Communication and Co-ordinating Roles of Hub Organisations in Management of Environmental Issues: A Feasibility Study of Thailand.

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Abstract

With massive global and regional change the need for long-term co-ordination of remedial programmes for many environmental issues is apparent, combined with planning and organisation of information or publicity campaigns. In this situation, where varying strategies or activities and extensive series of messages over very long periods of time are required, there are challenges in maintaining engagement of major stakeholders such as traditional mass media. To achieve efficient long-term co-ordinated management of environmental problems, the concept of central hub organisations is proposed and detailed roles are explained, using select examples from Thailand. Hubs are recommended on the basis of: changing environmental management strategies; increased multi-stakeholder involvement; evolving institutional roles; expanding demands for diverse specialist input; and increased access to new integrative internet technologies permitting rapid community feed-back and participation.

Keyword: Hub resources, Interactive information exchange, Co-ordinated publicity, Multi-media participation

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การสื่อสารและบทบาทของการเป็นศูนย์กลางในการประสานความร่วมมือสำหรับองค์กรด้านการบริหารจัดการปัญหาสิ่งแวดล้อม : กรณีศึกษาความเป็นไปได้สำหรับประเทศไทย

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บทคัดย่อ

เป็นที่ประจักษ์ว่า ปัญหาการเปลี่ยนแปลงด้านสิ่งแวดล้อมของโลกและของประเทศต่างๆทั่วโลกนั้น จำเป็นจะต้องมีการกำหนดแผนหรือแนวทางการปฏิบัติระยะยาวอย่างชัดเจนและมีความสอดคล้องประสานกันในการแก้ไขปัญหา รวมทั้งยังต้องมีการวางแผนและการจัดการด้านข้อมูลข่าวสารหรือโครงการรณรงค์เพื่อการประชาสัมพันธ์อีกด้วย โดยในการดำเนินโครงการรณรงค์ด้านสิ่งแวดล้อมนั้น แม้ว่าในการดำเนินโครงการฯจะต้องมีการกำหนดกิจกรรมหรือกลยุทธ์ต่าง ๆ ที่มีอยู่อย่างหลากหลาย รวมทั้งการจัดทำเอกสารเพื่อให้ความรู้ความเข้าใจเกี่ยวกับการแก้ปัญหาด้านสิ่งแวดล้อมต่างๆที่เกิดขึ้นในอดีตที่ผ่านแล้วก็ตาม แต่ก็ยังมีความจำเป็นที่จะต้องให้ความสำคัญกับสื่อมวลชนกระแสหลักแบบดั้งเดิมและนำมาใช้ควบคู่กันไปด้วย เพื่อให้เกิดความมีประสิทธิภาพของการจัดการปัญหาสิ่งแวดล้อมที่สอดประสานกันในระยะยาว เพื่อให้เข้าใจถึงการดำเนินการตามหลักคิดในการจัดการปัญหาสิ่งแวดล้อม จึงขอนำกรณีตัวอย่างของประเทศไทยมาอธิบายและแจกแจงรายละเอียดเพื่อให้เข้าใจถึงภารกิจในการจัดการปัญหาสิ่งแวดล้อม ซึ่งแสดงให้เห็นถึงการสอดประสานกันของปัจจัยที่เกี่ยวข้องต่าง ๆ ได้แก่ การปรับเปลี่ยนกลยุทธ์ในการจัดการปัญหาสิ่งแวดล้อม จำนวนของผู้ที่ได้รับผลกระทบจากปัญหาสิ่งแวดล้อมที่เพิ่มมากขึ้น พัฒนาการของกิจกรรมทางสังคมที่มีบทบาทแตกต่างไปจากเดิม ข้อเสนอแนะจากผู้เชี่ยวชาญในการแก้ไขปัญหาสิ่งแวดล้อมที่มีอยู่เป็นจำนวนมาก และการหลอมรวมของเทคโนโลยีสื่อใหม่คืออินเตอร์เน็ตที่เอื้ออำนวยให้ชุมชนสามารถมีส่วนร่วมในการแสดงความคิดเห็นต่อประเด็นสิ่งแวดล้อมต่าง ๆ ได้อย่างสะดวกและรวดเร็ว

คำสำคัญ: ศูนย์กลางของการดำเนินงาน การแลกเปลี่ยนข้อมูลข่าวสารระหว่างกัน ความร่วมมือกันในการเผยแพร่ข่าวสาร การใช้ระบบการสื่อสารหลายช่องทาง

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Introduction

Urban Expansion – a Re-greening Paradox

In the broader context of "Global Warming" and recent regional acknowledgement of widespread environmental degradation (Asian Development Bank, 2012) there is increasing awareness of the many specific environmental issues that need to be addressed – from local to larger scales. This is particularly important in South-east Asia with huge human populations, intensified resource use and concentrated development impacts.

A major aspect of globalisation has been the rapid expansion of urban areas and the creation of mega-cities that have destroyed functioning eco-systems over wide areas (Lindenmayer and Burgman, 2005; Bryant, 2006). Built urban areas in developing countries, are projected to triple in size to 600,000 km^2 by 2030 (World Bank, 2010). In turn, this urbanisation has led to high levels of air pollution, urban heat islands and vegetation loss (Lindenmayer and Burgman, 2005; Mcdonald *et al*., 2009; International Federation of Surveyors, 2010). So now, governments, communities and other stakeholders are looking for ways to minimise or alleviate impacts and planners are proposing concepts such as "eco-cities" and management strategies that promote more active participation by all stakeholders (Joss, 2010).

Importance of Media in Promoting Awareness and Engagement

The enormous commercial influence of the electronics and digital industries, globally, has been widely discussed elsewhere and is beyond the scope of this paper; however, Bilmanoch (2014) gives a brief overview of trends in Thailand. But regardless of differing local situations, it is clear that with expanding communication technologies and the integrative potential of the internet, the influences of various media on public perceptions and attitudes are very important and have been extensively studied (Biagi, 2011; Vivian and Maurin, 2012). Now a growing majority of the population is living in urban areas there is: (a) loss of individual and community connection to the natural world; and (b) an increasingly important role for media and technology to inform the community about environmental events or issues.

When considering the media, in relation to environment, there are three other factors to take into account. First, the differences in media expectations and other stakeholder priorities, when compared with gradual environmental processes (Bilmanoch and Merrick 2010;

Merrick and Bilmanoch 2010). See Figure 1. Second, the dramatic changes in ideas about better strategies to address many environmental issues, as understanding of underlying ecological processes has increased (see Table 1). Finally, the altered roles of many "environmental" institutions or management agencies (see discussion below).

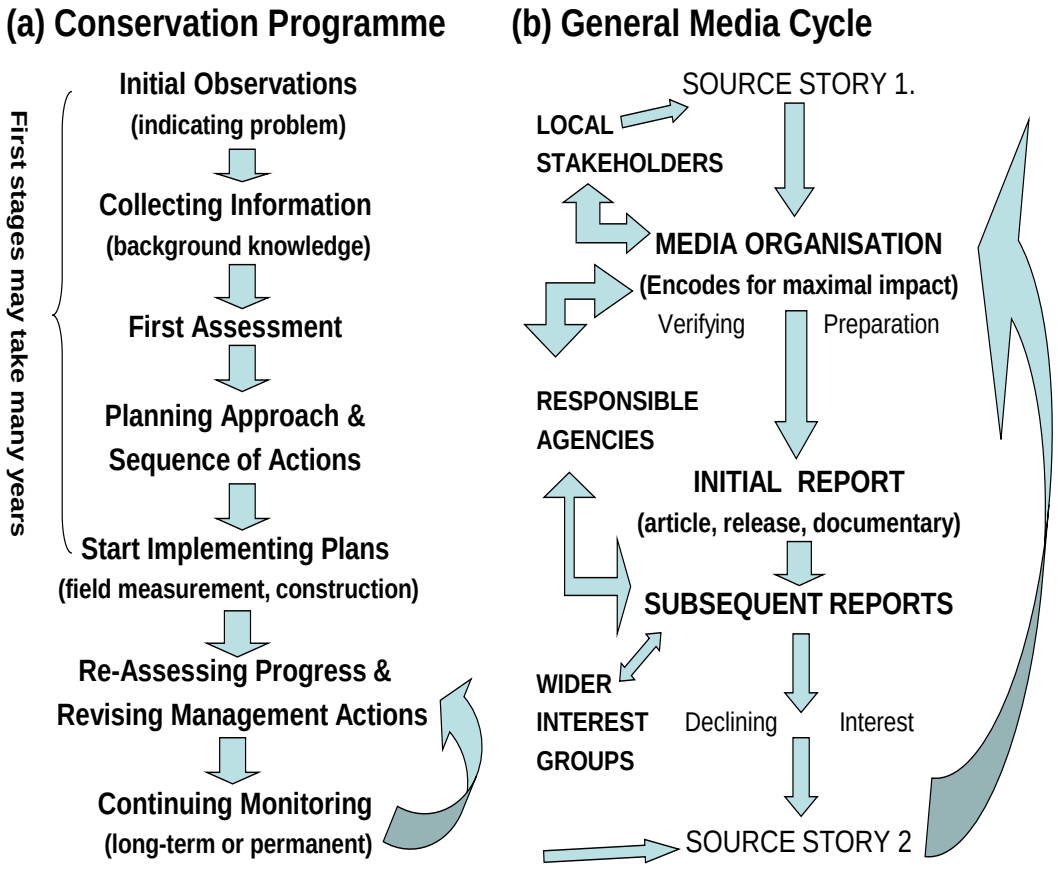

Figure 1. Comparative summaries of major stages and sequences in: **(a)** an environmental or conservation programme; and **(b)** the general media cycle. Based on Merrick and Bilmanoch (2010).

Figure 1 provides a comparison of stages but also indicates an enormous difference in time scales. The first five conservation stages may take a decade to complete and the whole cycle may take 20 years or more. But the media cycle is short-term – it only takes 90 days, or less. The comments in Table 1 demonstrate how increased understanding, over recent decades, has resulted in major changes in management priorities or strategies.

Table 1. Examples of changed thinking about environmental issues and management strategies. No consideration of economic implications is included here - however, there is a growing acknowledge- ment of the enormous value – both in monetary and other ways – of natural resources and the maintenance of functional eco-systems.

Issue / Problems	Changed Strategies
Air or Water Pollution	From total pollution control to a more pragmatic approach of reduction, minimisation and future prevention.
Solid or Liquid Waste Disposal	From indiscriminant dumping or discharge to Integrated Waste Management (with controlled collection, sorting and recycling, some incineration and reduced landfill in secure sites) – to minimise potential contamination .
Biodiversity / Natural System Conservation	From acknowledgement of ~ 1 million species to realisation of many millions and that, globally, eco-system processes are biodiversity-driven. High diversity associated with high variation of habitats. Biodiversity hotspots now recognised.
Reserves	From a few large, isolated or remote National Parks, to the need for extensive interconnected networks, wherever possible, including small areas and multi-use zones.
Environmental Rehabilitation	From full restoration to a nominated state (e.g. at certain date) to a more realistic progressive rehabilitation of degraded sites towards increased ecological value.

Large regional zoos, such as Dusit or Khao Kheow Zoo, are good examples of how institutional roles have changed. While retaining traditional entertainment, recreation and educational roles, they have expanded into environmental education and community conservation, together with research and captive breeding. These newer activities require extra resources or facilities as well as active outreach and interaction with varied stakeholders.

The Concept of Hub Organisations

With so many environmental issues needing very long-term awareness and action, the question arises about how to most effectively address them. For long-term co-ordination of information flows, field assessment and activity as well as management strategies it is logical to suggest central co-ordinating (or Hub) organisations. But it isn't just a matter of nominating a particular organisation to be responsible for a particular issue, these hubs have to act as part of a co-operating specialist management network. Hub interactions may vary

widely from occasional exchange of technical advice, to continuous co-operation in public promotion, shared use of equipment and staff resources or data exchange. Some organisations are obvious candidates (e.g. Government Departments or Regulatory Agencies or Research Institutions) and already act informally in the capacity of hubs. But other local or community based groups can play this important role, if they have the resources and features discussed below.

This paper emphasises ways of implementing co-ordinated, efficient management and increased communication to improve outcomes for environmental issues. The objectives are:

(a) to briefly explain the need for co-ordinating hub organisations to address increasing environmental challenges and outline the resources required for this role;

(b) to use case studies from Thailand to show how the media can be utilised to raise awareness and knowledge of conservation issues – and suggest how regional zoos or museums might co-operate with local temples to improve local conservation;

(c) to briefly outline how the idea of hubs is consistent with eco-city management trends and consumer preferences.

Responsibilities, Functions and Resources of Hub Organisations

To function in a hub capacity, an organisation is undertaking both direct and indirect responsibilities as well as an obligation to provide adequate resources to address the issue in a significant way, Table 2 summarises the extent of the physical and human resources required for an organisation to be able to function as a hub in the long term. Financial support arrangements vary widely over time, but every effort should be made to ensure a basic level of day-to-day support, so that activities are not disrupted by economic or political cycles. In this context, public and philanthropic funding sources are probably more predictable.

Table 2. Essential features of a central co-ordinating Hub Organisation.

Roles / Responsibilities	Required Resources
Overall planning and co-ordination of information flow to all stakeholders	Substantial regular funding
Indirect education (e.g. observation, stimulating interest in nature)	High quality facilities maintained to international standards
Active environmental education (with schools)	Capacity to maintain high publicity profile using a range of media and communication technologies
May involve displays or shows for entertainment and stimulating social interaction and debate	Adequate skilled staff capable of performing varied roles
Co-ordination of community conservation programmes and liaison with regulatory agencies	Capacity to prioritise maintenance of good long-term communication and co-operation with various stakeholders
Act as Public Resource or Advisory centre (for specialist information)	Central, easily accessible reception, with comfortable waiting, meeting, consultation areas
Maintaining research facilities or links with relevant Research Institutions and government departments	Small library/online access facility. Public identification or testing lab., with offices for liaison officers, technicians or guest researchers

Table 3 is designed to illustrate the wide range of organisations that do, or could, act as hubs; there is much overlap in areas of responsibility and interest, further emphasising the need for co-ordination. Although there are many possible hub organisations, several other general observations are relevant at this point:

(a) Some organisations (e.g. Government Departments) are legally required to take responsibility for a specified range of environmental issues. Other NGOs (both national and international) may have broader charter objectives, but their practical focus is narrow and can alter depending on changed circumstances;

(b) no single organisation will be able to adequately manage all diverse aspects of any particular issue. So, in addition to a primary local organisation there may be other hubs – at regional or national levels – with varying inputs over time;

(c) Although some regulatory agencies (at Provincial, State or National levels), such as Environment Pollution Authorities, may provide specialist advice or data, they may not be optimal hubs for specific issues.

Table 3. Summary of examples of existing or potential hub organisations.

Type of Issue	Relevant Departments or Institutions *
Air Quality	Department of Public Health
	Meterology Bureau
	Departments of Industry, Transport
	Medical Research Centres
Water Quality	Water Supply Authorities
	Department of Public Health
	Departments of Agriculture, Fisheries
	Departments of Conservation, Natural Resources
	Ecological Research Centres
Natural Resources / Environment	Department of Forestry
	National Parks and Wildlife, Conservation NGOs
	Departments of Tourism, Heritage
	Biodiversity Research Centres (including Zoos, Museums, Aquariums)
Planning / Development	Departments of Energy, Waste Management, Transport
	Departments of Infrastructure Development, Industry, Housing
	Departments of Finance, National Development, Mining
	Economic and Environment Research Centres

* Local governments will be involved in most issues to some degree; Environment Pollution Authorities (EPAs) at State (Province) or National levels will also have interests in all issues.

When considering possible hubs, it is logical to recommend organisations that already have educational facilities and functions. Regional museums are good examples for two reasons: first, their changing roles and varied impacts have been acknowledged and discussed in some detail (Bryan et al., 2012); and second, these organisations have the capacity to store, analyse and interpret information in a way that is usable by participants in remedial programmes, the effected public and relevant decision-makers. The relevance of hubs is further emphasised when the evolution of policy and management of some urban issues is considered. For example, urban forest management in many countries has increased enormously in importance – in relation to global warming, urban eco-system function and pollution control. Policy has also changed as urban forests have been integrated with other urban management issues such as energy planning, public safety and health (Wang and Merrick, 2013).

Interacting with Media

This paper uses the examples of large regional zoos or museums, as

central co-ordinating organisations in conservation campaigns. Large public zoos in Thailand have been established for many decades and attract millions of visitors every year ; however, their traditional educative and entertainment or recreational roles are now being supplemented by others, such as environmental education and research (as explained above).

But additional roles place additional demands on the limited finances available for day-to-day expenses. So it is important to increase interest in activities and attract extra resources to fund new activities. To raise public profile, in a very competitive situation, promotion using multi-media is now essential. Effective communication strategies have been discussed elsewhere (Bilmanoch and Merrick, 2010; Merrick and Bilmanoch, 2010) and incorporate combining marketing techniques (e.g. logos, slogans, competitions) with basic human values, to maximise the message impact and stimulate action or participation (Futerra Sustainability Communications, 2010).

In the relationship between a zoo (or museum) and the local media (see Figure 2) the expectations are quite different. The zoo is looking for positive promotion to increase profile and community interest, although all its activities are focused on a few long-term objectives. On the other hand, the media are looking for news of any kind – negative or positive – and, aside from financial success, do not have a long-term strategy relating to published material. However, there are some circumstances where techniques and objectives do coincide, to mutual advantage. For example, long-term environmental or conservation issues provide opportunities for developing a narrative – which is an important media technique for increasing impact and maintaining interest. The interactions in Figure 2 show the main information flow is from the hub to the media and, in addition to transmitting information to the general community, the media can contribute in other ways (e.g. organising competitions, advertising sponsorships or promoting partici-pation in special events). However, the success of these interactions is heavily dependent on personal contact and easy access to relevant resource information, which emphasises the importance of the Zoo or Museum Web Site.

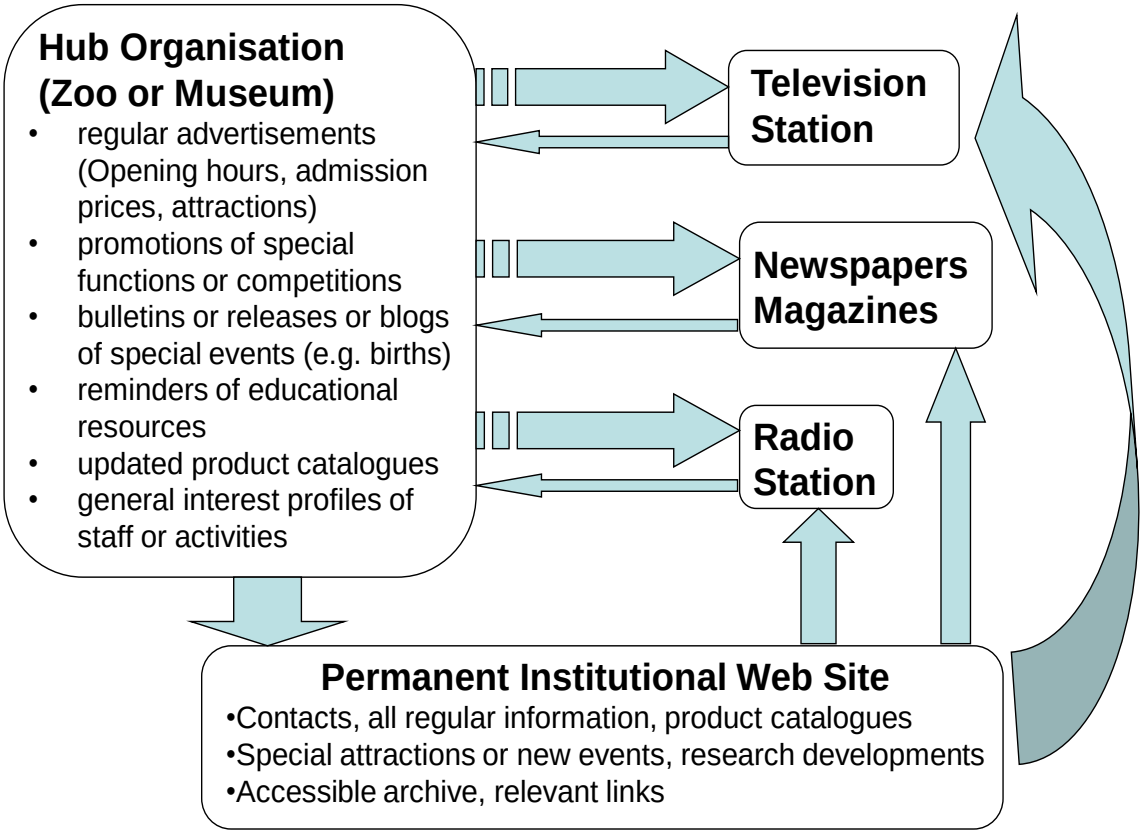

Figure 2. Summary of media interactions and information flows during a Conservation Campaign, with a large regional zoo or museum as the central publicity and research hub.

Case Studies in Thailand

The Thai situation has unusual features - on one hand, being within the Indo–Burma International Hotspot, means there are high levels of biodiversity and natural resources present. On the other hand, Thailand is part of the most densely populated region on Earth, with environmental degradation and severe pollution problems. But there is no doubt that increasing urbanisation in Thailand has led to heightened awareness of environmental issues – especially at local scales.

Recently, interest in conservation has been raised by general publicity about high profile government-funded projects, such as the pandas at Chiang Mai Zoo and the discovery of many new species in the Mekong region (AFP, 2010; WWF, 2010). In fact, the panda is a good example of very successful long-term co-operation between a hub organisation and the media – it focused on the panda cub born in 2009 at Chiang Mai Zoo and

has been a very effective campaign in several ways:

(a) it has increased public awareness and stimulated interest in biodiversity and conservation in general;

(b) it has maintained a high profile over a long period – selectively using a range of communication technologies - renewing interest by changing emphasis in response to new events or developments;

(c) it has generated significant revenue which benefits the organisations concerned and helps to support other routine conservation work;

(d) it has stimulated competition with other conservation groups – generating additional publicity about other conservation issues. The creation of panda elephants and crocodiles are direct results of this increased rivalry.

But there are also many other lower profile programmes related to environmental issues. Many of these local programmes are being supported or organised by NGOs (including international organisations) and communities as well as private individuals or religious groups (Darlington, 1998; Daniere and Takahashi, 1999; Fraser, 2002; Thailand Environment Monitor, 2004; Lin, 2012).

Just as there have been changes in concepts of cities and approaches to urban planning or managing development (Taylor et al., 2014), with more data and improved understanding of ecosystem function, there have been altered ideas about conserving or protecting natural resources. Among changes in conservation strategies, summarised in Table 1, has been growing acknowledgement of the relative conservation importance of small reserves. There were initial concerns about their conservation value; however, further data indicate that, for many small animals as well as many plants and fungi, small areas are adequate to maintain viable populations (Noss and Harris, 1986; Reznicek, 1987; Cox and Moore, 2010). In Thailand, one of the largest categories of small "natural" area, that could be more effectively utilised for conservation, is the sanctuary area surrounding most Buddhist temples.

Temple Grounds as Multi-use Reserves

Buddhist temples have long been recognised as part of traditional or indigenous conservation systems (Pei, 1985; Wechakit, 1990; Long, 1995); however, with widespread environmental degradation elsewhere, the significance of all sacred sites as refuges has greatly increased (Dudley *et al*., 2005; Sponsel, 2008; Peaty, 2011). In addition, there is now acknowledgement of the need for

active management of small, multi-use reserves.

The extensive network of long-established temple sanctuaries has special significance for conservation in Thailand for the following reasons. First, there are over 40,700 temple sites throughout the country and even some disused temples remain surrounded by large parks. Second, over 80% of all sites are currently active – so resident ' custodians ' are already in place. Third, temple sites incorporate a wide variety of local habitats – from cool forested mountain slopes to hot coastal plains. Temples are often built on rises or outcrops with long tree-lined entrance paths, and some include natural caves. Many sanctuaries include either ornamental pools or parts of adjacent canals – which act as a water source for local biodiversity. Fourth, both active and disused sites can act as nodes to increase connectivity to other remnant reserves or to listed protected areas, such as National Parks. Fifth, these are traditional community gathering sites with religious and educational roles. The conservation value of large undisturbed forests around more remote monasteries is obvious, but the smaller, modified ornamental gardens around urban temples are equally important as they are more accessible for the majority of the population.

Museums, Zoos and Temples – Benefits of Co-operation

An increase in interaction between zoos and local temples has a number of potential mutual benefits, which are summarised in Table 4. This table and Figure 3 are generalised summaries; however, it must be remembered that existing management varies widely between institutions and sites. For example, zoos must comply with national educative and scientific requirements as well as international conservation criteria in their activities which, in turn, influence management protocols. Temples retain considerable autonomy and management frameworks vary with site size, facilities and the Buddhist sect. In addition, some disused sites (e.g. Ayutthaya, Sukhothai) have been declared World Heritage Sites – subject to complex management processes, co-ordinated by the Fine Arts Department in collaboration with local archaeological authorities.

Table 4. Comparative summary of mutual benefits of increased interaction and co-operation between zoos and local temples (from Bilmanoch and Merrick, 2012).

For Temples:	For Zoos:
(a) more access to specialist knowledge when required	**(a)** more access to natural resources (e.g. seeds, small invertebrates)
(b) hosting of more religious and school group visits, cooperating with zoo personnel	**(b)** hosting of more religious group visits and boosting attendance
(c) raised community relevance and increased traditional educational role	**(c)** increased community profile (awareness as educational and professional resource)
(d) possible exchange of relevant retail products (added revenue)	**(d)** access to additional, safe sampling or monitoring sites

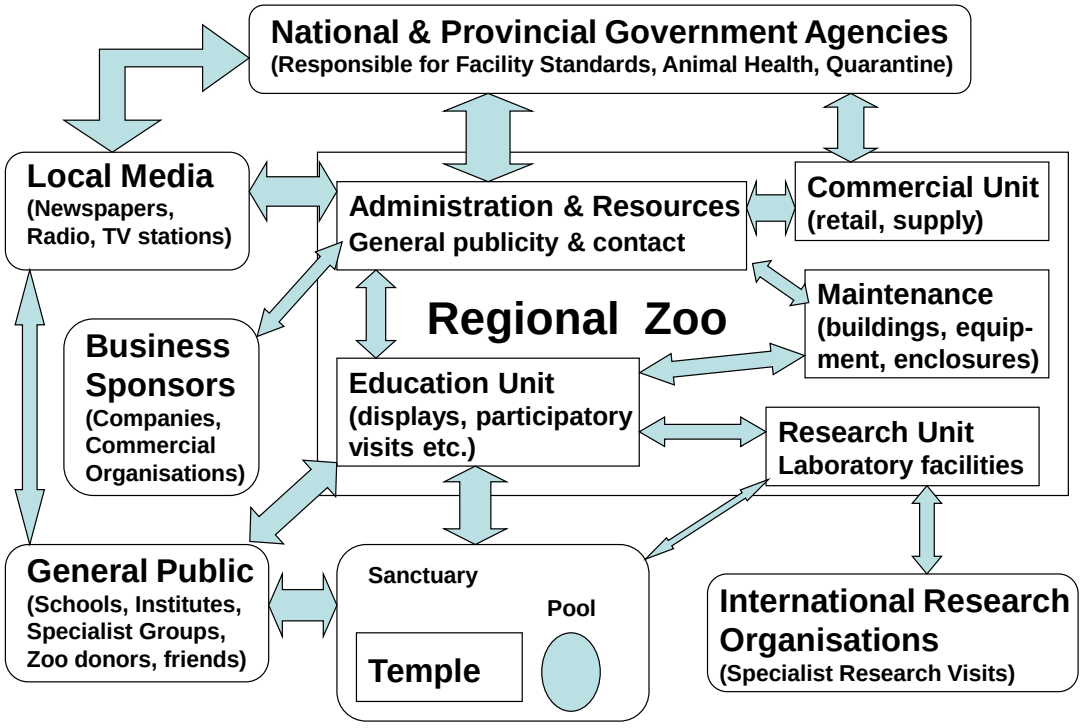

Figure 3. Summary of possible interactions and co-operation between a regional zoo, local temples, media and other stakeholders, that contributes to a stronger local conservation profile. Modified from Bilmanoch and Merrick (2012).

This paper has used increased co-operation between zoos and temples to demonstrate practical short and medium-term benefits for local conservation, and ways in which the media can contribute. But other broader long-term social and environmental benefits should not be ignored. The same types of communication techniques and co-operative arrangements are equally important for all environmental issues. Indeed, it is suggested that there may be benefits in connecting or combining some programmes. For example, emphasising the ecological connection between a particular type of pollution and the conservation of a high profile iconic species will almost certainly increase support for pollution reduction measures, because of the perceived benefits for the animal concerned. Combining programmes in this way further demonstrates the need for planning or co-ordinating hub organisations.

Conclusions

In the context of global climate change in an area of high conservation significance, with dense human populations and many local developmental impacts, it is particularly urgent for Thailand to implement the best long-term management strategies for environmental issues. Although the debates about continuing urbanisation and ways of creating more sustainable cities are diverse, there is consensus on some general points, such as: the need for more holistic development, incorporating natural environments; complex but integrated management is necessary; and the essential communication role of media in maintaining stakeholder participation.

The Thai case studies are chosen as examples of established resources that could, with increased managerial co-operation, be more effectively utilised to improve conservation and environmental outcomes – especially in local urban areas. What is being suggested is a broadening of the traditional arrangement, where the central hub organisation was the local temple; the concept here is: (a) more inclusive (involving more stakeholders over long periods of time); (b) more resource intensive (requiring dedicated liaison, marketing and specialist staff); (c) more activity intensive (in terms of information flow, use of multi-media, active community involvement). While community engagement and participation is still essential, the hub proposed relies less on community leaders or volunteers for day-to-day

functions. However, it is acknowledged that current management arrangements vary widely and can be legally complex for some sites. To achieve practical benefits from increased interaction may necessitate re-negotiation about managerial control and areas of responsibility.

The idea of hubs is not revolutionary in fact, many organisations already act informally in this role, to varying degrees–but the category is promoted to: reflect the increasing number of environment issues that require long-term, remedial attention at many scales; anticipate the demand for accessible, co-ordinating information exchanges within complex management frameworks; account for the diversity or complexity of particular programmes, and the need to maintain community involvement, using interactive communication with varied technologies. Hubs do not conflict with suggested eco-city management strategies, and are also consistent with individual needs. In the current "information overload" situation there is an on-going trend for end-users to simplify searches by concentrating on fewer "trusted" information sources – with authoritative data, analysed and interpreted in a usable from.

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