July 2009 at Andalas University (UNAND) in Padang. The purpose of the meeting was to formally launch the project to a wide audience (including media and potential project collaborators), as well as to formally introduce all of the local, national and international partners to one another. This gathering also provided an opportunity for partners to identify a set of criteria for the selection of two DI *nagari* pilot project sites. It was decided that a *nagari* should:

- contain a sizable amount of forest
- maintain a strong sense of *adat* (customary law)
- depend upon various ecosystem services, which may also be under threat
- be accessible from the provincial capital
- show a strong interest in working with the DI project.

On 30 September 2009, a major earthquake (>7 on the Richter scale) hit West Sumatra province, including Padang where the newly established DI project office, several DI project partners (Qbar, UNAND and BKSDA) and many DI participants were located. Whilst, thankfully, no DI partners or participants were harmed, an estimated 4,000 people lost their lives and infrastructure damage was widespread throughout the province, but particularly severe in Padang. In light of this tragedy, the project was given an extension from the DI Secretariat so that it could provide emergency relief to some of the more remote areas that were affected.

When project staff reconvened a few months later, rapid assessment surveys based on the previously approved site criteria were conducted in eight *nagaris*. Five potential



**Map 1** Locations of Nagari Pakan Rabaa Timur and Nagari Guguk Malalo in West Sumatra.



*nagaris* were nominated for consideration and two were then unanimously chosen: Nagari Pakan Rabaa Timur and Nagari Guguk Malalo (see Map 1).

Nagari Pakan Rabaa Timur is located in Solok Selatan District, with an area of 21,500 ha, consisting of 70 percent forest and 30 percent farmland and residential areas. The area is fertile and suitable for growing cocoa, rubber, soybean and, therefore, most people are farmers. According to 2006 census data, its total population is 3,565 people (1,691 men and 1,874 women). Although the majority of the forest area is protected, the local community claim that it is threatened by illegal logging and mining from both local inhabitants and people from neighbouring communities.

Nagari Guguk Malalo, in Tanah Datar District, is situated along the western coast of Lake Singkarak, one of the major lakes in West Sumatra, 500 metres above sea level and covering 5,280 ha. There are currently an estimated 4,384 people (2,144 men and 2,240 women) in Guguk Malalo (RPJMD Nagari Guguk Malalo, 2010). The majority of its male inhabitants are farmers and fishermen. The forest area comprises both a nature reserve and protected forest and, according to discussions held with local community members, is threatened by illegal activities, such as logging and wildlife poaching.

Although development programmes have been going on for four years in these and surrounding areas, they have garnered numerous criticisms from local communities who believe that they have largely failed due to low levels of community involvement, training and limited follow up.

Therefore, to empower the local community and encourage their involvement in the design and implementation of the DI project workplan, DI project staff worked with local NGO partner Qbar to conduct focus group discussions and participatory rural appraisals. By applying these two information-gathering methodologies, an appropriate training and project activity model was designed to specifically meet the needs of each community.

## Focus Group Discussions and Participatory Rural Appraisals

From 5-14 October 2010, three focus group discussions (FGDs) were conducted in each project site to raise awareness about the DI project and its aim of using Islamic teachings on the environment to protect natural resources. In total, 58 participants from all levels of society (eg local government representatives, traditional and religious leaders and members of youth, farmer and women's groups) attended these discussions and were given the opportunity to present their ideas and suggestions. This led to a heightened interest in the DI programme and an immediate agreement to participate in more intensive participatory rural appraisals (PRAs), which were conducted shortly afterwards, at the end of October, and provided information in the following areas:

- Socio-cultural: (a) Economic/livelihood institutions, (b) Political and organisational institutions, (c) Ownership and regional knowledge systems and institutions, (d) Religion or belief systems and institutions, (e) Health and medicinal institutions, (f) Education levels and training institutions, and (g) Social and familial institutions.



**Photo 3** DI partners and workshop participants enjoying a break with traditional beverages. Photo courtesy of the DI project.



- Environmental: (a) Flora and fauna, (b) Land fertility and utility, (c) Number of residential areas and areas under development, (d) Vulnerability to natural disasters and, (e) Climate and weather patterns.

From these assessments, it was possible for the DI project staff to identify the training needs in each community and, from this, design an appropriate workplan and timeline to successfully address them. This led to the development and implementation of numerous site specific project activities.

## Darwin Initiative Project intervention activities

### Field schools with community-managed tree nurseries

Based on the results and selection criteria discussed during FGDs and information gained from the PRAs, two sites were selected by the community members in each *nagari* to house the field schools and nurseries. Permanent structures were then built by the communities (January–March 2011) and training was conducted by DI staff and local partner, Fauna & Flora International – Indonesia programme (FFI-IP) on the identification of land suitability for planting, nursery management including plant care, organic composting and pesticide production and natural resource management based on the Islamic principles of *hima*, *harim* and *ihya al-mawat*.

From 25–30 January 2012, the seedlings (15,000) cultivated in the DI Field School nurseries were replanted within the local communities under the Islamic principle of *ihya al-mawat* to reforest 240 ha of degraded land in each project site (160 ha in Pakan Rabaa Timur and 80 ha in Guguk Malalo), as well as to support other local replanting initiatives such as providing 100 mahogany (*Swietenia macrophylla*) seedlings to Padang State University as part of their student replanting programme.

### Biodiversity training and assessments

In collaboration with local partners, UNAND, the DI project conducted biodiversity training at both *nagari* project sites. Training focused on teaching local partners how to identify and record different species of birds, mammals, fish and vegetation. This was later followed up by rapid biodiversity assessments of the forest, lake and rivers in each site. The purpose of both activities was to prepare a biodiversity inventory and document important habits, as well as their threats.

Information for all species (except mammals) was gathered through a combination of direct surveys and community interviews conducted to assess mammal species. Both assessments showed remarkably high levels of species richness, especially considering that the surveys were conducted over several days in each site: i) Nagari Pakan Rabaa Timur contained: 71 bird species (including 15 Near Threatened); 40 mammal species (including five Endangered and one Critically Endangered); 198 plant species (including the iconic *Rafflesia hasseltii* and eight Endangered) and eight fish species (including one Near Threatened); and, ii) Nagari Guguk Malalo contained: 63 bird species (including four Near Threatened), 23 mammal species (including the Critically Endangered Sumatran tiger and five Endangered), 141 plant species and eight fish species (including one Near Threatened).

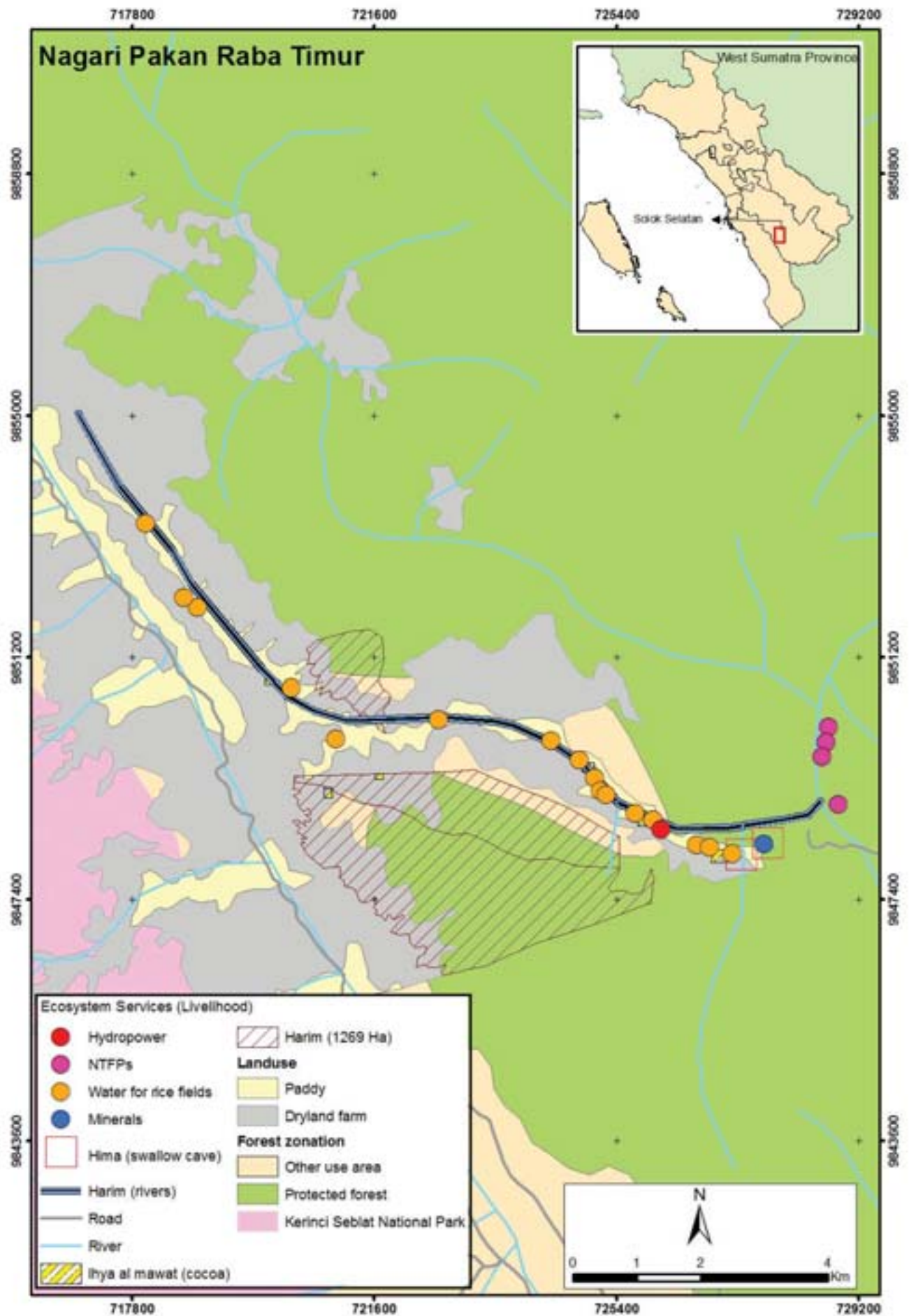
### Ecosystem services mapping

The collection of recent and accurate information (both social and physical) provides a means to understand and address local issues and potentially mitigate conflicts related to natural resource use. One of the ways to obtain physical information is through participatory mapping. The particular advantage of using this approach is that the information collected is further validated and strengthened by using the communities' knowledge of the surrounding area. In addition to gaining data related to physical factors (ie roads and buildings), information pertaining to the social, cultural, and economic aspects of the community is also gathered.

In West Sumatra, it is important to conduct participatory mapping at the *nagari* level, as this is where the decision-making process regarding local management of natural resources is discussed and agreed. Therefore, decisions are based upon the society's own considerations, enabling an improved and sustainable form of forest and natural resource management.

Data first collected via the PRA community mapping exercises was used to create hand-drawn maps for each *nagari*. This information was later ground-truthed through the collection of 115 data points for Nagari Guguk Malalo and 140 data points for Nagari Pakan Rabaa Timur. As a result of this process, the DI team and both local communities agreed upon a novel approach to protecting the forest and their ecosystem services. This involved mapping the different ecosystem service areas in each *nagari* rather than focusing on delineating administrative borders (also an unresolved source of local tensions). Finally, the Islamic management systems of *hima*, *harim* and *ihya al-mawat* were overlaid, generating a common understanding of the religious, ecological and socio-economic importance of these biodiversity-rich areas, for the first time (Maps 2-3).





**Map 3** Ecosystem services and Islamic natural resource management systems in Nagari Pakan Rabaa Timur.



## Raising awareness of Islam and conservation

As the 2007 DI Scoping Award confirmed, Islamic teachings form an important part of peoples' daily lives and provide guidance for their conduct. However, there is a lack of knowledge amongst local religious scholars, keepers of tradition and teachers about Islamic teachings that relate specifically to nature and ecosystem services. Therefore, the DI programme enlisted the support of noted national and international Islamic theologians from Conservation International–Indonesia programme (CI-IP) and the Islamic Foundation for Ecology and Environmental Sciences (IFEES), as well as conservation practitioners (FFI-IP) to conduct training for teachers and local religious leaders, while DI project staff provided practical opportunities within the project framework to put these teachings into practice.

### Training workshop for teachers

In March 2010, a joint project partner (British Council – BC, CI-IP and FFI-IP) training workshop entitled, 'Teacher training on Protecting West Sumatra Forest from Environmental Degradation and Climate Change – an Islamic Point of View' was conducted over a week. The training materials combined themes relevant to each of the participating partners' expertise including climate change (BC), religion and the environment (CI), and incorporating environmental issues within the provincial education curriculum, with practical exercises specific to different classes (FFI-IP). A one-day field trip to Nagari Guguk Malalo gave the teachers an opportunity to develop their own ideas on how the provincial educational sector could help to raise awareness of the environmental challenges specific to their area. In total, 16 teachers (five women and 11 men), four of whom were from each of the two participating DI project *nagaris*, were trained in environmental education.



**Photo 4** DI trainers and participants at the DI training workshop for religious leaders. Photograph courtesy of the DI project.

Pre- and post- questionnaires were developed independently by CI-IP to assess attitudes and behaviour towards conservation before and after the workshop. Initial results showed that those understanding ecosystem services rose from 50 percent to 92 percent after the training, whereas those who understood the Islamic systems for natural resource management rose from 0 percent to 100 percent. Furthermore, respondents stated that raising awareness about the project and its aims brought new opportunities for increased participation in local communities, as the once complicated scientific terminologies (ie ecosystem services, carbon emissions and biodiversity) were explained in a more simplified manner with actual examples used from each *nagari* that made them locally relevant.

### Training workshop for religious leaders

In April 2010, a joint project partner (including the BC, CI-IP and IFEES) training workshop for *ulamas* entitled, 'Islamic Teachings and the Application of Natural Resource Conservation Practices in West Sumatra' was conducted over three days in the provincial capital of Padang. With funding from BC, the training incorporated the expertise of CI-IP and IFEES in religion and the environment. A one-day field trip to Nagari Guguk Malalo gave the religious leaders an opportunity to experience a real-life case study to help them to develop their own ideas on how to promote conservation messages within a religious context at the local level. Some 13 participants (six religious leaders, five village leaders, one member of IAIN (*Institut Agama Islam Negeri*) and one member of the Minang Customary Organisation–LKAAM) from both DI *nagaris* and from Padang were trained in the Islamic teachings on natural resource management regulations and helped to identify the relevant environmental messages in the Qur'an. A religious leaders' training module was then designed and adapted, based on the feedback received from workshop participants.

### Green Mosque programme

The teachings of Islam recognise the principle of order, and among this principle the call to to protect what is beneficial and useful, and to prevent damage. Both *nagaris* contain a great bounty of natural resources, such as lakes, forests and agricultural lands and it is considered the duty of all its inhabitants, as stewards of the earth and God's creations, to protect and preserve these resources, so that they can be used wisely.

On 20 June 2011, DI joined with the 50 members of *Karang Taruna* (a local youth organisation focusing on creative, social and conservation projects in rural areas) and a local mosque youth group in Nagari Guguk Malalo to conduct greening programmes, through a DI pilot initiative called the 'Green Mosque campaign'. This event focused on a community-led clean up of rubbish around community mosques and surrounding areas including Lake Singkarak. Further, 750 Indian willow (*Salix tetrasperma*) were planted along



**Photo 5** Tree planting during the DI Green Mosque campaign. Photograph by Yolamalinda.

1,500 meters of land surrounding Lake Singkarak comprising three *lorong* (hamlets or sub villages): Bahiang, Guguk, and Koto Duo.

This particular tree species was selected because its root systems provide a preferred breeding ground for the endemic and culturally important bilih fish (*Mystacoleucus padangensis*).

The opening ceremony was led by the Vice Regent of the District of Tanah Datar, Mr H Hendri Arnis, and was also supported by the Tanah Datar Disaster Mitigation Agency, which provided two boats and a team to expedite the distribution of seeds and seedlings to locations around the lake that were predetermined by the community. As this event garnered the support of the District Government and the attention of the national media, it helped Guguk Malalo win the honour of representing West Sumatra province in a national environmental competition, sponsored by the Ministry of Forestry, in which it came fifth out of twenty-five entries, receiving national recognition as a Conservation Village. This status will now enable it to receive priority for forest rehabilitation and village forest programmes sponsored by the regional Forestry Department.

Based on the success of this pilot project, the Green Mosque campaign in Guguk Malalo was unanimously voted by the local community to be routinely performed as part of the yearly conservation and social agenda. An action plan was also developed, which, it is hoped, will serve as a paragon of excellence for nearby *nagaris*.

### Ramadan campaign

From 1 August-30 September 2011, the DI project worked with two *ulamas* (religious leaders) to design and deliver prayer sermons focusing on the importance of water conservation (see Appendices 1 and 2), which were delivered in eight mosques in the provincial capital of Padang and in each of the project field sites to over 1,000 people. A further 356 students from ten *pesantrens* (religious boarding schools) were also taught about environmental issues relating to the importance of watersheds in providing potable water and offsetting the effects of climate change through a specially designed curriculum developed by the DI project.

Overall, 874 pre- and post-questionnaires were administered and collected by 15 trained DI staff and volunteers. The results from before and after the mosque sermon showed that





**Photo 6** Attendees of the DI Ramadan Campaign. Photograph courtesy of the DI project.

while levels of concern about environmental issues were already high among those entering the mosque, the sermon did appear to have raised their levels of concern, as the proportion of those who prioritised the funding of watershed forest conservation was significantly higher in the exit group. The study further showed that younger and better educated respondents tended to correctly identify the ecosystem services provided by watersheds and their threats, whereas on religious issues, women and less educated respondents scored a greater number of correct answers on Islamic teaching on the environment.

The results from the *pesantren* surveys also reflected existing high levels of concern for the environment and a prioritisation for funding watershed protection after the curriculum but here, it was the female respondents who tended to correctly identify the services provided by watershed forests and were more likely to contribute their time to conservation activities.

### Support in the *hutan nagari* process

At the communities' request, the DI project provided support for initiating the establishment of *hutan nagari* (a state forest which is utilised and managed solely by the village) in their respective *nagaris*, which will adopt the *hima* management system.

In August and September 2011, Qbar assisted both *nagaris* to develop governance systems through a series of meetings and workshops involving community leaders and members of the *nagaris* government (ie Consultative Council and the Customary Body). The total area of the proposed *hutan nagari* in Pakan Rabaa Timur is 33,556 ha and in Guguk Malalo is 9,162 ha.

One of the unique points of this particular *nagari* regulation is that the *hutan nagari* zoning system will be based for the first time on the Islamic *hima* system and will be managed by a community group under the appointment of the *nagari* government. The next step is the final *nagari* regulation draft, which will be sent to the *bupati* (regency head) with all of the previously completed documentation from the DI activities (PRAs, community mapping exercises, biodiversity assessments, etc). In order to achieve this final stage, local partner, Qbar agreed to provide support, pending internal approval and funding.

# Chapter IV

## Part II – Islamic Teachings and Traditions in Community-Based Forest Management

A Case Study in Nagari Guguk Malalo

Nurul Firmansyah



View of mosque and Lake Singkarak, Guguk Malalo. Photograph courtesy of Qbar.

## Introduction

Indigenous peoples and natural resources have a symbiotic relationship, as evidenced in their expression of rituals and oral traditions. Such expressions describe local wisdom that represents the collective ideas and experiences of indigenous peoples in a socio-cultural context (Mishra, 2009). Furthermore, the religions and religious life of indigenous peoples are ingrained both in everyday life and in their spiritual experiences. Myths, legends, proverbs, and daily rituals represent the sacred view of the indigenous peoples. Indeed, all of these have meaning in their socio-cultural experiences.

The function of myths and rituals is to unite the minds and actions of the indigenous peoples regarding the realm of death (afterlife) and the realm of life, in combining the past with the present (Mishra, 2009). As a result, they have vast experience in dealing with natural obstacles and maintaining the sustainability of their lives in nature. For example, their irrigation techniques, use of forest resources for promoting health, knowledge of the weather, birds and animals, the concept of time, and the perception of space are all important aspects of their knowledge, drawn from their own experiences, shared with group members and are important for ensuring the welfare of all.

The Minangkabau society is one that abides by traditional and religious values in conducting their daily life, including the management of natural and forest resources. This is further supported by the Minangkabau proverb, '*Alam takambang jadi guru* (nature unfolds itself and becomes a teacher). Agus (2007) asserted that this proverb is a source of inspiration in the traditional teachings that are consolidated by beliefs (creeds), Shari'a (Islamic) law, *tasauif* (learning and knowing more about God) and the use of the five senses, which Islam commands its followers to use in conjunction with the heart (the inner eye). As a result, a sacred and symbiotic cultural character is established between the traditional Minangkabau society and nature, which in turn, becomes local wisdom (Agus, 2007).

Effendi (2007) states that the majority of traditional Minangkabau society still live in *nagari*. A *nagari* is not only a rural area, but also the homeland of the indigenous Minangkabau. The concept of the *nagari* as the basic social, political and cultural unit emerged along with the traditional Minangkabau society itself, and preceded the existence of the State. Hamka (1984) notes that these villages act as autonomous mini-republics, which also regulate their natural resource management based on their local traditions and Islamic teachings. This is demonstrated by an adage '*adat salingka nagari*', that the validity of a particular set of customs is limited only to the environment of a particular *nagari*. The implementation of traditional and Islamic teachings, especially in the management of natural resources, is applicable to all of the villages, which are autonomous and at times differ from each other.

The initial understanding of the relationship between Islam and indigenous tradition, especially in the East Indies, was described by scholars C F Winter, Salomon Keyzer, and

van den Berg as the *receptio in complexu* theory<sup>1</sup>.

This theory states that the laws of each indigenous people are distilled from the laws of the religion professed by the people concerned. That is, if an indigenous people adhere to Islam, the customary law will then be based on Islamic law (Kurniawarman, 2010). This theory received opposition from many notable scholars at the time, such as Piepers, Snouck Hurgronje, Ter Haar, and van Vollenhoven. Piepers declared that customary laws were born of the development of the indigenous people themselves, and religious laws (ie Islamic law) were only supplementary. Snouck Hurgronje argued similarly, stating that religion had a major influence on indigenous peoples, but not on all aspects of their lives, and instead only affected their beliefs and spirituality (Kurniawarman, 2010).

While various studies have discussed the role of tradition in the management of natural resources in the *nagari*s, few have addressed the relationship between Islamic teaching and local traditions for natural resource management, especially of the forest. This study, funded by the Darwin Initiative programme, focuses on the relationship between Islam and local traditions in community-based forest management in Nagari Guguk Malalo, Tanah Datar District, West Sumatra. The methodology used is a qualitative one that employs three data collection techniques: participative observation; in-depth interviews; and a review of relevant secondary data, such as written traditions and Islamic laws, documents and related reading materials. Furthermore, the data was analysed using a matriculation technique. This involves compiling evidence and then categorising it within a matrix, creating charts or data displays, tabulating related important events and then identifying the differences and similarities for examining the relationship between variables (Miles and Huberman, 1984).

## Overview of community-based forest management

History demonstrates that forests, in their entirety, were essentially owned by indigenous peoples and that these rights were subsequently taken over by the expansion of feudalism, colonialism, and imperialism within the last five centuries, leaving most forests under the control of the State. With the social revolution and the arrival of democracy, gradually the rights of local or indigenous peoples began to be recognised again. Today, the majority of customary laws serve as a means to reclaim these rights (Molnar, 2011).

There are many reasons why the recognition of indigenous peoples' rights over forests is important. The primary reason is to promote good governance in the forestry sector, which is related to social justice, the protection of traditions, cultures and religions, the promotion of social cohesion, and the politics of environmental democracy. Policy reforms have been undertaken to provide the assurance of forest control by the indigenous peoples, through the legalisation of land tenure arrangements based on the concept of social justice, empowerment, and the protection of cultural values (Hermosilla & Fay, 2005). This form of management is commonly known as community-based forest management, which is conducted by communities or small groups in the

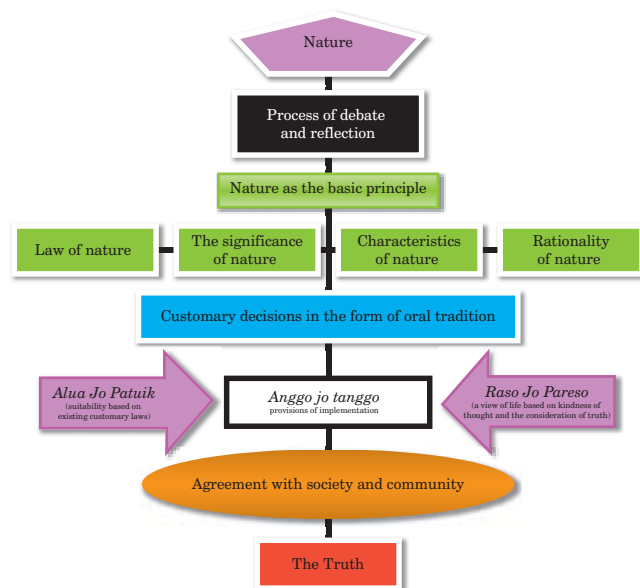


forest and agroforest areas they own, or the management of state-owned forests by communities (Molnar, 2011). In practice, community-based forest management is practised in agroforestry initiatives that occur near the forest-farmland boundary, with a focus on the production of food crops (Rianse 2010).

In principle, the form, function, and development of agroforests are influenced by social and ecological factors, the availability of forest resources, human pressure on forests, commerce done by farmers, political arrangements that are implemented, the character of the relationship between the community and the outside world, the ecological attitude of the building blocks of the agroforest, the agroforest's structural stability, and conservation techniques (Rianse Abdi, 2010).

## The Minangkabau and the environment

The Minangkabau society, according to Navis in Dewi (2010), lives by adhering to *tambo* (oral traditions) in the form of ancient sayings that are inspired by their understanding of nature. Traditional Minangkabau society believes that nature is everything. Man is born, lives, and dies in nature. Nature is absolute, exact, and unchanging, consisting of the sun, the moon, the earth, the stars, morning, afternoon, evening and dawn, noon, north, west, south, fire, soil, and water (Dewi, 2010). Further, customary law is considered eternal, or as often said in an adage, 'not disappearing due to the rain, not gone due to heat.' Therefore, customary law will not subside due to situational or temporal changes. This perspective on nature is also present in the everyday reality of the Minangkabau and inspires the various activities and thoughts of individuals, groups, and communities (Figure 1).



**Figure 1** Source: Susi Fitria Dewi (2010) 'Oral Tradition in the Study of Ulayat Land Dispute in West Sumatra' in *Wacana: Journal of the Humanities of Indonesia*.

Two leading Minangkabau figures, Datuk Katumanggungan and Datuk Perpatih nan Sebatang (1165), referred to nature as the basis for Minangkabau philosophy. They employed rational reflections, arguments, and comparisons to understand the basics of nature, which set forth lessons that would later become the foundation of the Minangkabau traditions. These lessons became the inspiration for the axiom, 'nature as teacher' (*alam takambang jadi guru*). In addition to understanding the laws of nature, three types of customary law were also transmitted orally: *alua jo patuik* (truth and decency); *anggo jo tango* (rules to be obeyed); and, *raso jo pareso* (sensibility and feelings); Dewi, 2010.

## Traditional teachings in forest management

Natural resource management in traditional Minangkabau society has characteristics that are distinctly related to traditional values, which are not only based on economic value, but also on kinship or the *ulayat* system. As such, the management of natural resources is entrusted from one generation to the next and presided over by tradition (LBH Padang, 2005). The elements of *ulayat* and traditional proverbs that illustrate such elements are described in Figure 2 (p44).

### Authority and ownership of *ulayat* land

*Ulayat* rights include all aspects pertaining to the water, soil, and air in the *nagari*. However, in daily life, traditional Minangkabau society always refers to its *ulayat* rights for land as inseparable from water and air (LBH Padang, 2005). *Ulayat* land is the communal property of the indigenous Minangkabau society, dominated and controlled by *penghulu* (traditional leaders; Narullah, 2005). There are several land types:

- *Ulayat rajo* – Lands under the authority of the *penghulu* which are located far away from the residential areas, such as forests, jungles, hills, mountains, grasslands, swamps, rivers, seas and lakes.
- *Ulayat nagari* – Lands located near a *nagari*. Such lands are under the authority of the *nagari's penghulu*, and may take the form of forests, grasslands, jungles, lakes, ponds, and rivers.
- *Ulayat suku* – Lands which are owned by all members of a tribe. The authority over such lands is held by the *penghulu* of the tribe.
- *Ulayat kaum* – Lands owned by all members of a society along a matrilineal lineage. The authority over such lands is held by the *mamak* (the eldest uncle of a matrilineal lineage) of the first heir.

The explanation above is relevant to Figure 2, which states that:

<p><i>Sekalian nego hutan tanah baik jirek nan sabatang jirek, baik rumput nan sahalai batu nan sa incekan ka bawahnyo sampai takasiek bulan ka atehnyo, membumbung jantan, pangkat penghulu punyo.</i></p>	<p>All that grows on the ground, starting from the stem or a blade of grass or a piece of rock, both in the earth and on the earth, all belongs to the <i>penghulu</i>. (Dewi, 2010)</p>
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Furthermore, Syahmunir and Miko (2000) asserted that this maxim illustrates the authorities of the societies, tribes, and *nagari*s over the *ulayat* lands, and that all above and below the ground also constitutes an asset of the traditional communities.

### Utilisation of *ulayat* lands

Dewi (2010) states that when land is used by someone who is not one of the local indigenous people, the following saying applies, '*jua indak dimakan bali, gadai indak dimakan sando*' (no land may be sold or by other means be owned by anyone outside the local indigenous community; the members of the indigenous community are allowed to use, manage, and harvest the fruits of the land). This traditional rule is also distilled into the proverb: *hak yang perpunya, harta yang memiliki, hak yang tergantung, milik adalah masing-masing* (everyone has equal right to everything that is provided by nature).

Perpatih Nan Tuo (1999) explains that the rule that prohibits the sale of *ulayat* land is closely related to the moral teachings of the traditional Minangkabau society, namely that a good person is one who acts responsibly for the next generation. Soewandi (2004) also comments that the relationship between the traditional Minangkabau society and its *ulayat* lands can never be severed and acts as a symbol of public welfare that guarantees posterity through the establishment of agricultural lands and rice fields. This situation is illustrated, according to Dewi (2010), in a Minangkabau saying: '*Lading nan babintalak, sawah nan bapamatang, adalah pasak kungkung alam Minangkabau*' (rice fields are the boundaries of the Minangkabau land).

Furthermore, Soewandi (2004) notes that people outside the *nagari* who intend to use the *ulayat* lands are subject to the rules derived from the following maxim (Figure 2): '*Silih jariah dibayarkan, adat diisi limbago dituang*'. That is, anyone who wishes to use *ulayat* land, whether it is *ulayat nagari, suku, or kaum*, must give some money as a sign that he really intends to use the land. When the tenure has ended, the land must be returned to the community, based on a traditional rule embodied in this maxim (Figure 2): '*kabau tagak, kubangan tingga, pusako pulang ka nan punyo, nan tabao sado luluak nan lakek di badan*' (outsiders may seize the fruits from using the land, but the rights to the land must be returned to the indigenous people). The owners of *ulayat* lands cannot be deprived of their rights, but itinerant tillers of such lands can enjoy their benefits. (Dewi, 2010).

### The boundaries of communal land

Navis (1984) refers to a *tambo* that the authority over *ulayat* lands was established when the ancestors of certain indigenous peoples cleared up new lands that had not been previously used. Since they cleared the land for the first time, and established farms and rice fields on it, they accordingly possessed the rights to the land. The authority over the land was subsequently bequeathed to the following generations according to a matrilineal lineage, and thus the land was called an *ulayat* land. The pioneers who cleared new lands would therefore own large swathes of *ulayat* lands. The boundaries for *ulayat* lands claimed by the different groups were usually marked by trees, rocks, wooden stakes or bamboo shoots. These served as the boundaries of ownership for each of the communities or tribes as manifested in the adage (Figure 2): '*Ka rimbo balanjuang, ka sawah balantak batu, ka lawang tareh, ka bukik baguliang*'



**Figure 2** The model of natural resource management in *adat* teaching – Source: Susi Fitria Dewi (2010) 'Oral Tradition in the Study of *Ulayat* Land Dispute in West Sumatra' in *Wacana: Journal of the Humanities of Indonesia*.



*aie, ka lurah baanak sungai, air baririk, parik nan tarantang* (forests, fields, valleys, hills, rivers, bamboo and trenches are the boundaries of the *ulayat* lands). The laying of these boundary markers is designated by the *mamak* of the first heir or the traditional leader (Dewi, 2010).

## Harvesting on communal land

Tuah (1989) states that the proceeds from harvesting communal land must follow the rules contained in the maxim, *'Ka sawah babungo emping, ka rimbo babungo kayu, ka tambang babungo ameh'* (harvest fruits from the fields, harvest timber from the forest, and harvest gold from the mines) (Figure 2). The *penghulu* receives financial benefit from the family or community group that has worked on the communal land as he controls the land, identifies its boundaries and provides the authority to harvest the land. Wooden stakes usually mark the boundaries of communal land for agriculture, farming and/or mining areas. Once the lands are cleared, the production rate is then governed by customary law.

Naim (1984) explains that the *ulayat* system is used for economic reasons and serves the following purposes:

- as a legacy from the ancestors who were the founders of the *nagaris* (this has both a historical and a supernatural component);
- as an inherent right to use the land and its natural resources (a characteristic of social justice); and,
- as a means of posterity for future generations (a characteristic of sustainable development).

## Islamic teachings on forest management

Deen (1990) states that the relationship between man and nature includes both conquest and exploitation. He declares that the construction of development is a primary aspect, yet the relationship with nature will always include meditation, contemplation, and enjoyment of its beauty. As recounted by his paternal cousin Ibn Abbas, the Prophet savoured the view of the greenery and streams of water. Deen (1990) also refers to the verses in the Qur'an regarding the earth, finding strong evidence that it is essentially a place of peace and a resting place for mankind:

*'Is not He [best] Who made the earth a fixed abode, and placed rivers in the folds thereof, and placed firm hills therein, and hath set a barrier between the two seas? Is there any God beside Allah? Nay, but most of them know not!'* (Surah 27:61)

He further explains that the earth is essential to the concept of reciprocity. Man is made of two components of the earth: dust and water.

*'And Allah hath caused you to grow as a growth from the earth, And afterward He maketh you return thereto, and He will bring you forth again, a [new] forthbringing. And Allah hath made the earth a wide expanse for you. That ye may thread the valleyways thereof.'* (Surah 71:17–20).

According to Deen (1990), the word 'earth' (*ard*) appears twice in small quotes and 485 times in the Qur'an, proving its importance. Faruqi and Faruqi (1986) in Khalid (2002) mentioned the following view:

*'Its (nature's) goodness is derived from that of the divine purpose. For the Muslim, nature is ni'mah, a blessed gift of Allah's bounty... to transform in any way with the aim of achieving ethical value... Since nature is Allah's work, His ayat or signs, and the instrument of His purpose which is absolute good, nature enjoys in the Muslim's eye a tremendous dignity.'*

Furthermore, Khalid (2002) linked this with a passage in the Qur'an, which says:

*'Allah sends down water from the sky and by it brings the dead earth back to life. There is certainly a sign in that for people who hear. There is instruction for you in cattle. From the contents of their bellies, from between dung and blood, We give you pure milk to drink, easy for drinkers to swallow. And from the fruit of the date palm and the grapevine you derive both intoxicants and wholesome provision. There is certainly a sign in that for people who use their intellect. Your Lord revealed to the bees: "Build dwellings in the mountains and the trees, and also in the structures which men erect. Then eat from every kind of fruit and travel the paths of your Lord, which have been made easy for you to follow". From inside them comes a drink of varying colours, containing healing for mankind. There is certainly a sign in that for people who reflect.'* Qur'an (16: 65–69)

Khalid (2002) asserted that Islam regards the universe we inhabit as a sign of divine creation. It is derived from one single source and is bound by one goal – to serve God. Binding the cosmic to the subatomic is the deepest ecology in Islam, but this cannot be equated to a relationship such as that which we see in the food chain, which is eventually dominated by mankind. While the primary relationship is between the Creator and the resting place for his creations, the Creator established as an addition between this resting place and mankind, his creations, which in the Qur'an is defined as: 'It is He Who created everything on the earth for you...' (2:28); 'We did not create heaven and earth and everything between them as a game...' (21:16); 'We did not create heaven and earth and everything between them to no purpose' (38:26); '... He wanted to test you regarding what has come to you...' (5:48).

Khalid (2002) explains that the view of the Qur'an is that everything on the face of the Earth was created for man. Those are the blessings of God for us, but those are gifts with specific provisions, and they certainly do not come to existence by itself. The earth is a test for man to ensure actions of kindness, or charity, in the broadest sense. Believers are to live a life acceptable enough before God, to strive in everything done to maintain the harmony within mankind and with our environment.

Furthermore, Khalid (2002) mentioned that the interaction of Islam (*Shari'a*) with the environment is a manifestation of Islamic rules and institutions, namely:

The principles of legislation:

- God is the owner of the Earth and everything in it. The people protect the land to reap its rewards, to exploit only its value. This is a restriction on public property.
- Abuse of such rights is prohibited and punishable.
- The rights to profit from natural resources are held by the public.
- Utilisation of rare resources is controlled.
- Public welfare is protected.
- Benefits are guaranteed and damages must be reduced or eliminated.

Institutions:

- People who claim unused land (*mawat*) for their sustenance possess property rights.
- A land fee (*iqta*) may be levied by the State for reclamation and development purposes.
- Land can be rented (*ijara*) to be harvested by the State for reclamation and development purposes.
- Protected areas (*hima*) can be designated by the State as conservation areas.
- The State may designate a region that should not be interfered with (*harim*) through the use of restrictions or limitations. Such a region is usually a water source or an area considered to have certain public functions that must be protected.
- Mecca and Medina are sacred areas (*al-haramain*) where trees should not be cut down and animals are protected from criminal acts.
- Endowed lands (*waqaf*) may be developed for the purpose of conservation.

According to al-Gain (1994) in Cisse (2008), the interaction of *Shari'a* with the environment is defined by Khalid as 'institutions' and includes conservation areas, water resource allocation, and conservation of wildlife.

Cisse (2008) also noted that referring to such discussions, the protection, conservation, and development of environmental and natural resources becomes the religious mandate of all Muslims, to be conducted accordingly. This commitment is borne in the responsibility of each individual, in the presence of God, to protect themselves and their communities.

Furthermore, he mentions that Muslims must:

- not be wasteful in the consumption of natural resources
- not conduct actions that are against the law or damage any component of nature
- not damage, misuse, or distort natural resources or the environment in any way
- sustainably develop the earth, its natural resources, its elements and the phenomena of increasing natural resources, and maintain the protection and conservation of natural resources, in the form of reclamation, rehabilitation, and land and water purification.

He adopted the above from the command of Allah:

*'Do good, even as God has done you good, and do not pursue corruption in the earth. Verily God does not love corrupters.'* (Qur'an 28:77)

*'And do not follow the bidding of the excessive, who cause corruption in the earth and do not work good.'* (Qur'an 26:151–152)

Meanwhile, Deen (1990) said that Muslims wholeheartedly pay alms (*zakat*) to the poor, for they know that if they fail to do so, it will result in their breaking of *Shari'a* law and they will be held ethically responsible. Further, people who manage to avoid the legal consequences of a mistake cannot avoid the ethical consequences, and they know this. Even if a Muslim hunter can shoot elephants without impunity and avoid national park rangers, based on the teachings of Islam to protect, he knows that he cannot escape the supervision of the Lord. Muslims realise that all the values of Islam are based on what is loved and required by God, 'And when he turns away (from thee) his effort in the land is to the make mischief therein and to destroy the crops and the cattle; and Allah loveth not mischief' (Surah 2:205) (Deen, 1990).

Deen (1990) believes that Islamic ethics are not based on the isolation of individual virtues, such as honesty or kindness. Instead, Islamic virtues are elements of a total, comprehensive way of life that serves to guide and control every human activity. Its actual nature is manifested in the ethical values, such as the protection of life, the conservation of the environment, and sustainable development, limited by what God has established. Deen (1990) said that the verses in the Qur'an contain no separation of ethical values. Instead, these values contain directives to lead a thoroughly comprehensive way of life: political, social and economic principles to develop and preserve the Earth.

## Integration of traditional and Islamic teachings in the management of natural resources, including the forest

### Integration of traditional and Islamic teachings in the norms

The theory describing the interaction between Islam and tradition relates to the *receptio in complexu* theory posited by van den Berg and others during the Dutch colonial era (Warman, 2010). This theory states that the laws of each indigenous people are distilled from the laws of the religion they profess. That is, if an indigenous people adhere to Islam, the customary law will then be based on Islamic law (Warman, 2010). This theory received opposition from many scholars at the time, such as Piepers, Snouck Hurgronje, Ter Haar, and van Vollenhoven. According to Mahadi (1991) in Warman (2010), Piepers asserts that customary law was born from the development of the indigenous people themselves, and religious (Islamic) laws were only supplementary.

Snouck Hurgronje also argues the same, in that religion has a major influence on indigenous peoples as regards to their beliefs and spirituality. Therefore, religious laws only exist in family laws, marriage laws and inheritance laws. Van Vollenhoven stated that the relationship between tradition and Islam should be viewed first throughout the early history of Islam in Arabia, which witnessed a struggle between the Umayyadic Mecca and the Islamic Medina. A compromise was established between these indigenous groups and the Muslims, which remained valid as Islam spread outside of Arabia to Asia, Africa and all the way to Indonesia. The results of this compromise between tradition and Islam take the following form: governance and administration of public order and criminal laws refer to customary law, while religious life, family laws and inheritance laws, as well as religious foundations, refer to Islamic laws. Therefore, Djodjodigono (1958) asserts that customary law consists of elements that are inherently traditional, and elements that are derived from religion.

Furthermore, according to Syarifuddin (2001) in Kurniawarman (2010), Islamic laws allowed for the absorption of traditions. The same happened in Indonesia, as with the development of Islamic laws in Arabia, where the existing social norms (*muamallah*) are referred to as traditions. At that time, Islam introduced Shari'a norms that also regulated social life. In fact, not all of the traditional norms contradicted Islamic values; some were even absorbed into Islamic law. Such absorption occurred through a selection based on the benefit principle, as dictated by Qur'anic Revelation. Based on this selection, Syarifuddin further divided traditions into four groups (characters):

1. Old customs that are filled by elements useful both in substance and in implementation. In this case, the traditions are accepted by Islam, for example: *Diyya* (blood money), paid to the family of a murder victim. Before the arrival of Islam, this norm had been very much alive, and afterwards customs such as these were absorbed into Islam.
2. Customary law containing elements that are useful but not implemented properly. For example: *Zihar*: the moment when a husband refers to his wife's back as his mother's back, which in effect is an act that breaks the bond of marriage. In this case, Islam accepted *zihar* but changed the rules so that it no longer leads to the banning of a sexual relationship between the husband and wife, nor did it cause the breakup of the marriage. If the husband and wife wished to resume their sexual relationship, the husband must pay *kafarah* (a religious penalty due to violation of an Islamic law).
3. Old traditions that contain elements that are bad in substance and in implementation. For example: usury, gambling and drinking alcohol. These were practiced in Arabia before Islam and then rejected afterwards.
4. Traditions that have no bad elements and are not rejected by Islam but were not absorbed into Islamic law. There are many examples of this and they are frequently discussed by

*ulamas* (Islamic religious leaders). In general, according to Imam al Sayuthi (a revered Islamic scholar born in Egypt, in 1445 AD), customary law in this context is considered to be a legal matter.

Based on the above explanation, Islam and local traditions continuously interact with each other in society. Furthermore, the possibility of interaction between these traditions and Islam, based on absorption at various levels in society, may extend to the level of legal pluralism.

The Minangkabau accepted the collectivity of indigenous tradition as a standard of the members of the *nagari*, whose membership is based on both their matrilineal lineage structure and their membership to the *ummat* (community) as followers of Islam. These two elements were of paramount importance in shaping the identity of the Minangkabau. The closeness of the relation between their traditions and Islam cannot be separated, as embodied in the maxim, '*adat basandi syarak, syarak basandi kitabullah*' (traditions are based on Islamic laws, and Islamic laws are in turn based on the Qur'an). Many indigenous peoples of Minangkabau also identify this tripartite authority with the identity of the State, as embodied in the maxim '*tali tigo sapilin*' (three intertwined lengths of rope) or '*tungku tigo sajarangan*' (three shafts of a kiln), referring to the types of authority that are bound in peaceful terms, although they are actually the result of a long history that can be traced back to the Padri War in the 19th century.

Agus (2007) asserted that the spread of Islam in Minangkabau has not altered the community's values, perspectives, and principles. In fact, Islam has been integrated into the traditions. Furthermore, Agus described the integration of these values as follows:

1. *Alam takambang jadi guru* (nature becomes a source of inspiration) as the foundation for the principles in local tradition that are consolidated into *sunnatullah* (the signs of God) in Islamic verses. This value signifies that man should strive to be integrated with nature and society.
2. Traditions that emphasise nature as a source of inspiration (*alam takambang jadi guru*), sense and feelings (*raso jo pareso*), and truth and decency (*alua jo patuik*). The values contained in these traditions reinforce a reliance on, and a cultivation of, personal senses, the mind, and feelings for nature and society. Islamic teachings order the *ummat* to use their eyes, ears and heart to further the orders and commands God gives to mankind. Islam, or God's commands, emphasise faith, Shari'a, *Tasauif*, and a comprehensive framework for thinking about the facts of life. This approach is called integration, or *Tawhîd*, in Islam.
3. The responsibility of the *mamak* (the eldest uncle in the matrilineal lineage) is as strong as the responsibility of a father to a child. The matrilineal system is further strengthened, along with with the patrilineal system based on Islam, begetting the current bilateral system.

### Integration of traditions and Islam into local institutions (*nagaris*)

Hamka (1984) notes that after the arrival of Islam in Minangkabau, its impact was profound and active, greatly influencing the traditional Minangkabau society and culture. Hamka further states that the evidence of the integration of traditions and Islam in Minangkabau, especially in institutional terms as narrated in its history, were as follows:

1. The first *Pagaruyung* King who embraced Islam was King Alif. He was given the title 'King of Nature' at the Pagaruyung Palace or *Istana Balai Jangga*. In addition to King Alif, there were two other kings, namely the King of Tradition in Buo who took care of traditional affairs, and the King of Worship in Sumpur who took care of religious affairs. They were collectively called *Raja Tiga Sela* (the Trinity of Kings), who were assisted by the *Besar Empat Balai* (Four Officers): Bandahara in Sungai Tarab, Makhudum in Sumanik, Indomo in Suruaso, and Tuah Qadhi in Padang Ganting. Therefore, the central government in Pagaruyung integrated Islamic (religious) affairs with traditional affairs.

2. Each *nagari* lives by its own traditions. The *nagaris*, prior to the Dutch colonial era, were small, independent states that held autonomous control of their respective areas. The *Pagaruyung* Kingdom merely acted as the protector of values and dignity (the banner bearer) from external threats. These *nagaris* had full independence, governed by a consortium of *ninik mamak* or *penghulu andiko*. The *ninik mamak* also acted as a priest and religious scholar in the governance structure of the *nagaris*. If the *penghulu andiko* bore a *pusako* (secular) title, for example *Datuk* Marajo, he must also use a title reserved for religious leaders, such as *Imam* Marajo, *Khatib* Marajo, *Kari* Marajo, *Faqih* Marajo, or *Labia* Marajo. This signifies that these politically independent and autonomous *nagaris* in Minangkabau had integrated both Islam and their own traditions into their governance system.

### Integration of Islam and traditions in the land authority system and management of natural resources, including forests

Benda-Beckmann (2001) mentioned that throughout the Minangkabau history, the issue of inheritance and rights to land or natural resources, in particular the conflict between traditions and Islamic teachings on such matters, was prevalent. At the beginning of the Dutch colonial era, Minangkabau traders specifically stated that inheritance should be based on Islamic teachings. Islamic laws regulated that inheritance be passed on to posterity according to a patrilineal lineage. Advocates of puritan Minangkabau custom accepted the changes in the social organisation and inheritance in nuclear families as changes under the customary law.

In the 1950s and 1960s, meetings were held involving Minangkabau traditional leaders, Islamic leaders and politicians, to discuss this issue. The result was the cartelisation of inheritance – earned assets (assets acquired from the nuclear family) were to be inherited based on *faraidh* (Islamic inheritance law), and sacred assets (assets derived from matrilineal lineage) were to be inherited based on customary law. Furthermore, Benda-Beckmann mentions that in 1968, the Indonesian Supreme Court stipulated that earned assets were no longer inherited according to customary law but instead to Islamic law, and from then on a new set of customary laws concerning inheritance and rights to land and natural resources (*ulayat* rights) have been enforced. As such, there is consensus on the control of land and natural resources, whereby assets and lands acquired from the nuclear family categorised as 'earned assets' (*pusako randah*) are inherited according to Islamic laws, while the land or the sacred assets (*pusako tinggi*) continue to be inherited through the matrilineal system, according to customary law.

## Case study in Nagari Guguk Malalo

### Overview of Nagari Guguk Malalo

Nagari Guguk Malalo is located in Batipuh Selatan District, Tanah Datar Regency, West Sumatra Province, Indonesia. It shares its border with two districts, Padang Pariaman in the west and Solok Selatan in the south. In addition, Nagari Guguk Malalo is bordered by Nagari Padang Laweh Malalo in the north, by Lake Singkarak in the east and the hills of the Bukit Barisan from the west. Nagari Guguk Malalo has three *lorong* (villages): Koto Duo, Baiang, and Guguk.

Nagari Guguk Malalo features a landscape of lush rice fields, settlements, agroforestry and forest, with an altitude of 500 meters above sea level and an average temperature of 23°C. Most of the villagers work as rice farmers and fishermen, with some serving as traders in local markets, artisans, entrepreneurs, and government officials.

### History of Nagari Guguk Malalo and natural resource rights

The history of Nagari Guguk Malalo is contained in its *tambo*, which is preserved from generation to generation.<sup>2</sup> According to *Datuk* (Chief) Rangkayo Endah, the villagers' ancestors migrated from Nagari Pariangan. The migration was due to its growing population and the difficulty of converting its hilly land for agricultural and residential purposes. Thus, to adequately meet these needs, people needed to migrate as depicted in a traditional proverb, *Di lalui basintak naik di bumi basintak turun* (people must look for new lands to live in or occupy, as their place of origin can no longer sustain the people's daily needs).

A people's migration to open new farmlands and residential areas initiates the development of a *nagari*. As such, Nagari Guguk Malalo began with *manaratak* (travelling across the forest in search of a suitable place to live). At that time, the



ancestors of the Malalo people rested at a place that was subsequently called *Bahiang*, taken from the Sanskrit word meaning 'a place of rest'. From this *bahiang*, the ancestors saw an expanse of water, which they referred to at the time as '*nan lauik sedidih*' (little sea), which would later be known as Lake Singkarak. The *bahiang*, which was located on the shore of this lake, produced plenty of fish. However, some did not wish to live in the *bahiang*, preferring hunting and farming over fishing, so they penetrated the forest covering the hills that encircled the lake (and thus they travelled to a new territory). This new territory was also called a *koto*.

Over time, it became necessary to expand both the territories to provide sufficient living space and an agreement was made with due consideration to the interests of both the people of Koto and Bahiang, by the elders (who decided who would be assigned to look for new areas for settlements, and who would stay behind). Out of this expansionary endeavour came three new settlements: Koto di Mudiak, Koto Di Hilir, and Koto di Tengah. Then, the *koto* was further developed into three villages, namely Bahiang, Duo Koto, and Guguk. After the development of these villages, the Nagari Guguk Malalo was then formed.

Originally, the Jambak tribe lived in Nagari Guguk Malalo. Over time, the tribe divided into a number of different tribes to prevent the practise of inbreeding, which was (and still is) prohibited by Minangkabau traditional teachings. Today there are 11 tribes: Muaro Basa, Nyiur, Makaciak, Pauh, Simawang, Talapuang, Melayu, Jambak, Pisang, Sapuluah and Baringin.

Each tribe is led by a *penghulu*, who is assisted by the *ampek jiniah* (a custom and religious official), which also includes the *penghulu*, along with the *manti*, *alim ulama*, and *dubalang*. Tribes are then further divided into clans. A clan is led by a *tungganai*, which is the *mamak*, or elder person in the clan. The lowest level is comprised of the *anak kemenakan*, who represent members of each of the tribes, as well as the *nagari*'s population based on the Minangkabau matrilineal system. Therefore, in order of the lowest to the highest in hierarchy, the levels of customary institution in Minangkabau are as follows: *anak kemenakan*, clan, tribe, and *nagari*.

### Traditional teachings on forest management in Nagari Guguk Malalo

Most of the management of natural resources for agriculture and the *parak* (agroforest) is located in the *ulayat kaum* areas. Only a small part is located in the *ulayat suku*<sup>3</sup> areas. *Ulayat kaum* and *ulayat suku* are territorially closer to the population centres, while the *ulayat nagari* is located further away from habitation centres and is still dominated by natural forests.

The rights to use *parak* in *ulayat suku* and *ulayat kaum* are given to the members of the clans and the tribes, upon approval of the *ninik mamak* from each of the clans and tribes. On the clan level, the right to use *ulayat kaum* land as a

*parak* for the members of the clan comes from the *tungganai*, while on the tribe level, the right is given by the *penghulu suku*. Members outside the clan or tribe (*anak nagari*)<sup>4</sup> that wish to manage the *ulayat kaum* or *ulayat suku* are allowed to do so, on the condition that their intention is known by the *tungganai* on the clan level and by the *penghulu* on the tribal level. All the benefits received from the management of the land are divided, with the majority (one half) given to the owner of the *ulayat kaum* or *ulayat suku*.

Aside from the *parak* pattern of forest management on *ulayat kaum* and *ulayat suku*, there is also the issue of the utilisation of forest products from these areas. Such utilisation involves timber and non-timber resources. Timber products are used under joint consideration of the members of the tribes and clans, with their respective *ninik mamak*, to build houses for members of the tribes and clans, and to build public facilities such as *mushallas*, traditional halls, and other structures beneficial to the community.

The non-timber products from the forest, like rattan and fruit (ie durian and mangosteen), derived from *ulayat kaum* and *ulayat suku*, can be freely exploited by all members of the clans and tribes. These products can also be exploited by *anak nagari* or other villagers with the knowledge of the *ninik mamak* from the clan and the tribe.

The *ulayat nagari* areas, which are characterised by being predominantly natural forest, are used by the community for their timber and non-timber products.

The pattern of management in the *ulayat nagari* consists of the utilisation of timber and non-timber products. The *ulayat* forest of Nagari Guguk Malalo, remains a natural forest, with an area of 2,709 ha. The forest contains a huge amount of natural resources. In terms of timber, there are various types of wood such as *banio* and *surian*. In addition, there are also non-timber forest products, such as rattan, honey, and a wide variety of forest fruits. The *ulayat* forest of the *nagari* is defined as a forest reservation area. The management pattern of the *ulayat nagari* forest allows exploitation by all society members with some provisions, namely:

- The utilisation of timber is prioritised for public places and development needs, such as public halls, *mushallas*, mosques, and others.
- Members of the *nagari* are not allowed to exploit timber from the *ulayat* forest for commercial use or production, except for those serving the needs of the *nagari*'s people, such as constructing a house, *biduk sampan* (a small boat used for a variety of purposes ie transportation and fishing), and other family needs.
- The exploitation of timber from the forest must be approved first by the *penghulu suku* in the *nagari*, and also the *kerapatan adat nagari*.
- Timber harvesting is subject to *bungo rimbo* (timber tax), which is used to meet the needs of the *nagari*.

## Integration of Islamic and traditional teachings in forest management in Nagari Guguk Malalo

Traditional teachings regarding forest management in the *nagari* are widespread. However, these traditions were later based on Islamic teachings that were eventually integrated into the traditional customs. The following are a number of examples of this integration of Islam into local traditions:

### Hima

*Hima*, by definition, is taken from Arabic to describe preserved areas or areas that are protected on an ongoing basis by the community, as well as by the government, and whose extent is unspecified. In Islamic law, a *hima* must meet four requirements, as stated by the Prophet and the Caliphs. Namely it must be:

- decided by an Islamic government
- developed according to the teachings of Allah, for purposes that serve the community's general welfare
- free from issues or problems, ie must not revoke the sources of people's livelihoods
- able to bring tangible benefits to the community.

Although the term '*hima*' is not used in the daily life of the villagers of the *nagari*, these provisions are in effect equivalent to *hima* in terms of forest management through the *ulayat kaum* and *ulayat suku* system. There is no difference from the application of the principles of *hima*, meaning the protected forest area can only be exploited for the common good and should only be exploited to serve the public's interest, such as building mosques, halls, and other public facilities. The enforcement of such norms for the reserve forest, aside from being done by the *penghulu suku*s of the *nagari*, also considers the opinions of the *nagari's* *ulamas* as part of the *orang ampek jiniah*.

### Harim

*Harim* is a piece of land or an area deliberately protected to conserve water sources that may be owned by individuals or groups surrounding the area where the *harim* is located. *Harim* may also be a combination of two types of area: those that are cultivated by the community (*ihya* land) and uncultivated areas or unused land (*mawat* land). In Nagari Guguk Malalo, *harim* is known locally by the term '*kapalo banda*' – areas protected in the interest of the community's access to water sources and to preserve the balance of nature.

Members of Nagari Guguk Malalo also conduct a special ritual to preserve these *kapalo bandas*, namely the *Mambuka Kapalo Banda* ritual, held every December or during the rainy season and rice planting season. The opening of the *Kapalo Banda* ritual is also performed to determine the *plakat sawah* – the *zakat* (tax) based on the yields of rice fields in each community. The ritual procession is preceded by the slaughtering of a buffalo, whose meat is then distributed to the 13 tribes in Jorong Koto Duo, to be cooked at the home of each tribe. After the meat is cooked, the food is then brought on trays to be eaten together. On these trays the *zakat*

boundaries of each rice field that will be cultivated is determined along with the *pegang gadai* (land or rice field lease contract) which pertains to when the land or the rice field will be returned to the owner, and how much the contract will cost.

## Conclusion

The *nagari* is formed by the historical development of traditional Minangkabau society. That is, they are social institutions that formed on their own, without the intervention of the State. The establishment of *nagaris* then gives rise to the creation of social institutions and a multi-layered land governance and management system involving clans, tribes, and the *nagari* as a whole. This system continues to be adhered to today.

Islamic and traditional teachings are integrated into the lives of the Minangkabau and, although the issues of land tenure and inheritance are sensitive ones, the inheritance consensus that differentiates the matrilineal inheritance system from the Islamic inheritance system through the creation of *pusako tinggi* and *pusako randah* domains provides a way to reduce this tension. Overall, local traditions use Islamic teachings as ground rules, as exemplified in the adage, '*adat basandi syarak, syarak basandi kitabullah*', which clearly says that the basis for these traditions is Islamic teaching, as written in the the Qur'an (Shari'a) and *sunnatullah* (*alam takambang jadi guru*: 'nature as a teacher').

Community-based forest management, as practised in Nagari Guguk Malalo, employs local values and traditions via traditional institutions that have been formed over a long period of time, especially by the clans, tribes, and *nagaris*. The clans and tribes are led by a *ninik mamak* and a *penghulu*, while the *nagaris* are headed by a consortium of *penghulu suku*s. Each of these traditional leaderships are aided by the *orang ampek jiniah*, which includes religious leaders and scholars. Such a system demonstrates the integration of Islamic teachings and traditions into the structure of local Minangkabau society. This integration is also reflected in the institutionalisation of forest management practices, ie the *ulayat* reserve forest, which is called *hima* in Islamic teaching, and *kapalo banda*, which refers to the Islamic concept of *harim*.

## Bibliography

- Agus, B (2007). *Islam and the Culture of Minang: A Need in the Future, in Minangkabau in the Intersecting Generation*. Padang, Andalas University.
- Von Benda-Beckmann, F & von Benda-Beckmann, K (2001). *State, Religion and Legal Pluralism: Changing Constellations in West Sumatra (Minangkabau) and Comparative Issues*. Halle: Max Planck Institute for Social Anthropology.
- Von Benda-Beckmann, F & von Benda-Beckmann, K (2001). *Identity within Dispute in Minangkabau, in the Identity Confusion: Religion, Ethnicity, Citizenship at Era of Post-New Order*. Jakarta, Max Planck Institute for Social Anthropology.
- Cisse, T (Cheikh Amadou Tijaan) (2008). Islam, the Environment and the Use of Vetiver Grass. Available at: [www.vetiver.com/SEN-cisse2.pdf](http://www.vetiver.com/SEN-cisse2.pdf)
- Contreras-Hermosilla, A & Fay, C (2005). *Strengthening Forest Management in Indonesia through Land Tenure Reform: Issues and Framework for Action*. Washington DC, Forest Trends and the World Agroforestry Center.
- Deen, Mawil Y Izzi (1990). *Islamic Environmental Ethics, Law, and Society in the Ethics of Environment and Development*. London, Bellhaven Press.
- Dewi, S F (2010). Oral Tradition in the Study of Ulayat Land Dispute in West Sumatra. *Wacana*, 12, 70-84.
- Effendi, N (2007). *Minangkabauness and the Nagari Position in Social Change: Between Pluralism and Participatory Development in Minangkabau in the Intersecting Generation*. Padang, Andalas University.
- Hamka (1984). *Islam and Adat in Minangkabau*. Jakarta, Pustaka Panjimas.
- Kahman, H, Firmansyah, N & Prabowo, W (2011). *Local Government Regulation and Tenure of Adat Peoples: A Case Study in Palopo, Donggala, Tanah Datar and Pesisir Selatan*, Jakarta, HuMa.
- Khalid, F M (2002). Islam and The Environment, *Encyclopedia of Global Environmental Change*. Chichester, John Wiley & Sons.
- Molnar, A, France, M, Purdy, L & Karver, J (2011). Community Based Forest Management; *The Extent and Potential Scope of Community and Smallholder Forest Management and Enterprise*. Washington DC, The Rights and Resources Initiative.
- Mishra, M K (2009). Sacred Worldview in Tribal Memory: Sustaining Nature Through Cultural Actions. *Language and Ecology* 2, 1-7.
- Padang Legal Aid Team (2005). *Local Wisdom in Natural Resource Management: Future Observations on Nagari Property (Report)*. Padang, Padang Legal Aid/Indonesian Legal Aid Foundation and TIFA Foundation.
- Rianse, U (2010). *Agroforestry: Social and Economic Solution in Forest Resource Management*. Bandung, Alfabeta.
- Warman, K (2010). *Agrarian Law in A Plural Society: The Dynamic Interaction of Adat Law and State Law in West Sumatra*. Jakarta, HuMa, Van Vollenhoven Institute and KITLV.

## Footnotes

- 1 Further, I Ketut Irawan at <http://ketutwirawan.com/teori-receptio-in-complexu> states the 'receptio in complexu' theory posited by van den Berg as follows: 'As long as it cannot be otherwise proven, according to this theory indigenous laws follow the religion of the people, as when a community embraces a faith, they must as well follow the laws of the religion steadfastly'. Should there be any deviations from the religious laws they embrace, these will be considered as deviations or exceptions from the religious laws that have been received in their fullness ('in complexu gerecipieerd'). Based on this theory, van den Berg describes customary law as consisting of religious laws and the deviations thereof.
- 2 The inter-generational transfer of customary knowledge is conducted verbally, through traditional proverbs, aside from the *tambo* of the *nagari* itself.
- 3 This proverb means that people look for new lands to occupy because their traditional lands can no longer sustain their daily needs.
- 4 Interview with Chan Malalo (leader of the Guguk Malalo Youth Group).
- 5 *Anak nagari* refers to people outside the tribes and clans who also share the *ulayat* land concerned.





# Chapter IV

## Part III – Religious Leaders and Their Role in Local Forest Management

A Case Study in Nagari Guguk Malalo

Feri Rolis and Rudi Febriamansyah



A local religious leader participating in a DI replanting activity. Photograph courtesy of the DI project.

## Introduction

Religious figures can make a significant contribution towards locally-based forest management due to their respected positions within society. These roles can have a positive direct or indirect impact towards forest conservation, particularly within a society that has maintained a strong sense of local tradition and religious faith.

The Minangkabau (or Minang) ethnic group in West Sumatra Province is considered one of the most Islamised groups in the Malay world (Abdullah, 1985; Manan, 1984) with their famous philosophy '*adat basandi syarak, syarak basandi kitabullah*' (traditional customary law is the application of Islamic teachings or rules). In the Minang culture, the *ulamas* (Islamic religious figures) form an important part of a *tungku tigo sajarangan* (tripartite leadership), along with the *ninik mamak* (matrilineal clan leader) and the *cadiak pandai* (scholar).

Many social scientists have identified the significant roles played by religious figures in Minangkabau society, especially as a reference in determining the moral standard (Beckman & Beckman, 2001; Putra, 2008). Following the human ecological perspective that the social behaviour within a society is linked to its physical environment, the roles of religious figures can be identified in various activities that relate to local forest management. For instance, Putra (2008) found that tree-cutting permits for timber extraction in *rimbo larangan* (the sacred forest) are limited to public purposes such as building mosques and public ceremonies, and are issued only with permission from Islamic religious leaders.

One particular Minangkabau community that is dependent on the forest – and exhibits a strong Islamic faith as well as a sense of local *adat* (customary law) in daily practice – is the community in the Nagari Guguk Malalo, Tanah Datar District. The forest area is in the Bukit Barisan Nature Reserve, which is an important watershed area that supplies Lake Singkarak, which, in turn, is used by *PLTA Singkarak* (The Singkarak Electric Power Plant) to provide electricity to both the local population and the neighbouring province of Riau.

Previous governmental approaches in forest development were dominated by a centralised paradigm that largely ignored customary rule or the recognition of traditional ownership in favour of central rule. This paradigm was reflected in Forestry Law No 5 of 1967 and later within Forestry Law No 41 of 1999, which despite maintaining control, permitted indigenous institutions to manage and use forests within their traditional territory.<sup>2</sup>

This chapter discusses the findings of research conducted into the role played by religious figures in forest use and conservation in Nagari Guguk Malalo. This forms part of a Masters degree that was funded by the UK's Darwin Initiative programme in partnership with Andalas University, West Sumatra. This research has reviewed historical literature and data collected from project-supported participant observations and in-depth interviews that were conducted from November 2011 to February 2012. During this time, the site was visited regularly for several days every week and

interviews were conducted with eight religious figures, seven local customary leaders (*ninik mamak* and *cadiak pandai*) and two government officials (the village head and a representative from the District Forestry Agency) in combination with direct participation in daily *parak* (agroforested areas) and paddy field activities in order to observe first-hand how the local community interacts with the forest and its natural resources. Participation in *Jum'at* (Friday) prayers, *Maulud* (Muhammad's anniversary celebration), local village meetings and visits to the sacred graves of influential religious figures, such as Tuanku Limo Pulauh, Haji Yahya and Uwai Ilih, as well as to sacred sites such as Gulang Gulang in Jorong Duo Koto and Pucuk Padang in Jorong Guguk were conducted to observe the people's religious activities. The site where the Battle of Batu Badoro<sup>3</sup> was fought (in what is now Nagari Padang Laweh Malalo) was also visited. In addition to taking field notes, photographs and recording interviews, secondary data gathered from legal documentation taken from both the *nagari* and forestry agencies was analysed.

## Reviews of relevant literature

### The Minangkabau perspective towards nature

The term 'nature' for the Minangkabau people is closely related to the term 'world', providing both tangible and non-tangible meanings surrounding daily life. The 'world' encompasses everything – not only a place to be born, to die, to live and to proliferate, but it also has a philosophical meaning as highlighted in the proverb '*alam takambang jadi guru* (nature is the teacher of mankind)' (Navis 1984:59 in Herwandi, 2005).

The concept of natural resource management within Minangkabau culture is often related to the term '*ulayat*' (communal natural resources) (LBH Padang, 2005). Natural resources are bound into the matrilineal genealogical relations of the Minangkabau people and are considered communal property that must be maintained in order to fulfill the needs of future generations. The Minangkabau also contend that land is not only to be used as a living resource but also as a symbol of their origins and social status (Kosmaryandi, 2005).

The *ulayat* concept is a holistic one that encompasses land, forest, lakes and the sea. In the Minangkabau culture, it is considered a social asset; because *ulayat* lands are allocated from one larger tract of *ulayat* land that has been passed down from their ancestors. Therefore, those with close matrilineal relationships have *ulayat* lands close to one another.<sup>4</sup> It is also an important economic asset to fulfill the clan member's needs (Rochmayanto et al, 2006). This concept acknowledges the principle of conservation and sustainable natural resource use, as written in the following proverb:

<i>Aianyo buliah diminum</i>	The water is allowed to be drunk
<i>Buahnyo buliah dimakan</i>	The fruits are allowed to be eaten
<i>Tanahnyo tetap tinggal</i>	But the land remains
<i>Dijua indak dimakan bali</i>	It cannot be sold
<i>Digadai indak dimakan sando</i>	It cannot be pawned

In sum, the rights of the people towards natural resources applies to their sustainable use, with ownership shared among the entire clan.

In terms of forest management within the traditional community arrangement, the Minangkabau recognise two provisions, *pantangan* (taboo) and *larangan* (prohibition). *Pantangan* is related to the taboo based on cultural and religious values and *larangan* is related to a forbidden attitude or action, which is considered to have a negative impact upon public interest.<sup>5</sup> These prohibitions are both supernatural and religious in origin because of the assimilation between the previous animistic culture and the Islamic culture, which arrived subsequently.

### Religious figures in Minangkabau society

The integration of Islam and customary law (*adat*) in Minangkabau culture has created a *tungku tigo sajarangan* (tripartite leadership) (Manan, 1984) and has shaped cultural practices (Beckman & Beckman, 2001; 2005). Since the 19th century, the *nagari* leadership was comprised of a matrilineal clan leader (*ninik mamak*), religious figures (*ulamas*), and scholars (*cadiak pandai*). However, according to Abdullah (1985), *ulamas* are among the most respected people within the society – more so than the *ninik mamak/penghulu* or government officials. The religious leader is according to the customary proverb, '*suluah bendang*' or 'the lantern in the village.' Historically they played an integral role in studying Islamic law (Shari'a) as a form of guidance for people in spiritual matters that would ensure their salvation in the hereafter as described in this following proverb (Putra, 2008):

<i>Suluah bendang dalam nagari</i>	The lantern in the village
<i>Palito nan ndak namuah padam</i>	The eternal flame
<i>Duduaknyo bacamin kitab</i>	His seat is based on the Qur'an
<i>Tagak marintang pituah</i>	His stand is to give the maxims.

Here we see that the religious figure gives the light of the truth in darkness and that it is he who knows what is allowed and what is forbidden based on Islamic teachings. Therefore, the religious figure is not only important for conducting religious ceremonies, but also determines the moral standard (Putra, 2008). The religious figure also influences a broader area than that of the village leaders, as they span over several *nagari* (Hamka, 1984; Abdullah, 1985; Beckman & Beckman, 2001; Putra, 2008).

### An overview of the study area

Nagari Guguk Malalo is approximately 100 km from Padang, the provincial capital of West Sumatra. According to *tambo* (oral history),<sup>6</sup> Guguk Malalo villagers originated from a place called Kubuang Tigo Baleh,<sup>7</sup> now known as Solok. Because of population growth and the subsequent need for food and new agricultural areas, people moved towards the western side of Lake Singkarak. Minangkabau *tambo* further states that the first settlement was established in Bahiang (place of rest), which was considered the origin of all subsequent settlements and later enlarged to include a nearby forest.

Afterwards, due to the continuing need for more farmland and additional residential areas, new land in the hills were cleared leading to the establishment of *Duo Koto* (or Two Koto Fruits) and *Guguk* (Small Hill). Subsequently, to raise the status of their territory in order to rule it autonomously, these areas were integrated into Nagari Malalo (originating from the Minang word *melalui* which means, 'passed through').

After the end of the Batu Badoro War in the early 20th century,<sup>8</sup> the Dutch government separated Nagari Malalo into two *nagari*s – Padang Laweh Malalo (a place with a large open space) and Guguk Malalo (a small hill which was passed through) – in order to support their imposed coffee planting regime and to avoid the potential for rebellion that could arise if they united into one larger *nagari*. This separation continued through Indonesian Independence in 1945 until 1983 when, based on Law No 5 of 1979,<sup>9</sup> *desa* (village) regions were introduced by the government to uniformly restructure regional governance systems under the control of the central government. As a result, Nagari Guguk Malalo was separated into three *desas* (villages), each led by a *kepala desa* (village leader). After Reformation in 1998, the government enacted Law No 22 of 1999, which provided an opportunity for local autonomy and an adaptation of local customary law within the government system. West Sumatra responded by issuing 'a return to the *nagari* programme' and Guguk Malalo therefore reverted back to its pre-1983 status consisting of three *orong* (hamlets) and being governed by two institutions: the *Wali Nagari* (Nagari Head) as the executive body and the *Badan Perwakilan Rakyat Nagari* (Legislative Board of the Nagari People) as the legislative body.

Based on the *adat* system, Nagari Guguk Malalo categorised itself into '*Kelurahan Lareh Nan Panjang*'<sup>10</sup> as the proverb says:

<i>Pisang si kalek kalek hutan,</i>	The name of the banana in the forest
<i>pisang tan batu ndak bagatah,</i>	the banana with no sap,
<i>samo digulai kaduonyo.</i>	both bananas are cooked
<i>Bodi Caniago inyo bukan,</i>	It is not just the <i>Bodi Chaniago</i>
	system,
<i>Koto Piliang inyo antah,</i>	Nor is it the <i>Koto Piliang</i> system,
<i>samo dipakai kaduonyo</i>	for both of them are used.



Map 1 Location of the study area.



## Demography and socio-economy

A recent survey in Nagari Guguk Malalo showed that there were 1,182 households, 57.8 percent of which are at the working-age level (RPJMD Nagari Guguk Malalo, 2010). The average education level is low, with over half of the population (51.5 percent) either receiving no education or reaching only the elementary stage (Table 1).

## Housing conditions and settlement patterns

The housing conditions in Guguk Malalo comprise non-permanent, semi-permanent and permanent dwellings. Non-permanent dwellings were built mostly before the 1960s with wooden frames and zinc roofing. Semi-permanent dwellings have frames made from a bamboo and cement mixture or a combination of cement and wood with cement floors and zinc roofing, and permanent houses are made of cement with cement frames and cement or marble floors. The houses along the main road are mostly semi-permanent and permanent structures are financed primarily by the donations of relatives who migrated to other areas (such as Bengkulu and Jakarta) in search of gaining valuable experience, furthering their education or finding work<sup>11</sup>.

The settlement pattern in Guguk Malalo is similar to the traditional Minangkabau system, wherein houses are mostly built in the *koto* area. There are different levels of territory. The development of a settlement area begins with a *taratak*, then a *dusun*, then a *koto* and finally a *nagari*, as said in the proverb '*ketek balingka tanah, gadang balingka aua, bataratak badusun, bakoto banagari*' (small territory surrounded with soil, large territory surrounded with bamboo trees). The *taratak* refers to the beginning of a village at some distance from the 'mother' village community and is usually near a forest or pastoral area. A *taratak* becomes a *dusun* if its members increase in number. With the permission of the *penghulu* from the 'mother' village, a small *rumah gadang* (a Minangkabau customary house) with two buffalo horns may be built. A *dusun* is still considered a part of the 'mother' village community until it becomes a *koto*, characterised by a higher density population than a *dusun* with its own customary leadership such as the *ninik mamak* and a *balai adat* (the customary town hall). The *nagari* is the highest

status of settlement area, which needs to meet several conditions according to the following proverb: '*Basasok bajurami, bapandam bapakuburan, balabuah batapian, barumah batanggo, basawah baladang, bakorong bakampuang, babalai bamusajik*' (It must have a border, a graveyard, roads and a place for bathing, houses, paddy and agriculture fields, solidarity among the people, a customary hall and a mosque<sup>12</sup>). In Nagari Guguk Malalo, Jorong Duo Koto and Guguk are categorised as *koto* level settlements. Many high-density, older houses, predominantly made from wood, (including the famed *rumah gadang*), are easily found in this area. In Jorong Bahiang, the houses are newer and moderately spaced, with more houses located along the coastline of Lake Singkarak, which, due to its close proximity to the main road, is now the most populated area.

## Public facilities

Guguk Malalo has one public school, one religious school, eight mosques, one traditional market, one local government health clinic and a sports field. The first elementary school (SD) was built around 1920 but it only served the upper class members of the society until 1973, when it became open to the public through the *SD Inpres* (Presidential Instruction) project.<sup>13</sup> Children are educated in the public school system until they reach the junior high school level, after which they are educated by the religious school until they graduate. Those wishing to continue their education must leave Guguk Malalo, as there is no public senior high school.

## Land and property rights

Most of the land in Guguk Malalo is covered by forest and *parak*<sup>14</sup> (agroforest) containing bamboo, coffee, cinnamon, cardamom, cacao, and various types of fruits. The coffee plant was first introduced by the Dutch in the *Cultuurstelsel* period<sup>15</sup> around the end of the 19th century, which dominated the landscape until the early 20th century. From the 1950s to the 1980s, clove and nutmeg were the preferred crops as during this period the market price was very high. Now, cacao and cardamom are grown as they have become more profitable. Crops are sold either in the Malalo traditional market or directly to merchants. The topography of Lake Singkarak is characterised in ascending order from the lake, as paddy fields, human settlements, agroforested areas until the protected forest is reached.<sup>16</sup>

The land tenure system, according to Minangkabau customary law, is known as *ulayat*.<sup>17</sup> In Guguk Malalo *ulayat* consists of *ulayat nagari* (*nagari* property), *ulayat suku* (clan property), and *ulayat kaum* (property of lineage). All property is inherited matrilineally as stated in the proverb '*Bunta nan bakapiang, panjang nan bakarek, laweh nan bacabiak*', which means that the *ulayat* is divisible according to a genealogical system. The size of the property also depends on how many women there are within the clan: more women means that an *ulayat* will have to be divided between more people. However, 'dividing' does not refer to ownership, rather that their rights are only extended to its use or *ganggam bauntuak*.<sup>18</sup> The *ulayat nagari* refers to properties (mostly forested areas) that have not yet been distributed but still remain under the control of the *ninik mamak* as the representative of the clan, as supported by the proverb:

**Table 1** Education level and occupation of Guguk Malalo (Source: RPJMD Nagari Guguk Malalo, 2010).

Category	Number
<b>Education level</b>	
Uneducated	1,421
Elementary	2,062
Junior high school	307
Senior high school	307
College	135
<b>Occupation</b>	
Agricultural/fisheries sector	733
Carpenter/construction worker	32
Trader/micro-industry/services	143
Government employee	88
Other	56



'mulai dari ilalang nan sabatang, nasi nan sakapa, aia nan satitiak, itu milik ninik mamak' (communal property of the *nagari* belongs to the *ninik mamak*) and, 'sawah bapamatang, rimbo balinjuang, buki diagiah bakaratau' (the hill [forest] has been marked but it has not yet been distributed in detail).<sup>19</sup>

The *ulayat suku* and *ulayat kaum* are managed by the *suku* (members of a clan who are directly related) and *kaum* (a community within the same clan) under the leadership of the *ninik mamak* from each *kaum* or *suku*. This *ulayat* land is mostly agricultural or agroforested – both of which are clearly distinguished by boundaries and have clear ownership.

### Religious facilities and activities

There are eight permanent mosques and 51 *suraus* (structures of worship that are smaller than a mosque) in Guguk Malalo. The *suraus* function as a place to pray and to receive Qur'anic teaching. In ancient times, they also functioned as education centres for teaching activities, such as martial arts. The mosques in Guguk Malalo are used as places to worship, hold public conferences and celebrate large religious ceremonies such as *Idul Fitri* (a Muslim holiday marking the end of Ramadan, the Islamic holy month of fasting) and *Idul Adha* (the Feast of the Sacrifice).

There are also several sacred graves of such religious figures as Tuanku Limo Puluah and Uwai Ilih<sup>20</sup>, which are periodically visited by the community, as well as by people from neighbouring districts and provinces. Sacred graves are important in conducting religious ceremonies, such as the annual *Basafa*<sup>21</sup> and *Mandoa ka Tapat*<sup>22</sup>, held to admire the spirits of these religious figures and to pray. People usually pray for a blessing from the *ulama*'s spirit, as a person who had a close relationship with God, in order to bring good fortune and ease hardships.

### Forest protection

The Guguk Malalo villagers believe that their forest includes land from the *Boschwesseen* pole<sup>23</sup> leading up to the border with Nagari Asam Pulau in Padang Pariaman District. The forest under *ulayat nagari* is categorised as forbidden forest, which can only be used for public purposes. The area located between this pole and the *nagari* settlement is categorised as agroforestry land (*parak*).

The main forest commodities in Guguk Malalo are timber (used to repair houses) and several species of rattan including *manao*<sup>24</sup> (a large rattan) often used as a stanchion for vine crops. In the past, the villagers communally gathered forest timber to build the *rumah gadang*, paid for by the host family, or to erect public facilities such as mosques and a *balai adat*,<sup>25</sup> built and financed communally within the *nagari*. However, since the 1980s, this custom is no longer commonly practised due to tight government regulations<sup>26</sup> that prohibit timber extraction from forests, coupled with the lower cost of buying timber.<sup>27</sup>

The forests not only provide timber and non-timber products but also protect against landslides. This area is particularly at high risk because the village is located at the bottom of an escarpment. Two major landslides have struck the village of Guguk Malalo over the last hundred years, once in 1922 and more recently in 2000, which washed away many buildings and took the lives of several people. Therefore, local people believe that natural disasters will become worse if they do not maintain their forests.

## Religious leaders and their roles in forest management

### Religious leaders in Guguk Malalo

In general, religious figures (often referred to as *ulama*, *imam*, *buya* or *tuanku*) in Minangkabau society are expected to develop the society according to the philosophy '*adat basandi syarak, syarak basandi kitabullah*' (customary framework is an application of Islamic teaching). Based on this understanding, they play a fundamental role in the entire Minangkabau customary system, more so than the *ninik mamak*, whose role is limited to their particular clan or wider lineage group.

The role of all religious figures in Minangkabau is highlighted by the proverb '*Suluh bendang dalam nagari*' (the lantern in *nagari*). The words '*suluh bendang*' mean that the religious figure's duty within the society is to act as a carrier of light, helping to guide people to choose the right path in order to reach happiness in this world and in the hereafter. Thus, in practice, the religious figure's duty is to give guidance about all things related to people's daily activities in accordance with Islamic tenets, including the sustainable management of



**Photo 7** Local religious leader in Guguk Malalo. Photograph by Jeanne E McKay.

their resources. Religious figures not only function as leaders of religious ceremonies, but also provide guidance on a range of social problems or, as 'a medicine for various diseases within the society'.<sup>28</sup>

In Guguk Malalo, religious leaders serve in many different capacities: as an *imam* who leads prayer five times daily; a *khatib*, a preacher who gives the Friday prayer and sermon and teaches community members how to read the Qur'an and Islamic law (Shari'a) or, as a *qadhi*, the person responsible for guiding marriage settlements. In practice, there is no clear distinction among religious figures based on one single function; as often as not, an *imam* can also serve as a *khatib* or *qadhi*. A *qadhi* can also perform the duties of a *khatib* and teach the Qur'an. However, there is one special responsibility that religious figures in Guguk Malalo (and only a few other Minangkabau areas) have: that of a *dukun* (shaman). In this capacity they serve both as indigenous medical practitioners and as providers of protection for people and their property against supernatural elements (such as protecting a shop from bad fortune, praying for a new boat or praying for the protection to those who want to go into the forest) through their mastery of the teachings of the Qur'an.

The religious figures in Guguk Malalo gain their status either through formal or informal religious education. Formal religious education is usually received from *Madrasah Tarbiyah Islamiah* (which provides a high-school level Islamic education) or through an Islamic university. Informal Islamic education can be received through the *surau*, where students learn directly from other *ulama*. However, most *ulama* in Guguk Malalo study in Pariaman, which is about 80 km from Malalo and is known as the centre of *Tariqah Syattariyah* (a Sufi order).

Religious figures in Guguk Malalo are mostly called *ulama*, *buya*, or *urang siak*.<sup>29</sup> They can also be referred to as *tuanku* (my master). Generally the *tuanku* title is given to a religious figure with extraordinary influence, such as in the case of the legendary hero Tuanku Limo Puluah. Some religious figures also bear the title *pakiah*.<sup>30</sup>

Interestingly, another religious title also exists within the Guguk Malalo *adat* structure such as *pandito*. The *pandito*<sup>31</sup> is not a position that is inherited but one that must be chosen from one of the *urang Siak* (people from Siak) within the clan<sup>32</sup>. In *adat*, a clan must have a *pandito* as this position forms part of the required *urang ampek jinih* (four pillars in the clan) which includes: the *penghulu*<sup>33</sup> (or *ninik mamak* leader), the *dubalang* (the security official) and the *manti* (the public relations official).

The *pandito* organises the marriage settlement ceremony within his clan, in addition to arranging the wedding itself with the *pandito* of the other clan. He also performs special duties relating to the *Mambukak Kapalo Banda* (a ceremony to officially open head waters)<sup>34</sup> and is responsible for preparing and distributing meat to all clan members.

*Pakiah* is not a title related to the *adat* (customary) structure, but it is used for someone who has mastered the religious tenets of Islam (although this person may not necessarily serve as the *pandito* in a clan) and it is a title normally given after marriage<sup>35</sup>. However, it is important to remember that the title *ulama* is more of a functional rather than an institutionalised one. An *ulama* can also bear other titles, ie *datuk*, *ninik mamak* (matrilineal clan leader) or *cadiak pandai* (scholar) due to of his wisdom or education. It is also not uncommon for one religious leader to have all of these

**Table 2** Influential religious figures in Guguk Malalo.

Period	Given Name	Traditional	Title	Life
Pre-Indonesian Independence 1945			Angku Musajik	1650's
	Djinang		Pakiah Majo Lelo/ Tuanku Limo Puluah	1730–1930
Post-Indonesian Independence	Muhammad Yunus		Khatib Bungsu/ Uwai Ilih	1835–1952
	Haji Yahya			1900–1974
Post-Reformation Period (1999–now)	Mawardi		Datuak Maliputi	1950–present day
	Mawardi		Datuak Majo Datuak	1938–present day
	Asa'at		Pakiah Bagindo	1942–present day
	Ali Mu'ad		Pakiah Kayo	1939–present day
	Bustami		Pakiah Bandaro	1939–present day
	Aminuddin		Pakiah Bandaro	1959–2012
	Ali Basir		Pakiah Mudo	1975–present day

titles<sup>36</sup>. Thus the opportunity of becoming an *ulama* is available to anyone with sufficient religious knowledge and who also actively encourages the development and nurturing of the Islamic faith amongst the community.

In Guguk Malalo history, there were several influential religious figures (Table 2) whose lessons still influence the community today. Angku Musajik is considered to be the first person to introduce Islam to Guguk Malalo and who built the first mosque. According to local history, he lived to be 150 years old and probably lived from the 17th century until the middle of the 18th century.

Pakiah Majo Lelo or – as he is more commonly referred to, Tuanku Limo Pulauah – is the most respected and influential religious figure, not only in Guguk Malalo but also in neighbouring Limo Pulauah Kota District and within the neighbouring province of Riau. According to local history, he reached 200 years of age (1730-1930) and is credited with initiating the Islamisation of local traditions related to nature and moving them away from the influence of paganism. In particular, he incorporated the Islamic *Al Fatihah*<sup>37</sup> and *Dzikir*<sup>38</sup> within the Minangkabau ceremony of *Mambukak Kapalo Banda*.<sup>39</sup> He also led the people of Guguk Malalo against the Dutch government in the Batu Badoro War (around 1908) in response to Dutch deforestation to build coffee plantations. Tuanku Limo Pulauah was buried in Jorong Duo Koto in Guguk Malalo and his tomb is visited by thousands of people every year.

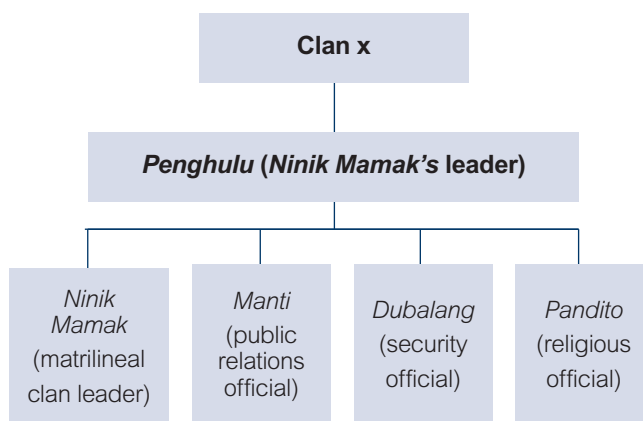
Muhammad Yunus Khatib Bungsu, also known as *Uwai Ilih* (Downstream Grandfather), was a student of Tuanku Limo Pulauah and continued to teach his lessons in Guguk Malalo.

He was most noted for his role in deciding the time for the *Mambukak Kapalo Banda* ceremony in accordance with the Islamic calendar. He was also believed to predict the arrival of rains, therefore calculating the beginning of each cultivating season based on the Islamic calendar. According to his estimations, people believed their paddy fields would receive an adequate water supply and be free of pests.

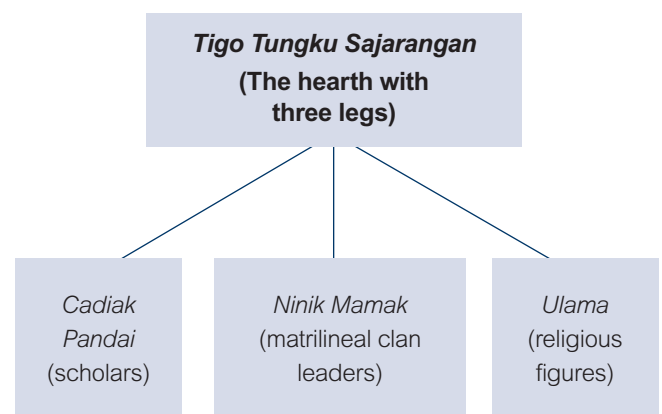
One of most influential religious figures in the post-Independence period was Haji Yahya, the founder of the religious school, Madrasah Tarbiyah Islamiyah in Guguk Malalo. He is particularly remembered for influencing peoples' perspectives towards nature and once said, 'someone who plants trees will gain *pahala* (merit) from God as long as that tree is useful for humans or even birds when they perch in its branches'<sup>40</sup>. He also encouraged people to maintain their irrigation canals as it was considered *sadaqah jariyah*<sup>41</sup>.

Religious figures are considered part of the *tigo tungku sajarangan* (the hearth with three legs) organisational structure, which includes the *ninik mamak* (matrilineal clan leader) and *cadiak pandai* (scholar)<sup>42</sup> and with the exception of the *pandito*, can also serve as a *penghulu* assistant in religious affairs as depicted previously in Table 2. Although religious figures form part of the *tigo tungku sajarangan*, their rank is often higher than the *ninik mamak* and the *cadiak pandai*. This is because in solving problems related to religious matters or even in social and economic matters, they can overrule decisions made by the *ninik mamak* and/or the *cadiak pandai*<sup>43</sup>.

**Figure 4** Structure of clan officials.



**Figure 5** *Tigo Tungku Sajarangan* (Tripartite leadership) formation.



## The roles of religious leaders in community forestry

Religious figures lead religious services during *sholat Jum'at* (Friday prayer), give *dzikir* (praise to the Lord), *ceramah agama* (religious speeches), as well as provide advice on religious or societal problems. Although the *ulama* does not play a specific role or oversee a particular activity regarding forest management, it is implicit within the larger concept of living life based on '*adat basandi syarak, syarak basandi kitabullah*'.

Thus, the interaction between the people of Guguk Malalo and the forest has evolved over time, since before the arrival of Islam, when traditions were predominantly influenced by Hinduism and paganism. The increasing influence of Islam in the 17th century,<sup>44</sup> particularly through the teachings of Angku Musajik, continued to influence this relationship. For example, a tradition in Guguk Malalo that pre-dates the arrival of Islam<sup>45</sup> but was later influenced by it, is the *Mambukak Kapalo Banda* ceremony. The original purpose of this ceremony was to pray for sufficient water supply for their agricultural land and to avoid angering the supernatural creatures thought to live there. The influence of Islam in this ceremony was estimated to have started around the 18th century, with Tuanku Limo Puluah's<sup>46</sup> importation of the *Tawhîd* (the Oneness of Allah) principle and the Islamic prayer spell. Thus, the early Islamic followers of Malalo considered their ancestral ceremony to be reinforced and legalised by Islamic teaching.<sup>47</sup> In the 1960s, Haji Yahya<sup>48</sup> sought to strengthen the foundation of this ceremony within Islamic teaching by issuing a *fatwa* (Islamic guidance), stating that 'as long as the ceremony has a noble aim, unites the community and doesn't break the *aqidah*,<sup>49</sup> it will not be a problem according to Islamic teaching with regards to slaughtered animals and prayer'.<sup>50</sup> Furthermore, he also said that, 'to maintain the irrigation canal is a noble activity, resulting in a reward from God as long as it remained useful for living things'.<sup>51</sup> The religious figures also influenced the perception of local people who saw the forest as a place full of unseen creatures and evil spirits, a view influenced by paganism and animist culture, which shifted to support an Islamic parable that symbolised the forest as the home of a *djinn* (or genie)<sup>52</sup> as a creature of Allah that should be respected:

'... Before the creation of man, God created the *djinn* to govern the earth. They lived in the world, and then damaged it. Then Allah replaced them with humans beginning with the Prophet Adam and the *djinn* was driven from the real world to the unseen (hidden) world, which mostly centered in valleys within the forest.' (Author's interview with Ali Basir Pakiah Mudo, a religious figure from Guguk Malalo)

These religious figures also encouraged people to adopt a positive attitude toward the forest, sanctifying its existence by saying that the forest was always guarded by an angel named *Malin Karimin Tsabita Randa*<sup>53</sup>. This belief was honoured through a prayer given by the religious leaders who blessed the tools and protected those who wanted to enter the forest from animals and unseen creatures. By believing in the presence of an invisible guardian, the people were motivated to respect the forest by not wasting or treating its resources arbitrarily.

Dutch colonial rule in the 19th century influenced both the social structure and the ways in which forests were used throughout Minangkabau territory, including Guguk Malalo. The imposition of coffee plantations brought with it a disruption of the traditional *nagari* system and its leadership structure, by reducing the role of the traditional leaders and replacing it with a new kind of leadership, the *laras*<sup>54</sup>, which also created new kinds of *penghulu*.<sup>55</sup> These positions were created by the Dutch, and eliminated the influence of religious figures, aiding the emergence of religious movements such as the Padri Movement<sup>56</sup> in the early 19th century. Afterwards, at the start of the 20th century, the Dutch also planned to exploit timber from the Guguk Malalo forest for railway construction and coal-mining, triggering the Batu Badoro War.

The Batu Badoro<sup>57</sup> War occurred in 1908 in an area called Rumbai (located in the Nagari Padang Laweh Malalo administrative area).<sup>58</sup> Tuanku Limo Puluah directly initiated and commanded the war against the Dutch for several months. Although it ended in defeat and 15 people from Malalo lost their lives (due to a lack of weapons and military training),<sup>59</sup> it is a striking example of a religious figure using his influential position to directly command a war against foreign exploitation.

Given the lack of documentation available, it is difficult to understand precisely what motivated Tuanku Limo Puluah to start this war and whether the basis was Islamic or a means to help ordinary Malalo people to defend their property. However, considering his reputation as a great religious leader and the heightened understanding Tuanku Limo Puluah had of Islamic teaching, it is hard to believe that the motivation for the war did not also involve an Islamic motivation to prevent damage to nature.

After Indonesian Independence in 1945, forest management fell under the province of the central government through the enactment of Forestry Law No 5 of 1967. This law constrained the activities of the local people and handed authority over to the Forestry Department. This regulation was not accepted by the citizens of Guguk Malalo primarily because their forest was to be included into the Bukit Barisan Nature Reserve. Worried that they would lose the authority to manage their customary forests, they initiated a local custom in 1973 that made it obligatory to plant between 20–50 clove, nutmeg or fruit trees in a *parak* before a couple got married<sup>60</sup>. However, this custom began to disappear after the 1990s as it was not recognised by the government and both the *ulama* and *ninik mamak* found it increasingly difficult to impose it independently under a centralised political regime. Throughout the centralised regime (1966–1999) a massive reforestation movement based on a centralised approach was initiated. In order to create a nature reserve, a lot of reforestation work was required and thus given to the people of Guguk Malalo. However, the approach failed to make a significant impact on the forest because these projects were managed by the Department of Forestry, which was rife with corruption. This programme also ignored the local *adat* and religious institutions. Thus, the religious figures' involvement within this programme was confined to serving as a government official such as the *kepala desa* (village head)<sup>61</sup>.



**Table 3** The important involvement of religious figures in local forest management.

Periods	Cases	Religious leaders involved
Pre-Colonial	Introduction of Islamic values into existing traditions related to forest and ecosystem services such as <i>Mambukak Kapalo Banda</i> and the invisible guardian of the forest.	Angku Musajik (1650s–1800s) Tuanku Limo Puluah (1730–1930)
Colonial	Batu Badoro War (1908)	Tuanku Limo Puluah (1730–1930)
Post-Independence	Strengthening the <i>Mambukak Kapalo Banda</i> and reshaping people's perception of <i>sadaqah jariyah</i> (alms of work) in the forest.	Haji Yahya (1900–1974)
	Obligation for every bridal couple to plant trees.	

## Conclusion

Rooted in the famous Minangkabau philosophy, '*adat basandi syarak, syarak basandi kitabullah*', religious leaders hold a strategic position that is not only influential in a religious context, but also within a wider social context. This belief has been demonstrated practically in the active contribution religious figures have made and continue to make with regards to forest and ecosystem services management, especially in Guguk Malalo. Here, we see that this contribution has existed throughout history during different regimes and government systems. Angku Musajik began the assimilation of Islamic and traditional values that respected the forest in Guguk Malalo. Tuanku Limo Puluah continued to strengthen the Islamic foundation of these traditions, which eventually resulted in him leading the Batu Badoro War in order to protect them. Within the post-colonial period, this effort was continued by several religious leaders such as Uwai Ilih, and Haji Yahya through the exploration of Islamic literature as a basis to strengthen the people's faith in relation to Islam and the forest.

In the Post-Reformation period (1999–present), religious figures were accommodated in government institutions such as the Nagari Legislative Body (BPRN), which provides a wider arena for them to contribute to forest management, such as issuing *nagari* regulations (*peraturan nagari*) to manage the forest through the *nagari* territories. Pertinent to Guguk Malalo, Nagari Regulation No 2 of 2008 directly recognised the rights and management of *ulayat* throughout the *nagari*.

More recently, based on the findings of this research, the Darwin Initiative programme was both welcomed and considered particularly effective, as it provided a clear connection between the environmental teachings of the Qur'an as well as a means to realise them within their community. Therefore, because of the significant contribution religious figures have made to forest protection and its management throughout history and the potential for them to do so both now and in the future, efforts should be made by the Government to promote and utilise Islamic teachings and traditions for conservation purposes and support efforts that reinforce action on the ground.

## Bibliography

- Abdullah, T (1985). Islam, History and Social Change in Minangkabau. In Thomas, L L and von Benda-Beckman, F, *Change and Continuity in Minangkabau: Local, regional, and historical perspectives on West Sumatra*. Ohio, Ohio University.
- Amran, R (1985). *Sumatra Barat Plakat Panjang*. Jakarta, Sinar Harapan.
- Benda Beckman, F von & Benda Beckman, K von (2001). Recreating the *Nagari*: Decentralisation in West Sumatra. Max Planck Working Paper, No 31.
- Benda Beckman, F von & Benda Beckman, K von (2005). The Utopia of the *Minangkabau Nagari* and the Quest for *Adat*. In Miko, A (ed) *Ilmu Sosial dan Pembangunan (70 tahun Prof Dr Abdul Aziz, MA, PhD)*. Padang, Andalas University Press.
- Boyd, J M (1984). The Role of Religion in Conservation. *The Environmentalist*, 4, 40-44.
- Djogo, T (2005). Kepemimpinan Lingkungan (Environmental Leadership) Kelembagaan, Kekuasaan dan Konstituen. In Urgensi Kepemimpinan dalam Pembangunan Berkelanjutan. *Indonesian Journal for Sustainable Future*, 1, 1-28.
- Dobbin, C (1972). *Tuanku Imam Bondjol*. Indonesia 13, 3-35.
- Hamka (1984). *Islam dan Adat Minangkabau*. Jakarta, Pustaka Panjimas.
- Hanani, S (2012) Difusi Ajaran dan Pemikiran Ulama Dalam Sejarah Islam Minangkabau. Available at: <http://ern.pendis.kemenag.go.id/DokPdf/ern-II-03.pdf>.
- Herwandi (2005). Alam Untuk Keberlanjutan Budaya 'Minangkabau: Beberapa Catatan untuk 'Kearifan Lokal'. In *Kearifan Lokal dalam Pengelolaan Sumber Daya Alam: Kekayaan Nagari Menatap Masa Depan*. Padang, Universitas Andalas & LBH Padang.
- Kosmaryandi, N (2005). Kajian Penggunaan Lahan Tradisional *Minangkabau* Berdasarkan Kondisi Tanahnya (A Study of *Minangkabau* Traditional Land Use Based on its Soil Condition). *Media Konservasi*, X, 77–81. Available at: <http://journal.ipb.ac.id/index.php/konservasi/article/viewFile/2211/1236> [Accessed on 27 March 2011]
- LBH Padang (2005). *Kearifan Lokal dalam Pengelolaan Sumber Daya Alam (Kekayaan Nagari Menatap Masa Depan)*. Padang, Insist Press.

- Manan, I (1984). *A Traditional Elite in Continuity and Change: The Chiefs of the Matrilineal Lineages of the Minangkabau of West Sumatra, Indonesia*. PhD dissertation. University of Illinois.
- Michon, G, Mary, F & Bolmpard, J (1986). Multistoried Agroforestry Garden System in West Sumatra. *Agroforestry Systems* 4, 315–338.
- Nurza, R (2007). *Articulation of Islamic Values Towards the Sustainability of Natural Resources Management: A Case Study of Sungai Pisang Community, West Sumatra*. Masters thesis. Andalas University.
- Palmer, M & Finlay, V (2003). *Faith in Conservation: New Approaches to Religion and the Environment*. Washington DC, The World Bank.
- Putra, R (2008). *Peranan Tungku Tigo Sajarangan Dalam Pembangunan Masyarakat Nagari*. Masters thesis, Bandung Institute of Technology.
- ochmayanto, Y Sasmita, T & Jannetta, S (2006). Budaya Minangkabau: Studi Kasus di Jorong Koto Malintang, Kabupaten Agam (Minangkabau Culture: Case study in Jorong Koto Malintang, Agam District). *Info Sosial Ekonomi* (Socio-Economic Info) 6, 281–296. Available at: <http://puslitsosekhut.web.id/download.php?page=publikasi&sub=info&id=86>
- Warman, K (2007). Nasib tenurial adat atas kawasan hutan: tumpang tindih klaim adat dan negara pada aras lokal di Sumatera Barat (Customary tenurial fate in forest areas: Overlapping customary and state claims in local border in West Sumatran). HuMa, Jakarta.<sup>1</sup>
- 7 *Kubuang Tigo Baleh* refers to the traditional story of thirteen clans exiled from the ancient Minangkabau kingdom because of differences in opinion with the king in Pariangan (the ancient capital). These thirteen clans established their villages in new areas, now known as Solok.
- 8 According to the results of several personal interviews, three different years were given for this war: 1904, 1908 and 1910. The war was led by Tuanku Limo Puluah, the most important religious figure in Guguk Malalo to fight the Dutch. According to history, the last massive Minangkabau rebellion against the Dutch was in 1908. Therefore, this war was probably waged in 1908 (Amran, 1985).
- 9 The application of Law No 5 of 1979 was delayed in West Sumatra because of resistance from the Minangkabau community, who believed that the law would destroy their traditional *nagari* governance system. To accommodate this, the Provincial Government of West Sumatra designed a provincial regulation (*peraturan daerah*) that acknowledged the *nagari* as a customary governance unit with the Village Adat Council (KAN) as the representative of the *nagari* community that had the right to manage their *nagari* market and resources. This provincial regulation process was approved and applied in 1983 by *Perda* (Provincial Regulation) No 13.
- 10 There are two ideologies (*lareh*) in the Minangkabau customary system, founded by the two ancient heroes: *Bodi Chaniago* was created by Datuk Parpatiah nan Sabatang and leans towards a more democratic style of governance, and *Koto Piliang* was created by Datuk Katumanggungan and is more autocratic. *Lareh Nan Panjang* is the combination of these two ideologies and is the preferred ideology in Guguk Malalo.
- 11 *Merantau* (migration) is a part of Minangkabau culture for further reading, see Naim M (1974) *Merantau; Minangkabau Voluntary Migration*. PhD Dissertation, University of Singapore.
- 12 The explanation given is mostly adapted from Manan, I. 1984. *A Traditional Elite in Continuity & Change. The Chief of Matrilineal Lineages of the Minangkabau of West Sumatra Indonesia*. PhD Dissertation, University of Illinois.
- 13 Interview with Bainullah, a head of the local legislative body (BPRN) and also an elementary school headmaster, 30 December 2011.
- 14 *Parak* refers to a multi-level agroforestry system in Minangkabau, see Michon et al (1986) Multistoried Agroforestry Garden System in West Sumatra. *Agroforestry Systems* (4) pp 315–338.
- 15 The *Cultuurstelsel* (Cultivation) period (1847–1908) is the period when the Dutch forced the Indonesian people to plant commodities such as coffee, tea and tobacco.
- 16 Interview with Yon Tameri, former *kepala desa* (village head), 12 January 2012.
- 17 *Ulayat* is communal natural resource whose inheritance is based on the matrilineal system.
- 18 *Ganggam bauntuak* is the right given to members of the clan to utilise the land, but the property rights belong to the entire clan. Governance falls under the matrilineal clan leader (*ninik mamak*). Warman et al 2007. *Nasib Tenurial Adat Atas Kawasan Hutan*. Jakarta, HuMa.

## Footnotes

- 1 This chapter is part of the Masters degree thesis submitted to the Programme of Integrated Natural Resources Management, Andalas University under the supervision of Dr Rudi Febriamansyah and Dr Yonariza.
- 2 This forest was considered Minangkabau territory before this law was enacted. According to Minangkabau custom, all parcels of land were considered to have some sort of owner.
- 3 The Batu Badoro battle occurred in the early 20th century between the Malalo people and the Dutch, in protest against the Dutch plan to exploit the forest and impose taxes. The rebellion was led by the religious leader Tuanku Limo Puluah.
- 4 In the Minangkabau culture, the determination of clan membership and property inheritance is based on a matrilineal system. People who live in the same *ulayat* are close family relations. This is because their *ulayat* land was inherited from the same area, indicating that they have the same ancestor.
- 5 An example of this would be cutting trees along the riverside or irrigation canal, which could either cause flooding or break the irrigation canal, affecting the entire community.
- 6 This refers to *nagari* history in RPJMD, 2010 and compilations of several interviews with the following persons: Anwar Bandaro Kayo, a local scholar, 3 December 2011; Mawardi Dt. Majo Datuak, a *ninik mamak* and former head of the Village Adat Council (KAN), 5 December 2011; and Bainullah, a scholar and a retired head master, 30 December 2012.

- 19 Interview with Masrial Akmal, secretary of the Nagari Legislative Body (BPRN), 6 December 2011.
- 20 Uwai Ilih is the religious leader who was appointed by Tuanku Limo Pulauah to continue his tenets in the early 20th century.
- 21 *Basafa* is a *Syattariyah* (one of the Sufi orders in Islam) tradition, held annually in the month of *Syafar* (the second month in the Islamic calendar) to memorialise Burhanuddin, an *ulama* who brought the *Syattariyah* sect to West Sumatra. During *Basafa*, people *zikir* (read the names of God) together in a graveyard as a continuance of Burhanuddin's teaching.
- 22 *Mandoa ka Tampat* is a ceremony that is held mostly after the *Idul Fitri* festival day. In this ceremony, people gather their family and go to a sacred grave in order to pray to the sacred spirit for the blessing of God.
- 23 *Boschwesseen* is the border of protected forest established by the Dutch government in 1926. It is marked by a cemented pole structure and its remains can still be found deep within the forest.
- 24 Manao (*Calamus giganteus*), a large rattan plant.
- 25 Interview with Ali Mu'ad Pakiah Kayo, a religious figure, 26 November 2011; Anwar Bandaro Kayo, a local figure, 3 December 2011; and Datuak Labiah nan Kuniang, a matrilineal clan leader, 2 February 2012.
- 26 Forest Law No 5 of 1967 and up to Law No 41 of 1999 considered the forest and all its resources located in the Republic of Indonesia to be controlled by the government. The consequence of this regulation was that the local people, including those in Guguk Malalo, lost their rights over the forest.
- 27 Interview with Anwar Bandaro Kayo, a former headmaster in Guguk Malalo. 3 December 2011.
- 28 Cahndra, A, Rizal, A R, Erizal, and Ronidin (2000). *Minangkabau dalam Perubahan*. Padang, Yasmin Akbar.
- 29 The term *ulama* originated from the Arabic word, *alima*, which means a person who has Islamic knowledge. The word *buya* possibly originated from the Arabic word *abuya* meaning 'teacher'. The term '*urang Siak*' refers to people from Siak (a region within Riau Province) and possibly reflects the many Islamic teachers who came from this region. Thus it became used for all people who teach and understand Islamic teaching.
- 30 The title *pakiah* originates from the Arabic word *faqih* meaning, 'understands Islamic knowledge'.
- 31 The term '*pandito*' is similar to *pendeta* in Bahasa Indonesia, meaning 'priest'.
- 32 Interview with Masrial Akmal, the secretary of the Nagari Legislative Body (BPRN), 6 December 2011; Ali Basir, a religious figure. 19 January 2012.
- 33 A *penghulu* is a *ninik mamak* a matrilineal clan leader who is chosen to lead an entire clan. In Guguk Malalo the appointment of a *penghulu* follows a *gadang balega* (or honorary rotation) principle, with the *penghulu* title rotated between the *ninik mamak* within the lineage.
- 34 *Mambukak Kapalo Banda* is an annual ceremony based on calculations from the Islamic calendar (in 2011 this ceremony was held two weeks after the *Idul Fitri* festival). It begins with the sacrifice of a cow in a particular place, such as the headwaters, near a forest or a sacred site within the forest believed by local people to be the source of water. Then the ceremony continues as the people work together to sustainably manage the water systems and irrigation canals that flow into their paddy fields. The ceremony finishes in the early evening with the sharing of a meal and a prayer to God to receive His blessings upon the water, to supply enough for the paddy fields throughout the year. The ceremony itself is prepared by religious leaders in the *orong* and mosque institutions, who also determine the date of the ceremony, socialise it within the community and lead the prayers. This ceremony is an example of indigenous water use management, as in the ceremony the headwater is repaired and the rotational system of water use is announced by both *ulamas* and the *ninik mamak*.
- 35 This is a Minangkabau custom reflected in the proverb '*ketek banamo, gadang bagala*' or 'young people are called by name and adults (married people) are called by title'.
- 36 Several interviewees have this kind of double status, such as Mawardi Datuk Maliputi and Mawardi Datuak Majo Datuak, both whom are *ninik mamaks* as well as religious leaders.
- 37 Name of the first *Surah*, a division of the Qur'an.
- 38 The *Dzikir* is the recitation the names of Allah and His attributes. In this ceremony, the *Surah* is repeated 13 times, the *Istigfar* (begging for forgiveness from Allah) is repeated 100 times, the *Sholawat* (a hymn to Muhammad) has 100 repetitions and *La ilaha ila Allah* (there is no god but Allah) is repeated 1000 times.
- 39 Before Tuanku Limo Pulauah, this ceremony used magic spells that were based on animist culture. He inserted the Islamic *Al Fatihah* and the *Dzikir*, and replaced praying to spirits with praying to Allah.
- 40 Interview with Masrial Akmal, Secretary of the Nagari Legislative Body (BPRN) and a relative of Haji Yahya, 6 December 2011.
- 41 *Sadaqah jariyah* is the continuous merit from God that spans the lifetime of the person, as long as the action still benefits others.
- 42 *Cadiak pandai* means scholar or intellectual. In practice, it also refers to a government official.
- 43 There is an interesting case from Guguk Malalo in the 1980s demonstrating the influence of the *ulamas*. The district government encouraged the *Gerakan Koperasi* (Cooperation Movement), which aimed to support a savings and loan with the application of *bunga* (interest). The programme was approved by most of the societal figures, including the *nagari* government, but it was opposed by the religious figures because they considered *bunga* (interest) to be prohibited in Islamic teaching. Thus, the savings and loan unit was cancelled (interview with Mawardi Datuak Maliputi, 6 December 2011).
- 44 The introduction of Islam in Guguk Malalo is based on the arrival of Angku Musajik, who (according to local history) was the first *ulama* to introduce Islam in Guguk Malalo.
- 45 Interview with Masrial Akmal, the secretary of Nagari Legislative Body (BPRN), 6 December 2011.
- 46 The original name of Tuanku Limo Pulauah is Djinang

- Pakiah Madjo Lelo. He is called Tuanku Limo Pulauah, as he spent most of his supposed 200-year life teaching Islam in the Limo Pulauah Kota region.
- 47 Interview with HR Datuk Tumangguang, a religious figure, and also a relative of Tuanku Limo Pulauah. HR Datuk was 87 years old, 26 December 2011.
- 48 Haji Yahya is an *ulama* who originated from Guguk Malalo. He returned there in 1957 and established a religious school in 1967. Before that time, he spent his life in several areas outside Guguk Malalo teaching Islam.
- 49 *Aqidah* is an Arabic word meaning 'faith' or 'belief'.
- 50 Interview with Masrial Akmal, the secretary of the Nagari Legislative Body (BPRN), 6 December 2011.
- 51 Ibid.
- 52 Interview with Ali Basir, a religious figure. 19 January 2012.
- 53 Interview with Aminuddin Pakiah Bandaro, a religious figure and also the leader of the *Syattariyah* sect in Guguk Malalo, 23 December 2011.
- 54 During the Dutch *Cultuurstelsel* period 1847–1908, there was a marked change from the traditional *nagari* system to a *kelarasan* administration. The *kelarasan* is comprised of two *nagari* or more led by *laras*, who acted as representatives of the Dutch government collecting taxes (*belasting*) and forcing people to plant coffee.
- 55 The new type of *penghulu* created by the Dutch such as *penghulu kepala* (*penghulu* head) and *penghulu rodi* (forced labour *penghulu*) never previously existed in traditional Minangkabau culture. They were appointed by the Dutch in order to control the imposed coffee planting programme. See Amran, Rusli. 1985, Sumatra Barat Plakat Panjang. *Sinar Harapan*. Jakarta.
- 56 The Padri Movement was an Orthodox Islamic movement in the early 19th century in West Sumatra, inspired by the Wahhabi Movement in Arabia. This movement created a massive rebellion in West Sumatra, which faced a Dutch military campaign (1821–1837). The Padri Movement was led by the charismatic religious figure Tuanku Imam Bondjol (1772–1864) in Bonjol (the name of an area around 150 km north of the provincial capital, Padang). See Dobbin (1972).
- 57 *Batu badoro* literally means 'the roller stone'.
- 58 There are three versions regarding the date of this war: 1904 (from an interview with Masrial Akmal, 52 years old, on 6 December 2011), 1908 (an interview with Abdul Kusasih Dt. Paduko Sinaro, 102 years old, on 12 November 2011), and 1910 (an interview with Anwar Bandaro Kayo, 79 years old, on 3 December 2011). According to historical records, the last noted rebellion in West Sumatra was in 1908. The Batipuh Rebellion was in Batipuh, the name of a *nagari* about 15 km north of Malalo, probably around the same time as the Batu Badoro War. For further reading on the Batipuh Rebellion, see Amran, 1985.
- 59 According to oral history this war lasted for months, with the people of Guguk Malalo regularly facing the Dutch army and continually preventing their access to the *nagari*.
- 60 Interview with Wali Nagari Herman Sugiarto, 2 February 2012 and Mawardi Datuak Maliputi, a religious leader and the chief of the Indonesian Ulama Council (MUI) Kecamatan Batipuh Selatan, 6 December 2011.
- 61 Interview with A'saat Pakiah Bagindo, a religious leader and also former *kepala desa* (village head), 19 November 2011.



# Chapter IV

## Part IV – Understanding Natural Resource Management in Nagari Pakan Rabaa Timur: A Participatory Rural Appraisal Approach

Jomi Suhendri and Fachruddin M Mangunjaya



The Governor of West Sumatra attending a DI planting ceremony in Pakan Rabaa Timur. Photograph by Yoan Dinata.

## Introduction

Various government development programs have been conducted in numerous regions in West Sumatra, including *nagaris*, administrative regions that are of the greatest influence in Minangkabau tradition. Although these programs have been ongoing for many years, those at the grassroots level generally have not received significant benefits from them. This is often due to a lack of understanding as to the full potential within the *nagaris* regarding existing practices that protect or sustainably use the natural resources available. Considering the abundance of natural resources and local wisdom available, this should not be the case.

Qbar, a local not-for-profit organisation based in West Sumatra, with support from the Darwin Initiative, carried out research to determine the existing local practices – both cultural (*adat*) and religious – in two *nagaris*, Guguk Malalo and Pakan Rabaa Timur, in order to implement a faith-based conservation programme.

This research was carried out using the participatory rural appraisal (PRA) approach, which aims to explore various environmental and sociocultural aspects of life in the area where the research is conducted. Using this kind of approach involves – and subsequently empowers – local communities from the start in the design and implementation of the project and its objectives.

## Research methodology

PRA is a learning method that has been developed to incorporate the opinions and knowledge of rural communities, as well as to help them to share, analyse, and understand their own living conditions, and then make plans for future actions in the form of projects or programmes (Chambers, 1994). By using this approach, the community is also empowered through encouragement and facilitation, to act upon ways to improve their quality of life. Continuous training and mentoring activities were carried out throughout the duration of the Darwin Initiative Project in Guguk Malalo and Pakan Rabaa Timur, from 2009 to 2011. Herein, we focus our attention primarily upon Nagari Pakan Rabaa Timur.

In April 2010, Darwin Initiative used this approach to facilitate a capacity-building workshop for religious scholars and traditional leaders in Padang, entitled 'Implementation of Islamic Values and Natural Resources Conservation in Saving the Forests in West Sumatra'. This was conducted with the aim of collecting the opinions, knowledge and aspirations of the local people with respect to their own natural resource management, and subsequently to incorporate the results within an understanding of Islam and the Islamic management of natural resources in the *nagari* system. The aspects mapped are as follows:

- Socio-cultural aspects: (a) Economic institutions, (b) Political institutions, (c) Systems of ownership and local knowledge, (d) Religions and belief systems, (e) Educational and technological institutions, (f) Social institutions and kinship system;
- Environmental aspects: (a) Flora and fauna (existing and potential), (b) Soil fertility, (c) Residential land availability and development, (d) Vulnerability to natural disasters and weather;
- The traditional application of *Shari'a* in the environment: identifying and examining the linkages between local wisdom and Islamic practices regarding forest and natural resource management.

This identification process was conducted by also referring to the document, 'Islamic Wisdom in Natural Resource Management' (Llewellyn, 2001; Mangunjaya & Abbas, 2009) and the context that prevails among the communities in both *nagaris*. However, here we will focus specifically on Pakan Rabaa Timur.

## Nagari history and general conditions

Nagari Pakan Rabaa Timur is one of the *nagaris* located in the subdistrict of Koto Parik Gadang Diateh, district of Solok Selatan. Geographically, Nagari Pakan Rabaa Timur is located roughly 14 km from the centre of the subdistrict, and about 52 km from the centre of the district of Solok Selatan. Comprising nearly 21,500 ha, it shares boundaries with Nagari Pakan Rabaa Utara to the north and west, with Nagari Pakan Rabaa Tengah to the south and with Iliran Gumanti and Batang Gumanti subdistricts (Solok district) to the east. More than 70 percent of the area is forested, with the remaining 30 percent currently used for residential areas and farmlands. The majority of its residents subsist by farming, planting rice and secondary crops, and foraging. A few also work as civil servants, merchants, and entrepreneurs.

Nagari Pakan Rabaa Timur has highly fertile soil, which is suitable for growing rice, cocoa, rubber, soybeans, and many other high-value crops. In addition, the area is also rich in natural resources, such as iron ore, tin, and gold. Currently there are a number of locations in the *nagari* that have been exploited to mine artisanal iron ore and gold.

Aside from farming, the local people also raise cattle, goats, chickens and ducks. Cows, oxen and goats are released onto the farmlands to graze without any specific supervision. Chickens and ducks are released to feed in the morning and are brought back to the coops in the afternoon. Local farmers still rely on relatively simple farming technologies, such as those that use oxen to till the soil. Farmlands are managed and cultivated with reference to the Islamic calendric system. For example, the people of the *nagari* customarily begin their planting season in the Islamic month of *Rajab*, the seventh month of the Islamic calendar and harvest the crops during the Islamic month of *Shawwal*, or the tenth month of the Islamic calendar.

Crop plantation normally involves a combination of various types of plants on one plot of land, such as shellflower (*Amomum compactum*), clove and coffee. Fertilisers that are used widely are those that are produced traditionally, ie from compost and cattle manure.

Nagari Pakan Rabaa Timur cannot be separated from the characteristic kinship system prevailing among Minangkabau societies, ie the matrilineal system. This fact is further reinforced by the prevalence of the matrilineal system in public conduct, whereby decision-making in the households is indirectly dominated by the females, as is the determination of religion for members of a family.

Under the traditional Minangkabau economic system, women inherit farmlands, houses, and uncultivated lands. However, politically, decisions are made exclusively by the male members of the family, limiting their authority over matters pertaining to these lands. In other aspects, women are more involved in the fulfillment of household economic needs, such as cooking, working in the fields, and planting crops.

## Ownership of land and collective social knowledge system

In general, the land ownership system in Nagari Pakan Rabaa Timur is similar to those applied in other *nagaris* in West Sumatra. Ownership of land is determined by the matrilineal system, so that every child in Minangkabau belongs to the tribe to that their mother belongs to, as opposed to their father's tribe. Women are entitled to land, but the management and utilisation of it is governed by the *mamak* or the head of the heir (the mother's brother).

Any property on the land is considered part of the *pusako tinggi* heritage, which belongs to the clan, so the ownership of such property cannot be transferred to anyone outside the clan. Because children do not share the same clan as their fathers, they cannot inherit possessions from them. As such, inheritances are bequeathed by the *mamak* to their nieces. Men, under the Minangkabau system of kinship, are not entitled to own the *pusako* inheritance; however, they are entrusted as its caretakers to keep it from being sold, thus ensuring the greatest benefit to their kinsfolk.

Umar (2007) explains that the Minangkabau custom of ownership and natural resource management recognises the distinction between *tanah pusako* and *ulayat nagari*. *Tanah pusako* is inherited land that comes into one's possession through the matrilineal system, while *ulayat nagari* is communal land that belongs to all members of the *nagari*. In Nagari Pakan Rabaa Timur, land is used to serve the following purposes:

- Residential areas
- Farmlands
- Plantations
- *Nagari* forest
- Grazing fields
- Bushes
- Water source
- Public facilities.

*Nagaris*, at the forefront in Minangkabau tradition as a governance entity, still acknowledge parts of the forest surrounding the *nagaris* as *ulayat nagari*, which belongs to the entire community. Although in a strictly legal sense, under the Forestry Law No 41 of 1999, *ulayat* rights are not formally recognised, the people in the *nagaris* – supported by the policy of the government – are entitled, in status, to control these areas, as they are awarded the right to manage them.

## Natural resource management from the Islamic perspective

In Islam (Shari'a), there are a number of terminologies that relate to the management of natural resources.

These terms include: *hima* for protected lands, *al harim* for restricted or forbidden lands, *ihya al-mawat* for utilised lands, *iqta* for the leasing of lands, and *wakaf* land grants from an individual for the benefit of the public. (See Chapter I: Islam and Natural Resource Management). Islam is a faith that allows positive cultural customs to continue to thrive.

Moreover, the traditional dimension of *ushul fiqh* is called '*al adat wa al 'urf*' (custom and practice), and has been used as a reference in the determination of Shari'a laws (Rosyadi, 2005). Therefore, through the PRA approach, the researchers strived to identify whether there were similarities between the classic and traditional Shari'a terms for natural resource management practices and the local terminologies used in Nagari Pakan Rabaa Timur. The comparison of terms and the remarks on definitions and terminologies are provided in Table 1.

**Table 1** Shari'a and traditional Minangkabau terminologies applied in Pakan Rabaa Timur in the management of natural resources.

Islamic (Shari'a) Terminologies	Traditional Minangkabau Counterparts	Remarks
<i>Hima</i>	<i>Hutan nagari</i> or <i>rimbo nagari</i> .	<i>Rimbo nagari</i> is acknowledged by the people of the <i>nagari</i> , and may encompass the areas recognised as conservation forest by the government.
<i>Harim</i>	None.	There is no traditional Minangkabau counterpart for the Islamic concept of <i>harim</i> .
<i>Ihya al-mawat</i>	Productive and developed areas.	Areas that have long been utilised by the people, in the form of new plantations and farmlands.
<i>Iqta</i>	Areas licensed by the local government for mining.	For the mining of iron ore, manganese, and gold.
<i>Ijarah</i>	<i>Pegang gadai</i> , or lease contracts of tracts of land entered into by the people.	These contracts must only involve local people, not outsiders.
<i>Wakaf</i>	Lands donated for the greater good or for social or humanitarian purposes as commended by religion.	May only be used to build schools, mosques, and <i>mushallas</i> .

As Table 1 shows, Nagari Pakan Rabaa Timur does indeed carry out a number of practices that can be considered counterparts of certain terminologies in Islam, which are related to the conservation and management of natural resources. These are:

- *Ihya al-mawat*, a term that refers to the utilisation of idle or non-productive pieces of land by conducting reclamation efforts or developing them to be more productive. Idle lands found in Nagari Pakan Rabaa Timur have been utilised by the people through the planting of productive crops, such as coffee, clove, and other species. Few idle lands in the *nagari* remain underutilised for long periods.
- *Iqta*, in Islam, refers to a cultivated land that is loaned by the state to investors or developers latter commit themselves to conduct reclamation efforts on said land. This commitment must be made in writing and is bonding. In Nagari Pakan Rabaa Timur, there are certain areas that are similar to the Islamic concept of *iqta*, namely areas that have been designated by the local government as Class C<sup>1</sup> mining areas, where iron ore, manganese, and gold may be extracted. These areas are situated in Jorong Sapan Salak, an isolated area 11 km from the main street.
- *Ijarah* refers to a lease contract made under the Shari'a system, with the purpose of managing lands owned by the government as well as by individuals. In these land-lease contracts, the duration of exploitation and the purpose of exploitation must be clearly defined. Land-lease contracts of this sort are found in Nagari Pakan Rabaa Timur in the form of what is customarily called

*pegang gadai*, for which the terms are determined by the concerned individuals according to the agreements they make.

- *Hima* is one of the terms used in the traditional teaching of Islam to refer to conservation forest or areas that are continuously protected by the community or by the government, and whose exact area has been previously determined. The counterpart of *hima* found in Nagari Pakan Rabaa Timur is the conservation forest designated by the government. This area comprising 5,000 ha, is well-preserved, barring the existence of certain minor tracts that have been logged illegally. According to the local wisdom of the people, if a conservation forest as determined by government is situated within the *ulayat nagari*, it will still be considered and treated as an *ulayat nagari*. This means that the local people retain the right to maintain and take care of the forest collectively. Furthermore, local people in the *nagari* refer to the forest located in their *ulayat* land as *rimbo* (forest) *nagari* which under their *adat* system, they cannot disturb. This land is also located within the conservation forest designated by the government.
- *Harim* is a land or an area that is specifically protected in order to preserve water sources. *Harim* can be located in the areas belonging to individuals or groups, and thus are included in their possessions. It can also be a merging of two different zones, ie one that is developed by the community (*ihya* land) and a zone that is not developed or idle land (*mawat* land). In Pakan Rabaa Timur, as the rivers are still pristine, there is no piece of land or area that meet the conditions of a *harim*.



- *Waqaf* is a piece of land granted by a Muslim (*Wakif*) as a form of charity or to serve the greater good of the community in their struggle for the eradication of poverty and promotion of education. A large number of *waqaf* lands in Nagari Pakan Rabaa Timur are now the locations for mosques, *mushallas* (a small mosque that does not perform a Friday prayer service) and a *madrasah* (Islamic elementary school).

## Conclusions

The results of the PRA show that Nagari Pakan Rabaa Timur is among the *nagari*s in Minangkabau that continue to apply strong traditional institutions and comply with traditions and customs in the daily practices of the society. This area still has relatively well-performing social institutions, as well as a good natural setting, with well-maintained rivers and ecosystems. Practices that are encouraged by Islamic teachings (Shari'a) were observed here. Some of these consist of practices in relation to the management of natural resources based on the customs of the *nagari*, including: *hima* for *rimbo nagari* or *ulayat* rights, and *ihya al-mawat* for the utilisation of non-productive land. In terms of natural resource management, Nagari Pakan Rabaa Timur still requires further development, such as more public facilities, improved infrastructure, as well as access to sources that provide a sustainable economic income, and other opportunities to improve the welfare of the local people. On a deeper level, existing customary institutions serve as a good role model for maintaining and conserving the natural resources available there. Therefore, natural resource use models based on the people's local wisdom management must be preserved, while recognising the need for sustainable development and the strengthening of existing institutions and policies that support them.

## Bibliography

- Chambers, R (1994). The Origins and Practice of Participatory Rural Appraisal. *World Development*, 22, 953-969.
- Llewellyn, O (2003). The Basis for a Discipline of Environmental Law. In *Islam and Ecology*, Foltz, R C, Denny, F M and Baharuddin, A (eds). p 213. Cambridge MA, Harvard University Press.
- Mangunjaya, F M & Abbas, A S (2009). *Khasanah Alam: Menggali Tradisi Islam untuk Konservasi Alam*. Jakarta, Yayasan Obor Indonesia.
- Rosyadi, I (2005). Kedudukan Al- "Adah Wa Al-" Urf Dalam Bangunan Hukum Islam. *Jurnal Suhuf* 27, pp 3-12.
- Umar, G (2007). *Disain Kelembagaan Pengelolaan Danau Singkarak Berkelanjutan yang Berbasis Nagari*. PhD dissertation. Postgraduate School of the Bogor Institute of Agriculture (IPB).

## Footnote

- 1 Elements that are not considered strategic or vital because of small deposits such as: quartz sand, kaolin, gypsum, phosphate, limestone, clay, calcite and volcanic rocks.



# Chapter IV

## Part V – Climate4Classrooms: Getting the Science of Climate Change and the Environment into the Classroom

Ari Sutanti and Sandra Winarsa



Local teachers during a DI training workshop. Photograph courtesy of the DI project.

## Introduction

Climate change is considered the overriding environmental issue of our time. A climate education report published by the British Council entitled, 'Mapping Climate Education in Indonesia: Opportunities for Development' (2008) shows a surprising misperception in Indonesia towards climate change. Data collected from 1,710 students and 524 teachers from seven cities and four provinces<sup>1</sup> showed that a large proportion of respondents (42 percent students and 68 percent teachers) thought that both natural causes and human activities affect climate change. However, 11 percent of elementary students, 19 percent of junior high school students and 14 percent of senior high school students thought climate change was God's will and therefore believed that humans could not do anything to prevent it. Similarly, 30 madrasah school teachers who participated in focus group discussions (FGD) in East Java in 2011 believed natural resources, including climate change, to be only under God's domain. Although this may be a common perception amongst many Indonesian school children and their teachers, if we believe that climate change is God's will, we become passive participants of the phenomenon and thus are not responsible for its causes and impacts, and may choose therefore not to seek solutions for tackling the problem.

Fazlun Khalid, a British eco-Islam expert and founder of the UK-based Islamic Foundation for Ecology and Environmental Sciences (IFEES) said, 'In many cases, people do not understand why God created the universe and how it works and do not realise that whatever action they make will contribute to the life in the Universe and this highlights two important aspects for tackling the climate change problem: education and religion'. Thus, education plays an important role, not only in providing a framework of knowledge about the issues pertaining to climate change, but also in helping to cultivate a positive mindset amongst the younger generation, so that they can contribute towards the solutions. Likewise, religion can also play an important role in helping people to reflect upon why it is important to conserve the earth for the good of humankind.

## Climate4Classrooms

In 2009, the British Council developed education materials on climate change and made them available both online and offline for pupils and teachers from elementary to senior high schools, which also included Islamic schools. Entitled 'Climate4Classrooms' (C4C), it is the first global website supporting the teaching and learning of climate change in different languages, using recognised scientific research applicable to the condition of each country. Indonesia is one of four pilot countries involved in the programme, along with China, Mexico and the United Kingdom.

The purpose of the project was to provide climate change lesson materials that were designed specifically for teachers and their pupils. These materials were developed by the British Council in response to the lack of such resources in schools. The C4C site provides innovative material for schools to teach, so that they can discuss climate change issues in the classroom from a local and global perspective.

The online materials were developed by the British Council, with support from the UK's Royal Geographical Society and Royal Meteorological Society and contain more than 150 up-to-date graphics and maps, as well as national data on climate change from Indonesia, UK, China and Mexico.

The overall C4C project aims were to:

- Enable and encourage young people/students from elementary to high school to learn about and understand climate change and why it is relevant to them;
- Understand the global causes of climate change and the likely consequences within their own country;
- Raise awareness of local impacts, vulnerabilities and opportunities for mitigating action and adaptation and the challenges faced in other parts of the world; and,
- Determine the need for action and encourage the desire to act individually to help mitigate the effects of climate change.

C4C specifically aimed to develop appropriate climate education materials for teaching resources and a step-by-step basic guideline to create climate project templates for learners. The programme also sought endorsement from relevant education authorities (the Ministries of Education and Culture, and Environment through the Adiwiyata School Programme, the ministerial Centre for Development and Empowerment of Teacher and Education Personnel, as well as the co-operative Environmental Education Network) for the integration of these materials into the national curriculum while soliciting support from key stakeholders for the broader implementation of climate education in Indonesia. The guidelines cover 'intra' (real projects on the ground run as extracurricular activities) and 'inter' (theoretical knowledge infused into the current subject curriculum) teaching guidance on climate change for teachers, including examples of teaching modules, known as *Rencana Pelaksanaan Pembelajaran* (Learning Implementation Plan) and activity sheets for other lesson topics and school project activities.

The online materials (available at [www.climate4classrooms.org](http://www.climate4classrooms.org)) contain a multi-disciplinary learning journey of discovery, mitigation and adaptation (which are also linked to themes such as energy, transport or forests); interactive datasets displaying the latest global and national climate predictions; climate science brought to life by the experts; case studies on global, national and local impacts and solutions and guidance for teachers on using the resources. In addition to the online materials, the British Council also collaborated with the Indonesian Ministry of Education to develop Climate Change Education Guidelines that provide guidance for teachers specialising in various subjects such as: Bahasa Indonesia, English, Islamic education, civic education, mathematics, science, social science and geography and to contribute towards teaching climate change issues within their area of expertise. Currently, 90 schools in 15 Indonesian provinces have adopted the C4C teaching method. The C4C materials are expected to contribute to the Education for Sustainable Development framework and a curriculum that is being developed by the Ministry of Education and the Ministry of Environment in Indonesia.



## British Council and the Darwin Initiative Project

In collaboration with the Darwin Initiative (DI) project, 'Integrating religion within conservation: Islamic beliefs and Sumatran forest management', which is funded by the UK's Department for Environment, Food and Rural Affairs, C4C training was provided to Islamic school teachers in West Sumatra from 12–16 March 2010, as part of a joint workshop. Fifteen teachers from secondary high schools, Islamic schools, and senior high schools from the districts of Padang, Padang Panjang and Tanah Datar participated. The workshop consisted of lectures, a video documentary on the environment and climate change, group discussions, and various activities related to issues about global warming, greenhouse gas emissions and climate change. A mind-mapping activity was also conducted to review the current school curriculum, in order to determine how the C4C materials could be infused within current subject materials and how to adjust these materials to ensure suitability with the local situation in West Sumatra.

The materials were also piloted in five religious schools in West Sumatra in order to assess their practicality for teaching and to gain feedback for further improvement:

- Perguruan Diniyah Putri Senior High School, Padang
- Adabiah Junior Highschool, Padang Panjang
- Madrasah Tsanawiyah Thawalib, Padang Panjang
- Muhammadiyah Senior High School, Batu Sangkar
- Madrasah Aliyah Yatsu, Senior High School, Guguk Malalo, Tanah Datar.

Most Islamic schools and *pesantrens* (religious boarding schools) in Indonesia have limited opportunities to access capacity building information for teachers from the Ministry of Education, mainly because they often have not been accredited by the Ministry. Thus, the British Council selected West Sumatra as one of its pilot sites due to its strong Islamic background, which differs to other provinces in Indonesia. This unique background enriched the constructive feedback collected when applying and delivering the C4C materials through the Qur'an's teachings on protecting nature within the DI model. Teachers of all subjects demonstrated their enthusiasm in becoming involved in and overseeing the workshop training activities, as well as finding ways to deliver the C4C materials in their classroom. Upon receiving the training, all teachers and participants were required to cascade the training to their colleagues, and other schools in order to share their experience and knowledge.

Informal feedback received from 25 teachers from the pilot schools in West Sumatra revealed that this was the first time they had been introduced to climate change issues and verses in the Qur'an pertaining to the environment. Subsequently, they felt that it was important to incorporate both of these issues into their teaching materials, such as social sciences, English and Islamic lessons. The teachers in particular also conveyed that the C4C online and offline materials were comprehensive and useful for teaching materials.

Questionnaire feedback collected immediately after the training and during a follow-up exercise conducted several months later found that:

- Information on climate change is needed in schools;
- Provision of offline materials is important, as not all schools are equipped with computers and internet access;
- Strategies and methods to integrate and adapt climate change materials within local schools requires several steps, most importantly in identifying which subjects and which lessons are relevant to climate change issues and ensuring that the material is inserted into the lesson accordingly; and,
- British Council facilitators and trainers need to continue working with teachers to integrate climate change issues into existing lesson plans.

The British Council's collaboration with the DI project in West Sumatra was particularly fruitful as it also formed an important platform for wider discussions about the important role that religion and local communities play in protecting the environment, both in theory and practice. Further, training in East Java with Fazlun Khalid (IFEES), introduced to the British Council through the DI programme, was useful in further refining the participants' teaching methods and making them applicable to different provinces in Indonesia. Finally, shortly after the training ended, two particularly committed and passionate teachers involved with the DI programme were selected by the British Council to receive 'Master Trainer' tuition, enabling them to both deliver C4C training to their colleagues and share their knowledge within a wider community (ie other teachers or educators who were not involved in the C4C training).

In 2009, the DI's Biodiversity and Ecosystem Services Co-ordinator joined nearly 100 members of the British Council's youth network to attend 'Climate Connectors' training in Jakarta as part of Al Gore's Global Climate Change Initiative. In 2010, this co-ordinator was selected from nearly 1,500 applicants to receive a full sponsorship to attend The Climate Project training session, which followed on from the Climate Connectors training course. Both training programmes provide the information and skills to enable young conservationists to facilitate outreach in climate change-related issues in their communities and this knowledge was subsequently incorporated into two conservation-themed Ramadan campaigns conducted by the DI project in West Sumatra during 2010 and 2011.

The C4C web portal was officially launched in Jakarta on 21 March 2011 and was followed by a series of training workshops facilitated by the British Council in almost 90 schools in Indonesia (46 Islamic schools and 44 non-Islamic schools), including *pesantrens* (religious boarding schools). They also included an additional component that focused on the role of Islam and conservation, which was piloted in West Sumatra by the DI project. The existence of these materials is expected to increase both the knowledge and self-confidence of teachers in teaching their students that climate change is relevant to their present and future lives as

global citizens. In addition, integrating climate change issues within teaching materials can also facilitate informed discussion from different perspectives, which will ultimately enrich students as well as teachers.

*'With the experience and portfolio in education and engagement with religious communities, British Council Indonesia seeks to support more young people in developing solutions for climate change'.*

Keith Davies, Director, British Council, Indonesia

## Footnote

- 1 Papua, East Kalimantan, Yogyakarta and East Java, comprising 679 elementary school pupils, 508 junior high school pupils, 513 senior high school pupils, ten university students, 134 elementary school teachers, 152 junior high school teachers, 185 high school teachers and 53 individuals from universities and local NGOs.

# Chapter IV

## Part VI – Integrating Biodiversity Conservation within Livelihood Projects in West Sumatra

Yasser Premana



A local DI farmer displays the fruits of his labour. Photograph courtesy of the DI project.

## Background

Forests provide important ecosystem services for both rural and urban communities, and especially for those that live in close proximity to the forests. These services include:

- a reliable supply of water for daily human consumption and crop irrigation;
- a natural system of water management that reduces the risks of flooding during the rainy season and drought during the dry season, so that the communities' productive assets, such as crops, remain secure and viable in the long-term; and,
- a source of income for communities that collect timber and non-timber forest products.

Once forests and their natural resources start to be overexploited, ie no longer used in a sustainable manner, local economies may suffer through both the loss of direct revenue and the degradation of ecosystem services and their associated benefits. This has often been cited as one of the most socially detrimental effects of forest degradation and loss, a consequence that a disproportionate number of people living near forests have acknowledged in earnest (Kiswayadi et al., 2011). To avoid such effects, projects need to integrate livelihood development and biodiversity conservation objectives.

## Darwin Initiative field schools

Livelihood extension work is an important strategy for addressing a variety of basic issues regarding the sustainable management of forest resources by local communities. The strategy adopted by Fauna & Flora International (FFI) for the Darwin Initiative (DI) in West Sumatra was based on an approach that has been successfully applied in Aceh province, Sumatra, by FFI. This work is built on the precept that forests (in the Aceh case, the Ulu Masen ecosystem) can be protected by community economic empowerment through livelihood projects that remove their dependency on timber forest products and illegal activities, such as logging, mining and hunting. In the process, this shifts livelihoods towards a more conservation-oriented approach that is based on the following principles:

- Participation: encouraging the key stakeholders to become actively involved in the planning, implementation, and supervision of project activities;
- Transparency: ensuring that the key stakeholders are aware of the activities, fully understand them and are able to access pertinent information, including the use of funds, throughout the project;
- Accountability: ensuring the compliance of all parties with the pre-agreed regulations;
- Integration: conducting each activity as a part of a unified system, in co-ordination with other livelihood development activities;
- Gender equality: opening a wider opportunity for women to participate in the main activities and as key stakeholders;
- Non-discrimination: ensuring that direct and indirect beneficiaries of the programme are not limited, segregated or discriminated against because of their race, ethnicity or religion;
- Respect: fostering respect for traditions and customs in the society; and,
- Environmental awareness: establishing only activities that support the preservation of the environment and avoiding actions with harmful environmental impacts.

It is not easy to improve the economic welfare of rural communities in line with the principles of sustainable forest management, especially for those living closest to protected areas, who typically need to use the natural resources from within the protected forest, but are prohibited from doing so. With this in mind, the DI project for West Sumatra, which was supported by FFI as a technical partner, piloted a conservation-oriented livelihood approach that was underpinned by the Islamic principles of:

- Hima* – management zones established for sustainable natural resource use;
- Harim* – inviolable sanctuaries used for protecting water resources and their services; and
- Ihya al-mawat* – reviving neglected land to become productive.



**Photos 8 and 9** A massive flood in Pidie district, Aceh (March, 2011) caused by illegal logging in a watershed forest that degraded the ecosystem service provided to communities downriver. This incident killed 12 people and destroyed 30 homes. Photographs by Mahdi Ismail, FFI – Aceh Programme.



As part of the DI project, two field schools were established in the Minangkabau communities (known as *nagari*s) of Guguk Malalo and Pakan Rabaa Timur. Their purpose was to serve as a community-run agroforest tree nursery and as a place to conduct community training on sustainable and environmentally-friendly farming practices. The land chosen by the community for this project was based on their own criteria that the nursery be located outside flood-prone areas, within an area that could be easily accessed by local transport, and near a reliable water source. The following sections describe the field activities that were conducted from 2010–2011.

### Community-based nursery programme

This activity provided an economic alternative to collecting timber inside protected forests, which is prohibited under national law, by providing access to high-quality seeds of economically-valuable species that also have a conservation value. For example, rubber (*Hevea brasiliensis*) and cocoa (*Theobroma cacao*) trees were chosen because they are important both for land conservation and for their high market value in both local and international markets. The project then built community capacity to nurture the seedlings, saplings and mature plants and then independently harvest and market the plant products.

### Land rehabilitation (*lhya al-mawat*)

Within the two focal communities, land was rehabilitated by planting outside the conservation forest areas on both private and public land,

- Private land: 65 ha in Guguk Malalo and 120 ha in Pakan Rabaa Timur were rehabilitated. Here the maintenance of plants and harvesting of crops became the responsibility of the land owner.
- Public land: 20 ha in Guguk Malalo and 15 ha in Pakan Rabaa Timur were rehabilitated. Here, the maintenance of plants and harvesting of crops became the responsibility of the local administrative system (in this case, the *nagari*, which is unique to West Sumatra and equivalent to the

subdistrict administration that falls under the leadership of the *wali nagari* and comprises several villages and different clans of the Minangkabau ethnic group).

### Development of a community-based agroforestry system

Agroforestry or a mixed plantation farming method allows for intensive land use by simultaneously growing a variety of species that yield over the short-term (three months), medium-term (20–36 months) and long-term (over three years). For example, chilli, beans (including mung and soy) and vegetables (mustard greens, cabbage etc) and rice can be harvested in the short-term. After successful grafting, cocoa pods can be harvested from 20–36 months, durian fruit after three years and gum (from rubber trees) after five years (Table 1). Timber from mahogany trees that are planted as seeds and without any treatment can be harvested from ten to 15 years.

Through community consultation, the selection of desired species fitting each of the various terms was agreed upon. Most short-term crops were chosen because of their predictably high demand in the local market, as well as local consumption. Cocoa was prioritised as a medium-term plant due to its high market value (US\$ 3–3.5 per kg) and because it is fairly low maintenance. The long-term plants chosen by the communities were:

- Durian: for its economic value (US\$ 1.7–3 per fruit) and because it is already successfully grown in the area;
- Rubber: for its high market value (US\$ 1.5 per kg); and,
- Mahogany: a high quality tropical hardwood tree species, used for making furniture that has a very high market price (US\$ 1,500 per m<sup>3</sup> for the best quality mahogany timber, which is typically older than 15 years). Mahogany is a pioneer tree (a species that is able to grow in extreme climate conditions, requires less fertile soil and requires minimum tillage).



**Photos 10 and 11** Construction and completion of DI tree nursery facilities in Pakan Rabaa Timur. Photographs courtesy of the DI project.

**Table 1** The harvest time and the market price of multi-purpose tree species developed by the community.

All species were sourced either from species already cultivated by the local communities or from those provided by the DI project and the District Forestry and Plantation Agency (local government).

Species	Time until Harvest	Market Price (US\$)
<b>Short Term</b>		
Chilli ( <i>Capsicum annum</i> )	3 months	~2.5–3/kg
Legumes (peanuts, mung beans and soybeans)	3 months	~2–2.5/kg
Vegetables (mustard greens, cabbage, etc)	3 months	~1–1.5/kg
Rice ( <i>Oryza sativa</i> )	3 months	~1–1.5/kg
<b>Medium Term</b>		
Cocoa ( <i>Theobroma cacao</i> ) – grafted	20–36 months	~3–3.5/kg
<b>Long Term</b>		
Durian ( <i>Durio zibethinus</i> ) – grafted	3 years	~1.7–3/fruit
Rubber ( <i>Hevea brasiliensis</i> ) – grafted	5 years	~1.5/kg
Mahogany ( <i>Swietenia mahagoni</i> ) – grafted	10–15 years      ~1,500/m <sup>3</sup>	

**Table 2** Summary of the Community Nursery Cultivation and Production Programme.

No	Species	Amount	Seed source	Beneficiaries	Area planted (ha)	
					Private land	Public land
I	Guguk Malalo			39 groups (8-10 people per group)	~ 65 ha	~ 20 ha
1.1	Cocoa ( <i>Theobroma cacao</i> )	20,000 stems	DI – DICE			
1.2	Mahogany ( <i>Swietenia mahagoni</i> )	5,000 stems	Forestry and Plantation Agency of Tanah Datar District			
1.3	Trembesi ( <i>Samania saman</i> )	15,000 stems				
1.4	Pulai ( <i>Astonia scholaris</i> )	400 stems				
1.5	Bayur ( <i>Dipterocarpaceae sp.</i> )	300 stems				
	Sub Total	40,700 stems				
II	Pakan Rabaa Timur			47 groups (8-10 people per group)	~120 ha	~ 15 ha
2.1	Cocoa ( <i>Theobroma cacao</i> )	25,000 stems	DI – DICE			
2.2	Karet or Rubber Tree ( <i>Hevea brasiliensis</i> )	100,000 stems	Forestry and Plantation Agency of Solok Selatan District			
2.3	Mahogany ( <i>Swietenia mahagoni</i> )	100,000 stems				
2.4	Durian ( <i>Durio zibethinus</i> )	100,000 stems				
	Sub Total	325,000 stems				
	Total	365,700 stems		86 Groups = ~ 688–774 people	~ 185 ha	~35 ha



**Photo 12** DI Training participants in Pakan Rabaa Timur. Photograph by Yoan Dinata.

Two livelihood training workshops were provided by the DI project for the communities. These focused on improving their technical capacity in cultivating and harvesting tree species through a one-day training session in seed propagation (budding, grafting, containment and cutting). Participants were taught how to propagate cocoa plants by using the lower part of the stem from seed-grown plants and the top part of the stem (the entreas) from high-quality parent trees. An output of the training was the planting of prepared seeds 15-21 days after propagation. The other training topics focused on plant maintenance, composting, natural pesticide production and organic farming techniques as follows:

- Plant maintenance: participants were taught how to increase plant productivity through regeneration and the trimming of plants, eradication of weeds and diseases, and the application of organic fertiliser.
- Composting: participants were trained how to use cattle manure and other organic wastes, which can be found in the nearby area, as an organic fertiliser.
- Natural pesticide production: participants were shown how to use leaves and tubers in order to prevent the invasion of weeds and development of plant diseases. This included the use of pungent smelling or tasting leaves such as soursop, lemongrass, ginger and turmeric. The plant matter was boiled and then mixed with cold water in a ratio of 1L extract: 10L water. The resulting brew was then sprayed onto the crops.

- Organic farming techniques: technical guidance was provided on organic farming through the use of appropriate materials that were available locally, such as cow manure, rice husks, grass, fruits and leaves (used for organic fertiliser). This was further supported by raising awareness in the local community about the impact of chemical fertiliser on human health.

For each training session, the local community members were encouraged to actively participate and if possible take the lead during the activities. In total, 73 community members were trained, of which 20 percent were women.

## Field school preparation and planting results

A key project result was the creation of new multi-stakeholder partnerships, such as those between the local governments of Pakan Rabaa Timur and Guguk Malalo, local NGOs (such as Qbar), the district Forestry Agency, Andalas University and traditional institutions (such as farmers, religious and women's groups). During the project, the DI field schools provided 365,700 stems of high quality species to the two communities (Table 2). The DI project provided 25,000 stems for Guguk Malalo and 25,000 stems for Pakan Rabaa Timur, which led to the district Forestry Agency providing a further 15,700 stems for Guguk Malalo and 300,000 stems for Pakan Rabaa Timur as a direct contribution to the project.

Finally, to observe how well the project participants understood the materials delivered by the training, pre-test and post-test questionnaire surveys were conducted (Table 3). Based on the survey results, participants at both project sites displayed similar low levels of understanding prior to the training, as there had been little or no exposure to similar training before. However, after the training, the participants' understanding of the training materials greatly improved (from 35 percent to 80 percent in Guguk Malalo and 30 percent to 70 percent in Pakan Rabaa Timur). This suggests that the project has the potential to be sustainable and this, in turn, is anticipated to provide wider benefits through land intensification and a reduction in the demand to further convert forests into farmland.

## Bibliography

Kiswayadi, D, Karina, I & Gumay, D (2011) *Land Cover Change and Deforestation of Aceh Forest 2006–2010: Aceh Forest and Conservation Project*. Final report (unpublished). Sumatra, Fauna & Flora International – Aceh Programme.

**Table 3** Community empowerment through DI training: Summary of pre-test and post-test survey results in Guguk Malalo and Pakan Rabaa Timur.

<i>Nagari</i>	Number of participants	Average degree of understanding of activities (%)	
		Pre-test	Post-test
Guguk Malalo	46 people (10 women)	35	80
Pakan Rabaa Timur	27 people (5 women)	30	70



# Conclusion



A local Minangkabau celebration. Photograph courtesy of the DI project.

Innovative approaches are needed for biodiversity conservation, especially within the biodiversity-rich island of Sumatra, Indonesia, which has an average deforestation rate of 2 percent a year (Uryu et al, 2010). Within and beyond the two Darwin Initiative project sites in West Sumatra province, Islam plays – and will continue to play – a central role in the daily lives of millions of people. Through religious teaching, the DI project promoted the importance of biodiversity conservation and its sustainable use to religious leaders who have largely been uninvolved in environmental issues. By engaging them and their followers in sustainable natural resource management approaches that are explicitly based on their religious principles, the DI project piloted a new conservation model that discouraged forest clearance and promoted the safeguarding of ecosystem services and biodiversity in a way that was both culturally appropriate (through the teachings of Islam) and replicable across most of Indonesia.

By directly involving members of the community as a whole (eg customary leaders, farmers, women's groups and student groups) in both the planning and implementation of project activities through the Participatory Rural Appraisal technique (see Chapter 4, Part IV), a strong sense of ownership and pride was created towards the project, eg the now independently-run agroforest nurseries. It also generated a strong commitment from the two focal communities (*nagaris*) to continue conducting Green Mosque campaigns, community litter clean-ups and replanting activities around their water sources (using native species from the DI nurseries). In fact, the DI Green Mosque campaign in Guguk Malalo was so successful that it received nationwide media attention and went on to win the provincial nomination to represent West Sumatra in a national environmental competition sponsored by the Ministry of Forestry. Here, it came fifth out of 25 entries, with the community's high enthusiasm and commitment to protecting their local environment being a decisive factor. This then led to Guguk Malalo receiving a special budget allocation and technical support from the Government of Indonesia for its future conservation activities, which will build upon the framework developed by the DI.

Compiling the first biodiversity assessment reports and maps outlining the ecosystem and natural resource use in both DI project sites provided the information needed for these communities to proceed with their application for customary forest (*hutan nagari*) status, which grants each community a special autonomy to sustainably manage their natural resources under traditional laws. Leading on from this, and with strong community participation, the DI project was able to go one step further by overlaying these maps with the religious management systems of *hima*, *harim* and *ihya al-mawat*, which is a first for Indonesia (Chapter 4, pages 35–37). This was particularly relevant for the DI project sites because although the stakeholders had identified the above systems as being loosely practised within their communal lands (through the *nagari* system) there was a lack of awareness that these were also Islamic systems.

Further, a subsequent lack of institutional capacity to implement them hindered their effectiveness in the sustainable management of forests and their ecosystem services. Thus the community mapping exercises were helpful in providing a comprehensive view of land use from a community perspective, making it more relevant and likely to be sustained in the long-term.

Evaluating DI project influence in raising awareness of Islamic teachings towards the environment, questionnaire surveys were used before and after each training activity. From a joint partner workshop given to teachers and religious leaders (Chapter 4, Part III), positive changes (from 50 percent to 92 percent) in knowledge and understanding of ecosystem services were recorded. Based on the results from another survey conducted during the Community Nursery Cultivation and Production activity (Chapter 4, Part VI), participants from both Nagari Guguk Malalo and Nagari Pakan Rabaa Timur displayed similarly low levels of understanding prior to the training, which resulted in improved understanding afterwards (from 60 percent to 85 percent in Guguk Malalo and 50 percent to 75 percent in Pakan Rabaa Timur). This suggests that there is a strong probability that the DI field nurseries will become a sustainable means of providing economic and environmental benefits through land intensification, which should therefore reduce the need to further convert forests into farmland. The pre- and post-questionnaire surveys distributed during the DI Ramadan campaign (Chapter 4, page 39) conducted in the mosques and *pesantrens* (religious boarding schools) revealed that in the mosques, Islamic teachings on water conservation had raised levels of concern, as the proportion of people who prioritised funding for watershed forest conservation in the exit group was significantly higher than those in the entry group. From just the entry group, on the environmental issues, younger and better educated respondents tended to correctly identify the ecosystem services provided by watershed forests than other respondents. Younger and better educated respondents tended to correctly identify the threats to water quality in West Sumatra. However, on religious issues, women and less educated respondents tended to identify a greater number of correct answers on Islamic teaching towards the environment.

The results from the Ramadan campaign administered in the *pesantrens* found that female respondents were more likely to correctly identify the services provided by watershed forests and more likely to contribute their time to conservation activities. This raises an interesting issue when considering the prominent positions that men hold within Islam and the importance of engaging women in a project of this nature. Further, the Minangkabau culture recognises the importance of women within their matrilineal system. Throughout the project's duration, the involvement of women and their support in the design and implementation of its activities was met with such success and enthusiasm on their behalf that, coupled with the results previously mentioned, a scientific publication on the gender aspects of this project is being prepared.

In order to raise the profile of the role religion can play in protecting the environment nationally, the DI project and the British Council hosted a joint information booth at the 16<sup>th</sup> Annual Environmental Event Series, as part of the Government of Indonesia's Environmental Week in the Jakarta Convention Centre from 14–17 June 2012. The event was attended by 64,175 participants from across Indonesia. Next, at an international level, a BBC–Indonesia radio documentary featuring the DI project work (entitled 'Lost in Translation: Islam for conservation and adaptation, the story of villagers in Guguk Malalo, West Sumatra') won the 2011 award for Best Media Report on Climate Change Adaptation at the Climate Change Adaptation Film Festival held at the United Nations Conference Centre in Bangkok, Thailand. This was particularly poignant in that it showed both the interest and appreciation of the international community for the concerted efforts being done at the local level to address a global problem.

In closing, a somewhat unexpected outcome of the project was the noted pause for reflection and appreciation received from many religious leaders and devout followers, both men and women (who considered themselves to be well versed on the teachings of the Qur'an) when introduced for the first time by DI project partners and staff to its many environmental teachings. This further highlighted the potential that utilising such an approach could have on developing culturally appropriate conservation practices, not only elsewhere within Indonesia, but also throughout the rest of the Muslim world.

## Bibliography

Uryu, Y, Putrastuti, E, Laumonier, Y, Sunarto, S, Budiman, A, Yulianto, K, Sudibyo, A, Hadian, O, Kosasih, D A & Stuwe, M (2010). *Sumatra's Forests, Their Wildlife and the Climate – Windows in Time: 1985, 1990, 2000 and 2009. (Report)*. Jakarta, WWF–Indonesia.

# Appendices



*Telum Berasap (Water Smoke) waterfall, Sumatra. Photograph by Jeanne E McKay.*



# Appendix 1

## Darwin Initiative: Friday Sermon Appreciating and Conserving Water as a Show of Our Gratitude

### First Sermon

[...]

Dear congregants of this Friday sermon,

First of all, let us thank God the beneficent and the merciful, who provides endless, bounteous delight to mankind and all creatures of the earth. Praise be to Him, who created the heavens and the earth. Who has all the wealth, and pleasure. Who gives the human breath and the provision of life especially to we Muslims, who were born in Indonesia, our motherland which we love. Salutations to the Prophet Muhammad, his companions and followers until Doomsday comes.

Secondly, the *khatib* would like to remind himself as well as the noble congregants who have gathered here to be ever faithful to God in all sincerity, so that our lives will be constantly nourished with the blessings and protection of Allah, in this world as well as what is to come next.

My fellow Muslims, whom God favours,

Have we reflected that God Almighty has made the earth in balance and in unity that cannot be separated into pieces? Balance is established as all the components of the system are functioning properly, fully organised, and support each other with their respective roles. For example, a sloping land is propped up by the trees with their strong and sturdy roots, in order to prevent landslides from occurring.

Such interaction is commonly called an ecosystem. So the constituents of an ecosystem are a collection of plants, animals and micro-organisms that interact with each other and also with the forest, coral reef, or plants intentionally grown by men. These elements form and maintain the balance of nature so that the cycle of life goes well and steadily. One of the most important components in this cycle of life on earth is water.

Such is the word of Allah in the Qu'ran:

[...]

*Who has made the earth your couch, and the heavens your canopy; and sent down rain from the heavens; and brought forth therewith fruits for your sustenance; then set not up rivals unto Allah when ye know (the truth).*  
(Al-Baqarah, 2:22)

God provides a confirmation that water is an essential element or component that can give and sustain life on Earth. Considering its great importance, God has made the Earth such that water covers three-quarters of the Earth's surface, and accounts for roughly 70 percent of all lifeforms. According to Abdel Halim, a Muslim scientist, the word *maa* (water) is found more than 60 times in the Qur'an, and the word is connected to the semantics or changes related to the word, which is often associated with the hydrology cycle, such as rivers, sea, mountains, rain, wind and clouds so on.

As a religion of *fitrah* (nature), Islam has rituals that are very dependent on the presence of clean water. Water is pure, and has purifying properties. From the moment of our birth to our death, we need water. When we grow into adulthood, we are obliged to take a bath after having intercourse (for husband and wife). Even before we go to pray, we have to absolve ourselves with water. We need water for bathing, eating and drinking. Furthermore, about 70–90 percent of our body consists of water.

My fellow Muslims, to whom God gives abundant blessings,

Behind this abundance of water, in fact what is required by human beings is not a huge amount of water, but its good quality. Although the earth is replete with water, in fact, only one percent of the water in it is beneficial to the human body. About 97 percent of all the water in the earth is salt water, with two percent frozen in glaciers and polar ice caps. Therefore, the remaining one percent of the world's water supply is a very valuable commodity, necessary for human survival.

Humans can survive without food, but die quickly without water. Therefore, it is worthy that the Messenger of Allah, paid strict attention to both the quality and quantity of water, and rebuked his companions who used water redundantly. In fact, when the Prophet saw his companion, Saad, absolving himself, he admonished:

*“What is this? You are wasting water away.”*

*Saad said, “Can we be said to waste water even when we take absolutions?”*

*The Prophet replied, “Yes, although you do it with flowing water.” (Ibn Majah).*

The Prophet gives us a shining example when it comes to conserving water. As told by Anas RA, when the Prophet took a bath, he only used about one *shaa* (roughly 2.4 litres) of water. And when the Prophet performed absolutions, he only used about one *mudd* or a quarter *shaa* (roughly 0.6 litres) of water (*hadith of Buhari*).

My fellow Muslims,

If so, we can all see how the Prophet was very efficient in using water throughout his life and his devotions. The Prophet set an example for us fourteen centuries ago on how to conserve water and be grateful for it. Why? Let us enumerate the reasons one by one:

Firstly, a freshwater supply is becoming increasingly scarce. If in the past we were able to easily find water for drinking, washing and bathing from the rivers or wells, now, for drinking, we must buy bottled water. Water is no longer free. To perform absolutions, electricity is used to bring water from wells, and we need money to pay for the electricity. This indicates that there is nothing more that is free even for our worship and devotions. Everyone inside this mosque has to pay for electricity. Therefore, by saving water, we also save our (the congregants) and the mosque's money.

Yet the mosques in our villages are built very near to rivers. Why? We should be able to use water from the river to perform ablutions, as long as it is pure and purifying. But now it is now polluted and not pure anymore. The Minangkabau customs even require every *nagari* to have its own:

1. *Masajik* / Mosque
2. *Pusaro* / Cemetery
3. *Basosok* / Garden
4. *Bajarami* / Rice field
5. *Batapian* / River
6. *Bale* / Meeting place
7. *Medan nan bapane* / Gathering place

Secondly, the water that we need has to be of good quality for our life and worship. Why does the river become dry and polluted, with its water unfit for immediate use for absolution? Of course this example is very closely related to the hydrological systems that support it, namely forests and trees. And all these have indeed been prepared in nature by God. What does this mean? This means that what nature provides to humans, what we call the ecosystem services, are declining due to the interventions caused by humans. Nature is the source of various needs, such as clean air, food and freshwater. Its ecosystems also provide indirect services, such as protection from storms, pollination, and other spiritual benefits. The benefits of natural ecosystems have supported the tremendous growth and development of human

populations. However, many ecosystems and the services they provide now are declining. And so we have now damaged the hydrological systems that have been provided by nature, so that the same order for our future and our children can no longer be obtained.

This is mentioned by God Almighty in His words:  
[...]

*Corruption has appeared throughout the land and sea by (reason of) what the hands of people have earned so He may let them taste part of (the consequence of) what they have done that perhaps they will return (to righteousness).* (Ar Rum 30:41)

Damage has been caused across the surface of the earth. According to the UN, nearly two-thirds of the world's so-called ecosystem services are under imminent threat. Our rivers have become the most urgent priority at the national level. Indonesia retains 10 percent of the world's remaining natural tropical rainforests, whose functions are vital for local, national and international communities, in terms of the carbon sequestration service they provide, and the mitigation of climate change. River areas that aid us in our worship activities and their water quality have been ruined and polluted due to high deforestation rates. In Sumatra alone, the area of natural forests has decreased by five million hectares from 1990 to 2000.

The loss of forests has not only caused disasters in villages and *nagari* and water scarcity, but also has changed the quality of our lives altogether. With the unchecked proliferation of industries like gold and iron ore mining, our drinking water can be contaminated and become harmful, causing illnesses and even death if ingested. Similarly, due to the logging of trees and forests we have seen *galado* (landslides), as well as floods from upstream to downstream areas.

## Second Sermon

[...]

My fellow Muslims, to whom God gives abundant blessings,

From what we have learned from the passage above on environmental damages and the importance of preserving water, what can we do to protect the water sources that we have?

Firstly, we must understand that water is a universal prerequisite of life on earth. Without water there would be no life. And the components that help maintain the presence of water, by making rivers clean so that the water can be properly used for worship, are the buffers of forest ecosystems, ie the forest and all the species of plants and crops that must be preserved.

Secondly, we must also understand that water can be abundant, but it can also be scarce. We are prohibited from wasting water and even polluting water sources, be it from our mining activities, pesticide use, open sewers, or garbage that pollutes and undermines water quality for our own as well as others' usage, including for our absolutions, as God has so made that water has a finite quantity.

Here are the words of God Almighty:

[...]

*'And We send down water from the sky according to (due) measure, and We cause it to soak in the soil; and We certainly are able to drain it off (with ease).'*' (Al Muminun 23:18)

Because water is a finite and measurable resource, the components that support it should not be undermined and eliminated. Water belongs to the public, and it should be treated well and it even must be forbidden to trade it. In the history of *Ibn Majah*, it is mentioned that the Messenger of Allah said this: 'Muslims are associated with three things: water, grass and fire. And the price is unlawful.' Abu Sa'id said, 'He was referring to the flowing water.'

In the context of Indonesia, by observing the messages of the Qur'an and the traditions of the Prophet, there are a number of actions that can be done to surmount the water crisis:

- Starting from our homes, we can encourage water conservation by fixing leaky faucets, turning them off when not in use it, and conserving water when we are brushing our teeth or washing the dishes.
- We can keep the sources of pristine water, ie rivers, wells and water storage sites, clean so that our ablutions using the water from these sources are valid.
- We can teach our children about the importance of not wasting water.
- We can collect rainwater to be used for watering plants and the garden.
- In our society, we can stop throwing rubbish (including cigarette butts) into rivers and streams and clean up areas that are currently filled with rubbish.
- We must be vigilant and report illegal activities that damage our streams, such as mining and deforestation.
- We can also become volunteers to support environmental conservation activities in our community or acquire new skills that will benefit our environment.
- We can plant trees near rivers and streams.

- We can help environmental projects and reforestation activities conducted by the government and conservation projects like the Darwin Initiative. Today they are here with us, so please talk to them to learn more on how you can get involved. In Guguk Malalo, the Green Mosque programme is taking place, it is the first environmental conservation programme coming from the mosques themselves.
- Let us look around at our environment with fresh eyes, and actively participate in conservation efforts, not only for our own benefits, but also for future generations.

My fellow Muslims,

Thus we have learned that environmental maintenance activities serve as a supporting essence in our aim to achieve excellence in our worship, especially in our maintenance of clean water to support our worship to God Almighty. *Amin Ya Rabbal Amin Alamin.*

# Appendix 2

## Darwin Initiative: Ceremah Ramadhan Sermon, 1432 H/2011 M Grateful for God's Favours: Water

### First Sermon

First of all let us thank God the beneficent and the merciful, who provides endless, bounteous delight to mankind and all creatures of the earth. Praise be to Him, who created the heavens and the earth. Who has all the wealth, and pleasure. Who gives the human breath and the provision of life countless. Especially we Muslims, who were born in Indonesia, our motherland which we love. Salutations to the Prophet Muhammad and, his companions and followers until Doomsday comes.

Word of God Almighty:

*'And remember! Your Lord caused to be declared (publicly): "If ye are grateful, I will add more (favours) unto you; But if ye show ingratitude, truly My punishment is terrible indeed."'* (Ibrahim 14:7)

Have we reflected, that God Almighty has made the earth in balance and in unity that cannot be separated into pieces, including the heavenly bodies and all its elements?

In the Qur'an, Allah says:

*'And the firmament has He raised high, and He has set up the Balance (of Justice)'* (Ar Rahman 55:7)

In our world, balance is established as all the components of the system are functioning properly, fully organised, and support each other with their respective roles. For example, a sloping land is propped up by the trees with their strong and sturdy roots, in order to prevent landslides from occurring. In nature and in the environment, this has been revealed in a branch of environmental science called ecology, which deals with, among other things, the relationships between living creatures.

Such interaction is commonly called an ecosystem. So the constituents of an ecosystem are a collection of plants, animals and micro-organisms that interact with each other and also with the environment, such as the forest, coral reef, or the system of plants intentionally grown by men. These elements form and maintain the balance of nature so that the cycle of life goes well and steadily.

### Factual condition of water

One important element generated in the cycle of life on earth is water.

Allah says in the Qu'ran:

*'Who has made the earth your couch, and the heavens your canopy; and sent down rain from the heavens; and brought forth therewith fruits for your sustenance; then set not up rivals unto Allah when ye know (the truth).'* (Al-Baqarah, 2:22)

God provides a confirmation that water is an essential element or component that can give and sustain life on earth. According to Abdel Halim, a Muslim scientist, the word *maa* (water) is found more than 60 times in the Qur'an, and the word is connected with the semantics or changes related to the word, which is often associated with the hydrology cycle, such as rivers, sea, mountains, rain, wind and clouds so on.

As a religion of *fitrah* (nature), Islam has rituals that are very dependent on the presence of clean water. Water is pure, and has purifying properties. From the moment of our birth to our death, we need water. When we grow into adulthood, we are obliged to take a bath after having intercourse (for husband and wife). Even before we go to pray, we have to absolve ourselves with water. We need water for bathing, eating and drinking. Furthermore, about 70–90 percent of our body consists of water.

But behind this abundance of water, in fact what is required by human beings is not a huge amount of water, but its good quality. Although the earth is replete with water, in fact, only one percent of the water in it is beneficial to the human body. About 97 percent of all the water in the earth is salt water, with two percent frozen in glaciers and polar ice caps. Therefore, the remaining one percent of the world's water supply is a very valuable commodity, necessary for human survival.

Humans can survive without food, but die quickly without water. Therefore, it is worthy that the Messenger of Allah, paid strict attention to both the quality and quantity of water, and rebuked his companions who used water redundantly. In fact, when the Prophet saw his companion, Saad, absolving himself, he admonished:



*"What is this? You are wasting water away."*

*Saad said, "Can we be said to waste water even when we take ablutions?"*

*The Prophet replied, "Yes, although you do it with flowing water." (Ibn Majah).*

## Reducing water usage

The Prophet's example in reducing water usage should be emulated, as narrated by Anas, for bathing, the Prophet only needed only one *shaa* (approximately 2.4 litres) of water. For his ablutions, he only needed one *mudd* or a quarter *shaa* (approximately 0.6 litres) of water only (*Buchari*).

If so, we can all see how the Prophet was very efficient in using water throughout his life and his devotions. The Prophet set an example for us fourteen centuries ago on how to conserve water and be grateful for it. Why? Let us enumerate the reasons one by one:

Firstly, freshwater supply is becoming increasingly scarce. If in the past we were able to easily find water for drinking, washing and bathing from the rivers or wells, now, for drinking, we must buy bottled water. Water is no longer free. To perform ablutions, electricity is used to bring water from wells, and we need money to pay for the electricity. This indicates that there is nothing more that is free even for our worship and devotions. Everyone inside this mosque has to pay for electricity. Therefore, by saving water, we also save our and the mosque's money. Yet, the mosques in our villages are built very near to rivers. Why? We should be able to use water from the river to perform ablutions, as long as the water is pure and purifying. But now it is now polluted and not pure anymore. The Minangkabau customs even require every *nagari* to have its own:

1. *Masajik* / Mosque
2. *Pusaro* / Cemetery
3. *Basosok* / Garden
4. *Bajarami* / Rice field
5. *Batapian* / River
6. *Bale* / Meeting place
7. *Medan nan bapane* / Gathering place

## Preserving water sources

Secondly, the water that we need has to be of good quality for our life and worship. Why does the river become dry and polluted, with its water unfit for immediate use for ablution? Of course this example is very closely related to the hydrological systems that support it, namely forests and trees. And all these have indeed been prepared in nature by God. What does this mean? This means that what nature provides to humans, which we call ecosystem services, are declining due to the interventions caused by humans. Nature is the source of various needs, such as clean air, food and freshwater. Its ecosystems also provide indirect services, such as protection from storms, pollination, and other spiritual benefits. The benefits of natural ecosystems have supported the tremendous growth and development of human populations. However, many ecosystems and the services they provide now are declining. And so we have now damaged the

hydrological systems that have been provided by nature, so that the same order for our future and our children can no longer be obtained.

The benefits for us (which are often called ecosystem services) are very obvious in West Sumatra, which has a lot of forested areas. In the rainy season the forest provides an ecosystem service by absorbing the water like a sponge and then regulating its outflow. While in the dry season, the water that has been stored is released gradually in order to prevent the rivers and the farmlands from drying up.

This is mentioned by God Almighty in His words:

*Corruption has appeared throughout the land and sea by (reason of) what the hands of people have earned so He may let them taste part of (the consequence of) what they have done that perhaps they will return (to righteousness). (Ar Rum 30:41)*

Damage has been caused across the surface of the earth. According to the UN, nearly two-thirds of the world's so-called ecosystem services are under imminent threat. Our rivers have become the most urgent priority at the national level. Indonesia retains 10 percent of the world's remaining natural tropical rainforests, whose functions are vital for local, national and international communities, in terms of the carbon sequestration service they provide, and the mitigation of climate change. Riverine areas that aid us in our worship activities and their water quality have been ruined and polluted owing to exceedingly high deforestation rate. In Sumatra alone, the area of natural forests has decreased by five million hectares from 1990 to 2000.

The loss of forests has not only caused minuscular losses, such as disasters in villages and *nagari* and water scarcity, but also has changed the quality of our lives altogether. With the unchecked proliferation of industries like gold and iron ore mining (both small- and large-scale) and a lot of pollution, our drinking water can be contaminated and become harmful, causing illnesses and even death if ingested. Similarly, due to the logging of trees and forests we have seen landslides or *galodo*, as well as floods from upstream areas to downstream areas.

## Maintaining water resources and planting trees

From what we have learned from the passage above on environmental damages and the importance of preserving water, what can we do to protect the water sources that we have?

Firstly, we must understand that water is a universal prerequisite of life on earth. Without water there would be no life. And the components that help maintain the presence of water by making rivers clean so that the water can be properly used for worship are the buffers of forest ecosystems, ie the forest and all the species of plants and crops that must be preserved. Secondly, we must also understand that water can be abundant, but it can also be scarce.

Syaykh Yusuf Qardhawi described the protection and management of water that are manifested into two distinct actions: the prohibition against polluting the water and using excessive amounts of water.

The prohibitions, according to Islamic teachings, include urinating, defecating, and other actions that might pollute water sources. Prophet Muhammad, peace be upon him, said:

***‘Stay away from the three acts that are accursed: defecation in water sources, in the middle of the road, and under the shade of a tree.’*** (Abu Dawud, Ibn Majah, Al Hakim, and al-Bayhaqi).

Other hadiths also mentioned this:

***‘Don’t you urinate in a still body of water, that is a body of water that does not flow, and then wash yourself there.’*** (Narrated by Al Bukhari).

Another example against using excessive amounts of water has been mentioned earlier in the dialogue between the Companions of the Prophet, Abi Saad Waqqash bi – as described above, when Saad was doing his ablution, the Prophet said, ‘Do not use water excessively.’ Saad asked, ‘Can using water right in the middle of a water source be considered excessive too?’ The Prophet answered, ‘Yes, even when you do it in a flowing river.’

For Allah has set the quality and quantity of water to be finite.

Word of God Almighty:

***‘And We send down water from the sky according to (due) measure, and We cause it to soak in the soil; and We certainly are able to drain it off (with ease).’*** (Al Muminun 23:18)

Because water is a finite and measurable resource, the components that support it should not be undermined and eliminated. Water belongs to the public, and it should be treated and even it must be forbidden to trade it. In the history of Ibn Majah, it is mentioned that the Messenger of Allah said this: ‘Muslims are associated with three things: water, grass and fire. And the price is unlawful.’ Abu Sa’id said, ‘He was referring to the flowing water’.

In the context of Indonesia, especially in West Sumatra by observing the messages of the Qur’an and the traditions of the Prophet, there are a number of actions that can be done to surmount the water crisis:

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Dear attendees,

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