Converting unseen and unexpected barriers to park plan implementation into manageable and expected challenges

JON KOHL

Unexpected barriers often emerge to frustrate implementation of strategic park plans. Park managers, donors and planning consultants unwittingly create many of these barriers during the planning process. Barriers grow out of the assumptions that these players hold about the park planning process, the nature of park plans, the format of plans and the role of consultants and learning in the process. If park planning proponents examine their own mental models for planning, then they can make many of these barriers visible and manageable. Unexpected barriers then become expected challenges during the planning process. A new mental model about park planning assumes that plan implementation depends on the park’s capacity to use and regard plans as sophisticated management tools. In order to build such technical management capacity, managers, donors and facilitators must integrate systemic learning as a necessary process for the development of capacity. This article illustrates with causal loop diagrams both the traditional and new mental models and identifies barriers to plan implementation, their underlying assumptions and response strategies to them. Ultimately for a new mental model to emerge, park planners must overthrow assumptions not only fundamental to planning but fundamental to western civilization.

PARK MANAGERS, DONORS AND PLANNING CONSULTANTS believe deeply in the power of a strategic park plan to transform landscapes. Park planning ranks among the most common park management functions. Yet something haunts that long hallway between the initial intention to create a plan and its implementation. The strategic plan can take any form, whether a general management plan, tourism plan, financial plan, protection plan or other types of plan. Park managers, of course, embark on this planning process wholly expecting the plan’s implementation. No manager would ever spend tens of thousands of dollars and countless hours only to shelve a plan, underneath layers of dust and old, unfunded proposals.

Still, during the very act of setting up the planning process, managers often and unwittingly set up implementation barriers that scuttle the very product they labour to create. In the background of their awareness, social processes hum along like quiet machines. Yet instead of plans, they build barriers. If managers were to stop and cast light on these mental machines, then they could re-tool them to diminish the likelihood that certain barriers will halt a plan’s implementation.

There have been few studies to document the extent of plan implementation failure (Burby 2003, Lachapelle et al. 2003, Lane 2003). Any park manager, nevertheless, can name handfuls of abandoned plans at her or others’ parks. When I worked in international conservation and park planning in Mesoamerica in the early 2000s, I regularly told people about the series of public use plans in the Dominican Republic that had disappeared. In Guatemala, the Cerro San Gil Reserve had an eco-tourism plan that sat idle. In Mexico, Sian Ka’an and Cerro Grande Manantlan both had abandoned public use plans. In Honduras, La Tigra National Park had both an interpretative plan and a management plan that, like a falling star, glowed bright before fading away. Even the venerable Galapagos National Park had an interpretation and environmental education plan on the shelf.

This paper then illuminates the dark mental models – the assumptions – of managers, donors, and planning consultants that conspire to thwart plans from ever becoming implemented – of ever becoming implementable.
Park managers’ mental models erect unexpected barriers
Many implementation barriers grow out of park managers’ mental models. Numerous fields and writers address the power of mental models. Plato described the limits of perception and understanding in the Myth of the Cave. Thomas Kuhn wrote about paradigm change in science in his famous *The Structure of Scientific Revolutions* (1962). Psychologists describe such models using schema theory, political scientists use frame theory, and systems thinkers call them “mental models.”

In all cases, every person and every culture understands the world through a series of lenses, biases and perspectives. Assumptions (and their offspring expectations) temper those lenses. Peter Senge, renowned MIT business management and organisational learning guru, notes in his book *The Fifth Discipline: The Art and Practice of the Learning Organisation* (1990), “Contemporary research shows that most of our mental models are systematically flawed. They miss critical
feedback relationships, misjudge time delays, and often focus on variables that are visible or salient, not necessarily high leverage.” (p. 203).

A person requires training to cast light on his or her own deep assumptions. When assumptions remain obscured, the holder tends to repeat the same patterns of behaviour over and over (see the “Story of a Strategic Park Planning Failure”). But once a manager perceives her own mental model, she soon discovers that her assumptions are just that, assumptions, not truths. Once she strips them of truth status, she can much more easily mould the assumptions and replace them with a new interpretation of reality.

With the drawbridge to the traditional park planning mind lowered, we find a variety of assumptions that shape how the planning process unfolds. We can group them into four general categories: Learning and Consultants, Planning Process, Plan Nature, and Plan Format. This grouping, somewhat arbitrary and overlapping, aids the reader in setting up his or her own mental model about “mental models that explain park planning implementation barriers.”

The following causal loop diagram¹ (Figure 1) illustrates a generalised traditional park planning model that focuses heavily on management resources and consultant expertise and not

---

¹ Tool commonly used by systems modellers when they are first tracing out the relationships of different factors. It may stand alone or serve as precursor to a dynamic computer model.
at all on learning. Since this kind of model does not show how strong or influential relationships are, strength can be inferred by the presence or absence of variables. “Learning” does not appear in this model, not because traditional park managers never think about learning, but because the concept does not play a strong role in their mental model. The art of effective modelling is to include the least number of elements possible while explaining the system behaviour that answers the problem question. This model answers the following question through the eyes of a traditional park planner: “What is the relationship between strategic park planning and management issues?”

The correct way to read each arrow is: “as perceived donor availability increases, donor funding increases.” The plus and minus indicate direction of relationship. The same plus sign could also be read “as perceived donor availability decreases, donor funding decreases.” For a negative sign, one can read the inverse relationship: “as management efficiency increases, the magnitude of management problems decreases.”

In a systems model, there is no true starting point, but for simplicity, the reader may begin with “perceived need to plan.” This need increases pressure to plan which increases the intensity or scale of the planning effort (once it launches). The greater the effort is, the better the plan’s quality. The better the plan, the faster the park should implement it (rate). The faster the implementation, the more actions the park will complete which reduces the magnitude of its management problems (biodiversity threats, political wrangles, budgetary shortfalls, etc.). With mitigated problems, there will be less perceived need to mount another planning campaign and donors will likely spend their money in other places where greater urgency looms.

When donors contribute more money, nevertheless, that increases planning intensity (for example, the number of workshops and participants), improves the consultant quality the park can hire (according to his CV), and fills coffers necessary to implement the plan. The consultant’s expertise has a major impact on the quality of the plan. The park’s ability to implement the plan depends most of all on the money, personnel and time (all dependent on funds) available. Despite the relationship between park and donor, government has a heavy influence, both through its appropriations for the park and the politicking and bureaucracy (especially the plan approval process) that cause problems for a park. Obviously for a private park that receives no governmental funding, the managers may substitute donors for government appropriations.

Notice that “learning” does not appear in the model, and “barriers” too are so reduced that a manager might point only to a lack of resources. All other barriers are unexpected, assumed not to exist.

This blindness of park barriers plays a major role in implementation failure. Until barriers become visible, a cadre of professionals cannot evolve to help parks to deal with them. Thus, in the early stages of recognising barriers, assistance proves rare. This phenomenon happens in many fields. For example, until early American doctors began to regard mental illness as a treatable disease of the mind, rather than possession by witchcraft, a patient could hope for scant succour. In the case of park planning barriers, one programme did evolve to diagnose and treat them. That was the RARE Center for Tropical Conservation’s Public Use Planning Programme.

**RARE Center created the Public Use Planning Programme to address these obstacles**

In 1999, Honduras’s Pico Bonito National Park had money for a public use plan. It asked its partner RARE Center for Tropical Conservation (now just called “RARE”) to locate a park planning consultant. After searching Latin America for successful plans and methodologies and discovering precious few of either, RARE offered to develop a planning methodology on the condition that Pico Bonito, not RARE staff, write its own plan. RARE’s president issued a mandate to staff that this programme should avoid problems for implementation often
Box 2. E.F. Schumacher on development in: Small Is Beautiful: Economics as if People Mattered.

“Development does not start with goods; it starts with people and their education, organisation, and discipline. Without these three, all resources remain latent, untapped, potential. There are prosperous societies with but the scantiest basis of natural wealth, and we have had a high level of education, organisation, and discipline, produced an ‘economic miracle.’ In fact, these were miracles only for people whose attention is focused on the tip of the iceberg. The tip had been smashed to pieces, but the base, which is education, organisation, and discipline, was still there.

“Here, then, lies the central problem of development. If the primary causes of poverty are deficiencies in these three respects, then the alleviation of poverty depends primarily on the removal of these deficiencies. Here lies the reason why development cannot be an act of creation, why it cannot be ordered, bought, comprehensively planned; why it requires a process of evolution. Education does not ‘jump,’ it is a gradual process of great subtlety. Organisation does not ‘jump,’ it must gradually evolve to fit changing circumstances. And much the same goes for discipline. All three must evolve step by step, and the foremost task of development policy must be to speed this evolution…” (p. 169).

encountered in traditional planning. To do this required that the programme identify and classify those barriers.

Six months later, the park publicly presented the prototype public use plan, written by its own board of directors. It was the first in Honduras and the first in RARE’s history. A year and a half later, with improved methodology, the park and RARE used its updated methodology and developed the second prototype. In 2001, RARE launched the World Heritage Partnership under whose funding the planning programme expanded to other sites in Mesoamerica and Indonesia. Since that time Komodo and Ujung Kulon National Parks in Indonesia completed the first official drafts of their public use plans; the programme also contributed the public use section of Guatemala’s Tikal National Park Master Plan.

The Public Use Planning Programme soon coupled its search for barriers with the work of renowned economist E.F. Schumacher, who wrote in Small Is Beautiful that real building of capacity depends on developing education, organisation and discipline (see Box 1.). RARE integrated this observation into its programme philosophy, the basis for its combating implementation barriers. The entire approach then boiled down to one message that all park managers must understand: Strategic park planning will not yield benefits for conservation unless parks learn the skills necessary to create and implement their own strategic plans.

The implications of this message precipitate a radical new way of conducting park planning. The approach converts unexpected barriers into regular challenges faced throughout any strategic planning process. It does this by understanding the mental model park managers use to inadvertently erect those barriers.

The Public Use Planning Programme developed a new planning model that illuminated dark assumptions and turned unexpected implementation barriers into expected challenges, addressable during the planning process.

In the following diagram, managers have made barriers and learning-explicit considerations in how to approach park planning. Begin with “quality of plan.” As the plan’s quality goes up, the park can implement faster (better plans are easier to implement). Over time as the park implements more they will find more ways to improve the plan (experimentation, feedback). That is, they will learn faster which increases implementation. Also over time, as the park learns,
it will institutionalise its lessons into park management capacity (operating manuals, culture of organisational learning, personnel capable of learning, people applying planning lessons to other management functions, rules mandating the identification and application of lessons, etc.).

Increased park capacity helps parks to identify previously unexpected barriers and circumvent them. Also greater capacity leads to higher quality plans in the first place. Presumably higher quality plans will lead to higher quality management decisions reducing magnitude of problems which then reduces the need and pressure to start new planning efforts. In this model, managers are continuously planning as part of normal management processes (management and planning are integrated functions, not separate), so they do not need large new infusions of money and consultants all the time (hence these resources do not appear in the model). Also note there are multiple delays in this model, underscoring that building capacity takes a long time and does not happen during the contract duration of a traditional consultant.

The following table (Table 1) helps managers see the consequences of their assumptions. The table describes implementation barriers, the underlying assumptions, and actions managers can take to circumvent or mitigate the barrier. Many assumptions derive from the traditional park planning model (see Figure 2).

That there are so many questionable planning assumptions cannot be simply coincidence

The existence of so many assumptions (Table 1 is not exhaustive) begs the question why so many? Coincidence would be short-sighted. Another explanation argues that all mental models rest on still deeper assumptions. In fact, we can trace the above planning assumptions all the way back to the foundation of western civilisation itself. Consider the lineage of assumptions that tie today’s planning assumptions to several of civilisation’s fundamental assumptions originating 300–400 years ago (Figure 3).

What might an alternative paradigm be to this reductionist foundation of planning? Modern systems thinking (as per Senge’s quote above) sees the world not as separate parts related in linear cause-and-effect chains, but as a complex system with multiple feedbacks and delays. This world is ever-changing, unpredictable and messy. But it follows the rules of systems dynamics.

To survive in such a world, organisations must continually learn to keep up with the changing context and to find high-leverage solutions to dynamic, complex problems. Seen this way, planning becomes an integral part of changing the world or tackling problems that challenge park managers (see Figure 4).

Since learning is integral to solving problems in a holistic world, managers would not separate planning and managing. This cycle essentially describes adaptive management². There would be no need for one-time major planning campaigns run by outsiders that produce polished and published plans.

Rebuilding mental models

Managers must rebuild their mental models to see planning as integral to continuous learning and problem solving in a complex, messy world.

Managers, donors and even consultants can all work together to change mental models of planning. To do so, however, requires a new holistic mental model that places planning firmly at the centre of learning and capacity building, rather than on the periphery. In The Fifth Discipline, Senge offers five core disciplines necessary for effective change (see page 57):

---

² Adaptive Management: a process that integrates project design, management and monitoring to provide a framework for testing assumptions, adaptation and learning. It was originally developed to manage natural resources in large-scale ecosystems (Margoluis and Salafsky 1998).
Table 1. Helping managers see the consequences of their assumptions.

<table>
<thead>
<tr>
<th>Parks assume ...</th>
<th>Planning barrier</th>
<th>Exemplary response strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning and consultants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Given the appropriate resources, parks already have all the management capacity necessary to implement a strategic plan.</td>
<td>Parks do not have the management capacity to create and implement a strategic plan. Creating and implementing strategic plans is not an innate ability. Strategic tools are sophisticated tools that, like any other, require training and experience to use effectively.</td>
<td>Facilitators should make significant efforts before planning to identify capacity levels of a park so the park does not proceed overconfident and blind to its limitations.</td>
</tr>
<tr>
<td>Implementation failure comes from a lack of resources and other exogenous factors (not an inward lack in their own capacity).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The locus of knowledge should be with the consultants. Learning is not a component of organisational performance. Technical assistance of a consultant need only be short term, because parks need no help to implement.</td>
<td>Parks do not learn how to create and implement the strategic plan. Learning is not an explicit objective of the planning or implementation process.</td>
<td>Facilitators should build learning tools into the process such as systematic discovery and application of lessons learned, periodic evaluations, explicit training, etc. Donors should pay for medium-term technical assistance to help parks learn to use their strategic plans.</td>
</tr>
<tr>
<td>The consultant has all the answers and skills. If something goes wrong it is the consultant’s fault.</td>
<td>Parks task consultants to do most of the planning work, thus robbing opportunities for parks to learn and create their own management capacity.</td>
<td>Parks should hire facilitators experienced in participation and organisational learning. The terms of reference for the facilitator should limit facilitation to organising and running meetings. The bulk of analysis and writing should be carried out by stakeholders (under the facilitator’s guidance).</td>
</tr>
<tr>
<td>Expert knowledge, even if it originates outside the community, is critical to success.</td>
<td>Outside planning consultants can reduce stakeholder ownership, leading to lower levels of implementation. A side effect of traditional planning consultants is that stakeholders do little if any of the work. The plan then does not represent their labour and probably not their ideas.</td>
<td>There is a balance between acquiring skilled facilitators and choosing facilitators that have trust of stakeholders and understand them. Skilled outsiders using participatory methodologies can make stakeholders feel owners of the document, but it is more challenging the more outside facilitators are.</td>
</tr>
<tr>
<td>Experts making recommendations will yield better results than stakeholders making commitments.</td>
<td>Outside consultants make recommendations which are not implemented. Parks confuse studies and plans. Documents with recommendations are studies, true strategic plans do not make recommendations, they record commitments.</td>
<td>Facilitators need to clarify if they are facilitating a study or a plan. If it is a plan, then they need to make clear that stakeholders are agreeing to binding commitments, not recommendations.</td>
</tr>
<tr>
<td><strong>The Planning Process</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expert, scientifically derived knowledge is more important than personal experience and values in the planning process. Thus expert planners are more important than subjective, quarrelsome, untrained stakeholders. The plan is ultimately both property and responsibility of the park management authority, rather than a collective work of park stakeholders. Park managers must maintain control over the plan in order for it to be properly implemented.</td>
<td>Parks do not adequately involve stakeholders in the planning process. As a result stakeholders impede or actively sabotage the process. Burby’s study indicates that the more stakeholders are involved in a planning process, the more likely a state government plan will be implemented. This assumes true and well facilitated participation.</td>
<td>Facilitators should have experience in participatory methodologies and stakeholder analysis. Facilitators should explain that values and people’s working together ultimately increases the chances of implementation and longevity of solutions. Facilitators forge a shared vision of a plan as a collective work for which the park authority is just one stakeholder.</td>
</tr>
<tr>
<td>Parks can and will transform strategies defined in the plan into operations. The time between the completion of a strategic plan and the start of operational planning does not diminish motivation, knowledge, and momentum created by the planning process.</td>
<td>Parks are unable to transform strategies into operational mechanisms for implementation. Strategic plans are often created in a different time and place than the subsequent operational plans (budgets, implementation plans, logistics).</td>
<td>Facilitators should build operational planning into strategic planning, not be separated from strategic planning in time and place. Hence, a strategic plan should budget time and money for a three or five-year term.</td>
</tr>
</tbody>
</table>

JON KOHL
Table 1. continued, Helping managers see the consequences of their assumptions.

<table>
<thead>
<tr>
<th>Parks assume …</th>
<th>Planning barrier</th>
<th>Exemplary response strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once vision is clear, implementation comes easily.</td>
<td>Strategic plans get bogged down in the approval process and then are never implemented. Lane reports that 80% of protected area directors interviewed in Honduras stated that the plan approval process hinders their ability to implement plans.</td>
<td>Facilitators should include as a pre-planning step research of the approval process. Parks need to know exactly how it works and how to develop a plan that will move more quickly through the process.</td>
</tr>
<tr>
<td>Parks will deal with the approval process when they get to it. Approval processes are immutable.</td>
<td>Research during planning takes so long that stakeholders lose interest.</td>
<td>If research is unavoidable, the research component should be separated from the planning. Parks should consider using participatory research when possible rather than field research. That is, in a workshop, participants name tourist attractions (1 day) instead of field inventory (days to weeks).</td>
</tr>
<tr>
<td>Research is a necessary part of strategic planning. Scientific research yields much higher quality data than participatory research based on people’s knowledge. Strategic plans must contain databases and inventories even though those who would use the plan already have access to that information.</td>
<td>Parks do not adequately define planning process goals at the outset, which can lead the plan astray. This barrier is discussed in Lachapelle, et al. 2003.</td>
<td>Facilitators should help parks tailor the planning process to meet their specific needs. This tailoring becomes formalised in goals for the planning process.</td>
</tr>
<tr>
<td>The standard planning process is sufficient to generate a plan focused on park priority concerns and needs.</td>
<td>Inflexible methodologies increase the chance that the strategic plan does not reveal and deal with the park’s major issues. This barrier is discussed in Lachapelle, et al. 2003.</td>
<td>Facilitators should have experience in adapting methodology on the fly to address major issues.</td>
</tr>
<tr>
<td>All major issues will arise through an expert-driven process. No special steps are necessary to deal with park’s major conflicts.</td>
<td>Parks can lose attention and commitment as new programmes and problems distract them from planning. Traditionally, the planning field regards park readiness as an ability to concentrate on and invest significant energy in planning. When the park grapples with other major problems whether budget, management, or administrative, it is not ready to commit to planning.</td>
<td>Donors should determine a park’s readiness before beginning to plan. Planning requires complete attention. If other issues are emerging on a park’s radar, planning may best be postponed.</td>
</tr>
<tr>
<td>Planning can occur simultaneously with other urgent issues that arise at the same time as the planning.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Nature of the Plan

Credibility in one area (e.g., long-time park planning advocate) qualifies a consultant to facilitate a quality strategic planning process. A plan’s poor technical quality derails implementation. Parks should research and choose a methodology and facilitator that has demonstrated success in strategic planning. Parks do not implement, and they blame insufficient resources. Resources usually refer to money, time and personnel. Facilitators should measure the likelihood of available resources and take that into account during planning. If the plan has an operational component (budget, implementation plan), then the park often has a much more reasonable projection of what can be achieved with given resources. Donor should include funds for implementation, not just planning.
A strategic plan should be updated only when it is re-planned or its long-term planning horizon (three, five, or 10 years) expires. Strategic plans will solve all major issues.

### Format of Plan

A plan must be large and filled with methodological, cartographical, technical, and inventorial information and appendices and charts to earn respectability. Visual communication is less important for the plan’s implementation. A polished, published, and bound volume can still be a “living document.”

### Political Context

A strategic planning process is not the place for conflict resolution. The park authority is responsible for implementing the plan.

### Physical Barriers

It can’t happen to them.

---

<table>
<thead>
<tr>
<th>Parks assume …</th>
<th>Planning barrier</th>
<th>Exemplary response strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>A strategic plan should be updated only when it is re-planned or its long-term planning horizon (three, five, or 10 years) expires.</td>
<td>Plan is not updated and once out of date, no longer addresses current challenges. Then it is not implemented. Governments often mandate that a plan can only be updated upon expiration of its formal term.</td>
<td>Facilitator should build in discrete update moments during the implementation plan, more frequent in the first year or two than later on.</td>
</tr>
<tr>
<td>Strategic plans will solve all major issues.</td>
<td>Parks have high expectations for plans and when their expectations are not met, they lose confidence in the plan, resulting in non-implementation.</td>
<td>Facilitators need to emphasise that plans will grow and change as the park learns. Problems will always crop up and even solved problems often do not stay solved. Planning goals should be realistic and attainable, not pipe dreams.</td>
</tr>
<tr>
<td><strong>Format of Plan</strong></td>
<td>Plan is not user-friendly, discouraging staff and stakeholders from participating in the document’s use, leaving only very few people who know and understand its content.</td>
<td>Facilitators need to agree with parks in advance about a format that promotes visual communication and quality writing.</td>
</tr>
<tr>
<td><strong>Political Context</strong></td>
<td>Power-struggles among stakeholders essentially paralyse and scuttle planning or else water it down so much that it no longer can effect change. Lachapelle et al. (2003) discussed the barrier of power in terms of the park itself wanting to control the process.</td>
<td>One of the best responses to power-struggles is to have a facilitated forum where both sides speak their position and reach a conclusion. This should be the role of a facilitator. Facilitators should also identify problems very early on through interviews or any site assessment that might have accompanied the process.</td>
</tr>
<tr>
<td>The park authority is responsible for implementing the plan.</td>
<td>When governments change, existing plans can be tossed. Sometimes the planners (and their bosses) are also tossed. Institutional memory also leaves with lost personnel. Lane reports that 87% of interviewed protected area directors in Honduras stated that government changes hinder their ability to implement plans.</td>
<td>If nothing else can be said about government change, its timing and consequences are predictable. Donor and park should not start a planning process within a couple of years of an expected change of park director or key staff.</td>
</tr>
<tr>
<td><strong>Physical Barriers</strong></td>
<td>Plans can be physically lost due to computer crashes, office fires, theft or negligence.</td>
<td>Facilitators should back up plans both on and off site.</td>
</tr>
<tr>
<td>It can’t happen to them.</td>
<td>Disasters, either political or natural, can interfere or stop the planning or implementation process: such as earthquakes, volcanoes, rebellions, violence, employee strikes, severe budget cuts or the death of the park director.</td>
<td>Parks should not begin planning when facing imminent disaster.</td>
</tr>
</tbody>
</table>

---

*Lachapelle et al. (2003)* discussed the barrier of power in terms of the park itself wanting to control the process.
The author plays a board game with future park planning facilitators that demonstrates the importance of learning and co-operation in park tourism development. Photo: Wiwien Tribuwani.

Figure 2. Mental model of a planner focused on developing capacity. By examining his own mental model, a manager can see how his assumptions lead to unexpected barriers.
These many assumptions point to a deeper assumption that planning (thinking) and managing (doing) are separate.

Why are planning and managing separate?

Planning is a bureaucratic requirement. Since planning time competes with managing time, managers reduce their involvement in planning by the two functions. This allows non-managers to fulfil the planning requirement.

Why is planning a bureaucratic requirement?

Donors and government require parks to plan in order to receive funding and be allowed to operate. Doing solves problems, not planning.

Why doesn’t planning contribute to problem solving?

The world is stable, predictable and linear. Problems and solutions are generally understood. The major barrier to their resolution, therefore, is a lack of resources.

Why is the world stable, predictable and linear?

Sir Isaac Newton described objects as discrete and physical, interacting only through a change of position and motion; cause and effect is clear (materialism). René Descartes said that these parts can be broken down into smaller parts, studied and put back together (reductionism). These ideas underlie modern park planning and civilisation.
The entire Pico Bonito staff (director pointing, two board members sitting) participated in developing and writing its public use plan. Photo: Jon Kohl.

Park planning facilitator who is also staff (lower right) recruits wide staff participation in the development of the public use plan of Ujung Kulon National Park in Indonesia. Photo: Wiwien Tribuwani.

**Figure 4.** Planning as an integral part of adaptive management.
1. **Personal mastery** includes integrating reason and intuition; continually seeing more of our connectedness to the world; compassion; and commitment to the whole.

2. Managing **mental models** involves identifying, clarifying, and changing one's mental model and its component assumptions.

3. Building a **shared vision** motivates participants toward a common future.

4. **Team learning** consists of three essential criteria: need to think insightfully about complex issues; need for innovative, co-ordinated action; a role of team members on other teams.

5. **Systems thinking** allows managers to understand reality enough to create strategies to reach their shared visions.

Thus, the most important capacity a park can develop is learning. Through learning, it can examine and modify its mental models, it can test hypotheses and continuously adapt and improve. Once the mind is shut, assumptions grow hard and immobile and a changing context will pass them by. Unfortunately, those park managers who already know how to solve their problems – if only they commanded greater resources – are unlikely to ever read this paper.

You can give a park a strategic plan and the managers will shine for a day (when the media show up), or you can help managers learn how to learn and their park will shine for life.

**References**


Thanks to Stephen McCool, Sam Ham, Austin Lane and Marisol Mayorga for reviewing this manuscript.