

Transboundary Conservation of Mountain Biodiversity in a Climate Change Impacted World - Governance Perspectives from Central Asia and the Island of Borneo

Author

Lim, Michelle

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10. Transboundary conservation of mountain biodiversity in a climate change impacted world: Governance perspectives from Central Asia and the Island of Borneo

Michelle Lim¹

1. INTRODUCTION

International boundaries have been drawn for political rather than ecological reasons. Ecosystem components on each side of the boundary line are often subject to conflicting management and land use practices.²

¹ Many thanks to Prof. Paul Martin (Australian Centre for Agriculture and Law) for instigating the development of criteria and for helpful comments on previous drafts; to Dr Julian Prior (University of New England) for resources, ideas and feedback on the content of each of the criteria; to Dr Ian Hannam for facilitating the practical component of the research; to Maksatbek Anarbaev (National Centre of Mountain Regions Development of the Kyrgyz Republic) for invaluable assistance in all aspects of field work in the Central Asian case-study; and to Sylvia Lim for painstakingly proof reading various versions of this manuscript. This study was carried out in the context of the GEF/UNEP/UNU project 'Sustainable Land Management in the High Pamir and Pamir-Alai Mountains (PALM)-An integrated and transboundary Initiative in Central Asia' (Project Number: IMIS: GFL-2328-2770-4984). The chapter reflects only the author's views: neither the GEF, UNEP nor UNU can be held liable for any use of this information.

² Clare Shine, 'Legal Mechanisms to Strengthen and Safeguard Transboundary Protected Areas' (Paper presented at the Parks for Peace-International Conference on Transboundary Protected Areas as a Vehicle for International Cooperation, Somerset West, South Africa, 16–18 September 1997) 38; Jaidev ('Jay') Singh, *Study on the Development of Transboundary Natural Resource Management Areas in Southern Africa – Global Review: Lessons Learned* (1999) (Washington, Biodiversity Support Program), v.

International border areas contain some of the most biologically intact ecosystems in the world. Many sites that merit conservation therefore straddle land boundaries.³ Due to range shifts induced by climate change more than half of the world's species are in need of transboundary management.⁴ Larger intact ecosystems and therefore transboundary approaches to biodiversity conservation are of increasing importance.⁵ Larger intact areas provide a greater variety of conditions for a wider range of species and are likely to be more resilient in the face of climate change.⁶

Mountain regions are of prime conservation value due to their high levels of biodiversity.⁷ They are also important as large-scale conservation corridors in the advent of climate change.⁸ The mountain biome is, however, particularly vulnerable to the adverse effects of climate change.⁹ At the same time the special characteristics of the mountain biome allow the examination of linkages between climate change and ecosystem dynamics which might be undetectable at the continental scale. This, therefore, presents a unique opportunity to inform climate change management on a global scale.

³ Singh, above n 2, 91–94; Griffiths, I.L. (1995) African Boundaries and National Parks in Blake, in Gerald Henry Blake, William Hillesley, Martin Pratt, Rebecca Ridley, Clive Schofield (eds.), *The Peaceful Management of Transboundary Resources*, (London, Graham & Trotman/Martinus Nijhoff) 357–70.

⁴ Lee Hannah, 'A Global Conservation System for Climate-Change Adaptation' (2010) 24(1) *Conservation Biology* 70, 72.

⁵ Hannah, above n 4, 72,73,75; Michael R.W. Rands et al, 'Biodiversity Conservation: Challenges Beyond 2010' (2010) 329 *Science* 1298; John A. Wiens and Dominique Bachelet, 'Matching the Multiple Scales of Conservation with the Multiple Scales of Climate Change' (2010) 24(1) *Conservation Biology* 51.

⁶ Hannah Reid and Krystyna Swiderska, *Biodiversity, Climate Change and Poverty: Exploring the Links* (International Institute for Environment and Development, 2008), 4.

⁷ Millennium Ecosystem Assessment (MA), 'Mountain Systems', in Rashid Hassan, Robert Scholes and Neville Ash (eds.), *Ecosystems and Human Well-being : Current State and Trends : Findings of the Condition and Trends Working Group* (2005) (Washington DC, World Resources Institute), 681, 683.

⁸ Graeme L Worboys, 'The 2008 Mountain Transboundary Protected Area and Connectivity Conservation Workshop' (IUCN World Commission on Protected Areas (WCPA), 2008), 48.

⁹ *United Nations Framework Convention on Climate Change*, opened for signature 9 May 1992, 1771 UNTS 107, preamble (entered into force 21 March 1994).

Mountains are prominent landscape features which are often used to demarcate national boundaries. Mountain ecosystems often span more than one country, with transboundary approaches often essential to achieving effective landscape level management of mountain biodiversity. Mountain ranges are usually shared among several countries and require transboundary cooperation for their sustainable development.¹⁰

This chapter recognizes that effective transboundary biodiversity conservation requires a combination of legal, institutional and governance elements that fit the social, economic and environmental context.¹¹ Legal, political, social, governance and environmental management knowledge is integrated with good-practice guidelines contained within the transboundary conservation literature to produce a set of 11 criteria for effective transboundary conservation in terrestrial ecosystems. An additional criterion is included to inform transboundary biodiversity conservation in mountain environments. The criteria provide a check-list of key considerations for evaluating transboundary conservation programmes. Effective transboundary conservation may be possible if a transboundary conservation initiative does not meet all of the criteria. However, the fewer criteria that are fulfilled the more likely it is that an initiative will fail.

Documentary and action-research methodologies were used to produce the criteria. This involved an iterative process of data collection and critical reflection. Literature was reviewed from the disciplines of conservation science and management; law; environmental policy; institutional design; and development and aid effectiveness. In addition, two case-studies were used to test the findings of the desk-based research and inform the development of the criteria. The first case-study was the Pamir-Alai Land Management (PALM) project. This is a joint project of the United Nations Environment Programme (UNEP), the Global Environment Facility (GEF), the United Nations University (UNU) and the national governments of the former Soviet states of Tajikistan and the Kyrgyz Republic. The second case-study involved the Heart of Borneo Project. The Heart of Borneo (HoB) incorporates the three Bornean nations of Malaysia, Indonesia and Brunei. Interviews and site visits were conducted within both case-studies and, in the PALM case-study,

¹⁰ *Resolution on Sustainable Mountain Development*, GA Res 196, UN GAOR, 62nd sess., UN Doc A/RES/62/196 (2007) [27], 4.

¹¹ Paul V. Martin et al., *Developing a Good Regulatory Practice Model for Environmental Regulations Impacting on Farmers* (Australian Farm Institute, 2007).

focus groups were used. The PALM case-study also included collaboration with national legal teams to gain an in-depth understanding of existing laws and institutions.

This chapter highlights the importance of mountain biodiversity and transboundary conservation approaches. Next, the 11+1 criteria for effective transboundary conservation of mountain biodiversity are presented. This is followed by an assessment of each case-study against the 12 criteria.

2. MOUNTAINS AND MOUNTAIN BIODIVERSITY IN A CLIMATE CHANGE IMPACTED WORLD

Mountains play a key role in the provision of essential goods and services.¹² They are a globally important source of the Earth's freshwater¹³ and are repositories of rich biodiversity.¹⁴ Mountains also contain many cultural values.¹⁵ The Plan of Implementation of the World Summit on Sustainable Development (WSSD) recognizes that mountain ecosystems require specific protection and reaffirms the value of mountain resources and the particular fragility and vulnerability of mountain ecosystems.¹⁶ In addition, the United Nations Framework Convention on

¹² Resolution on the Status of Preparation for the International Year of Mountains, 2002, GA Res 189, UN GAOR, 55th sess., 87th plen. mtg, UN Doc A/RES/55/189 (2000) [2], 2; Sustainable Mountain Development: Report of the Secretary-General, UN GAOR, 62nd sess. UN Doc A/62/292 (2007) [2], 2.

¹³ Resolution on the Status of Preparation for the International Year of Mountains, 2002, GA Res 189, UN GAOR, 55th sess., 87th plen. mtg, UN Doc A/RES/55/189 (2000) [2], 2; Resolution on the Sustainable Development in Mountain Regions, GA Res 216, UN GAOR, 58th sess., 78th plen. mtg, UN Doc A/RES/58/216(2003)[3], 2; Sustainable Mountain Development: Report of the Secretary-General, UN GAOR, 62nd sess., UN Doc A/62/292 (2007)

¹⁴ Resolution on Sustainable Mountain Development, GA Res 196, UN GAOR, 62nd sess., 78th plen. mtg, UN Doc A/RES/62/196 (2007) [2], 2.

¹⁵ Resolution on the Status of Preparation for the International Year of Mountains, 2002, GA Res 189, UN GAOR, 55th sess., 87th plen. mtg, UN Doc A/RES/55/189 (2000) [2], 2; Resolution on the Sustainable Development in Mountain Regions, GA Res 216, UN GAOR, 58th sess., 78th plen. mtg, UN Doc A/RES/58/216(2003)[3], 2; Resolution on Sustainable Mountain Development, GA Res 196, UN GAOR, 62nd sess., 78th plen. mtg, UN Doc A/RES/62/196 (2007) [3], 2.

¹⁶ Plan of Implementation of the World Summit of Sustainable Development, United Nations Department of Economic and Social Affairs (2002), [42], 25.

Climate Change (UNFCCC) states that full consideration should be given to the specific needs and concerns of countries with fragile mountainous ecosystems.¹⁷ This section highlights the importance of mountains and mountain biodiversity; the particular vulnerabilities of mountain ecosystems and the threats posed by climate change; and the role of mountains in global climate change adaptation.

2.1 The Ecological and Livelihood Importance of Mountain Biodiversity

The Millennium Ecosystem Assessment (MA) identified mountain regions to be of prime conservation value due to the high levels of biodiversity which characterize this biome.¹⁸ The high species richness¹⁹ of mountain areas has resulted from the wide range of climatic zones in mountains, which have been compressed along a vertical gradient. This produces a large diversity of habitats and exposure effects.²⁰ Mountains provide habitat for some of the world's rarest plants and animals and contain some of the largest tracts of surviving wilderness on the planet.²¹ Half of the world's biodiversity hotspots²² and global Endemic Bird Areas are located in mountain regions.²³ Many mountain ecosystems

¹⁷ United Nations Framework Convention on Climate Change, opened for signature 9 May 1992, (entered into force 21 March 1994) 1771 UNTS 107, Art.4[8](h).

¹⁸ MA, above n 7, 683.

¹⁹ Species richness is a measure of the number of species in an area. See Robert E. Ricklefs, *The Economy of Nature* (5th edn., 2001) (New York, W.H. Freeman and Company), 401.

²⁰ MA, above n 7, 687. The 7th Conference of the Parties to the CBD (COP-VII) has also recognized the high ecosystem diversity, high species richness, high numbers of endemic and endangered species, and high genetic diversity in crops, livestock and their wild relatives contained within mountains. Convention on Biological Diversity, Conference of the Parties, *Mountain Biological Diversity*, UNEP/CBD/COP/7/27 (2004), Annex- Programme of Work on Mountain Biodiversity, [8] (a).

²¹ Michael J. Bowman, 'International Law and the Conservation of Biological Diversity in Mountain Ecosystems', in Tullio Treves, Laura Pineschi and Alessandro Fodella (eds.), *Sustainable Development of Mountain Areas – Legal Perspectives Beyond Rio and Johannesburg* (2004) (Milan, Giuffrè), 95, 96.

²² MA, above n 7, 683.

²³ Martin F. Price et al. (eds.), *Mountains of the World: Sustainable Development in Mountain Areas – The Need for Adequate Policies and Instruments* (2002) (Tokyo, United Nations University Press), 16.

contain higher species richness and levels of endemism²⁴ than adjacent lowlands. The tropical cloud forests of mountains are of particular importance for endemic birds and provide habitat and refuges for migratory birds, insects and other species. This is of increasing importance during times of climate change.²⁵

Mountain biodiversity provides a range of vital ecosystem services. Mountain ecosystems are particularly important for the provision of clean water.²⁶ It is estimated that half of humankind depends directly or indirectly on mountain resources.²⁷ As the origin of the majority of the world's major rivers, and many of the minor ones, mountains provide a large percentage of the world's water resources.²⁸ Mountain ecosystems are therefore critical to water supply for urban and agricultural regions²⁹ and will play a vital role in the provision of future fresh water supply.³⁰

²⁴ Endemic species are found only in discrete locations with their distribution confined to a limited area. Regions with high numbers of endemic species are thus said to have a high level of endemism. See Robert E. Ricklefs, *The Economy of Nature* (5th edn., 2001), 481.

²⁵ This increase in endemic species is due partly to topographic isolation (See A.H. Gentry, 'Changes in Plant Community Diversity and Floristic Composition on Environmental and Geographical Gradients' (1988) *75 Annals of the Missouri Botanical Garden* 1; A.T. Peterson et al., 'Conservation Priorities in Northern Middle America: Moving Up in the World' (1993) *1 Biodiversity Letters* 33 cited in MA, above n 7, 687) and the often rapid formation and loss of links (corridors) in geological time; see also Convention on Biological Diversity, *What is Mountain Biodiversity?* (2009), available at <<http://www.cbd.int/mountain/what.shtml>>.

²⁶ MA, above n 7, 683.

²⁷ Four billion people worldwide rely on the water supplies from mountain systems. Millennium Ecosystem Assessment, 'Ecosystems and Human Well-being: Synthesis' (2005) (Washington DC, World Resources Institute), 30.

²⁸ It is estimated that mountains are the source of more than half of the world's freshwater. Jayanta Bandyopadhyay et al., 'Highland Waters – A Resource of Global Significance', in Jack D. Ives and Bruno Messerli (eds.), *Mountains of the World – A Global Priority* (1997) (New York, The Parthenon Publishing Group Inc), 131, 131.

²⁹ Gregory Greenwood, 'Why Mountains Matter', *IHDP Update – Magazine of the International Human Dimensions Programme on Global Environmental Change*, October 2008 4, 6.

³⁰ Alessandro Fodella and Laura Pineschi, 'Environmental Protection and Sustainable Development of Mountain Areas', in Treves, Pineschi and Fodella (eds.), *Sustainable Development of Mountain Areas – Legal Perspectives Beyond Rio and Johannesburg* (2004) 15, 16, citing Bandyopadhyay et al. 'Highland Waters – A Resource of Global Significance', in Jack D. Ives and Bruno Messerli (eds.), *Mountains of the World : A Global Priority* (1997).

The rich biodiversity of mountain systems also contributes substantially to global plant and animal production.³¹ The high levels of plant diversity in mountain ecosystems potentially increases the resilience of mountain ecosystems by providing effective barriers to events such as rock falls during times of extreme disturbance. The extent of vegetation is further linked to soil retention and slope stability.³² The ecological integrity of mountain ecosystems is also key to the safety of settlements and transport routes.³³

2.2 Threats to Mountain Biodiversity from Climate Change

Mountain ecosystems generally react to environmental degradation and global environmental trends earlier and more clearly than lowland ecosystems. Fragile mountain ecosystems are often at greater risk from various causes of environmental deterioration and are particularly vulnerable to the adverse effects of climate change.³⁴ One of the MA's most concerning findings is that the recovery of mountain ecosystems from disturbances is typically slow or does not occur.³⁵ Temperature and rainfall are two of the principal determinants of ecosystem formation. These are the very two characteristics which are vulnerable to disruption due to climate change. Climate change could therefore result in the gradual desiccation of entire mountain systems.³⁶

Mountain species, especially those with narrow habitat tolerance and particularly higher elevation forms, and those with low dispersal capacity, are at high risk to the environmental effects of climate change.³⁷ The MA indicates that diseases generally spread faster than mountain flora and fauna have the capacity to adapt to, thus leaving mountain biota

³¹ MA, above n 7, 683.

³² Convention on Biological Diversity, Conference of the Parties, *Mountain Biological Diversity*, UNEP/CBD/COP/7/27 (2004), Annex- Programme of Work on Mountain Biodiversity, [3].

³³ MA, above n 7, 683.

³⁴ *United Nations Framework Convention on Climate Change*, opened for signature 9 May 1992, 1771 UNTS 107, preamble (entered into force 21 March 1994); Bowman, above n 21, 98; Price et al., above n 23, 16; Price and Barry 'Climate Change', in Jack D. Ives and Bruno Messerli (eds.), *Mountains of the World : A Global Priority* (1997), cited in Fodella and Pineschi, above n 30, 17.

³⁵ MA, above n 7, 683.

³⁶ Bowman, above n 21, 98.

³⁷ Convention on Biological Diversity, *What is Mountain Biodiversity?* (2009), available at <<http://www.cbd.int/mountain/what.shtml>> .

particularly susceptible to the effects of climate change.³⁸ A 1°C rise in mean temperatures would result, very approximately, in a vertical shift of 150m in the limits of tolerance of species.³⁹ This could result in the incremental loss of species, with those at higher altitudes being the first to succumb to such impacts.

2.3 Mountain Biodiversity and its Role in the Management of Global Environmental Change

Mountains are key indicators of climate change and play an important role as early warning systems of climate change and its impacts.⁴⁰ Mountain ecosystems represent a vertical microcosm of changing biome types found across the horizontal plane of the earth's surface. This enables the observation of the progression of ecosystem types across short distances and therefore the opportunity for the examination of the influence of climate change on ecosystem dynamics, which might be undetectable at the continental level. This provides an important opportunity for climate change management on a global scale.⁴¹ The designation of mountains as a conservation priority therefore has value beyond addressing the threats facing mountains themselves due to the transferability of the lessons learnt in the mountain biome to benefit conservation initiatives in other areas.

3. THE IMPORTANCE OF TRANSBOUNDARY APPROACHES

State boundaries may not take into consideration the parameters of ecological units; important watersheds or internationally significant natural areas are often transected by national boundaries.⁴² Without an

³⁸ MA, above n 7, 706.

³⁹ Commonwealth Group of Experts, 'Climate change: Meeting the Challenge' (1989) 45, in Bowman, above n 21, 99.

⁴⁰ Fodella and Pineschi, above n 30, 16; Price et al., above n 23, 16; Resolution on Sustainable Mountain Development, World Conservation Congress, 4th sess., Barcelona, Spain, Res 4.070, (2008) [3]; Further the Resolution on Sustainable Mountain Development, GA Res 196, UN GAOR, 62nd sess., UN Doc A/RES/62/196 (2007) [3], 2 recognizes that mountains provide indications of climate change through changes in biodiversity and seasonal runoff as well as glacial retreat.

⁴¹ Bowman, above n 21, 99.

⁴² Shine, above n 2, 38.

appropriate management regime for the whole ecological unit, this also raises the possibility of a heightened risk of conflict concerning the use of the shared resource.⁴³

A transboundary approach to ecosystem management has emerged from an increasing awareness of the ecological interdependence of communities located adjacent to or near to borders.⁴⁴ The impacts of climate change may mean some smaller protected areas cease to provide suitable habitats for the species they were designed to conserve.⁴⁵ Cooperation at the transboundary level is therefore necessary to give effect to the ecosystem/landscape approach across political boundaries and at an appropriate scale.

Supplementary political benefits can result from transboundary cooperation. These benefits include strengthened regional collaboration, increased international attention and donor support, cost effective measures of mutual cost-sharing resulting in strengthened protection and management, harmonized management objectives and management plans, and the exchange of information and expertise.⁴⁶

Many mountain issues are transboundary in nature and require cooperation at the regional or global level.⁴⁷ It is therefore important for countries with shared or adjoining mountain ecosystems to consider which aspects of management require transboundary rule or harmonized conduct.⁴⁸ This is echoed in Chapter 13 of Agenda 21, which has as one of its objectives the improved coordination of regional efforts for the protection of mountain ecosystems.⁴⁹

⁴³ *Ibid.*

⁴⁴ Eklabya Sharma et al., *The Landscape Approach in Biodiversity Conservation – A Regional Cooperation Framework for Implementation of the Convention on Biological Diversity in the Kangchenjunga Landscape*, ICIMOD Framework Paper (2007), 3.

⁴⁵ *Ibid.*

⁴⁶ Kathy MacKinnon, *Transboundary Reserves – World Bank Implementation of the Ecosystem Approach* (2000) (Washington DC, World Bank), 2.

⁴⁷ Mountain Partnership, *Policy and Law* (2008), available at <http://web.archive.org/web/20110522110211/http://www.mountainpartnership.org/initiatives/display.asp?id_init=3> at 10 March 2009.

⁴⁸ Wolfgang E. Burhenne, 'Prospective International Agreements for Mountain Regions', in Martin F. Price, Libor Jansky and Andrei A. Iatsenia, above n 23, 200, 200.

⁴⁹ 'Chapter 13—Managing Fragile Ecosystems: Sustainable Mountain Development', *Agenda 21—Report of the United Nations Conference on Environment and Development*, UN Doc A/CONF.151/26 (1992) [13.5] (e).

Table 10.1 Criteria for the effective transboundary conservation of terrestrial biodiversity

11 +1 CRITERIA FOR THE EFFECTIVE TRANSBOUNDARY
CONSERVATION OF TERRESTRIAL BIODIVERSITY

THRESHOLD ISSUE: NET BENEFITS OF GOING
TRANSBOUNDARY IN THE CIRCUMSTANCES CONSIDERED

- 1 Operates at each level of political organization
 - 2 Has political buy-in
 - 3 Costs and benefits of transboundary conservation are equitably distributed
 - 4 An integrated ecosystem approach which incorporates available science is applied
 - 5 The objective of conservation is explicit
 - 6 Good governance is practised
 - 7 Adaptive management is practised and clear success indicators for ongoing monitoring and evaluation exist
 - 8 Rules and legal instruments that enable the process exist
 - 9 Designated institutions are identified at each level of organization and vertical and horizontal linkages are established across all levels
 - 10 Operates in consideration of capacity
 - 11 Complexity recognized and appropriate resources secured
 - 12 Mountain-specific issues are incorporated in a meaningful manner
-

3.1 Threshold Consideration: Whether to ‘Go Transboundary’

Before engaging in transboundary conservation countries should question whether ‘going transboundary’ is the best approach for the circumstances. The existence of a shared resource or ecosystem is not itself sufficient rationale for transboundary management. Where conditions for in-country natural resource management are absent, these inadequacies can rarely be overcome by ‘going transboundary’.⁵⁰

⁵⁰ Harry van der Linde et al., *Beyond Boundaries: Transboundary Natural Resource Management in Sub-Saharan Africa* (Biodiversity Support Program, 2001), 105–6.

Compared to initiatives that occur solely within national boundaries, transboundary projects introduce additional complexities.⁵¹ Cooperating across borders also increases the complexity of the network of stakeholders⁵² and can create new patterns of resource ownership and additional demands on national institutions.⁵³ There are occasions where there is little net gain from collaboration. In such cases it may be more effective for countries to manage their shared resources independently.⁵⁴

Transboundary collaboration should provide a mechanism for conservation which countries cannot achieve as easily in isolation. Therefore 'going transboundary' must be a value added product which increases the efficiency of natural resource management.⁵⁵ The decision to engage in transboundary management should be made following an assessment of the costs and benefits of doing so.

3.2 Criterion 1: Operates at Each Level of Political Organization

Transboundary biodiversity conservation involves multiple organizations and institutions from the local to the transboundary level. Cooperation between and across each level is essential for successful transboundary collaboration.⁵⁶ Transboundary initiatives should recognize the many levels of political organization that influence the transboundary management process. Initiatives should also actively involve stakeholders at every level.

Figure 10.1 presents an illustration of the levels of authority that may govern transboundary management. Effective transboundary conservation necessitates identifying the levels of authority in each country. Approaches should be tailored to operate with 'best fit' counterpart authorities being coordinated across all levels of political organization. Transboundary planners should also take into account the nature of power relations between stakeholders at each level.⁵⁷

⁵¹ *Ibid.*, xix; Yemi Katerere, Ryan Hill and Sam Moyo, *A Critique of Transboundary Natural Resource Management in Southern Africa, Paper No 1* IUCN-ROSA Series on Transboundary Natural Resource Management (2001) (Harare, IUCN Regional Office for Southern Africa), 25.

⁵² van der Linde et al., above n 50, xix.

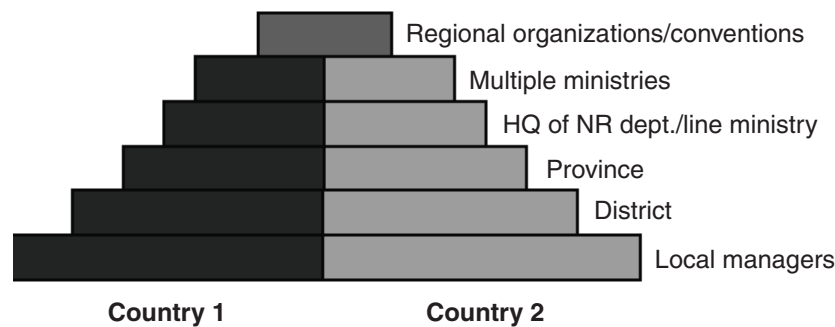
⁵³ Katerere et al., above n 51, 26.

⁵⁴ van der Linde et al., above n 50, xviii.

⁵⁵ *Ibid.*, 105–6, xix–xx.

⁵⁶ *Ibid.*, 28–9.

⁵⁷ *Ibid.*, 32.



Source: van der Linde et al. (2001).

Figure 10.1 Levels of authority in transboundary collaboration

Many border areas have a long history of transboundary cooperation at national, regional and local levels.⁵⁸ Existing forms of collaboration across national boundaries should therefore be promoted. One danger of current movements to formalize transboundary cooperation is that this could constrain communities that have evolved organic forms of transboundary collaboration at the community level.⁵⁹

Local level involvement needs to start the transboundary collaboration process. Natural resource use occurs at the local level. Grass-roots liaison, at its best, builds familiarity and trust while supporting the development of flexible and innovative approaches.⁶⁰

The meaningful involvement of local communities is a major challenge.⁶¹ Community involvement in transboundary conservation requires more than simply acknowledging that the participation of communities is necessary. Communities cannot control other communities nor regulate resource use outside their communities. Communities need to work

⁵⁸ Gerald Blake, 'The Geopolitics of Transboundary Cooperation: An Overview' (Paper presented at the Parks for Peace- International Conference on Transboundary Protected Areas as a Vehicle for International Cooperation, Somerset West, South Africa, 16–18 September 1997) 75.

⁵⁹ *Ibid.*, 13,18.

⁶⁰ Clare Shine, Nattley Williams and Lothar Gündling, *A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species*, IUCN Environmental Policy and Law Paper No. 40 (IUCN, 2000), 40–1.

⁶¹ David Sheppard, 'Conservation Without Frontiers – The Global View' (Paper presented at the EUROPARC 99 Transcending Borders – Parks for Europe, Zakopane, Poland, 15 –19 September 1999), 11–2.

through state and regional institutions.⁶² In addition to vertical cooperation from the transboundary to the local, horizontal networks of cooperation across these levels of political organization are also essential.

Access to adaptation knowledge and technologies will be of particular importance at the local level to address the increasing and uncertain impacts of climate change. National governments can facilitate the sharing of knowledge at the local level by creating fora where success stories of local level adaptation strategies can be shared between border communities.

3.3 Criterion 2: Has Political Buy-in

Endorsement of transboundary initiatives by authorities and stakeholders at each level of political organization is an important component of the transboundary process. Maintaining genuine political support for transboundary biodiversity conservation facilitates the effective operation of transboundary initiatives. The existence of multiple stakeholders and competing interests makes this a challenging goal.

To develop support for transboundary initiatives the creation of value and sense of ownership is essential. Current measures of economic wealth do not reflect the total economic value of ecosystems and mistakenly treat nature's goods and services as free to use and limitless in abundance.⁶³ Biodiversity contains many values, which range from the economic through to existence and spiritual values.⁶⁴ To gain political buy-in, the importance of the values of biodiversity and its conservation should be promoted. The importance of transboundary collaboration for protecting or enhancing that value also needs to be highlighted.

Resource management across an international boundary impinges on sovereignty and potentially on national security. Therefore, the role of the state in transboundary management is far more important than in comparable conservation initiatives which occur solely within national borders. National governments therefore play a key role in facilitating the effective management of transboundary resources.⁶⁵

⁶² Katerere et al., above n 51,18.

⁶³ Secretariat of the Convention on Biological Diversity, *Biodiversity Issues for Consideration in the Planning, Establishment and Management of Protected Area Sites and Networks* CBD Technical Series no. 15 (The Secretariat of the Convention on Biological Diversity, 2004) 17.

⁶⁴ MA, above n 27.

⁶⁵ *Ibid.*, 18, 29.

Unlike domestic law, international law lacks the means of ensuring compliance.⁶⁶ State consent is a fundamental requirement for binding a state to an international legal instrument. The sincere support of states for transboundary initiatives is critical. Unless the aspirations of the treaty are incorporated into national policies and decision-making, the act of signing a treaty will not translate into tangible environmental outcomes.

Stakeholder involvement in conservation strategies at all stages of development and implementation is an important characteristic of successful conservation projects.⁶⁷ Global experience demonstrates that, while more expensive initially, planning that involves all relevant actors is more likely to be successful in the long term.⁶⁸ Stakeholder involvement from the initial planning stages instils a sense of ownership and commitment in the parties involved.⁶⁹ Project 'ownership' is important at each scale of transboundary collaboration. It can enhance cost effectiveness by reducing the need for externally imposed sanctions. Those at the lowest levels of political organization should benefit from and have ownership of the transboundary process and should be included in its design and implementation.⁷⁰ This involvement can foster long-term interest in conservation.⁷¹

The alignment of aid with 'partner countries' priorities, systems and procedures' is a priority area of the Paris Declaration on Aid Effectiveness.⁷² Ensuring that the aims of the initiative are aligned with

⁶⁶ John Charles Kunich, 'Fiddling Around While the Hotspots Burn Out' (2001–2002) 14 *Georgetown International Environmental Law Review* 179, 260.

⁶⁷ Leslie (2005) cited in Carolyn J. Lundquist and Elise F. Granek, 'Strategies for Successful Marine Conservation: Integrating Socioeconomic, Political and Scientific Factors' (2005) 19 *Conservation Biology* 1771, 1772.

⁶⁸ van der Linde et al., above n 50, 111.

⁶⁹ J.E. Cinner, M.J. Marnane and T.R. McClanahan, 'Conservation and Community Benefits from Traditional Coral Reef Management at Ahus Island, Papua New Guinea' (2005) 19 *Conservation Biology* 156; and E.F. Granek and M.A. Brown 'Co-Management Approach to Marine Conservation in Mohéli, Comoros Islands' (2005) 19 *Conservation Biology*, cited in Lundquist and Granek, above n 67, 1772.

⁷⁰ Van der Linde et al., above n 50, 111.

⁷¹ Lundquist and Granek, above n 67, 1772.

⁷² Paris Declaration on Aid Effectiveness (2005) [3] (ii). The Paris Declaration on Aid Effectiveness is an international agreement to which over 100 Ministers, Heads of Agencies and other Senior Officials adhered and committed their countries and organizations to continue to increase efforts in harmonization, alignment and managing aid for results with a set of monitorable actions and indicators. It was endorsed on March 2nd, 2005; available at <http://waterwiki.net/index.php/Paris_Declaration#How_will_the_Paris_Declaration_increase_the_impact_of_aid.3F>.

national priorities is an important way to create national level ownership and support for transboundary conservation initiatives.

If there is a perception that benefits are not being distributed equitably, initiatives can suffer from the lack of political support.⁷³ The equitable distribution of costs and benefits is discussed below as the third criterion for effective transboundary conservation.

3.4 Criterion 3: The Cost and Benefits of Transboundary Conservation are Equitably Distributed

People are likely to manage the environment when the benefits of management are perceived to exceed its costs and if they have the means to meet these costs.⁷⁴ Conflict can exist between the sovereign interests of nation states and the welfare of local communities who straddle these borders. Pooling common transboundary resources while privatizing associated benefits risks further isolating the poor.⁷⁵

The inequitable distribution of benefits between countries and shareholders has been identified as a major hindrance to transboundary initiatives.⁷⁶ Transboundary initiatives should offer genuine opportunities for the equitable distribution of tangible benefits for stakeholders at all levels of political organization. Where unequal partnerships occur, the spirit of the partnership can be undermined if the dominance of one country partner is not applied positively. Systems which ensure the equitable sharing of benefits and costs are needed.⁷⁷

3.5 Criterion 4: An Integrated Ecosystem Approach which Incorporates Available Science is Applied

The Third Global Biodiversity Outlook (GBO 3) highlighted the inadequate integration and mainstreaming of biodiversity issues into broader policies, strategies and programmes and the failure at all scales to significantly address the underlying drivers of biodiversity loss. GBO

⁷³ Katerere et al., above n 51, 27.

⁷⁴ Marshall W. Murphree, *Communities as Resource Management Institutions* (1991) (London, International Institute for Environment and Development).

⁷⁵ Trevor Sandwith and Charles Besançon, 'Trade-offs Among Multiple Goals for Transboundary Conservation (Draft)' (2005), available at <http://www.wilsoncenter.org/events/docs/Besancon_Sandwith.pdf>, 2.

⁷⁶ van der Linde et al., above n 50, 59; Singh, above n 2, 25.

⁷⁷ Katerere et al., above n 51, 119.

3 also stressed that action to implement the Convention on Biological Diversity (CBD) has not occurred at a sufficient scale to address the pressures on biodiversity.⁷⁸ To implement the ecosystem approach across international boundaries, transboundary conservation needs to occur in the wider landscape beyond protected areas and take into account the various sectors that impact biodiversity. To achieve biodiversity conservation over the long term, policies in all sectors should consider the implications for biodiversity and integrate appropriate measures into management strategies.⁷⁹

The use of appropriate and available science in the decision-making process is a common theme of successful conservation initiatives.⁸⁰ The CBD's principles for the implementation of the ecosystem approach advocate the use of science to bring the approach into effect.⁸¹ The incorporation of science should therefore be an important component of an integrated approach to transboundary biodiversity conservation.

To enable the effective use of science, there needs to be a degree of flexibility in policies and institutions to respond to the science. This will be of increasing importance in the face of global change.

3.6 Criterion 5: The Objective of Conservation is Explicit

The importance of an integrated approach was highlighted in Criterion 4. The objective of conservation must not, however, be overlooked in the incorporation of multiple values and sectors. There is growing acknowledgement of the links between biodiversity and livelihoods and the contribution that biodiversity makes to human well-being.⁸² These relationships are, however, non-linear. Biodiversity conservation and poverty alleviation objectives often conflict and are themselves highly complex. Different stakeholders at each level of political organization often regard the use and non-use values of biodiversity differently.⁸³ If the objective of conservation is not explicit, livelihood and development

⁷⁸ Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 3* (2010) (GBO 3), 10.

⁷⁹ I. Thompson and T. Christopher, *Cross-Sectoral Toolkit for the Conservation and Sustainable Management of Forest Biodiversity* (Secretariat of the Convention on Biological Diversity, 2008), 5.

⁸⁰ Lundquist and Granek, above n 67, 1774.

⁸¹ Convention on Biological Diversity, Conference of the Parties, *Ecosystem Approach*, UNEP/CBD/COP/5/6 (2000), Principle 11, Implementation Guideline 11.3; Principle 12, Implementation Guideline 12.4.

⁸² MA, above n 27, i–iv.

⁸³ Murphree, above n 74.

outcomes can be prioritized at the expense of environmental ones. By first clearly stating biodiversity conservation as a key objective of an initiative, it is more likely that governments and communities will remain attentive to the conservation aspect of the initiative.

3.7 Criterion 6: Good Governance is Practised

Good governance is essential for successful application of the ecosystem approach.⁸⁴ Badenoch singles out three of the *Rio Declaration* principles as being of particular importance in guiding governance. These principles are transparency and access to information, participation, and accountability.⁸⁵

The Paris Declaration on Aid Effectiveness identifies corruption and lack of transparency as the key impediments to concrete and effective action. These factors erode public support, impede effective resource mobilization and divert resources from poverty reduction and sustainable economic development activities.⁸⁶

Successful transboundary management requires good governance at all levels of political organization. Transboundary projects can provide opportunities for corrupt powers to gain personally from these initiatives. Improved national governance may be a precondition for the effective management of transboundary resources.⁸⁷

Local tyrannies are the most commonly cited source of failure in a decentralized system. Some self-organized resource governance systems will not be democratically constituted nor take into account the contributions of its users. Local leaders or elites may alter rules for their own advantage.⁸⁸ It is therefore important to establish transparency and

⁸⁴ Convention on Biological Diversity, Conference of the Parties, *Ecosystem Approach*, UNEP/CBD/COP/7/11 (2004) [18].

⁸⁵ Nathan Badenoch, *Transboundary Environmental Governance – Principles and Practice in Mainland Southeast Asia* (2002) (Washington DC, World Resources Institute) 23.

⁸⁶ Paris Declaration on Aid Effectiveness (2005) [4] (iv).

⁸⁷ van der Linde et al., above n 50, 61, 112.

⁸⁸ Krister P. Andersson and Elinor Ostrom, 'Analyzing Decentralized Resource Regimes from a Polycentric Perspective' (2008) 41 *Policy Science* 71 citing J. P. Platteau (2004) 'Monitoring elite capture in community-driven development' *Development and Change*, 35, 223–46; J. P. Platteau and F. Gaspart (2003), 'The risk of resource misappropriation in community-driven development' *World Development*, 31, 1687–703; K. Andersson and F. van Laerhoven (2007), 'From local strongman to facilitator: Institutional incentives for participatory municipal governance in Latin America' *Comparative Political Studies*,

accountability between levels of political organization from the local to the transboundary.⁸⁹

To give effect to the governance principles above, transparent administrative systems should be created and based on accountability to stakeholders. The obligation to develop or improve such systems should be provided for in transboundary agreements.⁹⁰

3.8 Criterion 7: Adaptive Management is Practised and Clear Success Indicators for ongoing Monitoring and Evaluation Exist

Value-based standards are essential for the delivery of good governance to achieve intended outcomes for natural resource management.⁹¹ Ongoing monitoring and evaluation is crucial to determining whether such standards have been met and where interventions are needed.

An adaptive approach to biodiversity conservation is particularly important as environmental managers and policy makers seek to address the uncertainties of climate change. Monitoring and evaluation play a vital role in adaptive management. One of the benefits of policy evaluation is the learning which results from the assessment of past experiences.⁹² Often the unintended impacts of cross-sectoral linkages only become apparent after implementation has occurred.⁹³ Adaptive management is essential for transboundary biodiversity conservation due to the complexity of issues and scales that are involved. Monitoring and evaluation based on specific indicators are effective tools for demonstrating progress and enlisting stakeholder support.⁹⁴ Data are essential to guide effective management and the direction of investment. Reporting and publicizing existing information reduces duplication of effort and

40, 1085–111; C. Johnson (2001), ‘Community formation and fisheries conservation in Southern Thailand’ *Development and Change*, 32, 951–74.

⁸⁹ van der Linde et al., above n 50, 112.

⁹⁰ Katerere et al., above n 51, 117.

⁹¹ Michael Lockwood et al., *Governance Principles for Natural Resource Management* (Land & Water Australia, 2009), 2.

⁹² Jeffrey L. Pressman and Aaron B. Wildavsky, *Implementation: How Great Expectations in Washington are Dashed in Oakland* (3rd edn., 1984) cited in Michael Howlett and M. Ramesh, ‘Policy Evaluation: Policy Analysis and Policy Learning’, in *Studying Public Policy – Policy Cycles and Policy Subsystems* (Oxford University Press, 2nd edn., 2003), 207, 220.

⁹³ Thompson and Christopher, above n 79, 6.

⁹⁴ Lundquist and Granek, above n 67, 1774.

enhances information sharing.⁹⁵ Where data on conservation and development impacts are lacking this minimizes opportunities to adapt initiatives.⁹⁶

Indicators should be developed with and by stakeholders at each political scale. This can enhance the perception of the legitimacy of the indicators. At the local level, site-specific biodiversity and livelihood indicators and targets should be developed with the communities where initiatives are based. Involving local communities in monitoring can create a sense of empowerment and pride while enabling communities to learn from mistakes.⁹⁷ Involving the community in environmental data collection may provide local people with scientific skills and can foster an appreciation of the environment and a sense of stewardship. Mechanisms for ongoing internal monitoring and evaluation should be supplemented by periodic independent external evaluation.

3.9 Criterion 8: Rules and Legal Instruments that Enable the Process Exist

The Brundtland Report emphasized that management based on equitable and enforceable rules and incentives is key to ensuring sustainable and equitable use of the global commons.⁹⁸ This is equally true for the management of transboundary resources. Legal instruments articulate rules and create the enabling framework within which stakeholders interact. Such instruments can provide the mechanisms through which regulatory and control measures are exercised. Legal instruments have a further role as priority setting mechanisms and can convey the message that decision-makers deem the issue in question to be an important one.⁹⁹

At the transboundary level, formal and informal agreements are important means to declare common interests; agree on objectives; state guiding principles; and determine and ensure levels of commitment from parties. Transboundary agreements secure the endorsement of relevant

⁹⁵ BirdLife International, 'Instituting Standardised Sustainable Biodiversity Monitoring in the Eastern Arc Mountains and coastal Forests of Kenya and Tanzania Region' (BirdLife Africa Partnership Secretariat, 2005).

⁹⁶ Dilys Roe et al., 'Local Action, Global Aspirations: The Role of Community Conservation in Achieving International Goals for Environment and Development' (International Institute for Environment and Development, 2006).

⁹⁷ *Ibid.*

⁹⁸ World Commission on Environment and Development, *Our Common Future* (1987) UN Doc A/42/427 (4 August 1987) 258.

⁹⁹ Ann Majchrzak, 'Focus of Information Inquiry', in *Methods for Policy Research* (1984) (Beverly Hills, Sage Publications), 25.

authorities and establish accountability.¹⁰⁰ Agreements ensure that parties, their roles and their responsibilities are clearly identified and perform the further function of ensuring that issues of sovereignty are not compromised. Time and resources should therefore be allocated to the careful development of transboundary instruments.

Transboundary cooperation can be hampered by different and or conflicting laws; lack of parity in the ratification of international protocols; and differential commitment from state parties as well as different levels of economic development and professional standards.¹⁰¹ In most cases it will be necessary to amend each state party's laws and/or regulations to incorporate principles contained within transboundary agreements and to harmonize area-based rules.¹⁰²

3.10 Criterion 9: Designated Institutions are Identified at Each Level of Organization and Vertical and Horizontal Linkages are Established Across All Levels

Regardless of the instruments chosen to regulate the environment, all require efficient institutional backing and adequate implementation resources. The optimum result arises when instruments work in concert and are supported by credible institutions with appropriate resources.¹⁰³ An increasingly globalized world requires institutions that link the local level to higher levels of social and political organization. It is therefore important to develop institutional systems that link transboundary planning to planning at national and local levels.¹⁰⁴ Linkages at multiple scales of political organization can provide ways to deal with multiple objectives¹⁰⁵ and multiple knowledge systems.¹⁰⁶

¹⁰⁰ Trevor Sandwith et al., *Transboundary Protected Areas for Peace and Co-operation*, Best Practice Protected Area Guidelines Series No. 7 (2001), 41.

¹⁰¹ L.S. Hamilton et al., *Transborder Protected Area Co-operation* (1996), cited in Trevor Sandwith et al., above n 100,14.

¹⁰² Shine, above n 2, 1.

¹⁰³ Martin et al., above n 11, ix.

¹⁰⁴ Jennifer Mohamed-Katerere, *Review of the Legal and Policy Framework for Transboundary Natural Resource Management in Southern Africa* (2001) (Harare, IUCN Regional Office for Southern Africa), 113.

¹⁰⁵ Jeffery D Hackel, 'Community Conservation and the Future of Africa's Wildlife', 13 *Conservation Biology* (1999), 726-34 cited in Fikret Berkes, 'Community-Based Conservation in a Globalized World' (2007) 102 *Proceedings of the National Academy of Sciences of the United States of America* 15188, 15193.

COP 7 of the CBD endorsed the design of management processes and institutions to match the scales of the ecosystem being managed.¹⁰⁷ From a scientific perspective the management of a single ecosystem unit by different institutions in accordance with different legal rules is unsatisfactory.¹⁰⁸ This can lead to duplication of effort, conflicting management policies, wasted socio-economic opportunities and weak or non-existent law enforcement. Shine suggests that it would be preferable for the whole of a transboundary area to be administered as a single ecosystem unit by the one institutional body. The establishment of a single authority may be perceived by parties to be politically unacceptable, particularly in the early stages of transboundary cooperation. Shine therefore recommends working with existing agencies to establish regular coordination between the lead agency in each country involved and that it may be necessary to develop a specific financial mechanism.¹⁰⁹

Van der Linde et al. argue that transboundary initiatives which build on existing internal natural resource management and work through existing organizations are more likely to be successful. They maintain that the creation of new organizations is undesirable as such organizations may not have buy-in or acceptability by other stakeholders, or sustainability. They also stress that good national level natural resource management, including appropriate structures and systems, should be a basis for transboundary collaboration.¹¹⁰

Recognizing the political challenges of setting up completely new institutions, Shine recommends working with existing agencies by establishing regular coordination between the lead agency in each country involved, with coordination responsibility rotating between the agencies. She also points out that it may be necessary to develop a specific financial mechanism¹¹¹

The success or failure of transboundary initiatives does not, however, hinge on whether an overarching transboundary institution exists. There are valid arguments for and against establishing such an institution. What

¹⁰⁶ Millennium Ecosystem Assessment, 'Policy Responses', cited in Fikret Berkes, 'Community-Based Conservation in a Globalized World' (2007) 102 *Proceedings of the National Academy of Sciences of the United States of America* 15188, 15193.

¹⁰⁷ Convention on Biological Diversity, Conference of the Parties, *Ecosystem Approach*, UNEP/CBD/COP/7/11 (2004), Principle 7.

¹⁰⁸ Shine, above n 2, 38.

¹⁰⁹ *Ibid.*, 41.

¹¹⁰ van der Linde et al, above n 50, 114.

¹¹¹ Shine, above n 2, 41.

matters is that corresponding government bodies are identified within each participating country and responsible institutions are allocated at each level of authority. In line with Criterion 1, institutions should be linked horizontally at each level across the international boundary, as well as vertically across each scale of organization from the local to the transboundary.

3.11 Criterion 10: Operates in Consideration of Capacity

Capacity deficits can be a severe constraint. The Paris Declaration on Aid Effectiveness identifies weaknesses in institutional capacity as one of the key challenges to concrete and effective action.¹¹² The capacity of national agencies and organizations is a crucial factor in determining the success of transboundary management processes. If national organizations are extremely weak they will need to be strengthened to a minimum capacity before they can play a role in transboundary conservation.¹¹³

The capacity of actors, instruments and institutions at all levels of the transboundary process should be considered. It is important to find the correct fit between context and available resources.¹¹⁴ Capacity should therefore be evaluated at the outset and capacity building built into project design. Implementation strategies should then be structured to match available resources at each level of authority.

Disparities in economic power and levels of development between state parties can create special challenges for transboundary management.¹¹⁵ These differences can lead to irreconcilable differences in priorities for natural resource management.¹¹⁶ This highlights the importance of capacity building of national bodies, especially in less-developed partner nations.¹¹⁷ Enhanced capacity will also enable equitable participation in regional meetings among nations.¹¹⁸

Transboundary initiatives create additional demands on the administration of natural resources; policy development and harmonization; consultation processes; and implementation that is not confined to the national

¹¹² Paris Declaration on Aid Effectiveness (2005) [4] (i).

¹¹³ van der Linde et al., above n 50, 49.

¹¹⁴ Martin et al., above n 11, 15.

¹¹⁵ Mohamed-Katerere, above n 104, 118.

¹¹⁶ van der Linde et al., above n 50, 59.

¹¹⁷ Singh, above n 2.

¹¹⁸ *Ibid.*

level. As a consequence, a new set of expertise capable of operating in a complex and multi-layered policy environment may be needed.¹¹⁹

Local level capacity building is also important. While local information may be extensively developed and used by communities, local groups are likely to have limited access to scientific know-how.¹²⁰ Many community-based institutions suffer a lack of management and business skills. Further, insufficient funding can make community-based institutions dependent on donors.¹²¹ It is therefore important to develop the capacity of governments to provide support for local level initiatives.¹²² The Landcare experience demonstrated that where the capacity of local institutions and organizations is high, organizations seek to form constructive, productive partnerships to support activities and implement sustainable natural resource management.¹²³ The reverse is also true. Prior and Holt stress that without the support capacity of government and other relevant bodies, initiatives will at best function in a disconnected vacuum and at worst develop destructive practices that limit programme success.¹²⁴

3.12 Criterion 11: Complexity Recognized and Appropriate Resources Secured

Many transboundary initiatives are aimed at the management of multiple and complex resources such as biodiversity, watersheds or tracts of land.¹²⁵ Criterion 4 highlighted the importance of integrated approaches across various sectors. The management of multiple resources is more complicated in the transboundary context. In recognition of this it is

¹¹⁹ Katerere et al., above n 51, 27.

¹²⁰ Andersson and Ostrom, above n 88.

¹²¹ Edmund Barrow, Helen Gichohi and Mark Infield, Summary and Key Lessons from a Comparative Review and Analysis of Community Conservation in East Africa (2000) (Gland, IUCN).

¹²² Julian Prior and Richard Holt, 'Tools for International Landcare— Lessons Learnt From South Africa and Australia' (Paper presented at the International Landcare Conference, Melbourne, Australia, 8–11 October 2006).

¹²³ Julian Prior (2004) 'Regional Landcare Networks in Australia: Lessons Learnt of Relevance to South Africa', South African National LandCare Conference, Stellenbosch, 7–9 September 2004, and Theo Nabben, 'Capacity Building: Lessons Learnt From South Africa LandCare' (Paper presented at the Proceedings of APEN International Conference, 6–8 March 2006 at Beechworth, Victoria, Australia 2006) cited in Julian Prior and Richard Holt, *ibid.*

¹²⁴ Prior and Holt, above n 122.

¹²⁵ Katerere et al., above n 51, 18.

essential that transboundary biodiversity conservation approaches are resourced appropriately.

The sustainability of funding is crucial to achieving transboundary conservation goals. Often transboundary initiatives are project- (not programme-) based and work within three to five year time-frames. Such time-frames are rarely of sufficient length to achieve the intended outcomes of complex transboundary initiatives. Short time-frames are also inadequate for the development of long-term ecological and financial sustainability.¹²⁶

In response to this issue, van der Linde et al. emphasize the importance of securing flexible and multiple source funding bases, demonstrating clear links between benefits and costs at the local level, and ensuring the equitable sharing of benefits on both sides of the border.¹²⁷ The incorporation of 'transboundary thinking' into normal management operations and the opportunistic use of existing funds can go a long way towards funding sustainability. The transboundary context can also provide opportunities for securing funding through the establishment of cooperative budgets, joint revenue generating and fundraising activities and joint project proposals.¹²⁸

3.13 Criterion 12: Mountain-specific Issues are Incorporated in a Meaningful Manner

A further criterion is necessary for transboundary collaboration in mountain ecosystems. In such environments, the meaningful incorporation of mountain-specific issues, such as upland–lowland dynamics and the particular needs of mountain landscapes and peoples, is essential. The political economy of mountain regions is largely dominated by lowland political institutions.¹²⁹ This leaves mountain communities with limited access to policy and decision-making beyond local or sub-national

¹²⁶ van der Linde et al., above n 50, 59.

¹²⁷ *Ibid.*, 61.

¹²⁸ Sandwith et al., above n 100, 31.

¹²⁹ Nicholas K. Menzies, "'Nice View Up There": Discordant Visions and Unequal Relations Between the Mountains and the Lowlands' (Paper presented at the Landscapes of Diversity : Indigenous Knowledge, Sustainable Livelihoods and Resource Governance in Montane Mainland Southeast Asia, Proceedings of the III Symposium on MMSEA 25–28 August 2002, Lijian, P.R. China, 2003), 511. Menzies further indicates that even in nation states generally considered to be 'mountain nations', the capitals of states such as Nepal or Bhutan are located in relatively low elevation areas of the country.

level.¹³⁰ As a result, the development of mountain areas is often externally driven¹³¹ and the fragile nature of mountain environments overlooked.¹³² Many mountain policies also fail to take into account the particular needs and interests and priorities of mountain peoples.¹³³

Mountain-specific issues and their associated challenges need to be addressed by focused policies, laws, and institutional arrangements at the international, national, and local levels. A significant number of countries have realized the importance of mountain resources for sustainable development and have formulated sectoral policies, laws and regulations for the use of these resources.¹³⁴ Most of these instruments have, however, been developed to cater to lowland communities. They typically disregard mountain livelihoods and local development agendas; and fail to consider the specific challenges of mountain development.¹³⁵

Few countries have created the enabling environment or developed specific policies to address the needs of these mountain regions and peoples.¹³⁶ Price recommends the development of instruments that promote mountain development from a mountain perspective. Such instruments would take into account the wider political context, including downstream interests and the increasing potential for conflict over mountain resources within and between countries.¹³⁷

Strengthened upland–lowland linkages can improve sustainability for both upstream and downstream populations.¹³⁸ Concepts of sustainability are, however, perceived quite differently from lowland and upland perspectives. Gaps in lowland–upland systems of knowledge are often at

¹³⁰ *Ibid.*

¹³¹ *Ibid.*; Price et al, above n 23, 6.

¹³² Mountain Partnership, *Policy and Law* (2008), available at <http://web.archive.org/web/20110522110211/http://www.mountainpartnership.org/initiatives/display.asp?id_init=3>.

¹³³ *Ibid.*

¹³⁴ Price et al., above n 23, 4, 51.

¹³⁵ *Ibid.*, 4.

¹³⁶ Owen J. Lynch and Gregory F. Maggio, *Mountain Laws and Peoples: Moving Towards Sustainable Development and Recognition of Community-Based Property Rights: A General Overview of Mountain Laws and Policies with Insights from the Mountain Forums's Electronic Conference on Mountain Policy and Law* organised by The Mountain Institute, Center for International Environmental Law and Mountain Forum, Franklin, West Virginia (2000) 8; Mountain Partnership, *Policy and Law* (2008), above n 132.

¹³⁷ Price et al., above n 23, 51.

¹³⁸ MA, above n 7, 683.

the core of failed development programmes in mountains.¹³⁹ Policy initiatives and instruments therefore need to be developed so as to consider the specific challenges of development in mountain areas and to ensure that sectoral policies are adapted to take account of this specificity.¹⁴⁰ Such policies and instruments should recognize mountain areas as equal partners in development¹⁴¹ and incorporate mountain peoples themselves as well as their concerns and priorities and their vision for the future.¹⁴²

4. EVALUATION OF THE PALM PROJECT AGAINST THE 11+1 CRITERIA

The Sustainable Land Management in the High Pamir and Pamir-Alai Mountains (PALM) – An integrated and transboundary Initiative in Central Asia project operates with financial support from the GEF. The PALM project is an integrated transboundary initiative of the governments of the Kyrgyz Republic and the Republic of Tajikistan. The project is executed by the Committee on Environment Protection in Tajikistan and the National Centre for Mountain Regions Development in Kyrgyzstan. UNEP is the GEF Implementing Agency for the project, and the UNU is the International Executing Agency. The PALM project aims to address the interlinked problems of land degradation and poverty within one of Central Asia's key freshwater sources and an identified biodiversity hotspot. The PALM project area encompasses the High Pamir and Pamir-Alai region. This region is located at altitudes which range from 2,000 to 7,495 metres above sea level.

Table 10.2 presents the evaluation of the project against the 12 criteria. A few key issues are elaborated upon below.

¹³⁹ Menzies, above n 129, 510–1.

¹⁴⁰ Price et al., above n 23, 4.

¹⁴¹ *Ibid.*

¹⁴² Menzies, above n 129, 514.

Table 10.2 *Evaluation of the PALM project against 12 criteria*

CRITERION	ASSESSMENT
THRESHOLD ISSUE: NET BENEFITS OF GOING TRANSBOUNDARY IN THE CIRCUMSTANCES CONSIDERED	Yes, facilitating transboundary collaboration is a priority at all levels
1 Operates at each level of political organization	Different levels are considered in project documents and there exists a draft strategy containing mechanisms for implementation at various scales.
2 Has political buy-in	There seems to be at the community level although there is a creeping sense of disenchantment with the project. Political buy-in at the national level is much stronger in one country.
3 Costs and benefits of transboundary conservation are equitably distributed	Attempts have been made to see that local communities benefit, however benefits of hunting, tourism etc accrue to a few
4 An integrated ecosystem approach which incorporates available science is applied	Definitely attempts have been made to integrate various sectors and stakeholders at multiple scales. The extent to which this has been achieved is, however, unclear. Plans have been made to conduct scientific studies. The means of incorporating these results into decision-making has not been articulated.
5 The objective of conservation is explicit	On paper, yes. However there is the strong sense that biodiversity conservation objectives are overlooked in the pursuit of livelihood goals.
6 Good governance is practised	Pursuit of this goal appears to be hampered by inherent limitations of existing in-country systems.
7 Adaptive management is practised and clear success indicators for ongoing monitoring and evaluation exist	Some indicators identified, M & E plan not specific
8 Rules and legal instruments that enable the process exist	Not yet but concerted attempts are being made to address this issue.

CRITERION	ASSESSMENT
9 Designated institutions are identified at each level of organization and vertical and horizontal linkages are established across all levels	National institutions in each country are responsible for implementation. As yet no transboundary institution exists. Local level involvement not clearly articulated. No clear plan for establishing linkages between levels
10 Operates in consideration of capacity	Capacity limited. Project design and implementation does not appear to have taken full account of this.
11 Complexity recognized and appropriate resources secured	No
12 Mountain-specific issues are incorporated in a meaningful manner	No. This criterion is particularly important given the current political situation in both countries. The project area on both sides of the international boundary occur in parts of the country that are not only geographically but politically distanced from national government.

4.1 Criterion 5: The Objective of Conservation is Explicit

The view developed from the field work is that the objective of biodiversity conservation has been neglected in the enormity of the PALM project. The impression gained from field visits and involvement with the legal teams is that conservation was not a priority. The opinion often expressed by interviewees and in general discussion was that biodiversity issues would be solved by simply addressing livelihood issues.

The PALM Project's Draft Strategy and Action Plan released on 14 August 2010 is encouraging. In this document the importance of biodiversity is clearly recognized. There is a specific action plan for biodiversity and forest management. The Action Plan identifies activities across a range of sectors, organizational scales as well as time-frames. What remains to be seen is the extent to which concrete action can be developed from these documents.

4.2 Criterion 8: Rules and Legal Instruments that Enable the Process Exist

Though the development of rules and legal instruments is in its infancy at all levels from the transboundary to the local, an improved enabling legal and regulatory framework is one of the planned outputs of the project. To

achieve this Kyrgyz and Tajik national Legal Task Forces (LTFs) analysed the institutions and legal instruments that exist within each country. From this, the teams developed a regional framework for natural resource governance. This work provided a valuable means to identify conflicts, overlaps and duplication within and between national systems and a positive basis for future action. The LTFs' work led to the conclusion in February 2011 of The Memorandum of Understanding about the Joint Implementation of the Strategy and Action Plan on Sustainable Land Management in the High Pamir and Pamir-Alai Mountains (MoU). Signatories to the MoU were the Kyrgyz Government's State Agency on Environment Protection and Forestry; the Tajik Government's Committee on Environmental Protection; the State Administration of Osh Oblast¹⁴³ in Kyrgyzstan, and the *hukumats* (local government administrations) of Jirgatal rayon and the Gorno-Badakhshan Autonomous Oblast in Tajikistan.

The initial work of the LTFs is commendable. It is important, however, that this work is recognized as merely a starting point. Further development of appropriate national and local level instruments is essential. The development of complementary institutions in combination with necessary institutional and capacity building and adequate funding are, however, fundamental to ensuring the effectiveness of any legal instruments that are developed.

4.3 Criterion 11: Complexity Recognized and Appropriate Resources Secured

One of the key shortcomings of the PALM project is its failure to satisfy this criterion. Given the limitations of the national parties and the numerous sectors and issues the project aims to address it does not appear that resources have been allocated effectively.

5. EVALUATION OF THE HEART OF BORNEO INITIATIVE AGAINST THE 11+1 CRITERIA

In February 2007, the three countries of Borneo – Brunei, Malaysia and Indonesia – signed The Declaration on the Heart of Borneo Initiative. In the Declaration, parties pledge to 'cooperate in ensuring the effective management of forest resources and conservation of a network of

¹⁴³ An *oblast* is an administrative unit below the national level. It is subdivided into *rayons*.

protected areas, productive forests and other sustainable land-uses' within an area designated as the Heart of Borneo.¹⁴⁴ Table 10.3 evaluates the project against the 12 criteria. As with the PALM project, the evaluation of the Heart of Borneo Initiative against selected criteria will be elaborated on below.

Table 10.3 Evaluation of the 'Heart of Borneo' project against 11 +1 criteria

CRITERION	ASSESSMENT
THRESHOLD ISSUE: NET BENEFITS OF GOING TRANSBOUNDARY IN THE CIRCUMSTANCES CONSIDERED	No
1 Operates at each level of political organization	Responsible agencies are identified at the national and sub-national (state) level. Attempts to engage border communities appear to be only superficial and only involve the exchange of information and collaboration on issues that are not politically sensitive issues e.g. cultural exchange and handicraft making.
2 Has political buy-in	The support of country parties varies significantly. The lack of support from one of the sub-national parties in particular is a clear impediment to the process.
3 Costs and benefits of transboundary conservation are equitably distributed	No.
4 An integrated ecosystem approach which incorporates available science is applied	No. The project is promoted as the last remaining place where the Indo-Malayan forests of Southeast Asia can be conserved on a scale large enough to be permanently viable.* The reality, however, is a group of areas in each country many of which are unrelated and where the wisdom of promoting connectivity between these areas is questionable.

¹⁴⁴ Declaration on the Heart of Borneo Initiative, 12 February 2007, Brunei Darussalam – Republic of Indonesia – Malaysia.

CRITERION	ASSESSMENT
5 The objective of conservation is explicit	Yes. The project was initiated by WWF with the aim of conservation. There does not, however, appear to be a clear action plan and the political will to give effect to this goal is lacking.
6 Good governance is practised	No.
7 Adaptive management is practised and clear success indicators for ongoing monitoring and evaluation exist	No.
8 Rules and legal instruments that enable the process exist	Non-binding <i>Heart of Borneo Declaration</i> signed. No intention to harmonize laws.
9 Designated institutions are identified at each level of organization and vertical and horizontal linkages are established across all levels	National institutions in each country are responsible for implementation. As yet no transboundary institution exists. Local level involvement not clearly articulated. No clear plan for establishing linkages between levels.
10 Operates in consideration of capacity	There is clear capacity for implementation within two of the participating countries. Capacity is lower in one of the countries but this would not be a limiting factor if other criteria were satisfied.
11 Complexity recognized and appropriate resources secured	No.
12 Mountain-specific issues are incorporated in a meaningful manner	No. But it is not a significant consideration in these circumstances.

Notes: *Martin Hardiono, Raymond J Alfred and WWF-Malaysia, 'Borneo: Treasure Island at Risk – Maps' (WWF, 2005)

5.1 Threshold Issue: Net Benefits of Going Transboundary in the Circumstances Considered

In the PALM project the strong motivation to 'go transboundary' was evident at all levels of organization. With the Heart of Borneo this issue does not appear to be considered. Indeed it seems that parties are happy to carry on with business as usual within their respective territories. The project thus appears to serve the function of a publicity tool to promote the environmental records of the three countries at the international level.

5.2 Criterion 2: Has Political Buy-in

Lack of political buy-in is the major impediment to the operation of the project. The lack of political support for conservation initiatives is particularly evident in one of the state parties. The economic gains from logging which accrue to individuals at the highest level of government appear to be the reason for this lack of support.

5.3 Criterion 8: Legal Instruments that Enable the Process Exist

Laws, penalties and capacity for enforcement vary widely between the three countries. In contrast to the PALM project there is no intention to address this issue in the Heart of Borneo. A recent judiciary workshop for the Heart of Borneo has recommended the harmonization of laws and the development of a system of uniform penalties among the parties to the Heart of Borneo.¹⁴⁵ It is unclear, however, how and to what extent these recommendations will be incorporated into the initiative.

5.4 Criterion 9: Designated Institutions are Identified at Each Level of Organization and Vertical and Horizontal Linkages are Established Across All Levels

At the 2008 Trilateral Meeting of Heart of Borneo country parties, Malaysia presented a paper with their views on the institutional arrangement for the Heart of Borneo.¹⁴⁶ The official view was that it was at that point premature to establish a new secretariat specifically for the Heart of

¹⁴⁵ TRAFFIC, 'Heart of Borneo Judiciary Workshop on Wildlife Crime – Report Summary' (TRAFFIC – SEA, 2009) 3. A regional judiciary workshop on wildlife crime was held from the 18–19 November 2009. The workshop was organised by TRAFFIC Southeast Asia and the Sabah Wildlife Department and involved representatives from the Malaysian, Indonesian and Bruneian Courts and Attorney General's Offices. Participants included 11 Judges/Magistrates and 12 Prosecutors from the Heart of Borneo countries who participated in discussions on mutual legal assistance, enforcement and the prosecution of wildlife crimes, as part of the judiciary's commitment to tackle organized poaching and trafficking of wild animals and plants in Borneo. See <<http://www.traffic.org/home/2009/11/18/kota-kinabalu-hosts-heart-of-borneo-judiciary-workshop.html>>.

¹⁴⁶ 'Paper from Malaysia: Institutional Arrangement for HoB', Agenda Item 7: Consideration of Institutional Arrangement and Modalities for HoB, Proceedings 'Heart of Borneo: Three Countries, One Conservation Vision' Workshop (Ministry of Industry and Primary Resources, Brunei, Brunei Darussalam, 5–6 April 2005) 82.

Borneo initiative. The paper expressed the need to avoid the ‘proliferation of too many secretariats handling ASEAN (Association of South East Asian Nations) matters’, citing the adequacy of the existing forestry unit within the ASEAN Secretariat. The paper also expressed concern over the long term financing of a Heart of Borneo secretariat with the view that financing from non-governmental organizations (NGOs) or another third party was not an acceptable option as it would ‘impeach on the sovereignty of the three countries’.¹⁴⁷

There appear to be additional reasons for the lack of enthusiasm among country parties for a specially dedicated institution. These include the concern of two of the country parties that the third country would receive the bulk of any funding under regional funding rules which take into account the financial capacity of each country; and the inability of the countries to reach agreement regarding where the secretariat would be based and concerns surrounding which country would chair the secretariat.

6. CONCLUSION

The criteria presented above are intended to contribute to the evaluation of existing initiatives and to the design of future initiatives. Effective transboundary conservation may still be possible if some of these criteria are not met. However, the fewer criteria that are satisfied the greater the risk that the initiative will fail. Transboundary conservation has the potential to deliver numerous benefits. These range from enhanced conservation management to peace building. To achieve this, a complex set of institutional conditions must be fulfilled. Without acknowledgement of, and planning for, the immensity of the multi-faceted nature of transboundary conservation, transboundary conservation initiatives are at risk of failure.

The assessment of the two case studies against the criteria emphasizes the challenges of delivering effective transboundary conservation where capacity and governance elements are lacking. What the assessment also provides, however, is an objective indication of where interventions can be implemented to enhance each of the projects.

Climate change, in combination with the continued growth of human populations, will result in larger numbers of people placing greater stress on increasingly scarce resources. The criteria will therefore be of

¹⁴⁷ *Ibid.*

increasing significance and utility as decision-makers seek to adapt to climate change and conserve biodiversity at all scales of political organization. The criteria should help inform the implementation of the ecosystem approach across international boundaries. The criteria may also be applicable to evaluating the conservation of biodiversity across administrative boundaries within a country.