

Building Capacity to Enhance Protected Area Management Effectiveness: A Current Needs Assessment for the Asian Context

A.W. Don Carlos, T.L. Teel, M.J. Manfreda, and V.B. Mathur

Introduction

EFFECTIVELY MANAGING THE WORLD'S GROWING SYSTEM OF PROTECTED AREAS is a key challenge for global biodiversity conservation in the 21st century. An expanding array of external threats continually tests the abilities of protected area professionals to maintain the integrity of the protected area units and systems for which they are responsible (Chape, Spalding, and Jenkins 2008). Demand for resources (e.g., clean water, timber, grazing, wildlife products) for both subsistence and commercial use puts pressure on protected areas in all regions. Global-scale environmental change (e.g., climate change, desertification, invasive species) and localized catastrophic events (e.g., earthquakes, tsunamis, hurricanes, and typhoons) add further complexity to the task of ensuring a robust and resilient system of landscapes and seascapes devoted to conservation. Finally, there is an increasing recognition of the need to view protected areas within the context of regional economic development and human livelihood concerns. All of these factors taken together suggest that the modern protected area professional must rise to the challenge of a truly integrated approach to management that applies principled decision-making based on the use of sound science from a wide range of ecological and social science disciplines.

This need for an interdisciplinary, systems-thinking protected area management paradigm that embraces complexity and promotes adaptation to changing conditions is illustrated in the context of protected area management within the vast Asian region. Approximately 12% of the terrestrial landmass (World Database on Protected Areas 2011) and 2% of marine areas in Asia have been established as protected areas. Recent growth in establishment of protected areas in Asia reflects an increasing recognition of the vast extent of globally significant biodiversity hot spots, endangered species, and unique landscapes present in the region. Asian protected areas are juxtaposed with a very diverse mosaic of human communities that represent more than half of the world's population. While economic development

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is proceeding at rapid rates in several of the region's 24 nations, very high levels of poverty also exist, with six countries (Bangladesh, Bhutan, Cambodia, Lao PDR, Myanmar, Nepal) categorized as least-developed countries (LDCs) (United Nations Conference on Trade and Development 2012). Population densities across the region are 1.5 times the global average, leading to elevated pressure on natural ecosystems (IUCN 2011). Relationships between humans and natural resources are also complex and varied across the region. For example, in India alone 91 "eco-cultural" zones have been identified where distinct patterns of culturally based land use systems are evident (Singh 1992). These areas are inhabited by 4,635 different ethnic communities, speaking 325 languages/dialects (Singh 1992). Promoting protected area benefits such as biodiversity conservation, provision of ecosystem services, and carbon sequestration is particularly challenging in such a diverse socioeconomic, cultural, and ecological context.

For decades, global forums such as the International Union for Conservation of Nature (IUCN) World Parks and World Conservation congresses, the Convention on Biological Diversity Conference of Parties, and others have focused considerable attention on the need to improve management effectiveness for protected area systems to enhance their sustainability as a mechanism for conservation. This was one of the key messages to emerge from the most recent World Parks Congress in Durban, South Africa, in 2003 (Sheppard 2004). Recent literature has also highlighted the importance of monitoring management effectiveness indicators for protected areas to inform the development of appropriate interventions to improve success (Hockings et al. 2006; Leverington et al. 2010; Mathur et al. 2011). Where such effectiveness evaluations have been performed, deficiencies in management (e.g., lack of skilled staff, inadequate administrative practices) have often been identified as a central point of concern (McNeely, Harrison, and Dingwall 1994; Hockings 2003; Appleton 2003; Mathur et al. 2011). Expertise of protected area professionals has been found to be lacking in several key areas, including natural resource management principles, research and monitoring techniques, general leadership and communication skills, and the ability to understand and provide adequate opportunities for the involvement of local stakeholders in management decisions (Hockings et al. 2005).

Capacity building to enhance leadership skills and technical abilities for adapting to change has long been applied in the global development context. The process of building capacity can be focused at individual, institutional, and societal levels (Lusthaus, Adrien, and Morgan 2000). Within protected area management, capacity-building initiatives often target individual managers and aim to promote professional development through building on existing knowledge and experience and providing new concepts and tools to address contemporary challenges. This approach was a focal point of discussion during the 2003 World Parks Congress. One of the recommendations emerging from a workshop stream entitled "Developing the Capacity to Manage Protected Areas" pointed to the need for enhanced national and international collaboration in capacity development activities. Specifically, participants suggested that IUCN and its World Commission on Protected Areas (WCPA) should promote the sharing of best practice experience among a suite of global partners and thereby enhance the ability of protected area managers worldwide to develop appropriate responses to change (IUCN 2005).

Promoting collaborative partnerships and the sharing of institutional knowledge to build capacity for effective protected area management remains a salient point of discussion leading up to the next IUCN World Parks Congress in 2014. To contribute to this discussion, this paper is intended to provide a brief overview of current needs for protected area capacity building in the Asian context. This effort grew out of an on-going multi-institutional capacity-building partnership between Colorado State University (CSU), USA, and the Wildlife Institute of India (WII). A brief overview of this partnership and its goals and activities will be followed by a presentation of the results of an expert panel session on protected area management in Asia that was conducted at the IUCN World Conservation Congress in Jeju, Republic of Korea, in September 2012. These results will be discussed in the context of identifying cross-cutting issues, capacity-building themes, and opportunities for expanded partnerships to enhance protected area management effectiveness in Asia and beyond.

A partnership to build capacity for effective protected area management in India and the USA

In 2008, CSU and WII entered into an international memorandum of understanding to facilitate collaborative conservation research and outreach efforts that make the best use of expertise and resources available at both institutions. The partnership has resulted in several collaborations to explore and address global conservation challenges. Initiatives have included thematic workshops and conference sessions in both countries, student and faculty exchanges, cooperative research, and capacity building for protected area and wildlife management. The broad goals of this partnership include the following:

- Promote cooperation between institutions;
- Share benefits of institutional knowledge and accomplishments;
- Encourage collaborative research and outreach initiatives; and
- Enhance professional development by facilitating increased understanding between the parties and their respective countries.

One particular effort carried out under this partnership that is of most relevance to this paper is a jointly developed and implemented training program for Indian Forest Service (IFS) officers. The IFS Mid-career Training Program is designed to provide professional development training for IFS officers currently serving in a variety of natural resource capacities throughout India, including the management of protected areas. The goal of the program is to enhance the technical competencies and leadership skills that are needed to address the complex challenges of resource stewardship in a changing world (Indira Gandhi National Forest Academy 2013). A collaborative assessment of needs for this program identified areas where partner institutions could provide specific expertise to promote more integrated, multi-disciplinary approaches to protected area management. Indian institutions carry out specific training modules on topics such as wildlife and biodiversity conservation, environmental impact assessments, management principles (personnel, etc.), and project implementation, monitoring, and evaluation. Foreign institutions provide complementary training to enhance integrated thinking about contemporary issues.

For example, CSU's Department of Human Dimensions of Natural Resources has delivered training modules focused on integrating social considerations and the application of social science concepts and methodologies to inform conservation planning and decision-making. These sessions provide problem-based instruction focused on case examples from USA and India to illustrate the applied utility of the social sciences. Specific cases include landscape-scale conservation initiatives involving multiple stakeholders, planning and management that are focused on relations between protected areas and local communities, and human-wildlife conflict mitigation approaches that incorporate an understanding of social factors to enhance effectiveness. More detailed overviews on the design, content, and implementation of this program are provided in a recent publication in the *Journal of Park and Recreation Administration* (Teel et al. 2013) and annual summary reports on the CSU-led training efforts (Don Carlos and Teel 2010; Don Carlos, Teel, and Clarke 2011; Don Carlos, Teel, and Adams 2012).

The CSU-WII partnership provides one example of a model framework for international collaboration to enhance protected area management effectiveness through capacity building. Both institutions share a commitment to expanding such efforts in a broader geographic and cross-cultural context. Participation of the CSU-WII team in the 2012 IUCN World Conservation Congress was focused on exploring challenges and opportunities relevant to protected area capacity building in this region. The following section discusses the process and outcomes of an expert panel discussion on this topic that was developed and facilitated by CSU and WII representatives.

Assessing capacity building needs for effective protected area management in the Asian context: Process and results

The CSU-WII team organized a panel of global protected area management specialists with a particular focus on experience within the Asian context. Participants represented several global conservation organizations, including IUCN's Global Protected Areas Program, WCPA, and Species Survival Commission (SSC), as well as the United Nations Development Program-Global Environmental Facility. Also on the panel were IUCN country representatives and other protected area specialists representing several Asian nations, including Thailand, Japan, Nepal, Bangladesh, Sri Lanka, and Lao PDR. The event was formatted as a round-robin panel presentation followed by a facilitated discussion that took place in the WCPA Protected Planet Pavilion. Participants were contacted ahead of time and asked to prepare a short presentation that highlighted the 3-5 most critical capacity-building needs to enhance protected area management effectiveness within their respective countries or Asia as a whole. Participant comments on protected area capacity-building needs were documented by CSU-WII facilitators. Specific needs identified by panelists were transcribed and analyzed to identify predominant capacity-building thematic topics and sub-themes. In total, 101 comments from 20 different panelists were coded under 16 topic areas (Table 1). Sub-themes reflect more specific contextual information regarding a particular topic.

General natural resource management skills and communication skills were the most commonly mentioned needs for protected area professionals in Asia (13 mentions each, Table 1). Needs associated with natural resource management skills were focused on planning,

Table 1. Thematic topic areas identified as critical capacity-building needs to enhance protected area management effectiveness in the Asian context. The needs assessment was conducted as part of a special expert panel discussion on protected area capacity building at the IUCN World Conservation Congress in Jeju, Republic of Korea, September 2012.

Thematic Topic Areas and Sub-Themes for Capacity Building to Enhance Protected Area Management Effectiveness in the Asian Context	Number of Mentions
General natural resource management skills	
- Planning	13
- Research, inventory, and data management	
- Tools (e.g., Geographic Information Systems and Remote Sensing)	
Communication skills and promotion of benefits of protected areas	
- Raising awareness of protected area values (e.g., biodiversity, intrinsic, economic/ecosystem services)	13
- "People skills" (e.g., personnel management)	
- Promoting benefits of capacity building	
Participatory management	
- Stakeholder/community relations and involvement	12
- Addressing poverty and livelihood concerns	
- Incorporation of local and traditional knowledge	
Monitoring and management effectiveness evaluation	7
Collaboration and partnership building	
- Sharing information	7
- Trans-boundary cooperation	
- International and multi-institutional training alliances	
Adaptation strategies to promote resilience of protected area systems in the face of climatic change	7
Training program design and delivery	
- Remote and electronic	6
- Regionally/locally focused content and languages	
- On-site workshops	
Connectivity issues	
- Enhancing linkage of protected areas at landscape and system scales	5
Ecological restoration	
- Assessment and implementation	5
- Disaster recovery	
Mitigation of human-wildlife conflict	5
Invasive species	4
Resource protection and law enforcement	
- Illegal resource use	4
- Anti-poaching	
Integrating protected area conservation with development goals	
- Agricultural sector	4
- Tourism sector	
Sustainable funding mechanisms	3
Policy formulation and implementation	3
Tourism and visitor management	3

research, inventory, and data management, as well as the application of technological tools (e.g., Geographic Information Systems). Comments on the need for better communication skills were primarily focused on the ability of protected area professionals to raise awareness (e.g., among policy-makers and/or the general public) about the value of the protected areas they manage, including biodiversity conservation and the provision of ecosystem services. These comments also included several mentions of the need to better communicate the benefits of specific training and capacity-building efforts. Other communication skill needs identified by the panelists included interpersonal communication techniques relevant to personnel management and team building. The need to build capacity for improved participatory management practices was also one of the most commonly mentioned topics (12 mentions). Stakeholder and community relations and the need to integrate poverty and livelihood considerations into decision-making were common sub-themes under this topic. Understanding indigenous cultures and the incorporation of local and traditional ecological knowledge was also mentioned by several of the panelists.

The next most commonly mentioned needs (identified by seven panelists each) for protected area management in Asia were related to mainstreaming efforts to monitor and evaluate management effectiveness, fostering greater collaboration and partnership building, and enhancing the understanding of adaptation strategies to promote the resilience of protected area systems in the face of global climate change. These needs were followed by a focus on the design and delivery aspects of capacity-building initiatives (6 mentions). Under this topic, panelists emphasized the need to take advantage of available technologies to enhance the impact of training efforts through remote and electronic delivery. Another sub-theme under training design focused on contextualizing programs using a workshop model and locally relevant content and languages.

Remaining capacity-building needs were mentioned by approximately one-fourth or fewer of the panelists. These included connectivity issues within protected area systems, ecological restoration skills, and techniques for addressing human-wildlife conflict in and around protected areas (five mentions each). Invasive species management, resource protection/law enforcement, and integrating protected area management with other sectors such as agriculture and tourism were each mentioned by four panelists. Sustainable funding mechanisms, adequate policy formulation and implementation processes, and tourism/visitor management were the least-mentioned topics that were raised by more than one panelist.

Discussion and conclusions

Results of the Asian protected area management capacity-building needs assessment presented here reflect those of previous efforts. For example, a survey was conducted in 2010 on the future direction of WCPA in Asia (Shadie 2011). Input provided by 127 WCPA and other protected area officials in the region suggested the following six capacity needs as top priorities: climate change adaptation, co-management and use of traditional knowledge, natural resource management, planning, sustainable development, and human-wildlife conflict. Participants in the Jeju 2012 needs assessment reiterated all of these themes as critical to enhancing protected area management effectiveness in Asia. The focus on certain topics, such as general natural resource management principles, participatory management, and climate

change adaptation, suggests the continued centrality and importance of these themes to inform the development of future capacity-building efforts in the region.

A cross-cutting issue that emerged from this discussion was the importance of incorporating social science considerations in protected area capacity building. Several themes, such as participatory management, communication skills, collaboration/partnership building, and human-wildlife conflict, illustrate a need to build capacity among Asia's protected area professionals to integrate the social sciences into management practice. While this trend is not specific to the region (Mascia et al. 2003), the challenges facing protected areas in Asia are strongly indicative of the need for a greater focus in this area. Such an emphasis could enhance the understanding of the complex social-ecological systems that characterize modern protected area sites and networks and better equip managers to approach problem solving from a multi-disciplinary perspective.

Developing innovative mechanisms to enhance protected area management effectiveness in the face of accelerated change continues to be a key challenge for the global conservation community. Building capacity among protected area managers has been consistently identified as a promising means by which to address this challenge (Child 1994; Appleton et al. 2003; Bonine, Reid, and Dalzen 2003; Mathur et al. 2011). Periodically assessing the capacity needs of protected area managers is critical to informing the development of targeted interventions that maximize efficiency and impact. Such interventions can also be enhanced by forming collaborative partnerships that utilize specific expertise offered by a wide range of conservation organizations.

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References

- Appleton, M.R., G.I. Texon, M.T. and Uriarte. 2003. *Competence Standards for Protected Area Jobs in South East Asia*. Los Baños, Philippines: ASEAN Regional Centre for Biodiversity Conservation.
- Bonine, K., J. Reid, and R. Dalzen. 2003. Training and education for tropical conservation. *Conservation Biology* 17(5): 1209–1218.
- Chape, S., M. Spalding, and M.D. Jenkins. 2008. *The World's Protected Areas. Report Prepared by the UNEP World Conservation Monitoring Centre*. Berkeley: University of California Press.
- Child, G. 1994. Strengthening protected-area management: A focus for the 1990s, a platform for the future. *Biodiversity and Conservation* 3(5): 459–463.
- Don Carlos, A.W., and T.L. Teel. 2010. Phase III Mid-Career Training of Indian Forest Service Officers: International Training Program at Colorado State University, U.S.A., February 28–March 13, 2010, Summary Report. Project Report for the Wildlife Institute of India and Indian Council for Forestry Research and Education. Fort Collins, CO: Department of Human Dimensions of Natural Resources, Colorado State University.
- Don Carlos, A.W., T.L. Teel, and M. Clarke. 2011. Phase III Mid-Career Training of Indian Forest Service Officers: International Training Program at Colorado State University, U.S.A., May 15–28, 2011, Summary Report. Project Report for the Wildlife Institute of India and Indian Council for Forestry Research and Education. Fort Collins, CO: Department of Human Dimensions of Natural Resources, Colorado State University.
- Don Carlos, A.W., T.L. Teel, and M. Adams. 2012. Phase III Mid-Career Training of Indian Forest Service Officers: International Training Program at Colorado State University, U.S.A., April 15–28, 2012, Summary Report. Project Report for the Wildlife Institute of India and Indian Council for Forestry Research and Education. Fort Collins, CO: Department of Human Dimensions of Natural Resources, Colorado State University.
- Hockings, M., G. Machlis, E. Nielsen, K. Russell, N. Myambe, and R. James. 2005. *Delegate Survey Report, Vth World Parks Congress 2003*. St. Lucia, Australia: IUCN, WCPA, and University of Queensland.
- Hockings, M., S. Stolton, N. Dudley, F. Leverington, and J. Courrau. 2006. *Evaluating Effectiveness: A Framework for Assessing Management Effectiveness of Protected Areas* 2nd ed. Gland, Switzerland: IUCN.
- Indira Gandhi National Forest Academy. 2013. Mid Career Training Programme for IFS Officers. On-line at www.ignfa.gov.in/MidCareerTrainingMCT/AboutMCT/tabid/271/Default.aspx. Accessed June 26, 2013.
- IUCN [International Union for Conservation of Nature]. 2005. *World Parks Congress Recommendation V.1. Strengthening Institutional and Societal Capacities for Protected Area*

- Management in the 21st Century*. Gland, Switzerland: IUCN.
- . 2011. *IUCN-WCPA Asia Strategy, 2011–2014*. Gland, Switzerland: IUCN.
- IUCN and UNEP-WCMC [United Nations Environment Program-World Conservation Monitoring Center]. 2011. *The World Database on Protected Areas (WDPA): January 2011*. Cambridge, UK: UNEP-WCMC.
- Leverington, F., K.L. Costa, H. Pavese, A. Lisle, and M. Hockings. 2010. A global analysis of protected area management effectiveness. *Environmental Management* 46: 685–698.
- Lusthaus, C., M.H. Adrien, and P. Morgan. 2000. *Integrating Capacity Development into Project Design and Evaluation: Approach and Frameworks*. GEF Monitoring and Evaluation Working Paper no. 5. Washington, DC: Global Environment Facility.
- Mathur, V.B., R. Gopal, S.P. Yadav, and P.R. Sinha. 2011. *Management Effectiveness Evaluation (MEE) of Tiger Reserves in India: Process and Outcomes*. New Delhi: National Tiger Conservation Authority, Government of India.
- Mascia, M.B., J.P. Brosius, T.A. Dobson, B.C. Forbes, L. Horowitz, M.A. McKean, and N.J. Turner. 2003. Conservation and the social sciences. *Conservation Biology* 17(3): 649–650.
- McNeely, J.A., J. Harrison, and P. Dingwall. 1994. *Protecting Nature: Regional Reviews of Protected Areas*. Gland, Switzerland, and Cambridge, UK: IUCN.
- Shadie, P. 2011. *WCPA Asia Survey 2010: Summary Findings*. Leura, Australia: Odonata House Consulting.
- Singh, K.S. 1992. *People of India: An introduction*. Calcutta: Anthropological Survey of India.
- Teel, T.L., A.W. Don Carlos, M.J. Manfredo, and V.B. Mathur. 2013. A multi-institutional partnership to build capacity for effective protected area management in India. *Journal of Park and Recreation Administration* 31(2): 127–141.
- United Nations Conference on Trade and Development. 2012. *Least Developed Countries Report 2012: Harnessing Remittances and Diaspora Knowledge to Build Productive Capacities*. United Nations Report Sales no. E.12.II.D.18. Geneva, Switzerland: United Nations.

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