USAID LESTARI

LESSONS LEARNED TECHNICAL BRIEF

MULTI-LAYERED CONSERVATION MANAGEMENT IN LEUSER LANDSCAPE

FEBRUARY 2020

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BACKGROUND

One of the primary USAID LESTARI project goals is to conserve biodiversity in carbon rich and biologically important forest and mangrove ecosystems. In the Indonesian province of Aceh, LESTARI has prioritized support for the Leuser Landscape, and within this it has focused on the critically important conservation areas of: i) Gunung Leuser National Park (GLNP) – a 828,279 hectare UNESCO World Heritage Site; ii) Singkil Wildlife Reserve (SWR) – a 82,374 hectare deep and carbon rich peat forest; and, iii) Forest Management Unit (FMU) Region VI – 324,254 hectares of rainforest in the GLNP and SWR buffer zone. This landscape has an immeasurable wealth of biodiversity and is the last place on earth where tigers, orangutans, rhinos and elephants still co-exist. Since 2015, under leadership of LESTARI team member Wildlife Conservation Society (WCS), LESTARI has implemented a multi-layered conservation management approach that ranges from site-based to national level interventions (Figure 1). This technical brief describes the core activities, their achievements, sustainability and replicability, lessons learned, and recommendations for future work.

LEUSER LANDSCAPE MODEL AND PROJECT HIGHLIGHTS

Figure 1. The main threats to the Leuser Landscape are farmland encroachment, illegal logging, and wildlife poaching. At the forest-farmland interface, human-wildlife conflict is a common occurrence that, if unresolved, can lead to retaliatory killings of threatened wildlife, as well as reducing community support for conservation objectives. In response, LESTARI has supported a multi-layered approach to improve the management effective of government conservation agencies to reduce pressures on forest and wildlife.
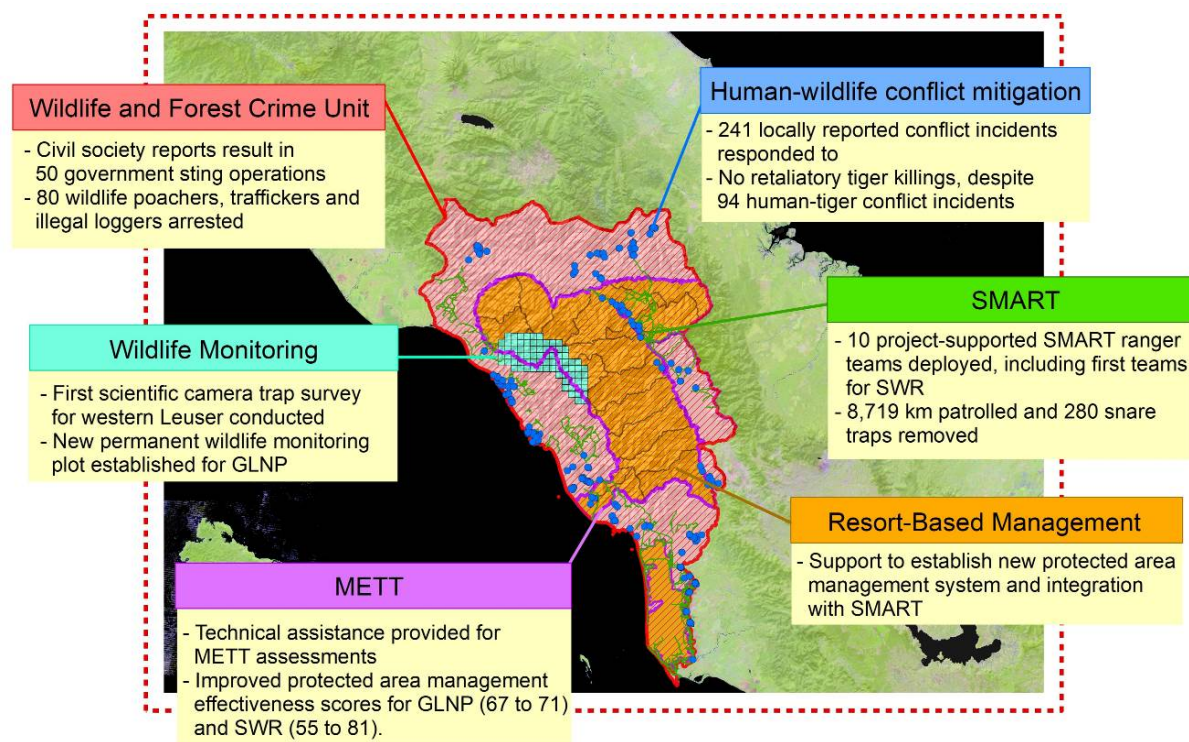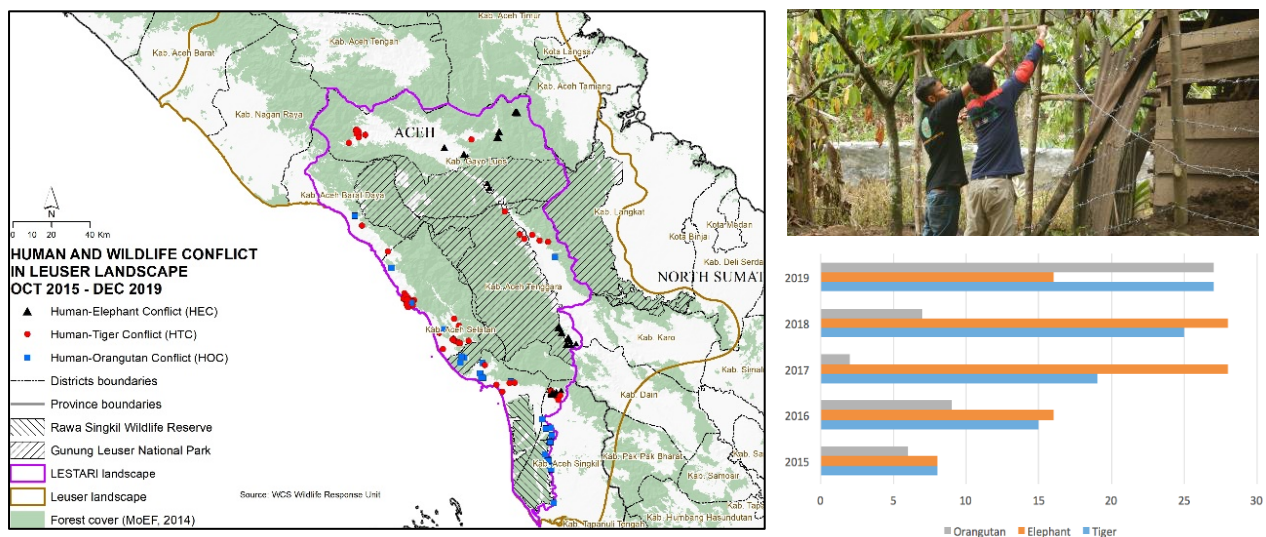
MITIGATING HUMAN-WILDLIFE CONFLICT

Background

Human-wildlife conflict, involving threatened Sumatran wildlife, typically occurs as a result of elephant crop-raiding, tiger attacks on livestock, or by either species causing harm to people. Conflicts are often escalated through the clearance and fragmentation of forest habitat for farmland or plantations. These incidents have a high potential to make communities antagonistic and intolerant towards wildlife and, in turn, result in the retribution killing of animals believed to pose a threat, as well as undermining and impeding conservation efforts. So, unless management measures, such as conflict mitigation response teams, are in place, it is difficult to implement wider conservation strategies in the affected forest-edge farming communities. To address this conservation and livelihood issue, LESTARI supported three Wildlife Response Units. These units were tasked with: i) rapidly responding to community reports and preventing conflict situations from further escalation; and, ii) empowering communities to construct tiger-proof livestock enclosures and become self-sufficient in mitigating conflicts.

Achievements

- The Wildlife Response Units and the Aceh Nature Conservation Agency (BKSDA) responded to 241 local community reports of human-wildlife conflict, involving tiger (94 incidents), elephant (96 incidents) and orangutan (51 incidents; Figure 2).

- Since 2015, no tigers have been killed due to conflict in this landscape, compared to an average loss of 1.6 tigers/year in the eight years preceding LESTARI.

- 221 villages and 1,251 people were empowered by BKSDA Aceh-LESTARI through participating in training and awareness raising events on human-wildlife conflict mitigation techniques.

Figure 2. Distribution of human-wildlife conflict incidents in the Leuser Landscape responded to by LESTARI from 2015 to 2019 (left); image of a Tiger Proof Enclosure being built to safeguard livestock (top right); and, human-wildlife conflict mitigation trends and project response from 2015 to 2019 (bottom right).

Sustainability and Replication

- To support forest-edge communities to become self-reliant in managing human-wildlife conflicts, the project supported a wider Leuser initiative, designed by WCS, called *Masyarakat Desa Mandiri* or self-sufficient villages. This involves the creation of well-trained village conflict mitigation teams and assisting the partnering villages in developing village budget (*dana desa*) plans that incorporate operational support for their team. LESTARI supported the establishment of five demonstration self-sufficient villages in four districts. These villages were used to show communities located in conflict-prone areas (215 villages in Aceh and 37 villages in North Sumatra) how they themselves could independently manage wildlife encounters without harm or loss to themselves or wildlife.

COMBATING WILDLIFE TRAFFICKING AND ILLEGAL LOGGING

Background

The Illegal Wildlife Trade (IWT) and illegal timber trade involve well-organized criminal networks that are skilled in circumventing detection by law enforcement agencies, which may be insufficiently resourced to counter wildlife trafficking and illegal logging. In Indonesia, trade in wildlife and timber is occurring at an unprecedented scale, as shown by the unsustainable volumes and huge diversity of species being traded that has pushed many species to the brink of extinction. The Leuser Landscape is highly prized by traffickers because it is still home to a high number of in-demand and valuable wildlife species and high-quality tropical hardwood trees. To tackle IWT and illegal logging, LESTARI supported two key actions: i) forest ranger anti-poaching patrols; and, ii) a Wildlife Crimes Unit and a Forest Crimes Unit to monitor and report wildlife trafficking and illegal logging to government agencies to instigate the arrest and prosecution of the perpetrators.

Achievements

- A network of 35 sources of information were engaged to monitor and report wildlife trafficking. Their information was provided to law enforcement agency partners and resulted in 26 sting operations and the arrest of 54 wildlife poachers and traffickers (Figure 3). Of these, 85% were prosecuted (46 suspects), with 15% awaiting trial. The average sentence for the 46 suspects was 19 months in prison and an IDR 51 million fine.

- The Forest Crimes Unit and the SMART patrol teams provided information to government partners that resulted in a further 24 law enforcement operations and the arrest of 26 suspects (7 poachers, 1 encroacher and 18 illegal loggers). One suspect was sentenced to six months in prison, five suspects received a warning letter and the rest are awaiting trial.

Figure 3. Traffickers arrested with a pair of elephant tusks (left); press conference on the arrest of four traffickers of helmeted hornbill casques (center); and confiscated pangolins being released back into the wild (right)

Sustainability and Replication

- The Wildlife Crimes Unit and Forest Crimes Unit are designed to be inexpensive to operate, so that they can be externally funded and independent. This is important for operating sources of information in the landscape communities who will readily provide information to a trusted NGO partner.

- Based on the Leuser Landscape achievements, the Wildlife Crimes Unit model has been replicated in the Bogani Nani Wartabone NP landscape in northern Sulawesi, with the Leuser team advising on its set up. This represents the first counter-wildlife trafficking intervention in Sulawesi.

IDENTIFYING PRIORITY WILDLIFE AREAS

Background

Reliable information on wildlife populations and the threats they face is crucial for assessing the performance of conservation strategies. The Ministry of Environment and Forestry of Indonesia (MoEF) has identified priority species whose populations it aims to increase by 10% from 2015 to 2019. For the Leuser Landscape, these include Sumatran tiger, Sumatran elephant, Sumatran rhino, and Sumatran orangutan. Yet baseline population data on these species, except for orangutan, in this landscape are lacking which hinders conservation efforts. LESTARI supported a widespread camera trap survey to estimate the abundance of MoEF priority wildlife species, such as Sumatran tiger and Sumatran rhino as a means to understand the importance of the Leuser Landscape for biodiversity and identifying priority habitat for increased protection and improved spatial planning.

Achievements

- First ever science-based camera trap survey and species database compiled for western Leuser.

- Surveys confirmed the presence of 49 species, including the Critically Endangered Sumatran tiger, Sumatran elephant, Sumatran rhino, Sunda pangolin and Sumatran orangutan, as well as Asian wild dog – an elusive species in Sumatra that is undergoing rapid range-wide decline in Southeast Asia.

- First Sumatran tiger population baseline determined for the Leuser Landscape and priority tiger habitat identified to enable population recovery through SMART patrols (Figure 4).

Figure 4. Two prime adult Sumatran tigers (male and female) recorded in the Leuser Landscape

Sustainability and Replication

- The results of the camera trapping work were used to refine the SMART patrol strategy to target at-risk tiger habitat with the aim to enable tiger population recovery.

- The results were used to design a permanent monitoring site in the LESTARI-supported Landscape that was officially endorsed by the GLNP authority and will be included in its 2020 annual work plan. This complements the eastern Leuser monitoring site that was established in 2010 and has been regularly surveyed since then.

IMPROVING CONSERVATION AREA FINANCING

Background

Government financing for protected areas in Indonesia is inadequate to support effective operational management. For example, the GLNP annual budget in 2017 was IDR 30.6 billion or IDR36,978/ha, which is 80-168% less than the range recommended at the 2012 ASEAN Protected Areas Congress. For GLNP, the core budget is reliant on central government financial support that from 2012 to 2017 experienced a 0.56% reduction in its year-on year-funding allocation (from IDR 31.6 billion to IDR 30.6 billion), adjusted for inflation. Given the priority of ensuring sufficient funding for staff salaries and office operations, the major budget cuts came from field operations. Furthermore, core activities such as law enforcement forest patrols and biological monitoring remain greatly under-funded for GLNP. Thus, the connection between budgeting and operational management

requires strengthening to ensure GLNP is able to meet its conservation objectives. Similar budget cuts have been experienced by BSKDA Aceh, which manages 8 conservation areas. LESTARI conducted a detailed study to understand the financing needs of GLNP and SWR, identify budget shortfalls, and recommend ways to address this.

Achievements

- First detailed analysis produced on financing trends and gaps for GLNP and SWR. The key findings are:

  o GLNP received IDR 22.4 billion (2014) and IDR 32.4 billion (2015) before its budget decreased to IDR 30.6 billion (2017). The SWR, under BKSDA Aceh, changed from IDR 1.2 billion (2015) to IDR 993 million (2017).
  o Most of the GLNP budget was spent on staff salaries (53%) and field activities (19%). For SWR, most funds were spent on technical activities (46%) and staff salaries (29%).
  o From 2015 to 2017, additional financial support for GLNP and SWR totaling IDR 19.6 billion over three years (IDR 6.6 billion/year), or 21.4% of the park's annual government allocation, came from seven external partners.

- A more detailed analysis was conducted to determine the real costs required for effectively protecting GLNP and SWR. Using SMART patrols as an example, a threat analysis identified 1,800 at-risk grid cells (of 2x2km) in GLNP and 180 at-risk grid cells in SWR that should be prioritized for protection. This revealed a sizable funding shortfall of IDR 35.4 billion for GLNP and IDR 1 billion for SWR.

Sustainability and Replication

- This study provides a compelling argument for the Government of Indonesia to increase funding for GLNP and the eight conservation areas under BKSDA Aceh's authority. This should include funds for forest and wildlife protection and related activities, such as outreach, awareness raising and community-based forest management initiatives. This process has started with LESTARI assisting GLNP in the revision of its 'Long Term Management Plan' (RPJP), which will later be translated into an 'Annual Work Plan' (RPJPn). This work plan will serve as the basis to develop GLNP's budget plan.

- The protected area financing assessment developed by LESTARI has high relevance to Indonesia's other protected areas. To enable replication, it is important to train MoEF in the techniques used so that they have ownership of the approach and can independently conduct future assessments.

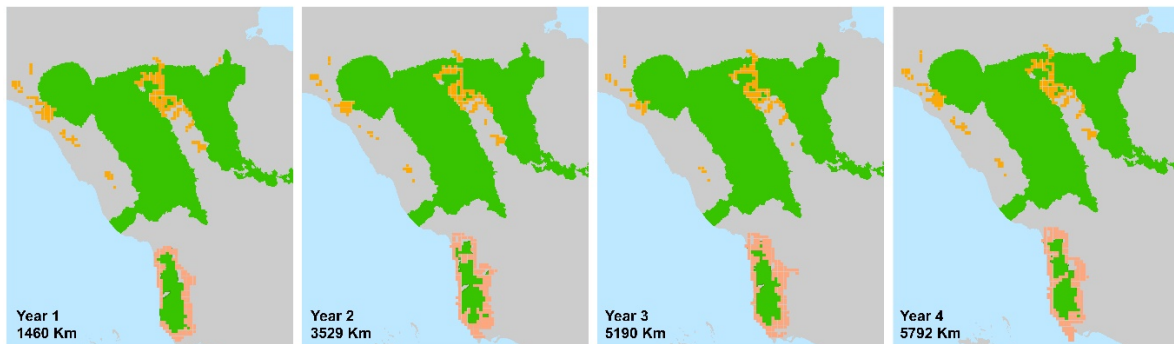# STRENGTHENING PROTECTED AREA MANAGEMENT

Background

For protected areas to fulfil their biodiversity conservation objectives, it is important to measure and evaluate site-based conservation activities to improve management effectiveness. Two complementary approaches have been applied by MoEF to achieve this. Firstly, SMART (Spatial Monitoring and Reporting Tool) is an adaptive management system that is used to strategically guide forest ranger patrols to stop poachers, curb the illegal trade

of wildlife and illegal logging, and also record key features observed by patrol teams. Secondly, the Management Effectiveness Tracking Tool (METT) is a widely used tool to assess protected area effectiveness. In 2015, the Directorate General of Nature Conservation and Ecosystem adopted METT for its terrestrial protected area network. It set a target score of 70%, which in 2015 was 67% for GLNP and 55% for SWR. Here, we present the results of the support that LESTARI provided to GLNP and SWR to set up and implement their respective SMART patrol systems and to conduct METT assessments.

Achievements

- Project support for the seven SMART ranger teams in GLNP and 3 teams in SWR resulted in 461 patrols being conducted over 8,719 km. This resulted in the removal of 280 snare traps and the detection of 897 illegal logging points that were reported to the authorities (Figure 5).

- The 2015 METT scores were used to develop action plans to improve management effectiveness in GLNP and SWR, for which LESTARI provided targeted support, e.g. capacity building, SMART patrols and species monitoring. As a consequence, the METT scores markedly improved for GLNP (score increase from 67 in 2015 to 71 in 2017 and 2019) and SWR (from 55 to 66 to 81; Figure 6).

Figure 5. Increasing SMART patrol effort (orange patrol routes) across the Leuser Landscape, showing Gunung Leuser National Park (top) and Rawa Singkil Wildlife Reserve (bottom).

Figure 6. Comparison of METT scores from 2015, 2017 and 2019 for Gunung Leuser National Park and Rawa Singkil Wildlife Reserve

Gunung Leuser National Park

Rawa Singkil Wildlife Reserve
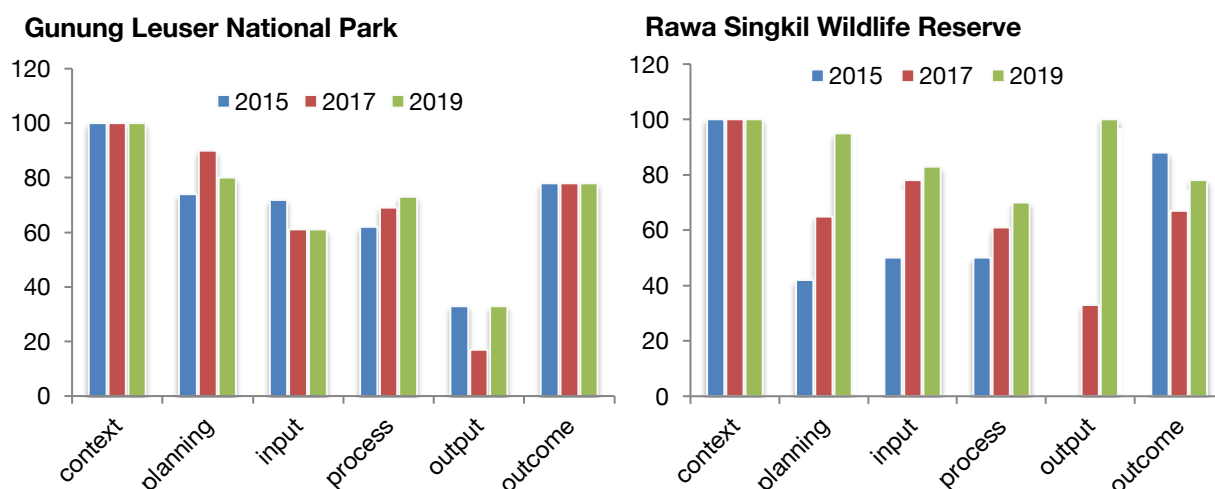
Sustainability and Replication

- MoEF has adopted METT as the protected area management effectiveness tracking tool for Indonesia and has fully budgeted for its use, thereby ensuring its ongoing replication. The key challenge for sustainability is in translating the management recommendations into fully-financed activities that, for example, has happened for ten SMART patrol teams in GLNP and SWR, and with five teams able to conduct patrolling without NGO technical assistance.

- The development of SMART in GLNP has been used as a successful example to support the replication of this adaptive management system to mitigate threats in other protected areas, notably Way Kambas NP (southern Sumatra) and Bogani Nani Wartabone NP (northern Sulawesi).

LESSONS LEARNED

Human-Wildlife Conflict

- To work effectively with communities in the Leuser Landscape would have been difficult if LESTARI had not been proactively providing support to mitigate wildlife conflicts, because it is a key livelihood issue. Project efforts to tackle human-wildlife conflicts were appreciated by community partners and enabled good relations to be developed and maintained throughout the project. This has created a community conservation constituency with raised awareness of the key threats, and which provided reports on poaching and illegal logging incidents for forest ranger teams to respond to.

- Human-wildlife conflict mitigation was an effective way to explain to district government partners the linkages between local livelihoods, environment, and the ecosystem services provided by the forests, which should be simultaneously safeguarded.

Counter Wildlife Trafficking

- The Wildlife Crimes Unit and Forest Crimes Unit proved to be a cost-effective way to work with a wide range of government law enforcement agencies, including the GLNP authority and BKSDA Aceh. The collaboration increased prosecution rates, notably for illegal logging, and the engagement of prosecutors and judges to better understand forestry crimes is considered to have been influential.

- The mapping wildlife trafficking networks in the Leuser Landscape, with LESTARI data feeding into the analyses, identified the kingpins (i.e. those with most connections in the trade network). These suspects were then targeted and monitored by the government law enforcement agencies, who conducted sting operations and arrests.

Species Monitoring

- Contrary to our initial assumptions, tigers were at higher densities in hill, submontane, and montane forest habitat types, but not the lowland forest study area, which should be prey-rich prime tiger habitat. The results highlighted the core areas that must continue to be strictly protected by the SMART patrol teams, especially where tigers are reproducing. This approach should enable tiger population recovery in the lowland forests, where we recommend increased SMART patrol effort.

Conservation Area Financing

- Many protected areas in Indonesia are very large and simply calculating funding needs and gaps based on area alone will lead to an over-estimation of cost. Our priority setting exercise, including a threat analysis, was an objective way to more accurately calculate protected area funding requirements.

Strengthening Protected Area Management

- The METT assessment, particularly the gaps identified, was an effective way to support the protected area authority's decision-making process, particularly in selecting activities for strengthening its management and increasing the METT score. For example, in the 2015 METT assessment, revising the GLNP zonation was identified as an important activity to improve park management, and this was then conducted in 2019. Similarly, for SWR, the 'self-blocking' (similar to zonation) and *RPJP* development was finalized with support from LESTARI in 2019 and contributed to the improved METT score.

- The operation of SMART provided a compelling way to monitor ranger patrols, demonstrating the huge patrol effort and wide spatial coverage achieved across the landscapes. This was instrumental in leveraging other GLNP-NGO partners to use and strengthen this system. The patrol information also provides the protected area authority with an up-to-date overview of the area's situation, which is crucial for enhanced decision-making and, ultimately, improving management effectiveness.

RECOMMENDATIONS

Human-Wildlife Conflict

- Tiger, elephant, and orangutan encounters are widespread in the Leuser Landscape. Thus, it is important that over the short-term support is provided to BKSDA Aceh to swiftly respond, as conducted under LESTARI. We recommend greater investments into replicating the *Masyarakat Desa Mandiri* (self-sufficient village) concept around the forest-edge, especially in using the demonstration villages to show how village budget (*dana desa*) can be used to sustainably finance this.

Counter Wildlife Trafficking

- Across the landscape a variety of information, from local informants, community outreach, SMART patrols, and stakeholder discussions, is being collected in large volumes. To take full advantage of these sources of information to improve the counter-wildlife trafficking response, we recommend developing an integrated protection model that uses principles of intelligence-led enforcement to optimize wildlife and forest protection by proactively using all available information to target priority offenders and implement a preventative strategy, with support from a skilled intelligence analyst.

Species Monitoring

- The robust sampling design developed and applied in the Leuser Landscape should be repeated at 2-3 year intervals to determine population trends of tiger and other priority species as a means to evaluate project performance, adaptively manage the intervention strategy, and support MoEF in evaluating progress made against it 10% population increase target for Sumatran priority species.

Conservation Area Financing

- To address protected area financing gaps, we recommend increasing state budget allocations and improving efficiency in managing the existing funds through:

  - Training GLNP and SWR staff in financial planning to develop short-term management plans
  - Reviewing human resource allocations in relation to the requirements for achieving the protected area management objectives
  - Facilitating discussions on budget requirements, the national budget tracking process and tools for improving protected area financial management

- To secure the protected area border through improved buffer zone management, we recommend:

  - Leveraging local government and community support, e.g. through developing fully functioning Forest Management Units and Village Funds (*Dana Desa*)
  - Attracting private sector support for sustainable agricultural practices through a collective responsibility approach to ensure deforestation free supply chains, as currently being applied for coffee farmers in the Bukit Barisan Selatan NP landscape in Lampung

Strengthening Protected Area Management

- The SMART system was introduced to GLNP and SWR and successfully operated over the project. We recommend refresher training for rangers, data operators, and senior managers to ensure that they continue to operate SMART as an adaptive management system. We also recommend connecting the different SMART databases, perhaps starting with the Sumatra protected areas, using the SMART Connect facility. This would enable comparisons within this protected area network.

- To advance the METT assessment process we recommend: reviewing the questions to determine whether they should be modified to suit the Indonesia context; greater emphasis on providing supporting documentation for deriving METT scores as a standard requirement; and involving a wider array of stakeholder groups that interact with the protected area.