Tanzania Chimpanzee Conservation Action Planning Workshop Report

White Sands Hotel & Resort, January 19th – 21st of 2010.

Africana Road, Jangwani Beach, Dar es Salaam, Tanzania.

Compiled by Cristina Lasch, Lilian Pintea,
Kathy Traylor-Holzer and Shadrack Kamenya

January, 2011

Institutions that participated at the meeting:

Conservation Breeding Specialist Group - Species Survival Commission, International Union for Conservation of Nature (CBSG)
District Council of Mpanda
District Government Office of Kigoma
Evaluation and Research Technologies for Health, Inc. (EARTH)
Forestry and Beekeeping Division - Ministry of Natural Resources and Tourism (FBD)
Frankfurt Zoological Society (FZS)
Great Apes Survival Partnership, United Nations Environment Programme (GRASP)
Great Ape Research Institute – Hayashibara Biochemical Laboratories, Inc. (GARI)
Jane Goodall Institute (JGI)
Lincoln Park Zoo (LPZOO)
Minnesota State University (MNSU)
Ministry of Natural Resources and Tourism, The United Republic of Tanzania (MNRT)
National Environment Management Council (NEMC)
Primate Specialist Group, International Union for Conservation of Nature (PSG)
Regional Natural Resource Office – Kigoma
Regional Natural Resource Office - Rukwa
Roots & Shoots Tanzania
Tanzania National Parks - Ministry of Natural Resources and Tourism (TANAPA) – Gombe and Mahale National Parks
Tanzania Wildlife Research Institute - Ministry of Natural Resources and Tourism (TAWIRI)
The Nature Conservancy (TNC)
University of Cambridge (CAM) / Ugalla Primate Project (UPP)
University of California, San Diego (UCSD) / Ugalla Primate Project (UPP)
United States Forest Service (USFS)
Wildlife Conservation Society (WCS)
Wildlife Division of the Ministry of Natural Resources and Tourism (WD)

Core Planning Team – C-CAP Process Promoters:

Cristina Lasch (TNC-Mesoamerica)	Meeting and CAP process coordination & facilitation
Elizabeth Gray (TNC-USA)	Process design, facilitation, product edition
Lilian Pintea (JGI-USA)	Grant management, process design, production of maps, product edition
Shadrack Kamenya (JGI-TZ)	Meeting moderation, process design, facilitation, product edition
Kathy Traylor-Holzer (IUCN-CBSG)	Technical advice (PVA), product edition
Kathryn Doody (FZS)	Technical advice, facilitation, product edition
Tim R.B. Davenport (WCS-TZ)	Technical advice, facilitation, product edition
Sood Ndimuligo (JGI-TZ)	Technical advice, facilitation
Robert Sassor (USFS)	Technical advice, facilitation
Matthew Brown (TNC-Africa)	Process design, technical advice, product edition
Alex Lobora (TAWIRI)	Technical advice, Product edition
Charles M. Masunzu (WD-MNRT)	Technical advice, Product edition

Financial support:

This planning process was made possible by the generous support from the people of the United States of America, through The Great Ape Conservation Fund of the United States Fish & Wildlife Service. WCS and several other NGOs also provided financial support for this process. The contents of this report are the responsibility of the Core Planning Team and do not necessarily reflect the points of view of the USFWS or the Government of the United States of America.

Photograph credits:

Photo 1. © Lilian Pintea / JGI-USA (group photo on day 1)

ACKNOWLEDGMENTS

We would like to express our gratitude to Ms. Gloria Nshimanyi, from the Jane Goodall Institute in Tanzania, for her assistance in organising the meeting. We are also extremely grateful to participants who offered to take notes during the break-out sessions, thank you - Liz Williamson, Lynne Gaffikin, Alex Piel and Serge Wich. Many people who care about the well-being of chimpanzees in Tanzania were unable to attend this meeting, but through their participation in the "Chimpanzee Conservation Action Plan for Tanzania" google group discussion forum, they have enriched this process with their views. We would also like to thank TNC's climate expert, Evan Girvetz, for providing advice on climate change scenarios for Western Tanzania. And lastly, special thanks are given to Jerry Martin and Alice Speers, who serve as volunteers with The Nature Conservancy, for their help in cleaning up diagrams and reports in Miradi, the tool that contains information produced at the planning meeting.

ACRONYMS AND ABBREVIATIONS

CAM = University of Cambridge
CBSG = Conservation Breeding Specialist Group - Species Survival Commission of the IUCN
CTPH = Conservation Through Public Health
DC = District Council
DGO = District Government Office
EARTH = Evaluation and Research Technologies for Health (EARTH), Inc.
FBD = Forestry and Beekeeping Division - Ministry of Natural Resources and Tourism
FBD = Frankfurt Zoological Society
FZS = Frankfurt Zoological Society
GARI = Great Ape Research Institute – Hayashibara Biochemical Laboratories, Inc.
GGE = Greater Gombe Ecosystem
GME = Greater Mahale Ecosystem
GRASP = Great Apes Survival Partnership, United Nations Environment Programme
IUCN = International Union for Conservation of Nature
JGI = Jane Goodall Institute
LPZOO = Lincoln Park Zoo
MDG = Millenium Development Goals
MUE = Masito Ugalla Ecosystem
MNSU = Minnesota State University
MNRT = Ministry of Natural Resources and Tourism, The United Republic of Tanzania
MOH = Ministry of Health and Social Welfare, The United Republic of Tanzania
MOL = Ministry of Land, The United Republic of Tanzania
NEMC = National Environment Management Council
PSG = Primate Specialist Group, International Union for Conservation of Nature
PVA = Population viability assessment
REDD = Reducing Emissions from Deforestation and Forest Degradation
RUKWA = Regional Natural Resource Office
ST = Southern Tanganyika Area
TACARE = Take-Care Program of the Jane Goodall Institite
TANAPA = Tanzania National Parks - Ministry of Natural Resources and Tourism
TAWIRI = Tanzania Wildlife Research Institute - Ministry of Natural Resources and Tourism
TNC = The Nature Conservancy
UNEP = United Nations Environment Programme
UCSD = University of California, San Diego
UPP = Ugalla Primate Project - University of California, San Diego
USFS = United States Forest Service
VLUMP = Village Land Use Management Plans
WCS = Wildlife Conservation Society
WCPA = World Commission on Protected Areas
WD = Wildlife Division of the Ministry of Natural Resources and Tourism

INTRODUCTION

Chimpanzees have been listed on IUCN's Red List of Threatened Species for over three decades, and have been recognised as an endangered species since 1996 due to their declining populations across Africa (IUCN, 2010). Tanzania represents the easternmost limit of chimpanzee (*Pan troglodytes*) habitat in Africa and it also represents the country with the longest studies of chimpanzees in the wild and two of the longest continuous studies of any group of animals in the world. Dr. Jane Goodall pioneered the first studies of the chimpanzee in the wild at Gombe in 1960 (Goodall, 1986; Collins and McGrew, 1988), and several Japanese researchers began exploring the region south of Kigoma under the Kyoto University Africa Primatological Expedition in 1961 (Nishida, 1990; Moore, 1992). However, in spite of decades of research and conservation efforts within protected areas, current research has revealed that at least 75% of Tanzanian chimpanzees, estimated at 2800 chimpanzees (Plumptre et al. 2006), live outside of protected areas.

As a signatory to the International Convention on Biodiversity (ratified in 1996), Tanzania has declared its commitment to conserving its biodiversity and particularly threatened species. In the case of chimpanzees, as a range state member of the Great Apes Survival Plan partnership and a signatory to the Kinshasa Declaration on Great Apes, Tanzania is committed to developing and adopting a National Great Apes Survival Plan focused on the species.

While the conservation needs of chimpanzees have been assessed in studies and conservation plans for the Greater Gombe Ecosystem (2009), the Masito Ugalla Ecosystem (2009), Greater Mahale Ecosystem (2008), and the Southern Tanganyika Area (2010), there is still no comprehensive strategy in place to ensure the conservation of this important species throughout their Tanzanian range.

Recognising this need, the Jane Goodall Institute (JGI) organised the planning process described in this workshop report. The planning process was jointly promoted by the Wildlife Division of Tanzania's Ministry of Natural Resources and Tourism (WD-MNRT), the Tanzania Wildlife Research Institute (TAWIRI), The Nature Conservancy (TNC), IUCN/SSC's Conservation Breeding Specialist Group (CBSG), the Wildlife Conservation Society (WCS), and the Frankfurt Zoological Society (FZS). A core planning team was formed by the afore-mentioned institutions to provide financial and human resources, help access updated information, and in general ensure the necessary guidance in order for the process to achieve the desired objectives. A grant from the US Fish & Wildlife Service's Great Ape Conservation Fund has made this meeting and the completion of the Tanzania Chimpanzee Conservation Action Plan possible.

This planning process represents a collective effort to ***develop a comprehensive nationwide blueprint for chimpanzee conservation that can be formally adopted and administered by the Tanzanian government, while also acting as a guide for the conservation efforts of researchers and non-governmental organisations interested in chimpanzee welfare***.

EXECUTIVE SUMMARY

This document summarises the activities and results of the "Tanzania Chimpanzee Conservation Action Planning Workshop", held at the White Sands Hotel & Resort in Dar es Salaam, Tanzania, January 19th – 21st of 2010.

Over 40 people who represented 25 institutions from government agencies, local and international NGOs, and key research organisations studying chimpanzees, worked together to review and update information from previous regional conservation plans, and used this information to design a suite of measurable conservation strategies to abate the most critical threats to chimpanzee viability, within a national perspective.

Before the workshop took place a core planning team was established by JGI, WD-MNRT, TAWIRI, TNC, CBSG, WCS and FZS to agree on expected products and jointly convene the meeting. While JGI and TNC played more visible roles as meeting hosts and facilitation coordinators, all members of the core planning team played an active role to organise and carry out this ambitious planning meeting.

The workshop focused on the following objectives:

- Review and update existing information about the health of chimpanzees in Tanzania, their current and future threats, as well as opportunities, to have a shared understanding of the conservation context based upon the best available information.
- Design creative and practical solutions to guarantee the long-term survival of chimpanzees in Tanzania, by producing measurable objectives and prioritised strategic actions.
- Define roles and responsibilities and provide an opportunity to identify strategies in which multiple stakeholders can collaborate to contribute to chimpanzee welfare in Tanzania.

The three-day meeting was based on the Conservation Action Planning (CAP) method, and included sessions in plenary, work group sessions[1] and peer reviews. During the first day participants heard an inspiring opening address by Dr. Jane Goodall, founder of the Jane Goodall Institute and UN Messenger of Peace, became familiarised with general information about the project scope and conservation targets, learned about PVA results and about methodological concepts, and updated and mapped viability and threat information to complement existing regional conservation plans and studies. During the second day a national-scale conservation goal was drafted, based upon regional chimpanzee conservation goals. In addition, regional information from day one was put together to determine the overall viability of chimpanzees in Tanzania and to identify critical threats that affect chimpanzees across multiple regions. Participants then completed situation analyses for critical threats to better understand underlying factors such as activities that contribute to a problem, opportunities, as well as related stakeholders and motivations. In the afternoon of the second day participants constructed result chains that laid out the short-, mid- and long-term results that need

[1] During the first day groups were organised by region: Greater Gombe Ecosystem (GGE), the Masito Ugalla Ecosystem (MUE), Greater Mahale Ecosystem (GME), and the Southern Tanganyika Area (ST), and during subsequent days by themes, such as critical threats or management topics needing attention at a national scale.

to be achieved in order to address the critical threats affecting chimpanzees in Tanzania. Overarching themes or "general strategies" that emerged from the threat-based analyses from day two were used during the last day to develop measurable objectives and strategic actions for high priority issues that need to be addressed within a national perspective to contribute to chimpanzee conservation in Tanzania. Before ending the last day participants were asked to identify strategic actions in which their institution could lead, and those in which they would be willing to collaborate. Then a brief discussion was held to determine the next steps so that this planning effort would result in an official national-scale chimpanzee conservation plan. Mr. Erasmus M. Tarimo, Director of the Wildlife Division of the Ministry of Natural Resources and Tourism offered the closing remarks, in which he thanked participants for their efforts, recognised the relevance and urgency for protecting chimpanzees in Tanzania and expressed the government's support for this important task.

Summary of meeting results:

The following goal statement was developed to convey what needs to be achieved to protect chimpanzees nationally:

"By 2060, the ecological and cultural diversity in chimpanzees in Tanzania is conserved in viable populations across their 2010 range[2], managing linkages between populations to ensure the maintenance of genetic diversity."

Seeking to represent the cultural, ecological and genetic diversity and differences in management needs for chimpanzees across their range, the following four conservation targets were selected:

- Chimpanzees of the Greater Gombe Ecosystem (GGE)
- Chimpanzees of the Masito Ugalla Ecosystem (MUE)
- Chimpanzees of the Greater Mahale Ecosystem (GME)
- Chimpanzees of the Southern Lake Tanganyika Area (ST)

The overall viability rank for chimpanzee populations is *good*, which indicates that chimpanzees in Tanzania are viable, but require continued and coordinated conservation efforts. While chimpanzees in the Masito Ugalla and Greater Mahale Ecosystems present viable conditions, viability of populations in the Greater Gombe Ecosystem and in the Southern Lake Tanganyika Area is *fair*. This means that several of the key ecological attributes that maintain chimpanzee population health are outside their acceptable ranges of variation and therefore require human intervention. Comparatively, chimpanzees in ST are at a higher risk of approaching poor viability, which means that Africa's most southerly chimpanzee population could be lost if this area does not receive attention soon.

[2] Range in this case refers to the larger area where chimpanzees can exist, and is not limited to current community ranges.

Figure 1. Targets, Viability and Threats at a glance

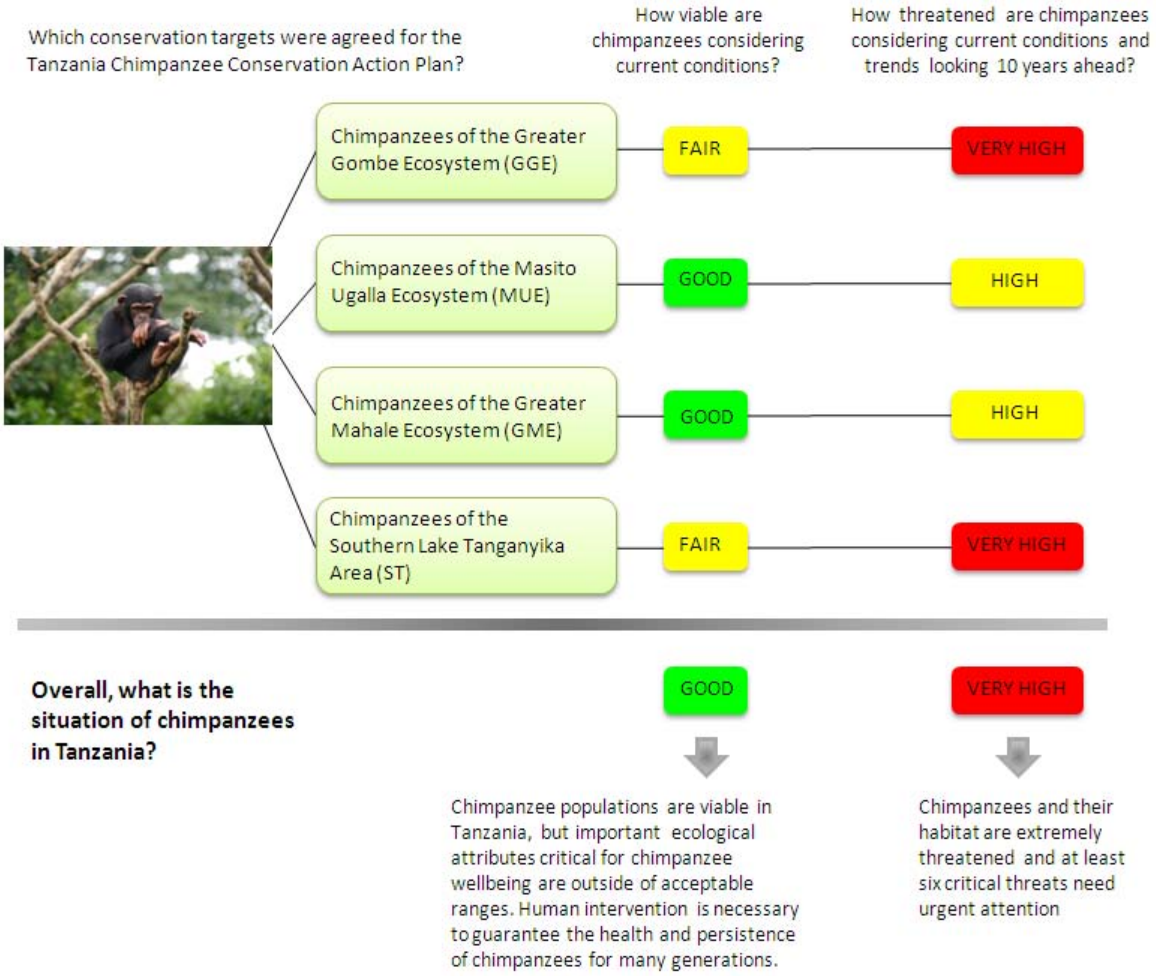


Photo 2. © Robin Smith/TNC (Chimpanzee)

After updating threat information from previous plans and studies for each target, a list of nine threats that affected at least two targets was compiled. Threats assessment results showed that while chimpanzees in the Greater Gombe Ecosystem and the Southern Lake Tanganyika Area are *very highly* threatened, chimpanzees in Masito Ugalla Ecosystem and the Greater Mahale Ecosystem are *highly* threatened (see Fig.1). The overall threat rank is *very high*, which means that chimpanzees in Tanzania are extremely threatened. The most significant environmental challenges faced by chimpanzees are shown in Fig.2. It should be noted that while threats relate to human activities, the planning team recognises that humans are part of the solution, and therefore seeks to support activities that

Figure 2. Critical threats affecting chimpanzees in Tanzania

Crtical Threat	Overall Threat Rank
Conversion of chimp habitat into food crops and agricultural land	VERY HIGH
Deliberate killing by humans / poaching (including snares)	HIGH
Disease due to pathogens introduced by humans and human activities	HIGH
Incompatible charcoal production	HIGH
Incompatible development and expansion of settlements and infrastructure	HIGH
Incompatible extraction of firewood and logging for timber	HIGH
Incompatible human-ignited fires	HIGH

contribute both to human and chimpanzee wellbeing within the landscape.

After analysing the situation that surrounds priority threats and proposing expected results and solutions, the following five high level national-scale strategies were identified to address the most critical threats affecting chimpanzees in Tanzania (connections between strategies, objectives and the threats they intend to mitigate are shown on Fig.3). These strategies complement each other and focus on the following issues:

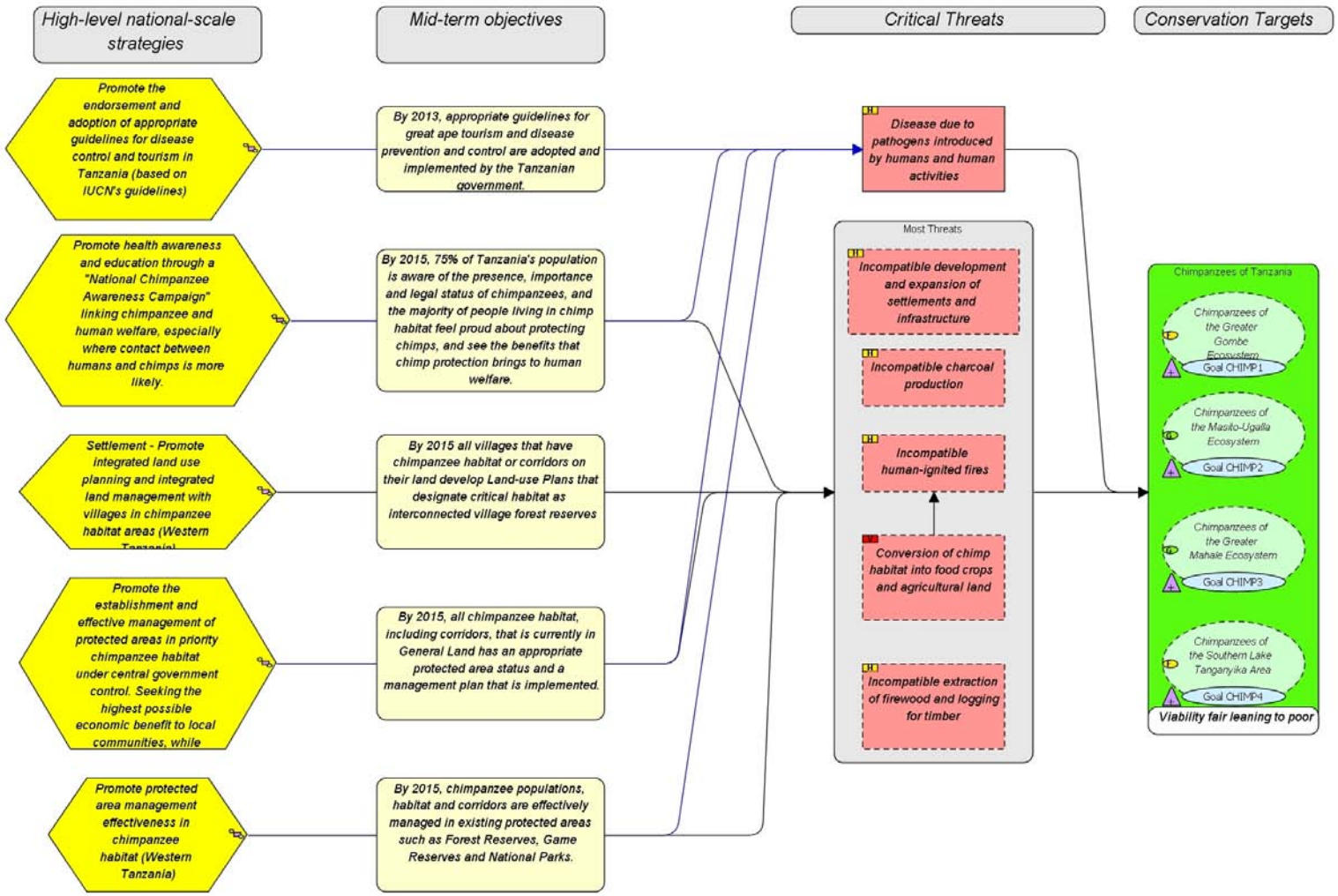
- Launch of a National Chimpanzee Awareness Campaign
- Adoption of guidelines for disease control and tourism
- Integrated land use planning with villages
- Establishment and effective management of protected areas in high priority chimpanzee habitat (General Land)
- Development of management plans and capacity strengthening of protected areas

The group identified specific short-term objectives that would lead to progress towards the ultimate long-term objectives to improve chimpanzee welfare. Institutions were identified to lead and collaborate on activity implementation and a series of indicators were also identified to evaluate progress and outcomes.

At the end of the meeting next steps were established so that this planning effort would result in an official national-scale chimpanzee conservation plan that is implemented. The following recommendations were made by participants: (these should be listed in the same order as the following figure)

- Share meeting notes with workshop participants - one participant from each organisation is responsible for sending edits to Cristina Lasch (TNC).
- Circulate draft C-CAP document to workshop participants for edits and review.
- Present to a forum of independent reviewers before submission to Wildlife Division.
- Submit the draft report to the government for ratification.
- Develop or hire a high level coordinator and identify a coordinating body of the government.
- Use plan as a funclaschdraising tool.

Figure 3. Strategies, Objectives, Critical Threats and targets at a glance



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METHOD AND WORKSHOP MECHANICS

The planning team decided to use TNC's Conservation Action Planning (CAP) approach to develop this national plan. This method was selected for this process because it can be successfully applied at the species level; has been already used during previous planning efforts at GGE, MUE and GME, which combined cover more than 80% of the chimpanzees estimated to live in Tanzania (Moyer et al 2006 and Plumptre et al 2009); and because a significant number of workshop participants were already familiar with the methodology after participating in conservation planning processes for GGE, MUE, and GME between 2006 and 2008.

Conservation Action Planning (CAP) is a relatively simple, straightforward and proven approach for planning, implementing and measuring success for conservation projects. The methodology was developed and is continuously improved by conservation practitioners working in real places. It has been tested and deployed successfully by hundreds of teams working to conserve species, sites, ecosystems, landscapes, watersheds and seascapes across the globe, for almost 20 years.

Conservation of the Earth's rich natural diversity is a constantly evolving discipline. Our knowledge of species, natural communities, ecosystems and the processes that sustain them continue to improve. The human activities that threaten or are compatible with them are constantly changing. Conservation Action Planning is designed to recognize this shifting nature of our knowledge and the challenges conservationists face by encouraging practitioners to view the conservation planning process not as a once-a-decade exercise but as a regular, iterative process of "successive approximations." CAP encourages teams of practitioners to capture their best understanding of the conservation situation, build a set of actions based on that understanding, implement the actions, measure the outcomes of their actions, learn from these outcomes and refine actions over time. Together these steps represent a testable hypothesis of conservation success that forms the basis of an "adaptive" approach to conservation management (TNC, 2007).

The time investment and level of detail can vary in a CAP process, depending on a project's needs. Participatory processes for complex projects generally require from four to twelve months to conduct a series of meetings which focus on collecting inputs from multiple stakeholders and building consensus for priority actions. Rapid planning processes can also be conducted with this method when a more participatory process is impractical or unnecessary, and experience shows that this is suitable for an initial plan, which can later on be complemented in future iterations. This "rapid" approach is generally conducted by teams of no more than 10 people, during a period of one to three days.

The descriptions of each step have been taken from the Conservation Action Planning Handbook: Developing Strategies, Taking Action and Measuring Success at Any Scale (see TNC, 2007). Additional resources about the CAP method, such as support tools and presentations can be downloaded for free from CAP space in the Conservation Gateway. Projects that have used this method for adaptive management can be accessed on ConPro, a public searchable repository of over 1000 conservation projects shared by The Nature Conservancy and its partners. ConPro can be accessed at the following link - http://conpro.tnc.org/.

In order to organise all information and facilitate future updates, we decided to record everything in the Miradi software program, which is a joint venture between the Conservation Measures Partnership (CMP) and Benetech. Miradi is a friendly tool that was created to support adaptive management by allowing nature conservation practitioners to design, manage, monitor, and learn from their projects to more effectively meet their conservation goals.

The Miradi project for the Tanzania Chimpanzee Conservation Action Planning Process can be downloaded from the following link: http://conpro.tnc.org/1588/

For more information about Miradi, or for downloading a free trial version, please use the following link: https://miradi.org/

In order to generate specific information about population parameters, a Population Viability Analysis (PVA) for chimpanzees was conducted using the Vortex simulation model software program to assess the relative viability of chimpanzee populations living throughout Tanzania. A basic model was developed to represent chimpanzees living in good quality, protected forest habitat based on data from field studies conducted primarily in Gombe and Mahale National Parks as well as values used by previous PVAs and expert opinion from participants of the CAP process. Additional model scenarios were created to explore differences between forest and savanna habitats, different population sizes (N=10 to 900), different removal rates due to hunting or snaring (0 to 10% annual loss), and risk of epidemic disease (once every 10-50 years). Details of the model development and input values can be found in the complete modeling report in the Appendix 5. The Vortex software and manual can be downloaded for free at the following link - http://www.vortex9.org/vortex.html, and examples for other PVAs can be found in PHVA (Population and Habitat Viability Assessment) through the following link - http://www.cbsg.org/cbsg/.

How was the meeting structured?

Because significant information already existed for this national plan and because it is difficult to expect people to take more than three days away from their duties to attend a meeting, a fairly ambitious work agenda was set up for three full days. Dar es Salaam was selected as a considerably accessible venue for participants, and JGI covered transport and lodging costs for participants.

The meeting was organised to make the best use of the expertise of participants from various stakeholder organisations, including scientists, Tanzanian government agencies and non-governmental organisations, and pursued the following workshop objectives:

- Review and update existing information about the health of chimpanzees in Tanzania, their current and future threats, as well as opportunities, to have a shared understanding of the conservation context based upon the best available information.
- Design creative and practical solutions to guarantee the long-term survival of chimpanzees in Tanzania, by producing measurable objectives and prioritised strategic actions.
- Define roles and responsibilities and provide an opportunity to identify strategies in which multiple stakeholders can collaborate to contribute to chimpanzee welfare in Tanzania.

The three day meeting was based on the Conservation Action Planning (CAP) method, and consisted of sessions in plenary, work group sessions[3] and peer reviews. In general terms, day one was dedicated to introductions of colleagues and methodological concepts and to the review of regional information which then served as a foundation for days two and three, which were dedicated to analysing issues from a national perspective, to propose high level solutions for chimpanzee conservation in Tanzania.

The original agenda, which can be found in Appendix 2, was adapted and adjusted as needed, and participants responded in the best spirit of adaptive management. As adjustments were made, the time for discussions was kept shorter than originally intended, in order to be able to address most of the topics included in the agenda. Two discussion points, one on key contacts for monitoring efforts, and one on collaboration for project follow-up and implementation, unfortunately had to be dropped due to time constraints.

DAY 1

Following a brief welcoming session during which objectives were shared, participants introduced themselves and shared their meeting expectations[4].

Re: meeting outcomes and expected attitudes,

- increasing our understanding of chimpanzees and their needs, beyond protected areas
- figuring out how chimps can be better connected (to avoid isolation), within a long-term view
- learning more about the CAP method
- collaborating to design priority strategies
- obtaining government support to take this plan forward
- networking to learn about each other's efforts and to enhance connections for conservation
- thinking differently, creatively
- being optimistic

Re: meeting products,

- a comprehensive, strategic document to guide chimp conservation, with concrete, measurable objectives and actions to be implemented
- clearly defined roles by involved parties to reach common end goals
- a practical plan for balancing human and chimp needs
- strategies to provide political, social, and technical support
- a comprehensive chimp monitoring plan

[3] During the first day groups were organised by region: Greater Gombe Ecosystem (GGE), the Masito Ugalla Ecosystem (MUE), Greater Mahale Ecosystem (GME), and the Southern Tanganyika (ST), and during subsequent days by themes such as critical threats or management topics needing attention at a national scale.

[4] A complete list of expectations is included in Appendix 3.

Dr. Shadrack Kamenya then introduced Dr. Jane Goodall, founder of the Jane Goodall Institute and UN Messenger of Peace, who offered a very inspiring address. Before starting her address, Dr. Goodall introduced her team, JGI staff from Kigoma and Dar, who stood up in turn and briefly described their roles within JGI. She then shared experiences of her early research days.
While a summary of her address is provided below, a more complete transcription of her talk can be found in Appendix 4.


Photo 3. © Lilian Pintea/JGI (Dr. Kamenya introducing Dr. Goodall)

Dr. Goodall shared memories of her pioneering research in the Gombe Stream Game Reserve, after the late Dr. Louis Leakey invited her to study the behaviour of chimpanzees in the hopes of finding clues to the behaviour of the extinct hominids which he had excavated from sediments of an old lakeshore at Oldupai. In 1960, just when her funding was about to run out and no exciting findings had been recorded, she began to make unexpected and far-reaching discoveries when she found not only that chimpanzees use objects as tools, but that they are also capable of making them especially for a specific task. Fifty years ago her research techniques and findings challenged the views of many animal behaviour experts, but with time her methods were recognised and accepted. Following Dr. Goodall's initial findings, numerous experts have gathered observations that continue to reveal that chimpanzees are even more like us than we had thought. Just to name some similarities: their brain is very similar to that of humans, but it does differ in relative size (cranial capacity); our DNA is 98%; we are so similar we could even receive blood transfusions from chimpanzees. These similarities have caused challenges to chimpanzees whose populations have been affected by contagious diseases transmitted by humans. To show that chimpanzees have a range of emotions, like humans, Dr. Goodall shared several stories that made it clear that they build strong emotional bonds with their kin, and that they are capable of expressing altruism and care, but that they also are capable of acting violent and brutal. Just like us.

A turning point in her career came in 1986, when at a conference in Chicago, attendees realized that the objects of their research, wild chimpanzees, faced overwhelming problems. Since then she has been educating society, waking people to action and carrying messages of peace for chimps and people around the world.


Photo 4. © Lilian Pintea/JGI (Dr. Goodall delivering the workshop's keynote address)

She also mentioned some of the projects that the JGI has been undertaking since the 1990s to work with local residents to improve human conditions and address environmental degradation. These programs include TACARE, GGE, MUE, GME, REDD and the Roots & Shoots Program, which works with youth in over 100 countries.

Turning to the purpose of the meeting, she asked: “why would we need a chimpanzee conservation action plan in Tanzania?”, and offered her perspective.

1. Humans are destroying their own homes, the forests, which are also the chimpanzees’ homes, for several different reasons. About 110 years ago, there were 1-2 million chimpanzees in sub-Saharan Africa; now there are fewer than 300,000 and these are under great pressure of disappearing.

2. Approximately 75% of Tanzania’s chimpanzee population is living outside the National Park System. These chimpanzees are at a high risk, and need a coordinated conservation effort to be able to survive. These populations should be the major cause for concern within this planning workshop for C-CAP.

Before closing, and taking a group photo, she mentioned that this program has great potential to help chimp conservation and wished us a great session.

INTRODUCTION TO CONSERVATION ACTION PLANNING (CAP)

Although approximately half of the participants had been exposed to the CAP method before this meeting, a brief introduction was provided to become familiarised with the concepts and steps of this adaptive management approach.

The 10 steps of the CAP process and key questions addressed in each step are shown below:

1. Identify People Involved In Your Project:
- "Who will design our project?
- "Who will be responsible for ensuring the plan goes forward?
- "Who can give us advice?
- "Who will help us through this process?"

2. Define Project Scope & Focal Conservation Targets:
- "Where is our project?"
- "What are we trying to conserve or restore?"

3. Assess Viability of Focal Conservation Targets
- "How do we define 'health' (viability) for each of our targets?"
- "What is the current status of each of our targets?"
- "What is our desired status for each of our targets?"

4. Identify Critical Threats
- "What threats are affecting our targets?"
- "Which threats are more of a problem?"

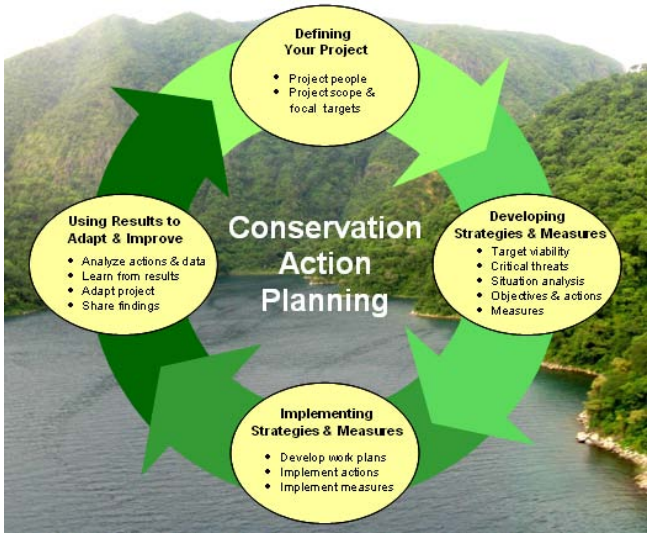


Figure 4. CAP Process Diagram

5. Conduct Situation Analysis
- "What factors positively & negatively affect our targets?"
- "Who are the key stakeholders linked to each of these factors?"

6. Develop Strategies: Objectives and Actions
- "What do we need to accomplish?"
- "What is the most effective way to achieve these results?"

7. Establish Measures
- "What do we need to measure to see if we are making progress towards our objectives and whether our actions are making a difference?"
- "Are there other targets or threats that we need to pay attention to?"

8. Develop Work Plans
- "What do we specifically need to do?"
- "Who will be responsible for each task?"
- "What resources do we need?"

9. Implement
Implementation is the most important step in this entire process; however, given the diversity of project needs and situations, the only requirement is: Put your action and monitoring plans into action.

10. Analyse, Learn, Adapt, & Share
- "What are our monitoring data telling us about our project?"
- "What should we be doing differently?"
- "How will we capture what we have learned?"
- "How can we make sure other people benefit from what we have learned?"

PROJECT SCOPE

Terms at a glance 1. Scope or Project Area

> The place where the biodiversity of interest to the project is located. It can include one or more "conservation areas" or "areas of biodiversity significance" as identified through ecoregional assessments. Note that in some cases, project actions may take place outside of the defined project area. In a few cases, a conservation project may not focus on biodiversity in a specific area but instead will have a project scope that focuses on a population of wide-ranging animals, such as migratory birds.

Defining the project scope was one of our initial steps, because in a CAP process, the planning unit or area established by a team determines how a project is structured and how it functions. The project scope can be thought of as the geographic or ecological "frame" where the biodiversity of interest exists, However, in many cases, project actions may take place outside of the defined project area - for example political actions taking place at a national capital designed to affect a series of protected areas.

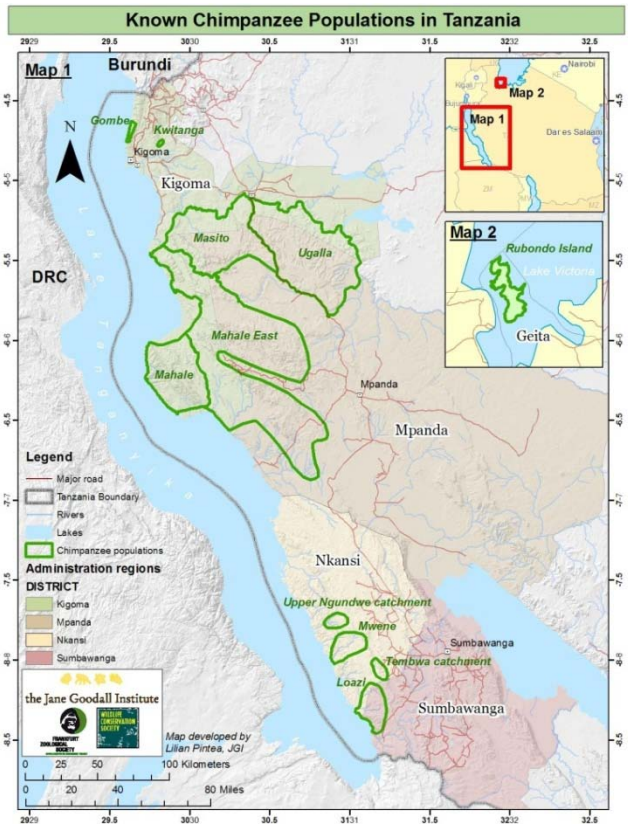
In this case the core planning team had established an initial planning unit, which was presented to workshop participants for validation.

The geographic scope of this planning process was established by considering the known historic and current range (within and between green polygons on the map) and predicted potential distribution of chimpanzees in Tanzania. This includes all of western Tanzania along the eastern shoreline of Lake Tanganyika from Zambia to Burundi and approximately 200 km inland from the lakeshore.

To build on existing conservation efforts (i.e. institutional focus areas defined by previous planning efforts, etc.) the following four regions were recognised as distinct sub-units:

- Greater Gombe Ecosystem (GGE)
- Masito Ugalla Ecosystem (MUE)
- Greater Mahale Ecosystem (GME)
- Southern Tanganyika (ST)

Map 1. Known chimpanzee populations in Tanzania



These were used to review and update information, which was then "rolled-up" to identify critical issues within a national perspective **.**

FOCAL CONSERVATION TARGETS

Terms at a glance 2. Focal Conservation Targets

A limited suite of species, communities and ecological systems that are chosen to represent and encompass the full array of biodiversity found in a project area. They are the basis for setting goals, carrying out conservation actions, and measuring conservation effectiveness. In theory, conservation of the focal targets will ensure the conservation of all native biodiversity within functional landscapes.

Focal conservation targets are a limited suite of species, ecological communities and ecological systems that are chosen to represent and encompass the biodiversity found in a project area.

In CAP there are three basic types of focal conservation targets:

Species - Specific types of species could include:

- Species of special concern - due to vulnerability, declining trends, disjunct distributions or endemism within the ecoregion
- Globally imperiled and endangered native species - (e.g., IUCN Red List species, both global and national red lists, or species ranked G1 to G3 by Natural Heritage Programs)
    - Globally significant examples of species aggregations - such as a migratory shorebird stopover area aggregation
    - Major groupings of species - share common natural processes or have similar conservation requirements (e.g., freshwater mussels, forest-interior birds)
    - Other key species - including keystone species, wide-ranging regional species, umbrella species and flagship species

Photo 5. © Terry Cook / TNC (Example of a species target - Chimpanzee)

Ecological Communities - Ecological communities are groupings of co-occurring species, including natural vegetation associations and alliances. Examples include miombo woodlands, riverine forest, Atlantic white cedar Swamp, Native Mussel Assemblages, and Tidal Flat Community.

Photo 6. © Tim Davenport / WCS (Example of a Community target – montane forest at Mwene)

Ecological Systems (or "ecosystems") - Ecological systems are assemblages of ecological communities that occur together on the landscape and share common ecological processes (e.g., flooding), environmental features (e.g., soils and geology) or environmental gradients (e.g., precipitation). Ecological systems can be terrestrial, freshwater, marine or some combination of these. Examples include Bottomland Hardwood Forest, Glacial Plain Streams, and South Shore Fringing Reef.

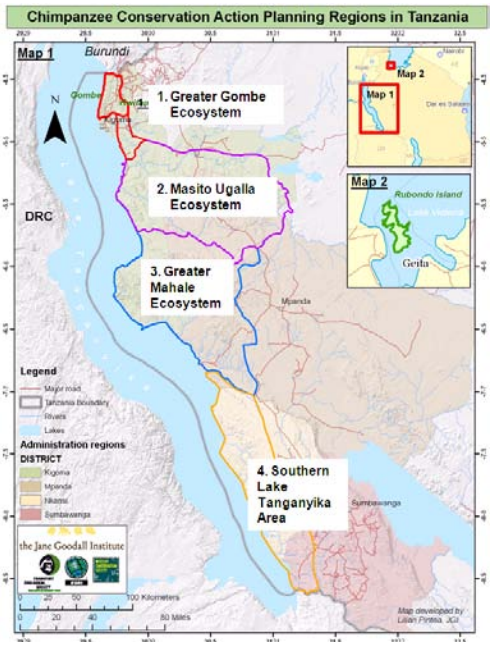
Photo 7. © Tim Davenport / WCS (Example of a Riverine system target - Tembwa River)

Because of the species-focus of this particular CAP process, no ecosystem or community targets were selected. Seeking to represent the ecological and genetic diversity and differences in management needs for chimpanzees across their range, the following four conservation targets were selected:

- Chimpanzees of the Greater Gombe Ecosystem (GGE)
- Chimpanzees of the Masito Ugalla Ecosystem (MUE)
- Chimpanzees of the Greater Mahale Ecosystem (GME)
- Chimpanzees of the Southern Lake Tanganyika Area (ST)

The general distribution of the conservation targets is shown on Map 2.

Map 2. Distribution of conservation targets



TARGET VIABILITY ASSESSMENT

Terms at a glance 3. Viability

The status or "health" of a population of a specific plant or animal species. More generally, viability indicates the ability of a conservation target to withstand or recover from most natural or anthropogenic disturbances and thus to persist for many generations or over long time periods. Technically, the term "integrity" should be used for ecological communities and ecological systems with "viability" being reserved for populations and species. In the interest of simplicity, however, we use viability as the generic term for all targets.

A Target Viability Assessment helps the planning group develop a good understanding of what they are trying to accomplish. It is the equivalent of a medical doctor establishing a diagnosis of a patient by checking some basic signs that should be within an appropriate range for the patient's given age and condition. This enables the doctor to determine the required therapy, to then monitor the patient's health over time towards a desired goal in the normal range.

Defining what a "healthy state" looks like and measuring the "health" of natural systems, communities or species in a systematic and repeatable fashion can be tricky because these targets vary naturally over time. This approach offers a consistent and flexible solution to this problem. While the viability assessment relies on established principles of ecology and conservation science, it enables practitioners to use the best available information on a target's biology and ecology in an explicit, objective, consistent, and credible manner. By defining how the target is doing today and what a "healthy state" might look like, this step in the CAP process helps project teams to build a set of hypotheses to guide conservation and research - and then to continue to improve these hypotheses over time. This step is key for helping us determine which targets are most in need of immediate attention and for measuring success over time.

Viability assessment begins by identifying key ecological attributes (KEAs) for each focal conservation target. Key ecological attributes are aspects of a target's biology or ecology that, if present, define a healthy target and, if missing or altered, would lead to the loss or extreme degradation of that target over time. For example, a key attribute for a freshwater stream target might be some aspect of water chemistry. If the water chemistry becomes sufficiently degraded, then the stream target is no longer viable.

Key ecological attributes can be grouped into three general classes:

- **Size i**s a measure of the area or abundance of the conservation target's occurrence.
- **Condition** is a measure of the biological composition, structure and biotic interactions that characterize the occurrence.
- **Landscape context** is an assessment of the target's environment, including ecological processes and regimes that maintain the target occurrence such as flooding, fire regimes and many other kinds of natural disturbance, and connectivity such as species targets having access to habitats and resources or the ability to respond to environmental change through dispersal or migration.

Terms at a glance 4. Key Ecological Attribute (KEAs)

Aspects of a target's biology or ecology that, if missing or altered, would lead to the loss of that target over time. As such, KEAs define the target's viability or integrity. More technically, the most critical components of biological composition, structure, interactions and processes, environmental regimes, and landscape configuration that sustain a target's viability or ecological integrity over space and time.

These classes can help us consider relevant ecological aspects of a target, but not all classes necessarily apply to all focal targets.

After identifying a limited set of key ecological attributes, it is important to develop indicators that can be used to assess the attribute in a cost-effective manner over time.

Terms at a glance 5. Indicator

Measurable entities related to a specific information need (for example, the status of a key ecological attribute, change in a threat, or progress towards an objective). A good indicator meets the criteria of being: measurable, precise, consistent, and sensitive.

Because most key ecological attributes will vary over time, we need to place them in an appropriate context or frame of reference, before we can assess the status of a target over time. Estimating the acceptable range of variation for each key attribute helps answer two crucial questions: *how much alteration of a key attribute is too much?* And, *how much restoration is enough?* Managing conservation targets within their acceptable range of variation in turn does not mean managing for all the variation that the target might experience under undisturbed conditions. Instead, it means managing only for an envelope of conditions that together are "enough" for target persistence and function.[5]

[5] This is why we use the term "acceptable range of variation" rather than "natural range of variation", which corresponds to the variation of the attribute in a world independent of human influence. We use the term "acceptable" because it allows us to sidestep the thorny issue of what is "natural" and instead focus on what our best available science tells us is sufficient to achieve our goal - the long term persistence of the target.

After estimating the acceptable range of variation for an attribute, we can then go on to specify the viability rating scale for each indicator, by using the following scenarios:

VERY GOOD	Ecologically desirable status; requires little intervention for maintenance.
GOOD	Indicator within acceptable range of variation; some intervention required for maintenance.
FAIR	Outside acceptable range of variation; requires human intervention.
POOR	Restoration increasingly difficult; may result in extirpation of target.

In effect, by establishing this rating scale, we are specifying our assumption as to what constitutes a "conserved" target versus one that is in need of management intervention. This rating scale is directly analogous with the established pulse rate and blood pressure ranges that a doctor uses to determine whether a patient's circulatory system - and thus by extension the entire patient - is healthy. Although ideally one would define all four boxes of the rating scale, in many projects, we find that we can only define one or two key boxes - for example the threshold between Fair and Good - especially in early stages of our work.

The final step in the viability assessment is to use the rating scale that we have constructed and available evidence and/or expert opinion to determine the current status of our conservation target (where our target is today) and the desired status of our target (where we would like it to be at some point in the future). This desired status becomes a goal for our project.

Terms at a glance 6. Current Viability Status

An assessment of the current "health" of a target as expressed through the most recent measurement or rating of an indicator for a key ecological attribute of the target.

Terms at a glance 7. Desired Future Viability Status

A measurement or rating of an indicator for a key ecological attribute that describes the level of viability/integrity that the project intends to achieve. Generally equivalent to a project goal.

Since Conservation Action Planning processes had already been undertaken in the GGE, the MUE, and the GME, key ecological attributes and indicators had already been identified and assessed for chimpanzees in those three regions. Instead of having to complete a new viability assessment, participants were asked to review and complement information as needed, for every conservation target.

For this planning effort, the core planning team decided to conduct a Population Viability Analysis (PVA) before the meeting, to assess the relative viability of chimpanzee populations living throughout Tanzania. This assessment provided complementary information, particularly about the level of risk faced by different population types of becoming extinct within the next 100 years. It should be noted that a PVA has a slightly different approach to assessing viability than a CAP. In a CAP process this assessment focuses on a small set of ecological attributes that are critical to each target's long-term viability, without incorporating threats, since these are considered in subsequent planning steps. PVA models combine information from ecological attributes such as chimpanzee population size, gene diversity, demographic rates, habitat quality and quantity and connectivity, and inherent stochastic processes associated with small populations, such as demographic stochasticity, environment variation, and inbreeding impacts. Factors that impact population size, growth rates, genetic variation and risk of extinction and therefore population viability are also included in the models, such as animal losses due to hunting or snaring, natural and anthropogenic catastrophes such as

epidemic disease, and habitat restriction, to project the viability of a population under both current conditions and alternate future conditions. Both approaches considered a 100-year timeframe to assess long-term chimpanzee population viability.

Before splitting up into groups at the workshop, to review existing information, participants learned about the process and findings of the Population Viability Analysis (PVA).

Population Viability Analysis Summary[6]

A Population Viability Analysis (PVA) for chimpanzees was conducted using the Vortex simulation model software program to assess the relative viability of chimpanzee populations living throughout Tanzania. A basic model was developed to represent chimpanzees living in good quality, protected forest habitat based on data from field studies conducted primarily in Gombe and Mahale National Parks as well as values used by previous PVAs and expert opinion from participants of the CAP process. Additional model scenarios were created to explore differences between forest and savanna habitats, different population sizes (N=10 to 900), different removal rates due to hunting or snaring (0 to 10% annual loss), and risk of epidemic disease (once every 10-50 years). Details of the model development and input values can be found in the complete modeling report in the Appendix 5.

Sensitivity testing of the demographic rates used in the model indicates that the model results are most sensitive to female mortality rates (especially adult females), the average age of first reproduction in females, and the percent of adult females breeding each year. In a long-lived, polygynous species such as the chimpanzee, adult females represent the potential of the population to grow and to recover from periodic stochastic declines. Of these important parameters, mortality rate is the one that is least well known, likely the most variable among communities and populations, and potentially the one that can be most influenced by management actions. Research that improves understanding of factors that affect female survival and reproduction, and management actions that improve either or both, will be beneficial in assessing and promoting population viability.

Several measures of viability (model output) were used in the PVA to assess the relative long-term viability of chimpanzee populations over the range of possible habitat types, population sizes, degree of threat of hunting/snaring/other types of removals, and risk of epidemic disease (possibly through human contact). These measures include probability of extinction over 100 years and median time to extinction; stochastic growth rate; and mean population size and remaining gene diversity for those populations (iterations) that did not go extinct during simulation.

These results are presented in table form in Appendix 5 and can be used to assess any chimpanzee population in Tanzania by finding those cell(s) that best describe the estimated status of a particular population. The relative impact of various management actions (or lack of action) can be estimated

[6] The PVA section was written by Kathy Traylor-Holzer, IUCN/SSC Conservation Breeding Specialist Group. The full PVA report and results can be found in Appendix 5)

by comparing the current status with the anticipated future status of the population (e.g., comparing the viability of two different population sizes to estimate the impact of habitat loss or expansion).

The following descriptions were used to classify the model results for use during and following the CAP workshop. The observed output values for each scenario are also presented in the tables so that alternative definitions and classifications of viability can be applied to the data.

Very Good (dark green):	No risk of extinction in 100 years, relatively stable population, high gene diversity
Good (green):	Low risk of extinction, slowly declining population, good gene diversity
Fair (yellow):	Moderate extinction risk, declining population, moderate loss of gene diversity
Poor (red):	Moderate to high extinction risk, declining population, significant loss of GD

The primary factors affecting population viability across the range of values tested were population size and removal rate. Population size shows a strong influence on population viability over 100 years. In the absence of human-caused removals, interbreeding populations of 250 or more chimpanzees persist at relatively stable numbers near carrying capacity with good retention of gene diversity. Moderate-sized populations of 75-100 chimpanzees also fare well over a 100-year period, but may be more vulnerable to increased threats and inbreeding. Isolated small populations of around 50 chimps or fewer are subject to inbreeding depression and other stochastic processes, resulting in generally poor viability without intervention or connectivity to other populations.

The continual loss of adult chimpanzees, whether due to hunting, snaring or other sources of removal or death, has a dramatic effect on population viability due to the loss of breeders at rates greater than can be replaced through reproduction. All populations decline at an annual removal rate of 2.5%. Small to moderate sized populations have a significant risk of extinction, and those populations that do persist are small and declining with moderate loss of gene diversity. Although relatively large populations (500-900 chimpanzees) still persist with good gene diversity after 100 years, the remaining population is small and will continue to decline to eventual extinction unless removal is reduced or eliminated. All populations show a high risk of extinction with higher rates of removal (5-10%). The inserted figure illustrates the rapid decline in population size under various removal rates for the best case scenario (forest population of 900 chimps with low disease risk).

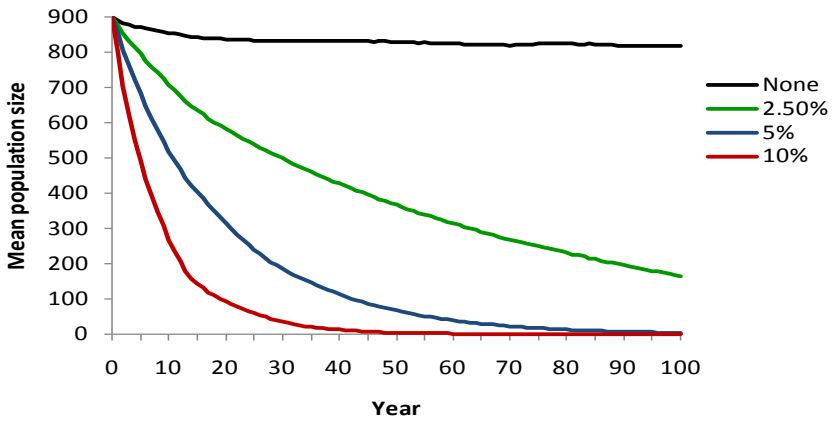


Figure 5. Population decline under various removal rates for best case scenario (forest population of 900 chimps with low disease risk).

Increased frequency of a disease epidemic had the greatest impact on moderate sized populations (50-250) with no or low removal levels. Smaller populations and/or those with moderate-high removal rates show poor viability under all conditions tested, and large populations persist as long as removal rates are low (albeit they may decline significantly in size). The future of moderate sized populations is more uncertain; thus, additional factors that affect viability such as increased disease risk can influence viability. Disease epidemics were modeled as short-term (one year) events; epidemics that last longer than one year and/or that have greater impacts on survival and/or reproduction than those modeled (e.g., SIV) may have more measurable effects on population viability.

Based on population estimates and threats gleaned from the literature review for this report, there are likely some chimpanzee populations that are at high risk of extinction – for example, the savanna-living 'Southern Tanganyika' population of 60-80 chimps that is under pressure from hunting and habitat loss and possible fragmentation. Viability of such moderately sized populations may be improved substantially if existing habitat and corridors remain intact, and the loss of chimps through hunting, snaring and disease can be controlled or eliminated – conditions that also apply to populations living in protected areas such as Gombe National Park. Large protected populations such as those in Mahale are likely to remain large and healthy if there is little to no poaching or snaring threat, no substantial habitat loss, and no large risk of disease or other sources of significant mortality (such as high levels of infanticide or intra-specific aggression); however, even large populations are likely to decline if chimpanzees are continually lost (either directly or due to habitat loss) due to human pressures.

The results presented in this report provide viability projections for chimpanzee populations given the demographic rates and assumptions used in the model. Projected viability will differ for populations with significantly different demographic rates (e.g., high mortality) or with substantial connectivity to other chimpanzee populations. Those scenarios that included the annual removal of chimpanzees (through hunting, snaring, etc.) targeted a relatively greater proportion of males vs. females lost to the population; if females are lost at a greater rate than that modeled, the impact of removals is likely to be even more severe.

In summary, the PVA results suggest that small population size and the continual loss of chimpanzees, particularly adult females, from the population through any means are the greatest threats to the long-term viability of chimpanzee populations in Tanzania. Population size is regulated to some extent by habitat quality and quantity. Small populations in small habitat patches exhibit poor viability when isolated from other chimpanzee populations. Moderate sized populations are vulnerable to habitat loss that would result in smaller carrying capacity and population size and thus reduced viability. Protection of habitat to preserve or create large populations and prevent fragmentation into small isolated populations will promote viability and reduce risk of decline and extinction. Corridors connecting populations have the potential to improve viability through demographic and/or genetic rescue, provided that some of the connected populations or the corridors themselves do not act as unsustainable "sinks".

The loss of chimpanzees from populations may occur through a variety of mechanisms, including hunting, poaching and snaring, as well as other sources (e.g., continual emigration without reciprocal immigration, long persisting disease). All populations decline with removal rates that

exceed growth rate – the smaller the population, the more quickly it is likely to go extinct. Efforts to reduce or eliminate sources of mortality may be critical for the long-term viability of all chimpanzee populations. The loss of chimpanzees through periodic disease epidemics can also reduce viability if such events are frequent, particularly for smaller populations with less potential to rebound before declining to extinction.

Target viability exercise

After learning about PVA findings, participants worked in four groups to review and update existing viability information, and develop a conservation goal for each target. When available, participants used existing goal statements from previous planning exercises. In the case of ST no viability assessment existed, so the work group proposed key ecological attributes and indicators, which were ranked based on the best available information, including a recent report produced by WCS (see Davenport et al., 2010).

Photo 8. © Lilian Pintea / JGI (GME team mapping viability)

To show how target viability conditions vary across the landscape, participants were asked to draw polygons on a map, based on the general viability ratings of all key ecological attributes within a particular area. For example, when most attributes were considered to be well off in a specific area, a green polygon was drawn to indicate that the conservation target is in "very good" or "good" condition within that polygon. A polygon markes as "very good" or "good" means that while chimpanzees are doing well, some intervention might be required in order to maintain healthy conditions. Yellow was used to indicate areas where several key ecological attributes are outside of an acceptable range of variation, and therefore our conservation target is in "fair" condition, meaning restoration is necessary. Red was used to indicate "poor" viability for areas where all key ecological attributes are outside acceptable ranges, meaning that the target's welfare is compromised and restoration of acceptable conditions is virtually impossible. While participants drew on the map they explained their rationale for each decision; this and other documentation enabled us to digitize information after the meeting.

After this, conservation goals were established for each conservation target. Most of these were based on goals from previous planning exercises.

Target viability analysis results:

The updated viability results, and specific ecological attributes that were considered, as well as the conservation goals established for each conservation target are presented below.

Current viability status and conservation goal for the Chimpanzees of the Greater Gombe Ecosystem:

Between 2006 and 2009 CAP information was produced for GGE. In that participatory planning process the viability of chimpanzees of the GGE had been ranked as "fair" (as shown in Appendix 6.A). See JGI, TNC, USAID, 2009 for the full GEE Conservation Plan. The current viability analysis revealed that this target remains within "fair" conditions, because most of its key ecological attributes are outside an acceptable range of variation and therefore require human intervention.

To determine this target's current viability, multiple indicators were assessed for the following three key ecological attributes: chimpanzee community structure, population size and dynamics, and range habitat availability. A complete list of ecological attributes, indicators and measures can be found in Appendix 7.

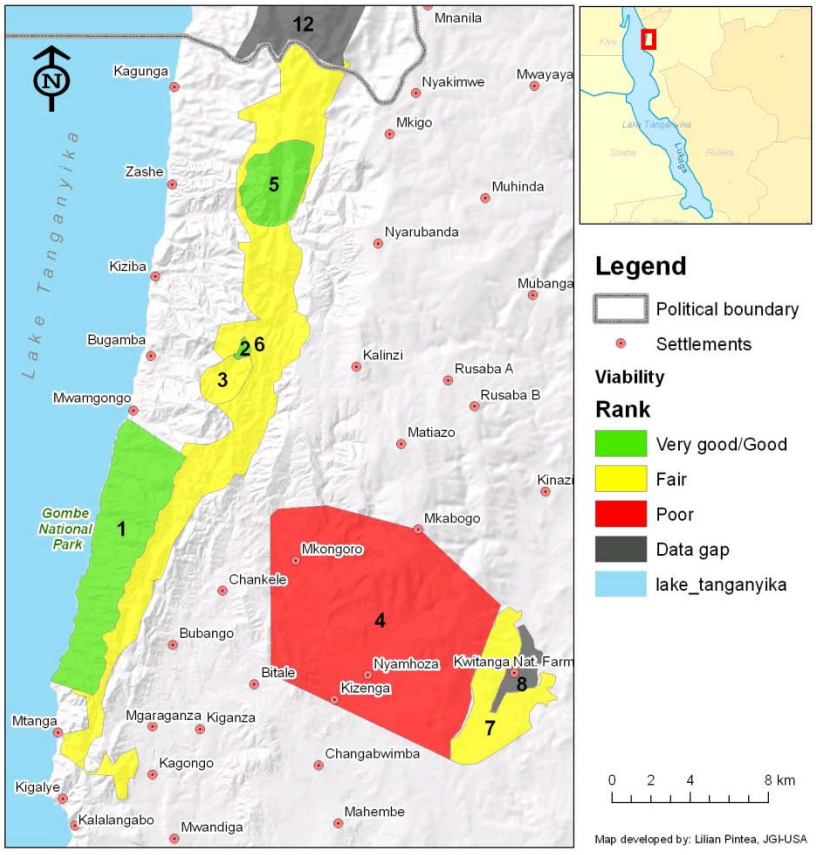
FAIR

Key Ecological Attributes	Current Viability Rank
Population size & dynamics	Fair
Mitumba chimp community structure and dynamics	Fair
Kasekela chimp community structure and dynamic	Very Good
Kalande chimp community structure and dynamics	Fair
Kwitanga chimp community structure and dynamic	Fair
Zashe chimp community structure and dynamic	Poor
Range habitat availability	Good

CONSERVATION GOAL

"By 2060, a demographically viable population of at least 160 chimpanzees is established in the core conservation area of the Greater Gombe Ecosystem".

Map 3. Viability status of chimpanzees in the Greater Gombe Ecosystem



Map 3 shows which areas are in better or worse conditions, considering the needs of chimpanzees. The numbers on the map relate to background documentation that accompanies the viability map. The full documentation can be found in Appendix 8.A. It appears that when producing this map rather than assigning one sole viability value to each polygon, the team assigned a value to each KEA separately. Because of this, the core planning team still has some questions regarding polygons 2, 5 and 6 to be able to finalize this map. Pending issues are mentioned in Appendix 8.A.

Current viability status and conservation goal for the Masito Ugalla Ecosystem:

GOOD

Key Ecological Attributes	Current Viability Rank
Population size and dynamics	Good
Habitat quality and quantity/size	Good
Fire regime	Fair
Forest Connectivity	Fair

CONSERVATION GOAL

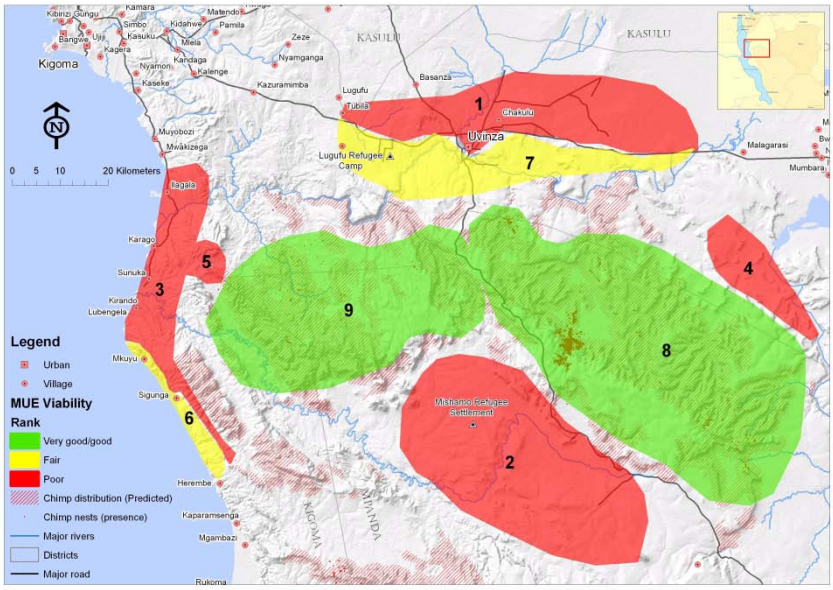
"By 2060, chimpanzees in the Masito Ugalla Ecosystem are stable or increasing from the 2007 population estimate".

A CAP process was conducted between 2007 and 2009 for the MUE. This participatory planning process determined that the viability of chimpanzees in the MUE was "fair" (as shown in Appendix 6.B). See JGI, 2009 for the full MUE Conservation Plan. In the current viability analysis this target's viability status was established as "good". This means that most of its key ecological attributes are within acceptable ranges, and that some intervention is required for maintenance.

To determine this target's current viability multiple indicators were assessed for the following four key ecological attributes: population size and dynamics, habitat quality and size, fire regime and forest connectivity.

While the overall rank is "good", two key attributes that related to condition and size were ranked as "good", and two that related to the landscape context were rated as "fair". If fire excess is not addressed soon, this attribute would tend towards "poor" conditions. A complete list of ecological attributes, indicators and measures can be found in Appendix 7.

Map 4. Viability status of chimpanzees of the Masito Ugalla Ecosystem



Map 4 shows which areas are in better or worse conditions, considering the needs of chimpanzees. The numbers on the map relate to background documentation that accompanies the viability map. The full documentation can be found in Appendix 8.B. The core planning team identified some questions regarding polygons marked in red to be able to finalize this map, since this geographic perception of viability conditions is not fully consistent with the viability assessment in which it was determined that overall chimpanzees at the MUE are viable. Pending issues are mentioned in Appendix 8.B.

Current viability status and conservation goal for the Chimpanzees of the Greater Mahale Ecosystem:

A participatory CAP process was held between 2007 and 2008 for the GME. During this participatory planning process participants decided that the project's overall viability status was "good" (as shown in Appendix 6.C). See Doody et al. 2008 for GME results for the first planning process. During the current viability analysis this target's status was established as "good", because most of its key ecological attributes are within an acceptable range of variation, although participants recognised that several attributes run the risk of falling into "fair" conditions and therefore require human intervention.

GOOD

Key Ecological Attributes	Current Viability Rank
Population size	Good
Habitat quality	Good
Population dynamics	Good
Area of suitable chimp habitat	Good
Forest connectivity	Fair

CONSERVATION GOAL

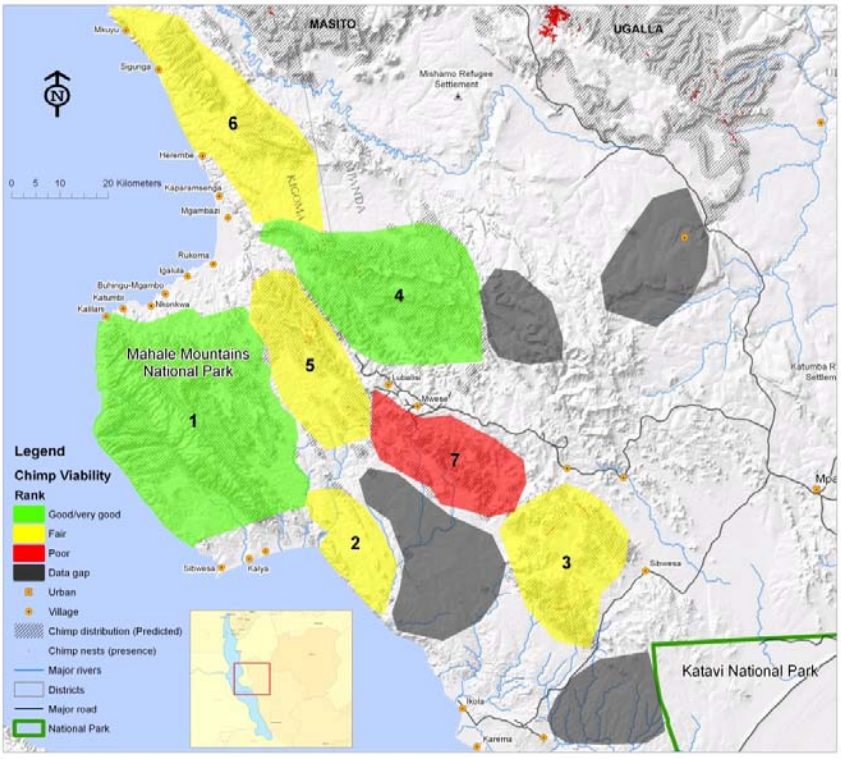
"By 2060 there is a stable and/or increased chimpanzee population within the habitat extent and composition of 2007".

To determine this target's current viability multiple indicators were assessed for the following five key ecological attributes: population dynamics, forest connectivity, area of suitable chimpanzee habitat, population size and habitat quality.

While the overall rank is "good", an important attribute, forest connectivity, was ranked as "fair" and several attributes are at risk of falling into "fair" conditions. This means that while in comparison to other targets chimpanzees in the Greater Mahale are presenting healthy conditions, ensuring connectivity within suitable habitat will be key for maintaining "good" viability. A complete list of ecological attributes, indicators and measures can be found in Appendix 7.

Map 5 shows which areas are in better or worse conditions, considering the needs of chimpanzees. The numbers on the map relate to background documentation that accompanies the viability map. The full documentation can be found in Appendix 8.C. The core planning team identified only one question regarding the polygon marked in red to be able to finalize this map. Pending issues are mentioned in Appendix 8.C.

Map 5. Viability status of chimpanzees of the Greater Mahale Ecosystem



Current viability status and conservation goal for the Chimpanzees of the Southern Lake Tanganyika area:

FAIR

Key Ecological Attributes	Current Viability Rank
Population size	Fair
Habitat connectivity	Fair
Appropriate habitat presence	Fair

CONSERVATION GOAL

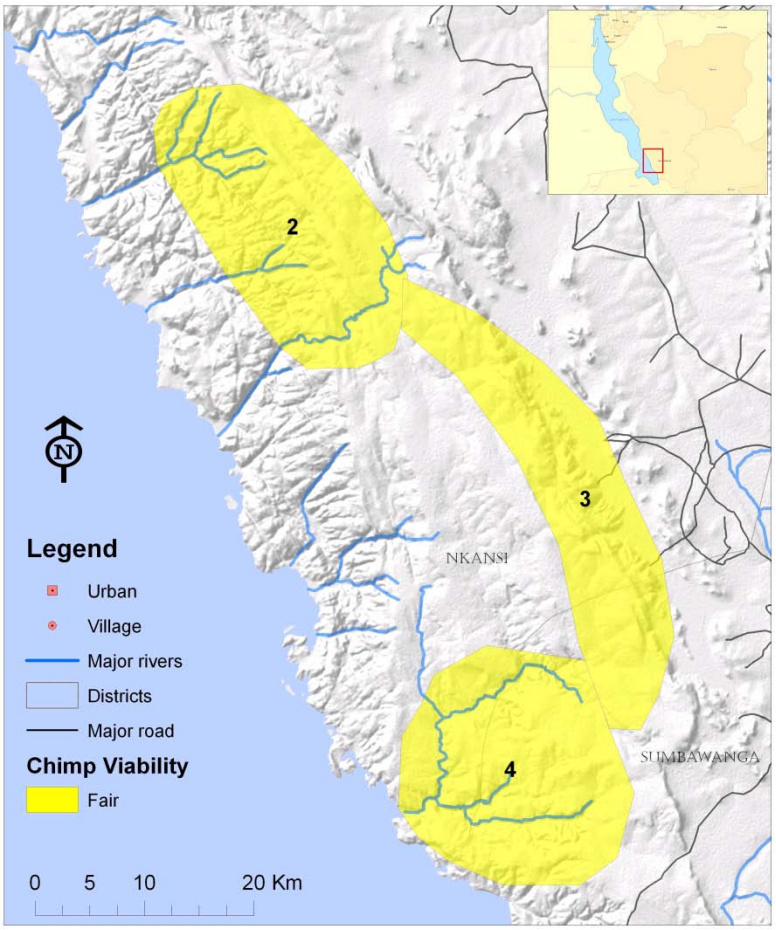
"By 2060, have a stable or increasing (viable) population of at least 100 chimpanzees in the Southern Lake Tanganyika area".

No previous viability ranking had been established for chimpanzees of ST, so to determine this target's current viability the team had access to the following report which was shared by WCS – "The Conservation Status of the Chimpanzee *Pan troglodytes schweinfurtii* in 'Southern Tanganyika' 2005-2009" (Davenport et al. 2010). The current viability status for chimpanzees in ST was established as "fair", because all of its key ecological attributes are outside an acceptable range of variation and therefore require human intervention.

To determine this target's current viability multiple indicators were assessed for the following three key ecological attributes: population size, habitat connectivity and appropriate habitat presence.

While all three attributes were ranked as "fair", available information shows that they lean towards "poor" conditions. If a target or KEA is ranked as "poor", it means that the target is in immediate danger of disappearing from the project area within perhaps 15-25 years. According to the information shared at the workshop, this is the case of chimpanzees in Southern Tanganyika. The team recognised that if adequate management interventions do not occur soon, current deterioration trends will make restoration increasingly difficult and could result in the regional extirpation of Africa's most southerly chimpanzee population. A complete list of ecological attributes, indicators and measures can be found in Appendix 7.

Map 6. Perceived viability status of chimpanzees of the Southern Lake Tanganyika Area



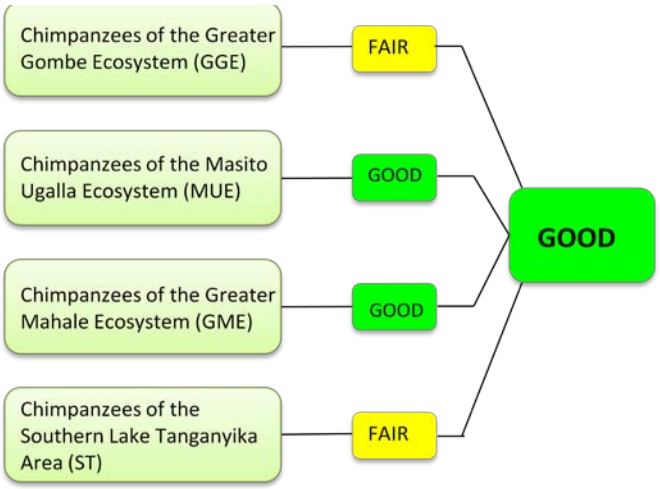
Map 6 shows that all areas within ST are considered to be in "fair" conditions, considering the needs of chimpanzees. The numbers on the map relate to background documentation that accompanies the viability map. The

full documentation can be found in Appendix 8.D. Only one pending issue which relates to a potential research need, was identified (please see Appendix 8.D).

Overall, what is the viability situation of chimpanzees in Tanzania?

As shown in Fig. 6, the overall viability rank for chimpanzees across the project is "good", which indicates that chimpanzees in Tanzania are viable. While chimpanzees in the MUE and the GME were ranked as "good", the other two targets presented "fair" conditions. Of these, the viability of chimpanzees in ST is at a higher risk of approaching a poor viability, pointing to the fact that Africa's most southerly chimpanzee population could be lost if the area does not receive attention soon.

Figure 6. Current viability status of the Chimpanzees of Tanzania



Of all key ecological attributes, one of the most relevant in determining chimpanzee viability is population size. This ecological attribute is regulated to some extent by habitat quality and quantity, which were also analysed in the viability assessment. The PVA demonstrated that the risk of extinction increases when small populations in small habitat patches are isolated from other chimpanzee populations. PVA models also showed that in the absence of anthropogenic removals, interbreeding populations of 250 or more chimpanzees can remain fairly stable near carrying capacity with good retention of gene diversity. Moderate-sized populations of 75-100 chimpanzees seem to fare well over a 100-year period, but may be more vulnerable to inbreeding. The most vulnerable populations are isolated small populations of around 50 chimps or fewer, since they are subject to inbreeding depression and other stochastic processes that could lead to extinction.

When the results of the individual assessments of each of the four targets were rolled up to determine the overall viability status for the project, general viability conditions were condidered to be "good". However, it should be noted that two of the four conservation targets present "fair" viability conditions and many ecological attributes critical for chimpanzee well-being are outside of acceptable ranges within the project area, which means that human intervention is necessary to guarantee the health and persistence of chimpanzees for many generations in Tanzania.

In order to promote viability and reduce the risk of chimpanzee decline and extinction in Tanzania it will be crucial to protect habitat and prevent fragmentation into small isolated populations. Functional corridors connecting populations could improve viability conditions through demographic and/or genetic rescue, as long as specific populations or the corridors themselves do not act as unsustainable "sinks". In addition to ensuring ecological conditions such as habitat quantity and quality, critical threats, such as chimpanzee removal and disease epidemics, will need

to be addressed, if chimpanzee populations are expected to thrive in Tanzania, as stated in the vision statement.

To capture the essence of what needs to be achieved so that chimpanzee populations can thrive in Tanzania, the following long-term national goal was established:

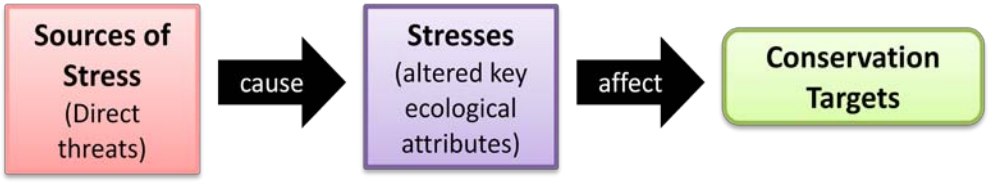
Tanzania Chimpanzee Conservation Goal

"By 2060, the ecological and cultural diversity of chimpanzees in Tanzania is conserved in viable populations across their 2010 range[1], managing linkages between populations to ensure the maintenance of genetic diversity".

THREATS ASSESSMENT

In many conservation situations, the biodiversity that we care about has either already been degraded or is facing a series of threats that need to be addressed by conservation actions. This step in the CAP process helps us identify and prioritise direct threats, or sources of stress, that affect our conservation targets so that our conservation actions can be directed where they are most needed.

Figure 7. Diagram showing relation between sources of stress - stresses - targets



Terms at a glance 6. Stresses

Impaired aspects of conservation targets that result directly or indirectly from human activities (e.g., low population size, reduced extent of forest system; reduced river flows; increased sedimentation; lowered groundwater table level). Generally equivalent to degraded key ecological attributes (e.g., habitat loss).

In essence stresses are degraded key ecological attributes (see purple box in Fig.7). Sources of stress (also known as direct threats) are the proximate activities or processes that have caused, are causing or may cause the stresses (e.g., incompatible trawling or logging). For the most part, sources of stress are limited to human activities. Thus fires set by lighting or tropical storms that blow down large swaths of forest are not threats, but instead part of a natural (and often necessary) disturbance regime. There is a fine line, however, between a naturally occurring event, such as a fire set by lightning, and a human-caused threat, such as a fire set by a match. In general, the latter two are sources of stress whereas the former is not. Sources of stress can be currently active, likely to occur in the future (usually defined as within 10 years), or historical (see pink box in Fig.7).

Terms at a glance 7. Sources of Stress (Direct Threats)

The proximate activities or processes that directly have caused, are causing or may cause stresses and thus the destruction, degradation and/or impairment of focal conservation targets (e.g., logging).

Each stress is rated in terms of its likely scope and severity of impact on the target within the project planning horizon. Each source of stress is then rated in terms of its contribution and irreversibility, and these ratings are combined to determine threat ratings. Threat ratings can be found in Appendix 9. When identifying and rating sources of stress, it is important to focus on direct threats - the proximate activities that directly cause the stresses to the conservation targets. The underlying causes (usually social, economic, political, institutional or cultural aspects) that enable or otherwise contribute to the occurrence and/or persistence of direct threats (i.e., indirect threats) or that represent opportunities to reduce direct threats (i.e., opportunities) are considered in a future step to complete the Situation Analysis.

Terms at a glance 8. Critical Threats

Sources of stress (direct threats) that are most problematic. Most often, Very High and High rated threats based on the Conservancy's threat rating criteria of their impact on the focal targets.

This threat rating process results in a prioritised list of sources of stress, which we refer to as critical threats. Our energy should be directed at these sources of stress which are most problematic.

Climate change considerations:

After being introduced to the methodological concepts that guide the threats assessment, information about climate change scenarios was shared to better understand the possible implications of climate alterations on chimpanzee wellbeing.

Some general points shared at the meeting include:

- IPCC models predict that temperature will increase (from a 1961-1990 average) 1.5 to 2.5 degrees C by the 2050s, and 3.0 to 4.0 degrees C by the 2080s (IPCC, 2007).
- IPCC models suggest that the wet season is of less concern than the dry season will get drier (IPCC, 2007).
- Note that the IPCC models do not include: monsoonal patterns; are calculated using 200 km grid cells (are coarse scale); therefore because of the coarse scale, they do not take into account more local and regional variations in climate (IPCC, 2007).
- Some recent papers in the literature contradict the IPCC models – the contradiction is likely to be a result of the scale of the analysis (IPCC in some places for Tanzania suggests an increase in precipitation whereas more regional and local models suggest we may in fact see a decrease - (IPCC, 2007)). Regardless, Tanzania is highly likely to face a water shortage because of temperature increases alone.
- A public support tool called “Climate Wizard” has been created jointly by The Nature Conservancy, The University of Washington and The University of Southern Mississippi. This tool allows people to: view historic temperature and rainfall maps for anywhere in the world; view state-of-the-art future predictions of temperature and rainfall around the world; and view and download climate change maps in a few easy steps. Information relating to this project can be viewed by visiting the the Climate Wizard website at http://ClimateWizard.org (select the global data set then "Tanzania" from the pull down menu under the Analysis Area options in the upper left.

While significant information gaps exist in regards to local and regional climate change scenarios, the planning team had access to some useful inputs such as the exploratory study conducted by the Wildlife Conservation Society in the Albertine Rift, which enabled us to better understand the potential impacts of anthropogenic climate change challenges on wildlife conservation in this diverse African landscape. In preparation for the workshop this study and other climate change documents, as well as personal observations about climate change, were exchanged through the C-CAP google group. Most of the information presented below was briefly mentioned during the meeting, but to contribute to a better collective understanding of the potential effects of climate change on chimpanzees, we have produced a summary of related findings from WCS’s Albertine Rift study (see Picton Phillipps and Seimon, 2009, for full report).

Key climate change considerations from the study produced by Picton Phillipps and Seimon in 2009:

This study estimates future distribution of biodiversity and evaluates potential climate change impacts within the region, under three climate change scenarios - ranging from conservative to extreme. Climatic, environmental and ecological aspects were analysed for the following years - 2030, 2060 & 2090, and contrasted with a 1990 historical baseline. The study’s model predictions are based on the SRES A2 greenhouse gas emissions scenario (the more pessimistic one), and provide a habitat-focused view of the potential impacts of climate change on biodiversity. Authors explicitly mentioned that projections further out in time are also the most questionable and that rather than

pretending to present explicit forecasts, the study is intended to assist conservation practitioners in adapting biodiversity conservation to changing climate conditions in the Albertine Rift.

Some hypotheses of change based on climate changes in the region mentioned in Picton Phillipps' & Seimon's 2009 report include:

- Upward displacement caused by temperature increase: As temperature increases, individual species and species assemblages are likely to move to higher terrain. The regionwide net thermal increase under scenario A2 predicts of 3.6°C could mean an upward displacement of 600-720 meters. Human activities and settlements are also expected to move uphill, which could constrain species spatially as competition for favorable habitat intesifies over time.
- Changes in rainfall patterns: Two patterns stand out at a regional scale in the A2 model simulations - an overall increase in net annual precipitation and a temporal redistribution in the annual fraction of rainfall associated with the twin wet seasons across the Albertine Rift.
    - Rainfall increase: The model revealed that relative to the 1990 baseline, rainfall increases by 3%, 7% and 17% in 2030, 2060 and 2090, respectively. It should however be kept in mind that in spite of rainfall increase the region is likely to become drier since proportionally greater temperature increases over the same period will increase evaporative loss. Under this pattern the currently bountiful Feb-May wet season could be marked by hydrological stress, with catastrophic consequences if the rains were to fail in a given year at this time preceding the annual drought.
    - Rainfall redistribution: According to the model the largest increases in rainfall amount are expected to occur from mid-century onward, with a considerable increase in Nov-Dec rainfall and little net change in the March April period. According to Seimon and Picton Philipps, 2009, an annual rainfall redistribution has been recorded in Mahale on Lake Tanganyika, but it cannot be determined yet if this corresponds to climate pattern variations or if it represents the initial stages of the pattern depicted in the A2 model output.
- Altitude changes in orographic clouds: Orographic clouds are very important in mountain environments to sustaining cloud forest ecosystems and species assemblages, and while the model outputs did not reveal trends in altitude of orographic clouds, changes are likely to occur. Warmer conditions would cause the mean cloud base elevation to become higher and according to the temperature increase projected for the Albertine Rift by the end of the century under scenario A2, the mean orographic cloud bases would be moved up by several hundred meters.
- Alterations in runoff patterns: In regards to annual runoff changes, the A2 model simulations reveal several patterns. First, by 2030 the northern portion of the rift domain experiences a runoff decrease while the southern portion experiences a slight increase. This would imply a reduction in river flows and lake levels across the northern regions of the rift corridor over a period of several decades. By 2060 the deficits in the north reverse and large positive anomalies are exhibited in the central highlands. Finally, by 2090 runoff rates are excessive, averaging 64% more than the 1990 baseline across the domain. Drastic increases are predicted for both evaporation and runoff, and extremes of high and low water are likely to occur in all water bodies on a seasonal and inter-annual basis. Species and ecosystems would undoubtedly suffer the effects of these hydrologic alterations.
- Changes in the spatial distribution of tropical broadleaved evergreen trees: While the historic 1990 baseline shows a strong gradient of maximum to minimum coverage values from north to south, respectively, by 2090 this gradient is significantly changed. While the overall form and orientation of this plant functional type is maintained, higher moisture in the southern part of the domain promotes significant gains at the expense of the broadleaved raingreen

class. This implies changes in the composition and structure of the forest, and could even result in a complete shift in biome type in many important conservation areas.

- Changes in fire: The model shows changes in the northern parts of the rift, where a reduction of initial high values of carbon loss from fire is observed as moisture conditions increase despite the large gains in net primary productivity. Although high values of carbon loss are not yet apparent by 2090, a strong trend of fire increase becomes evident in the Lake Tanganyika watershed region.

Picton Phillipps and Seimon (2009) mention that when seen as a whole, the analysed figures indicate that climate change will trigger changes in ecosystem functions – which in general terms will result in higher ecosystem productivity. While this may benefit some species, these changes could cause fires to increase due to the higher available fuel load, and could also bring about changes in vegetation assemblages.

And what could be the implications of all this on chimpanzees?

- In general terms changes rainfall patterns are expected to produce much wetter wet seasons and more extended and drier dry seasons, but the effects of these changes on chimpanzees have not been determined yet. Google discussion group members considered that if rainfall goes up, carrying capacity of savanna habitat (where most of the chimpanzees live) is likely to increase. And that if regional rainfall decreases, suitable savanna habitat and possibly evergreen forest patches also could contract. In some cases chimpanzees might not be able to move into new areas.
- Changes triggered by climate change such as spatial competition for habitat, food availability/abundance and distribution could affect chimpanzee survival.
- Increased fire could become more problematic if rainfall decreases enough to put the forest patches at risk, but Miombo savannas are fire-adapted, so it seems unlikely that there would be much in way of qualitatively greater, catastrophic fire in savanna areas.

Climate-change related science needs:

The first four were identified in the WCS report produced by Picton Phillips & Seimon in 2009, and the rest were mentioned during the meeting.

- Research grade *in situ* observations sustained over time to serve as baselines for assessing change and trend behavior, to inform climate and landscape models. For chimpanzees it would be crucial to analyse climate change in montane forest and savanna ecosystems.
- Systematic monitoring of taxa with known sensitivity to climatic perturbation.
- Cooperation in network-based studies examining climate change across the globe such as RAINFOR, GLORIA, TEAM, etc.
- Multi-institutional collaboration for the establishment of a long-term regional climate and ecological monitoring network, to increase understanding, diagnose patterns and impacts of climate changes, and inform climate change adaptation across the protected areas of the Albertine Rift. WCS is spearheading an effort to establish such a network in the region.
- One of the critical questions to ask is: how much will soil moisture and drought affect chimps in their range?
    - E.g., in Mongolia, they have seen an increase in precipitation, but because of the corresponding increase in temperature, the lake levels in some of their most critical lakes has dropped
- The study of changes in phenological patterns of the well known chimpanzee food species would help propose mid-term adaptation actions

Threats analysis exercise:

After briefly discussing the potential effects of climate change, participants worked in four groups to review and update existing threat information. Similar to the case of viability assessment results, threats assessments had been conducted with the CAP method for three of the four conservation regions. The only exception was ST, and for this region the work group identified relevant threats based on a report recently completed by WCS (Davenport et al., 2010).

Photo 9. © Lilian Pintea / JGI (teams updating threat information)

To show how specific threats are more or less relevant in different parts of the landscape, participants were asked to draw polygons on a map to indicate where critical threats[7] are present or expanding. A different colour was used for each threat and a thick line was used to indicate areas where a particular threat is more relevant, and a thin line was used to indicate where the threat exists but is not perceived as important. While participants drew on the map they explained what they were basing their decision on when marking a certain polygon. This and other documentation enabled us to digitize information after the meeting.

Threats analysis results:

It should be noted that the threats assessments conducted in previous exercises were able to delve into more detail than was possible during this national workshop. While the intention was to provide an opportunity for teams to update threats results for each conservation target before rolling them up into a national perspective, for regional management purposes managers used information that better reflected management needs within a local or regional perspective.

Current threats analysis for the Chimpanzees of the Greater Gombe Ecosystem:

During the planning process conducted between 2006 and 2009, it was determined that chimpanzees in the GGE are ***very highly*** threatened. While the values assigned to some threats changed during the threats review at the workshop, the overall threat rank for chimpanzees within the GGE is still ***very high***. The original threat information that was reviewed at the workshop can be found in Appendix 10.A, and the results with changes made during the workshop can be found in Appendix 11. Below we present a comparison of critical threats from before and after the 2010 workshop as they affect chimpanzees in the GGE.

Table 1. Critical threats affecting chimpanzees of the GGE

Threats	Threat values based on CAP process held between 2006 and 2009	Updated threat values based on 2010 workshop review
Incompatible food crops; incompatible conversion to food crops	Very High	Medium
Incompatible settlements and infrastructure; incompatible conversion to settlements and	Very High	High

[7] Critical threats refer to threats ranked High or Very High for a given target.

infrastructure development		
Deliberate killing by humans	Very High	High
Pathogens introduced by humans and human activities	High	High
Incompatible human-ignited fires	High	High
Incompatible extraction of firewood	High	High
Kasekela community expansion	High	Ranked under "incompatible settlements and infrastructure"
Lack of conservation and land-use planning, and inadequate implementation of appropriate land-use plans	Not specified	High
Overall Threat Rank for Chimpanzees	**Very High**	**Very High**

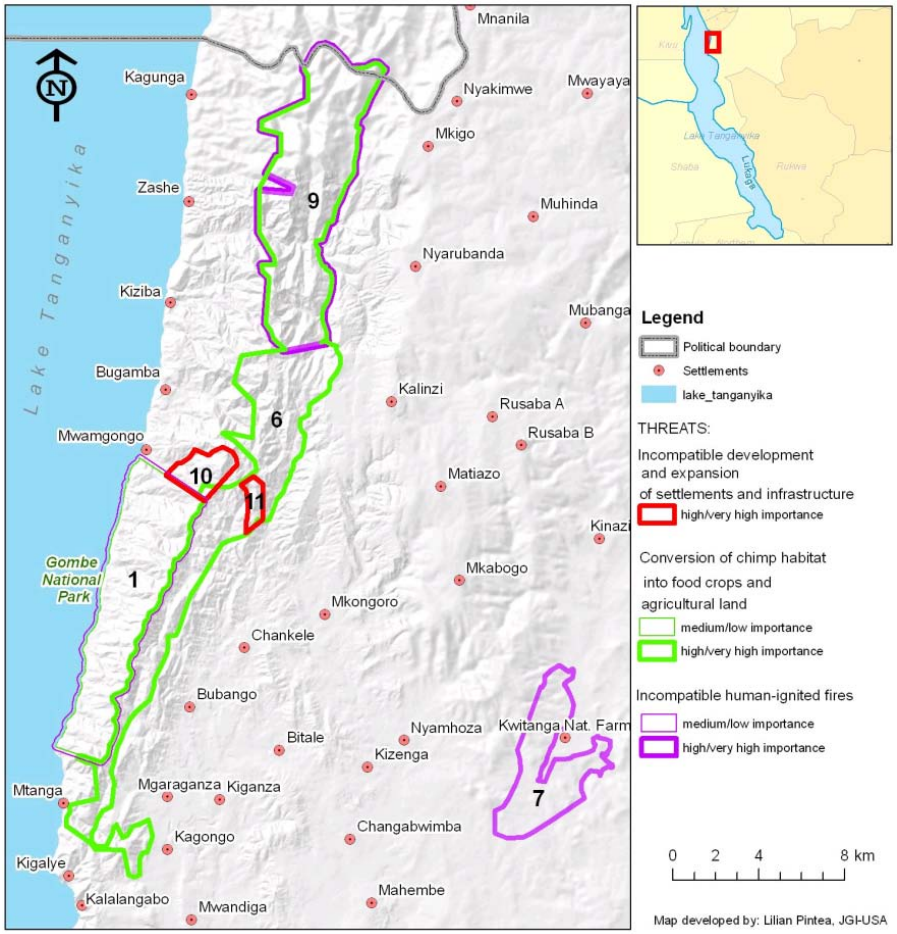
The adjacent map shows areas where a critical threat is present, or where according to observed trends it is expected to be present in the next ten years.

During the workshop the following three critical threats were mapped for chimpanzees within GGE:

- Conversion of chimp habitat into food crops and agricultural land
- Incompatible development and expansion of settlements and infrastructure
- Incompatible human-ignited fires

Map 7. Perceived scope of critical threats affecting chimpanzees of the Greater Gombe Ecosystem

A number was assigned to each polygon in order to record background documentation for this map. The documentation that accompanies this map can be found in Appendix 12.A.



Current threats analysis for the Masito Ugalla Ecosystem:

During the CAP process conducted for MUE between 2007 and 2009, the threats analysis revealed that chimpanzees are ***highly*** threatened, and while the team decided to change some threat values at the workshop, chimpanzees within this ecosystem are still considered to be ***highly*** threatened. The original threat information which was reviewed at the workshop can be found in Appendix 10.B, and the results with changes made during the workshop can be found in Appendix 11. Below we present a comparison of critical threats from before and after the workshop as they affect chimpanzees in the MUE.

Table 2. Critical threats affecting chimpanzees of the MUE

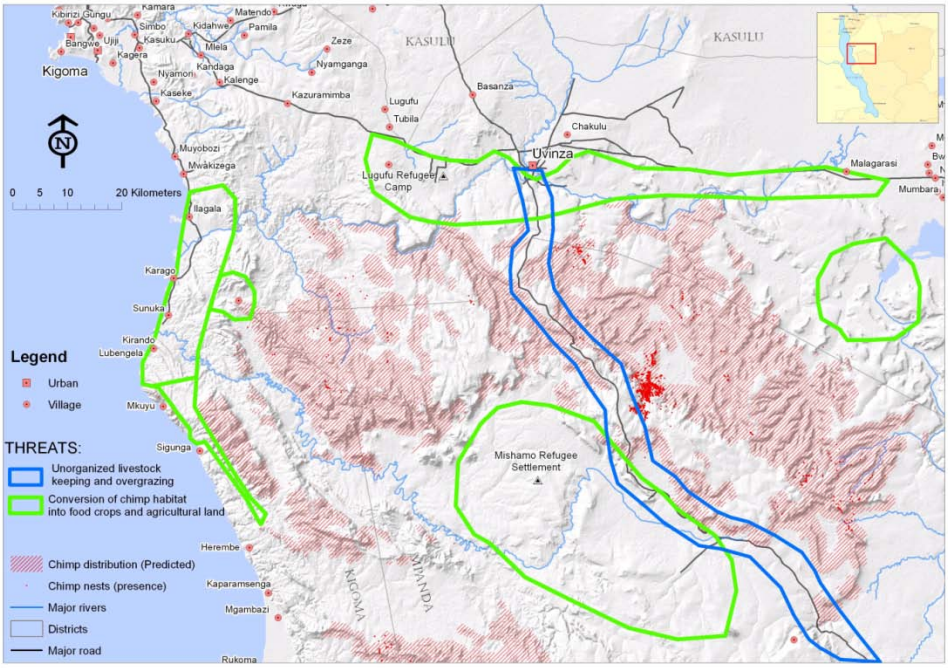
Threats	**Threat values based on CAP process held between 2007 and 2009**	**Updated threat values based on 2010 workshop review**
Conversion of forests/riverine/wetland into agricultural land	Very High	Very High
Poaching (including with snares)	High	Medium
Incompatible wildfire	High	High
Settlement establishment and expansion, and human population increase (including along the periphery of the core conservation area)	Medium	Medium
Infrastructure development (particularly roads)	Medium	Ranked under "incompatible settlements and infrastructure"
Unorganized livestock keeping and overgrazing	Low	Medium
Charcoal making	Low	Low
Disease	Low	Low
Incompatible extraction of firewood and logging for timber	Not specified	Low
Overall Threat Rank for Chimpanzees	**High**	**High**

The following map shows areas where a critical threat is present, or where according to observed trends it is expected to be present in the next ten years.

The following critical threats were mapped for chimpanzees within the MUE:

- Conversion of chimp habitat into food crops and agricultural land
- Unorganized livestock keeping and overgrazing

Map 8. Perceived scope of critical threats affecting chimpanzees of the Masito Ugalla Ecosystem



The documentation that accompanies this map can be found in Appendix 12.B.

Current viability status and conservation goal for the Chimpanzees of the Greater Mahale Ecosystem:

During the participatory CAP process held between 2007 and 2008 for the GME, it was determined that chimpanzees in the GME were ***very highly*** threatened, and as a result of the changes made in the values of some threats, the updated information shows that chimpanzees within the GME are ***highly*** threatened. The original threat information which was reviewed at the workshop can be found in Appendix 10.C, and the results with changes made during the workshop can be found in Appendix 11. Below we present a comparison of critical threats from before and after the workshop as they affect chimpanzees in the GME.

Table 3. Critical threats affecting chimpanzees of the GME

Threats	**Threat values based on CAP process held between 2007 and 2008**	**Updated threat values based on 2010 workshop review**
Agriculture (expansion; outside of protected areas)	High	High
Uncontrolled burning (both inside and outside of protected areas)	High	High
Settlements (expansion) (includes planned and unplanned; outside of protected areas)	High	High
Logging timber and firewood extraction	Medium	Medium
Infrastructure development (e.g. roads, ecotourism facilitites)	High	Ranked under “incompatible settlements and infrastructure”
Mining (outside of protected areas)	Medium	Medium

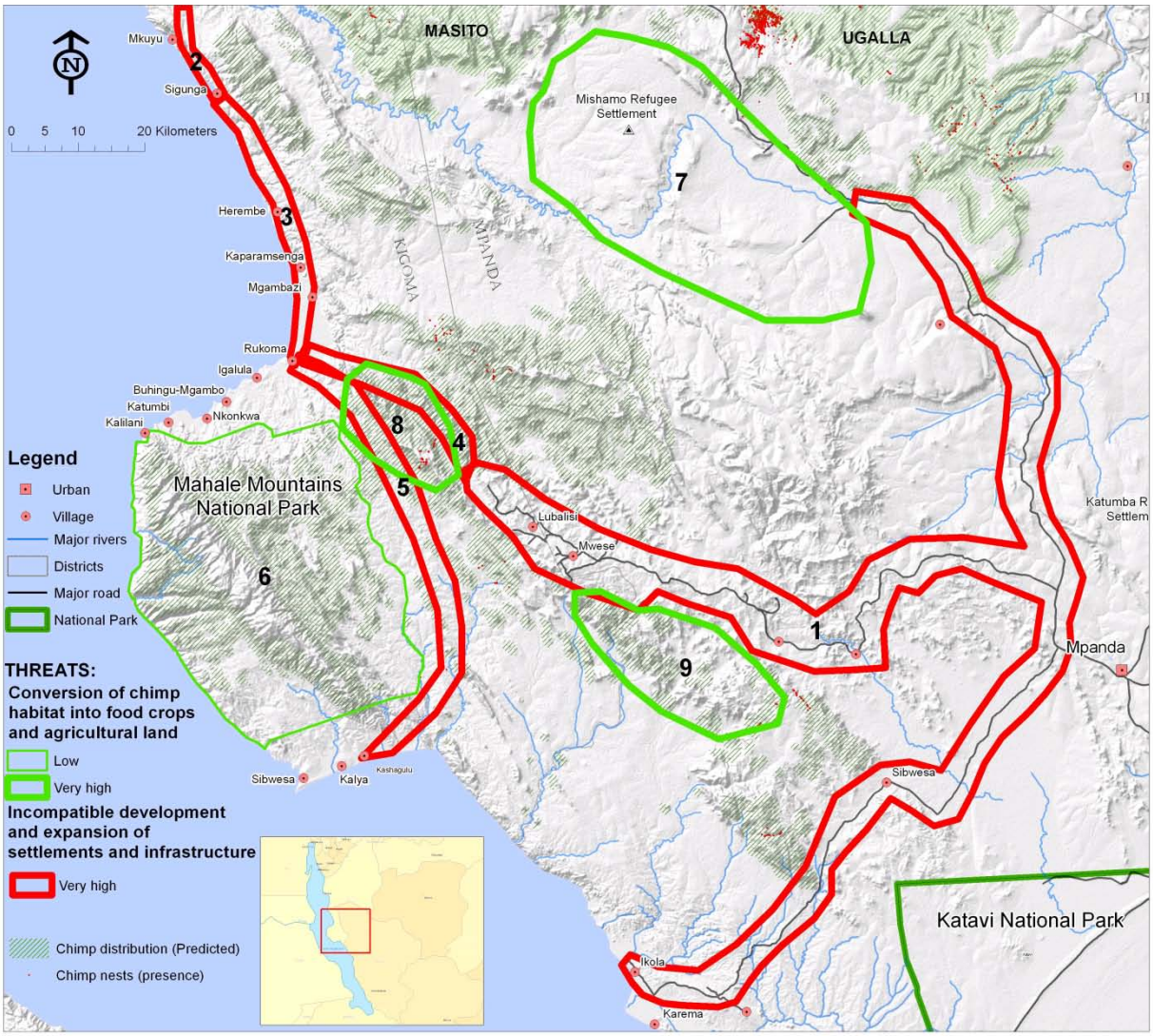
Diseases	High	High
Refugee camps / settlements (outside of protected areas)	Medium	Ranked under "incompatible settlements and infrastructure"
Overall Threat Rank for Chimpanzees	**Very High**	**High**

The map below shows areas where a critical threat is present, or where according to observed trends it is expected to be present in the next ten years.

The following critical threats were mapped for chimpanzees within the GME:

- Conversion of chimp habitat into food crops and agricultural land
- Incompatible development and expansion of settlements and infrastructure

Map 9. Perceived scope of critical threats affecting chimpanzees of the Greater Mahale Ecosystem



A number was assigned to each polygon in order to record background documentation for this map. The documentation that accompanies this map can be found in Appendix 12.C.

Current threats analysis for the Chimpanzees of the Southern Lake Tanganyika area:

While threats had not been evaluated previously for the ST area with the same ranking system used in a CAP process, human impacts were analysed in "The Conservation status of the Chimpanzee *Pan troglodytes schweinfurtii* in 'Southern Tanganyika' 2005-2009" (Davenport et al. 2010, pages 22-25). This study looked at various human impacts encountered along line transects in 2005, and also produced a spatial assessment that contrasted human intensity and chimpanzee nest distribution to identify critical areas. While the report produced by WCS mentions that human impact in the ST area is ***high*** (Davenport et al. 2010), after completing the threats assessment shown below, it was concluded that the ST area is ***very highly*** threatened. It should be noted that during the workshop the team identified only those threats considered to be of very high or high relevance, but after the workshop the planning team ranked threats that had been identified for other chimpanzee targets[8], in order to have a more complete national perspective. The results of the threats assessment can be found in Appendix 11.

Table 4. Critical threats affecting chimpanzees of the ST Area

Threats (threat names in this table were taken from human impacts reported in Davenport et al. 2010)	**Human impacts were evaluated under a different method in the 2005 - 2009 study produced by WCS, therefore no values are specified**	**Updated threat values based on 2010 workshop review**
Logging in riverine forests and woodlands		High
Charcoal		Very High
Marihuana plantations		Not specified
Extensive agriculture		Very high
Dwellings within forest reserves		Not specified
Forest clearing		Ranked under "conversion of chimp habitat into food crops and agricultural land"
Hunting		Low
Domestic livestock		Low
Fire		High
Overall Threat Rank for Chimpanzees	**High**	**Very High**

The map below shows areas where a critical threat is present, or where according to observed trends it is expected to be present in the next ten years.

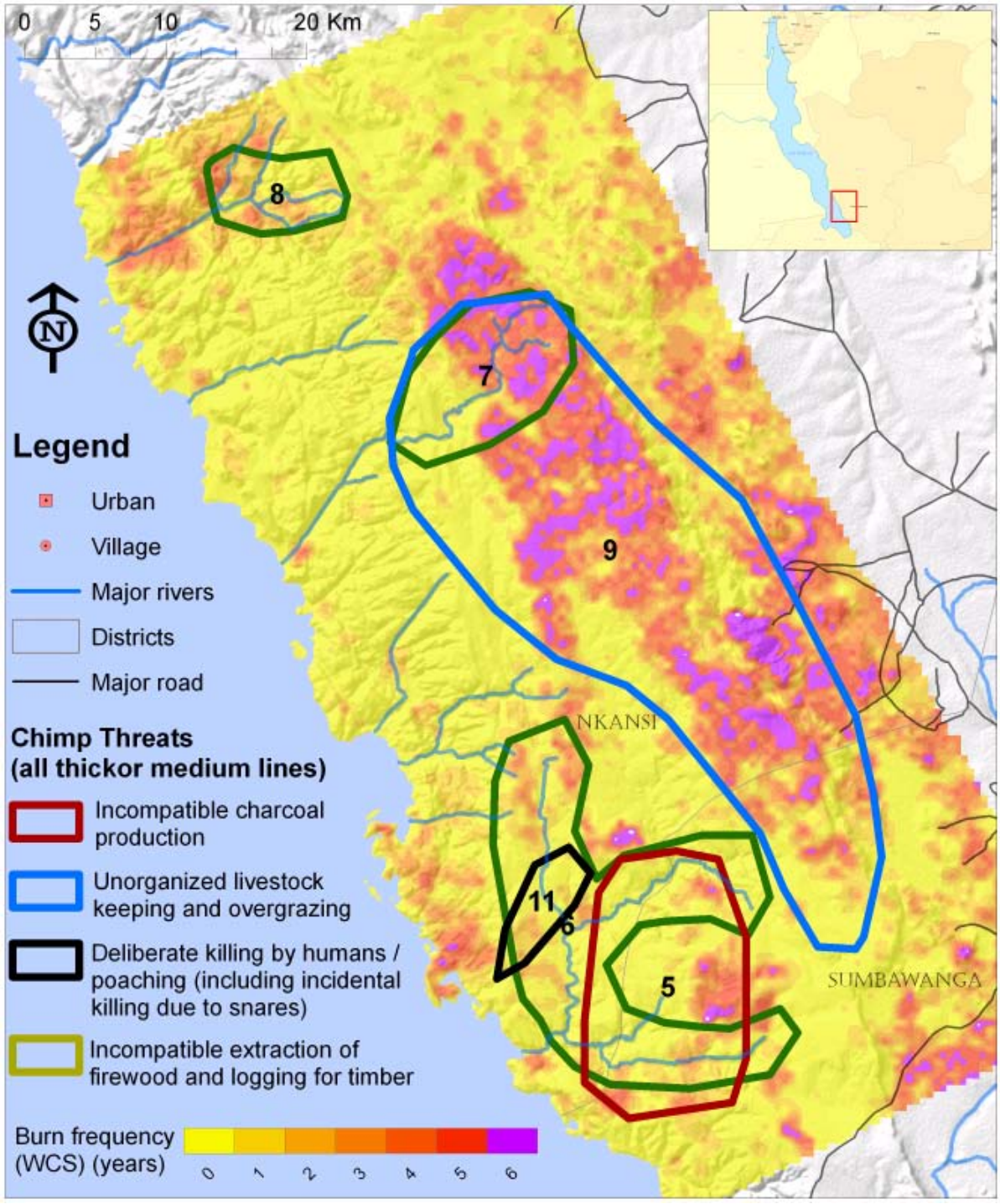
The following critical threats were mapped for chimpanzees within the ST:

- Incompatible charcoal production
- Incompatible extraction of firewood and logging for timber
- Deliberate killing by humans / poaching (including incidental killing due to snares)
- Unorganized livestock keeping and overgrazing
- Incompatible human-ignited fire

[8] Threat values were based on the WCS report and were reviewed and validated by T. Davenport after the2010 workshop.

It should be noted that the information on fire incidence was not produced during the workshop. WCS provided the background layer, which shows burn frequency (years) between 2001 and 2007. This information is mentioned in Davenport et al., 2010. A number was assigned to each polygon in order to record background documentation for this map. The documentation that accompanies this map can be found in Appendix 12.C. There is one pending issue relating to polygon number 11 that

Map 10. Perceived scope of critical threats affecting chimpanzees of the Southern Lake Tanganyika Area

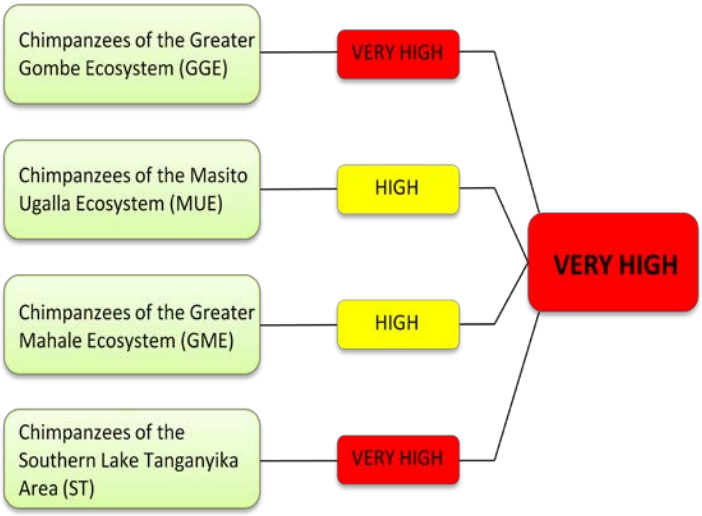


needs clarification before this map can be finalized (please see Appendix 12.C).

Overall, how threatened are chimpanzees in Tanzania and which threats are most problematic?

Considering current conditions and trends looking 10 years into the future, chimpanzee populations in Tanzania are very highly threatened. Comparatively, chimpanzees of the Greater Gombe Ecosystem and those of the Southern Lake Tanganyika Area are more highly threatened than those of the Greater Mahale Ecosystem and of the Masito-Ugalla Ecosystem.

Figure 8. How threatened are chimpanzees in Tanzania?



Of a total of nine issues that affect chimpanzees in Tanzania, the following six were identified as critical threats. Critical threats are those ranked high or very high in the assessment.

- Conversion of chimp habitat into food crops and agricultural land,
- Incompatible extraction of firewood and logging for timber,
- Incompatible development and expansion of settlements and infrastructure,
- Incompatible human-ignited fires,
- Incompatible charcoal production, and
- Disease due to pathogens introduced by humans and human activities.

Threats ranked ***very high*** represent incompatible human activities that are the main contributors of one or more stresses and that produce stresses that are virtually impossible to reverse. It also reflects that they are likely to destroy or eliminate the conservation target in some portions of the landscape and that they are widespread or pervasive in their scope.

Threats ranked ***high*** represent incompatible human activities that contribute significantly to one or more stresses and that produce stresses that are reversible but not practically affordable. A high ranked threat also reflects that a particular activity is likely to seriously degrade the conservation target over many of its locations within the project area.

Table 5 shows all threats that were taken into account for this national scope analysis, because they are relevant for more than one conservation target. However, only those ranked very high or high were considered as critical threats. Both high and very high threats are of particular concern because of the potential "killer effect" they could produce on chimpanzee populations. It should be mentioned that while six threats were ranked as critical, during the meeting the threat of "Incompatible extraction of firewood and logging for timber" was not analysed separately. This was in part due to the fact that time was limited, and when threats needed to be further prioritised for discussion participants agreed that similar solutions applied for firewood extraction and logging as well as charcoal production.

While all of the threats in the table below relate to human activities, the planning team recognises that humans are part of the landscape, and that meeting human needs is a priority for successful plan implementation. By identifying the practices that currently cause problems to chimpanzee well-being, this planning effort is designed to improve chimpanzee welfare. The intention is not to avoid human activities in chimpanzee habitat, but rather to make adjustments in the way in which humans use the landscape, in order to demonstrate that human and chimpanzee co-existence is possible.

Table 5. Threat summary table for Chimpanzees of Tanzania

	⇓Threats⇓ / ⇒Targets⇒	Chimpanzees of the Greater Gombe Ecosystem	Chimpanzees of the Greater Mahale Ecosystem	Chimpanzees of the Masito-Ugalla Ecosystem	Chimpanzees of the Southern Lake Tanganyika Area	Summary Threat Rating
	Conversion of chimp habitat into food crops and agricultural land	Medium	High	Very High	Very High	Very High
	Incompatible extraction of firewood and logging for timber	High	Medium	Low	High	High
	Incompatible development and expansion of settlements and infrastructure	High	High	Medium	Not Specified	High
	Incompatible human-ignited fires	High	High	High	High	High
	Incompatible charcoal production	Medium	Medium	Low	Very High	High
	Disease due to pathogens introduced by humans and human activities	High	High	Low	Low	High
	Deliberate killing by humans / poaching (including incidental killing due to snares)	High	Medium	Medium	Low	Medium
	Lack of conservation and land-use planning, and inadequate implementation of appropriate land-use plans	High	Not Specified	Not Specified	Medium	Medium
	Unorganized livestock keeping and overgrazing	Not Specified	Not Specified	Medium	Low	Low
		Very High	High	High	Very High	Very High

THREAT-BASED CONCEPTUAL MODELS AND INITIAL STRATEGIES

Once the most pressing threats had been identified within a national perspective, participants worked in groups to better understand the situation that surrounds each threat.

Photo 10. © Kathy Traylor-Holzer / IUCN-SSC-CBSG (constructing a conceptual diagram to better understand critical threats)

Without a clear understanding of what is happening in our project area, it is almost impossible to develop realistic and practical strategies. A conceptual model can help project team members come to a common understanding of the context or situation that surrounds a project, because it visually links the things we intend to protect, with our collective knowledge of the critical threats and underlying factors that should be considered.

A conceptual diagram was produced for each critical threat by considering the specific practices that contribute to a problem, related stakeholders, incentives and motivations, as well as opportunities that could contribute to a solution. The basic components of such an analysis are shown in Fig. 9. In each diagram participants identified one to three points in the diagram on which we should focus our attention to contribute to a significant change in the overall situation – these were called "key intervention points".

Terms at a glance 9. Indirect Threats

Contributing factors identified in an analysis of the project situation that are drivers of direct threats. Often an entry point for conservation actions. For example, "logging policies" or "demand for fish."

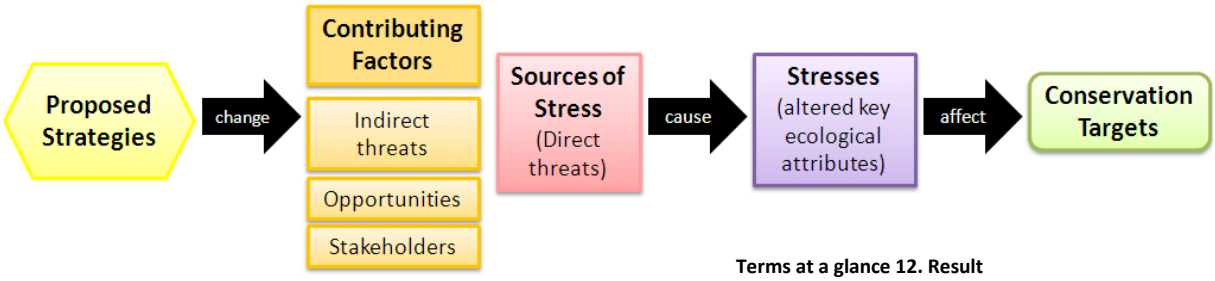
Terms at a glance 10. Opportunities

Contributing factors identified in an analysis of the project situation that potentially have a positive effect on targets, either directly or indirectly. Often an entry point for conservation actions. For example, "demand for sustainably harvested timber."

Terms at a glance 11. Stakeholders

Individuals, groups, or institutions who have a vested interest in the natural resources of the project area and/or who potentially will be affected by project activities and have something to gain or lose if conditions change or stay the same.

Figure 9. Diagram showing the basic components of a conceptual diagram or situation analysis

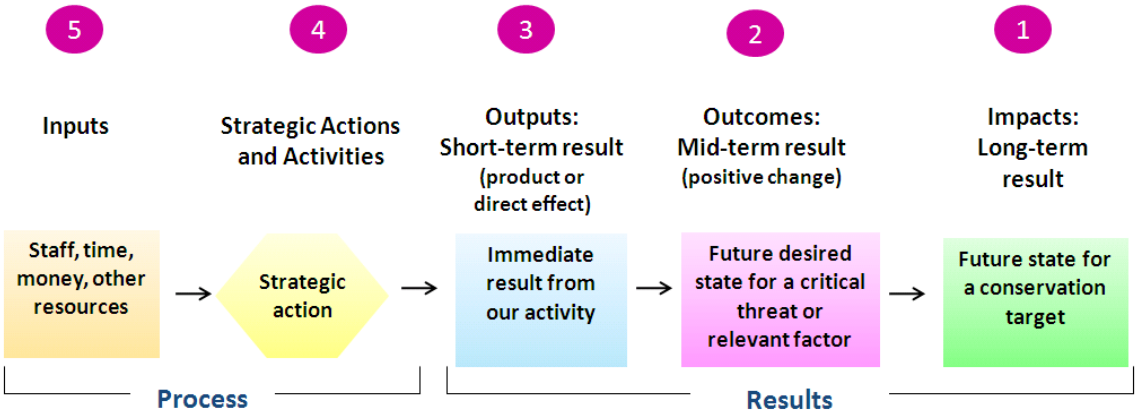


Terms at a glance 12. Result

A generic term used to decribe the desired future state of a target or factor. Includes impacts, outcomes and outputs (FOS, 2007).

After completing the conceptual diagrams for critical threats, participants continued working in groups to construct a "results chain". This tool provides a graphic representation of our management hypothesis and helps us test our assumptions about what we think will happen if we engage in a given strategy. It basically consists of a series of "if...then" statements that link short-, medium-, and long-term results. The basic components of a results chain are: a strategy, expected outcomes, and the desired impact. (FOS, 2007). The figure below, which was inspired by a diagram included in FOS, 2007, shows the basic concepts used to describe results. A more complete diagram containing guiding questions for constructing results chains is provided in Appendix 14.

Figure 10. Diagram showing the basic steps and concepts that relate to results chains.



Note: results chains tend to focus more on performance-oriented results, sometimes they show outputs but rarely they show inputs.

After constructing results chains to address critical threats, each team presented them for peer review. ***Goals*** had already been developed before, after the viability analysis, and ***objectives*** and ***indicators*** were proposed for threat-related results and any other relevant intermediate result. This effort also included proposing a limited set of strategies that were considered to contribute significantly to the abatement of a given threat within a national perspective. These strategies were then used in a subsequent step during the meeting.

Photo 11. © Lilian Pintea / JGI (peer review of a results chain)

Objectives represent specific, time-bound and measurable statements of what we hope to achieve within our project, and indicators enable us to evaluate our progress to make timely adjustments to achieve our expected impacts.

Within the CAP approach, the realization of all the project's objectives should accomplish the project goals, and lead to the realization of the project's vision. It is highly important to set objectives well, since they are the foundation for developing strategic actions and represent a measuring stick against which we will gauge the progress of our project.

Terms at a glance 14. Strategies

Broad courses of action that include one or more objectives, the strategic actions required to accomplish each objective, and the specific action steps required to complete each strategic action.

Terms at a glance 13. Objectives

Specific statements detailing the desired accomplishments or outcomes of a particular set of activities within a project. A typical project will have multiple objectives. Objectives are typically set for abatement of critical threats and for restoration of degraded key ecological attributes. They can also be set, however, for the outcomes of specific conservation actions, or the acquisition of project resources. If the project is well conceptualized and designed, realization of all the project's objectives should lead to the fulfillment of the project's vision. A good objective meets the criteria of being: specific, measurable, achievable, relevant and time limited.

A good objective meets the following criteria defining a "*SMART*" objective:

- **Specific** - ***What exactly does the project team want to achieve?*** The specific outcome to be accomplished needs to be described in clear enough terms that all people involved in the project have the same understanding of what the terms mean.
- **Measurable** - ***Is it measurable?*** The objective needs to be defined in relation to some standard scale (e.g., numeric, percentage, fractions, or all/nothing states) to allow progress to be measured.
- **Achievable** - ***Can it be done in the proposed timeframe within the social and political context of the project and with available funds?*** The objective or expectation of what will be accomplished must be realistic given the market conditions, time period, resources allocated, etc.
- **Relevant** - ***Will this objective lead to the desired results?*** The results need to be impact oriented and represent the necessary changes in key ecological attributes, critical threat factors, or project resources to achieve the project goal.
- **Time-Limited** - ***When will the objective be reached?*** This means stating clearly when the objective will be achieved.

Terms at a glance 15. Strategic Actions

Interventions undertaken by project staff and/or partners designed to reach the project's objectives. A good action meets the criteria of being: linked to objectives, focused, strategic, feasible, and appropriate.

Description of critical threats and initial strategies

Below each of the critical threats is described. These descriptions incorporate information from existing CAPs and reports, as well as PVA results that served as inputs to this meeting, and include information generated during the workshop from situation diagrams and results chains. These summaries include general lines of action that could help address a given threat. These strategies are not discussed in detail because they served as a reference to identify high-level national strategies for chimpanzee conservation, and have been incorporated into the strategic actions that are laid out in the next section.

1. Conversion of chimp habitat into food crops and agricultural land:

This threat contributes to habitat loss and fragmentation in chimpanzee habitat, which in turn lead to smaller population size, genetic and demographic isolation, and reduced long-term viability.

Significant portions of chimpanzee habitat in Tanzania have already been transformed to meet human needs, and one of the main causes of habitat destruction has been the expansion of agricultural lands. Various factors have contributed to the practice of clearing land for agricultural practices, in spite of the difficulties presented by the steep-sided hills that characterize chimpanzee habitat.

As the human population increases, appropriate farmland becomes more difficult to find. Families increasingly grow crops on steeper slopes, which in addition to causing the loss of chimpanzee habitat leads to erosion and landslides. The loss of topsoil makes restoration efforts very complicated and can contribute to an increased risk of flooding. In addition, it increases sedimentation in rivers, which in turn may have detrimental effects on aquatic biodiversity and fisheries in Lake Tanganyika. If fish populations are affected, there is the concern that additional land may be farmed and/or that people may increasingly rely on bush meat (JGI et al., 2009).

While fire is commonly used to clear land for agriculture, in this planning process it was analysed separately under the heading “Incompatible human-ignited fire”.

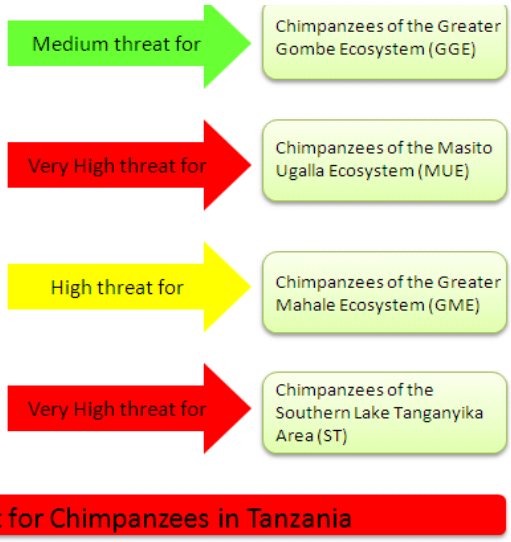
This threat was ranked ***very high*** overall, which means that it currently represents the most pressing problem for chimpanzees in Tanzania. Climate change conditions may complicate things further if solutions are not implemented soon.

As shown in Fig.11, this threat affects all four conservation targets. It could be said that this threat needs to be adddressed more urgently in MUE and ST, where it is of very high importance, then in the GME where it is highly important, and lastly in GGE where it is moderately important. Family planning is an important intervention which in the longer term will be key to reduce population pressures, but in the immediate and intermediate term this approach also contributes to individual and community health and well-being.

When constructing the conceptual model for “Conversion to Agriculture” at the workshop, participants concluded that the most relevant indirect threats that contribute to this problem are poor farming methods and the policy of Kilimo Kwanza, which combined with inadequate law enforcement and the lack of land use plans in villages are contributing to unsustainable agricultural management that is contributing to loss of vegetation cover and the exhaustion of the land. The

Figure 11. Which targets are affected by Conversion of chimp habitat into food crops and agricultural land?

Photo 12. © John McLaughlin / JGI (Deforestation along the south-east border of Gombe Stream N.P.)



original conceptual model that shows the practices, stakeholders, motivations and opportunities that relate to this issue can be found in Appendix 13.A.

Within the situation analysis participants identified the following two aspects as "critical intervention points":

- *Lack of land-use plans in villages:* this is an indirect threat that is already being abated in parts of the region through democratic Village Land-Use Management Planning (VLUMP) processes.
- *Lack of alternative & compatible livelihood options:* Income-generating activities are limited and often insufficient and as a result families frequently depend on cash crops for sustenance.

For this threat the team felt that it had insufficient information to propose a measurable threat-abatement objective. For now, the objective reads *"Agriculture outside designated areas is reduced to XXX, by 2015"*[9]. It's important to establish a benchmark, possibly in hectares and by identifying specific high priority chimp habitat areas in which agriculture should not encroach into. The results chain that was developed for this threat, which can be found in Appendix 15.A, identified three general strategies to reduce the forest area converted to agriculture:

- ***Awareness and environmental education***
- ***Alternative and compatible income generating activities***
- ***Integrated land-use planning with villages***

2. Incompatible extraction of firewood and logging for timber:

This threat involves both the collection of firewood for sustenance and to a lesser extent for industrial purposes, and also logging for timber. Together this threat contributes to habitat loss and fragmentation, which in turn lead to smaller population size, genetic and demographic isolation, and reduced long-term viability.

Most households in the region rely on firewood for cooking rather than charcoal, since charcoal has a greater market value in urban villages. As population increases, the demand for firewood also increases. The collection of firewood, in addition to reducing vegetation in chimpanzee habitat, increases the proximity of humans and chimpanzees – especially habituated chimpanzees – which increases other threats such as disease and hunting.

Figure 12. Which targets are affected by Incompatible extraction of firewood and logging for timber?

Photo 13. © Jim Moore / UPP (Firewood extraction in the Ugalla region)

(JGI et al., 2009). In some areas firewood also is collected for industrial purposes such as salt processing and tobacco curing (Ndimuligo et al. 2009).

Logging practices focus on timber and poles, which are logged to meet local needs for the construction of housing, furniture, boats, and also for commercial purposes (Ndimuligo et al. 2009).

This threat was ranked ***high*** overall, which means that it currently represents a significant problem for chimpanzees in Tanzania. As shown in Fig. 12, in order of urgency this threat affects chimpanzees in the GGE and ST more highly, then chimpanzees in the GME and to a less extent chimpanzees in the MUE.

As mentioned before, while this threat was one of the six ranked as critical, during the meeting it was not analysed separately. This was in part due to the fact that time was limited, and when threats needed to be further prioritised participants were more concerned about charcoal production and considered that this issue presented similar concerns. Therefore it was determined that solutions for firewood extraction and logging, would be similar to those identified for charcoal production.

No conceptual diagram, nor results chain were constructed for this threat, and therefore no objectives and specific strategies were drafted.

3. Incompatible development and expansion of settlements and infrastructure:

This threat refers to the development and expansion of settlements and infrastructure within chimpanzee habitat, including illegal settlements currently established within conservation areas. These threats, together with agricultural expansion, are the major causes of habitat loss in the region. Among other countries in Sub-Saharan Africa, Tanzania holds one of the fastest growing urban agglomeration rates (Kombe& Kreibich2001).

The situation analysis, which is included in Appendix 13.B, shows that the indirect threats that contribute to the problem include population increase and expansion, as well as the development of poorly planned infrastructure for services and mining.

In addition to contributing to habitat loss and fragmentation, the establishment of settlements and infrastructure opens chimpanzee habitat to further disturbance through human activities such as agriculture, pastoralist practices, fire and hunting. This can disrupt connectivity in important corridors and can represent significant additional problems particularly for unhabituated chimpanzees (JGI et al., 2009).

Figure 13. Which targets are affected by the Incompatible development and expansion of settlements and infrastructure?

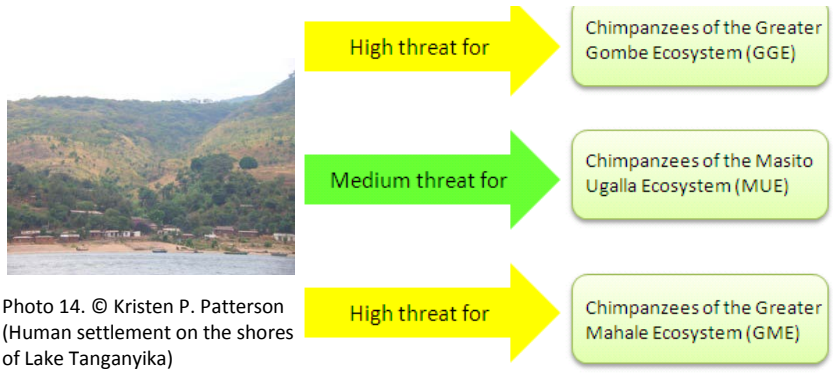


Photo 14. © Kristen P. Patterson (Human settlement on the shores of Lake Tanganyika)

Human development in the region should consider the needs of people for housing and services, but in order to guarantee the well-being of humans and chimpanzees and other wildlife, these activities need to be better planned to respect

HIGH threat for Chimpanzees in Tanzania

conservation areas and minimize negative effects on the landscape and its resources.

This threat was ranked ***high*** overall, which means that it currently represents a significant problem for chimpanzees in Tanzania. It affects chimpanzees more highly in the GGE and the GME, and chimpanzees in the MUE to a lesser extent. This threat was not evaluated for chimpanzees in ST.

The following two "critical intervention points" were identified by the group:

- ***Population expansion:*** this refers to the tendency of human settlements to sprawl and encroach into chimpanzee habitat.
- ***Poor infrastructure development:*** this refers to the construction and expansion of roads, which affects wildlife and increases other threats as it opens access to new areas.

While constructing the related results chain, which can be found in Appendix 15.B, the team decided that in order to address the threat posed by "Incompatible development and expansion of settlements and infrastructure", all new infrastructure development needs to be compatible with conservation in chimpanzee habitat. Two threat-abatement objectives were proposed to address this issue:

- *By 2015, all development of infrastructure in chimpanzee habitat is compatible with conservation of chimpanzees and environmental services, and no more than 5% of chimpanzee habitat (based on 2010 habitat extension) is converted to infrastructure.*
- *By 2015, all villages who have completed LUPs, should not allow any new settlements in chimpanzee habitat (for example, within Village Forest Reserves).*

The main strategies proposed to address this threat relate to:

- ***Integrated land-use planning with villages***
- ***Protecting central government land***
- ***Establishing and effectively managing protected areas***

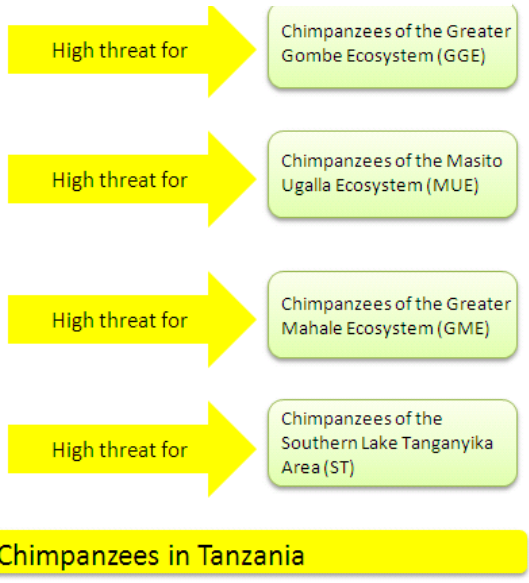
4. Incompatible human-ignited fires:

This threat contributes both to habitat loss and fragmentation, and while the natural role of fire, or fire regime, in chimpanzee habitat is not completely understood, the frequency and extent of areas that burn each year indicate that most likely the level of fire in the region exceeds acceptable conditions.

This threat was ranked ***high*** overall, which means that it currently represents a

Figure 14. Which targets are affected by Incompatible human-ignited fires?

Photo 15. © Tim Davenport / WCS
(Wildfire burning in the Lwafi GR)



significant problem for chimpanzees in Tanzania. It is a highly ranked threat for all four conservation targets. Fires are most commonly intended to clear small patches of land, but when humidity is low, especially on hot, windy and dry days, they often spread far beyond their intended reach. Wildfires affect vast areas of the landscape every year. For example, in the GGE stakeholders estimated that 85% or more of chimpanzee habitat burns outside the Park (every year?), and in the MUE fires also burn over 80% of the ecosystem every year. Fire issues are expected to increase with climate change, and to avoid further degradation of chimpanzee habitat and watershed functionality, fire excess needs to be addressed urgently.

The following indirect threats were identified in the situation analysis, which can be found in Appendix 13.C:

- Hunting: this refers to the use of fire both for legal and illegal hunting practices, which are carried out for family sustenance and to generate revenue. Fire is used to chase animals towards traps.
- Clearing land for agriculture: fire represents a cheap and effective tool for clearing land; therefore residents tend to burn land when they need new areas for agriculture.
- Pastoralist practices: fire is considered a useful tool to clear land of pests (such as ticks and snakes) and is also used to promote vegetation growth during the dry season.
- Accidental fire: fires can be caused by accident, for example, by lit cigarette stubs.
- Recreation and social and cultural norms: fires used for cooking food at a tourist camp, or used for cultural practices such as to predict a man's longevity, can also contribute to the problem. Fire is also used by honey producers to clear paths to beehives. It is also speculated that in some areas residents use fire to clear surrounding areas to increase visibility and protect themselves from bandits sneaking-up to their hamlets (JGI et al., 2009).

To contribute to the solution of fires in the region, the following "critical intervention points" were identified:

- Pastoralist practices – as the most relevant indirect threat
- Pastoralists – as a key stakeholder group to work with
- Clearing land for pest control and to promote vegetation growth – as incentives that need to be addressed

The following two objectives were proposed by the team to improve fire management in the region:

- *By 2020, the percent of evergreen forests in which wildfires occur has been reduced to 2 percent of the total area of forests*[10]*.* The working hypothesis is that the natural fire regime for riverine forests is that only 1-2 percent of that vegetation type should burn per year(cited during a fire management planning meeting in Kigoma, May 2008).
- *By 2030, the percent of miombo woodland-grassland mosaic in which wildfires occur has been reduced to 20 percent of the total area of the mosaic*[11]*.* The working hypothesis is that the natural fire regime for miombo woodland-grassland mosaic is that only 20 percent of that vegetation type should burn per year (high intensity, rapid fire which does not go into the crown); (cited during a fire management planning meeting in Kigoma, May 2008).

During the workshop, due to time constraints, the team was only able to lay out the expected results for one strategy – awareness and environmental education - to address fire (see Appendix 15.C). Of all possible strategies that were mentioned in the situation analysis, those marked in bold reflect

[10] Objective ID: FIRE1
[11] Objective ID: FIRE2

strategies of national relevance, and most of the others were incorporated into at least one of the five national strategies:

- ***Awareness and environmental education***
- *Patrolling*
- *Fire breaks around farms*
- *Intensification of agricultural extension services*
- *By-laws to govern permits for fires, and fines for uncontrolled fires*
- *For allowed burning, promote burning early in the dry season*
- *Village fire-fighting crews trained*
- *Fire-fighting resources provided*
- ***Integrated land-use planning with villages***
- *Laws to limit the number of cattle per head*
- ***Central government land protected from unpermitted grazing***

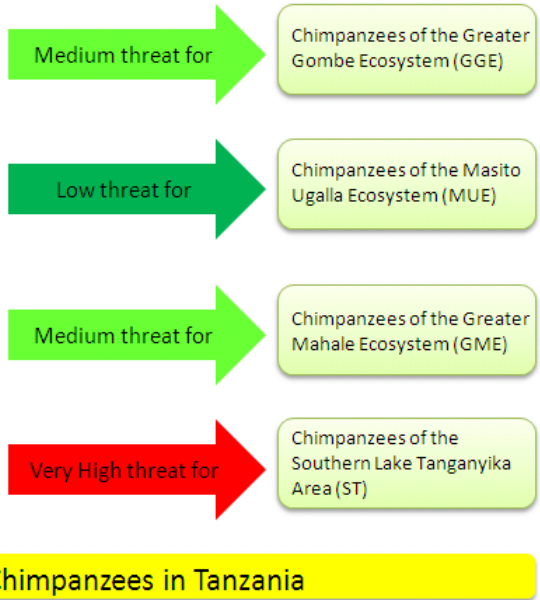
5. Incompatible charcoal production:

The production of charcoal, which is not very efficient and is based primarily on the removal of large trees, causes habitat loss and fragmentation, which in turn lead to smaller population size, genetic and demographic isolation, and reduced long-term viability.

Charcoal represents an important energy source in urban areas, and considering migrations from rural to urban areas, the demand for cheap fuel, such as charcoal, is likely to increase. Charcoal production is perceived as a quick revenue-generating activity which is practiced by local residents to address an immediate demand for money. Considering trends for the coming ten years, both old-growth and regenerated vegetation could be increasingly threatened by this practice if demand for charcoal increases and regulations and law enforcement remain inadequate.

Overall this threat was ranked as ***high***, which means that it represents a significant problem for chimpanzees in Tanzania. It affects chimpanzees in ST most highly, then chimpanzees in the GGE and GME moderately, and to a lesser extent chimpanzees in the MUE.

Photo 16. © Jim Moore / UPP (Charcoal production in the Ugalla region)



The following indirect threats were identified as relevant contributors to commercial charcoal production in the situation analysis, which can be found in Appendix 13.D: urban development

(people moving from rural to urban areas), lack of land-use plans, conversion of land for agriculture and an inadequate enforcement of the law. Of these the following two were identified as "key intervention points" to contribute to a solution:

- Lack of land-use plans: this refers to the lack of official integrated land-use plans to support sustainable resource use in chimpanzee habitat. Villages are increasingly undergoing democratic Village Land-Use Management Planning (VLUMP) processes, which will help abate threats related to unorganised land-use management.
- Inadequate law enforcement: this refers to deficiencies in law enforcement to ensure that allowed quota is respected and to ensure that charcoal production only occurs in designated areas. This is in part caused by insufficient resources to conduct monitoring and patrolling activities, and also due to corruption.

The results chain that can be found in Appendix 15.D lays out the results that need to be achieved in order to lead to the proposed objective to address incompatible charcoal production:

- By 2020, charcoal production has been eliminated in chimpanzee habitat[12].

The following three general strategies were proposed to mitigate this threat. High-priority national level strategies are marked in bold:

- ***Alternative and compatible income generating activities***
- ***Integrated land-use planning with villages***
- *Alternative energy sources*

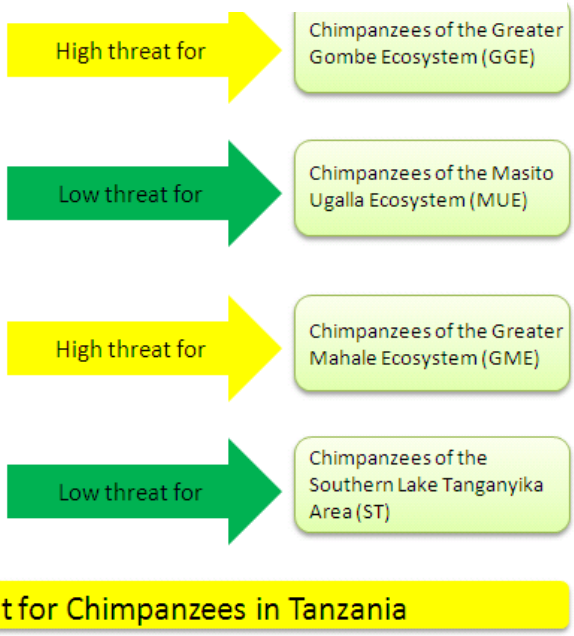
6. Disease due to pathogens introduced by humans and human activities:

Due to the similarities that exist between humans and chimpanzees in terms of genetics and immunology genetic differences of only 1.23% , Cohen, 2007 , we share relevant health concerns.

This threat refers to the susceptibility of chimpanzees to catch infectious diseases from which evidence suggests humans and chimpanzees can both suffer. Some of the infectious diseases that humans share with chimpanzees include the common cold, influenza, chicken pox, paralytic poliomyelitis, tuberculosis, and pneumonia (among others, Butynski, 2001). While this threat focuses primarily on human diseases which are transmitted to chimpanzees through human activities and health/hygience practices, it should be mentioned that as contact increases between humans and

Figure 15. Which targets are affected by Disease due to pathogens introduced by humans and human activities

Photo 17. Non-copyrighted internet image obtained from www.ugandasafaris.com (advertisement for a chimpanzee trecking tour)



[12] Objective ID: CHAR1

chimpanzees, zoonotic diseases transferred from animals to humans such as Ebola, a deadly hemorrhagic fever, can become more troublesome for both human and ape populations (Cawthon Lang, 2006).

Overall this threat was ranked ***high,*** which means that it represents a significant problem for chimpanzees in Tanzania. Chimpanzees in the GGE and in the GME are more highly threatened by anthropogenic disease, while the threat to chimpanzees in the MUE and ST is considered minimal[13].

An epidemic, such as those mentioned below, could cause massive mortality and in a worst case could result in the extinction of a community.

The following epidemics have been recorded in chimpanzee communities in western Tanzania:

- In 1966, of an estimated population of 60, twelve ill chimpanzees were observed, of which six died of polio in Gombe's Kasekela community (Williams et al., 2008).
- In 1968, of an estimated population of 52, thirty one ill chimpanzees were observed, of which four died of a respiratory disease in Gombe's Kasekela community (Williams et al., 2008).
- In 1987, of an estimated population of 52, thirteen ill chimpanzees were observed, of which nine died of a respiratory disease in Gombe's Kasekela community (Williams et al., 2008).
- In 1996, eight chimpanzees died and one disappeared due to a respiratory outbreak in Gombe's Mitumba community (Tanzania National Parks 2005).
- In 1997, of an estimated population of 47, nineteen ill chimpanzees were observed, of which three died of mange in Gombe's Kasekela community (Williams et al., 2008).
- In 2000, of an estimated population of 48, thirty five ill chimpanzees were observed, of which two died of a respiratory disease in Gombe's Kasekela community (Williams et al., 2008).
- In 2002, three Kalande chimpanzees died and other deaths related to illness were suspected (JGI et al., 2009).
- In 2006, 60% of a habituated chimpanzee community was infected by a respiratory disease which caused the death of twelve chimpanzees in the Mahale Mountains National Park. This event caused the death of approximately 20% of that community at the time. (JGI et al., 2009).

According to the PVA conducted for this planning effort, increased frequency of a disease epidemic[14] in the model had the greatest impact on moderate sized populations (50-250) with no or low removal levels. Smaller populations and/or those with moderate-high removal rates show poor viability under all conditions tested, and large populations persist as long as removal rates are low (albeit they may decline significantly in size). The future of moderate sized populations is more uncertain; thus, additional factors that affect viability such as increased disease risk can influence viability. It should be noted that disease epidemics were modeled as short-term (one year) events; epidemics that last longer than one year and/or that have greater impacts on survival and/or reproduction than those modeled (e.g., SIV) may have more measurable effects on population

[13] It should be noted that while disease in two of the ecosystems was given a low rank, this could be potentially because of a lack information/studies on disease in those areas. The process for ranking threats is based on the best available information, but should be approached as an iterative process and as more information becomes available, absolute and relative rankings may change.

[14] defined as > 20% of population dying in a given region due to the same disease outbreak within one year.

viability (Keele 2009). These findings are generally consistent with those of previous chimpanzee PVAs for Gombe (Earnhardt *et al*. 2005) and Uganda (Edroma *et al.* 1997). (See Appendix 5 for full PVA results).

The situation analysis, which can be found in Appendix 13.E., shows that disease can reach chimpanzees through multiple vectors. These include humans, especially when contact is close, but can also include livestock and wild animals as "host" or "intermediate host"and disease reservoirs. The immediate causes that contribute to disease are pathogens introduced by humans, change in food availability and diet which reduces the ability of chimpanzees to ward off infections, and alterations in the natural pathogen balance and potential increases in pathogen transmission from other wild animals to chimpanzees as competition for habitat increases. The team identified the following "critical intervention points" to focus on:

- Unhygienic human practices: Chimpanzees that have been habituated for research or tourism both within and outside of protected areas run a greater risk of being exposed to pathogens that are spread by unhygienic practices (such as spitting, defecating and not burying it, caughing/sneezing, refuse disposal).
- The following opportunities can help: IUCN best practice guidelines that exist for tourism, disease control guidelines, which are currently being developed, and existing national tourist guidelines.

If population growth and climate change accelerate habitat loss and competition for natural resources is increased, chimpanzees will most likely experience changes in their activity budgets and ranging patterns, which could increase inter-ape encounters. Higher encounter rates are likely to raise competition for mates and food, contribute to higher pathogen dispersal, and increase intra-specific aggression (Wrangham et al., 2006; Pusey et al., 2007 cited in Hockings & Humle, 2007). In addition, if chimpanzee habitat is further reduced, more frequent close contact due to increasing human populations, or even tourists, guides, and park personnel may increase the risk of transmitting contagious diseases to chimpanzees which could have fatal effects in the case of an epidemic.

The team identified the following threat-abatement objective to address disease:

- ***By 2020, no "epidemic" due to preventable infectious disease occurs (epidemic defined as > 20% of population dying in a given region due to the same disease outbreak within one year).***

The expected results that led to the objective above are laid in Appendix 15.E. The following four strategies were identified to achieve this objective. High-level national strategies are marked in bold:

- ***Endorsement and adoption of disease control and tourism guidelines***
- ***Awareness and environmental education***
- *Regulation of chimpanzee habituation outside protected areas*
- *Effective collaboration between health and environmental authorities*
- The following opportunities can help: IUCN best practice guidelines exist for tourism, and disease control guidelines are currently being developed, in addition national tourist guidelines exist.

HIGH-LEVEL NATIONAL STRATEGIES FOR CHIMPANZEE CONSERVATION:

After general lines of action had been identified for each critical threat, in a plenary discussion workshop participants identified a limited set of overarching themes that, collectively, could have the greatest positive impact on chimpanzee conservation in Tanzania.

Criteria used to identify these high-level national strategies included the following:

- the extent to which a strategy could address multiple threats
- issues that if addressed at a national scale could significantly contribute to chimpanzee well-being across their natural range (within and outside of protected areas)
- issues that can be promoted by members of the planning team (generally meaning organisations from the natural resource sector)

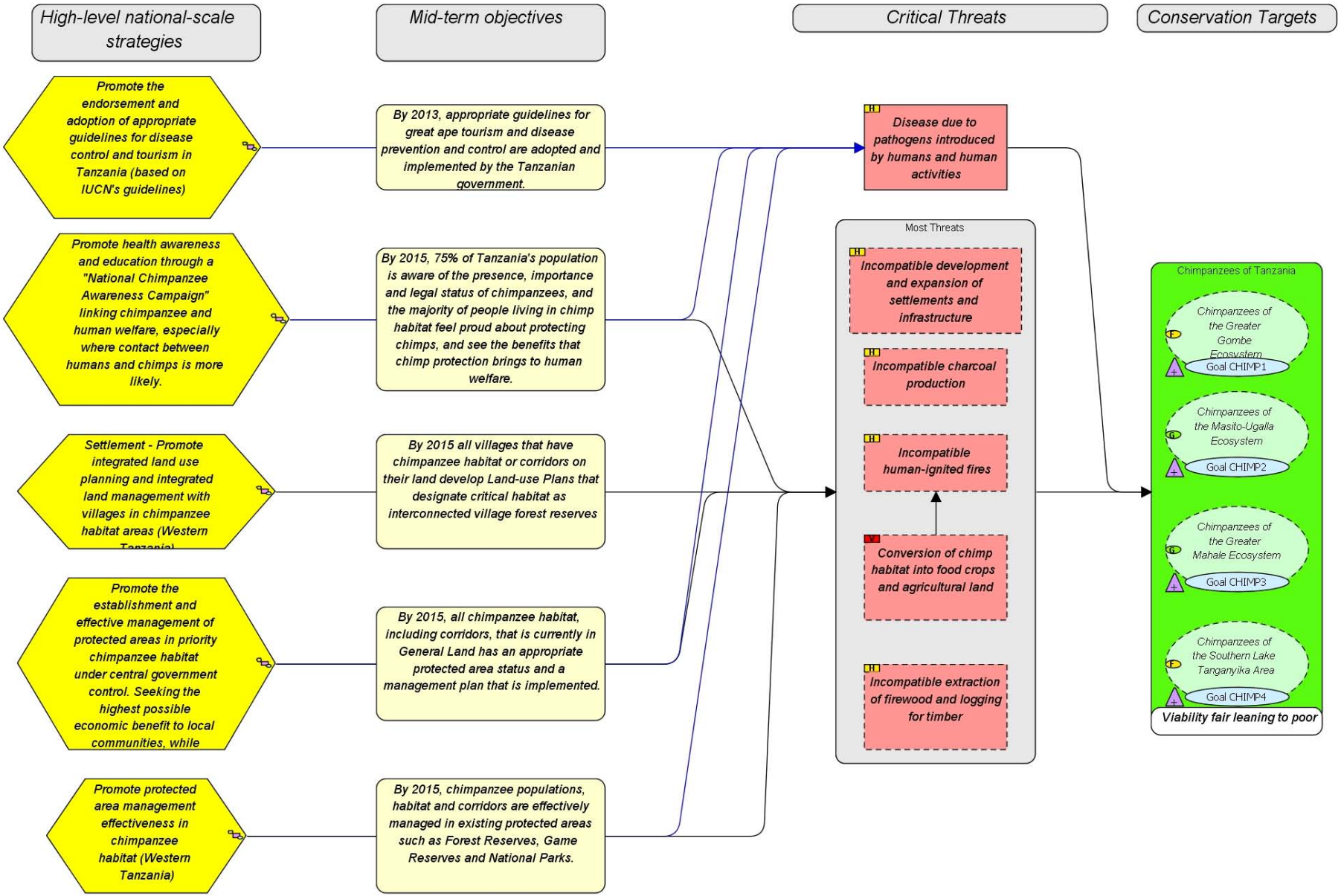
Below are the general lines of action that had been proposed during the previous exercise, in which results chains were constructed to abate critical threats. The table shows only the five strategies that were selected by workshop participants as those deserving a high-level national focus. A similar table, which shows the remaining general lines of action proposed in the threats analysis exercise, that were not selected as high-level national strategies, can be found in Appendix 17.

Table 6. High-level National Strategies and threats for which they had been originally proposed

Strategies proposed to address threats / Critical threats that will be addressed	Conversion of chimp habitat into food crops and agricultural land	Incompatible extraction of firewood and logging for timber	Incompatible development and expansion of settlements and infrastructure	Incompatible human-ignited fire	Incompatible charcoal production	Disease due to pathogens introduced by humans and human activities
	Very High	High	High	High	High	High
Awareness and environmental education	✓			✓		✓
Integrated land-use planning with villages	✓	✓	✓	✓	✓	
Protect central government land			✓	✓		
Endorsement and adoption of disease control and tourism guidelines						✓
Establishment and effective management of protected areas			✓			

A total of five strategic themes were identified, and for each a mid-term objective was developed, as well as a results chain to lay out the assumptions for the strategic actions and activities that conform the proposed chimpanzee conservation plan. The conceptual model that follows, shows how the high-level national strategies and their objectives relate to critical threats and conservation targets. A similar diagram showing all threats can be found in Appendix 16.

Figure 16. Strategies, Objectives, Critical Threats and targets at a glance



DAY 3:

While much of the information in the following section was generated in previous days, during the last day of the workshop participants fleshed out objectives, strategic actions and activities for high-level national strategies. In order to identify possible leaders and collaborators, a representative from each institution was asked to write down their institution's name next to strategic actions and specific activities for which they could play a role either by leading an effort (in any colour other than black ink) or as collaborators (in black ink).

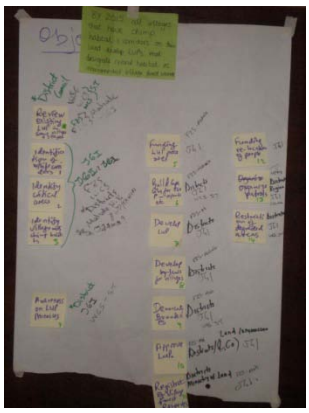


Photo 18. © Cristina Lasch / TNC (example of exercise to identify leaders and collaborators for high-priority strategic actions)

STRATEGIES, OBJECTIVES AND ACTIVITIES:

This section includes the short-, mid- and long-term objectives that need to be achieved within each of the five high-level national strategies, as well as the strategic actions, implementation leaders and collaborators, and estimated timeframe for implementation. A narrative version of the full work plan with activities can be found in Appendix 20, and a work plan for each strategy with indicators can be found in Appendices 20.A to 20.E.

In order to make significant strides towards the long-term goal for chimpanzees in Tanzania, the planning team proposed to focus collective efforts at a national scale on the following five strategies:

- ✓ Disease control and prevention through the adoption of IUCN's guidelines for disease control and tourism in Tanzania.
- ✓ A "National Chimpanzee Awareness Campaign", linking chimpanzee and human well-being.
- ✓ Integrated land use planning and integrated land management with villages in chimpanzee habitat (Western Tanzania).
- ✓ Protection and effective management of chimpanzee habitat on Government Land.
- ✓ Effective management of all protected areas within chimpanzee habitat.

While these five high-level strategies were designed to solve issues from different angles, they will need to be implemented in a well coordinated fashion in order to effectively contribute to threat abatement and to the fulfillment of the target goals and the overall project goal.

Table 7. Threat-abatement objectives and conservation target goals that will be addressed by high-level national strategies

Threat-abatement objectives related to this strategy	**Threat**	**Threat-abatement Objective**
	Incompatible human-ignited fires	**Objective - FIRE1:** By 2020, the percent of evergreen forests in which wildfires occur has been reduced to 2 percent of the total area of forests. **Objective - FIRE2:** By 2030, the percent of miombo woodland-grassland mosaic in which wildfires occur has been reduced to 20 percent of the total area of the mosaic.
	Disease due to pathogens introduced by humans and human activities	**Objective - DIS1:** By 2020, no "epidemic" due to preventable infectious disease is observed (epidemic defined as > 20% of population dying in a given region due to the same disease outbreak within one year).
	Conversion of chimp habitat into food crops and agricultural land	**Objective - CA1:** Agriculture outside designated areas is reduced to XXX, by 2015.

	Incompatible development and expansion of settlements and infrastructure	**Objective - S&ID1:** By 2015, all development of infrastructure in chimpanzee habitat is compatible with conservation of chimpanzees and environmental services, and no more than 5% of chimpanzee habitat (based on 2010 habitat extension) is converted to infrastructure. **Objective - S&ID2:** By 2015 all villages who have completed LUPs, allow no new settlements in chimpanzee habitat (for example within Village Forest Reserves)
	Incompatible charcoal production	**Objective – CHAR1:** By 2020, charcoal production has stopped in chimpanzee habitat.

Biodiversity goals related to this strategy	**Conservation Target**	**Goal**
	Chimpanzees of the Greater Gombe Ecosystem	**Goal - CHIMP1**: By 2060, a demographically viable population of at least 160 chimpanzees is established in the core conservation area of the Greater Gombe Ecosystem.
	Biodiversity target: Chimpanzees of the Masito-Ugalla Ecosystem	**Goal – CHIMP2**: By 2060, chimpanzees in the Masito Ugalla Ecosystem are stable or increasing from the 2007 population estimate.
	Biodiversity target: Chimpanzees of the Greater Mahale Ecosystem	**Goal – CHIMP3:** By 2060 there is a stable and/or increased chimpanzee population within the habitat extent and composition of 2007.
	Biodiversity target: Chimpanzees of the Southern Lake Tanganyika Area	**Goal – CHIMP4:** By 2060, have a stable or increasing (viable) population of at least 100 chimpanzees in the Southern Lake Tanganyika area.

Note: While human well-being targets were not agreed upon during the C-CAP workshop, this information is provided because it relates to human aspects that were mentioned within the result chain. These three targets, which are described more fully in Appendices 19A and 19B constitute a proposal that needs to be reviewed by planning team members.

Human well-being goals related to this strategy	**Conservation Target**	**Goal**
	Basic needs met for people conserving chimpanzee habitat	**Goal - MDG-1A&C:** By 2015, communities receive benefits from protected areas, to satisfy basic income and nourishment needs. To contribute to Millenium Development Goals, the target will be to reduce the proportion of people whose income is less than one dollar a day by half.
	Health of people living near chimpanzee habitat	**MDG-4A&6C:** By 2015, people living near chimpanzee habitat are less affected by infectious diseases (respiratory infections, diarrhoea, polio, etc.), than in 2010. This goal will contribute to MDG Target 4A:Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate; and also MDG Target 6C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.
	Environmental Sustainability in policies and programs	**Goal - MDG7A&B:** By 2015, authorities in western Tanzania have integrated the principles of sustainable development into policies and programs that reverse the loss of environmental resources and contribute to biodiversity conservation, serving as an example for the achievement of Millenium Development Goals. This Goal relates to MDG Targets 7A and 7B.

Tanzania Chimpanzee Conservation Goal

"By 2060, the ecological and cultural diversity in chimpanzees in Tanzania is conserved in viable populations across their 2010 range*, managing linkages between populations to ensure the maintenance of genetic diversity".

** range in this case refers to the larger area where chimpanzees can exist, and is not limited to current community ranges*

The order in which strategies are presented does not reflect an order of importance.

1. INTEGRATED LAND USE PLANNING AND INTEGRATED LAND MANAGEMENT WITH VILLAGES IN CHIMPANZEE HABITAT (WESTERN TANZANIA):

Chimpanzee habitat in Tanzania is managed under the following administrative land classifications: Village Land (which falls under the jurisdiction of Villages), General Land (consisting mostly of land under granted titles and urban land) and Reserve Land (which refers to protected areas under government administration) (Veit et al., 2008). Considering that approximately 80% of chimpanzees exist outside of protected areas, on Village and General Land, addressing their conservation needs outside of protected areas becomes imperative.

This strategy was designed to work with key villages to carry out integrated land use planning processes that consider important conservation areas (including wildlife corridors), as well as areas suitable for development (settlements, roads, agriculture, cattle, charcoal, etc.). It is expected that by designating interconnected forest reserves villages will foster connectivity for chimpanzees and help maintain environmental services (i.e. watershed functions). Adequate law enforcement will be key in order to achieve integrated land management. This means that for this strategy to be successful, authorities are expected to grant permissions for human development (infrastructure development, settlements, agriculture, cattle, tourism, charcoal production) only if compatible with conservation (not in conflict with ecosystem services and chimpanzees), and that sanctions are applied when activities are carried out where not allowed or when not in compliance with official regulations.

Integrated land use planning and management will enable villages to manage their natural resources more sustainably, which is important for maintaining environmental services, such as soil retention and water. By designating and managing interconnected village forest reserves, villages will be able to participate more directly in the protection of one of Tanzania's natural treasures – chimpanzees. This strategy was designed to mitigate five critical threats on priority chimpanzee habitat on Village Land, and it is expected to significantly contribute to the conservation of all four conservation targets. In addition to reversing the loss of environmental resources, people conserving chimpanzee habitat could benefit from health improvements and also increased opportunities to meet basic needs.

The results chain that shows the strategic actions and results that need to be achieved so that integrated land use planning can truly contribute to improvements for chimpanzees and human well-

being can be found in a summarised version in Appendix 15G, and in a complete version with activities in Appendix 18A.

The overarching mid-term objective for this strategy is:
By 2015 all villages that have chimpanzee habitat or corridors on their land develop Land-use Plans that designate critical habitat as interconnected village forest reserves.

The strategy is comprised of the following three strategic actions:

- ✓ Promote integrated land use planning and integrated land management with villages in chimpanzee habitat areas (Western Tanzania) – *main strategic action*
- ✓ Strengthen capacities of community based conservation organisations – *complementary strategic action*
- ✓ Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely. – *complementary strategic action*

Work plan for National C-CAP Strategy on Integrated land use planning and integrated land management with villages in chimpanzee habitat (Western Tanzania):

Below we present the overaching objective and strategic actions to implement this strategy. A more complete workplan for this strategy, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20A.

Integrated Land Use Planning Objective

By 2015 all villages that have chimpanzee habitat or corridors on their land develop Land-use Plans that designate critical habitat as interconnected village forest reserves.

Strategic Action: ILUP 1. Promote integrated land use planning and integrated land management with villages in chimpanzee habitat areas (Western Tanzania)
Who: DC, FZS, WCS, Mahale N.P., TAWIRI, JGI, TNC, MOL
When: FY10-FY15

Strategic Action: COM - EMP 1. Strengthen capacities of community based conservation organisations
Who: DC, FZS, WCS, JGI
When: FY11-FY15

Strategic Action: NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.
Who: FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.
When: FY10-FY15

2. PROTECTION AND EFFECTIVE MANAGEMENT OF CHIMPANZEE HABITAT ON GOVERNMENT LAND:

As mentioned before, General Land (consisting mostly of land under granted titles and urban land), is one of the three prevailing administrative land classifications in Tanzania. The other two are Village Land (which falls under the jurisdiction of Villages) and Reserve Land (which refers to protected areas under government administration) (Veit et al., 2008). It is estimated 80% of chimpanzees live outside of protected areas, and while the previous strategy was designed to address chimpanzee protecion on Village Land, this strategy focuses on protecting chimpanzees on General Land.

This strategy includes analysing land tenure and leasing permits (which are granted for periods of up to 99 years), in addition to chimpanzee conservation status to identify suitable protection approaches. For key areas identified for protection it considers carrying out economic assessments in order to determine which protected area status would provide the most economic benefits to local communities while conserving chimpanzee populations. This would then allow for the protection of critical chimpanzee habitat on General Land, in close coordination with local stakeholders.

Considering that chimpanzees are very vulnerable outside of protected areas, their protection and effective management on General Land will address an issue that is urgent and crucial for the survival of chimpanzees in Tanzania. By seeking the highest possible economic benefit to local communities, while conserving chimpanzee populations, this strategy also addresses human well-being. It will enable local communities to participate in chimpanzee protection, while reversing the loss of environmental resources and maintaining services such as water and soil retention, and is also expected to contribute to health improvements and increase opportunities to meet basic needs.

This strategy was designed to mitigate five critical threats on priority chimpanzee habitat on General Land, and it is expected to significantly contribute to the conservation of all four conservation targets.

The results chain that shows the strategic actions and results that need to be achieved so that integrated land use planning can truly contribute to improvements for chimpanzees and human wellbeing, can be found in a summarised version in Appendix 15F, and in a complete version with activities in Appendix 18B.

The overarching mid-term objective for this strategy is:
By 2015, all chimpanzee habitat, including corridors, that is currently in General Land has an appropriate protected area status and a management plan that is implemented.

The strategy is comprised of the following two strategic actions:

- ✓ Promote the establishment and effective management of protected areas in priority chimpanzee habitat under central government control. Seeking the highest possible economic benefit to local communities, while conserving chimpanzee populations. – *main strategic action*

- ✓ Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania) – *complementary strategic action*

Work plan for National C-CAP Strategy on Protection and effective management of chimpanzee habitat on Government Land.

Below we present the overaching objective and strategic actions to implement this strategy. A more complete workplan for this strategy, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20B.

General Land Protection Objective

By 2015, all chimpanzee habitat, including corridors, that is currently in General Land has an appropriate protected area status and a management plan that is implemented.

Strategic Action: PA - GL 1. Promote the establishment and effective management of protected areas in priority chimpanzee habitat under central government control. Seeking the highest possible economic benefit to local communities, while conserving chimpanzee populations.
Who: TANAPA, TAWIRI, FBD, FZS, WCS, JGI, TNC, WD, UPP, DC
When: FY10-FY15

Strategic Action: PA - ME 1. Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania)
Who: WD,TANAPA, DC, FBD, TAWIRI, FZS, WCS, USFS, JGI, TNC
When: FY10-FY15

3. EFFECTIVE MANAGEMENT OF ALL PROTECTED AREAS WITHIN CHIMPANZEE HABITAT:

As a signatory to the International Convention on Biodiversity (ratified in 1996), Tanzania has declared its commitment to conserving its biodiversity and particularly threatened species. Countries who signed this convention have pledged to contribute to the conservation of biological diversity, and to promote a sustainable use of its components and the fair and equitable sharing of the benefits arising from the utilisation of genetic resources (United Republic of Tanzania, 2006).

With the enactment and operationalization of the Environmental Management Act of 2004, the government of Tanzania sent out a clear sign of commitment to make progress towards the Convention on Biodiversity (TANAPA, 2009). The Act addresses the "declaration of environmental protected areas; environmental protection plan and ecosystem management plan for environmental protected areas; Prohibition of human activities in certain areas; Protection of mountains, hills and landscapes; Management of forest resources; promotion of conservation of fisheries and wildlife resources; Conservation of biological diversity (in-situ and ex-situ); and Regulation for the development, handling, and use of genetically modified organisms and their products". (United Republic of Tanzania, 2006).

Also in 2004, at the seventh CBD Conference of the Parties, 188 member countries agreed on a Programme of Work on Protected Areas (PoWPA), one of the most ambitious global environmental strategies in history. To help conserve biodiversity worlwide, the Programme aims to establish "comprehensive, effectively managed and ecologically-representative national systems of protected areas", by 2010 (for terrestrial ecosystems) and 2012 (for marine). According to Dudley et al. (2005), the Programme's four elements, can be divided into the following nine themes:

> ***PoWPA element 1***: Direct actions for planning, selecting, establishing, strengthening, and managing, protected area systems and sites by:
> - building protected area networks and the ecosystem approach;
> - site-based protected area planning and management; and
> - addressing threats to protected areas.
>
> ***PoWPA element 2:*** Governance, participation, equity and benefit sharing by:
> - improving the social benefits of protected areas.
>
> ***PoWPA element 3:*** Enabling activities, such as:
> - creating an enabling policy environment;
> - capacity building; and
> - ensuring financial stability.
>
> ***PoWPA element 4:*** Standards, assessment, and monitoring, including:
> - developing management standards and effective management; and
> - using science.

Tanzania recognises Protected Areas as an important tool for protecting the country's biodiversity values, and has made significant strides towards achieving goals laid out in the Programme of Work on Protected Areas. As of 2009, Tanzania's Protected Area system was among Africa's largest, consisting of over 650 sites, which covered over 25% of the country's territory. The following categories of protected areas exist in Tanzania (in declining order of conservation standing): National Parks, Forest Nature Reserves, Game Reserves, Forest Reserves, the Ngorongoro Conservation Area and Wildlife Management Areas. In addition to these, which are within the national PA system, other

types of protected areas exist to promote sustainable natural resource use, primarily on Village Land - Wildlife Management Areas, Village Land Forest Reserves and Game Controlled Areas. (TANAPA, 2009).

While a comprehensive protected area GAP analysis has not been completed in Tanzania, by addressing protected area gaps in critical chimpanzee habitat within a wider landscape perspective, this strategy could make a significant contribution towards the PoWPA. The country has already completed a capacity needs assessment for Protected Areas, and this strategy can contribute to address some identified priorities in protected areas within chimpanzee habitat.

This strategy can build on existing opportunities such as strong official support to consider community participation in protected area management and the country's legislative framework, which ensures the equitable sharing of costs and benefits arising from the establishment and management of protected areas. (TNC, 2009).

A recent analysis that reviewed the implementation of the Programme of Work on Protected Areas for selected African countries revealed that the quality and revision frequency of management plans varies significantly. In part this is because no management plan standards exist, and because in addition to being generated by consultants whose quality varies, they tend to follow different methodologies (TNC, 2009). Often when management plans are externally-driven, they exclude those whom the plan will most impact – the site managers and local communities (The Nature Conservancy, 2009. By empowering protected area managers to develop their own management plans themselves, this strategy intends to increase local community involvement, implementation of management plans, and overall management effectiveness.

Management effectiveness, which is at the core of this strategy, is defined by the World Commission on Protected Areas (WCPA) as how well the protected area is being managed – primarily the extent to which it is protecting values and achieving goals and objectives. The term *management effectiveness* reflects three main themes:

- design issues relating to both individual sites and protected area systems;
- adequacy and appropriateness of management systems and processes; and
- delivery of protected area objectives including conservation of values.

(Hockings et al. 2006).

In regards to management effectiveness, Tanzania has used the Management Effectiveness Tracking Tool (METT) for most of its protected areas, to help track progress towards worldwide protected area management effectiveness (TNC, 2009).

This strategy includes developing a transparent, participatory planning process that considers natural resource extraction options within reserves that would not interfere with chimpanzee wellbeing. It also includes the establishment of alliances for specific tasks to contribute to management plan implementation, sharing information and holding meetings to address relevant issues.

The results chain that shows the strategic actions and results that need to be achieved so that protected area management effectiveness can contribute to chimpanzees and human wellbeing,

shows that this strategy can make significant contributions to Tanzania's commitments within the PoWPA. This strategy's results chain can be found in a summarised version in Appendix 15H, and in a complete version with activities in Appendix 18C.

The overarching mid-term objective for this strategy is:
By 2015, chimpanzee populations, habitat and corridors are effectively managed in existing protected areas such as Forest Reserves, Game Reserves and National Parks.

The strategy is comprised of the following two strategic actions:

- ✓ Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania) – *main strategic action*
- ✓ Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely. – *complementary strategic action*
- ✓ Support alternative and compatible income generating activities. –*complementary strategic action*

Work plan for National C-CAP Strategy on Effective management of all protected areas within chimpanzee habitat:

Below we present the overaching objective and strategic actions to implement this strategy. A more complete workplan for this strategy, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20C.

Protected Area Management Effectiveness

By 2015, chimpanzee populations, habitat and corridors are effectively managed in existing protected areas such as Forest Reserves, Game Reserves and National Parks.

Strategic Action: PA - ME 1. Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania)
Who: WD,TANAPA, DC, FBD, TAWIRI, FZS, WCS, USFS, JGI, TNC
When: FY10-FY15

Strategic Action: NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.
Who: FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.
When: FY10-FY15

Strategic Action: ACI 1. Support alternative and compatible income generating activities..
Who:. TAWIRI, FZS, JGI, TNC
When: FY10-FY15

4. NATIONAL CHIMPANZEE AWARENESS CAMPAIGN - LINKING CHIMPANZEE AND HUMAN WELL-BEING

While chimpanzees represent a unique endowment of the people of Tanzania, there appears to be little awareness among the general public about the importance of chimpanzees, their problems, and most importantly, the intricate relationship that exists between human and chimpanzee wellbeing.

This strategy is conceived as an important, yet complementary strategy, which has been designed to raise awareness about chimpanzee and human well-being, primarily among people living close to chimpanzee habitat, but reaching the wider public as well.

To provide supplementary support to other high-level national strategies, this strategy incorporates key issues identified throughout the CAP process, for which awareness-raising is critical, such as:

- increase awareness about environmental degradation and its effects on human well-being
- raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land
- help community members become more aware about the risk of disease and about prevention techniques, to prevent infectious disease in humans and chimpanzees
- help communities increase their understanding about the negative effects of fire on natural resources including water, and the importance of controlling fires and burning early
- help community members learn about improved agriculture and alternative farming methods
- raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand

On one hand, this strategy intends to instill a sense of pride about chimpanzees and their protection in people who live in chimpanzee habitat, but on the other hand, it also intends to increase awareness about the effects of environmental degradation and how specific practices can be improved to become more sustainable.

In 1968 the Senegalese environmentalist, Baba Dioum, during a speech to the general assembly of the IUCN, expressed very accurately and elegantly how environmental awareness relates to conservation.

> *"In the end we will conserve only what we love. We love only what we understand. We will understand only what we are taught."* (Rodes & Odell, 1997).

This strategy recognises that lasting conservation results depend in large part on the three pillars of this famous phrase – love, understanding and education. Because humans tend to protect what is close to our emotions, this strategy intends to address one of the key components for lasting conservation by instilling a sense of pride for conserving chimpanzees. The second ingredient, understanding, implies on one hand a willingness to expand one's own perspective, but also the means to provide new information by observation, example or communication. In this sense, the demonstration of tangible benefits received by humans as chimpanzees are conserved, will be key. And lastly, the third ingredient, education, is embedded in this strategy as the main vehicle to reach

understanding and love in community members, National leaders and the wider public, to improve welfare conditions for chimpanzees and humans in Tanzania.

The planning team believes that the 50th anniversary of Dr. Goodall and the Jane Goodall Institute in chimpanzee research in Tanzania, provides an opportunity to develop a campaign for chimpanzee conservation around this special celebration, to build national pride in chimpanzees by promoting chimpanzee health relevance to human health.

This strategy presents another opportunity to join forces between the environmental and the health sectors to rally support to help sponsor community health interventions in priority areas, to contribute to human and chimpanzee health. This could have an important impact on addressing Millennium Development Goals (MDGs) in the region by focusing on human health aspects such as vaccinations, clean water, sanitation [VIP (ventilation improved) latrines], hygiene (spitting, sneezing, etc.). Ongoing efforts to contribute to family planning also relate to this strategy, since family planning also contributes to reducing infectious disease risk by reducing household and village size and crowding conditions.

The overaching objective for this strategy is:
By 2015, 75% of Tanzania's population is aware of the presence, importance and legal status of chimpanzees, and the majority of people living in chimp habitat feel proud about protecting chimps, and see the benefits that chimp protection brings to human well-being.

The strategy is comprised of the following strategic action:

- ✓ Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely. – *main and only strategic action*

Work plan for National C-CAP Strategy on a National Chimpanzee Awareness Campaign - linking chimpanzee and human well-being:

Below we present the overaching objective and corresponding strategic action to implement this strategy. A more complete workplan for this strategy, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20D.

National Chimpanzee Awareness Campaigns

By 2015, 75% of Tanzania's population is aware of the presence, importance and legal status of chimpanzees, and the majority of people living in chimp habitat feel proud about protecting chimps, and see the benefits that chimp protection brings to human well-being.

Strategic Action: NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.
Who: FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.
When: FY10-FY15

5. DISEASE CONTROL AND PREVENTION THROUGH THE ADOPTION OF IUCN'S GUIDELINES FOR DISEASE CONTROL AND TOURISM IN TANZANIA.

As described in the threats assessment section, due to the close genetic similarities that exist between humans and chimpanzees, we share relevant health concerns. Some of the infectious diseases that humans share with chimpanzees include the common cold, influenza, chicken pox, paralytic poliomyelitis, tuberculosis, and pneumonia (among others) (Butynski, 2001). While this threat focuses primarily on human diseases which are transmitted to chimpanzees, it should be mentioned that as contact increases between humans and chimpanzees, zoonotic diseases such as Ebola, a deadly hemorrhagic fever, can become more troublesome for both human and ape populations (Cawthon Lang, 2006).

Since 1966, multiple epidemics have been registered in the region, with considerable effects on chimpanzee populations. In addition, the PVA conducted for this planning effort, pointed out that increased frequency of a disease epidemic and increased disease risk could be especially problematic for the viability of moderate-sized and small populations.

This threat-abatement strategy was proposed because of the disastrous effects that an epidemic could produce on chimpanzee populations in Tanzania, even if all other high-level national strategies were successfully implemented. This strategy builds on key intervention points that were identified in the conceptual diagram, to reduce the susceptibility of chimpanzees to catch infectious diseases transmitted by human activities by making use of the opportunity of guidance documents for tourism and disease control.

By promoting the adoption and promotion of appropriate guidelines for disease control and tourism, this strategy intends to reach tour operators, trackers, tourists, researchers, film crews, park staff, community members, etc., to improve health and hygiene practices in chimpanzee habitat, both inside and outside of protected areas. To better protect chimpanzees outside of protected areas, this strategy intends to promote the regulation of chimp habituation practices, by expecting people who habituate chimps to adhere to appropriate guidelines. This strategy also incorporates strategic alliances between the health and environmental sectors, to work in close collaboration to address joint human and chimpanzee health risks through preventive and corrective actions. The previous strategy, on health awareness and education, provides important complementary support to this strategy as well.

The planning team recognises that the Ministry of Health has worked hard to address health issues in the country, and that it represents one of the leading examples in Africa. However, in our highly connected world, infections continue to be introduced and spread, and this strategy could prevent the further spread of infectious diseases and thereby prevent an epidemic in chimpanzee populations. In this sense, this strategy could also significantly contribute to Millennium

Development Goals (MDGs) by focusing on human health aspects such as vaccinations, clean water, sanitation [VIP (ventilation improved) latrines], hygiene (spitting, sneezing, etc.), and family planning support, in a joint effort between environmental and health institutions. An important way to join forces would be to strengthen capacity for diagnostics, data collection and analysis on chimp and human health key stakeholders.

The overaching objective for this strategy is:

By 2013, appropriate guidelines for great ape tourism and disease prevention and control are adopted and implemented by the Tanzanian government.

The strategy is comprised of the following strategic actions:

- ✓ Promote the endorsement and adoption of appropriate guidelines for disease control and tourism in Tanzania (based on IUCN's guidelines) – *main strategic action*
- ✓ Promote the regulation of chimp habituation practices outside of protected areas . – *complementary strategic action*
- ✓ Promote the effective collaboration of the MOH, MNRT, TAWIRI, TANAPA to intensify health activities in critical areas where contact between humans and chimps is more likely. – *complementary strategic action*
- ✓ Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely. – *complementary strategic action*

Work plan for National C-CAP Strategy on Disease control and prevention through the adoption of IUCN's guidelines for disease control and tourism in Tanzania.

Below we present the overaching objective, the strategic actions and activities to implement this strategy. A more complete workplan, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20E.

Disease Control

By 2013, appropriate guidelines for great ape tourism and disease prevention and control are adopted and implemented by the Tanzanian government.

Strategic Action: DCON 1. Promote the endorsement and adoption of appropriate guidelines for disease control and tourism in Tanzania (based on IUCN's guidelines)
Who: WD,TAWIRI, TANAPA, MOH, PSG/IUCN, FZS, JGI, EARTH Inc., LPZ, UPP, GRASP, DC
When: FY10-FY15

Strategic Action: DCON 2. Promote the regulation of chimp habituation practices outside of protected areas
Who: TANAPA, TAWIRI, FZS, JGI
When: FY10-FY15

Strategic Action: DCON 3. Promote the effective collaboration of the MOH, MNRT, TAWIRI, TANAPA to intensify health activities in critical areas where contact between humans and chimps is more likely
Who: WD, TANAPA, TAWIRI, MOH, JGI, EARTH Inc.
When: FY11-FY15

Strategic Action: NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.
Who: FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.
When: FY10-FY15

MEASURES TO EVALUATE STRATEGY EFFECTIVENESS AND TO ASSESS THE STATUS OF CRITICAL THREATS AND CONSERVATION TARGETS:

In order to make "adaptive management" a reality, the CAP process promotes the full integration between conservation planning, taking action, and measuring results.

Measuring the results of a project's conservation work is a highly important component of the CAP process. Good measures allow project teams to determine whether progress is being made relative to the desired results, enables the teams to assess the effectiveness of management actions, and provides information to adapt the conservation action plan to get better results. In addition, good measures, coupled with reporting on results, can enhance relationships with collaborators. A good measures system can increase a project's accountability, credibility and transparency and help build stronger relationships with donors who are increasingly looking for evidence of a return on their investment. And finally, good measures contribute to collective learning in the conservation field, since they increase our understanding of what strategies work well under specific circumstances, which can inform decisions for future investments both locally and beyond the project.

In order to measure results, it is important to first define what questions we want to answer. Most projects answer the following two questions to measure results:

- **Strategy effectiveness** - ***Are the conservation actions we are taking achieving their desired results?*** and
- **Status assessments** - ***How is the general status of the project changing?***

Terms at a glance 16. Strategy Effectiveness

Answering the question: "Are the conservation actions we are taking achieving their desired results?"

Strategy effectiveness measures are designed to tell us if our actions are leading to their intended results. Conservation projects ultimately expect positive results in the biodiversity we care about, but the approach to achieving those results sometimes has a direct link to the conservation target, but other times affects biodiversity indirectly by focusing on indirect threats. It is recommended to consider measuring indicators at multiple stages of a causal chain, to better assess whether the strategies are working, and in order to determine if and when adjustments are necessary. See Appendix 14 for questions that relate to measures within a results chain.

Terms at a glance 17. Status Assessment

Answering the questions: "How is the biodiversity we care about doing?", "How are threats to biodiversity changing?", or "How is the conservation management status changing?" Answers to these questions, even when no actions are occurring, are important to determine if actions are needed.

Status measures refer to indicators that enable a team to do a "periodic check-up" on some key ecological attributes that are thought to be within acceptable conditions or for threats which were not considered critical enough to require immediate attention. Status assessment needs can be addressed with data provided by someone else, or with less intensive or less frequent measurements. In addition to providing data on whether a conservation target really is within an acceptable state, status assessments can provide an

early warning for teams to act pro-actively as soon as undesirable changes are detected, instead of having to act reactively once things are out of control.

The challenge for project teams lies in finding the right balance between dividing limited resources between taking action, measuring the effectiveness of actions being taken, and measuring the status of biodiversity to determine if new actions are needed. While no easy solution exists for these decisions, some ideas can be found in a document produced by Dan Salzer and Nick Salasfky[15].

Terms at a glance 18. Indicators

Measurable entities related to a specific information need (for example, the status of a key ecological attribute, change in a threat, or progress towards an objective). A good indicator meets the criteria of being: measurable, precise, consistent, and sensitive.

Ideally, the indicators that will be collect and the methods that will be use to measure the indicators should be compiled in a monitoring plan. The monitoring plan should identify priority indicators, and should include basic information to facilitate the collection and analysis of the all measures as a group.

Terms at a glance 19. Methods

Specific techniques used to collect data to measure an indicator. Methods vary in their accuracy and reliability, cost-effectiveness, feasibility, and appropriateness.

It is recommended that a plan for measuring results include the following for each priority indicator:

- When (timeframe & frequency of data collection)
- Where (location of data collection)
- Who (people responsible for data collection, data management, and analysis)
- Cost (of monitoring the indicator)
- Funding source
- Current indicator status (measurement value and date)
- Complete monitoring plan (reference and date)
- Summary report (reference and date)
- Implementation status

While a set of indicators were proposed during the workshop, due to time limitations it was not possible to select priorities, identify methods, or establish the methods and details mentioned above within a measures plan. This work will need to be completed by members of the planning team.

Below we present a table with indicators that were identified during the viability analysis; from these the team can select some priorities to evaluate target health in the mid- and long-term.

Table 8. Biodiversity Target goals and indicators:

Conservation Target	Goal	Viability or impact indicators
Chimpanzees of	**Goal - CHIMP1:** By 2060, a	• New females observed in either the Zashe or

[15] **The document can be downloaded here:** http://conserveonline.org/workspaces/cbdgateway/cap/practices/supportmaterials/bp7sm/Effectiveness_Measures_Salzer_Salafsky_NAJ_2006.pdf/download

the Greater Gombe Ecosystem	demographically viable population of at least 160 chimpanzees is established in the core conservation area of the Greater Gombe Ecosystem.	Mitumba chimpanzee community (presumed to have used the rift landscape) • Number of females of reproductive age who transfer across the Kwitanga corridor • Number of sub-populations rated "Good" or "Very Good" • Total number of chimps in metapopulation • Total number of chimps within Mitumba community • Total number of chimps within Kasekela community • Total number of chimps within Kalande community • Total number of chimps within Kwitanga community • Total number of chimps within Zasha community • Number of reproducing females for the metapopulation • Number of adult males Mitumba • Number of reproducing females Mitumba • Number of adult males Kasekela • Number of reproducing females Kasekela • Number of adult males Kalande • Number of reproducing females Kalande • Number of adult males Kwitanga • Number of reproducing females Kwitanga • Number of adult males Zashe • Number of reproducing females Zashe • Range size (in hectares) for chimp metapopulation • Evergreen forest per community (in hectares) in Mitumba chimp community • Range size (in hectares) in Mitumba chimp community • Evergreen forest per community (in hectares) in Kasekela chimp community • Range size (in hectares) in Kasekela chimp community • Evergreen forest per community (in hectares) in Kalande chimp community • Range size (in hectares) in Kalande chimp community • Evergreen forest per community (in hectares) in Kwitanga chimp community • Range size (in hectares) in Kwitanga chimp community • Evergreen forest per community (in hectares) in Zashe chimp community • Range size (in hectares) in Zashe chimp community

Biodiversity target: Chimpanzees of the Masito-Ugalla Ecosystem	**Goal – CHIMP2:** By 2060, chimpanzees in the Masito Ugalla Ecosystem are stable or increasing from the 2007 population estimate.	• Number of chimpanzees • DBH • Number of hectares of forest • Frequency of fire occurrences • Width of chimpanzee corridor • Status of forest (under protection or not)
Biodiversity target: Chimpanzees of the Greater Mahale Ecosystem	**Goal – CHIMP3:** By 2060 there is a stable and/or increased chimpanzee population within the habitat extent and composition of 2007.	• Trends in population size (per community and as a whole) • Index for rating of species availability • Population dynamics • Number of hectares of woodland/riverine forest • Number of hectares of evergreen forest • Distance between vegetation patches • Signs of usage (nests, footprints, food remains) • Proportion of subpopulations that are linked by chimp habitat
Biodiversity target: Chimpanzees of the Southern Lake Tanganyika Area	**Goal – CHIMP4:** By 2060, have a stable or increasing (viable) population of at least 100 chimpanzees in the Southern Lake Tanganyika area.	• Trends in population size • Recent chimp nest presence within corridor in North-South Mwene • Habitat loss (hectares of appropriate habitat that have been lost)

While human well-being targets were not agreed upon during the C-CAP workshop, this information is provided because it relates to human aspects which were mentioned within various result chains.

Below we present a table with a few selected indicators which are measured to evaluate progress toeards Millenium Development Goals. More detailed information about these proposed indicators and goals is provided in Appendices 19A and 19B. It should be noted that these constitute a proposal which needs to be reviewed by planning team members.

Table 9. Human well-being target goals and indicators:

Conservation Target	**Goal**	**Viability or impact indicators**
Basic needs met for people conserving chimpanzee habitat	**Goal - MDG-1A&C :** By 2015, communities receive benefits from protected areas, to satisfy basic income and nourishment needs. To contribute to Millenium Development Goals, the target will be to reduce the	• Proportion of population below $1 (PPP) per day/below national poverty line • Proportion of population below minimum level of

	proportion of people whose income is less than one dollar a day by half.	dietary energy consumption[16] • Proportion of underweight children under five years of age
Health of people living near chimpanzee habitat	**MDG-4A&6C:** By 2015, people living near chimpanzee habitat are less affected by infectious diseases potentially transmissible and of health concern to chimpanzees (respiratory infections, diarrhoea, polio, etc.), than in 2010. This goal will contribute to MDG Target 4A:Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate; and also MDG Target 6C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.	• Incidence, prevalence and death rates associated with tuberculosis • Proportion of 1 year-old children immunized against measles
Environmental Sustainability in policies and programs	**Goal - MDG7A&B:** By 2015, authorities in western Tanzania have integrated the principles of sustainable development into policies and programs which reverse the loss of environmental resources and contribute to biodiversity conservation, serving as an example for the achievement of Millenium Development Goals. This Goal relates to MDG Targets 7A and 7B.	• Proportion of land area covered by forest • Proportion of species threatened with extinction • Proportion of population vulnerable to climate change adverse impacts

Below we present a table with indicators that were identified during the planning workshop to evaluate threats.

Table 10. Threat-abatement objectives and indicators

Threat	**Threat-abatement Objective**	**Indicators**
Conversion of chimp habitat into food crops and agricultural	**Objective - CA1:** Agriculture outside designated areas is reduced to XXX, by 2015.	• Forest converted to agriculture • Yield per acre

[16] A summary describing how this is determined can be found in this link: http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/metadata/undernourishment_methodology.pdf

land		
Incompatible development and expansion of settlements and infrastructure	**Objective - S&ID1:** By 2015, all development of infrastructure in chimpanzee habitat is compatible with conservation of chimpanzees and environmental services, and no more than 5% of chimpanzee habitat (based on 2010 habitat extension) is converted to infrastructure. **Objective - S&ID2:** By 2015 all villages who have completed LUPs, allow no new settlements in chimpanzee habitat (for example within Village Forest Reserves)	• Fragmentation of chimpanzee habitat • Has. of chimpanzee habitat converted to infrastructure • Number and size of settlements established in chimpanzee habitat
Incompatible human-ignited fires	**Objective - FIRE1:** By 2020, the percent of evergreen forests in which wildfires occur has been reduced to 2 percent of the total area of forests. **Objective - FIRE2:** By 2030, the percent of miombo woodland-grassland mosaic in which wildfires occur has been reduced to 20 percent of the total area of the mosaic.	• Fire frequency and area burned using remote sensing
Incompatible charcoal production	**Objective – CHAR1:** By 2020, charcoal production has stopped in chimpanzee habitat.	• Evidence of chimp presence • Ha. of chimp habitat cleared for charcoal production
Disease due to pathogens introduced by humans and human activities	**Objective - DIS1:** By 2020, no "epidemic" due to preventable infectious disease is observed (epidemic defined as > 20% of population dying in a given region due to the same disease outbreak within one year).	• % of chimpanzee deaths due to preventable infectious diseases

In addition to these target and threat-based indicators, several other indicators were identified to evaluate strategy effectiveness throughout the results chains that were established for each high-level national strategy. The indicators that were proposed to measure each strategy can be found in Appendices 20.A-E.

It should be noted that some indicators can provide information on multiple aspects, and this, as well as other criteria such as cost and existing monitoring efforts, should be taken into consideration when indicators are prioritised to determine a more manageable list for follow-up. It is also highly recommended for planning team members to establish a standardised group of chimpanzee viability indicators and methods, so that target viability information can be compared more easily within the project scope.

CLOSING REMARKS BY MR. ERASMUS M. TARIMO, DIRECTOR OF THE WILDLIFE DIVISION OF THE MINISTRY OF NATURAL RESOURCES AND TOURISM

Before offering the closing remarks, Mr. Erasmus M. Tarimo, Director of the Wildlife Division of the Ministry of Natural Resources and Tourism, was briefed by Mr. Emil Kayega about the workshop results.

In his speech, Mr. Tarimo thanked participants for coming from so many different places to contribute to the long-term conservation of chimpanzees in Tanzania. He recounted why chimpanzees have drawn special attention, which they deserve, as one of Tanzania's protected species:

a) The number of chimpanzees in Tanzania and in other parts of Africa has been declining;
b) Chimpanzees are genetically only <1.5% different from human beings, and we share many similarities in behaviour;
c) Chimpanzees of Gombe and the Mahale Mountains National Parks have contributed greatly in making the name of Kigoma known worldwide; and
d) Since the 1960s, and to the present, the research findings of great people such as Dr. Jane Goodall, Professor Nishida and others have contributed much to a better understanding of the interrelation between man and this great ape.

Mr. Tarimo pointed out the relationship between chimpanzee and human well-being by mentioning that that the conservation of water resources and soils is crucial both for wildlife and for human kind, and that chimpanzees need diversified habitat that includes forests, woodlands and riverine forests to flourish. In addition, he mentioned that authorities are aware of the fact that most chimpanzees in Tanzania live outside of protected areas, which means that additional conservation strategies are needed.

Before closing, Mr. Tarimo thanked the institutions and participants who are collaborating in this relevant and urgent effort to protect chimpanzees in Tanzania. He also expressed the government's support for this important task and mentioned that his greatest hope is that the action plan that will be prepared as a result of this workshop will be implemented, and will receive support from the international community as a whole.

NEXT STEPS TO CONTRIBUTE TO THE COMPLETION OF A NATIONAL CHIMPANZEE CONSERVATION ACTION PLAN:

At the end of the meeting next steps were established so that this planning effort would result in an official national-scale chimpanzee conservation plan. The following recommendations were made by participants:

- Share meeting notes with workshop participants - one participant from each organisation is responsible for sending edits.
- Circulate draft C-CAP document with workshop participants for edits and review.
- Present to a forum of independent reviewers before submission to Wildlife Division.
- Draft submitted for ratification to the government.
- Develop or hire a high level coordinator and identify a coordinating body of the government.
- Use plan as a fundraising tool.

After receiving comments from workshop participants, this report and information compiled as part of the C-CAP workshop will be used to develop the 0 Draft of a National Chimpanzee Conservation Action Plan for Tanzania, which will be officially submitted to the WD-MNRT. The WD-MNRT will then review the 0 Draft internally and by consulting with other sectors/departments of the Tanzanian Government. A final draft of the plan will be developed by the WD-MNRT and shared with the workshop participants for final review. The final plan will be published by WD-MNRT in collaboration with core conservation organisations.

A diagram that shows the steps and initially estimated timeframe for completing each step can be found in Appendix 21.

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APPENDICES

APPENDIX 1. Workshop participant list

PARTICIPANT REGISTRATION FORM

Tanzania Chimpanzee Conservation Action Planning Workshop

White Sands Hotel & Resort, January 19th – 21st of 2010. Africana Road, Jangwani Beach, Dar es Salaam, Tanzania.Tel: +255 22 264 7620-6

FULL NAME	INSTITUTION	POST OR JOB TITLE	E-MAIL AND TELEPHONE
Alex Lobora	TAWIRI	SRO (Senior Research Officer)	Email: carnivores@habari.co.tz Telephone: 255 784 301 924
Alex Piel	CSD	Student, (UPP representative)	E-mail: akpiel@ucsd.edu Telephone: 255 784 607 963
Dr. Andy Plumptre	WCS	Director – Albertine Rift Programme	Email: aplumptre@wcs.org Telephone: + 256 752 509754
Brett Painter	Roots & Shoots Tanzania	International Intern	Email: brettpainter@hotmail.com Telephone: 255 716 666 939
Charles M. Masunzu	WILDLIFE DIVISION, MIN OF NATURAL RESOURCES AND TOURISM	PRINCIPAL GAME OFFICER, Ag. Assistant Director Research, Statistics & Training	Email: cmasunzu@hotmail.com Telephone: 255 754 562 045
Cristina Lasch	The Nature Conservancy - Mexico	Conservation Area Planning Program Manager	Email: clasch@TNC.ORG Telephone: 52 999 920 2003 Ext. 116
Deus Mujungu	University of Minnesota	Student (University of Minnesota, chimpanzee researchers in Gombe)	Email: cypr000@umn.edu Telephone: 255 713 254 131
Dominic Kilemo	NEMC	SEMO (Senior Environmental Management Officer)	Email: dbkilemo@yahoo.com Telephone: 255 713 249 720
Dr. Anthony Collins	JGI-TZ	Director – Research Baboon/Acting Director of Gombe Stream Research Centre	Email: acollins@janegoodall.or.tz Telephone: 255 754 773 380

FULL NAME	INSTITUTION	POST OR JOB TITLE	E-MAIL AND TELEPHONE
Dr. Jane Goodall	JGI	Founder JGI	
Dr. Shadrack Kamenya	JGI-TZ	Director of Conservation Sciences	E-mail: skamenya@janegoodall.or.tz Telephone: 255 755 762 092
Edeus Massawe	TAWIRI	PGOI	Email: edeusmassawe@yahoo.com Telepone: 255 754 391 916
Dr. Elizabeth Gray	The Nature Conservancy	Director of Science	E-mail: egray@tnc.org Telephone:206 343 4344
Emil U. Kayega	JGI-TZ/GMU / REDD	Policy Compliance Officer – GMU / REDD	Email: ekayega@janegoodall.or.tz Telephone: 255 713 460 074
Emmanuel Miti	JGI/GMU	Program Director, GMU Program	Email: emtiti@janegoodall.or.tz Telephone: 255 713 492 172
Fiona Stewart	Univ. of Cambridge	PHD Student (UPP representative)	E-mail: fas31@cam.ac.uk Telephone: 255 785 539 591
Gilbert Nsalamba	MPANDA DISTRICT COUNCIL	Ag. DNRO (Acting District Natural Resource Officer, Mpanda District)	Email: Telephone: 255 782 262 482
Gloria Nshimanyi	JGI-TZ	Administrative Assistant	Email: gnshimanyi@janegoodall.or.tz Telephone: 255 754 373 765
Godlisten Matilya	JGI-TZ	Monitoring and Evaluation Officer (M & E GMU project)	E-mail: gmatilya@janegoodall.or.tz / gjmatilya@hotmail.com Telephone: 255 784 768 422
Jovin Lwehabura	JGI-TZ	GIS Maps (GIS and Remote Sensing expert	Email: jovinn2000@yahoo.com Telephone: 255 782 234 340
Dr. Kathryn Doody	FZS – Mahale	Community Conservation Advisor / Project Leader	Email: kathryndoody@fzs.org Telephone: 255 754 423 121
Dr. Kathy Traylor-Holzer	CBSG	Senior Program Officer	Email: kathy@cbsg.org Telephone: 1 952 997 9800
Kechegwa Masumbuko	DGO Kigoma	DGO Kigoma (Representing District Natural Resource Officer)	E-mail: mbkechegwa@yahoo.co.uk Telephone: 255 713 395 870

FULL NAME	INSTITUTION	POST OR JOB TITLE	E-MAIL AND TELEPHONE
Koichiro Zamma	Great Ape Research Institute	Researcher (representing researcher community in Mahale Mts. National Park)	Email: zamma@gari.jp Telephone: 81-863-31-1319
Leonard Y. Nzilayilunde	RNRO – KIGOMA	For RNRO (Representing Regional Natural Resource Officer)	Email: Telephone: 255 786 271 843
Dr.Lilian Pintea	JGI USA	Director of Conservation Science	Email: lpintea@janegoodall.org Telephone:
Lipende Iddi	JGI – GSRC	PM Health Monitoring	Email: lipende2001@yahoo.co.uk Telephone: 255 787 619 057
Liz Williamson	PSG	SGA Coordinator	Email: eaw1@stir.ac.uk
Lynne Gaffikin	Earth, Inc.	President	EmaiL earthlg@aol.com / earthlg@gmail.com Telephone: 410 236 7447 / 650 529 9108 home
Matt Brown	TNC	Conservation Director TNC Arusha	E-mail: mbrown@tnc.org Telephone: 255 688 916 524
Mr. Erasmus M. Tarimo,	WD-MNRT	Director of the Wildlife Division of the Ministry of Natural Resources and Tourism	
Ndimuligo Sood	JGI GMU	Conservation Biologist	Email: sndimuligo@janegoodall.or.tz Telephone: 255 756 439 258
Noel Lowassari	MAHALE N.P. – TANAPA	Ag. Chief Park Warden	E-mail: nlowassari@yahoo.co.uk Telephone: 255 784 753 751
Noelia Myonga	Gombe National Park – TANAPA	Chief Park Warden	E-mail: nmyonga@hotmail.com Telephone: 255 754 461 576/ 784 877 433
Pancras Ngalason	JGI-TZ	Executive Director	Email: pngalason@janegoodall.or.tz Telephone: 255 22 767 666 101/ 22 277 5236
Robert Sassor	US Forest Service	Water Resource Biodiversity Manager	Email: rob_sassor@yahoo.com Telephone: 255 787 494 735

FULL NAME	INSTITUTION	POST OR JOB TITLE	E-MAIL AND TELEPHONE
Dr. Serge Wich	GRASP	Scientific Commission - Chair	Email: Sergewich1@yahoo.com
Dr. Shadrack Kamenya	JGI-TZ	Director of Conservation Sciences	Email: skamenya@janegoodall.or.tz Tel:255-755-762092
Dr. Taranjit Kaur	MAHALE	RESEARCHER	
Teddy Paulo	Forestry & Beekeeping Division	Forest Officer	E-mail: tpaullo@yahoo.co.uk Telephone:255 715 618090
Dr. Tim Davenport	WCS	Country Director, WCS	Email: tdavenport@wcs.org Telephone: 255 754 433 436
Willy J. Mnzavas	RAS RUKWA	RNRO Regional Natural Resource Officer (Rukwa Region)	Email: willymnzavas2005@yahoo.com Telephone: 255 784 361 946

APPENDIX 2. Workshop Agenda

Tanzania Chimpanzee Conservation Action Planning Workshop

White Sands Hotel & Resort, January 19th – 21st of 2010.
Africana Road, Jangwani Beach, Dar es Salaam, Tanzania.
Tel: +255 22 264 7620-6

Workshop objectives:

- Review and update existing information about the health of chimpanzees in Tanzania, their current and future threats, as well as opportunities, to have a shared understanding of the conservation context based upon the best available information.
- Design creative and practical solutions to guarantee the long-term survival of chimpanzees in Tanzania, by producing measurable objectives and prioritised strategic actions.
- Define roles and responsibilities and provide an opportunity to identify strategies in which multiple stakeholders can collaborate to contribute to chimpanzee well-being in Tanzania.

Workshop mechanics: During three work days participants from governmental agencies, research institutions and non-governmental organisations will work together to review and refine information, following the Conservation Action Planning (CAP) method. The meeting will include presentations about methodological concepts and existing data in plenary, followed by group work sessions to review information and design solutions.

AGENDA

Day 1 – Tuesday January 19th

(Registration, Welcoming, Introduction, Review & refinement of existing information from a regional perspective on Conservation Targets, Viability Assessment, Threats Analysis)

7:00 – 8:25	**Breakfast for people staying at hotel**
8:30-9:00 am	**Registration**
9:00-10:00 am	**Introductions & meeting objectives** – *in plenary*

- Why are we here and how will we work together?
- What will we do during the first day?

- Participant introductions

10:00-11:00 am **Opening session** – *in plenary*

- **Welcoming address by officials from the Wildlife Division of Tanzania's Ministry of Natural Resources and Tourism and the Tanzania Wildlife Research Institute** (10 min)
- **Keynote address by Dr. Jane Goodall, DBE, founder of the Jane Goodall Institute and UN Messenger of Peace** (40 min)
- Picture session (10 min)

11:00 – 11:20 am **Tea break**

11:20-11:50 am **Introduction to Conservation Action Planning –** *in plenary*

11:50-12:20 am **Project scope and Conservation targets –** *in plenary*

- Methodological concepts to understand how conservation targets are selected
- Proposed project scope and conservation targets, based on previous conservation plans

12:20 – 1:00 pm **Population Viability Analysis for Chimpanzees in Tanzania –** *in plenary*

- Presentation of results of a population simulation model conducted by the IUCN Conservation Breeding Specialist Group, based on the software program *Vortex.* This information will be available during the meeting during group work sessions.

1:00 – 2:00 pm **Lunch**

2:00 -2:15 pm **Target viability assessment –** *in plenary*

- Methodological concepts to understand how viability or health of conservation targets is assessed

2:15 -3:10 pm **Review of existing target viability information –** *in work groups*

- Review existing viability information by region, based on previous conservation plans and reports. This will be done with support from chimpanzee population viability analysis models.
- Mapping of target viability information

3:10 – 3:30 pm **Sharing results from groups –** *in plenary*

- The revised viability results and major findings will be quickly presented by each regional group

3:30 – 3:50 pm **Tea break**

3:50– 4:20 pm **Threats assessment –** *in plenary*

- Methodological concepts to understand how threats are assessed (15 min.)
- Information to bear in mind about climate change scenarios and potential effects on chimpanzee wellbeing (15 min.)

4:20 – 5:10 pm **Threats assessment continued –** *in work groups*

- Review existing threat information by region, based on previous conservation plans. This will be done with support from chimpanzee population viability analysis models.
- Mapping of location and advance of critical threats

5:10 –5:30 pm **Sharing results from groups –** *in plenary*

- The revised threat results and major findings will be quickly presented by each regional group

5:30 pm **End of 1st workshop day**

Day 2 – Wednesday January 20th

(Conceptual model, design of goals, general strategies, results chains, objectives and activities with effectiveness indicators – all within a national perspective)

7:00 – 8:25 am **Breakfast for people staying at hotel**

8:30 - 9:00 am **Review of what the second day will consist of –** *in plenary*

9:00 – 10:45 am **Construction of a *national scale* conceptual model about issues relating to chimpanzee conservation in Tanzania –** *in plenary*

- In order to design strategies for most relevant issues from a national perspective, we need to understand the context that surrounds chimpanzee wellbeing at the appropriate scale. Building upon existing information from our regional analyses we will construct a shared vision of the situation that chimpanzees face from a national perspective, so that we can later design significant strategies. We will address the following questions:
  - *What is the focus of our conservation efforts? -* ***conservation targets***
  - *What is the current conservation status of our targets? –* ***current target viability***
  - *What is the desired state for our conservation target, how will we know we achieved it and by when should it be achieved? –* ***target goals, based on desired viability***

- *Which are the direct threats affecting our conservation targets and how important are they?* ***– threats***
- *Which are the most relevant factors (specific practices, stakeholders, incentives & motivations) contributing to critical threats? –* ***negative contributing factors***
- *Are there any relevant opportunities (specific practices, stakeholders, incentives & motivations) which contribute to a solution? –* ***positive contributing factors***
- *Which are key intervention points where we should focus our attention on to contribute to a significant change in the overall situation? –* ***key intervention points***
- *Are there any important areas of uncertainty in our conceptual model? –* ***information gaps & research needs***
- Which are the general lines of action (broad course of action or high-level strategic themes) we think will significantly contribute to chimpanzee well-being at a national scale? – ***proposed strategies***

10:45 – 11:15 **Prioritisation of proposed strategic themes –** *in plenary*

- After identifying the general lines of action in the conceptual diagram in the previous exercise, we will evaluate these proposed strategic themes to determine their effectiveness potential by considering their potential impact and feasibility.

11:15 – 11:30 **Tea break**

11:30 – 12:30 **Construction of result chains for strategies with high effectiveness potential (objectives, effectiveness indicators and activities) –** *in plenary*

- We will learn about the methodological concepts for completing a results chain. This planning tool can be used to test our assumptions about what we think will happen if we decide to focus on a given strategy, and provides a graphic representation of our "management hypothesis". We will address the following questions:
  - *If we apply the selected strategy, which will be the short-, mid- and long-term results -* ***intermediate results****, that will lead to our established* ***conservation target goal****?*
  - *For intermediate results that help us answer one of the following questions, we will identify an* ***objective*** *and an* ***indicator****:*
    - *Where in the chain can we see the direct results of our efforts?*
    - *Where in the chain can we tell if what we did produced the expected effect on a contributing factor?*
    - *Where in the chain can we tell if the threat is reduced? (consider scale and pervasiveness)*
    - *Where in the chain can we tell how much the particular strategy contributed to the overall target goal?*
  - When designing ***objectives*** we will consider: *What result or what change needs to occur to have a significant positive impact on chimpanzee wellbeing (how much is enough or necessary -* ***indicator****), and by when should it be achieved?*
  - For proposed indicators we will track if any measures are currently being monitored by someone in Tanzania, as input for the monitoring plan.

- When we consider that our results chain has the most relevant information, we will decide where we need to act in the short (next year) and mid-term (next 2-3 years), and will propose a limited number of steps we need to undertake – **activities.**
- When designing activities it can be useful to consider these questions:
  - *When should each activity take place?*
  - *Who will be responsible for leading each activity?*
  - *Where should the activity take place?*
  - *What costs should we budget for, considering results at the appropriate scale?*
  - *Do we have any identified or potential funding sources?*

12:30 am – 1:00 pm **Group work to construct a results chain for one strategy –** *in work groups*

- Each group will work on a different strategy, but teams will rotate after a given time, so that all participants can provide input to enrich all strategies

1:00 – 2:00 pm **Lunch**

2:00 – 4:00 pm **Continuation of group work to construct results chains for priority strategies –** *in work groups*

- Teams will rotate, so that all participants can provide input to enrich all strategies

4:00 – 4:20 **Tea break**

4:20 – 5:20 pm **Final peer review of completed results chains –** *in plenary*

5:20 – 5:30 pm **Recap of preliminary results and end of 2nd workshop day**

Day 3 – Thursday January 21st

(Results chains, objectives and activities with effectiveness indicators)

7:00 – 8:25 am	**Breakfast for people staying at hotel**
8:30 - 9:00 am	**Review of what the second day will consist of –** *in plenary*
9:00 – 10:30 am	**Putting the pieces together to achieve national-scale chimpanzee conservation** • We will review our collective solutions to see if "the sum of the pieces gets us to our established goals", to determine if a complementary approach is necessary to guarantee chimpanzee wellbeing. • We will also determine if further strategy prioritisation is necessary.
10:30 –10:50	**Tea break**
10:50 am – 1:00 pm	**Roles and responsibilities to contribute to national-scale chimpanzee conservation strategies –** *in plenary* • For priority strategies we will identify where our institutions are interested in collaborating, to further identify roles and responsibilities.
1:00 – 2:00 pm	**Lunch**
2:00 – 3:00 pm	**What needs to be done to make the C-CAP useful as a national document? –** *in plenary*
3:00 – 4:00 pm	**Identification of key contacts for monitoring efforts –** *in plenary*
4:00 – 4:15 pm	**Tea break**
4:15 – 5:15 pm	**Collaboration for project follow-up, implementation, monitoring & adaptation –** *in plenary* • How can we collaborate more effectively to better contribute to chimpanzee wellbeing in Tanzania? • Next steps
5:15 – 5:25 pm	**Workshop evaluation and group picture**
5:25 – 5:30 pm	**Closing remarks - Mr. Erasmus M. Tarimo, Director of the Wildlife Division of Tanzania's Ministry of Natural Resources and Tourism**

APPENDIX 3. Participant expectations

A. From the meeting:

Knowledge & learning:

- Better understand progress towards protecting chimp populations
- Learn from what has not worked from previous CAPs
- Figure out the needs of chimps
- Better and clearer understanding of the state of chimps
- Recognise chimps beyond National Parks and know what to do for chimps outside of Protected Areas
- Figure out how to connect chimps (avoid isolation) within a long-term view (corridor protection)
- Better understand CAP

Collaboration:

- Government support to take this plan forward
- Collaboration for highest priority strategies
- Contacts for chimp conservation
- Network to follow up and support
- Get to know who is doing work - Network

Products:

- Concrete plan on how to implement things
- Applicable action plans to protect chimps in their habitat
- Clearly defined roles by involved parties to reach common end goals
- Workable solutions
- Concrete, measurable objectives
- Concrete actions to be implemented
- Actions and research
- Comprehensive, strategic document to guide chimp conservation
- Practical plan for balancing human and chimp needs
- Strategies to provide political, social, technical support
- Product that represents our interests and ownership
- Good chimp monitoring plan
- Recommendations for Mahale
- Model process for other species

Qualities:

- Creativity and urgency
- Think differently
- Optimism

B. As a result of the Conservation Action Plan:

- Stronger partnerships and commitment to work together
- Leverage funding for chimp protection
- Good relationship between chimps and local communities
- Community involvement in the plan
- Generations to come to enjoy chimps
- Sustainable management for chimps in Mahale and Gombe
- Improve habitat and law enforcement
- History to be made

APPENDIX 4. Notes from keynote address offered at the Tanzania Chimpanzee Conservation Action Planning Workshop by Dr. Jane Goodall, DBE, founder of the Jane Goodall Institute and UN Messenger of Peace. January 19th, Dar es Salaam, Tanzania

Written by Shadrack Kamenya

Dr. Shadrack Kamenya introduced Dr. Jane Goodall, as the founder of Jane Goodall Institute, and pioneering chimpanzee researcher since the year 1960, also much awarded and more recently distinguished as UN Messenger of Peace.

Dr. Goodall greeted the group in chimpanzee style, and gradually the room was filled by a wonderful hooting choir as multiple chimpanzee experts joined in!

Before starting her address, Dr. Goodall introduced her team, the JGI staff from Kigoma and Dar, who stood up in turn and briefly described their roles within JGI.

Then she began her message, mentioning the following:

She recounted how it was that she earned money to travel to East Africa for the first time, hoping to work on wildlife, and how fortunate she was to have met the late Dr. Louis Leakey, who chose her to go to the Gombe Stream Game Reserve to study the behaviour of chimpanzees. He hoped that, as those apes were living by a lakeside, Jane's observations might give clues to the behaviour of the extinct hominids which he had excavated from sediments of an old lakeshore at Oldupai.

She recalled how, under the social climate of those times, it was not thought proper for a lone woman to set off and work in an isolated place without some protection, but so great was her determination that she pressed the authorities such that they finally allowed her to go provided only that her mother would go with her! And so she started, and within a relatively short time she began to make unexpected and far-reaching discoveries, which cumulatively have brought us to a far greater understanding of the primate closest to us.

For example, in 1960, she found not only that chimpanzees use objects as tools, but they also make them especially for the task. Because the human definition of those times was of "man the tool maker" Dr. Louis Leakey famously suggested that we must either redefine 'tool', redefine 'man', or accept chimpanzees as humans!

This was the first of many striking observations which together show that almost every new discovery about chimpanzees reveals each time that they are even more like us than we had thought. It is almost more economical simply to name the differences! Anatomically, this is true too, even to the anatomy of the brain being very similar to that of humans, but it does differ in relative size (cranial capacity). Chimpanzees also grow slowly and gradually, taking many years through infancy and adolescence, and with the same emphasis as in humans on greater learning rather than simple instinct. Chimpanzees also show altruism in the ways they support each other, and orphans are well taken care of, and their ability to respond to others' distress shows considerable insight.

For example, she recalled the behaviour of the juvenile female Pom (9 years) when her younger brother Prof (5 years old) was near a poisonous snake. Pom saw the snake first, and jumped to safety in a tree, but then watched as her brother, all unknowing, moved closer towards the snake, so she gave an alarm call, oooh! aah! aah! but Prof seemed not to understand….. So then, with a grin of fear on her face, her hair bristling with alarm, she finally rushed to grab him away from the poisonous snake and hoist him to safety up in the tree. She also told a story about a male chimpanzee who attacked two poachers - breaking the leg of one and nearly scalping the other - to retrieve a baby who had been captured after its mother was brutally killed. These stories convey on one hand the horror of poaching by humans, but they also convey how beyond being protective, chimpanzees are also altruistic and affectionate to their kin, and show a range of emotions like humans.

In addition to being capable of emotions, chimpanzees and humans are very alike genetically. Our DNA is very close, and we could even receive blood transfusions from chimpanzees. Unfortunately, because we are so similar, chimpanzees are susceptible to many human contagious diseases, which has been a challenge for some populations.

Once Jane had come to terms with the challenges of the bush, she was surprised to realise that she had also to face challenges even from some scientists within the research community. They challenged her methodologies, especially because Jane assigned names to the chimps, right away as she recognized and identified them. For example, the first chimp known to her was named David Greybeard. They challenged her, saying that personality is a human attribute, and that giving the chimpanzees names violated scientific procedure; chimpanzees are supposed to be described objectively, and giving them names would subjectively endow them with human attributes.

Jane's mission changed abruptly as from 1986, when she attended a conference in Chicago on the Understanding Chimpanzees. During the conservation session, there was a sudden shared realization of the magnitude of the overwhelming problems facing wild chimpanzees:

a. Chimpanzees were threatened on a widespread scale, due to destruction of their habitat, their forests, for agriculture and for the timber trade. Even selective logging was bringing higher risks by building roads into formerly inaccessible forests.
b. Chimpanzees were facing hunters and snares in the wild, in some places eaten as bushmeat; chimpanzees mothers were killed in order to capture young ones for live trade as pets and to be used in circuses, and in medical research
c. Chimpanzees were used in medical research because of the knowledge that chimpanzees are more like us, so they seemed the best model to use in the search for cures to many human ailments, and in the testing of drugs and vaccines.
d. All the researchers present realized that these problems facing chimpanzees were widespread, not only in each of their research areas but probably also in other areas too.

This was a turning point in Jane Goodall's life, since she decided that being a researcher was not enough, and became an activist. Since 1986 she started to move, on a large scale - touring medical laboratories, zoos, people who keep chimps as pets all over the world, she lectured in Universities the world over (she had previously lectured mainly in the Universities of Dar-Es-Salaam, and Stanford in USA), and gave public talks in almost all the numerous places she visited. This gave her the

opportunity to speak in schools with students and teachers, and other people in government and legislative offices, and even including presidents of various countries in the world. Ever since, she had not been in one place more than 3 weeks, waking people to action and carrying messages of peace for chimps and people around the World. The more she spoke with people the more she understood the problems facing chimpanzees and humans.

In the 1990's, when flying over Gombe National Park (38 Sq. kms.,) she saw the magnitude of the changes that had occurred in forest cover in the Gombe area: the National Park now stood as an ecological island when compared to the degradation in the neighboring villages, where hills were left bare and uncovered, with frequent erosion, and fire burning every dry season. This created the understanding of the need to focus on the local people if it is to be possible to save Gombe and have it connected to the surrounding environment and other chimpanzee populations. She sought to identify the human needs that had to be addressed in order to work together with the local people in the conservation efforts. She formulated a team with Mr. George Strunden and skilled colleagues (including Aristides Kashula, Emmanuel Mtiti, and Amani Kingu) and they started the TACARE project in 1994. That project developed and changed into Greater Gombe Ecosystem (GGE) in 2005. In a new initiative to replicate the successes of the TACARE in other chimpanzee areas, they also started the Masito Ugalla Ecosystem (MUE), covering the southern part of Kigoma District and northern Mpanda District, both of which are home to unprotected chimpanzees. We now witness the success of our projects by noticing that forests are coming back on some of the village land, and more people are now involved in conservation efforts of forests and wildlife. Now the JGI is starting to involve even more local people in more villages in a similar project named GMU and REDD, which will benefit the local people directly, especially those involved in protecting the forest. Local people are already involved in monitoring the forest and will benefit from money for carbon credit.

……

Turning now to the purpose of the meeting, she asked: "why would we need a chimpanzee conservation action plan in Tanzania?", and offered her perspective.

- Humans are destroying their own homes, the forests, which are also the chimpanzees' homes, for several different reasons. About 110 years ago, there were 1-2 million chimpanzees in sub-Saharan Africa, now there are less than 300,000 and these are under great pressure of disappearing.

- Tanzania has two thirds of her chimpanzee population living outside the National Park Systems. This is a high number, and they are the most at risk, certainly these merit survival, and need a coordinated conservation effort. These populations are the major cause for concern within this planning workshop for C-CAP.

She mentioned that this program has great potential to help chimp conservation and wished us good luck and a great session, before leaving us to continue with the planning work and deliberations towards the CAP.

APPENDIX 5. Population Viability Analysis Report for Chimpanzees in Tanzania

Written by Kathy Traylor-Holzer, IUCN/SSC Conservation Breeding Specialist Group

Introduction

The purpose of this Population Viability Analysis (PVA) is to provide an assessment of the relative viability of chimpanzee populations living throughout Tanzania through the development of a population simulation model, and to make this modeling tool available during the Tanzania Chimpanzee Conservation Action Planning Workshop held 19-21 January 2010 to aid workshop participants in developing a conservation plan for chimpanzees in Tanzania. This report revises and expands the preliminary viability analyses conducted prior to the workshop and, in some cases, modifies the conclusions of the preliminary summary report.

Vortex Simulation Model

Computer modeling is a valuable and versatile tool for quantitatively assessing risk of decline and extinction of wildlife populations, both free ranging and managed. Complex and interacting factors that influence population persistence and health can be explored, including natural and anthropogenic causes. Models can also be used to evaluate the effects of alternative management strategies to identify the most effective conservation actions for a population or species and to identify research needs. Such an evaluation of population persistence under current and varying conditions is commonly referred to as a population viability analysis (PVA).

The simulation software program *Vortex* (v9.98) was used to examine the viability of chimpanzee populations under a variety of conditions. *Vortex* is a Monte Carlo simulation of the effects of deterministic forces as well as demographic, environmental, and genetic stochastic events on wild or captive small populations. *Vortex* models population dynamics as discrete sequential events that occur according to defined probabilities. The program begins by creating individuals to form the starting population and then stepping through life cycle events (e.g., births, deaths, dispersal, catastrophic events) on an annual basis. Events such as breeding success, litter size, sex at birth, and survival are determined based upon designated probabilities that incorporate both demographic stochasticity and annual environmental variation. Consequently, each run (iteration) of the model gives a different result. By running the model hundreds of times, it is possible to examine the probable outcome and range of possibilities. For a more detailed explanation of *Vortex* and its use in population viability analysis, see Lacy (1993, 2000) and Miller and Lacy (2005). PVA using *Vortex* predicts the future fate of populations without bias for well-studied populations (Brook *et al*. 2000).

Modeling Strategy and Data Sources

A *Vortex* basic model for wild chimpanzee populations living in good quality, protected forest habitat was developed from data from field studies conducted primarily in Gombe (particularly the Kasekela community) and Mahale National Park, the two long-term, extensively studied wild chimpanzee populations. Gombe historical data provided courtesy of Anne Pusey (University of Minnesota) were

analysed to obtain some of the demographic rates. Additional demographic information was gleaned from previous chimpanzee PVAs using *Vortex*, one by Earnhardt *et al*. in 2005 for the Gombe population and one for the Uganda chimpanzee population (Edroma *et al*. 1997).

The above analyses along with published information and expert opinion were used to develop a reasonable base demographic model for chimpanzee populations living in core protected forest areas (e.g., Kasekela). Models for alternate population conditions were created by varying habitat type and anthropogenic threats (direct removal and disease risk) across a variety of population sizes. The range and values used both in the base protected forest model and the additional matrix of alternative conditions were developed using information primarily from the following sources:

Kano 1972; Hiraiwa-Hawegawa *et al*. 1984; Moore 1992; Ogawa *et al.* 1997; Hill *et al*. 2001; Quiatt *et al.* 2002; Nishida *et al*. 2003; Ogawa *et al.* 2004; Williams *et al.* 2004; Nakamura 2005; Hernandez-Aguilar *et al*. 2006; Lonsdorf *et al.* 2006; Ogawa *et al.* 2006a, b; Emery Thompson *et al.* 2007a, b; Ogawa *et al*. 2007; Pusey *et al*. 2007; Hanamura *et al.* 2008; Kaur *et al*. 2008; Pusey *et al*. 2008; Williams *et al.* 2008; Yoshikawa *et al*. 2008.

This information was used to develop 192 different model scenarios that represent each possible combination of the following four factors:

Habitat type	2 categories	Riverine forest, woodland savanna
Population size/K	8 categories	10, 25, 50, 75, 100, 250, 500, 900
Annual removal rate	4 categories	0%, 2.5%, 5%, 10%
Epidemic disease risk	3 categories	2%, 5%, 10% (once every 50, 20, and 10 years, respectively)

All scenarios were run for 1000 iterations over a period of 100 years. Each scenario began with a stable age-sex distribution of unrelated individuals at carrying capacity (K). Each scenario represents a single interbreeding population with no internal substructure (e.g., communities) and no connectivity to other populations (no immigration or emigration).

Base Model Parameters *(Protected Forest Population)*

Reproductive Parameters

The model used a polygynous mating system, with all adult males in the potential breeding pool and reassignment of mates each year. All births were single (no twins), with an even sex ratio at birth.

Age of first reproduction: *13 years (females); 15 years (males)*

This parameter represents the *average* age of first reproduction, not the age of sexual maturity or earliest reproductive age observed. Input values were based on multiple data sources, including published and unpublished data and expert opinion.

Percent adult females breeding per year: *22% from age 13-30 yrs; 13.5% for females over 30 yrs*

These values were calculated from Gombe population data (all communities) bases on observations of 118 breeding age females from 1963 through December 2008. Environmental variation was partitioned out of the total observed variation by removing the expected demographic variation based on sample size. Reproductive rates were calculated separately for females over 30 years of age, as there is evidence of reduced fertility in some females as they age, perhaps due to health

issues (Nishida *et al*. 2003; Emery Thompson *et al.* 2007a). When combined with the expected stable age distribution, these values result in an average interbirth interval (IBI) of 5.33 years. No reproductive senescence and no density dependence were included in the model.

It should be noted that the Gombe data include only births in which a living infant was observed; therefore, the reproductive rates and neonatal mortality rates used in the model do not include stillbirths, abortions or deaths immediately after birth. Inclusion of such information would increase neonatal mortality rates and shorten the average interbirth interval, increasing reproductive rates. Exclusion of these data does not affect the model results presented here (as the lower reproductive rates are compensated for by lower neonatal mortality), but these factors should be kept in mind in comparisons with other reproductive and mortality datasets that might include such early birth events.

Mortality Parameters

The maximum age was set at 43 years for males and 53 years for females based on the Gombe dataset of 280 individuals. Few individuals survive to maximum age in the model (about 1%) with the mortality rates used. Mortality rates were derived based on a variety of sources, including Earnhardt *et al.* 2005 (based on Kasekela data) and Hill *et al*. 2001 (five chimpanzee populations) as well as the Gombe dataset, and were developed to produce survivorship curves and age- and sex-ratios similar to those reported in the literature (Hiraiwa-Hawegawa *et al*. 1984; Nishida *et al*. 2003). This model does not incorporate high levels of infant mortality as have been observed in Mahale (Nishida *et al*. 2003).

The following age- and sex-specific mortality rates were used in the base model:

Annual mortality rates (%):	Males	Females
0-1 yr:	19	15
1-2 yr:	5.3	5
2-10 yr:	3	2
10-13 yr:	5	2
13-15 yr:	10	2
15-27 yr:	3	2
28-35 yr:	8	7
35-40 yr:	10	7
40-43 yr:	50	12
43-48 yr:	--	12
48-50 yr:	--	25
50-53 yr:		50

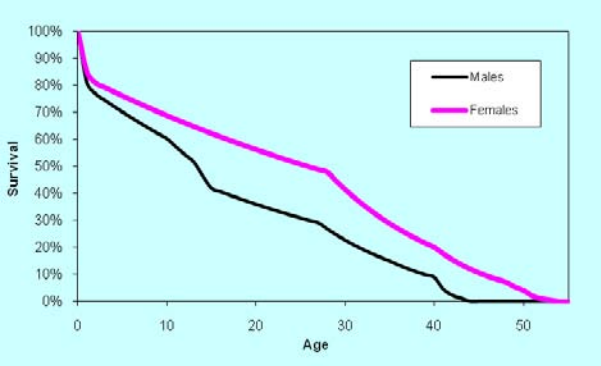


Figure 1. Sex-specific survivorship curves based on mortality rates used in the base model.

Environmental Variation (EV)

Environmental variation represents the variation in demographic rates (reproduction and survival) due to variation in environmental conditions between "good years" and "bad years". EV for reproduction and survival are correlated in the model, so that good years are associated with both higher reproduction and survival, and bad years have both lower reproduction and survival. EV was set relatively low for survival (SD = 20% of the mean) and at a moderate level for reproduction (SD =

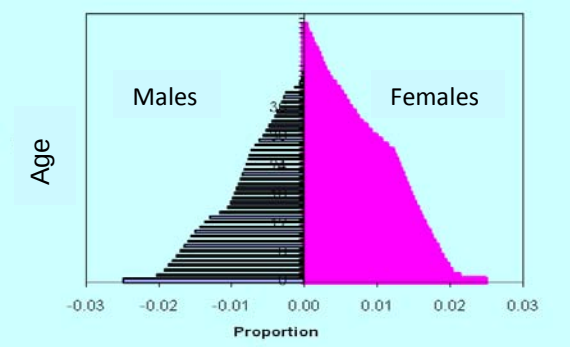
36% of the mean, based on analysis of Gombe data). Additional variation in demographic rates (demographic stochasticity) is built in as an inherent property of the stochastic modeling process.

Inbreeding Depression

Vortex models inbreeding depression as reduced first-year survival of inbred infants. A value of 6 lethal equivalents (LE) was used in the chimpanzee model, 50% of which were assigned to lethal alleles and subject to purging. This default value is taken as a conservation estimate of inbreeding depression based on O'Grady *et al.* (2006), which found an average of 12.3 lethal equivalents spread across survival and reproduction for wild populations, of which 6.3 LE affected recruitment to one year of age. Other potential effects of inbreeding (e.g., reduced fertility, poor health) were not included in the model.

Population Structure and Growth Rate

The above demographic rates produce a population with the following deterministic characteristics:



Generation time (T) = 24 yrs
Intrinsic growth rate (r) = 0.012 (slight positive)
% adults: 50%
Adult sex ratio (male:female): 1:2

Figure 2. Age pyramid for a stable age distribution in base model.

Alternative Model Parameters

Savanna Demographic Rates

Little information is available regarding potential differences in demographic rates between chimpanzee populations living in savanna vs forest habitats. Savanna conditions may be more challenging with poorer food supply, as chimpanzee densities tend to be lower and home range sizes larger (Kano 1972; Moore 1992; Ogawa *et al*. 1997; Ogawa *et al*. 2006a). The following modifications were made to the model based on expert opinion to represent chimpanzee populations living in savanna habitats; these changes result in lower reproduction and greater variation in environmental conditions. Actual differences in chimpanzee demography between habitat types are unknown and may or may not be accurately reflected by these modifications.

- % adult females breeding/yr = 10% (age 13); 20% (age 14-30yr); 12% (>30 yrs); IBI=6.16 yrs; these modifications result in a population with a lower intrinsic growth rate (r = 0.006).
- Higher EV: SD = 30% of mean for mortality; 40% of mean for reproduction

Removal Rates

Many chimpanzee populations are subject to the loss of individuals due to human-related causes, including direct killing and incidental snaring (Quiatt *et al*. 2002; Ogawa *et al*. 2004; Ogawa *et al*.

2006a, b). Scenarios were developed to examine the impact of various rates of removal of chimpanzees due to these combined factors. Removal rates ranged from 0% (no removal) to 10% annual loss, designed to represent various levels of human persecution and protected status. Removals were modeled as annual rates based on the *total* population size, but were implemented as the removal of adults (equal number of males and females). In addition, one infant was removed for every 2 adult females removed. For example, at N = 80 chimps and removal rate = 5%: 4 adults would be removed each year (2 males and 2 females), plus 1 infant.

Risk of Epidemic Disease

Illness and disease is recognized as a primary cause of mortality in chimpanzees (Nishida *et al*. 2003; Williams *et al*. 2008); as such, the base model mortality rates include deaths due to normal levels of disease. The base model incorporated a 2% risk of a major epidemic (i.e., occurring on average once every 50 years) that results in the death of 20% of those chimps that would normally survive that year based on observed epidemics in Gombe and Mahale (Lonsdorf *et al.* 2006; Hanamura *et al*. 2008; Kaur *et al*. 2008; Pusey *et al*. 2008; Williams *et al*. 2008). Additional scenarios were developed to represent increased risk of disease, potentially through higher rates of human contact; these scenarios modeled increased risk of epidemics of 5% (approximately once every 20 years) and 10% (approximately once every 10 years). Only the frequency (risk) was modified; the impact (20% mortality in normally surviving individuals) remained the same. More severe and/or long-lasting disease effects, such as SIV, were not included in these models and would be expected to affect viability (Keele *et al*. 2009). Spatial or population substructure was *not* incorporated into the model to simulate spread of disease within and among communities, which could have consequences on the extent and impact of disease in chimp populations.

Population Size

Small populations are highly vulnerable to stochastic (chance) processes – for example, an unusually high number of male births within a few years due to chance. Thus, population size is recognized as a major factor affecting the long-term viability of a population (Shaffer 1987). Several population sizes were modeled for each combination of factors above, ranging from quite small (N = 10) to relatively large (N = 900). These population sizes were selected to represent the range of estimated chimpanzee populations in Tanzania.

Vortex models each population as one inbreeding unit isolated from other chimpanzee populations. This should be kept in mind when comparing the model results to actual chimpanzee populations. Substructure within the population or connectivity with other populations may affect viability.

Sensitivity Testing of Demographic Rates

Sensitivity analyses were performed on the primary demographic rates used in the base model to determine which parameters most affect population viability and therefore to what degree data uncertainty may affect this and subsequent chimpanzee models. These analyses also suggest those parameters that might be targeted for further research to improve the ability to accurately assess population status and for management actions that are likely to promote population viability. The following parameters and input values were tested:

Mortality Rates *(mean and EV varied by ±10%, ±20%):*

- Juvenile mortality (0-1 yr) (males)
- Sub-adult mortality (1-15 yr) (males)
- Adult annual mortality (15+ yr) (males)
- Juvenile mortality (0-1 yr) (females)
- Sub-adult mortality (1-13 yr) (females)
- Adult annual mortality (13+ yr) (females)

Reproductive Parameters *(base value in* ***boldface****):*

- Maximum age (females): 50, **53**, 56 yrs
- First reproduction (males): 14, **15**, 16 yrs
- First reproduction (females): 12, **13**, 14 yrs
- % females breeding (prime/>30yrs old): 19.8/12.15; **22/13.5**; 24.2/14.85 *(represents ±10%)*
- Lethal equivalents (inbreeding impact on juvenile mortality): 3, **6**, 9

Sensitivity Testing Results

Mortality rates are perhaps the most uncertain input values in the base model. Scenarios that varied juvenile, subadult, or adult mortality rates by sex by 10% and 20% suggest that such variation in male mortality rates has little impact on the growth rate of the population. Variation in female mortality rates does demonstrate an impact, although growth remains slightly positive in all cases. Adult female mortality is the most sensitive, suggesting that the loss of breeding age females from the population is more likely to affect viability relative to the loss of other age-sex classes (Figure 3). The intensity of inbreeding depression shows a slight effect as modeled (increased juvenile mortality in inbred individuals of both sexes). Actual inbreeding impacts may be greater if inbreeding affects other traits in chimpanzee populations, such as female fertility and overall health.

Model results are not sensitive to the maximum age of reproduction in females (since few females survive to age 50) or to the average first age of reproduction in males (since male breeders generally are not a limiting factor in polygynous species). Breeding females are much more critical to population growth and therefore viability, as evidenced by the relative greater sensitivity of the model to the average age of first reproduction in females and to the percent of adult females breeding each year. There is some evidence that dispersing females that transfer to non-natal communities show a delay in first reproduction (Nishida *et al*. 2003) and lower short-term reproductive success, a factor to keep in mind in situations in which dispersal is likely to be frequent. Factors that improve female fecundity such as high quality core habitat (Emery Thompson *et al.* 2007b) and large community home range (Williams *et al*. 2004) are likely to improve population viability.

While this sensitivity analysis suggests those parameters to which the model results are most sensitive, it should be noted that the observed differences in stochastic r are relatively small over the range of values tested and all result in a slightly positive growth rate. The age- and reproduction-related values used encompass the range of realistic values based on field data; there is greater uncertainty regarding mortality rates, and actual values may lie outside of the range tested here.

Model Results for Population Viability

Measures of Viability

Several quantitative measures can be used to assess the viability of a population over a given time period. Model outputs provided in this report are:

1) Probability of Extinction (PE) in 100 years
2) Median Time to Extinction (MTE), reported only for scenarios with PE $\geq$ 0.50
3) Stochastic (observed) growth rate (r_s), prior to any truncation due to population exceeding K
4) Gene Diversity (GD) at Year 100 (for those extant populations that did not go extinct)
5) Mean N (N_{ext}) at Year 100 (for those extant populations that did not go extinct)

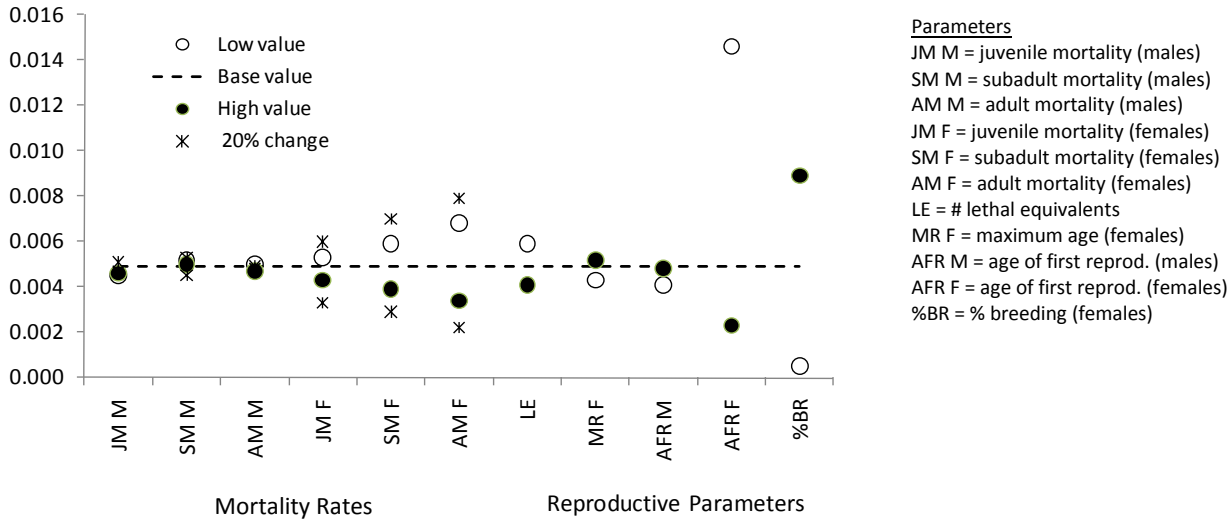


Figure 3. Stochastic growth rate (r) for sensitivity testing of various demographic rates in the base model. Dashed line represents base model stochastic r. Circles represent results for $\pm$10% where applicable; * represent $\pm$20%.

The definition of a viable population, and the classification of population viability into categories such as Very Good, Good, Fair and Poor, are in part socio-political decisions. Generally speaking, viability implies a high probability of persistence with good retention of genetic diversity over a long period of time – but the definitions of "high", "good" and "long" depend upon the value attributed to a species or population and the level of risk of extinction that is deemed acceptable by those assessing viability. Biological principles can provide some guidance; for example, a common population management goal is to maintain at least 90% of the gene diversity of the founding population for 100-200 years, which represents an estimate of a tolerable amount of loss of heterozygosity before inbreeding is likely to become a significant concern and a reasonable management time period for population projections (e.g., Soule *et al*. 1986; Foose *et al.* 1995). Viability may also imply sustainability and a positive potential growth rate that allows a population to maintain a size near carrying capacity of its habitat and resources and to rebound from sporadic population decline.

The following descriptions and quantitative definitions of viability in Table 1 were used to classify the model results for use during and following the CAP workshop. The observed output values for each scenario are also presented in this report so that alternative definitions and classifications of viability can be applied to the data.

Very Good:	No risk of extinction in 100 years, relatively stable population, high gene diversity
Good:	Low risk of extinction, slowly declining population, good gene diversity
Fair:	Moderate extinction risk, declining population, moderate loss of gene diversity
Poor:	Moderate to high extinction risk, declining population, significant loss of gene diversity

Table 1. Viability categories used to classify scenario results.

Rating	PE	Stochastic growth rate (r)	N_{ext} /K (%)	GD
Very Good	0%	Stable to positive ($\geq$ 0)	$\geq$ 70%	$\geq$ 95%
Good	$\leq$ 2%	Stable to mild negative ($\geq$ -0.01)	$\geq$ 50%	$\geq$ 90%
Fair	$\leq$ 10%	Moderately negative ($\geq$ -0.03)	$\geq$ 10%	$\geq$ 85%
Poor	All other populations (high PE and/or rapid population decline)			

Model Scenario Results

Results for all 192 scenarios are presented in the following tables (Tables 2-7). Each table presents results for all population sizes across all four removal rates for one level of disease risk and habitat type. Tables are divided by habitat type of forest (Tables 2-4) or savanna (Tables 5-7) and by increasing risk of epidemic within each habitat type (three tables per page). Each scenario (cell) is colour-coded to match the viability categories and criteria in Table 1 but are open to alternate definitions of viability. Reported results include probability of extinction over 100 years (PE) and median time to extinction (MTE) when PE $\geq$ 0.50; stochastic growth rate (r_s); gene diversity after 100 years (GD); and mean population size (N_{ext}) for those populations (iterations) that did not go extinct. For scenarios across the range of values tested for population size, habitat type, removal rate and disease risk, the primary factors affecting population viability were found to be population size and removal rate. Disease risk affects population viability to a lesser degree. While forest-living populations fare better than savanna-living populations, the impact on viability as modeled is relatively small in comparison to the other factors tested, given the demographic rates used for chimpanzees in these different habitat types.

Population Size

Population size shows a strong influence on population viability over 100 years. In the absence of human-caused removals, interbreeding populations of 250 or more chimpanzees persist at relatively stable numbers near carrying capacity with good retention of gene diversity. Moderate-sized populations of 75-100 chimpanzees also fare well over a 100-year period, but may be more vulnerable to increased threats and inbreeding. Isolated small populations of around 50 chimps or fewer are subject to inbreeding depression and other stochastic processes, resulting in generally poor viability without intervention or connectivity to other populations.

Table 2. FOREST *(Epidemic approx. 50 yrs)*

	Initial Population size / Carrying Capacity (K)							
Annual loss	**10**	**25**	**50**	**75**	**100**	**250**	**500**	**900**
None	PE = 0.95 r_s = - 0.011 MTE = 50yr	PE = 0.27 r_s = - 0.006 GD = 0.76 N_{ext} = 13	PE = 0.01 r_s = 0.003 GD = 0.89 N_{ext} = 35	PE = 0 r_s = 0.003 GD = 0.93 N_{ext} = 58	PE = 0 r_s = 0.005 GD = 0.95 N_{ext} = 82	PE = 0 r_s = 0.006 GD = 0.98 N_{ext} = 222	PE = 0 r_s = 0.007 GD = 0.99 N_{ext} = 448	PE = 0 r_s = 0.007 GD = 0.99 N_{ext} = 819
2.5%	PE = 1.00 r_s = - 0.029 MTE = 30yr	PE = 0.95 r_s = - 0.031 MTE = 58yr	PE = 0.70 r_s = - 0.029 MTE = 86yr	PE = 0.53 r_s = - 0.029 MTE = 98	PE = 0.27 r_s = - 0.026 GD = 0.82 N_{ext} = 12	PE = 0.02 r_s = - 0.021 GD = 0.92 N_{ext} = 38	PE = 0 r_s = - 0.019 GD = 0.96 N_{ext} = 85	PE = 0 r_s = - 0.018 GD = 0.98 N_{ext} = 166
5%	PE = 1.00 r_s = - 0.048 MTE = 20yr	PE = 1.00 r_s = - 0.053 MTE = 36yr	PE = 1.00 r_s = - 0.053 MTE = 47yr	PE = 1.00 r_s = - 0.055 MTE = 53yr	PE = 1.00 r_s = -.0.054 MTE = 59yr	PE = 0.94 r_s = - 0.055 MTE = 74yr	PE = 0.76 r_s = - 0.055 MTE = 88yr	PE = 0.52 r_s = - 0.055 MTE = 99yr
10%	PE = 1.00 r_s = -.0.081 MTE = 14yr	PE = 1.00 r_s = - 0.093 MTE = 20yr	PE = 1.00 r_s = - 0.099 MTE = 27yr	PE = 1.00 r_s = - 0.102 MTE = 29yr	PE = 1.00 r_s = - 0.102 MTE = 32yr	PE = 1.00 r_s = - 0.102 MTE = 38yr	PE = 1.00 r_s = - 0.102 MTE = 47yr	PE = 1.00 r_s = - 0.103 MTE = 51yr

Table 3. FOREST *(Epidemic approx. 20 yrs)*

	Initial Population size / Carrying Capacity (K)							
Annual loss	**10**	**25**	**50**	**75**	**100**	**250**	**500**	**900**
None	PE = 0.98 r_s = - 0.015 MTE = 43yr	PE = 0.47 r_s = - 0.013 GD = 0.73 N_{ext} = 10	PE = 0.06 r_s = - 0.005 GD = 0.85 N_{ext} = 25	PE = 0.01 r_s = - 0.004 GD = 0.90 N_{ext} = 41	PE = 0 r_s = - 0.003 GD = 0.93 N_{ext} = 58	PE = 0 r_s = - 0.001 GD = 0.97 N_{ext} = 169	PE = 0 r_s = 0.000 GD = 0.99 N_{ext} = 349	PE = 0 r_s = 0.000 GD = 0.99 N_{ext} = 650
2.5%	PE = 1.00 r_s = - 0.033 MTE = 27yr	PE = 0.98 r_s = - 0.036 MTE = 50yr	PE = 0.88 r_s = - 0.034 MTE = 73yr	PE = 0.73 r_s = - 0.035 MTE = 84yr	PE = 0.53 r_s = - 0.032 MTE = 99	PE = 0.12 r_s = - 0.029 GD = 0.87 N_{ext} = 20	PE = 0.01 r_s = - 0.026 GD = 0.93 N_{ext} = 45	PE = 0 r_s = - 0.025 GD = 0.96 N_{ext} = 88
5%	PE = 1.00 r_s = - 0.052 MTE = 19yr	PE = 1.00 r_s = - 0.057 MTE = 33yr	PE = 1.00 r_s = - 0.059 MTE = 43yr	PE = 1.00 r_s = - 0.060 MTE = 49yr	PE = 1.00 r_s = -.0.060 MTE = 54yr	PE = 0.97 r_s = - 0.061 MTE = 67yr	PE = 0.91 r_s = - 0.061 MTE = 78yr	PE = 0.76 r_s = - 0.061 MTE = 89yr
10%	PE = 1.00 r_s = -.0.087 MTE = 13yr	PE = 1.00 r_s = - 0.100 MTE = 19yr	PE = 1.00 r_s = - 0.102 MTE = 25yr	PE = 1.00 r_s = - 0.107 MTE = 28yr	PE = 1.00 r_s = - 0.107 MTE = 30yr	PE = 1.00 r_s = - 0.109 MTE = 36yr	PE = 1.00 r_s = - 0.109 MTE = 44yr	PE = 1.00 r_s = - 0.110 MTE = 48yr

Table 4. FOREST *(Epidemic approx. 10 yrs)*

	Initial Population size / Carrying Capacity (K)							
Annual loss	**10**	**25**	**50**	**75**	**100**	**250**	**500**	**900**
None	PE = 1.00 r_s = - 0.023 MTE = 34yr	PE = 0.81 r_s = - 0.023 MTE = 72yr	PE = 0.39 r_s = - 0.019 GD = 0.80 N_{ext} = 14	PE = 0.20 r_s = - 0.017 GD = 0.84 N_{ext} = 21	PE = 0.12 r_s = - 0.016 GD = 0.88 N_{ext} = 29	PE = 0.01 r_s = - 0.013 GD = 0.95 N_{ext} = 79	PE = 0 r_s = - 0.012 GD = 0.97 N_{ext} = 168	PE = 0 r_s = - 0.012 GD = 0.99 N_{ext} = 297
2.5%	PE = 1.00 r_s = - 0.040 MTE = 23yr	PE = 1.00 r_s = - 0.046 MTE = 41yr	PE = 0.97 r_s = - 0.044 MTE = 57yr	PE = 0.94 r_s = - 0.045 MTE = 66yr	PE = 0.87 r_s = - 0.044 MTE = 75yr	PE = 0.51 r_s = - 0.041 GD = 0.80 N_{ext} = 10	PE = 0.22 r_s = - 0.040 GD = 0.87 N_{ext} = 18	PE = 0.07 r_s = - 0.038 GD = 0.91 N_{ext} = 31
5%	PE = 1.00 r_s = - 0.060 MTE = 17yr	PE = 1.00 r_s = - 0.068 MTE = 28yr	PE = 1.00 r_s = - 0.067 MTE = 38yr	PE = 1.00 r_s = - 0.070 MTE = 43yr	PE = 1.00 r_s = -.0.069 MTE = 47yr	PE = 1.00 r_s = - 0.071 MTE = 58yr	PE = 0.98 r_s = - 0.072 MTE = 68yr	PE = 0.95 r_s = - 0.071 MTE = 75yr
10%	PE = 1.00 r_s = -.0.094 MTE = 12yr	PE = 1.00 r_s = - 0.108 MTE = 18yr	PE = 1.00 r_s = - 0.114 MTE = 22yr	PE = 1.00 r_s = - 0.116 MTE = 26yr	PE = 1.00 r_s = - 0.119 MTE = 28yr	PE = 1.00 r_s = - 0.119 MTE = 34yr	PE = 1.00 r_s = - 0.120 MTE = 39yr	PE = 1.00 r_s = - 0.120 MTE = 45yr

Table 5. SAVANNA *(Epidemic approx. 50 yrs)*

	Initial Population size / Carrying Capacity (K)							
Annual loss	**10**	**25**	**50**	**75**	**100**	**250**	**500**	**900**
None	PE = 0.96 r_s = - 0.014 MTE = 44yr	PE = 0.37 r_s = - 0.010 GD = 0.75 N_{ext} = 11	PE = 0.03 r_s = - 0.003 GD = 0.87 N_{ext} = 28	PE = 0 r_s = - 0.002 GD = 0.92 N_{ext} = 47	PE = 0 r_s = - 0.001 GD = 0.94 N_{ext} = 67	PE = 0 r_s = 0.001 GD = 0.98 N_{ext} = 189	PE = 0 r_s = 0.002 GD = 0.99 N_{ext} = 396	PE = 0 r_s = 0.002 GD = 0.99 N_{ext} = 729
2.5%	PE = 1.00 r_s = - 0.032 MTE = 29yr	PE = 0.97 r_s = - 0.034 MTE = 55yr	PE = 0.81 r_s = - 0.031 MTE = 80yr	PE = 0.65 r_s = - 0.032 MTE = 90	PE = 0.45 r_s = - 0.030 GD = 0.79 N_{ext} = 9	PE = 0.07 r_s = - 0.026 GD = 0.90 N_{ext} = 24	PE = 0.01 r_s = - 0.024 GD = 0.95 N_{ext} = 54	PE = 0 r_s = - 0.023 GD = 0.97 N_{ext} = 99
5%	PE = 1.00 r_s = - 0.050 MTE = 21yr	PE = 1.00 r_s = - 0.055 MTE = 34yr	PE = 1.00 r_s = - 0.055 MTE = 46yr	PE = 1.00 r_s = - 0.057 MTE = 52yr	PE = 1.00 r_s = -.0.056 MTE = 57yr	PE = 0.96 r_s = - 0.058 MTE = 69yr	PE = 0.87 r_s = - 0.058 MTE = 82yr	PE = 0.68 r_s = - 0.059 MTE = 93yr
10%	PE = 1.00 r_s = -.0.084 MTE = 14yr	PE = 1.00 r_s = - 0.097 MTE = 20yr	PE = 1.00 r_s = - 0.100 MTE = 25yr	PE = 1.00 r_s = - 0.103 MTE = 29yr	PE = 1.00 r_s = - 0.104 MTE = 31yr	PE = 1.00 r_s = - 0.106 MTE = 35yr	PE = 1.00 r_s = - 0.108 MTE = 44yr	PE = 1.00 r_s = - 0.107 MTE = 48yr

Table 6. SAVANNA *(Epidemic approx. 20 yrs)*

	Initial Population size / Carrying Capacity (K)							
Annual loss	**10**	**25**	**50**	**75**	**100**	**250**	**500**	**900**
None	PE = 0.99 r_s = - 0.017 MTE = 41yr	PE = 0.61 r_s = - 0.017 GD = 0.72 N_{ext} = 8	PE = 0.14 r_s = - 0.011 GD = 0.83 N_{ext} = 19	PE = 0.04 r_s = - 0.010 GD = 0.88 N_{ext} = 30	PE = 0.01 r_s = - 0.008 GD = 0.91 N_{ext} = 44	PE = 0 r_s = - 0.006 GD = 0.97 N_{ext} = 125	PE = 0 r_s = - 0.005 GD = 0.98 N_{ext} = 268	PE = 0 r_s = - 0.005 GD = 0.99 N_{ext} = 494
2.5%	PE = 1.00 r_s = - 0.037 MTE = 27yr	PE = 0.99 r_s = - 0.039 MTE = 47yr	PE = 0.92 r_s = - 0.038 MTE = 67yr	PE = 0.85 r_s = - 0.039 MTE = 77yr	PE = 0.75 r_s = - 0.038 MTE = 85	PE = 0.25 r_s = - 0.034 GD = 0.85 N_{ext} = 14	PE = 0.05 r_s = - 0.031 GD = 0.92 N_{ext} = 29	PE = 0.01 r_s = - 0.030 GD = 0.95 N_{ext} = 53
5%	PE = 1.00 r_s = - 0.053 MTE = 19yr	PE = 1.00 r_s = - 0.060 MTE = 31yr	PE = 1.00 r_s = - 0.061 MTE = 41yr	PE = 1.00 r_s = - 0.063 MTE = 46yr	PE = 1.00 r_s = -.0.062 MTE = 52yr	PE = 0.99 r_s = - 0.064 MTE = 64yr	PE = 0.95 r_s = - 0.064 MTE = 76yr	PE = 0.82 r_s = - 0.065 MTE = 83yr
10%	PE = 1.00 r_s = -.0.089 MTE = 13yr	PE = 1.00 r_s = - 0.103 MTE = 19yr	PE = 1.00 r_s = - 0.107 MTE = 24yr	PE = 1.00 r_s = - 0.109 MTE = 27yr	PE = 1.00 r_s = - 0.110 MTE = 30yr	PE = 1.00 r_s = - 0.112 MTE = 34yr	PE = 1.00 r_s = - 0.113 MTE = 41yr	PE = 1.00 r_s = - 0.113 MTE = 47yr

Table 7. SAVANNA *(Epidemic approx. 10 yrs)*

	Initial Population size / Carrying Capacity (K)							
Annual loss	**10**	**25**	**50**	**75**	**100**	**250**	**500**	**900**
None	PE = 1.00 r_s = - 0.024 MTE = 33yr	PE = 0.88 r_s = - 0.027 MTE = 66yr	PE = 0.57 r_s = - 0.024 MTE = 94	PE = 0.34 r_s = - 0.024 GD = 0.82 N_{ext} = 14	PE = 0.22 r_s = - 0.021 GD = 0.86 N_{ext} = 21	PE = 0.02 r_s = - 0.018 GD = 0.93 N_{ext} = 53	PE = 0 r_s = - 0.017 GD = 0.97 N_{ext} = 110	PE = 0 r_s = - 0.016 GD = 0.98 N_{ext} = 206
2.5%	PE = 1.00 r_s = - 0.044 MTE = 21yr	PE = 1.00 r_s = - 0.049 MTE = 39yr	PE = 0.99 r_s = - 0.047 MTE = 55yr	PE = 0.97 r_s = - 0.049 MTE = 61yr	PE = 0.93 r_s = - 0.047 MTE = 70yr	PE = 0.70 r_s = - 0.046 MTE = 90	PE = 0.34 r_s = - 0.044 GD = 0.84 N_{ext} = 12	PE = 0.14 r_s = - 0.043 GD = 0.89 N_{ext} = 20
5%	PE = 1.00 r_s = - 0.062 MTE = 17yr	PE = 1.00 r_s = - 0.070 MTE = 28yr	PE = 1.00 r_s = - 0.070 MTE = 37yr	PE = 1.00 r_s = - 0.073 MTE = 40yr	PE = 1.00 r_s = -.0.072 MTE = 45yr	PE = 1.00 r_s = - 0.074 MTE = 56yr	PE = 1.00 r_s = - 0.074 MTE = 65yr	PE = 0.97 r_s = - 0.075 MTE = 72yr
10%	PE = 1.00 r_s = -.0.096 MTE = 12yr	PE = 1.00 r_s = - 0.111 MTE = 18yr	PE = 1.00 r_s = - 0.116 MTE = 21yr	PE = 1.00 r_s = - 0.119 MTE = 24yr	PE = 1.00 r_s = - 0.120 MTE = 28yr	PE = 1.00 r_s = - 0.122 MTE = 33yr	PE = 1.00 r_s = - 0.124 MTE = 36yr	PE = 1.00 r_s = - 0.124 MTE = 42yr

Loss of Chimpanzees (Removal)

The continual loss of adult chimpanzees, whether due to hunting, snaring or other sources of removal or death, has a dramatic effect on population viability due to the loss of breeders at rates greater than can be replaced through reproduction. All populations decline at an annual removal rate of 2.5%. Small to moderate sized populations have a significant risk of extinction, and those populations that do persist are small and declining with moderate loss of gene diversity. Although relatively large populations (500-900 chimpanzees) still persist with good gene diversity after 100 years, the remaining population is small and will continue to decline to eventual extinction unless removal is reduced or eliminated. All populations show a high risk of extinction with higher rates of removal (5-10%). Figure 4 illustrates the rapid decline in population size under various removal rates for the best case scenario (forest population of 900 chimps with low disease risk).

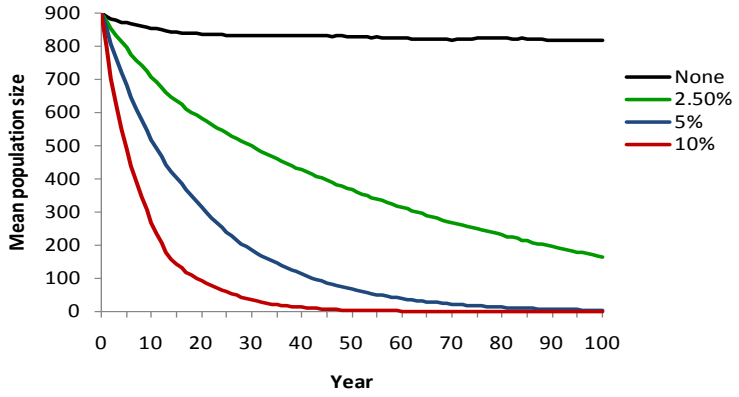


Figure 4. Mean population size (all iterations) for forest population (initial N = K = 900, 2% annual low disease risk) over 100 years under different annual rates of removal (0%, 2.5%, 5%, 10%).

Risk of Epidemic Disease

Increased frequency of a disease epidemic in the model had the greatest impact on moderate sized populations (50-250) with no or low removal levels. Smaller populations and/or those with moderate-high removal rates show poor viability under all conditions tested, and large populations persist as long as removal rates are low (albeit they may decline significantly in size). The future of moderate sized populations is more uncertain; thus, additional factors that affect viability such as increased disease risk can influence viability. It should be noted that disease epidemics were modeled as short-term (one year) events; epidemics that last longer than one year and/or that have greater impacts on survival and/or reproduction than those modeled (e.g., SIV) may have more measurable effects on population viability (Keele 2009). These findings are generally consistent with those of previous chimpanzee PVAs for Gombe (Earnhardt *et al*.) and Uganda (Edroma *et al.* 1997).

Using Model Results to Assess Viability of Chimpanzee Populations in Tanzania

Tables 2-7 represent a variety of potential conditions under which chimpanzee populations may exist in Tanzania. In some cases it may not be possible to attribute a certain specific situation (i.e., cell) to a particular chimp population due to uncertain or unknown information; however, these

tables can be used to assess the possible range of conditions under which a particular population may fall, and suggest those factors that may most affect its viability.
The impact of habitat degradation and loss due to burning, cultivation, charcoal production or other causes can be approximately assessed by examining the viability of the population at a smaller size (K). For example, if a population currently stands at about 70 chimps but is under risk of substantial habitat loss, then its long-term viability might be assessed by comparing the viability of a population of 75 (if no habitat is lost) and a population of 50 (if about 30% of the habitat is lost or heavily degraded). Likewise, if there is a potential for habitat expansion, the impact may be approximated by considering a larger population, provided that the current population exhibits sufficient positive growth to expand into newly available habitat.

The colour-coded viability classifications of chimpanzee populations generally describe the following type of populations:

Very Good (*dark green*)
These populations show no risk of extinction under the conditions modeled, maintain relatively stable population sizes, retain high levels of gene diversity, and appear to be demographically and genetically healthy with good long-term viability. These are represented by relatively large populations with no human-related removals or other significant additional sources of mortality and little risk of epidemic disease.
Good (*green*)
These populations (primarily moderate sized populations with no removal and little disease risk) show little to no risk of extinction within 100 years, maintain populations of at least 50% capacity of the environment, and retain acceptable levels of gene diversity. Viability is good over 100 years (about 4 generations) but may decline over longer time periods as population size and gene diversity declines.
Fair (*yellow*)
Populations categorized as "Fair" fall into two different situations:

1) Moderate sized populations (50-100) that have no removal pressure and low disease risk:
   These populations show slow decline, with average population sizes substantially below K, have reduced gene diversity, and have a moderate risk of extinction (~ 10%). The long-term viability of these populations is uncertain without intervention, such as augmentation with additional unrelated animals.

2) Large populations (250+) under select conditions (either no removal/high disease risk *or* low removal/low disease risk:
   These populations exhibit continual decline due to removal or disease. Given their large initial size, extinction risk is essentially zero within 100 years, but the populations are reduced to approximate 10-20% of their starting size, and will eventually go extinct with continued removal or disease pressure.

Poor (*red*)
All of these populations show substantial decline and risk of extinction. Most exhibit almost certain extinction within 50-100 years; those that persist contain only a few chimps with low gene diversity

and continued decline, leading to eventual extinction. These populations are either too small or are under too much removal pressure to be viable in the long-term under the conditions modeled. Based on population estimates and threats gleaned from the literature review for this report, there are likely some chimpanzee populations that are at high risk of extinction – for example, the savanna-living 'Southern Tanganyika' population of 60-80 chimps that is under pressure from hunting and habitat loss and possible fragmentation (Davenport *et al*. 2010). Viability of such moderately sized populations may be improved substantially if existing habitat and corridors remain intact, and the loss of chimps through hunting, snaring and disease can be controlled or eliminated – conditions that also apply to populations living in protected areas such as Gombe National Park. Large protected populations such as those in Mahale are likely to remain large and healthy if there is little to no poaching or snaring threat, no substantial habitat loss, and no large risk of disease or other sources of significant mortality (such as high levels of infanticide or intraspecific aggression); however, even large populations are likely to decline if chimpanzees are continually lost (either directly or due to habitat loss) due to human pressures.

Assumptions and Cautions for Data Interpretation

Demographic Rates

The results presented in this report provide viability projections for chimpanzee populations given the demographic rates and characteristics used in the model. The best available information from field databases, published literature, and expert opinion was incorporated into the model. Sensitivity analysis of demographic rates indicates that parameters affecting adult females and the breeding (growth) potential of the population (i.e., % females breeding, age of first reproduction, adult female mortality) are the most sensitive parameters in the model. Of these, mortality are the least known from field data and the one that is most affected by human activities. This is demonstrated to some extent by the substantial impact of the loss of adults (and some dependent young) through removal.

Mortality rates may vary from population to population, due to factors such as differences in levels of intraspecific aggression. The mortality rates used in the model most closely describe a population such as Kasekela; populations with higher natural mortality rates, such as possibly Mahale, would be expected to have lower viability than that projected in Tables 2-7. Differences in the actual mortality rates, particularly of adult females, will likely affect the viability of a population and its ability to persist under various adult removal rates.

Population Structure and Connectivity

A simplifying assumption made in these models is that each population represents an isolated, panmictic (interbreeding) population. For many chimpanzee populations, this assumption does not hold true. The substructuring of chimpanzee populations into communities with occasional exchange of individuals has the potential to affect viability, depending upon the nature of dispersal and threats affecting each community. For this analysis it may be appropriate to interpret "population" as a series of one or more well connected communities. Dispersal among adjacent communities is likely to be sufficient to treat them as one interbreeding population. Peripheral communities within such populations may be subject to greater threat of removal and even local

extinction, but may be replaced by dispersers from adjacent communities if habitat remains available and if removal rates are sufficiently low.
On a larger scale, some chimpanzee populations may not be completely isolated, but may be connected by occasional migration of individuals through habitat corridors between populations. Such connectivity has the potential to demographically and genetically rescue populations with low viability if survival and reproductive success is high for dispersers. Metapopulation dynamics can be complex, in some cases with some populations serving as suppliers of chimps ("sources") and others as "sinks" that undergo substantial losses. The situation for specific chimpanzee populations in Tanzania can be modelled to better estimate population viability under such meta-community or metapopulation conditions.

Loss of Chimpanzees Through Removal

Another major assumption to be considered is that removal was assumed to be annual and constant in these models. Given an intrinsic growth rate of 0.6 to 1.2%, it is not surprising that populations decline under annual removal rates of 2.5% and higher. The long-term viability of moderate to large size populations may be substantially improved by reducing and/or halting existing removals at some point in the future. The more quickly removals can be reduced or stopped, the larger and more genetically diverse these populations will remain, resulting in better long-term viability.

In these models, adult chimpanzees were removed in equal numbers by sex (i.e., 50% of the removals were males and 50% were females). This was based on scant data on individuals believed to be snared or killed. Since the adult sex ratio is female-biased, this means that proportionately more males are removed in the model than females by a factor of about 2x. The loss of females is much more likely to reduce viability in polygynous species like chimpanzees; therefore the models likely underestimate the impact of removal if adult females are equally as likely to be lost as males.

Summary

An analysis of population viability for chimpanzee populations in Tanzania using the best available data and expert opinion on demographic rates and potential threats suggests that the major factors affecting viability are population size and continual loss of chimpanzees (particularly adult females) from the population. Both of these factors can be influenced through management and conservation actions.

Population size is regulated to some extent by habitat quality and quantity as it relates to chimpanzees. Small populations in small habitat patches exhibit poor viability when isolated from other chimpanzee populations. Moderate sized populations are vulnerable to habitat loss that would result in smaller carrying capacity and population size and thus reduced viability. Protection of habitat to preserve or create large populations and prevent fragmentation into small isolated populations will promote viability and reduce risk of decline and extinction. Corridors connecting populations have the potential to improve viability through demographic and/or genetic rescue,

provided that some of the connected populations or the corridors themselves do not act as unsustainable “sinks”.

The loss of chimpanzees from populations may occur through a variety of mechanisms, including hunting, poaching and snaring, as well as other sources (e.g., continual emigration without reciprocal immigration, long persisting disease). All populations decline with removal rates that exceed growth rate – the smaller the population, the more quickly it is likely to go extinct. Efforts to reduce or eliminate sources of mortality may be critical for the long-term viability of all chimpanzee populations. The loss of chimpanzees through periodic disease epidemics can also reduce viability if such events are frequent, particularly for smaller populations with less potential to rebound before declining to extinction.

Better estimates of demographic rates (particularly female mortality rates), the rates of loss of chimpanzees due to hunting, snaring, epidemic disease or other threats, and population size and connectivity all will enable more accurate assessment of long-term viability of specific chimpanzee populations in Tanzania.

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APPENDIX 6. A: Viability Results from the Greater Gombe Ecosystem CAP Process of 2009, which were used as an input for the 2010 workshop[17]

Note: while the original CAP had more targets only chimpanzee targets are shown in this appendix

#	Conservation Targets	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Date	Current Indicator Measurement	Current Rating	Desired Rating
1	Mitumba Chimpanzee Community	Landscape Context	Range habitat quality and availability	Evergreen forest per community (in hectares)	<200 ha	**200-250 ha**	250-350 ha	>350 ha	Jun-06	212 ha	Fair	Very Good
			Range habitat quality and availability	Range size (in hectares)	< 500 ha	500-650 ha	**650-875 ha**	>875	Jun-06	700 ha	Good	Good
		Condition	Community structure and dynamics	Number of adult males	**0-2**	3-5	6-10	>10	Jun-06	2	Poor	Good
			Community structure and dynamics	Number of reproducing females	0-3	4-6	**7-10**	>10	Jun-06	1/7/1900	Good	Very Good
		Size	Population size & dynamics	Total number	<21	**21-25**	26-30	>30	Jun-06	21	Fair	Very Good
2	Kasekela Chimpanzee Community	Landscape Context	Range habitat quality and availability	Evergreen forest per community (in hectares)	<300 ha	300-400 ha	450-600 ha	**> 600 ha**	Jun-06	677 ha	Very Good	Very Good
			Range habitat quality and availability	Range size (in hectares)	<750 ha	750-1125 ha	1125-1500	**>1500**	Jun-06	1730 ha	Very Good	Very Good

[17] This information was taken from the GGE CAP Workbook 07-Jan-09.xls, which was used to produce the following document: JGI, TNC, USAID. 2009. Conservation Action Plan for the Greater Gombe Ecosystem, Western Tanzania 2009-2039. Version 1; Circulated April 2009.

#	Conservation Targets	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Date	Current Indicator Measurement	Current Rating	Desired Rating
		Condition	Community structure and dynamics	Number of adult males	1-2	3-5	**6-10**	>10	Jun-06	1/10/1900	Good	Good
			Community structure and dynamics	Number of reproducing females	0-3	4-6	7-10	**>10**	Jun-06	16	Very Good	Very Good
		Size	Population size & dynamics	Total number	<30	30-45	45-60	**=>60**	Jun-06	3/10/1900	Very Good	Very Good
3	Kalande Chimpanzee Community	Landscape Context	Range habitat quality and availability	Evergreen forest per community (in hectares)	**<200 ha**	200-250 ha	250-350 ha	>350 ha	Jun-06	65 ha	Poor	Fair
			Range habitat quality and availability	Range size (in hectares)	**< 1000 ha**	1000-1300 ha	1300-1700 ha	> 1750	Jun-06	884 ha	Poor	Good
		Condition	Community structure and dynamics	Number of adult males	**0-2**	3-5	6-10	>10	Jun-06	1	Poor	Fair
			Community structure and dynamics	Number of reproducing females	0-3	**4-6**	7-10	>10	Jun-06	4	Fair	Very Good
		Size	Population size & dynamics	Total number	**<10**	10-15	16-20	>20	Jun-06	1/9/1900	Poor	Very Good
4	Kwitanga Chimpanzee Community	Landscape Context	Range habitat quality and availability	Evergreen forest per community (in hectares)		**>120 ha**			Ene-08	132 ha	Fair	Fair

#	Conservation Targets	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Date	Current Indicator Measurement	Current Rating	Desired Rating
			Range habitat quality and availability	Range size (in hectares)			**>2400 ha**		Ene-08	2483 ha	Good	Good
		Condition	Community structure and dynamics	Human Disturbance and Chimp Habitat Suitability Index								
			Community structure and dynamics	New females observed at either end of the Kwitanga corridor						12:00:00 AM		
			Community structure and dynamics	Number of adult males	>5	**>5**			Ene-08	5/8/2009	Fair	Fair
			Community structure and dynamics	Number of reproducing females	>8	**8-10**			Ene-08	7/10/2009	Fair	Fair
		Size	Population size & dynamics	Total number	**<20**	>20			Ene-08	1/15/1900	Poor	Fair
5	Zashe Chimpanzee Community	Landscape Context	Range habitat quality and availability	Evergreen forest per community in hectares)	<25 ha	25-37 ha	38-50 ha	>50 ha	Ene-08	819 ha		
			Range habitat quality and availability	Range size (in hectares)	< 1000 ha	1000-1300 ha	1300-1700 ha	> 1750	Ene-08	7012 ha		
		Condition	Community structure and	Number of adult males	**0-2**	3-5	6-10	>10	Ago-07	0-3	Poor	Fair

#	Conservation Targets	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Date	Current Indicator Measurement	Current Rating	Desired Rating
			dynamics									
			Community structure and dynamics	Number of reproducing females	**0-3**	4-6	7-10	>10	Ago-07	0-4	Poor	Good
		Size	Population size & dynamics	Total number			40-50	>50	Ago-07	5/6/2009	Poor	
6	Chimpanzee Metapopulation	Landscape Context	Range habitat quality and availability	Range size (in hectares)								
		Size	Population size & dynamics	New females observed in either the Zashe or Mitumba chimpanzee community (presumed to have used the rift landscape)	**1 every 12 years or less**	1 every 8-11 years	1 every 4-7 years	1 every 2-3 years	Abr-08	12:00:00 AM	Poor	Fair
			Population size & dynamics	Number of females of reproductive age who transfer across the Kwitanga corridor	**1 every 12 years or less**	1 every 8-11 years	1 every 4-7 years	1 every 2-3 years	Abr-08	0	Poor	Fair
			Population size & dynamics	Number of sub-populations rated "Good" or "Very Good"	**1**	2	3-4	>4		1/1/1900	Poor	

#	Conservation Targets	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Date	Current Indicator Measurement	Current Rating	Desired Rating
			Population size & dynamics	Total number	<100	**100-175**	175-250	>250		4/30/1900	Fair	

GGE Viability Summary Table from 2009 CAP:

	Conservation Targets	Landscape Context	Condition	Size	Viability Rank
	Current Rating				
1	Mitumba Chimpanzee Community	Good	Fair	Fair	**Fair**
2	Kasekela Chimpanzee Community	Very Good	Very Good	Very Good	**Very Good**
3	Kalande Chimpanzee Community	Poor	Fair	Poor	**Poor**
4	Kwitanga Chimpanzee Community	Good	Fair	Poor	**Fair**
5	Zashe Chimpanzee Community	-	Poor	Poor	**Poor**
6	Chimpanzee Metapopulation	-	-	Poor	**Poor**
	Project Biodiversity Health Rank				**Fair**

APPENDIX 6. B: Viability Results from the Masito Ugalla Ecosystem CAP Process of 2009, which were used as an input for the 2010 workshop[18]

Note: while the original CAP had more targets only chimpanzee targets are shown in this appendix

#	Conservation Targets	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Date	Current Indicator Measurement	Current Rating	Desired Rating
1	Chimpanzees	Landscape Context	Connectivity among communities & ecosystems	Width of chimpanzee corridor	<1,000 m	**1,000-1,500 m**	1,500-2,000 m	>2,000 m	Abr-08		Fair	Good
			Fire regime - (timing, frequency, intensity, extent)	Frequency of fire occurrences	**>50% of the ecosystem burns per year**	50% of the ecosystem burns per year	20% of the ecosystem burns per year	N/A	Abr-08		Poor	Good
		Condition	Habitat quality and quantity/size	Average tree size	<50 cm	50-70 cm	**71-80 cm**	>80 cm	Abr-08		Good	Very Good
			Habitat quality and quantity/size	Number of hectares of forest	<500 km2	500-2,500 km2	**2,500-5,000 km2**	>5,000 km2	Abr-08	≈ 5,000 km2	Good	Good
		Size	Population size & dynamics	Number of chimpanzees	<200	200-600	**700-1000**	>1000	Abr-08	Est. 940	Good	Very Good

MUE Viability Summary Table from 2009 CAP:

Conservation Targets		Landscape Context	Condition	Size	Viability Rank
	Current Rating				
1	Chimpanzees	Poor	Good	Good	Fair

[18] This information was taken from the MUE CAP Workbook w Saskia mtg notes.xls, which was used to produce the following document: JGI. 2009. Masito Ugalla Ecosystem Conservation Action Plan 2009 – 2032. Adopted April 2009

APPENDIX 6. C: Viability Results from the Greater Mahale Ecosystem CAP Process of 2008, which were used as an input for the 2010 workshop[19]

Conservation Target		Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating
1	Chimpanzees	Condition	Habitat quality and quantity		Index value X	Index value X	***Index value X***	Index value X	see the index value (needs defining)	Good	Good	Abr-08
1	Chimpanzees	Landscape context	Area of suitable chimp habitat quality (suitable chimp habitat is defined by habitat quality index of x or above)	number of hectares (or %)	50% chimp habitat lost	25 - 49% chimp habitat lost	*24 - 10 % chimp habitat lost*	**0% Chimp Habitat Loss**	V. good because we are basing it on 2008 baseline habitat availability	Very Good	Good	Abr-08
1	Chimpanzees	Size	Population size & dynamics	Trends in population size (per community and as a whole)	Meta and Sub Populations declining rapidly i.e. more than X % per year	**Meta population viable sub populations delining slowly by x % per year**	*Meta and sub populations stable and viable*	Meta and sub populations increasing	Populations slowly declining but meta population still viable	Fair	Good	Abr-08

GME Viability Summary Table from 2008 CAP:

Conservation Targets		Landscape Context	Condition	Size	Viability Rank
	Current Rating				
1	Chimpanzees	Very Good	Good	Fair	Good

[19] This information was taken from the GME CAP 23-May-08 (2).xls Workbook

APPENDIX 7. Target Viability – Table[20]

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
Tanzania_Chimps_2010-4-06		Fair							
Chimpanzees of the Greater Gombe Ecosystem	Key Attribute	Fair							
Population size & dynamics		Fair	Size						
New females observed in either the Zashe or Mitumba chimpanzee community (presumed to have used the rift landscape)		Poor		1 every 12 years or less	1 every 8-11 years	1 every 4-7 years	1 every 2-3 years	Not Specified	Not Specified
2008-04-15				0				Not Specified	
2038-04-15									
Number of females of reproductive age who transfer across the Kwitanga corridor[21]		Poor		1 every 8+ years	1 every 4-7 years	1 every 2-3 years	1+ every year	Not Specified	Not Specified
2008-04-15				0				Not Specified	
2038-04-15									
Number of sub-populations rated "Good" or "Very Good"		Poor		1	2	3-4	>4	Not Specified	Not Specified

[20] This information was updated at the Jan. 2010 workshop and recorded in the Miradi Project Plan For Tanzania Chimpanzee Conservation Action Plan. Version: 2010-04-06

[21] To define the ranges after consultation with chimp specialists.

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
2008-04-15				1				Not Specified	
2008-04-15									
Total number of chimps in metapopulation		Fair		<100	100-175	175-250	>250	Not Specified	Not Specified
2008-04-15					210			Expert Knowledge	
2010-01-19								Not Specified	
Total number of chimps within Mitumba community		Fair		<21	21-25	26-30	>30	Not Specified	Not Specified
2009-05-15					25			Not Specified	
2038-03-15									
Total number of chimps within Kasekela community		Very Good		<30	30-45	45-60	>60	Not Specified	Not Specified
2009-03-15							65	Not Specified	
2038-03-15									
Total number of chimps within Kalande community		Poor		<10	10-15	16-20	>20	Not Specified	Not Specified
2009-03-15				9				Not Specified	
2038-03-15									

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
Total number of chimps within Kwitanga community		Poor[22]		<20	>20			Not Specified	Not Specified
				15				Not Specified	
2038-03-15									
Total number of chimps within Zasha community		Poor			<20	40-50	>50	Not Specified	Not Specified
2009-03-15				10-15				Not Specified	
2038-03-15									
Number of reproducing females for the metapopulation		Fair						Not Specified	Not Specified
2010-01-19								Not Specified	
2038-03-15									
Mitumba chimp community structure and dynamics		Fair	Condition						
Number of adult males		Poor		0-2	3-5	6-10	>10	Not Specified	Not Specified
2009-03-15				2				Not Specified	
2038-03-15									

[22] This number is the mean of the Kwitanga chimpanzee community as estimated by Sood Ndimuligo during the preparation of his Masters Thesis. (Ndimuligo, Sood. 2007. Personal communication. Kigoma, Tanzania.)

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
Number of reproducing females		Good		0-3	4-6	7-10	>10	Not Specified	Not Specified
2009-03-15						9		Not Specified	
2038-03-15									
Kasekela chimp community structure and dynamic		Very Good	Condition						
Number of adult males		Not Specified		1-2	3-5	6-10	>10	Not Specified	Not Specified
2009-03-15								Not Specified	
2039-03-15									
Number of reproducing females		Very Good		0-3	4-6	7-10	>10	Not Specified	Not Specified
2009-03-15							26	Not Specified	
2038-03-15									
Kalande chimp community structure and dynamics		Fair	Condition						
Number of adult males		Poor		0-2	3-5	6-10	>10	Not Specified	Not Specified
2009-03-15				1				Not Specified	
2038-04-15									
Number of reproducing females		Fair		0-3	4-6	7-10	>10	Not Specified	Not Specified

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
2006-06-15					4			Not Specified	
2038-03-15									
Kwitanga chimp community structure and dynamic		Fair	Condition						
Number of adult males		Fair						Not Specified	Not Specified
2008-01-15					5-8			Not Specified	
2038-03-15									
Number of reproducing female		Fair		<8	8-10			Not Specified	Not Specified
2008-01-15					7-10			Not Specified	
2038-03-15									
Zashe chimp community structure and dynamic		Poor	Condition						
Number of adult males		Poor		0-2	3-5	6-10	>10	Not Specified	Not Specified
2007-08-15				0-3				Not Specified	
2038-03-15									
Number of reproducing females		Poor		0-3	4-6	7-10	>10	Not Specified	Not Specified
2007-08-15				0-4				Not Specified	

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
2038-03-15									
Range habitat availability		Good	LandScape Context						
Range size (in hectares) for chimp metapopulation		Not Specified				Acceptable range TBD by 2009 PVA		Not Specified	Not Specified
Evergreen forest per community (in hectares) in Mitumba chimp community		Fair		<200 ha	200-250 ha	250-350 ha	>350 ha	Not Specified	Not Specified
2008-04-15					212 ha			Not Specified	
2038-04-15									
Range size (in hectares) in Mitumba chimp community		Good		< 500 ha	500-650 ha	650-875 ha	>875	Not Specified	Not Specified
2005-06-15						700 ha		Not Specified	
2038-04-15									
Evergreen forest per community (in hectares) in Kasekela chimp community		Very Good		<300 ha	300-400 ha	450-600 ha	> 600 ha	Not Specified	Not Specified
2006-03-15							677 ha	Not Specified	
2038-03-15									
Range size (in hectares) in		Very		<750 ha	750-1125 ha	1125-1500	>1500	Not	Not

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
Kasekela chimp community		Good						Specified	Specified
2006-06-15							1730 ha	Not Specified	
Evergreen forest per community (in hectares) in Kalande chimp community		Poor		<200 ha	200-250 ha	250-350 ha	>350 ha	Not Specified	Not Specified
2005-06-15				65 ha				Not Specified	
2038-03-15									
Range size (in hectares) in Kalande chimp community		Poor		< 1000 ha	1000-1300 ha	1300-1700 ha	> 1750	Not Specified	Not Specified
2006-06-15				884 ha				Not Specified	
2038-06-15									
Evergreen forest per community (in hectares) in Kwitanga chimp community		Fair			>120 ha			Not Specified	Not Specified
2008-01-15					132 ha			Not Specified	
2038-03-15									
Range size (in hectares) in Kwitanga chimp community		Good				>2100 ha		Not Specified	Not Specified

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
2008-01-15						2104 ha		Not Specified	
2038-03-15									
Evergreen forest per community (in hectares) in Zashe chimp community		Very Good		<75 ha	75-120 ha	120-150 ha	>150 ha	Not Specified	Not Specified
2008-03-15							300 ha	Not Specified	
2038-03-15									
Range size (in hectares) in Zashe chimp community		Very Good		< 1000 ha	1000-1300 ha	1300-1700 ha	> 1750	Not Specified	Not Specified
2008-01-15							7012 ha	Not Specified	
2038-03-15									
Chimpanzees of the Greater Mahale Ecosystem	Key Attribute	Good							
Population size		Good	Size						
Trends in population size (per community and as a whole)		Good		Meta and Sub Populations declining rapidly i.e. more than X % per year	Meta population viable sub populations delining slowly by x % per year	Meta and sub populations stable and viable	Meta and sub populations increasing	Not Specified	Not Specified
2008-04-14								Rough Guess	
2010-01-19								Expert	

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
								Knowledge	
2009-01-19									
Habitat quality		Good	Condition						
Index for rating of species availability		Good		Index value X	Index value X	Index value X	Index value X	Not Specified	Not Specified
2008-04-14								Rough Guess	
2010-01-19								Rough Guess	
2008-04-14									
Population dynamics		Good	Condition						
Dynamics		Good						Not Specified	Not Specified
2010-01-19								Expert Knowledge	
Area of suitable chimp habitat		Good	LandScape Context						
Number of hectares of woodland/riverine forest		Fair						Not Specified	Not Specified
2010-01-19								Rough Guess	
Number of hectares of evergreen forest		Good						Not Specified	Not Specified

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
2010-01-19								Rough Guess	
Forest connectivity		Fair	LandScape Context						
Distance between vegetation patches		Fair						Not Specified	Not Specified
2010-01-19								Rough Guess	
Signs of usage (nests, footprints, food remains)		Fair						Not Specified	Not Specified
2010-01-19								Rough Guess	
Proportion of subpopulations that are linked by chimp habitat		Fair						Not Specified	Not Specified
2010-01-19								Rough Guess	
Chimpanzees of the Masito-Ugalla Ecosystem	Key Attribute	Good							

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
Population size and dynamics		Good[23]	Size						
Number of chimpanzees		Good		<200	200-600	700-1000	>1000	Not Specified	Not Specified
2007-03-14						Est. 940		Rough Guess	
2010-01-19								Expert Knowledge	
2020-01-01									
Habitat quality and quantity/size		Good	Condition						
DBH		Good[24]						Rough Guess	Not Specified
2010-01-19								Not Specified	
Number of hectares of forest		Good		<500 km2	500-2,500 km2	2,500-5,000 km2	>5,000 km2	Not Specified	Not Specified
2007-03-14						≈ 5,000 km2		Not Specified	

[23] From 2007 CAP suggested measurements focused on circumference, but during the 2010 workshop it was recommended to change the indicator to DBH. Previous ranges for circumference were: <50 cm poor; 50-70 cm fair; 71-80 cm good; >80 cm very good

[24] Currently approximately 80% is burning, probably higher. For numerous reasons, people burn late in the year and thus the fires spread uncontrollably, torching (nearly) the entire ecosystem. The fires' chief fuel is the tall, dead grass that grew from that year's rains, so there is ample fodder annually, regardless of the previous year's burns. If fire excess is not addressed soon, this attribute would tend towards "poor" conditions. Science need: determine the natural fire regime so that thresholds can be further refined.

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
Fire regime		Fair	LandScape Context						
Frequency of fire occurrences		Fair[25]		>80% of the ecosystem burns per year	40-80% of the ecosystem burns per year	20-40% of the ecosystem burns per year	<20% of the ecosystem burns per year	Not Specified	Not Specified
2007-03-14								Not Specified	
2010-01-19								Rough Guess	
2020-03-14									
Forest Connectivity		Fair	LandScape Context						
Width of chimpanzee corridor		Fair		<1,000 m	1,000-1,500 m	1,500-2,000 m	>2,000 m	Not Specified	Not Specified
2007-03-14								Not Specified	
2025-03-14									
status of forest		Fair		Not yet agreed under any protection or land use planning status	Drafted for protection or land use planning status	Agreed for protection or inclusion in land use plan, but not implemented	Agreed for protection or inclusion in land use plan, and implemented	Not Specified	Not Specified
2010-01-19								Rough Guess	
2012-03-14									

[25] Number of chimpanzees? GOOD? YES Why 2 different estimates of current status? (e.g. 500 ïƒ 2005; later 2007 ïƒ ~ 940) Answer = Method, important to use same method AGAIN when comparing initial baseline BUT..VERY different to get from 940 to 1000, than to go from 500 to 940. Agree future desire should be VERY GOOD? YES

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
Chimpanzees of the Southern Lake Tanganyika Area	Key Attribute	Fair							
Population size		Fair	Size						
Trends in population size		Fair[26]			50-100	>100		Not Specified	Not Specified
2010-01-19					60 - 80			Intensive Assessment	
2060-03-15					**100**				
Habitat connectivity		Fair	LandScape Context						
Recent Chimp nest presence within corridor in North-South Mwene		Fair[27]				Within 2 weeks		Not Specified	Not Specified
								Rough Guess	
Appropriate habitat presence		Fair	LandScape Context						

[26] Need to review WCS report to determine nest presence within corridor. While forest patches are still connected, chimp presence was only observed in approxinmately half of these connected patches.(see fig. 5 in Davenport et al., 2010). Davenport, TRB, Mpunga, NE, Picton Phillips, G, Machaga, SJ, De Luca, DW, Kibure, O & Abeid, Y. 2010. The Conservation status of the Chimpanzee Pan troglodytes schweinfurtii in 'Southern Tanganyika' 2005-2009. Unpublished Report. Wildlife Conservation Society pp45.

[27] In 2005 WCS visited the whole area starting in the north, to look at the status and threats. In the north there seems to be no evidence of chimp presence, but the habitat is good, so they could be there. Studies conducted between 2005 and 2009 indicate that chimpanzees in the Southern Tanganyika region live primarily outside of protected areas (78% of records), with a minority being present within protected areas in the Lwafi Game Reserve and the Loasi Forest Reserve. Based upon these studies a population of between 60 and 80 chimpanzees was identified in the Southern Tanganyika area (south of Kipili and north of Kalambo Falls). (Davenport et al., 2010) Davenport, TRB, Mpunga, NE, Picton Phillips, G, Machaga, SJ, De Luca, DW, Kibure, O & Abeid, Y. 2010. The Conservation status of the Chimpanzee Pan troglodytes schweinfurtii in 'Southern Tanganyika' 2005-2009. Unpublished Report. Wildlife Conservation Society pp45.

Item	Viability Mode	Status	Type	Poor	Fair	Good	Very Good	Source	Progress
Habitat loss (hectares of appropriate habitat which have been lost)		Fair						Not Specified	Not Specified
								Not specified	

APPENDIX 8. A. Viability mapping exercise documentation for chimpanzees of the Greater Gombe Ecosystem

The following table includes the documentation that accompanies Map 3. Viability status of chimpanzees of the Greater Gombe Ecosystem.

# Polygon	Colour/Current viability Rank	Justification	Comment	Pending issues for participant review to finalize maps
1	Green (Very Good/good)	Mostly evergreen forest	• Southern boundary is arbitrary; woodland starts to encroach; a line cuts off this southern portion) • Don't have data for Z and K only for Gombe, but considering the indicator of total # reproductive females it is estimated in fair conditions	Two different viability values were mentioned for this polygon, but the exercise asked teams to rank a polygon by considering the health and functionality of all KEAs overall. The core planning team decided to keep the value of "good/very good" for this polygon.
2	Green (Very Good/good)	Excellent protected forest	This polygon and polygon number 3 used to be one area encompassing approximately 400 ha, of which now only about 40 ha. remain.	This polygon was marked as "good/very good", but given that it is an island left within highly degraded areas, the core planning team is wondering if it really is a viable polygon for chimps.
3	Yellow (fair)	Where in the past it used to be evergreen forest; so potential to return to forest		No pending issues
4	Red (poor)	Coffee farms	Lots of agricultural land; major road; major settlements	No pending issues
5	Green (Very Good/good)	Current evergreen	Managed by villages Rift landscapes	This polygon was marked as "good/very good", but QuickBird imagery from 2005 and 2009 shows oil palms and that important areas have been cleared in this polygon. The core planning team is wondering if itshould be marked as a viable chimp conservation area, or rather as an area in need of restoration (ie "fair" viability).
6	Yellow (fair)		GNP or land democratically set aside for village forest reserve	This polygon was marked as "good/very good", but from looking at images, it is evident that

				approximately 80% of the land witin this polygon has been deforested. While village land use plans can contribute to restoration, this does not mean that by itself this area is already viable for chimps. It will require a commitment of resources to restore vegetation in such a highly deforested area. The core planning team decided to change the viability rank for this polygon to “fair” (yellow).
7		The prisons manage the land	The prison is excluded; some palm oil areas in the north; farms are on the eastern edge; most security on the western side as the prison is there; there is a rivcer crossing; chimps go closer to the river	No pending issues.
8		Research need	It is necessary to conduct research in the area around the prison to determine the status of chimpanzees. It has been reported by word that chimps are not heard as much anymore, but no real data exists.	No pending issues.

APPENDIX 8. B. Viability mapping exercise documentation for chimpanzees of the Masito Ugalla Ecosystem

The following table includes the documentation that accompanies Map 4. Viability status of chimpanzees of the Masito Ugalla Ecosystem.

# Polygon	Colour/Current viability Rank	Justification	Comment	Pending issues for participant review to finalize maps
1	Poor (red)	Poor habitat (Chakuru-Impete – Malagarasi)	N of train (Basansa)	A viability ranking of poor reflects that all KEA are outside of acceptable ranges of variation, and that restoration is virtually impossible in those areas. By marking it as "poor" we recognize that scarce conservation funds are better spent elsewhere. If these areas are degraded, but can become functional for chimpanzees with a considerable resource commitment, this polygon should be marked as "fair" (yellow).
2	Poor (red)	Refugee settlement	Mishamo	A viability ranking of poor reflects that all KEA are outside of acceptable ranges of variation, and that restoration is virtually impossible in those areas. By marking it as "poor" we recognize that scarce conservation funds are better spent elsewhere. If these areas are degraded, but can become functional for chimpanzees with a considerable resource commitment, this polygon should be marked as "fair" (yellow).
3	Poor (red)	Lakeshore villages	Lakeshore villages	A viability ranking of poor reflects that all KEA are outside of acceptable ranges of variation, and that restoration is virtually impossible in those areas. By marking it as "poor" we recognize that scarce conservation funds are better spent elsewhere. If these areas are degraded, but can become functional for chimpanzees with a considerable resource commitment, this polygon should be marked as "fair" (yellow).
4	Poor (red)		NE Ugalla, Mbuga or Shamba – NOT	A viability ranking of poor reflects that all KEA are outside of acceptable ranges of variation, and that restoration is virtually impossible in those areas. By marking it as "poor" we recognize that scarce conservation funds are better spent elsewhere.

			chimpanzee habitat	If these areas are degraded, but can become functional for chimpanzees with a considerable resource commitment, this polygon should be marked as “fair” (yellow).
5	Poor (red)	Songombele	Village settlement	A viability ranking of poor reflects that all KEA are outside of acceptable ranges of variation, and that restoration is virtually impossible in those areas. By marking it as “poor” we recognize that scarce conservation funds are better spent elsewhere. If these areas are degraded, but can become functional for chimpanzees with a considerable resource commitment, this polygon should be marked as “fair” (yellow).
6	Fair (yellow)	Isolated chimpanzee populations – need to protect corridor for this population	Kongwe Bay	No pending issues.
7	Fair (yellow)	Good habitat, no chimp presence – need to protect from Nyanza!	S of uvinza	No pending issues.
8	Very Good/Good (Green)	High chimp presence, long term research presence – GREAT habitat…who wants to fund this OUTSTANDING opportunity?	Issa-Ilumba block	No pending issues.
9	Very Good/Good (Green)	Chimp presence and good habitat	Masito	No pending issues.

APPENDIX 8. C. Viability mapping exercise documentation for chimpanzees of the Greater Mahale Ecosystem

The following table includes the documentation that accompanies Map 5. Viability status of chimpanzees of the Greater Mahale Ecosystem.

# Polygon	Colour/Current viability Rank	Justification	Comment	Pending issues for participant review to finalize maps
1	Green (Good/very Good)		NP	No pending issues.
2	Yellow (fair)		Community forest reserve	No pending issues.
3	Yellow (fair)		Population low and woodland	No pending issues.
4	Green (Good/very Good)		Large chimp population/relatively intact forest	No pending issues.
5	Yellow (fair)		Low density of chimpanzees	No pending issues.
6	Yellow (fair)		Low numbers of chimps and increasing human population	No pending issues.
7	Red (poor)		Very little sign of chimps, very little habitat available, but might be important connection	A viability ranking of poor reflects that all KEA are outside of acceptable ranges of variation, and that restoration is virtually impossible in those areas. By marking it as "poor" we recognize that scarce conservation funds are better spent elsewhere. If these areas are degraded, but can become functional for chimpanzees with a considerable resource commitment, this polygon should be marked as "fair" (yellow).

APPENDIX 8. D. Viability mapping exercise documentation for chimpanzees of the Southern Lake Tanganyika Area

The following table includes the documentation that accompanies Map 6. Viability status of chimpanzees of the Southern Lake tanganyika Area.

# Polygon	Colour/Current viability Rank	Justification	Comment	Pending issues for participant review to finalize maps
1	Blue (research need)		Rumors that chimps are there, but WCS looked at the area and no evidence yet. Not a high priority for now.	The core planning team was unable to mark this polygon, but it appears that since it is not a research need it might not be necessary to include it on the map. Please advise if this polygon should be marked on the final map.
2	Yellow (fair)		Better condition than 4, some hunting, burning, charcoal. presence of nests	No pending issues.
3	Yellow (fair)		Similar conditions to 4, all areas have presence of nests.	No pending issues.
4	Yellow (fair)		Condirtions severely degraded farming, charcoal, logging, hunting, fire. All areas have presence of nests.	No pending issues.

APPENDIX 9. Criteria for ranking Stresses and Sources of Stress

Rating Criteria for Stresses:

Each stress is rated in terms of its scope and severity of its impact on the target as defined below.

Severity - The level of damage to the conservation target that can reasonably be expected within 10 years under current circumstances (i.e., given the continuation of the existing situation).

Very High	The threat is likely to destroy or eliminate the conservation target over some portion of the target's occurrence at the site.
High	The threat is likely to seriously degrade the conservation target over some portion of the target's occurrence at the site.
Medium	The threat is likely to moderately degrade the conservation target over some portion of the target's occurrence at the site.
Low	The threat is likely to only slightly impair the conservation target over some portion of the target's occurrence at the site.

Scope - Most commonly defined spatially as the geographic scope of impact on the conservation target at the site that can reasonably be expected within 10 years under current circumstances (i.e., given the continuation of the existing situation).

Very High	The threat is likely to be widespread or pervasive in its scope and affect the conservation target throughout the target's occurrences at the site.
High	The threat is likely to be widespread in its scope and affect the conservation target at many of its locations at the site
Medium	The threat is likely to be localized in its scope and affect the conservation target at some of the target's locations at the site.
Low	The threat is likely to be very localized in its scope and affect the conservation target at a limited portion of the target's location at the site.

Criteria for obtaining the global value for Stresses:

		Severity			
		Very High	High	Medium	Low
Scope	Very High	Very High	High	Medium	Low
	High	High	High	Medium	Low
	Medium	Medium	Medium	Medium	Low
	Low	Low	Low	Low	Low

This table was obtained from Granizo et al., 2006.

Rating Criteria for Sources of Stress:
Each source of stress is rated in terms of its irreversibility and contribution as defined below.

Contribution - The expected contribution of the source, acting alone, to the full expression of a stress (as determined in the stress assessment) under current circumstances (i.e., given the continuation of the existing management/conservation situation).

Very High	The source is a very large contributor of the particular stress.
High	The source is a large contributor of the particular stress.
Medium	The source is a moderate contributor of the particular stress.
Low	The source is a low contributor of the particular stress.

Irreversibility - The degree to which the effects of a source of stress can be restored.

Very High	The source produces a stress that is not reversible (e.g., wetlands converted to a shopping center).
High	The source produces a stress that is reversible, but not practically affordable (e.g., wetland converted to agriculture).
Medium	The source produces a stress that is reversible with a reasonable commitment of resources (e.g., ditching and draining of wetland).
Low	The source produces a stress that is easily reversible at relatively low cost (e.g., off-road vehicles trespassing in wetland).

Criteria for obtaining the combined value for contribution and irreversibility:

Irreversibility	Contribution			
	Very High	High	Medium	Low
Very High	Very High	High	High	Medium
High	Very High	High	Medium	Medium
Medium	High	Medium	Medium	Low
Low	High	Medium	Low	Low

This table was obtained from Granizo et al., 2006.

Criteria for obtaining the combined global value for the Source and the Stress:

Stress	Source of Stress			
	Very High	High	Medium	Low
Very High	Very High	Very High	High	Medium
High	High	High	Medium	Low
Medium	Medium	Medium	Low	Low
Low	Low	Low	Low	

This table was obtained from Granizo et al., 2006.

APPENDIX 10. A. Threats Analysis Results from the Greater Gombe Ecosystem CAP Process of 2009, which were used as an input for the 2010 workshop[28]

Note: while the original CAP had more targets only chimpanzee targets are shown in this appendix

	Threats Across Targets	Mitumba Chimpanzee Community	Kasekela Chimpanzee Community	Kalande Chimpanzee Community	Kwitanga Chimpanzee Community	Zashe Chimpanzee Community	Chimpanzee Metapopulation	Overall Threat Rank
1	Incompatible food crops; incompatible conversion to food crops	High	Low	Very High	High	Very High	High	Very High
2	Incompatible settlements and infrastructure; incompatible conversion to settlements and infrastructure development	High	Low	High	Medium	Very High	High	Very High
3	Deliberate killing by humans	High	Low	High	High	Very High		Very High
4	Pathogens introduced by humans and human activities	High	High	High	Medium	High		High
5	Incompatible human-ignited fires	Low	Low	High	High	High	Medium	High
6	Incompatible extraction of firewood	Low	-	Medium	High	High	High	High

[28] This information was taken from the GGE CAP Workbook 07-Jan-09.xls, which was used to produce the following document: JGI, TNC, USAID. 2009. Conservation Action Plan for the Greater Gombe Ecosystem, Western Tanzania 2009-2039. Version 1; Circulated April 2009.

Threats Across Targets		Mitumba Chimpanzee Community	Kasekela Chimpanzee Community	Kalande Chimpanzee Community	Kwitanga Chimpanzee Community	Zashe Chimpanzee Community	Chimpanzee Metapopulation	Overall Threat Rank
7	Kasekela community expansion	High		High				High
8	Incompatible charcoal production	Medium		Medium	High	Medium	Low	Medium
9	Incidental killing due to snares	Low	Low	Medium	Medium	High		Medium
10	Incompatible logging for timber	Low	Low	Medium	Medium	High		Medium
11	Domestic animals	Medium	Low	Low	Low	High		Medium
12	Introduction of non-native invasive plants	Low		Low	Low	Medium		Low
13	Lack of conservation and land-use planning, and inadequate implementation of appropriate land-use plans						Medium	Low
	Threat Status for Targets and Project	High	Medium	Very High	High	Very High	High	Very High

APPENDIX 10. B: Threats Analysis Results from the Masito Ugalla Ecosystem CAP Process of 2009, which were used as an input for the 2010 workshop[29]

Note: while the original CAP had more targets only chimpanzee targets are shown in this appendix

Threats Across Targets		Chimpanzees
1	**Conversion of forests/riverine/wetland into agricultural land**	Very High
2	**Poaching (including with snares)**	High
3	**Global climate change**	
4	**Incompatible wildfire**	High
5	**Settlement establishment and expansion, and human population increase (including along the periphery of the core conservation area)**	Medium
6	**Selective logging for timer and poles**	
7	**Illegal fishing**	
8	**Loss of wetland buffer zone**	
9	**Sedimentation**	
10	**Unorganized livestock keeping and overgrazing**	Low

[29] This information was taken from the MUE CAP Workbook w Saskia mtg notes.xls, which was used to produce the following document: JGI. 2009. Masito Ugalla Ecosystem Conservation Action Plan 2009 – 2032. Adopted April 2009

Threats Across Targets		Chimpanzees
11	**Infrastructure development (particularly roads)**	Medium
12	**Hydro-electric power establishment**	
13	**Industrial firewood collection (for salt processing and tobacco curing)**	
14	**Pollution**	
15	**Charcoal making**	Low
16	**Mining activities/sand mining**	
17	**Invasive species**	
18	**Debarking/incompatible beehive making**	
19	**Diseases**	Low
20	**Excessive harvesting of wetland resources**	
Threat Status for Chimpanzees		High

APPENDIX 10. C: Threats Analysis Results from the Greater Mahale Ecosystem CAP Process of 2008, which were used as an input for the 2010 workshop[30]

Threats Across Targets		Chimpanzees
1	agriculture (expansion; outside of protected areas)	High
2	uncontrolled burning (both inside and outside of protected areas)	High
3	settlements (expansion) (includes planned and unplanned; outside of protected areas)	High
4	logging timber and firewood extraction	Medium
5	infrastructure development (e.g. roads, ecotourism facilitites)	High
6	livestock keeping (outside of protected areas)	
7	mining (outside of protected areas)	Medium
8	hunting	
9	poaching (inside and outside of protected areas, but less so inside)	
10	building along shoreline	
11	changes in land tenure/management (for protection)	
12	diseases	High
13	extraction of key species	
14	local effect of global climate change	

[30] This information was taken from the GME CAP 23-May-08 (2).xls Workbook

Threats Across Targets		Chimpanzees
15	refugee camps / settlements (outside of protected areas)	Medium
16	shoreline trawling	
Threat Status for Targets and Project		Very High

APPENDIX 11. Detailed threats analysis results by conservation target as of Jan. 2010[31]

Threats analysis results for Chimpanzees of the Greater Gombe Ecosystem:

The stresses that currently affect chimpanzees of the Greater Gombe Ecosystem are:

Stress	Severity	Scope	Magnitude
Habitat fragmentation	Very High	High	High
Population decline	High	High	High

The sources of stress (also called threats) that were evaluated, with the respective values assigned in relation to each specific stress are shown below:

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Disease due to pathogens introduced by humans and human activities	Population decline	High	High	High	High	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible charcoal production	Habitat fragmentation	Very High	High	High	Medium	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible human-ignited fires	Habitat fragmentation	Very High	High	High	High	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible development and expansion of settlements and infrastructure	Habitat fragmentation	Very High	High	High	High	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Conversion of chimp habitat into food crops and agricultural land	Habitat fragmentation	Very High	High	High	Medium	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Lack of conservation and land-use planning, and inadequate	Habitat fragmentation	Very High	High	High	Very High	Medium

[31] This information was updated at the Jan. 2010 workshop and recorded in the Miradi Project Plan For Tanzania Chimpanzee Conservation Action Plan. Version: 2010-04-06

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
implementation of appropriate land-use plans						

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible extraction of firewood and logging for timber	Habitat fragmentation	Very High	High	High	High	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Deliberate killing by humans / poaching (including incidental killing due to snares)	Population decline	High	High	High	High	High

Chimpanzees of the Masito-Ugalla Ecosystem

The stresses that currently affect chimpanzees of the Masito-Ugalla Ecosystem are:

Stress	Severity	Scope	Magnitude
Habitat loss	Very High	Very High	Very High
Population decline	High	High	High
Fragmentation	Medium	Medium	Medium

The sources of stress (also called threats) that were evaluated, with the respective values assigned in relation to each specific stress are shown below:

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Disease due to pathogens introduced by humans and human activities	Population decline	High	High	High	Low	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible charcoal production	Fragmentation	Medium	Medium	Medium	Medium	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible human-ignited fires	Habitat loss	Very High	Very High	Very High	High	Medium
Incompatible human-ignited fires	Fragmentation	Medium	Medium	Medium	High	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible development and expansion of settlements and infrastructure	Habitat loss	Very High	Very High	Very High	Low	Medium
Incompatible development and expansion of settlements and infrastructure	Fragmentation	Medium	Medium	Medium	Low	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Conversion of chimp habitat into food crops and agricultural land	Habitat loss	Very High	Very High	Very High	Very High	Very High
Conversion of chimp habitat into food crops and agricultural land	Fragmentation	Medium	Medium	Medium	Medium	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible extraction of firewood and logging for timber	Fragmentation	Medium	Medium	Medium	Medium	Low

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Deliberate killing by humans / poaching (including incidental killing due to snares)	Population decline	High	High	High	Low	Very High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Unorganized livestock keeping and overgrazing	Population decline	High	High	High	Medium	Medium
Unorganized livestock keeping and overgrazing	Fragmentation	Medium	Medium	Medium	Medium	Medium

Chimpanzees of the Greater Mahale Ecosystem

The stresses that currently affect chimpanzees of the Greater Mahale Ecosystem are:

Stress	Severity	Scope	Magnitude
Habitat loss	Very High	High	High
Population decline	High	High	High
Human interference/presence	High	Medium	Medium

Stress	Severity	Scope	Magnitude
Fragmentation	Medium	Medium	Medium

The sources of stress (also called threats) that were evaluated, with the respective values assigned in relation to each specific stress are shown below:

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Disease due to pathogens introduced by humans and human activities	Population decline	High	High	High	High	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible charcoal production	Habitat loss	Very High	High	High	High	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible human-ignited fires	Habitat loss	Very High	High	High	Very High	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible development and expansion of settlements and infrastructure	Habitat loss	Very High	High	High	High	Very High
Incompatible development and expansion of settlements and infrastructure	Human interference/ presence	High	Medium	Medium	Medium	Medium
Incompatible development and expansion of settlements and infrastructure	Fragmentation	Medium	Medium	Medium	Medium	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Conversion of chimp habitat into food crops and agricultural land	Habitat loss	Very High	High	High	Very High	Very High
Conversion of chimp habitat into food crops and agricultural land	Human interference/presence	High	Medium	Medium	High	Medium
Conversion of chimp habitat into food crops and agricultural land	Fragmentation	Medium	Medium	Medium	High	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible extraction of firewood and logging for timber	Habitat loss	Very High	High	High	Medium	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Deliberate killing by humans / poaching (including incidental killing due to snares)	Population decline	High	High	High	Medium	Medium

Chimpanzees of the Southern Lake Tanganyika Area

The stresses that currently affect chimpanzees of the Southern Lake Tanganyika Area are:

Stress	Severity	Scope	Magnitude
Habitat Loss	Very High	Very High	Very High
Population decline	High	High	High
Fragmentation	Medium	High	Medium

The sources of stress (also called threats) that were evaluated, with the respective values assigned in relation to each specific stress are shown below:

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Disease due to pathogens introduced by humans and human activities	Population decline	High	High	High	Low	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible charcoal production	Habitat Loss	Very High	Very High	Very High	Very High	High
Incompatible charcoal production	Fragmentation	Medium	High	Medium	High	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible human-ignited fires	Habitat Loss	Very High	Very High	Very High	High	Medium
Incompatible human-ignited fires	Fragmentation	Medium	High	Medium	High	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Conversion of chimp habitat into food crops and agricultural land	Habitat Loss	Very High	Very High	Very High	High	High

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Conversion of chimp habitat into food crops and agricultural land	Fragmentation	Medium	High	Medium	Medium	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Lack of conservation and land-use planning, and inadequate implementation of appropriate land-use plans	Habitat Loss	Very High	Very High	Very High	Low	Medium
Lack of conservation and land-use planning, and inadequate implementation of appropriate land-use plans	Fragmentation	Medium	High	Medium	Medium	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Incompatible extraction of firewood and logging for timber	Habitat Loss	Very High	Very High	Very High	Medium	High
Incompatible extraction of firewood and logging for timber	Fragmentation	Medium	High	Medium	Medium	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Deliberate killing by humans / poaching (including incidental killing due to snares)	Population decline	High	High	High	Low	Medium

Threat	Stress	Severity	Scope	Magnitude	Contribution	Irreversibility
Unorganized livestock keeping and overgrazing	Fragmentation	Medium	High	Medium	Medium	Medium

APPENDIX 12.A. Threat mapping exercise documentation for chimpanzees of the Greater Gombe Ecosystem

The following table includes the documentation that accompanies Map 7. Perceived scope of critical threats affecting chimpanzees of the Greater Gombe Ecosystem

# Polygon	Critical Threat	How relevant is the threat in that location?	Justification	Comment	Pending issues for participant review to finalize maps
1	Conversion of chimp habitat into food crops and agricultural land	Low (thin line)	GNP Is well managed		No pending issues
1	Incompatible human-ignited fires	Medium (thin line)	Controlled burning but sometimes fire come in from the villages	GNP	No pending issues
6	Conversion of chimp habitat into food crops and agricultural land	Medium (thin line)	Villages have land use plans in place and CBFM	The land is steep and rocky terrain	No pending issues
7	Incompatible human	High/medium (thick line)	Village land; No fire breaks	(Kwitanga)	No pending issues
9	Incompatible human	High/medium (thick line)	Village land; No fire breaks	(Zashe)	No pending issues
10	Incompatible development and expansion of settlements and infrastructure	Very high (thick line)	Settled and along a path; road being developed; area where the chimps go	2 valleys outside Gombe	No pending issues
11	Incompatible development and expansion of settlements and infrastructure	High (thick line)	Bisecting road being constructed; Rift landscape		No pending issues

APPENDIX 12.B. Threat mapping exercise documentation for chimpanzees of the Masito Ugalla Ecosystem

The following table includes the documentation that accompanies Map 8. Perceived scope of critical threats affecting chimpanzees of the Masito Ugalla Ecosystem

# Polygon	Critical Threat	How relevant is the threat in that location?	Justification	Comment	Pending issues for participant review to finalize maps
No numbering	Conversion of chimp habitat into food crops and agricultural land	VERY HIGH Thick line	Villagers expand fields near to villages where they live	Villages	No pending issues
No numbering	Unorganized livestock keeping and overgrazing	HIGH Medium thick line	Herders tend to follow road when moving livestock	Uvinza-Mpanda road	No pending issues

APPENDIX 12.C. Threat mapping exercise documentation for chimpanzees of the Greater Mahale Ecosystem

The following table includes the documentation that accompanies Map 9. Perceived scope of critical threats affecting chimpanzees of the Greater Mahale Ecosystem

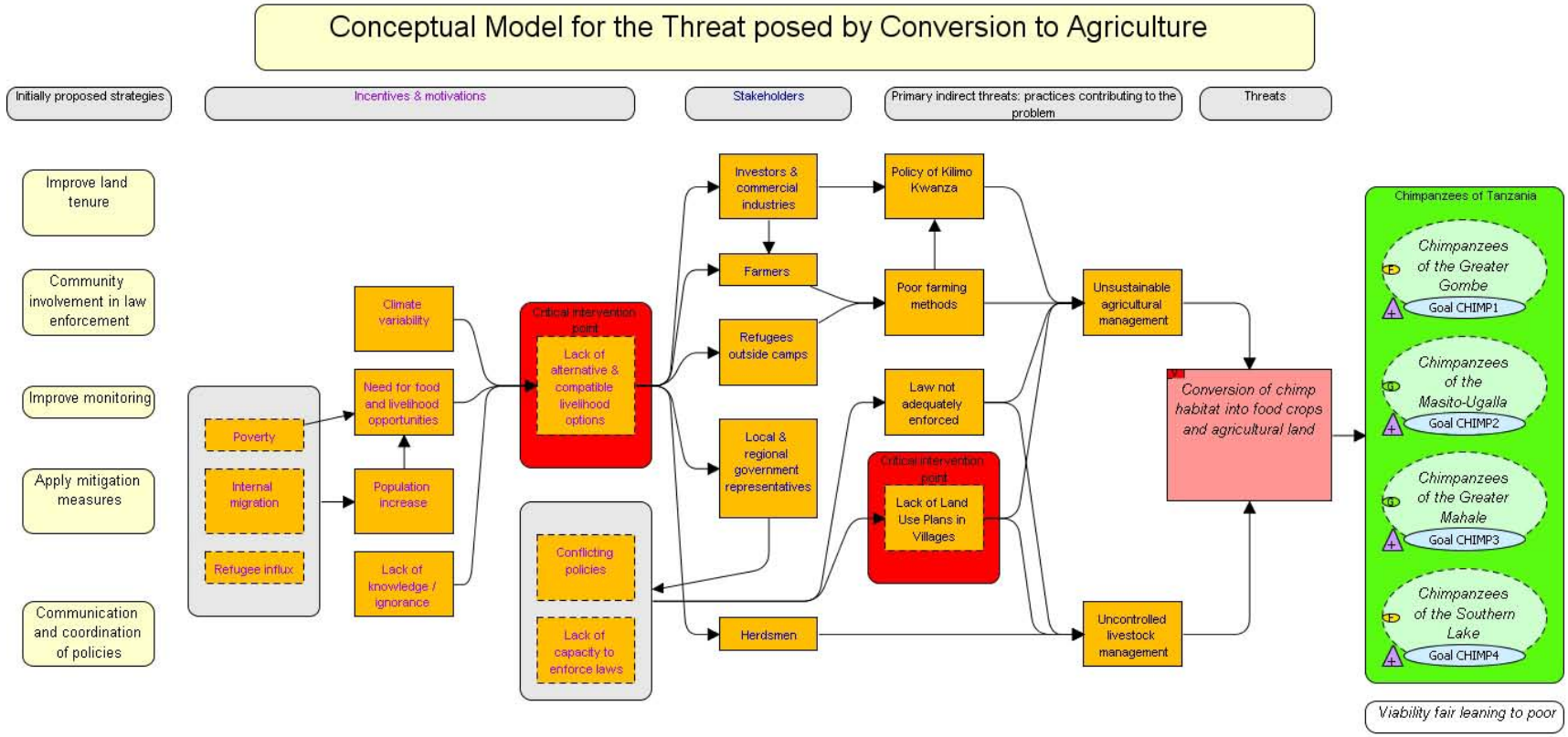
# Polygon	Critical Threat	How relevant is the threat in that location?	Justification	Comment	Pending issues for participant review to finalize maps
1	Incompatible development and expansion of settlements and infrastructure	Very high		Road existing	No pending issues
2		Very high		Existing road	No pending issues
3		High		Future road	No pending issues
4		High		Future road	No pending issues
5		High			No pending issues
6	Conversion of chimp habitat into food crops and agricultural land	Low			No pending issues
7		Very high			No pending issues
8		Very high			No pending issues
9		Very high			No pending issues

APPENDIX 12.D. Threat mapping exercise documentation for chimpanzees of the Southern Lake Tanganyika Area

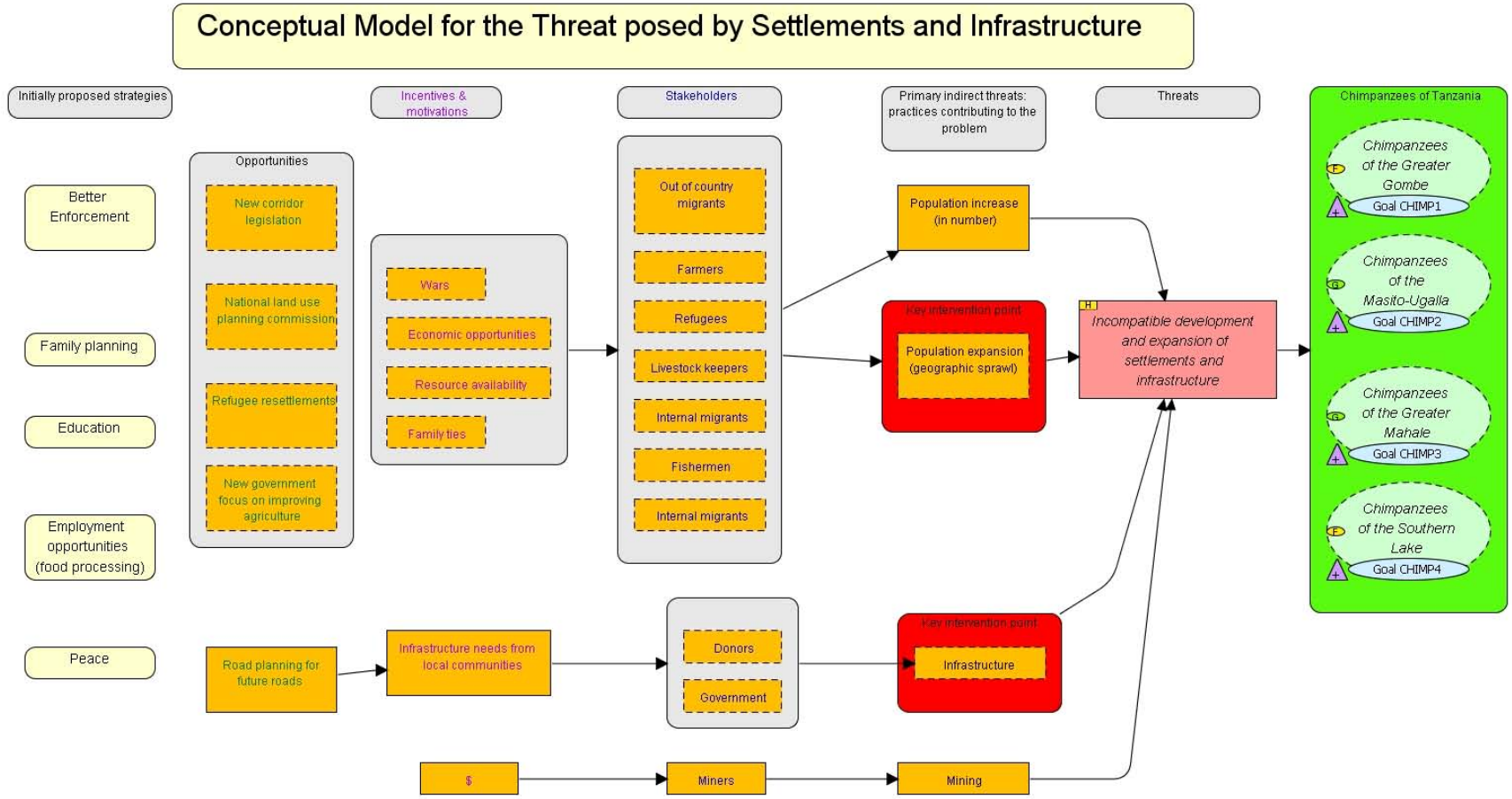
The following table includes the documentation that accompanies Map 10. Perceived scope of critical threats affecting chimpanzees of the Southern Lake Tanganyika Area

# Polygon	Critical Threat	How relevant is the threat in that location?	Justification	Comment	Pending issues for participant review to finalize maps
5	Incompatible charcoal production	High (thick line)	Charcoal for local and commercial use. Zmwanga, Mpanda it is sold.		No pending issues
6	Incompatible extraction of firewood and logging for timber	High (thick line)	Logging happens along riverine vegetation. timber for commercial sale –		No pending issues
7		Medium (thick line)	Logging for commercial purposes, but to a lesser extent.		No pending issues
8		Medium (thick line)	Logging for commercial purposes, but to a lesser extent		No pending issues
9	Unorganized livestock keeping and overgrazing	High (thick line)	Cattle grazing in forest areas. some burning, hunting by ranchers		No pending issues
10	Incompatible human-ignited fire		S.Tanganyika report from WCS has a great fire map which shows burn frequency (years) between 2001 and 2007.	This was not mapped at the workshop because WCS offered to share existing shapefiles. Fire incidence was incorporated into the background. Darker areas indicate higher burn frequency. These shapefiles correspond to the data published in Davenport et al., 2010.	No pending issues
11	Deliberate killing by humans / poaching (including incidental killing due to snares)		Poaching of chimpanzees with guns (and snares)		The drawn map was not very clear, so we drew a polygon in the area that seemed to be marked for this threat. Please advise if this is correct.

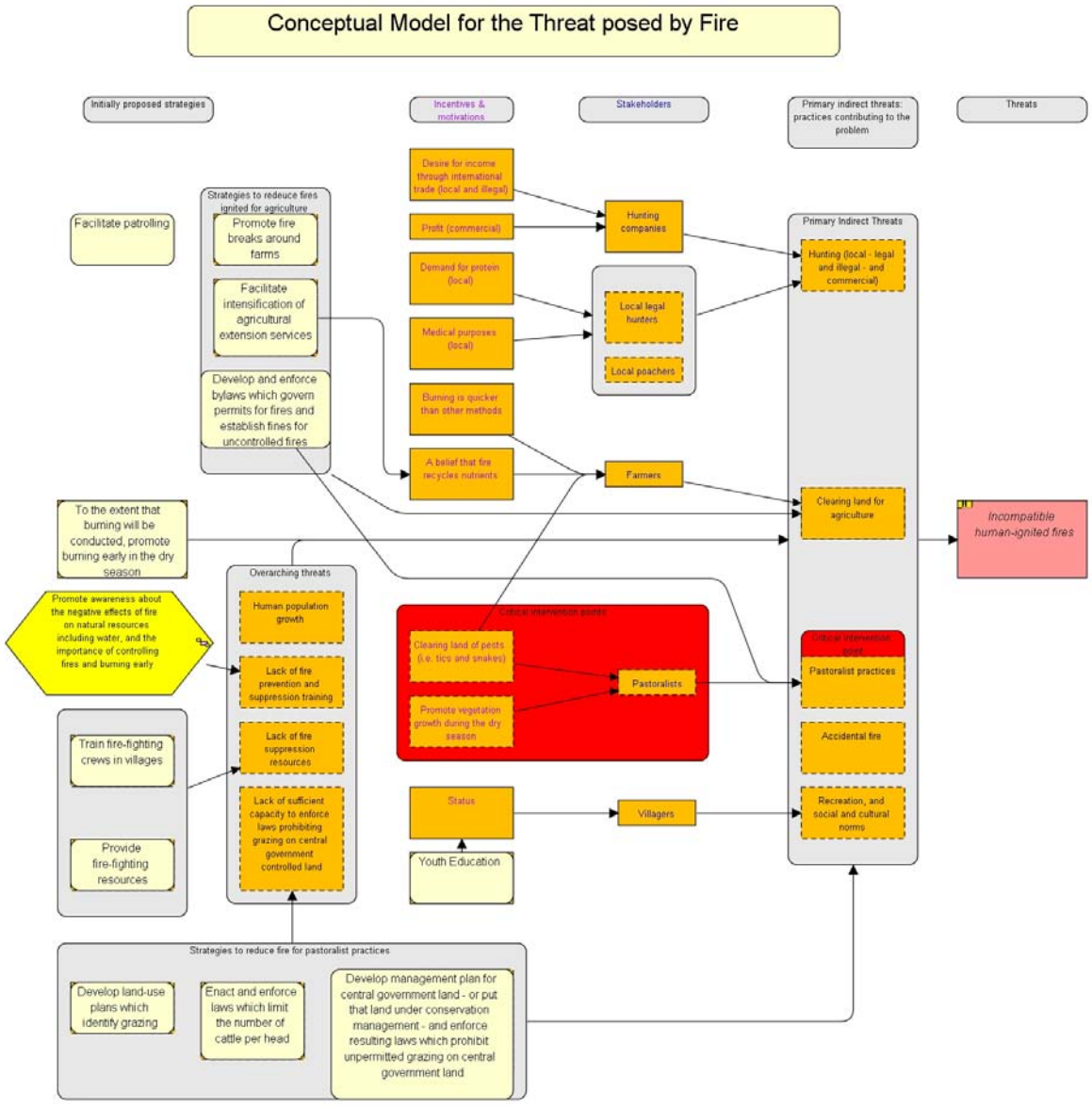
APPENDIX 13.A. Conceptual Model to better understand the critical threat of "Conversion of chimp habitat into food crops and agricultural land"



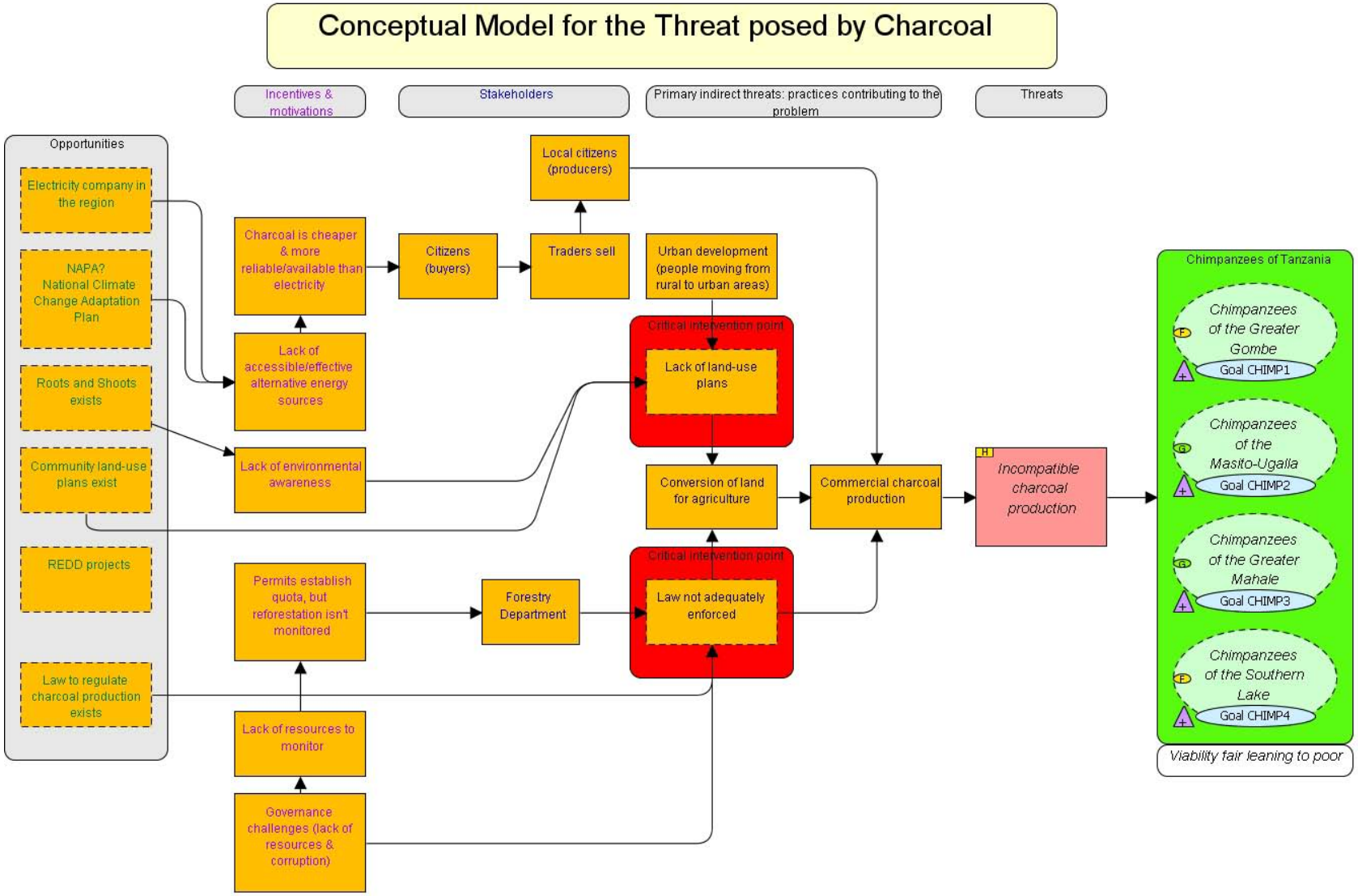
APPENDIX 13.B. Conceptual Model to better understand the critical threat of "Incompatible development and expansion of settlements and infrastructure"



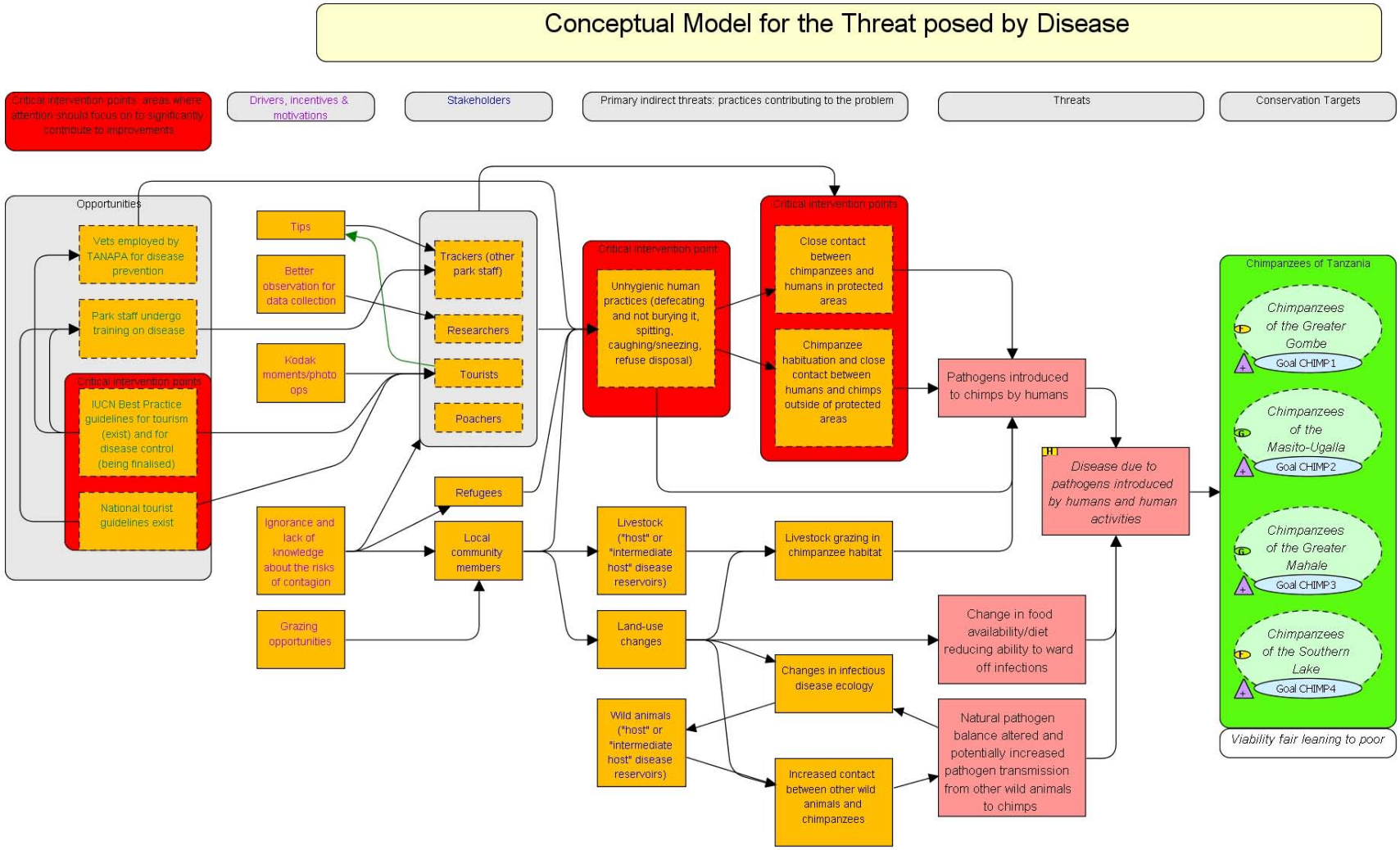
APPENDIX 13.C. Conceptual Model to better understand the critical threat of "Incompatible human-ignited fires"



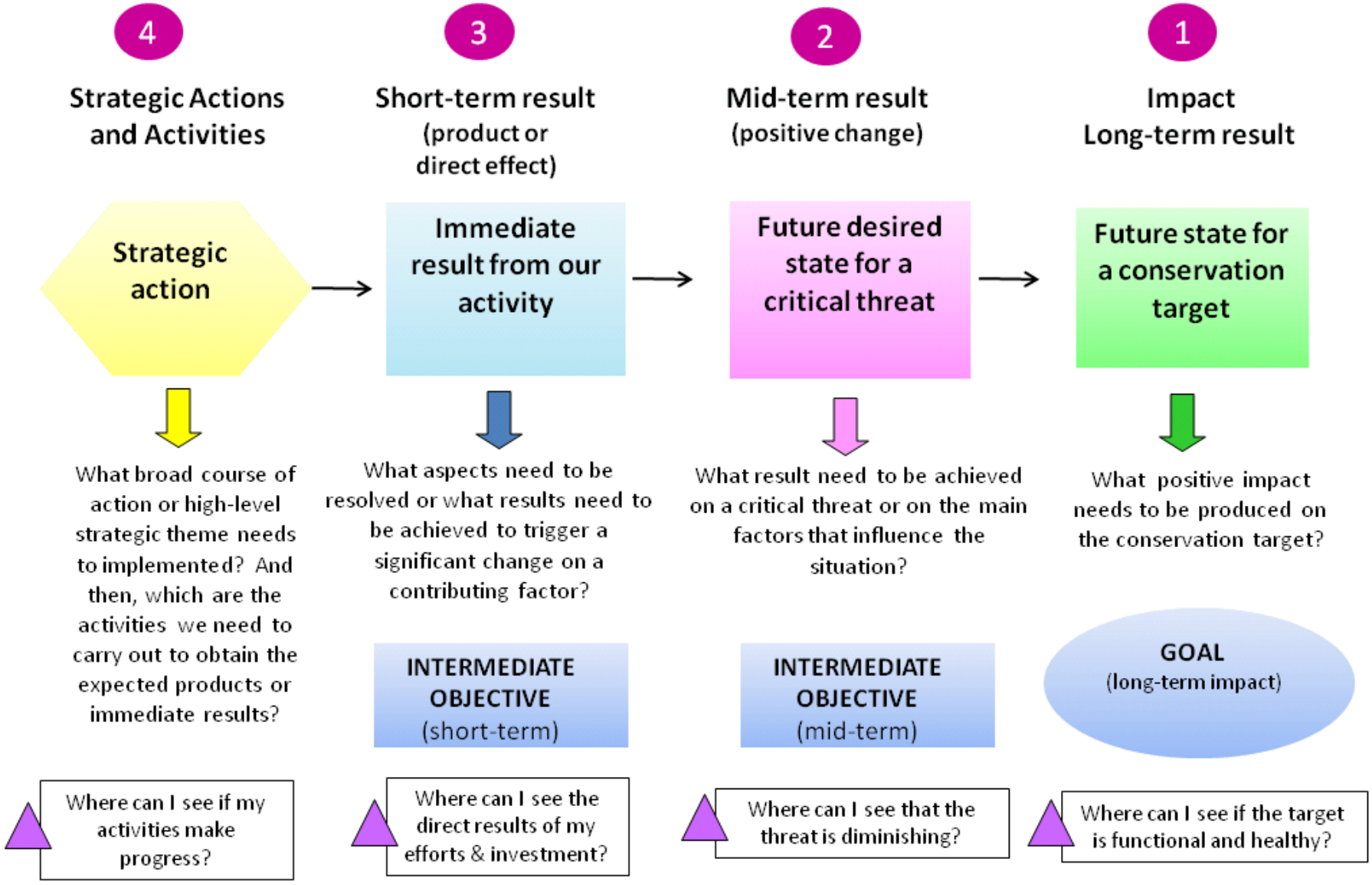
APPENDIX 13.D. Conceptual Model to better understand the critical threat of "Incompatible charcoal production"



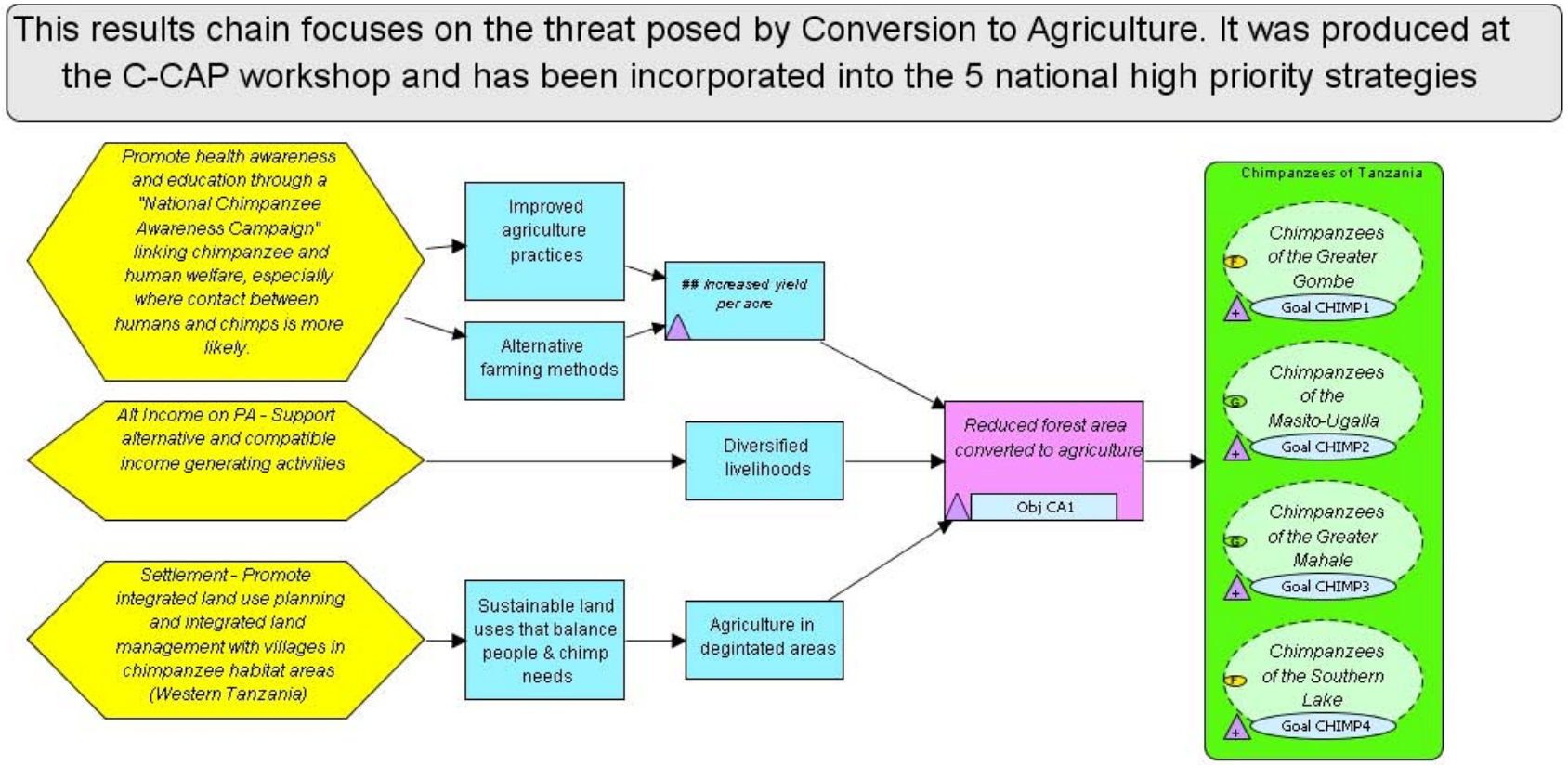
APPENDIX 13.E. Conceptual Model to better understand the critical threat of "Disease due to pathogens introduced by humans and human activities"



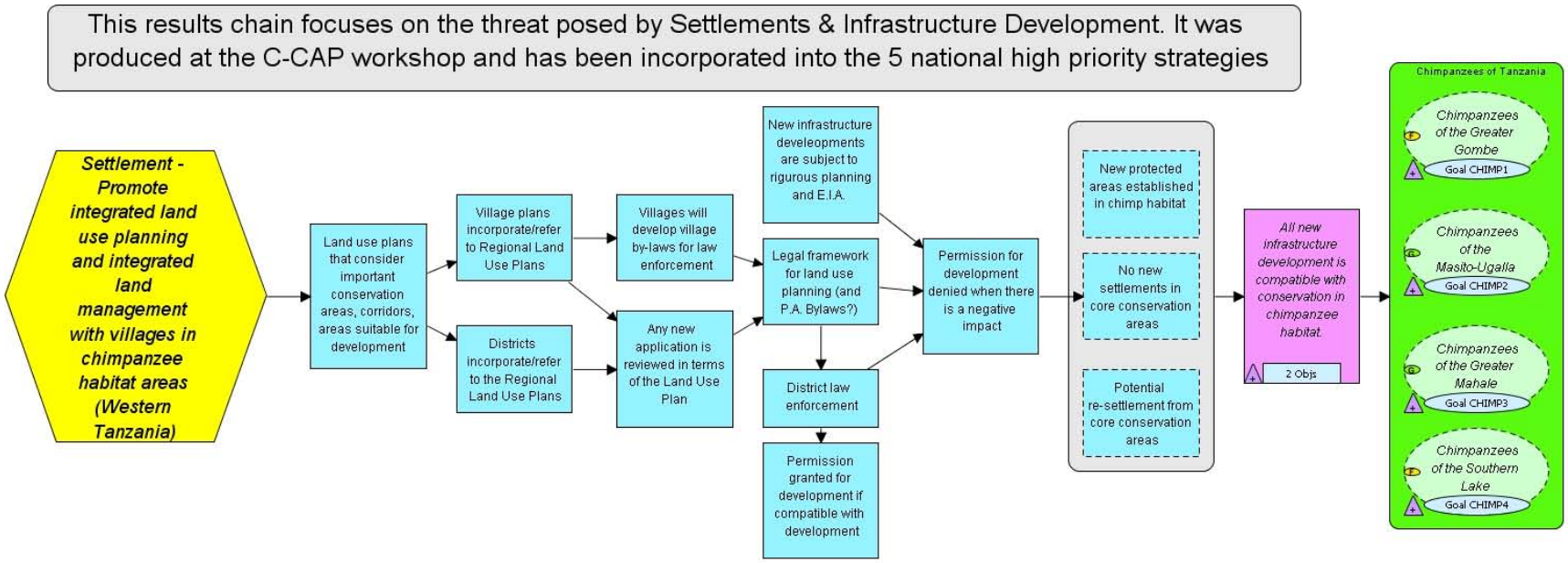
APPENDIX 14. Overview of basic steps for using a results chain to develop or refine a strategy, design objectives and identify indicators that should be measured to evaluate strategy effectiveness. Triangles indicate questions that relate to indicators.



APPENDIX 15.A. Results chain to address the critical threat of "Conversion of chimp habitat into food crops and agricultural land". This results chain was used as an input for National C-CAP strategies.

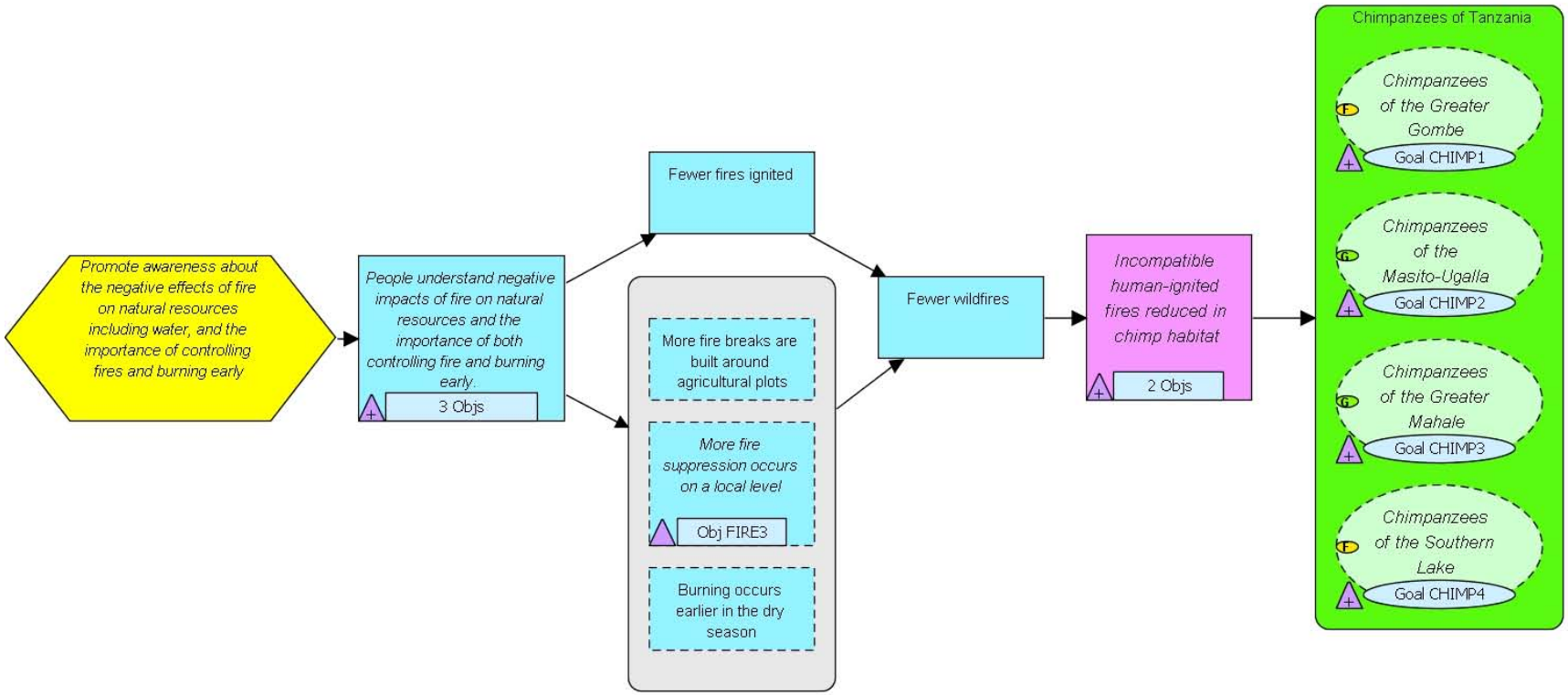


APPENDIX 15.B. Results chain to address the critical threat of "Incompatible development and expansion of settlements and infrastructure". This results chain was used as an input for National C-CAP strategies.

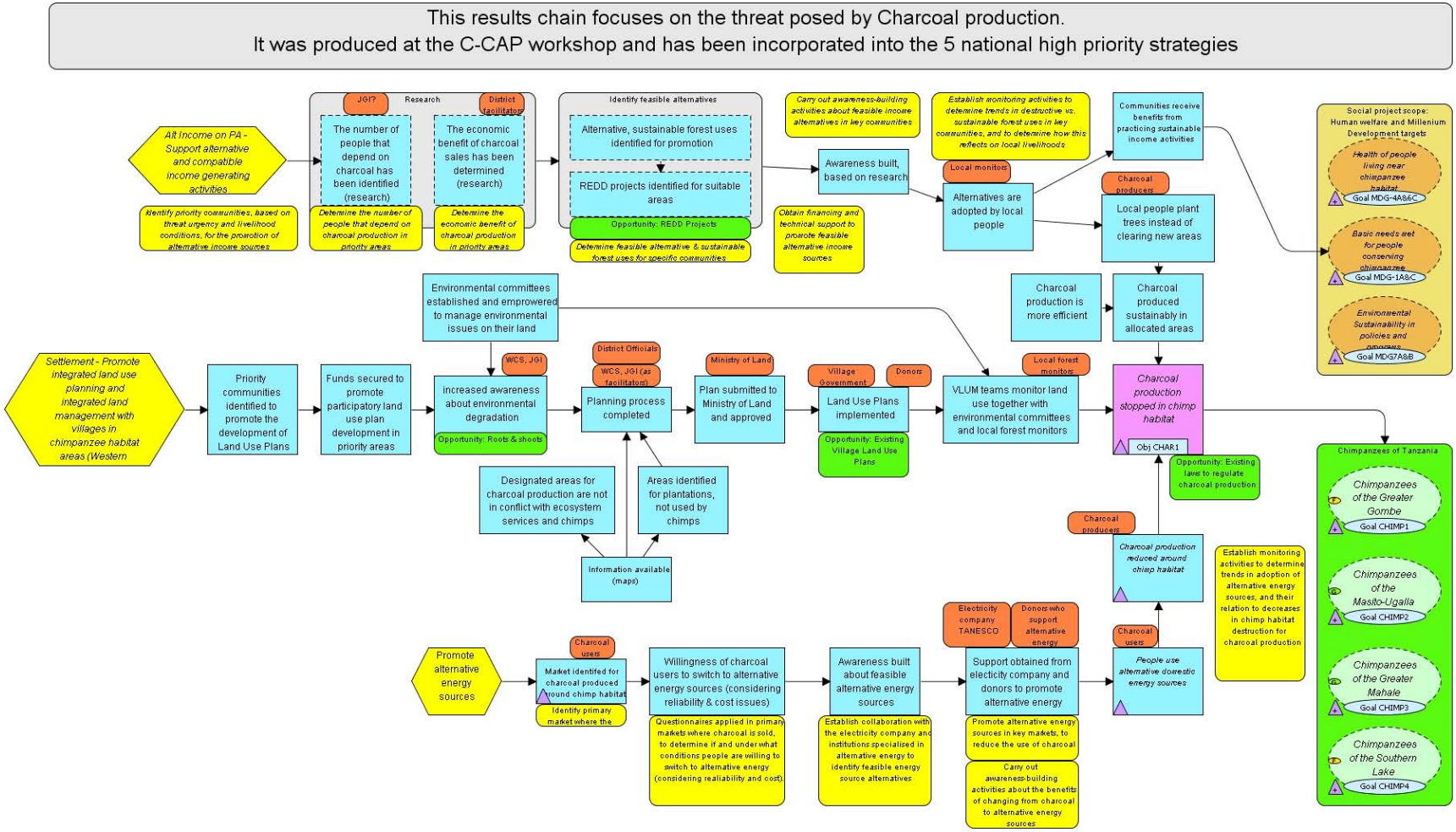


APPENDIX 15.C. Results chain to address the critical threat of "Incompatible human-ignited fires". This results chain was used as an input for National C-CAP strategies.

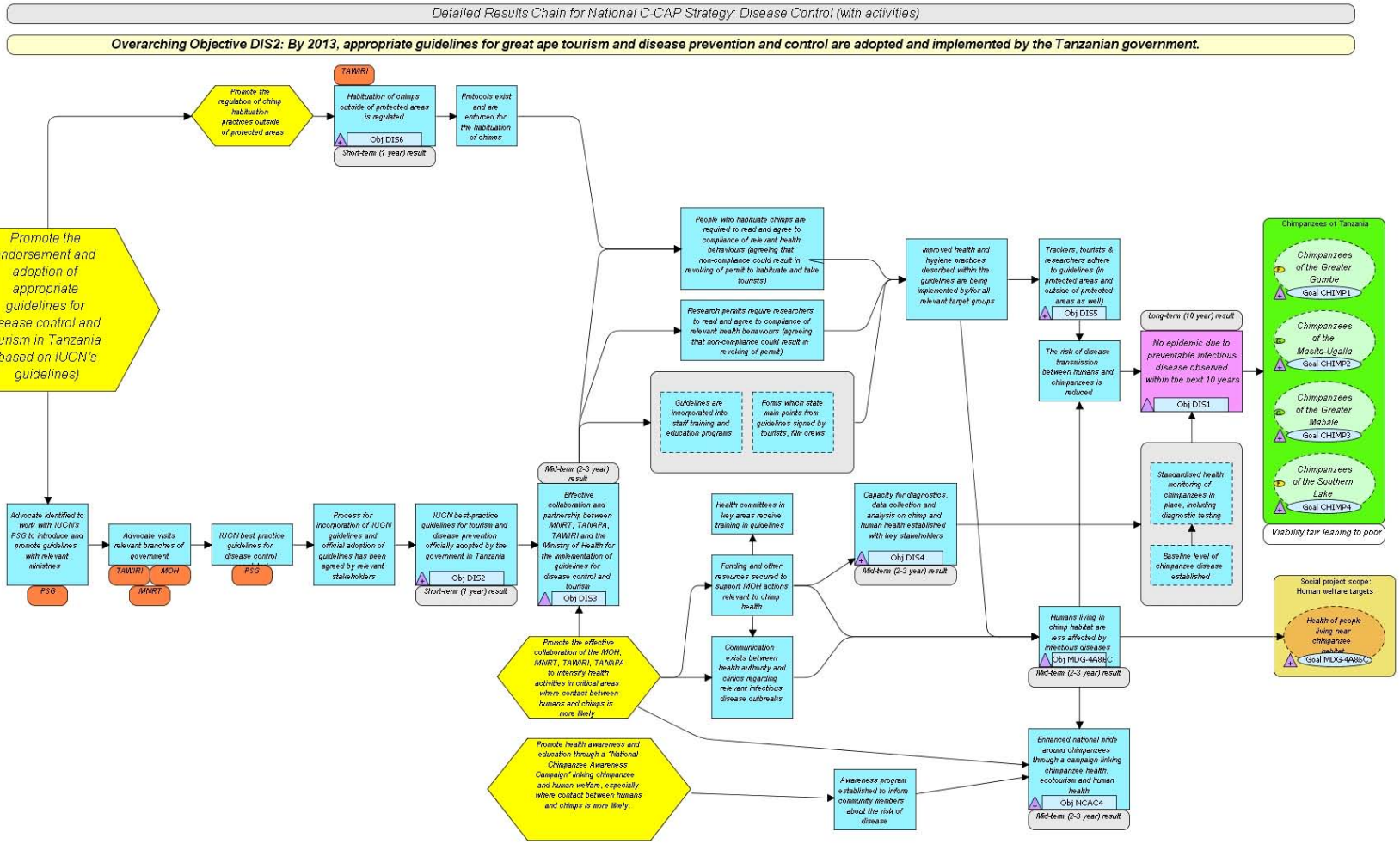
This results chain focuses on the threat posed by Fire. It was produced at the C-CAP workshop and has been incorporated into the 5 national high priority strategies



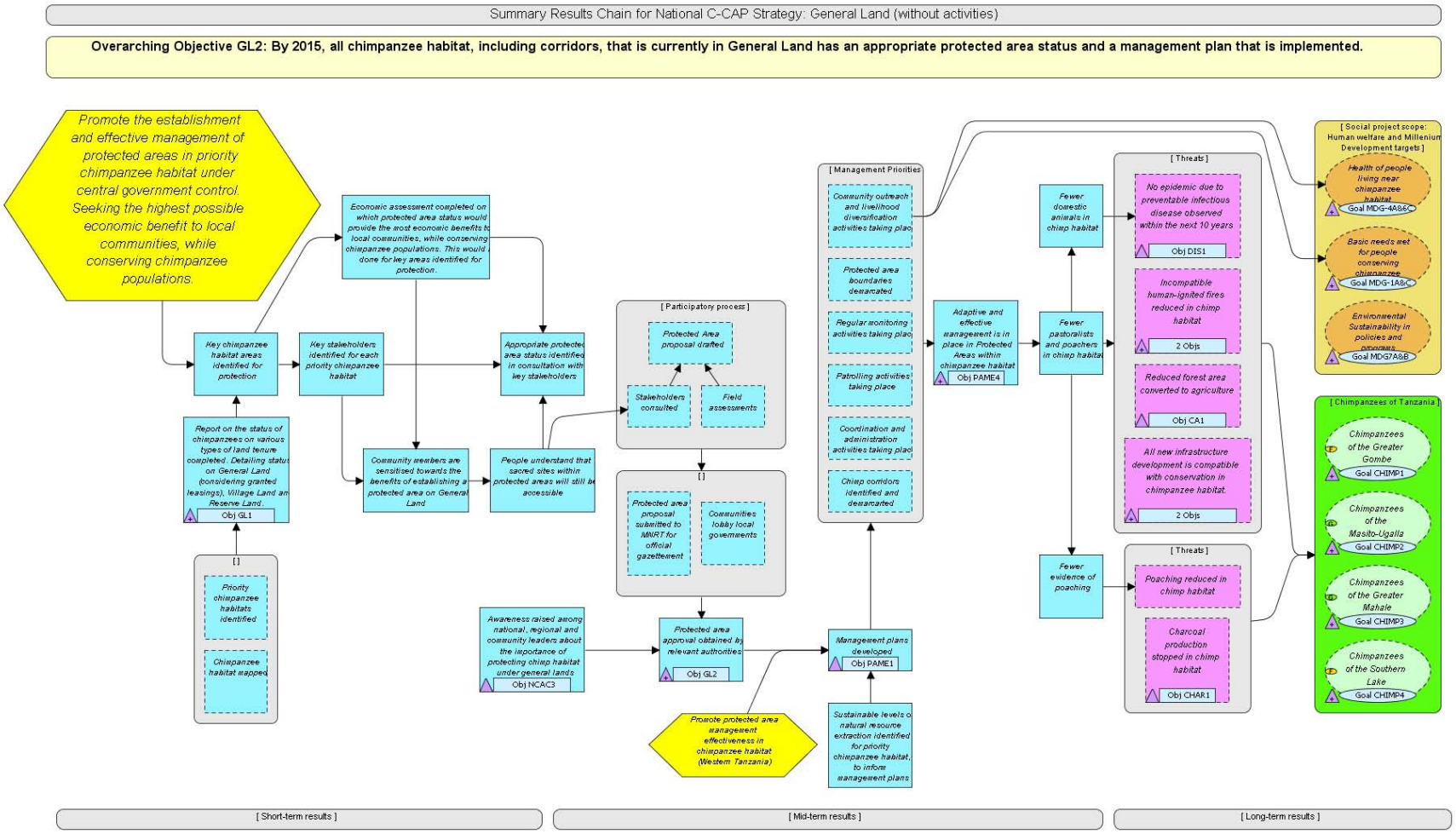
APPENDIX 15.D. Results chain to address the critical threat of "Incompatible charcoal production". This results chain was used as an input for National C-CAP strategies.



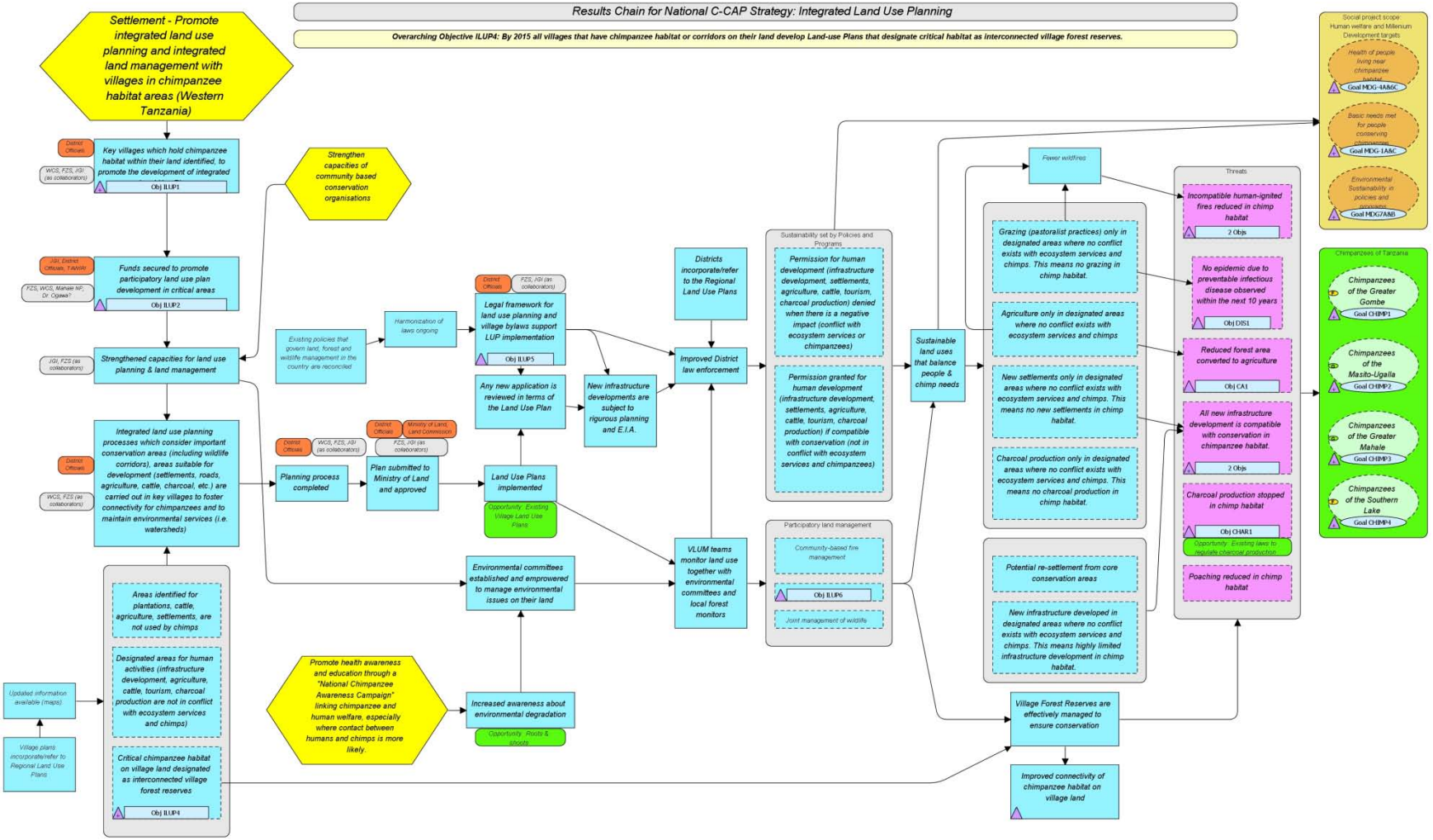
APPENDIX 15.E. Summary results chain to address the critical threat of "Disease due to pathogens introduced by humans and human activities". This results chain focuses on one of the National C-CAP strategies.



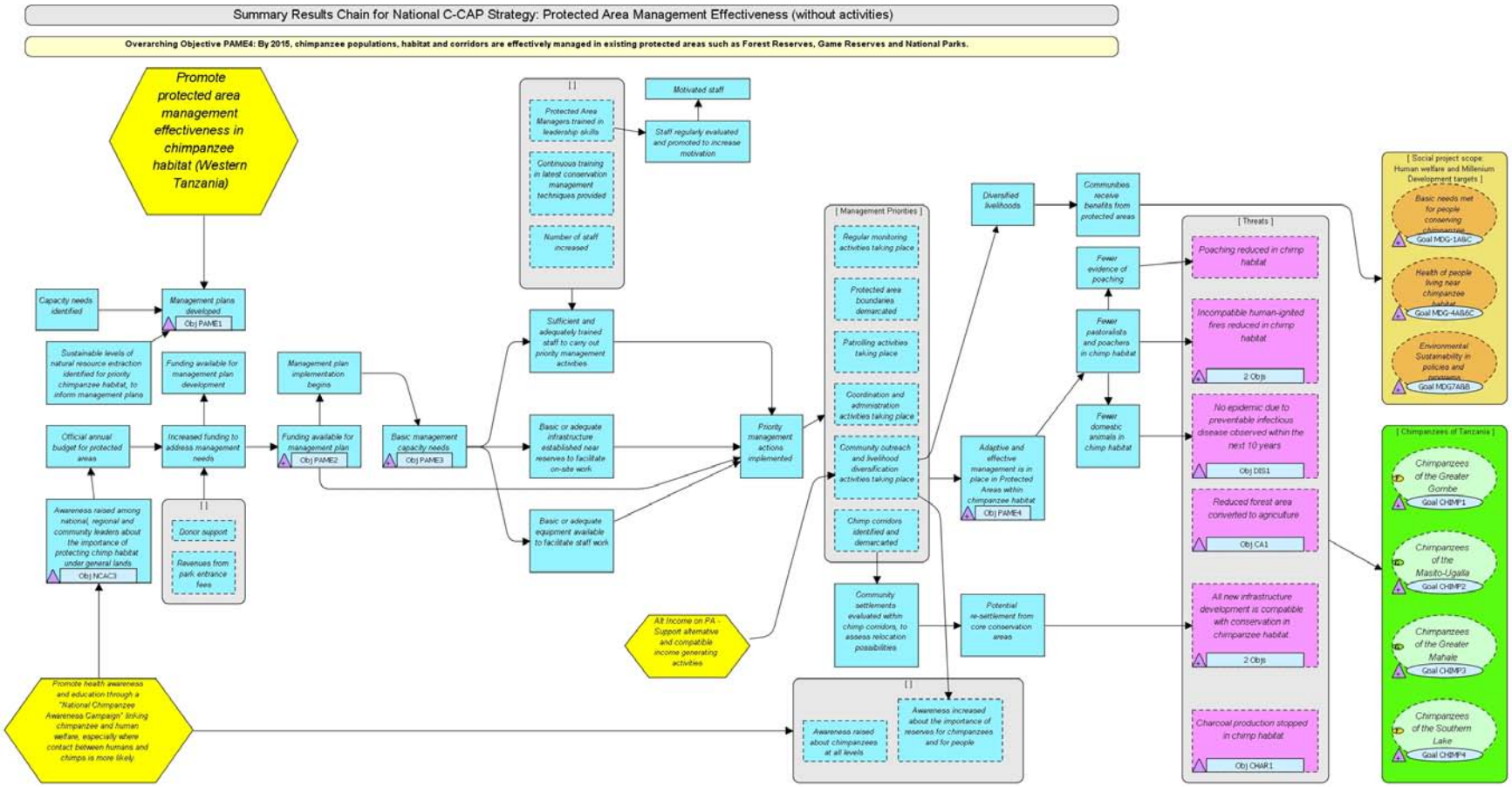
APPENDIX 15.F. Results chain to describe the logic and assumptions of the National C-CAP Strategy on General Land.



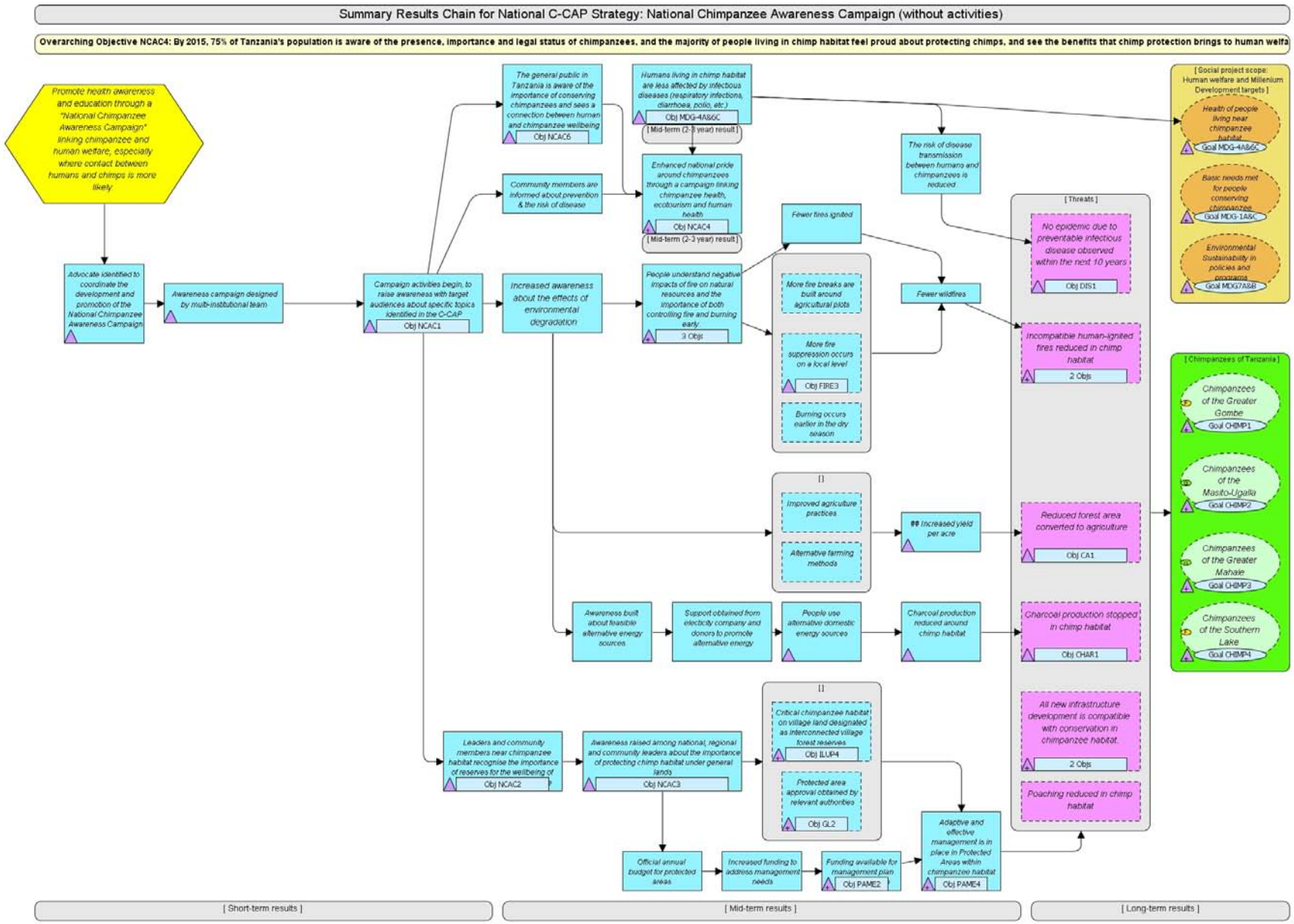
APPENDIX 15.G. Results chain to describe the logic and assumptions of the National C-CAP Strategy on Integrated Land Use Planning.



APPENDIX 15.H. Results chain to describe the logic and assumptions of the National C-CAP Strategy on Protected Area Management Effectiveness.



APPENDIX 15.I. Results chain to describe the logic and assumptions of the National C-CAP Strategy on Awareness.


Summary Results Chain for National C-CAP Strategy: National Chimpanzee Awareness Campaign (without activities)
Overarching Objective NCAC4: By 2015, 75% of Tanzania's population is aware of the presence, importance and legal status of chimpanzees, and the majority of people living in chimp habitat feel proud about protecting chimps, and see the benefits that chimp protection brings to human welfa
Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human welfare, especially where contact between humans and chimps is more likely
Advocate identified to coordinate the development and promotion of the National Chimpanzee Awareness Campaign
Awareness campaign designed by multi-institutional team
Campaign activities begin, to raise awareness with target audiences about specific topics identified in the C-CAP
Obj NCAC1
The general public in Tanzania is aware of the importance of conserving chimpanzees and sees a connection between human and chimpanzee wellbeing
Obj NCAC6
Community members are informed about prevention & the risk of disease
Increased awareness about the effects of environmental degradation
Humans living in chimp habitat are less affected by infectious diseases (respiratory infections, diarrhoea, polio, etc)
Obj MDG-4A&6C
[Mid-term (2-3 year) result]
Enhanced national pride around chimpanzees through a campaign linking chimpanzee health, ecotourism and human health
Obj NCAC4
[Mid-term (2-3 year) result]
People understand negative impacts of fire on natural resources and the importance of both controlling fire and burning early
3 Objs
Fewer fires ignited
More fire breaks are built around agricultural plots
More fire suppression occurs on a local level
Obj FIRE3
Burning occurs earlier in the dry season
Fewer wildfires
[]
Improved agriculture practices
Alternative farming methods
Increased yield per acre
Awareness built about feasible alternative energy sources
Support obtained from electricity company and donors to promote alternative energy
People use alternative domestic energy sources
Charcoal production reduced around chimp habitat
Leaders and community members near chimpanzee habitat recognise the importance of reserves for the wellbeing of
Obj NCAC2
Awareness raised among national, regional and community leaders about the importance of protecting chimp habitat under general lands
Obj NCAC3
[]
Critical chimpanzee habitat on village land designated as interconnected village forest reserves
Obj ILUP4
Protected area approval obtained by relevant authorities
Obj GL2
Official annual budget for protected areas
Increased funding to address management needs
Funding available for management plan
Obj PAME2
Adaptive and effective management is in place in Protected Areas within chimpanzee habitat
Obj PAME4
The risk of disease transmission between humans and chimpanzees is reduced
[Threats]
No epidemic due to preventable infectious disease observed within the next 10 years
Obj DIS1
Incompatible human-ignited fires reduced in chimp habitat
2 Objs
Reduced forest area converted to agriculture
Obj CA1
Charcoal production stopped in chimp habitat
Obj CHAR1
All new infrastructure development is compatible with conservation in chimpanzee habitat.
2 Objs
Poaching reduced in chimp habitat
[Social project scope: Human welfare and Millenium Development targets]
Health of people living near chimpanzee habitat
Goal MDG-4A&6C
Basic needs met for people conserving chimpanzee
Goal MDG-1A&C
Environmental Sustainability in policies and programs
Goal MDG7A&B
[Chimpanzees of Tanzania]
Chimpanzees of the Greater Gombe
Goal CHIMP1
Chimpanzees of the Masito-Ugalla
Goal CHIMP2
Chimpanzees of the Greater Mahale
Goal CHIMP3
Chimpanzees of the Southern Lake
Goal CHIMP4
[Short-term results]
[Mid-term results]
[Long-term results]

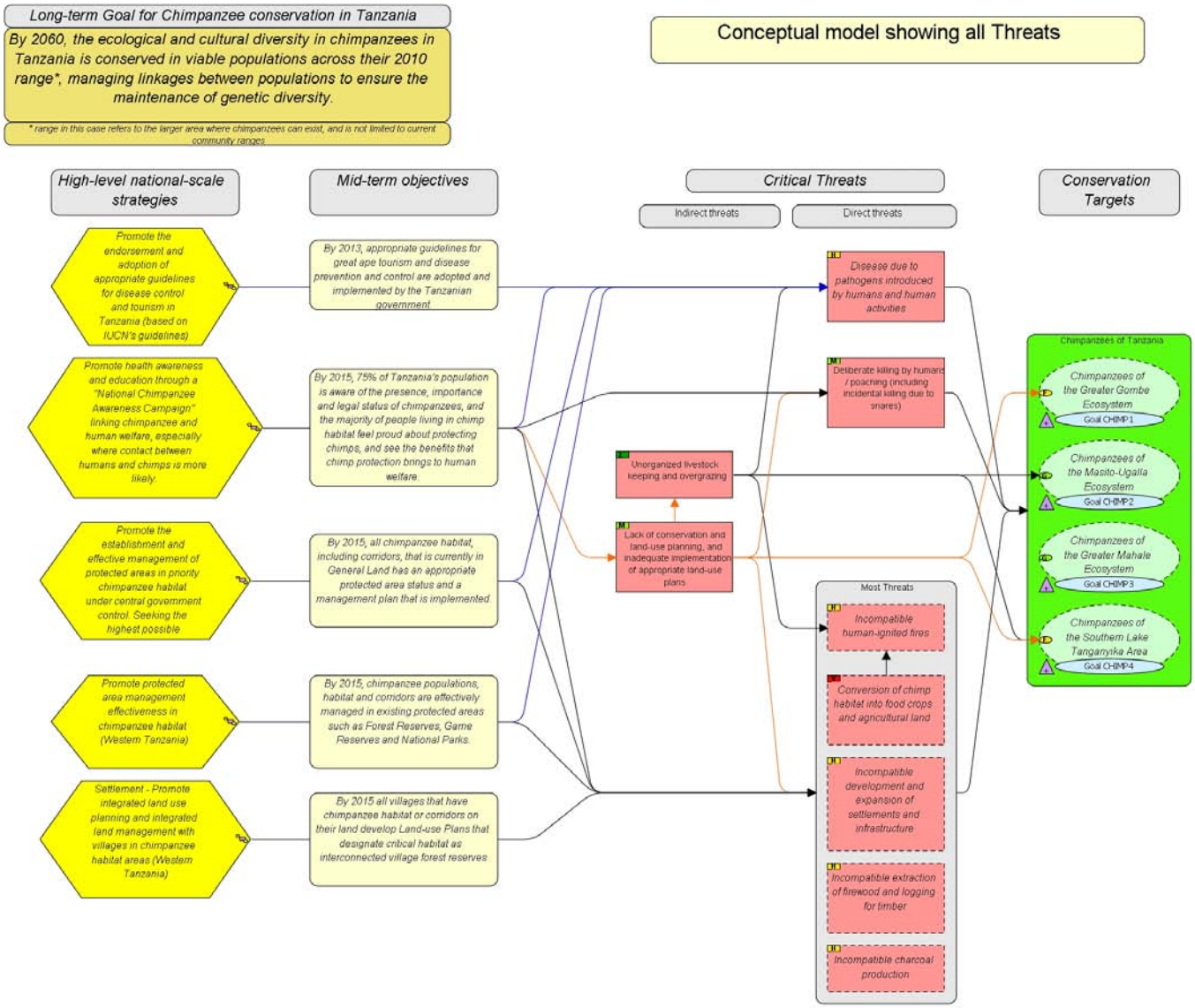
APPENDIX 16. List of strategies and threats for which they had been originally proposed, which were not selected as high-level national strategies.

Below are the general lines of action which had been proposed during the threats analysis exercise, which were not selected as high-level national strategies. Issues which have been incorporated as complementary strategic actions in one or more of the high-level strategies are marked in bold, and it should be mentioned that many of the other issues were incorporated as action steps into national level strategies.

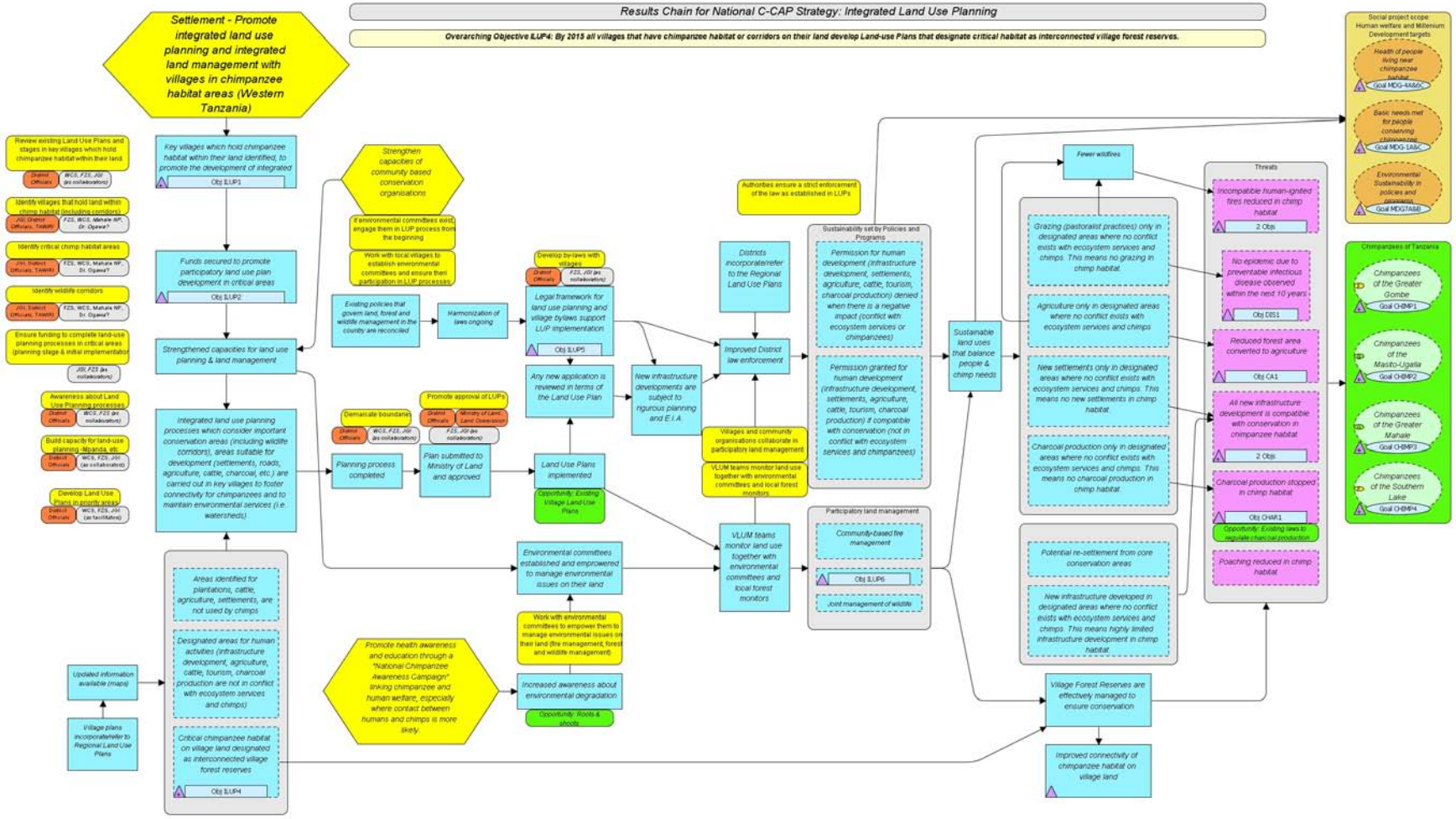
⇓Proposed strategies⇓ / ⇒ critical threats that will be addressed ⇒	**Conversion of chimp habitat into food crops and agricultural land**	**Incompatible extraction of firewood and logging for timber**	**Incompatible development and expansion of settlements and infrastructure**	**Incompatible human-ignited fires**	**Incompatible charcoal production**	**Disease due to pathogens introduced by humans and human activities**
	Very High	High	High	High	High	High
Alternative and compatible income generating activities *(included as a complementary strategic action in high-level national strategies)*	✓				✓	
Patrolling *(considered as an activity, not a strategic action)*				✓		
Fire breaks around farms *(considered as an activity, not a strategic action)*				✓		
Intensification of agricultural extension services *(considered as an activity, not a strategic action)*				✓		
By-laws to govern permits for fires, and fines for uncontrolled fires *(considered as an activity, not a strategic action)*				✓		
For allowed burning, promote burning early in the dry season *(considered as an activity, not a*				✓		

⇓Proposed strategies⇓ / ⇒ critical threats that will be addressed ⇒	**Conversion of chimp habitat into food crops and agricultural land**	**Incompatible extraction of firewood and logging for timber**	**Incompatible development and expansion of settlements and infrastructure**	**Incompatible human-ignited fires**	**Incompatible charcoal production**	**Disease due to pathogens introduced by humans and human activities**
strategic action)						
Train fire-fighting crews in villages *(considered as an activity, not a strategic action)*				✓		
Provide fire-fighting resources *(considered as an activity, not a strategic action)*				✓		
Laws to limit the number of cattle per head *(considered as an activity, not a strategic action)*				✓		
Alternative energy sources *(included as a complementary strategic action in the charcoal results chain, but not currently part a high-level national strategy)*					✓	
Regulation of chimpanzee habituation outside protected areas *(included as a complementary strategic action in a high-level national strategy)*						✓
Effective collaboration between health and environmental authorities *(included as a complementary strategic action in a high-level national strategy)*						✓

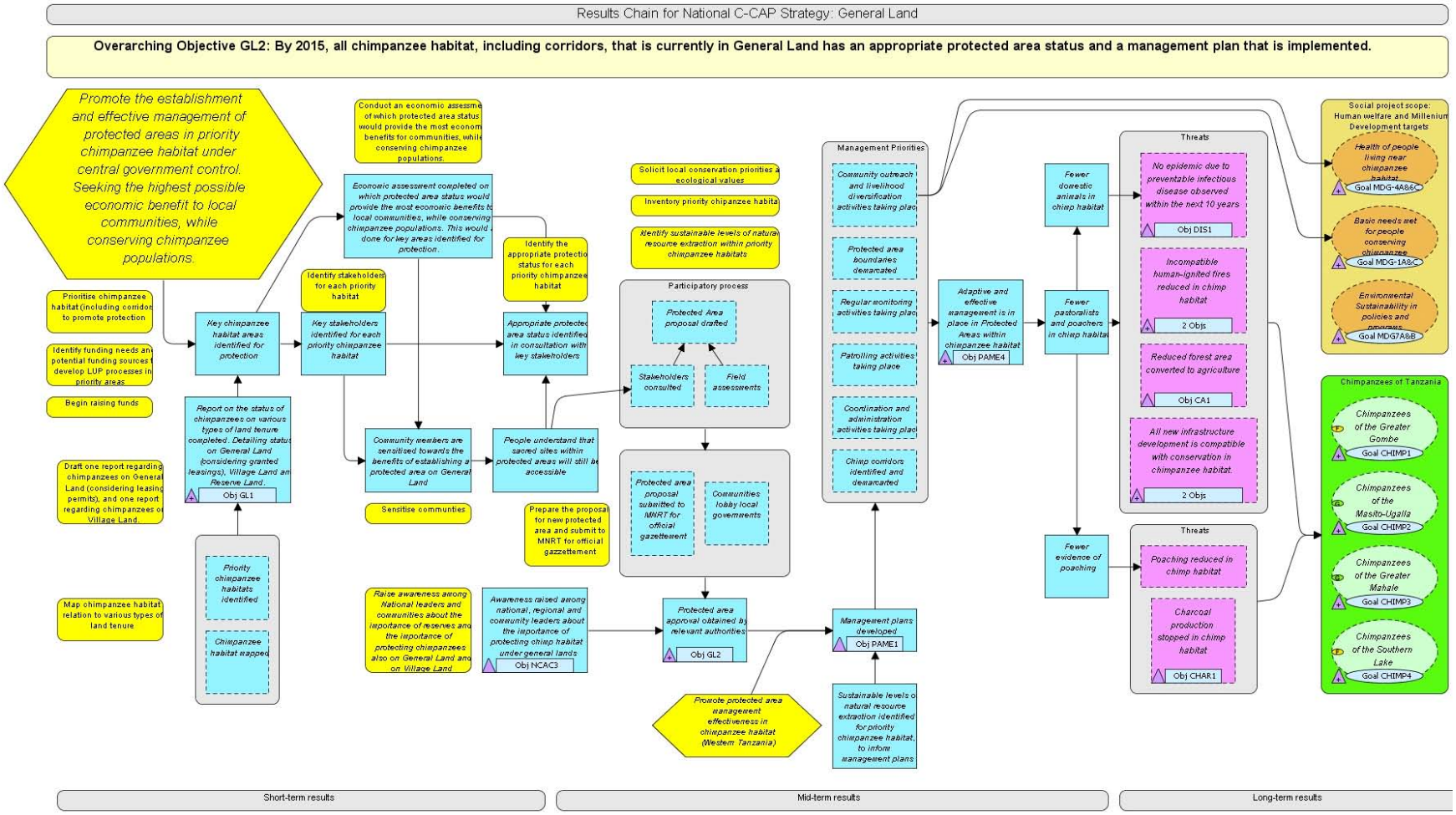
APPENDIX 17. Strategies, Objectives, all threats and targets at a glance



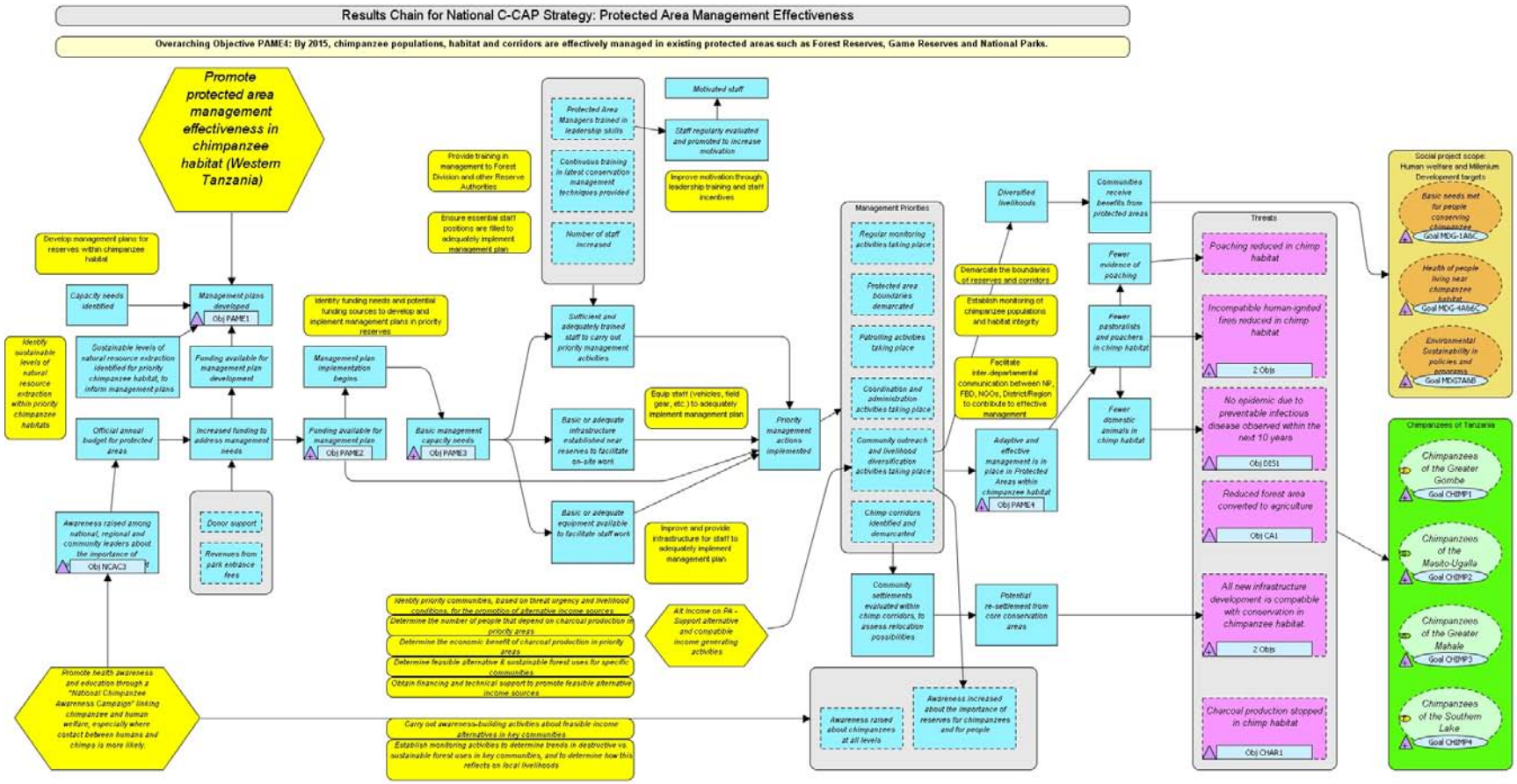
APPENDIX 18.A. Detailed results chain for national C-CAP strategy: Integrated Land Use Planning with Villages (showing strategic actions and activities)



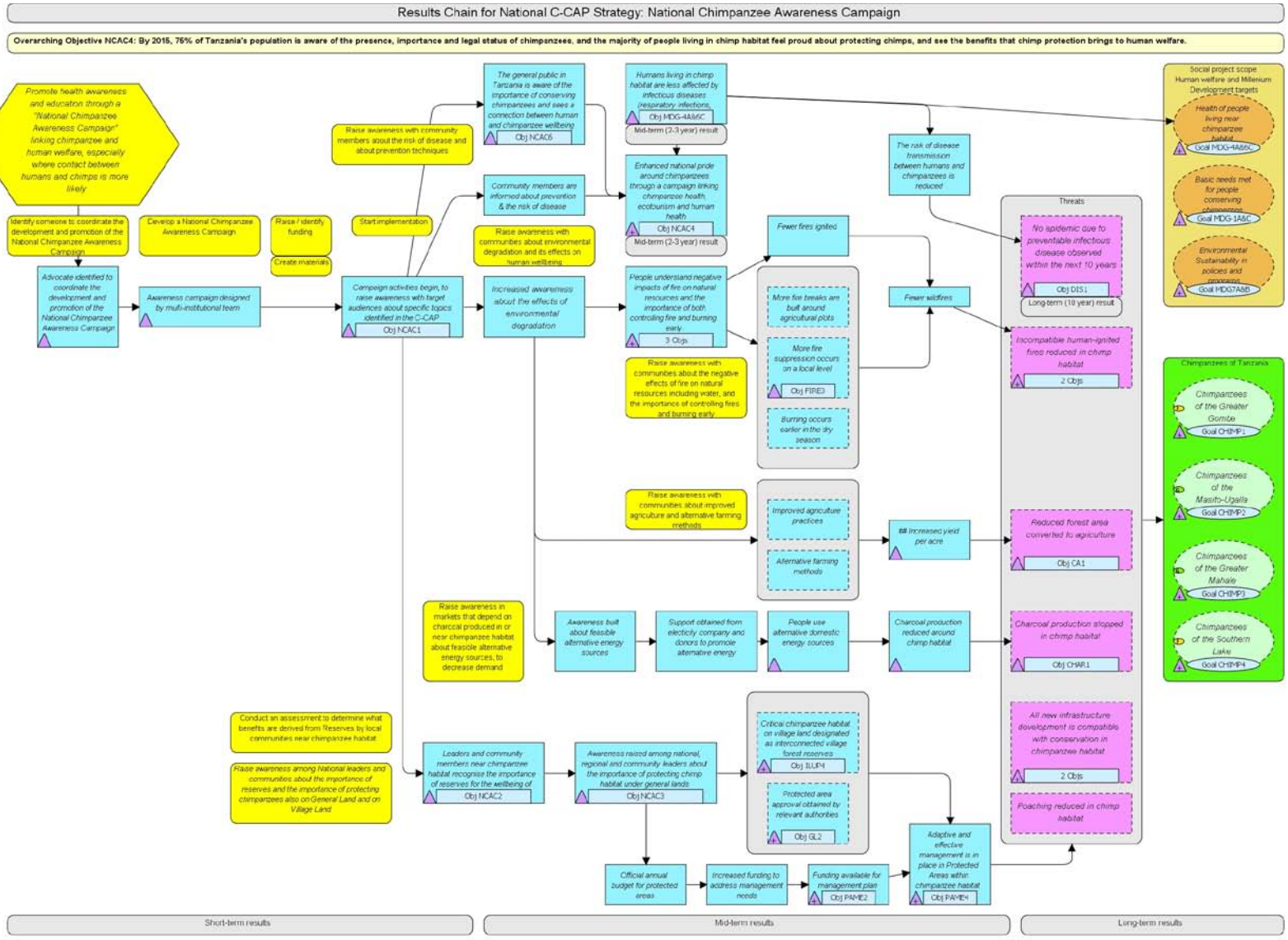
APPENDIX 18.B. Detailed results chain for national C-CAP strategy: General Government Land (showing strategic actions and activities)



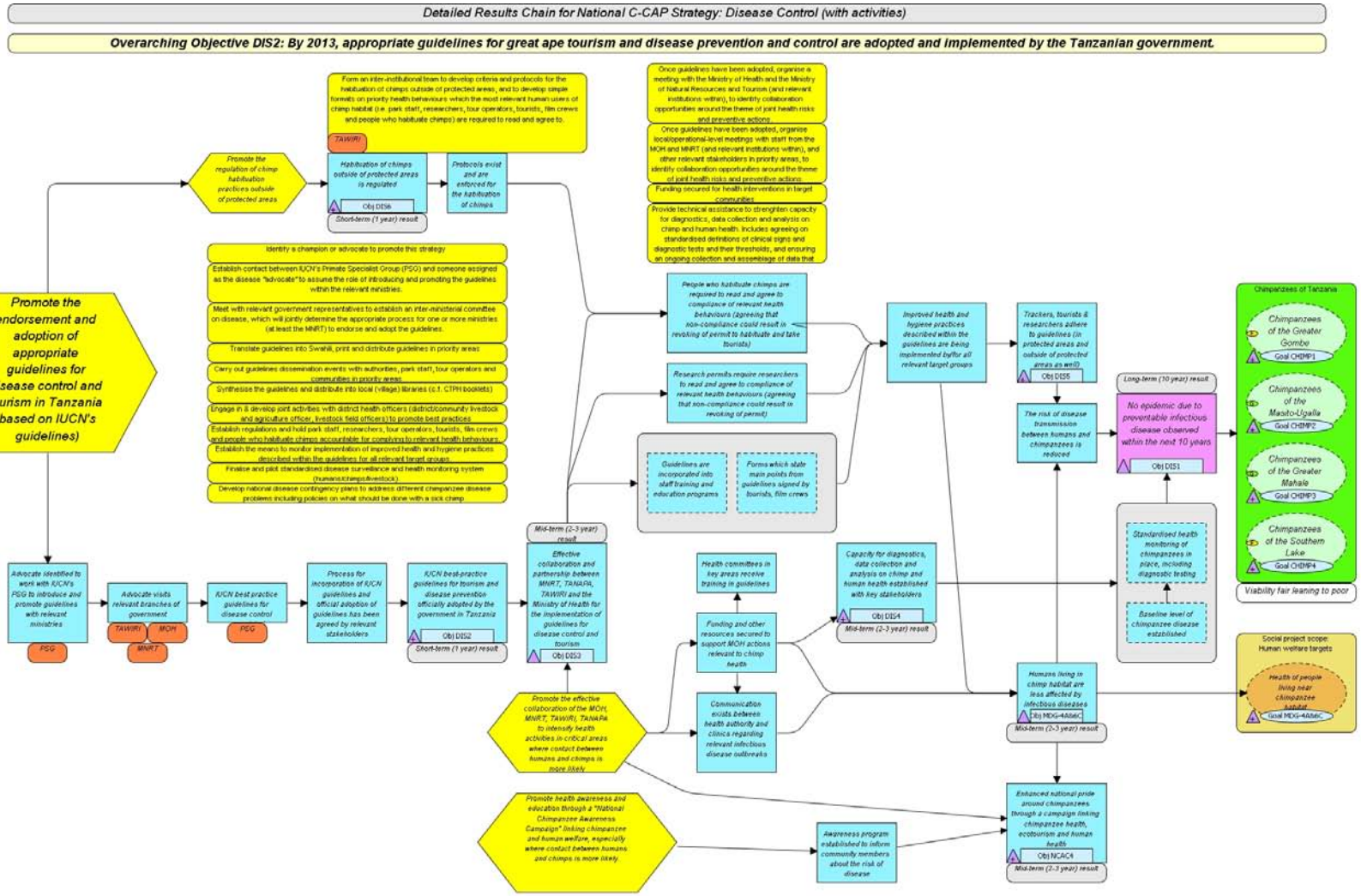
APPENDIX 18.C. Detailed results chain for national C-CAP strategy: Proteced Area Management Effectiveness (showing strategic actions and activities)



APPENDIX 18.D. Detailed results chain for national C-CAP strategy: National Chimpanzee Awareness Campaign (showing strategic actions and activities)

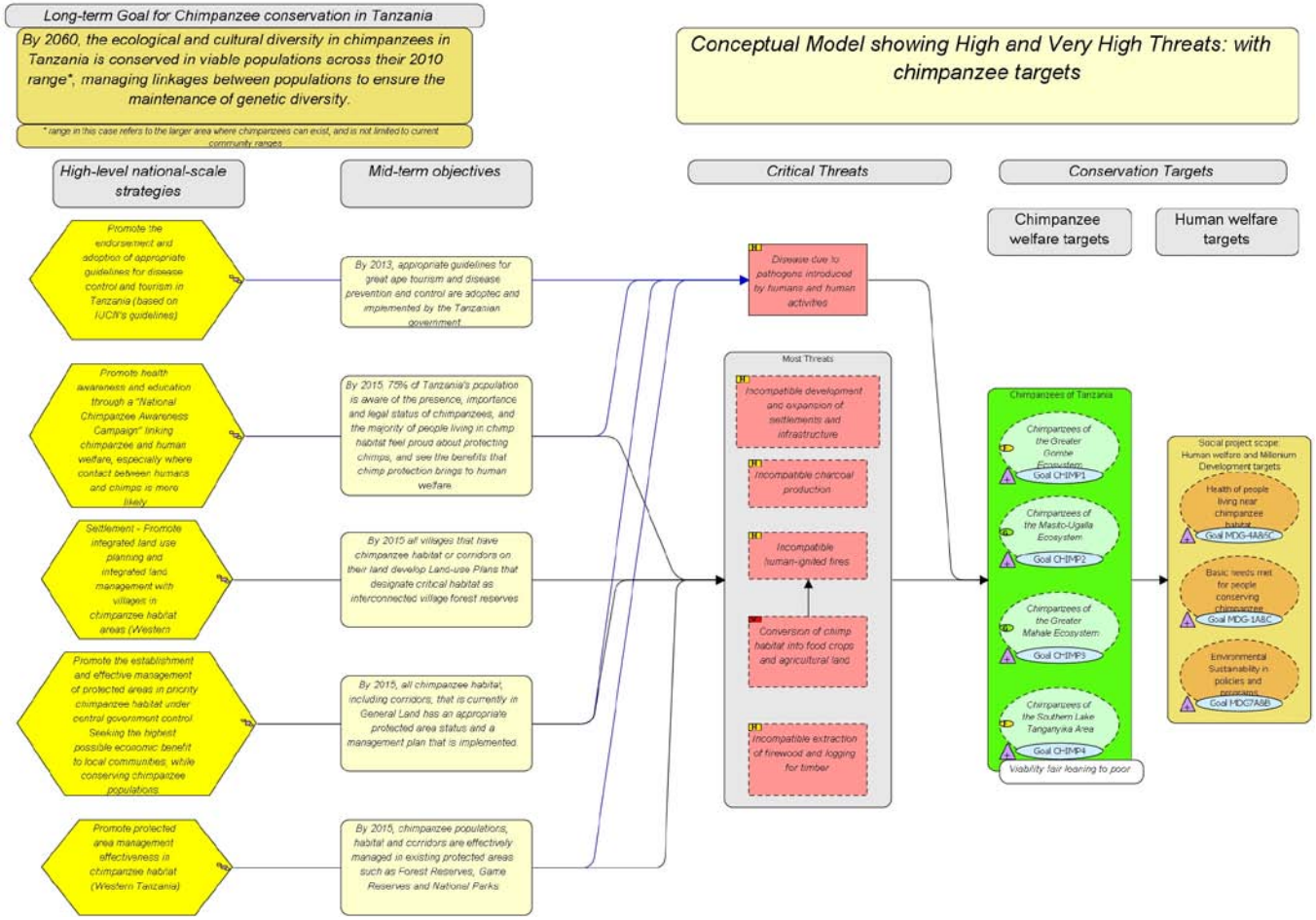


APPENDIX 18.E. Detailed results chain for national C-CAP strategy: Disease control and prevention (showing strategic actions and activities)



APPENDIX 19. A. Strategies, Objectives, critical threats and targets at a glance – considering both chimpanzee and human well-being

The following diagram incorporates a proposal which was elaborated after the C-CAP workshop took place. During the C-CAP workshop only chimpanzees were analysed as conservation targets, but upon reviewing detailed information from the proposed strategies and results chains, it seems that there is an opportunity to convey to others how conservation efforts could also reflect improvements in human well-being within the project scope. In Appendix 17 B we present more information about human well-being targets for planning team members to consider and decide upon.



APPENDIX 19. B. Considerations for the C-CAP planning team to decide if MDG-related human well-being targets should be explicitly incorporated into the Chimpanzee Conservation Plan.

The following information on 3 proposed "human well-being" targets, was presented to the core planning team members, after the workshop took place. These targets have not been agreed to, and the information is only included in case it is useful for future CAP updates. These proposed targets relate directly to Millenium Development Goals which are currently being addressed and measured by the government in Tanzania[32], which we believe presents an opportunity for conveying how conservation efforts can contribute to national human well-being priorities.

Considerations for the C-CAP planning team (workshop participants):

1) Should the C-CAP be explicit about the aspects of human wellbeing that are expected to improve based on chimp conservation?
2) Do you think we could use the 3 proposed human well-being targets to be consistent with Millenium development goals (MDG)?
3) Below we marked a minimum of indicators (in yellow) which are used by other agencies already for assessing progress towards MDG, which could be incorporated into the C-CAP, if human well-being targets are incorporated.

Human well-being and Millenium Development targets:

Proposed target name in C-CAP	Why could it be considered as a target within the C-CAP?	Related Millenium Development Goal and Targets	Millenium Development Indicators
Basic livelihood needs of people conserving chimpanzee habitat	Several result chains make the assumption that livelihoods of residents near chimp habitat will be improved if chimps and their habitat are conserved. Strategies such as Village-based LUPs	**Goal 1: Eradicate Extreme Poverty and Hunger**	
		Target 1A: Between 1990 and 2015, reduce the proportion of people whose income is less than one dollar a day by half.	• Proportion of population below $1 (PPP) per day/below national poverty line
		Target 1B:	• Growth rate of GDP per person employed

[32] *The Millennium Development Goals and targets come from the Millennium Declaration, signed by 189 countries, including 147 heads of State and Government, in September 2000 (http://www.un.org/millennium/declaration/ares552e.htm) and from further agreement by member states at the 2005 World Summit (Resolution adopted by the General Assembly-A/RES/60/1, http://www.un.org/Docs/journal/asp/ws.asp?m=A/RES/60/1). The goals and targets are interrelated and should be seen as a whole. They represent a partnership between the developed countries and the developing countries "to create an environment – at the national and global levels alike – which is conducive to development and the elimination of poverty".*

Proposed target name in C-CAP	Why could it be considered as a target within the C-CAP?	Related Millenium Development Goal and Targets	Millenium Development Indicators
	and Effective Management of Protected Areas make explicit connections with livelihood improvements. If we specify in the target that the project's audience is people conserving habitat I think it would be more feasible to demonstrate changes. Of course what conserving means would need to be determined by the planning team. We could simply use the MDG benchmarks as an equivalent of "viability scenarios" (for poor, fair, good, very good) – see figure s 2.2 and 2.3 below.	Achieve full and productive employment and decent work for all, including women and young people.	• Employment-to-population ratio • Proportion of employed people living below $1 (PPP) per day • Proportion of own account and contributing family workers in total employment
		Target 1.C: Between 1990 and 2015, reduce the proportion of people who suffer from hunger by half.	• Prevalence of underweight children under-five years of age • Proportion of population below minimum level of dietary energy consumption
Environmental Sustainability in policies and programs within chimpanzee habitat	This project is directly linked to various aspects of this MDG already and indicators such as chimp habitat hectares will be measured within the project anyway. Strategies such as Village/based LUPs and Effective Management of Protected Areas, as well as other strategies would help make progress towards this MDG. Information for this goal is a bit weak in the MDG report. Benchmarks proposed during the workshop for conserving forest cover, for the establishment of village forest reserves	**Development Goal 7: Ensure Environmental Sustainability**	
		Target 7A: Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources	• Proportion of land area covered by forest • CO2 emissions, total, per capita and per $1 GDP (PPP), • Proportion of population vulnerable to climate change adverse impacts • Consumption of ozone-depleting substances • Proportion of fish stocks within safe biological limits • Proportion of total water resources used • Proportion of terrestrial and marine areas protected • Proportion of species threatened with extinction
		Target 7B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss	

Proposed target name in C-CAP	Why could it be considered as a target within the C-CAP?	Related Millenium Development Goal and Targets	Millenium Development Indicators
	and other protected areas can serve as a reference to determine "viability scenarios" (for poor, fair, good, very good).		
Health of people living near chimpanzee habitat	This project seeks to contribute to the result of humans living in chimp habitat being less affected by infectious diseases (respiratory infections, diarrhoea, measles, polio, etc.) Strategies on disease control and awareness make specific assumptions about improvements in human health of local residents within the project scope. We could use the MDG benchmarks as an equivalent of "viability scenarios" (for poor, fair, good, very good) – see table 2.13	**Goal 4: Reduce child mortality**	
		Target 4A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.	• Under-five mortality rate • Infant mortality rate • Proportion of 1 year-old children immunized against measles
		Goal 6: Combat HIV and AIDS, Malaria and other Diseases	
		Target 6C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.	• Incidence and death rates associated with malaria • Proportion of children under five sleeping under insecticide-treated bed nets • Proportion of children under five with fever who are treated with appropriate anti-malaria drugs • Incidence, prevalence and death rates associated with tuberculosis • Proportion of tuberculosis cases detected and cured under directly observed treatment short course

Information on Millenium Development Goals was obtained from: Ministry of Finance and Economic Affairs. 2006. Millenium Development Goals Report. Mid-way evaluation 2000-2008. Ministry of Finance and Economic Affairs, United Republic of Tanzania. http://www.tz.undp.org/docs/MDGprogressreport.pdf

APPENDIX 20. Tanzania Chimpanzee Conservation Action Work Plan: 2010-2015

This is the narrative version of the work plan, which outlines the short-, mid- and long-term objectives that need to be achieved within each of the five high-level national strategies, as well as the strategic actions and activities, implementation leaders and collaborators, estimated timeframe for implementation, and proposed indicators to evaluate strategy effectiveness. While most objectives go beyond 2015, strategic actions and activities will need to be revised and adapted by no later than 2015, to ensure effective project management. A complete workplan in table format, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendices 20A-20E.

In order to make significant strides towards the long-term goal for chimpanzees in Tanzania, the planning team proposed to focus collective efforts at a national scale on the following five strategies:

- ✓ Disease control and prevention through the adoption of IUCN's guidelines for disease control and tourism in Tanzania.
- ✓ A "National Chimpanzee Awareness Campaign", linking chimpanzee and human well-being.
- ✓ Integrated land use planning and integrated land management with villages in chimpanzee habitat (Western Tanzania).
- ✓ Protection and effective management of chimpanzee habitat on Government Land.
- ✓ Effective management of all protected areas within chimpanzee habitat.

While these five high-level strategies were designed to solve issues from different angles, they will need to be implemented in a well coordinated fashion in order to effectively contribute to threat abatement and to the fulfillment of the target goals and the overall project goal.

The order in which strategies are presented does not reflect an order of importance.

Tanzania Chimpanzee Conservation Goal

"By 2060, the ecological and cultural diversity in chimpanzees in Tanzania is conserved in viable populations across their 2010 range*, managing linkages between populations to ensure the maintenance of genetic diversity".

**** range in this case refers to the larger area where chimpanzees can exist, and is not limited to current community ranges***

1. INTEGRATED LAND USE PLANNING AND INTEGRATED LAND MANAGEMENT WITH VILLAGES IN CHIMPANZEE HABITAT (WESTERN TANZANIA):

Chimpanzee habitat in Tanzania is managed under the following administrative land classifications: Village Land (which falls under the jurisdiction of Villages), General Land (consisting mostly of land under granted titles and urban land) and Reserve Land (which refers to protected areas under government administration) (Veit et al., 2008). Considering that approximately 80% of chimpanzees exist outside of protected areas, on Village and General Land, addressing their conservation needs outside of protected areas becomes imperative.

This strategy was designed to work with key villages to carry out integrated land use planning processes which consider important conservation areas (including wildlife corridors), as well as areas suitable for development (settlements, roads, agriculture, cattle, charcoal, etc.). It is expected that by designating interconnected forest reserves villages will foster connectivity for chimpanzees and help maintain environmental services (i.e. watershed functions). Adequate law enforcement will be key in order to achieve integrated land management. This means that for this strategy to be successful, authorities are expected to grant permissions for human development (infrastructure development, settlements, agriculture, cattle, tourism, charcoal production) only if compatible with conservation (not in conflict with ecosystem services and chimpanzees), and that sanctions are applied when activities are carried out where not allowed or when not in compliance with official regulations.

Integrated land use planning and management will enable villages to manage their natural resources more sustainably, which is important for maintaining environmental services, such as soil retention and water. By designating and managing interconnected village forest reserves, villages will be able to participate more directly in the protection of one of Tanzania's natural treasures – chimpanzees. This strategy was designed to mitigate five critical threats on priority chimpanzee habitat on Village Land, and it is expected to significantly contribute to the conservation of all four conservation targets. In addition to reversing the loss of environmental resources, people conserving chimpanzee habitat could benefit from health improvements and also increased opportunities to meet basic needs.

The results chain which shows the strategic actions and results that need to be achieved so that integrated land use planning can truly contribute to improvements for chimpanzees and human wellbeing, can be found in a summarised version in Appendix 15G, and in a complete version with activities in Appendix 18A.

The overarching mid-term objective for this strategy is:
By 2015 all villages that have chimpanzee habitat or corridors on their land develop Land-use Plans that designate critical habitat as interconnected village forest reserves.

The strategy is comprised of the following three strategic actions:

- ✓ Promote integrated land use planning and integrated land management with villages in chimpanzee habitat areas (Western Tanzania) – *main strategic action*
- ✓ Strengthen capacities of community based conservation organisations – *complementary strategic action*
- ✓ Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely. – *complementary strategic action*

Work plan for National C-CAP Strategy on Integrated land use planning and integrated land management with villages in chimpanzee habitat (Western Tanzania):

Below we present the overaching objective, strategic actions and activities to implement this strategy. A more complete workplan in table format for this strategy, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20A.

Integrated Land Use Planning Objective

By 2015 all villages that have chimpanzee habitat or corridors on their land develop Land-use Plans that designate critical habitat as interconnected village forest reserves.

Strategic Action: ILUP 1. Promote integrated land use planning and integrated land management with villages in chimpanzee habitat areas (Western Tanzania)
Who: DC, FZS, WCS, Mahale N.P., TAWIRI, JGI, TNC, MOL
When: FY10-FY15

Activity: ILUP 1.1. Review existing Land Use Plans and stages in key villages which hold chimpanzee habitat within their land
Who: DC,FZS, WCS, JGI
When: FY10-FY11

Activity: ILUP 1.2. Identify wildlife corridors
Who: DC, TAWIRI, JGI, FZS, WCS, Mahale N.P., Dr. Ogawa?, TNC
When: FY10-FY11

Activity: ILUP 1.3. Identify critical chimp habitat areas
Who: DC, TAWIRI, JGI, FZS, WCS, Mahale N.P., Dr. Ogawa?, TNC
When: FY10-FY11

Activity: ILUP 1.4. Identify villages that hold land within chimp habitat (including corridors)
Who: DC, TAWIRI, JGI, FZS, WCS, Mahale N.P., Dr. Ogawa?, TNC
When: FY10-FY11

Activity: ILUP 1.5. Awareness about Land Use Planning processes
Who: DC, WCS, JGI
When: FY10-FY15

Activity: ILUP 1.6. Ensure funding to complete land-use planning processes in critical areas (planning stage & initial implementation)
Who: FZS, JGI, TNC
When: FY10-FY15

Activity: ILUP 1.7. Build capacity for land-use planning -Mpanda, etc.
Who: DC, FZS, WCS, JGI, TNC
When: FY11-FY15

Activity: ILUP 1.8. Develop Land Use Plans in priority areas
Who: DC, FZS, WCS, JGI, TNC
When: FY11-FY15

Activity: ILUP 1.9. Develop by-laws with villages
Who: DC, FZS, JGI
When: FY11-FY15

Activity: ILUP 1.10. Demarcate boundaries
Who: DC, FZS, WCS, JGI
When: FY11-FY15

Activity: ILUP 1.11. Promote approval of LUPs
Who: DC, MOL ,FZS, JGI, TNC
When: FY11-FY15

Activity: ILUP 1.12. Authorities ensure a strict enforcement of the law as established in LUPs
Who: DC
When: FY11-FY15

Activity: ILUP 1.13. Villages and community organisations collaborate in participatory land management
Who: DC
When: FY12-FY15

Activity: ILUP 1.14. VLUM teams monitor land use together with environmental committees and local forest monitors
Who:
When: FY12-FY15

Strategic Action: COM - EMP 1. Strengthen capacities of community based conservation organisations
Who: DC, FZS, WCS, JGI
When: FY11-FY15

Activity: ILUP 1.7. Build capacity for land-use planning -Mpanda, etc.
Who: DC, FZS, WCS, JGI, TNC
When: FY11-FY15

Activity: COM - EMP 1.1. If environmental committees exist, engage them in LUP process from the beginning
Who: DC, FZS, WCS, JGI, TNC
When: FY11-FY15

Activity: COM - EMP 1.2. Work with local villages to establish environmental committees and ensure their participation in LUP processes
Who: DC, FZS, WCS, JGI
When: FY11-FY15

Activity: COM - EMP 1.3. Work with environmental committees to empower them to manage environmental issues on their land (fire management, forest and wildlife management)
Who: DC, FZS, WCS, JGI
When: FY11-FY15

Strategic Action: NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.
Who: FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.
When: FY10-FY15

Activity: NCAC 1.1. Identify someone to coordinate the development and promotion of the National Chimpanzee Awareness Campaign
Who:
When: FY10-FY15

Activity: NCAC 1.2. Develop a National Chimpanzee Awareness Campaign
Who:
When: FY10-FY11

Activity: NCAC 1.3. Raise / identify funding
Who:
When: FY10-FY12

Activity: NCAC 1.4. Create materials
Who:
When: FY10-FY12

Activity: NCAC 1.5. Start implementation
Who:
When: FY10-FY12

Activity: NCAC 1.6. Conduct an assessment to determine what benefits are derived from Reserves by local communities near chimpanzee habitat
Who: FZS, WCS, TANAPA, TAWIRI, JGI, DC
When: FY11-FY12

Activity: NCAC 1.7. Raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land
Who: TANAPA, JGI
When: FY11-FY12

Activity: NCAC 1.8. Raise awareness with community members about the risk of disease and about prevention techniques
Who:
When: FY11-FY15

Activity: NCAC 1.9. Raise awareness with communities about environmental degradation and its effects on human wellbeing
Who:
When: FY11-FY15

Activity: NCAC 1.10. Raise awareness with communities about improved agriculture
Who:
When: FY11-FY15

Activity: NCAC 1.11. Raise awareness with communities about the negative effects of fire on natural resources including water, and the importance of controlling fires and burning early
Who:
When: FY11-FY15

Activity: NCAC 1.12. Raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand.
Who:
When: FY12-FY15

2. PROTECTION AND EFFECTIVE MANAGEMENT OF CHIMPANZEE HABITAT ON GOVERNMENT LAND:

As mentioned before, General Land (consisting mostly of land under granted titles and urban land), is one of the three prevailing administrative land classifications in Tanzania. The other two are are Village Land (which falls under the jurisdiction of Villages) and Reserve Land (which refers to protected areas under government administration) (Veit et al., 2008). It is estimated 80% of chimpanzees live outside of protected areas, and while the previous strategy was designed to address chimpanzee protecion on Village Land, this strategy focuses on protecting chimpanzees on General Land.

This strategy includes analysing land tenure and leasing permits (which are granted for periods of up to 99 years), in addition to chimpanzee conservation status to identify suitable protection approaches. For key areas identified for protection it considers carrying out economic assessments in order to determine which protected area status would provide the most economic benefits to local communities, while conserving chimpanzee populations. This would then allow for the protection of critical chimpanzee habitat on General Land, in close coordination with local stakeholders.

Considering that chimpanzees are very vulnerable outside of protected areas, their protection and effective management on General Land will address an issue which is urgent and crucial for the survival of chimpanzees in Tanzania. By seeking the highest possible economic benefit to local communities, while conserving chimpanzee populations, this strategy also addresses human well-being. It will enable local communities to participate in chimpanzee protection, while reversing the loss of environmental resources and maintaining services such as water and soil retention, and is also expected to contribute to health improvements and increase opportunities to meet basic needs.

This strategy was designed to mitigate five critical threats on priority chimpanzee habitat on General Land, and it is expected to significantly contribute to the conservation of all four conservation targets.

The results chain which shows the strategic actions and results that need to be achieved so that integrated land use planning can truly contribute to improvements for chimpanzees and human wellbeing, can be found in a summarised version in Appendix 15F, and in a complete version with activities in Appendix 18B.

The overarching mid-term objective for this strategy is:
By 2015, all chimpanzee habitat, including corridors, that is currently in General Land has an appropriate protected area status and a management plan that is implemented.

The strategy is comprised of the following two strategic actions:

- ✓ Promote the establishment and effective management of protected areas in priority chimpanzee habitat under central government control. Seeking the highest possible economic benefit to local communities, while conserving chimpanzee populations. – *main strategic action*
- ✓ Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania) – *complementary strategic action*

Work plan for National C-CAP Strategy on Protection and effective management of chimpanzee habitat on Government Land.

Below we present the overaching objective, strategic actions and activities to implement this strategy. A more complete workplan in table format for this strategy, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20B.

General Land Protection Objective

By 2015, all chimpanzee habitat, including corridors, that is currently in General Land has an appropriate protected area status and a management plan that is implemented.

Strategic Action: PA - GL 1. Promote the establishment and effective management of protected areas in priority chimpanzee habitat under central government control. Seeking the highest possible economic benefit to local communities, while conserving chimpanzee populations.
Who: TANAPA, TAWIRI, FBD, FZS, WCS, JGI, TNC, WD, UPP, DC
When: FY10-FY15

Activity: PA - GL 1.1. Map chimpanzee habitat in relation to various types of land tenure
Who: JGI, WCS, UPP, DC, TNC
When: FY10-FY11

Activity: PA - GL 1.2. Draft one report regarding chimpanzees on General Land (considering leasing permits), and one report regarding chimpanzees on Village Land.
Who:
When: FY10-FY11

Activity: PA - GL 1.3. Prioritise chimpanzee habitat (including corridors) to promote protection
Who: JGI, FZS, WCS, TNC
When: FY10-FY11

Activity: PA - GL 1.4. Identify stakeholders for each priority habitat
Who: JGI, FZS, WCS
When: FY10-FY15

Activity: PA - GL 1.5. Solicit local conservation priorities and ecological values
Who: Process leaders will have to be identified for each individual proposed protected area; FZS, WCS, JGI
When: FY10-FY12

Activity: PA - GL 1.6. Sensitise communities
Who: JGI, FZS, TANAPA
When: FY10-FY13

Activity: PA - GL 1.7. Inventory priority chimpanzee habitat
Who: JGI, FBD, FZS, WCS, TAWIRI, UPP, DC
When: FY10-FY13

Activity: PA - GL 1.8. Identify funding needs and potential funding sources to develop LUP processes in priority areas (also see ILUP 1.6)
Who: FZS, WCS, JGI
When: FY10-FY11

Activity: PA - GL 1.9. Begin raising funds
Who: FZS, WCS, JGI, TNC
When: FY10-FY15

Activity: NCAC 1.7. Raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land
Who: WD, TANAPA, JGI, TNC
When: FY11-FY12

Activity: ACI 1.4. Identify sustainable levels of natural resource extraction within priority chimpanzee habitats
Who: JGI, FZS, TAWIRI, TNC
When: FY10-FY12

Activity: PA - GL 1.10. Identify the appropriate protection status for each priority chimpanzee habitat
Who: JGI, FBD, FZS, TANAPA, TAWIRI, DC, TNC
When: FY10-FY15

Activity: PA - GL 1.11. Conduct an economic assessment of which protected area status would provide the most economic benefits for communities, while conserving chimpanzee populations.
Who: JGI, WD
When: FY10-FY15

Activity: PA - GL 1.12. Prepare the proposal for new protected area and submit to MNRT for official gazettement.
Who: JGI, FZS, TANAPA, TAWIRI, FBD, DC, TNC
When: FY10-FY15

Strategic Action: PA - ME 1. Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania)
Who: WD,TANAPA, DC, FBD, TAWIRI, FZS, WCS, USFS, JGI, TNC
When: FY10-FY15

Activity: PA - ME 1.1. Develop management plans for reserves within chimpanzee habitat
Who: FBD, DC, TANAPA, WD, USFS, JGI, WD, DC
When: FY10-FY15

Activity: ACI 1.4. Identify sustainable levels of natural resource extraction within priority chimpanzee habitats
Who: JGI, FZS, TAWIRI, TNC
When: FY10-FY12

Activity: PA - ME 1.2. Ensure essential staff positions are filled to adequately implement management plan
Who: FBD, TANAPA, DC
When: FY11-FY15

Activity: PA - ME 1.3. Equip staff (vehicles, field gear, etc.) to adequately implement management plan
Who: FBD, DC, TANAPA, JGI, FZS
When: FY11-FY15

Activity: PA - ME 1.4. Improve and provide infrastructure for staff to adequately implement management plan
Who: FBD, DC, TANAPA, JGI, FZS
When: FY11-FY15

Activity: PA - ME 1.5. Demarcate the boundaries of reserves and corridors
Who: FBD, WD, DC, TANAPA, TAWIRI,USFS, JGI, FZS, WCS
When: FY11-FY15

Activity: PA - ME 1.6. Establish monitoring of chimpanzee populations and habitat integrity
Who: TAWIRI, JGI, FZS, WCS
When: FY11-FY15

Activity: PA - ME 1.7. Improve motivation through leadership training and staff incentives
Who: WD, FBD, TANAPA, TAWIRI, FZS, JGI
When: FY11-FY15

Activity: PA - ME 1.8. Provide training in management to Forest Division and other Reserve Authorities
Who: WD, FBD, TANAPA, TAWIRI, FZS, WCS, JGI
When: FY11-FY15

Activity: PA - ME 1.9. Facilitate inter-departmental communication between NP, FBD, NGOs, District/Region to contribute to effective management
Who: WD, FBD, TANAPA, TAWIRI, FZS, WCS, JGI
When: FY11-FY15

Activity: PA - ME 1.10. Identify funding needs and potential funding sources to develop and implement management plans in priority reserves
Who: WD, FBD, TANAPA, TAWIRI, FZS, WCS, JGI, TNC
When: FY10-FY15

3. EFFECTIVE MANAGEMENT OF ALL PROTECTED AREAS WITHIN CHIMPANZEE HABITAT:

As a signatory to the International Convention on Biodiversity (ratified in 1996), Tanzania has declared its commitment to conserving its biodiversity and particularly threatened species. Countries who signed this convention have pledged to contribute to the conservation of biological diversity, and to promote a sustainable use of its components and the fair and equitable sharing of the benefits arising from the utilisation of genetic resources (United Republic of Tanzania, 2006).

With the enactment and operationalization of the Environmental Management Act of 2004, the government of Tanzania sent out a clear sign of commitment to make progress towards the Convention on Biodiversity (TANAPA, 2009). The Act addresses the "declaration of environmental protected areas; environmental protection plan and ecosystem management plan for environmental protected areas; Prohibition of human activities in certain areas; Protection of mountains, hills and landscapes; Management of forest resources; promotion of conservation of fisheries and wildlife resources; Conservation of biological diversity (in-situ and ex-situ); and Regulation for the development, handling, and use of genetically modified organisms and their products". (United Republic of Tanzania, 2006).

Also in 2004, at the seventh CBD Conference of the Parties, 188 member countries agreed on a Programme of Work on Protected Areas (PoWPA), one of the most ambitious global environmental strategies in history. To help conserve biodiversity worlwide, the Programme aims to establish "comprehensive, effectively managed and ecologically-representative national systems of protected areas", by 2010 (for terrestrial ecosystems) and 2012 (for marine). According to Dudley et al. (2005), the Programme's four elements, can be divided into the following nine themes:

> ***PoWPA element 1***: Direct actions for planning, selecting, establishing, strengthening, and managing, protected area systems and sites by:
> - building protected area networks and the ecosystem approach;
> - site-based protected area planning and management; and
> - addressing threats to protected areas.
>
> ***PoWPA element 2:*** Governance, participation, equity and benefit sharing by:
> - improving the social benefits of protected areas.
>
> ***PoWPA element 3:*** Enabling activities, such as:
> - creating an enabling policy environment;
> - capacity building; and
> - ensuring financial stability.
>
> ***PoWPA element 4:*** Standards, assessment, and monitoring, including:
> - developing management standards and effective management; and
> - using science.

Tanzania recognises Protected Areas as an important tool for protecting the country's biodiversity values, and has made significant strides towards achieving goals laid out in the Programme of Work on Protected Areas. As of 2009, Tanzania's Protected Area system was among Africa's largest, consisting of over 650 sites which covered over 25% of the country's territory. The following categories of protected areas exist in Tanzania (in declining order of conservation standing): National Parks, Forest Nature Reserves, Game Reserves, Forest Reserves, the Ngorongoro Conservation Area and Wildlife

Management Areas. In addition to these, which are within the national PA system, other types of protected areas exist to promote sustainable natural resource use, primarily on Village Land - Wildlife Management Areas, Village Land Forest Reserves and Game Controlled Areas. (TANAPA, 2009).

While a comprehensive protected area GAP analysis has not been completed in Tanzania, by addressing protected area gaps in critical chimpanzee habitat within a wider landscape perspective, this strategy could make a significant contribution towards the PoWPA. The country has already completed a capacity needs assessment for Protected Areas, and this strategy can contribute to address some identified priorities in protected areas within chimpanzee habitat.

This strategy can build on existing opportunities such as strong official support to consider community participation in protected area management and the country's legislative framework, which ensures the equitable sharing of costs and benefits arising from the establishment and management of protected areas. (TNC, 2009).

A recent analysis which reviewed the implementation of the Programme of Work on Protected Areas for selected African countries revealed that the quality and revision frequency of management plans varies significantly. In part this is because no management plan standards exist, and because in addition to being generated by consultants whose quality varies, they tend to follow different methodologies (TNC, 2009). Often when management plans are externally-driven, they exclude those whom the plan will most impact – the site managers and local communities (The Nature Conservancy, 2009. By empowering protected area managers to develop their own management plans themselves, this strategy intends to increase local community involvement, implementation of management plans, and overall management effectiveness.

Management effectiveness, which is at the core of this strategy, is defined by the World Commission on Protected Areas (WCPA) as how well the protected area is being managed – primarily the extent to which it is protecting values and achieving goals and objectives. The term *management effectiveness* reflects three main themes:

- design issues relating to both individual sites and protected area systems;
- adequacy and appropriateness of management systems and processes; and
- delivery of protected area objectives including conservation of values.

(Hockings et al. 2006).

In regards to management effectiveness, Tanzania has used the Management Effectiveness Tracking Tool (METT) for most of its protected areas, to help track progress towards worldwide protected area management effectiveness (TNC, 2009).

This strategy includes developing a transparent, participatory planning process which considers natural resource extraction options within reserves which would not interfere with chimpanzee wellbeing. It also includes the establishment of alliances for specific tasks to contribute to management plan implementation, sharing information and holding meetings to address relevant issues.

The results chain which shows the strategic actions and results that need to be achieved so that protected area management effectiveness can contribute to chimpanzees and human wellbeing, shows

that this strategy can make significant contributions to Tanzania's commitments within the PoWPA. This strategy's results chain can be found in a summarised version in Appendix 15H, and in a complete version with activities in Appendix 18C.

The overarching mid-term objective for this strategy is:
By 2015, chimpanzee populations, habitat and corridors are effectively managed in existing protected areas such as Forest Reserves, Game Reserves and National Parks.

The strategy is comprised of the following two strategic actions:

- ✓ Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania) – *main strategic action*
- ✓ Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely. – *complementary strategic action*
- ✓ Support alternative and compatible income generating activities. –*complementary strategic action*

Work plan for National C-CAP Strategy on Effective management of all protected areas within chimpanzee habitat:

Below we present the overaching objective, strategic actions and activities to implement this strategy. A more complete workplan, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20C.

Protected Area Management Effectiveness

By 2015, chimpanzee populations, habitat and corridors are effectively managed in existing protected areas such as Forest Reserves, Game Reserves and National Parks.

Strategic Action: PA - ME 1. Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania)
Who: WD,TANAPA, DC, FBD, TAWIRI, FZS, WCS, USFS, JGI, TNC
When: FY10-FY15

Activity: PA - ME 1.1. Develop management plans for reserves within chimpanzee habitat
Who: FBD, DC, TANAPA, WD, USFS, JGI, WD, DC
When: FY10-FY15

Activity: ACI 1.4. Identify sustainable levels of natural resource extraction within priority chimpanzee habitats
Who: JGI, FZS, TAWIRI
When: FY10-FY12

Activity: PA - ME 1.2. Ensure essential staff positions are filled to adequately implement management plan
Who: FBD, TANAPA, DC
When: FY11-FY15

Activity: PA - ME 1.3. Equip staff (vehicles, field gear, etc.) to adequately implement management plan
Who: FBD, DC, TANAPA, JGI, FZS
When: FY11-FY15

Activity: PA - ME 1.4. Improve and provide infrastructure for staff to adequately implement management plan
Who: FBD, DC, TANAPA, JGI, FZS
When: FY11-FY15

Activity: PA - ME 1.5. Demarcate the boundaries of reserves and corridors
Who: FBD, WD, DC, TANAPA, TAWIRI, USFS, JGI, FZS, WCS
When: FY11-FY15

Activity: PA - ME 1.6. Establish monitoring of chimpanzee populations and habitat integrity
Who: TAWIRI, JGI, FZS, WCS
When: FY11-FY15

Activity: PA - ME 1.7. Improve motivation through leadership training and staff incentives
Who: WD, FBD, TANAPA, TAWIRI, FZS, JGI
When: FY11-FY15

Activity: PA - ME 1.8. Provide training in management to Forest Division and other Reserve Authorities
Who: WD, FBD, TANAPA, TAWIRI, FZS, WCS, JGI
When: FY11-FY15

Activity: PA - ME 1.9. Facilitate inter-departmental communication between NP, FBD, NGOs, District/Region to contribute to effective management
Who: WD, FBD, TANAPA, TAWIRI, FZS, WCS, JGI
When: FY11-FY15

Activity: PA - ME 1.10. Identify funding needs and potential funding sources to develop and implement management plans in priority reserves
Who: WD, FBD, TANAPA, TAWIRI, FZS, WCS, JGI
When: FY10-FY15

Strategic Action: NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.
Who: FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.
When: FY10-FY15

Activity: NCAC 1.1. Identify someone to coordinate the development and promotion of the National Chimpanzee Awareness Campaign
Who:
When: FY10-FY15

Activity: NCAC 1.2. Develop a National Chimpanzee Awareness Campaign

Who:
When: FY10-FY11

Activity: NCAC 1.3. Raise / identify funding
Who:
When: FY10-FY12

Activity: NCAC 1.4. Create materials
Who:
When: FY10-FY12

Activity: NCAC 1.5. Start implementation
Who:
When: FY10-FY12

Activity: NCAC 1.6. Conduct an assessment to determine what benefits are derived from Reserves by local communities near chimpanzee habitat
Who: FZS, WCS, TANAPA, TAWIRI, JGI, DC
When: FY11-FY12

Activity: NCAC 1.7. Raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land
Who: TANAPA, JGI
When: FY11-FY12

Activity: NCAC 1.8. Raise awareness with community members about the risk of disease and about prevention techniques
Who:
When: FY11-FY15

Activity: NCAC 1.9. Raise awareness with communities about environmental degradation and its effects on human wellbeing
Who:
When: FY11-FY15

Activity: NCAC 1.10. Raise awareness with communities about improved agriculture
Who:
When: FY11-FY15

Activity: NCAC 1.11. Raise awareness with communities about the negative effects of fire on natural resources including water, and the importance of controlling fires and burning early
Who:
When: FY11-FY15

Activity: NCAC 1.12. Raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand.
Who:
When: FY12-FY15

Strategic Action: ACI 1. Support alternative and compatible income generating activities..
Who:. **TAWIRI,** FZS, JGI, TNC
When: FY10-FY15

Activity: ACI 1.1. Identify priority communities, based on threat urgency and livelihood conditions, for the promotion of alternative income sources.

Who:
When: FY11-FY12

Activity: ACI 1.2. Determine the number of people that depend on charcoal production in priority areas.
Who:
When: FY10-FY11

Activity: ACI 1.3. Determine the economic benefit of charcoal production in priority areas
Who:
When: FY10-FY11

Activity: ACI 1.4. Identify sustainable levels of natural resource extraction within priority chimpanzee habitats.
Who: TAWIRI, FZS, JGI
When: FY10-FY12

Activity: ACI 1.5. Determine feasible alternative & sustainable forest uses for specific communities
Who:
When: FY10-FY15

Activity: ACI 1.6. Obtain financing and technical support to promote feasible alternative income sources
Who:
When: FY10-FY15

Activity: ACI 1.7. Carry out awareness-building activities about feasible income alternatives in key communities
Who:
When: FY11-FY15

Activity: ACI 1.8. Establish monitoring activities to determine trends in destructive vs. sustainable forest uses in key communities, and to determine how this reflects on local livelihoods
Who:
When: FY11-FY15

4. NATIONAL CHIMPANZEE AWARENESS CAMPAIGN - LINKING CHIMPANZEE AND HUMAN WELL-BEING

While chimpanzees represent a unique endowment of the people of Tanzania, there appears to be little awareness among the general public about the importance of chimpanzees, their problems, and most importantly, the intricate relationship that exists between human and chimpanzee wellbeing.

This strategy is conceived as an important, yet complementary strategy, which has been designed to raise awareness about chimpanzee and human well-being, primarily among people living close to chimpanzee habitat, but reaching the wider public as well.

To provide supplementary support to other high-level national strategies, this strategy incorporates key issues identified throughout the CAP process, for which awareness-raising is critical, such as:

- increase awareness about environmental degradation and its effects on human wellbeing
- raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land
- help community members become more aware about the risk of disease and about prevention techniques, to prevent infectious disease in humans and chimpanzees
- help communities increase their understanding about the negative effects of fire on natural resources including water, and the importance of controlling fires and burning early
- help community members learn about improved agriculture and alternative farming methods
- raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand

On one hand, this strategy intends to instill a sense of pride about chimpanzees and their protection in people who live in chimpanzee habitat, but on the other hand, it also intends to increase awareness about the effects of environmental degradation and how specific practices can be improved to become more sustainable.

In 1968 the Senegalese environmentalist, Baba Dioum, during a speech to the general assembly of the IUCN, expressed very accurately and elegantly how environmental awareness relates to conservation.

> *"In the end we will conserve only what we love. We love only what we understand. We will understand only what we are taught."* (Rodes & Odell, 1997).

This strategy recognises that lasting conservation results depend in large part on the three pillars of this famous phrase – love, understanding and education. Because humans tend to protect what is close to our emotions, this strategy intends to address one of the key components for lasting conservation by instilling a sense of pride for conserving chimpanzees. The second ingredient, understanding, implies on one hand a willingness to expand one's own perspective, but also the means to provide new information by observation, example or communication. In this sense, the demonstration of tangible benefits received by humans as chimpanzees are conserved, will be key. And lastly, the third ingredient, education, is embedded in this strategy as the main vehicle to reach understanding and love in community members, National leaders and the wider public, to improve well-being conditions for chimpanzees and humans in Tanzania.

The planning team believes that the 50th anniversary of Dr. Goodall and the Jane Goodall Institute in chimpanzee research in Tanzania, provides an opportunity to develop a campaign for chimpanzee conservation around this special celebration, to build national pride in chimpanzees by promoting chimpanzee health relevance to human health.

This strategy presents another opportunity to join forces between the environmental and the health sectors to rally support to help sponsor community health interventions in priority areas, to contribute to human and chimpanzee health. This could have an important impact on addressing Millennium

Development Goals (MDGs) in the region by focusing on human health aspects such as vaccinations, clean water, sanitation [VIP (ventilation improved) latrines], hygiene (spitting, sneezing, etc.).

The overaching objective for this strategy is:
By 2015, 75% of Tanzania's population is aware of the presence, importance and legal status of chimpanzees, and the majority of people living in chimp habitat feel proud about protecting chimps, and see the benefits that chimp protection brings to human well-being.

The strategy is comprised of the following strategic action:

- ✓ Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely. – *main and only strategic action*

Work plan for National C-CAP Strategy on a National Chimpanzee Awareness Campaign - linking chimpanzee and human well-being:

Below we present the overaching objective, the strategic action and activities to implement this strategy. A more complete workplan, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20D.

Strategic Action: NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.
Who: FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.
When: FY10-FY15

Activity: NCAC 1.1. Identify someone to coordinate the development and promotion of the National Chimpanzee Awareness Campaign
Who:
When: FY10-FY15

Activity: NCAC 1.2. Develop a National Chimpanzee Awareness Campaign
Who:
When: FY10-FY11

Activity: NCAC 1.3. Raise / identify funding
Who:
When: FY10-FY12

Activity: NCAC 1.4. Create materials
Who:
When: FY10-FY12

Activity: NCAC 1.5. Start implementation
Who:
When: FY10-FY12

Activity: NCAC 1.6. Conduct an assessment to determine what benefits are derived from Reserves by local communities near chimpanzee habitat
Who: FZS, WCS, TANAPA, TAWIRI, JGI, DC
When: FY11-FY12

Activity: NCAC 1.7. Raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land
Who: TANAPA, JGI
When: FY11-FY12

Activity: NCAC 1.8. Raise awareness with community members about the risk of disease and about prevention techniques
Who:
When: FY11-FY15

Activity: NCAC 1.9. Raise awareness with communities about environmental degradation and its effects on human wellbeing
Who:
When: FY11-FY15

Activity: NCAC 1.10. Raise awareness with communities about improved agriculture
Who:
When: FY11-FY15

Activity: NCAC 1.11. Raise awareness with communities about the negative effects of fire on natural resources including water, and the importance of controlling fires and burning early
Who:
When: FY11-FY15

Activity: NCAC 1.12. Raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand.
Who:
When: FY12-FY15

5. DISEASE CONTROL AND PREVENTION THROUGH THE ADOPTION OF IUCN'S GUIDELINES FOR DISEASE CONTROL AND TOURISM IN TANZANIA.

As described in the threats assessment section, due to the close genetic similarities which exist between humans and chimpanzees, we share relevant health concerns. Some of the infectious diseases which humans share with chimpanzees include the common cold, influenza, chicken pox, paralytic poliomyelitis, tuberculosis, and pneumonia (among others) (Butynski, 2001). While this threat focuses primarily on human diseases which are transmitted to chimpanzees, it should be mentioned that as contact increases between humans and chimpanzees, zoonotic diseases such as Ebola, a deadly hemorrhagic fever, can become more troublesome for both human and ape populations (Cawthon Lang, 2006).

Since 1966, multiple epidemics have been registered in the region, with considerable effects on chimpanzee propulations. In addition, the PVA conducted for this planning effort, pointed out that increased frequency of a disease epidemic and increased disease risk could be especially problematic for the viability of moderate-sized and small propulations.

This threat-abatement strategy was proposed because of the disastrous effects that an epidemic could produce on chimpanzee populations in Tanzania, even if all other high-level national strategies were successfully implemented. This strategy builds on key intervention points which were identified in the conceptual diagram, to reduce the susceptibility of chimpanzees to catch infectious diseases transmitted by human activities by making use of the opportunity of guidance documents for tourism and disease control.

By promoting the adoption and promotion of appropriate guidelines for disease control and tourism, this strategy intends to reach tour operators, trackers, tourists, researchers, fil crews, park staff, community members, etc., to improve health and hygiene practices in chimpanzee habitat, both inside and outside of protected areas. To better protect chimpanzees outside of protected areas, this strategy intends to promote the regulation of chimp habituation practices, by expecting people who habituate chimps to adhere to appropriate guidelines. This strategy also incorporates strategic alliances between the health and environmental sectors, to work in close collaboration to address joint human and chimpanzee health risks through preventive and corrective actions. The previous strategy, on health awareness and education, provides important complementary support to this strategy as well.

The planning team recognises that the Ministry of Health has worked hard to address health issues in the country, and that it represents one of the leading examples in Africa. However, since infections continue to be introduced and spread from neighbouring countries, this strategy could prevent the further spread of infectious diseases and thereby prevent an epidemic in chimpanzee populations. In this sense, this strategy could also significantly contribute to Millennium Development Goals (MDGs) by focusing on human health aspects such as vaccinations, clean water, sanitation [VIP (ventilation improved) latrines], hygiene (spitting, sneezing, etc.), in a joint effort between environmental and health institutions. An important way to join forces would be to strengthen capacity for diagnostics, data collection and analysis on chimp and human health key stakeholders.

The overaching objective for this strategy is:
By 2013, appropriate guidelines for great ape tourism and disease prevention and control are adopted and implemented by the Tanzanian government.

The strategy is comprised of the following strategic actions:

- ✓ Promote the endorsement and adoption of appropriate guidelines for disease control and tourism in Tanzania (based on IUCN's guidelines) – *main strategic action*
- ✓ Promote the regulation of chimp habituation practices outside of protected areas . – *complementary strategic action*
- ✓ Promote the effective collaboration of the MOH, MNRT, TAWIRI, TANAPA to intensify health activities in critical areas where contact between humans and chimps is more likely. – *complementary strategic action*
- ✓ Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely. – *complementary strategic action*

Work plan for National C-CAP Strategy on Disease control and prevention through the adoption of IUCN's guidelines for disease control and tourism in Tanzania.

Below we present the overaching objective, the strategic actions and activities to implement this strategy. A more complete workplan, which includes short-, mid- and long-term objectives, and indicators, can be found in Appendix 20E.

Disease Control

By 2013, appropriate guidelines for great ape tourism and disease prevention and control are adopted and implemented by the Tanzanian government.

Strategic Action: DCON 1. Promote the endorsement and adoption of appropriate guidelines for disease control and tourism in Tanzania (based on IUCN's guidelines)
Who: WD,TAWIRI, TANAPA, MOH, PSG/IUCN, FZS, JGI, EARTH Inc., LPZ, UPP, GRASP, DC
When: FY10-FY15

Activity: DCON 1.1. Identify a champion or advocate to promote this strategy
Who: "Champion to be determined", PSG/IUCN
When: FY10-FY11

Activity: DCON 1.2. Establish contact between IUCN's Primate Specialist Group (PSG) and someone assigned as the disease "advocate" to assume the role of introducing and promoting the guidelines within the relevant ministries.
Who: "Champion to be determined", PSG/IUCN
When: FY10-FY11

Activity: DCON 1.3. Meet with relevant government representatives to establish an inter-ministerial committee on disease, which will jointly determine the appropriate process for one or more ministries (at least the MNRT) to endorse and adopt the guidelines.
Who: "Champion to be determined", TANAPA, TAWIRI, WD, MOH
When: FY10-FY11

Activity: DCON 1.4. Translate guidelines into Swahili, print and distribute guidelines in priority areas
Who: TAWIRI, JGI, PSG/IUCN
When: FY11-FY12

Activity: DCON 1.5. Carry out guidelines dissemination events with authorities, park staff, tour operators and communities in priority areas
Who: DC, FZS, TANAPA, JGI, PSG/IUCN, GRASP
When: FY11-FY15

Activity: DCON 1.6. Synthesise the guidelines and distribute into local (village) libraries (c.f. CTPH booklets)
Who: TANAPA, CTPH as advisors to review booklets?
When: FY11-FY12

Activity: DCON 1.7. Engage in & develop joint activities with district health officers (district/community livestock and agriculture officer, livestock field officers) to promote best practices
Who: TANAPA, TAWIRI, LG, JGI
When: FY11-FY15

Activity: DCON 1.7. Engage in & develop joint activities with district health officers (district/community livestock and agriculture officer, livestock field officers) to promote best practices
Who: TANAPA, TAWIRI, LG, JGI
When: FY11-FY15

Activity: DCON 1.8. Establish regulations and hold park staff, researchers, tour operators, tourists, film crews and people who habituate chimps accountable for complying to relevant health behaviours
Who: TANAPA, TAWIRI
When: FY11-FY15

Activity: DCON 1.9. Establish the means to monitor implementation of improved health and hygiene practices described within the guidelines for all relevant target groups.
Who: TANAPA, TAWIRI, JGI, FZS, researchers
When: FY11-FY15

Activity: DCON 1.10. Finalise and pilot standardised disease surveillance and health monitoring system (humans/chimps/livestock).
Who: WD,TANAPA, TAWIRI, MOH, JGI, UPP, LPZ, EARTH Inc.
When: FY12-FY15

Activity: DCON 1.11. Develop national disease contingency plans to address different chimpanzee disease problems including policies on what should be done with a sick chimp.
Who: WD,TANAPA, TAWIRI, JGI, LPZ
When: FY11-FY12

Strategic Action: DCON 2. Promote the regulation of chimp habituation practices outside of protected areas
Who: TANAPA, TAWIRI, FZS, JGI
When: FY10-FY15

Activity: DCON 2.1. Form an inter-institutional team to develop criteria and protocols for the habituation of chimps outside of protected areas, and to develop simple formats on priority health behaviours which the most relevant human users of chimp habitat (i.e. park staff, researchers, tour operators, tourists, film crews and people who habituate chimps) are required to read and agree to.
Who: TANAPA, TAWIRI
When: FY10-FY12

Activity: DCON 1.8. Establish regulations and hold park staff, researchers, tour operators, tourists, film crews and people who habituate chimps accountable for complying to relevant health behaviours.
Who: TANAPA, TAWIRI
When: FY10-FY15

Activity: DCON 1.9. Establish the means to monitor implementation of improved health and hygiene practices described within the guidelines for all relevant target groups.
Who: TANAPA, TAWIRI, FZS, JGI
When: FY11-FY15

Strategic Action: DCON 3. Promote the effective collaboration of the MOH, MNRT, TAWIRI, TANAPA to intensify health activities in critical areas where contact between humans and chimps is more likely
Who: WD, TANAPA, TAWIRI, MOH, JGI, EARTH Inc.
When: FY11-FY15

Activity: DCON 3.1. Once guidelines have been adopted, organise a meeting with the Ministry of Health and the Ministry of Natural Resources and Tourism (and relevant institutions within), to identify collaboration opportunities around the theme of joint health risks and preventive actions
Who: MOH, WD, TANAPA, TAWIRI, "disease control champion" as facilitator
When: FY11-FY15

Activity: DCON 3.2. Once guidelines have been adopted, organise local/operational-level meetings with staff from the MOH and MNRT (and relevant institutions within), and other relevant stakeholders in priority areas, to identify collaboration opportunities around the theme of joint health risks and preventive actions.
Who: MOH, WD, TANAPA, TAWIRI, "disease control champion" as facilitator, JGI, EARTH Inc.
When: FY11-FY15

Activity: DCON 3.3. Funding secured for health interventions in target communities
Who: MOH, TANAPA, TAWIRI, JGI, EARTH Inc.
When: FY11-FY15

Activity: DCON 3.4. Participate in district health planning meetings in all areas where chimpanzee and human habitat overlap, and promote the inclusion of strategies to reduce direct and indirect contact between humans and chimpanzees (to reduce risk of disease transmission) in official district health annual plans.
Who: MOH, TANAPA, TAWIRI
When: FY11-FY15

Activity: DCON 3.5. Provide technical assistance to strengthen capacity for diagnostics, data collection and analysis on chimp and human health. Includes agreeing on standardised definitions of clinical signs and diagnostic tests and their thresholds, and ensuring an ongoing collection and assemblage of data that would establish a baseline (normal) level of disease and provide a basis for periodic monitoring.
Who: WD, TAWIRI, TANAPA, MOH, LPZ/Earth Inc, JGI, FZS?, UPP and researchers
When: FY11-FY15

Strategic Action: NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.
Who: FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.
When: FY10-FY15

Activity: NCAC 1.1. Identify someone to coordinate the development and promotion of the National Chimpanzee Awareness Campaign
Who:
When: FY10-FY15

Activity: NCAC 1.2. Develop a National Chimpanzee Awareness Campaign
Who:
When: FY10-FY11

Activity: NCAC 1.3. Raise / identify funding
Who:
When: FY10-FY12

Activity: NCAC 1.4. Create materials
Who:
When: FY10-FY12

Activity: NCAC 1.5. Start implementation
Who:
When: FY10-FY12

Activity: NCAC 1.6. Conduct an assessment to determine what benefits are derived from Reserves by local communities near chimpanzee habitat
Who: FZS, WCS, TANAPA, TAWIRI, JGI, DC
When: FY11-FY12

Activity: NCAC 1.7. Raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land
Who: TANAPA, JGI
When: FY11-FY12

Activity: NCAC 1.8. Raise awareness with community members about the risk of disease and about prevention techniques
Who:
When: FY11-FY15

Activity: NCAC 1.9. Raise awareness with communities about environmental degradation and its effects on human wellbeing
Who:
When: FY11-FY15

Activity: NCAC 1.10. Raise awareness with communities about improved agriculture
Who:
When: FY11-FY15

Activity: NCAC 1.11. Raise awareness with communities about the negative effects of fire on natural resources including water, and the importance of controlling fires and burning early
Who:
When: FY11-FY15

Activity: NCAC 1.12. Raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand.
Who:
When: FY12-FY15

APPENDIX 20.A. Detailed Work plan for National C-CAP Strategy on Integrated land use planning and integrated land management with villages in chimpanzee habitat (Western Tanzania):

Strategic Actions and Activities	**Who** (leaders or coordinators marked in **bold**)	**When**	**Objectives / Goals** (lighter shading indicates short-term, intermediate shading indicates mid-term, and darker shading long-term results)	**Indicators**
ILUP 1. Promote integrated land use planning and integrated land management with villages in chimpanzee habitat areas (Western Tanzania)	**DC**, FZS, WCS, Mahale N.P., TAWIRI, JGI, TNC, MOL	FY10-FY15	**Objective - ILUP 4:** By 2015 all villages that have chimpanzee habitat or corridors on their land develop Land-use Plans that designate critical habitat as interconnected village forest reserves	• Number of villages that hold land in chimpanzee habitat, which have completed a LUP • Has. of chimpanzee habitat designated as Village Forest Reserves
ILUP 1.1. Review existing Land Use Plans and stages in key villages which hold chimpanzee habitat within their land	**DC**,FZS, WCS, JGI	FY10-FY11		
ILUP 1.2. Identify wildlife corridors	**DC, TAWIRI, JGI**, FZS, WCS, Mahale N.P., Dr. Ogawa?, TNC	FY10-FY11	**Objective - ILUP1:** By 2011, key villages which hold chimpanzee habitat within their land have been identified, to promote the development of integrated Land Use Plans.	• Map identifying chimp corridors
ILUP 1.3. Identify critical chimp habitat areas	**DC, TAWIRI, JGI**, FZS, WCS, Mahale N.P., Dr. Ogawa?, TNC	FY10-FY11	**Objective - ILUP1:** By 2011, key villages which hold chimpanzee habitat within their land have been identified, to promote the development of integrated Land Use Plans.	• Map identifying key villages which hold chimp habitat within their land
ILUP 1.4. Identify villages that hold land within chimp habitat (including corridors)	**DC, TAWIRI, JGI**, FZS, WCS, Mahale N.P., Dr. Ogawa?, TNC	FY10-FY11	**Objective - ILUP1:** By 2011, key villages which hold chimpanzee habitat within their land have been identified, to promote the development of integrated Land Use Plans.	• Map identifying key villages which hold chimp habitat within their land
ILUP 1.5. Awareness about Land Use Planning processes	**DC,** WCS, JGI,	FY10-FY15		

ILUP 1.6. Ensure funding to complete land-use planning processes in critical areas (planning stage & initial implementation)	FZS, JGI, TNC	FY10-FY15	**Objective – ILUP2:** By 2011, initial funds have been secured to promote participatory land use plan development in critical areas, and in subsequent years funding continues to address ILUP in all key villages.	• % of funds secured to promote ILUP in priority villages
ILUP 1.7. Build capacity for land-use planning -Mpanda, etc.	**DC,** FZS, WCS, JGI, TNC	FY11-FY15		
ILUP 1.8. Develop Land Use Plans in priority areas	**DC,** FZS, WCS, JGI, TNC	FY11-FY15		
ILUP 1.9. Develop by-laws with villages	**DC,** FZS, JGI	FY11-FY15	**Objective - ILUP5:** By 2015, the legal framework for land use planning and village bylaws exist to support LUP implementation in all priority villages which hold land within chimp habitat.	• % of villages which have developed bylaws to support the implementation of LUPs
ILUP 1.10. Demarcate boundaries	**DC,** FZS, WCS, JGI	FY11-FY15		
ILUP 1.11. Promote approval of LUPs	**DC, MOL** ,FZS, JGI, TNC	FY11-FY15		
ILUP 1.12. Authorities ensure a strict enforcement of the law as established in LUPs	**DC**	FY11-FY15		
ILUP 1.13. Villages and community organisations collaborate in participatory land management	**DC**	FY12-FY15		
ILUP 1.14. VLUM teams monitor land use together with environmental committees and local forest monitors		FY12-FY15	**Objective - CA1:** Agriculture outside designated areas is reduced to XXX, by 2015.	• Forest converted to agriculture
			Objective - S&ID2: By 2015 all villages who have completed LUPs, allow no new settlements in chimpanzee habitat (for example within Village Forest Reserves)	• Fragmentation of chimpanzee habitat • Has. of chimpanzee habitat converted to infrastructure • Number and size of settlements

				established in chimpanzee habitat
			Objective - FIRE1: By 2020, the percent of evergreen forests in which wildfires occur has been reduced to 2 percent of the total area of forests. **Objective - FIRE2:** By 2030, the percent of miombo woodland-grassland mosaic in which wildfires occur has been reduced to 20 percent of the total area of the mosaic.	• Fire frequency and area burned using remote sensing
			Objective – CHAR1: By 2020, charcoal production has stopped in chimpanzee habitat.	• evidence of chimp presence • Has of chimp habitat cleared for charcoal production
			Objective - DIS1: By 2020, no "epidemic" due to preventable infectious disease is observed (epidemic defined as > 20% of population dying in a given region due to the same disease outbreak within one year).	• % of chimpanzee deaths due to preventable infectious diseases
COM - EMP 1. Strengthen capacities of community based conservation organisations	FZS, WCS, JGI, DC	FY11-FY15	**Objective – ILUP6:** By 2015, community based conservation organisations actively participate in land management through joint management with authorities of forest and wildlife resources. This includes participation in planning, education, fire control and monitoring efforts, among others.	• % of villages where environmental committees exist and actively participate in managing environmental issues on their land
ILUP 1.7. Build capacity for land-use planning -Mpanda, etc.	FZS, WCS, JGI, DC, TNC	FY11-FY15		
COM - EMP 1.1. If environmental committees exist, engage them in LUP process from the beginning	FZS, WCS, JGI, DC, TNC	FY11-FY15		

COM - EMP 1.2. Work with local villages to establish environmental committees and ensure their participation in LUP processes	FZS, WCS, JGI, DC	FY11-FY15		
COM - EMP 1.3. Work with environmental committees to empower them to manage environmental issues on their land (fire management, forest and wildlife management)	FZS, WCS, JGI, DC	FY12-FY15		
NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.	FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.	FY10-FY15	**Objective: NCAC4:** By 2015, 75% of Tanzania's population is aware of the presence, importance and legal status of chimpanzees, and the majority of people living in chimp habitat feel proud about protecting chimps, and see the benefits that chimp protection brings to human well-being.	• % of residents in chimp habitat that perceive a benefit from chimp protection on human health • Perception of residents in chimp habitat about a sense of pride regarding chimp protection
NCAC 1.1. Identify someone to coordinate the development and promotion of the National Chimpanzee Awareness Campaign		FY10-FY15		• Advocate identified to coordinate the development and promotion of the National Chimpanzee Awareness Campaign
NCAC 1.2. Develop a National Chimpanzee Awareness Campaign		FY10-FY11		• Awareness campaign vetted by multi-institutional team
NCAC 1.3. Raise / identify funding		FY10-FY12	**Objective – NCAC1:** By 2011, initial funds have been secured to promote activities established in the awareness campaign, and in subsequent years funds are secured to carry out priorities.	• % of priority activities which have sufficient funding
NCAC 1.4. Create materials		FY11-FY12		
NCAC 1.5. Start implementation		FY11-FY12		

NCAC 1.6. Conduct an assessment to determine what benefits are derived from Reserves by local communities near chimpanzee habitat	FZS, WCS, TANAPA, TAWIRI, JGI, DC, Not Specified	FY11-FY12	**Objective - NCAC2:** By 2011, a report has been produced to determine what benefits are derived from reserves by local communities near chimp habitat.	• Report showing what benefits are derived from Reserves by local communities near chimp habitat
NCAC 1.7. Raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land	TANAPA, JGI	FY11-FY12	**Objective – NCAC3:** By 2011, the majority of National leaders and communities are aware of the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land. **Objective – ILUP4:** By 2015 all villages that have chimpanzee habitat or corridors on their land develop Land-use Plans that designate critical habitat as interconnected village forest reserves	• Perception about the importance of chimp habitat protection
NCAC 1.8. Raise awareness with community members about the risk of disease and about prevention techniques		FY11-FY15	**Objective – NCAC6:** By 2015, 80% of villagers surveyed understand the risk of contagious disease to human and chimp well-being, and know about prevention techniques.	• Percent of villagers surveyed who understand the threat posed by contagious diseases to humans and chimps, and who know about prevention techniques.
NCAC 1.9. Raise awareness with communities about environmental degradation and its effects on human wellbeing		FY11-FY15		
NCAC 1.10. Raise awareness with communities about improved agriculture and alternative farming methods		FY11-FY15	**Objective - CA1:** Agriculture outside designated areas is reduced to XXX, by 2015.	• Forest converted to agriculture • Yield per acre
NCAC 1.11. Raise awareness with communities about the negative effects of fire on natural resources including water, and the importance of		FY11-FY15	**Objective - FIRE 3: By 2015**, fire-fighting crews are trained in 30 villages. **Objective-NCAC5:** By 2015, 80% of villagers	• Number of villages with a trained fire-fighting crew. • Percent of villagers surveyed who understand the threat fire poses to natural

controlling fires and burning early			surveyed understand the threat fire poses for natural resources.	resources compared to baseline survey.
NCAC 1.12. Raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand.		FY12-FY15	**Objective – CHAR1:** By 2020, charcoal production has stopped in chimpanzee habitat.	• % of households within priority markets, that no longer depend on charcoal • Has of chimp habitat cleared for charcoal production • evidence of chimp presence

APPENDIX 20.B. Detailed Work plan for National C-CAP Strategy on Protection and effective management of chimpanzee habitat on Government Land.

Strategic Actions and Activities	**Who** (leaders or coordinators marked in **bold**)	**When**	**Objectives / Goals** (lighter shading indicates short-term, intermediate shading indicates mid-term, and darker shading long-term results)	**Indicators**
PA - GL 1. Promote the establishment and effective management of protected areas in priority chimpanzee habitat under central government control. Seeking the highest possible economic benefit to local communities, while conserving chimpanzee populations.	**TANAPA, TAWIRI, FBD, FZS, WCS, JGI**, TNC, WD, UPP, DC	FY10-FY15	**Overall Objective – GL2:** By 2015, all chimpanzee habitat, including corridors, that is currently in General Land has an appropriate protected area status and a management plan that is implemented.	• % of key chimpanzee habitat under some form of protected area status • Has. of chimpanzee habitat under former General Land gazetted as Protected Area
PA - GL 1.1. Map chimpanzee habitat in relation to various types of land tenure	**JGI**, WCS, UPP, DC, TNC	FY10-FY11		
PA - GL 1.2. Draft one report regarding chimpanzees on General Land (considering leasing permits), and one report regarding chimpanzees on Village Land.		FY10-FY11	**Objective - GL1:** By 2011, a report on the status of chimpanzees on various types of land tenure has been completed. Detailing status on General Land (considering granted leasings), Village Land and Reserve Land and identifying key areas for protection.	• Report on the status of chimpanzees on General Land (considering leasing permits) • Report on the status of chimpanzees on Village Land.
PA - GL 1.3. Prioritise chimpanzee habitat (including corridors) to promote protection	**JGI,** FZS, WCS, TNC	FY10-FY11		

PA - GL 1.4. Identify stakeholders for each priority habitat	**JGI,** FZS, WCS	FY10-FY15		
PA - GL 1.5. Solicit local conservation priorities and ecological values	**Process leaders will have to be identified for each individual proposed protected area;** FZS, WCS, JGI	FY10-FY12		
PA - GL 1.6. Sensitise communities	**JGI**, FZS, TANAPA	FY10-FY13		
PA - GL 1.7. Inventory priority chimpanzee habitat	**JGI**, FBD, FZS, WCS, TAWIRI, UPP, DC	FY10-FY13		
PA - GL 1.8. Identify funding needs and potential funding sources to develop LUP processes in priority areas (also see ILUP 1.6)	FZS, WCS, JGI	FY10-FY11	**Objective – ILUP2:** By 2011, initial funds have been secured to promote participatory land use plan development in critical areas, and in subsequent years funding continues to address ILUP in all key villages.	• % of funds secured to promote ILUP in priority villages
PA - GL 1.9. Begin raising funds	FZS, WCS, JGI, TNC	FY10-FY15		
ACI 1.4. Identify sustainable levels of natural resource extraction within priority chimpanzee habitats	**JGI**, FZS, TAWIRI, TNC	FY10-FY12		
PA - GL 1.10. Identify the appropriate protection status for each priority chimpanzee habitat	**JGI**, FBD, FZS, TANAPA, TAWIRI, DC, TNC	FY10-FY15		

PA - GL 1.11. Conduct an economic assessment of which protected area status would provide the most economic benefits for communities, while conserving chimpanzee populations.	JGI, WD	FY10-FY15		
PA - GL 1.12. Prepare the proposal for new protected area and submit to MNRT for official gazzettement.	**JGI, FZS, TANAPA, TAWIRI**, FBD, DC, TNC	FY10-FY15	**Overall Objective – GL2:** By 2015, all chimpanzee habitat, including corridors, that is currently in General Land has an appropriate protected area status and a management plan that is implemented.	•
PA - ME 1. Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania)	**WD,TANAPA, DC, FBD, TAWIRI**, FZS, WCS, USFS, JGI, TNC	FY10-FY15	**Overall Objective - PAME4:** By 2015, chimpanzee populations, habitat and corridors are effectively managed in existing protected areas such as Forest Reserves, Game Reserves and National Parks.	• % of protected areas within chimpanzee habitat which carry out basic management plan implementation (or more)
PA - ME 1.1. Develop management plans for reserves within chimpanzee habitat	**FBD, DC, TANAPA, WD**, USFS, JGI, WD, DC	FY10-FY15	**Objective - PAME1:** By 2015, all protected areas such as Forest Reserves, Game Reserves and National Parks within chimpanzee habitat have updated management plans which contribute to the effective management of chimpanzee populations, habitat and corridors.	• % of protected areas within chimpanzee habitat which have completed or updated management plans
ACI 1.4. Identify sustainable levels of natural resource extraction within priority chimpanzee habitats	**JGI**, FZS, TAWIRI, TNC	FY10-FY12		
PA - ME 1.2. Ensure essential staff positions are filled to adequately implement management plan	**FBD, TANAPA, DC**	FY11-FY15	**Objective-PAME3**: By 2015, all protected areas within chimpanzee habitat have the basic infrastructure to facilitate on-site work, and sufficient and adequately trained and equipped	• % of protected areas within chimp habitat sufficient and adequately trained staff

			staff exist to carry out priority management activities.	
PA - ME 1.3. Equip staff (vehicles, field gear, etc.) to adequately implement management plan	**FBD, DC, TANAPA**, JGI, FZS	FY11-FY15	**Objective-PAME3:** By 2015, all protected areas within chimpanzee habitat have the basic infrastructure to facilitate on-site work, and sufficient and adequately trained and equipped staff exist to carry out priority management activities.	• % of protected areas within chimp habitat with adequate equipment (vehicles, field gear, etc.) to implement management plan
PA - ME 1.4. Improve and provide infrastructure for staff to adequately implement management plan	**FBD, DC, TANAPA**, JGI, FZS	FY11-FY15	**Objective-PAME3:** By 2015, all protected areas within chimpanzee habitat have the basic infrastructure to facilitate on-site work, and sufficient and adequately trained and equipped staff exist to carry out priority management activities.	• % of protected areas within chimp habitat with adequate infrastructure to implement management plan
PA - ME 1.5. Demarcate the boundaries of reserves and corridors	**FBD, WD, DC, TANAPA, TAWIRI,**USFS, JGI, FZS, WCS	FY11-FY15		
PA - ME 1.6. Establish monitoring of chimpanzee populations and habitat integrity	**TAWIRI, JGI**, FZS, WCS,	FY11-FY15	**Goal - CHIMP1:** By 2060, a demographically viable population of at least 160 chimpanzees is established in the core conservation area of the Greater Gombe Ecosystem.	• Total number of chimps in metapopulation (and within each community) • Number of reproducing females for the metapopulation (and within each community) • Number of adult males within each community • Range size (in hectares) for chimp metapopulation (and by community) • Evergreen forest per community (in hectares)

			Goal – CHIMP2: By 2060, chimpanzees in the Masito Ugalla Ecosystem are stable or increasing from the 2007 population estimate.	• Number of chimpanzees • DBH • Number of hectares of forest • Frequency of fire occurrences • Width of chimpanzee corridor status of forest (under protection or not)
			Goal – CHIMP3: By 2060 there is a stable and/or increased chimpanzee population within the habitat extent and composition of 2007.	• Trends in population size (per community and as a whole) • Index for rating of species availability • population dynamics • Number of hectares of woodland/riverine forest • Number of hectares of evergreen forest • Distance between vegetation patches • Signs of usage (nests, footprints, food remains) • Proportion of subpopulations that are linked by chimp habitat
			Goal – CHIMP4: By 2060, have a stable or increasing (viable) population of at least 100 chimpanzees in the Southern Lake Tanganyika area.	• Trends in population size • Recent Chimp nest presence within corridor in North-South Mwene • Habitat loss (hectares of appropriate habitat which have been lost)
PA - ME 1.7. Improve motivation through leadership training and staff incentives	**WD, FBD, TANAPA, TAWIRI**, FZS, JGI	FY11-FY15		

PA - ME 1.8. Provide training in management to Forest Division and other Reserve Authorities	**WD, FBD, TANAPA, TAWIRI,** FZS, WCS, JGI	FY11-FY15		
PA - ME 1.9. Facilitate inter-departamental communication between NP, FBD, NGOs, District/Region to contribute to effective management	**WD, FBD, TANAPA, TAWIRI,** FZS, WCS, JGI	FY11-FY15		
PA - ME 1.10. Identify funding needs and potential funding sources to develop and implement management plans in priority reserves	**WD, FBD, TANAPA, TAWIRI,** FZS, WCS, JGI, TNC	FY10-FY15	**Objective - PAME2:** By 2011, funding has been secured to start developing management plans in priority protected areas, and in subsequent years funding is secured to promote management plan updates and ensure implementation of basic operations.	• % of reserves which have funds available to complete management plans • % of reserves which have funds available to implement priority activities

APPENDIX 20.C. Detailed Work plan for National C-CAP Strategy on Effective management of all protected areas within chimpanzee habitat.

Strategic Actions and Activities	**Who** (leaders or coordinators marked in **bold**)	**When**	**Objectives / Goals** (lighter shading indicates short-term, intermediate shading indicates mid-term, and darker shading long-term results)	**Indicators**
PA - ME 1. Promote protected area management effectiveness in chimpanzee habitat (Western Tanzania)	**WD,TANAPA, DC, FBD, TAWIRI**, FZS, WCS, USFS, JGI, TNC	FY10-FY15	**Overall Objective - PAME4:** By 2015, chimpanzee populations, habitat and corridors are effectively managed in existing protected areas such as Forest Reserves, Game Reserves and National Parks.	• % of protected areas within chimpanzee habitat which carry out basic management plan implementation (or more)
PA - ME 1.1. Develop management plans for reserves within chimpanzee habitat	**FBD, DC, TANAPA, WD**, USFS, JGI, WD, DC	FY10-FY15	**Objective - PAME1:** By 2015, all protected areas such as Forest Reserves, Game Reserves and National Parks within chimpanzee habitat have updated management plans which contribute to the effective management of chimpanzee populations, habitat and corridors.	• % of protected areas within chimpanzee habitat which have completed or updated management plans
ACI 1.4. Identify sustainable levels of natural resource extraction within priority chimpanzee habitats	**JGI**, FZS, TAWIRI	FY10-FY12		
PA - ME 1.2. Ensure essential staff positions are filled to adequately implement management plan	**FBD, TANAPA, DC**	FY11-FY15	**Objective-PAME3**: By 2015, all protected areas within chimpanzee habitat have the basic infrastructure to facilitate on-site work, and sufficient and adequately trained and equipped staff exist to carry out priority management activities.	• % of protected areas within chimp habitat sufficient and adequately trained staff
PA - ME 1.3. Equip staff (vehicles, field gear, etc.) to adequately	**FBD, DC, TANAPA**, JGI, FZS	FY11-FY15	**Objective-PAME3:** By 2015, all protected areas within chimpanzee habitat have the basic	• % of protected areas within chimp habitat with adequate equipment (vehicles, field gear,

implement management plan			infrastructure to facilitate on-site work, and sufficient and adequately trained and equipped staff exist to carry out priority management activities.	etc.) to implement management plan
PA - ME 1.4. Improve and provide infrastructure for staff to adequately implement management plan	**FBD, DC, TANAPA**, JGI, FZS	FY11-FY15	**Objective-PAME3:** By 2015, all protected areas within chimpanzee habitat have the basic infrastructure to facilitate on-site work, and sufficient and adequately trained and equipped staff exist to carry out priority management activities.	• % of protected areas within chimp habitat with adequate infrastructure to implement management plan
PA - ME 1.5. Demarcate the boundaries of reserves and corridors	**FBD, WD, DC, TANAPA, TAWIRI,**USFS, JGI, FZS, WCS	FY11-FY15		
PA - ME 1.6. Establish monitoring of chimpanzee populations and habitat integrity	**TAWIRI, JGI**, FZS, WCS,	FY11-FY15	**Goal - CHIMP1:** By 2060, a demographically viable population of at least 160 chimpanzees is established in the core conservation area of the Greater Gombe Ecosystem.	• Total number of chimps in metapopulation (and within each community) • Number of reproducing females for the metapopulation (and within each community) • Number of adult males within each community • Range size (in hectares) for chimp metapopulation (and by community) • Evergreen forest per community (in hectares)
			Goal – CHIMP2: By 2060, chimpanzees in the Masito Ugalla Ecosystem are stable or increasing from the 2007 population estimate.	• Number of chimpanzees • DBH • Number of hectares of forest • Frequency of fire occurrences • Width of chimpanzee corridor status of forest (under

				protection or not)
			Goal – CHIMP3: By 2060 there is a stable and/or increased chimpanzee population within the habitat extent and composition of 2007.	• Trends in population size (per community and as a whole) • Index for rating of species availability • population dynamics • Number of hectares of woodland/riverine forest • Number of hectares of evergreen forest • Distance between vegetation patches • Signs of usage (nests, footprints, food remains) • Proportion of subpopulations that are linked by chimp habitat
			Goal – CHIMP4: By 2060, have a stable or increasing (viable) population of at least 100 chimpanzees in the Southern Lake Tanganyika area.	• Trends in population size • Recent Chimp nest presence within corridor in North-South Mwene • Habitat loss (hectares of appropriate habitat which have been lost)
PA - ME 1.7. Improve motivation through leadership training and staff incentives	**WD, FBD, TANAPA, TAWIRI**, FZS, JGI	FY11-FY15		
PA - ME 1.8. Provide training in management to Forest Division and other Reserve Authorities	**WD, FBD, TANAPA, TAWIRI,** FZS, WCS, JGI	FY11-FY15		

PA - ME 1.9. Facilitate inter-departamental communication between NP, FBD, NGOs, District/Region to contribute to effective management	**WD, FBD, TANAPA, TAWIRI,** FZS, WCS, JGI	FY11-FY15		
PA - ME 1.10. Identify funding needs and potential funding sources to develop and implement management plans in priority reserves	**WD, FBD, TANAPA, TAWIRI,** FZS, WCS, JGI	FY10-FY15	**Objective - PAME2:** By 2011, funding has been secured to start developing management plans in priority protected areas, and in subsequent years funding is secured to promote management plan updates and ensure implementation of basic operations.	• % of reserves which have funds available to complete management plans • % of reserves which have funds available to implement priority activities
NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.	FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.	FY10-FY15	**Objective: NCAC4:** By 2015, 75% of Tanzania's population is aware of the presence, importance and legal status of chimpanzees, and the majority of people living in chimp habitat feel proud about protecting chimps, and see the benefits that chimp protection brings to human well-being.	• % of residents in chimp habitat that perceive a benefit from chimp protection on human health • Perception of residents in chimp habitat about a sense of pride regarding chimp protection
NCAC 1.1. Identify someone to coordinate the development and promotion of the National Chimpanzee Awareness Campaign		FY10-FY15		• Advocate identified to coordinate the development and promotion of the National Chimpanzee Awareness Campaign
NCAC 1.2. Develop a National Chimpanzee Awareness Campaign		FY10-FY11		• Awareness campaign vetted by multi-institutional team
NCAC 1.3. Raise / identify funding		FY10-FY12	**Objective – NCAC1:** By 2011, initial funds have been secured to promote activities established in the awareness campaign, and in subsequent years	• % of priority activities which have sufficient funding

			funds are secured to carry out priorities.	
NCAC 1.4. Create materials		FY11-FY12		
NCAC 1.5. Start implementation		FY11-FY12		
NCAC 1.6. Conduct an assessment to determine what benefits are derived from Reserves by local communities near chimpanzee habitat	FZS, WCS, TANAPA, TAWIRI, JGI, DC, Not Specified	FY11-FY12	**Objective - NCAC2:** By 2011, a report has been produced to determine what benefits are derived from reserves by local communities near chimp habitat.	• Report showing what benefits are derived from Reserves by local communities near chimp habitat
NCAC 1.7. Raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land	TANAPA, JGI	FY11-FY12	**Objective – NCAC3:** By 2011, the majority of National leaders and communities are aware of the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land. **Objective – ILUP4:** By 2015 all villages that have chimpanzee habitat or corridors on their land develop Land-use Plans that designate critical habitat as interconnected village forest reserves	• Perception about the importance of chimp habitat protection
NCAC 1.8. Raise awareness with community members about the risk of disease and about prevention techniques		FY11-FY15	**Objective – NCAC6:** By 2015, 80% of villagers surveyed understand the risk of contagious disease to human and chimp well-being, and know about prevention techniques.	• Percent of villagers surveyed who understand the threat posed by contagious diseases to humans and chimps, and who know about prevention techniques.

NCAC 1.9. Raise awareness with communities about environmental degradation and its effects on human wellbeing		FY11-FY15		
NCAC 1.10. Raise awareness with communities about improved agriculture and alternative farming methods		FY11-FY15	**Objective - CA1:** Agriculture outside designated areas is reduced to XXX, by 2015.	• Forest converted to agriculture • Yield per acre
NCAC 1.11. Raise awareness with communities about the negative effects of fire on natural resources including water, and the importance of controlling fires and burning early		FY11-FY15	**Objective - FIRE 3: By 2015**, fire-fighting crews are trained in 30 villages. **Objective-NCAC5:** By 2015, 80% of villagers surveyed understand the threat fire poses for natural resources.	• Number of villages with a trained fire-fighting crew. • Percent of villagers surveyed who understand the threat fire poses to natural resources compared to baseline survey.
NCAC 1.12. Raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand.		FY12-FY15	**Objective – CHAR1:** By 2020, charcoal production has stopped in chimpanzee habitat.	• % of households within priority markets, that no longer depend on charcoal • Has of chimp habitat cleared for charcoal production • evidence of chimp presence

ACI 1. Support alternative and compatible income generating activities.	**TAWIRI,** FZS, JGI, TNC	FY10-FY15	**Human well-being Goal:**[33] MDG-1A&C: By 2015, communities in the region receive benefits from protected areas, to satisfy basic income and nourishment needs. To contribute to Millenium Development Goals, the target will be to reduce the proportion of people whose income is less than one dollar a day by half.	• Proportion of population below $1 (PPP) per day/below national poverty line • Proportion of population below minimum level of dietary energy consumption • Proportion of underweight children under-five years of age
ACI 1.1. Identify priority communities, based on threat urgency and livelihood conditions, for the promotion of alternative income sources		FY11-FY12		
ACI 1.2. Determine the number of people that depend on charcoal production in priority areas		FY10-FY11		
ACI 1.3. Determine the economic benefit of charcoal production in priority areas		FY10-FY11		

[33] This goal was not developed during the C-CAP workshop, and has not been vetted by the planning team yet. Please see appendices 19A and 19B for more information on proposed human well-being targets.

ACI 1.4. Identify sustainable levels of natural resource extraction within priority chimpanzee habitats	FZS, TAWIRI, JGI	FY10-FY12		
ACI 1.5. Determine feasible alternative & sustainable forest uses for specific communities		FY10-FY15		
ACI 1.6. Obtain financing and technical support to promote feasible alternative income sources		FY10-FY15		
ACI 1.7. Carry out awareness-building activities about feasible income alternatives in key communities		FY11-FY15		
ACI 1.8. Establish monitoring activities to determine trends in destructive vs. sustainable forest uses in key communities, and to determine how this reflects on local livelihoods		FY11-FY15		

Appendix 20.D. Detailed Work plan for National C-CAP Strategy on a National Chimpanzee Awareness Campaign - linking chimpanzee and human well-being:

Strategic Actions and Activities	**Who** (leaders or coordinators marked in **bold**)	**When**	**Objectives / Goals** (lighter shading indicates short-term, intermediate shading indicates mid-term, and darker shading long-term results)	**Indicators**
NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.	FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.	FY10-FY15	**Objective: NCAC4:** By 2015, 75% of Tanzania's population is aware of the presence, importance and legal status of chimpanzees, and the majority of people living in chimp habitat feel proud about protecting chimps, and see the benefits that chimp protection brings to human well-being.	• % of residents in chimp habitat that perceive a benefit from chimp protection on human health • Perception of residents in chimp habitat about a sense of pride regarding chimp protection
NCAC 1.1. Identify someone to coordinate the development and promotion of the National Chimpanzee Awareness Campaign		FY10-FY15		• Advocate identified to coordinate the development and promotion of the National Chimpanzee Awareness Campaign
NCAC 1.2. Develop a National Chimpanzee Awareness Campaign		FY10-FY11		• Awareness campaign vetted by multi-institutional team
NCAC 1.3. Raise / identify funding		FY10-FY12	**Objective – NCAC1:** By 2011, initial funds have been secured to promote activities established in the awareness campaign, and in subsequent years funds are secured to carry out priorities.	• % of priority activities which have sufficient funding
NCAC 1.4. Create materials		FY11-FY12		
NCAC 1.5. Start implementation		FY11-FY12		

NCAC 1.6. Conduct an assessment to determine what benefits are derived from Reserves by local communities near chimpanzee habitat	FZS, WCS, TANAPA, TAWIRI, JGI, DC, Not Specified	FY11-FY12	**Objective - NCAC2:** By 2011, a report has been produced to determine what benefits are derived from reserves by local communities near chimp habitat.	• Report showing what benefits are derived from Reserves by local communities near chimp habitat
NCAC 1.7. Raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land	TANAPA, JGI	FY11-FY12	**Objective – NCAC3:** By 2011, the majority of National leaders and communities are aware of the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land. **Objective – ILUP4:** By 2015 all villages that have chimpanzee habitat or corridors on their land develop Land-use Plans that designate critical habitat as interconnected village forest reserves	• Perception about the importance of chimp habitat protection
NCAC 1.8. Raise awareness with community members about the risk of disease and about prevention techniques		FY11-FY15	**Objective – NCAC6:** By 2015, 80% of villagers surveyed understand the risk of contagious disease to human and chimp well-being, and know about prevention techniques.	• Percent of villagers surveyed who understand the threat posed by contagious diseases to humans and chimps, and who know about prevention techniques.
NCAC 1.9. Raise awareness with communities about environmental degradation and its effects on human wellbeing		FY11-FY15		
NCAC 1.10. Raise awareness with communities about improved agriculture and alternative farming methods		FY11-FY15	**Objective - CA1:** Agriculture outside designated areas is reduced to XXX, by 2015.	• Forest converted to agriculture • Yield per acre

NCAC 1.11. Raise awareness with communities about the negative effects of fire on natural resources including water, and the importance of controlling fires and burning early		FY11-FY15	**Objective - FIRE 3: By 2015**, fire-fighting crews are trained in 30 villages. **Objective-NCAC5:** By 2015, 80% of villagers surveyed understand the threat fire poses for natural resources.	• Number of villages with a trained fire-fighting crew. • Percent of villagers surveyed who understand the threat fire poses to natural resources compared to baseline survey.
NCAC 1.12. Raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand.		FY12-FY15	**Objective – CHAR1:** By 2020, charcoal production has stopped in chimpanzee habitat.	• % of households within priority markets, that no longer depend on charcoal • Has of chimp habitat cleared for charcoal production • evidence of chimp presence

Appendix 20.E. Detailed Work plan for National C-CAP Strategy on Disease control and prevention through the adoption of IUCN's guidelines for disease control and tourism in Tanzania.

Strategic Actions and Activities	**Who** (leaders or coordinators marked in **bold**)	**When**	**Objectives / Goals** (lighter shading indicates short-term, intermediate shading indicates mid-term, and darker shading long-term results)	**Indicators**
DCON 1. Promote the endorsement and adoption of appropriate guidelines for disease control and tourism in Tanzania (based on IUCN's guidelines)	**WD,TAWIRI, TANAPA, MOH**, PSG/IUCN, FZS, JGI, EARTH Inc., LPZ, UPP, GRASP, DC	FY10-FY15	**Overarching Objective – DIS2:** By 2013, appropriate guidelines for great ape tourism and disease prevention and control are adopted and implemented by the Tanzanian government.	• Official endorsement of IUCN's disease control guidelines by Tanzanian government authorities • Official endorsement of IUCN's tourism guidelines by Tanzanian government authorities
DCON 1.1. Identify a champion or advocate to promote this strategy	**"Champion to be determined"**, PSG/IUCN	FY10-FY11		
DCON 1.2. Establish contact between IUCN's Primate Specialist Group (PSG) and someone assigned as the disease "advocate" to assume the role of introducing and promoting the guidelines within the relevant ministries.	**"Champion to be determined",** PSG/IUCN	FY10-FY11		
DCON 1.3. Meet with relevant government representatives to establish an inter-ministerial committee on disease, which	**"Champion to be determined",** TANAPA, TAWIRI, WD, MOH	FY10-FY11		

will jointly determine the appropriate process for one or more ministries (at least the MNRT) to endorse and adopt the guidelines.				
DCON 1.4. Translate guidelines into Swahili, print and distribute guidelines in priority areas	**TAWIRI**, JGI, PSG/IUCN	FY11-FY12		
DCON 1.5. Carry out guidelines dissemination events with authorities, park staff, tour operators and communities in priority areas	**DC**, FZS, TANAPA, JGI, PSG/IUCN, GRASP,	FY11-FY15		
DCON 1.6. Synthesise the guidelines and distribute into local (village) libraries (c.f. CTPH booklets)	**TANAPA,** CTPH as advisors to review booklets?	FY11-FY12		
DCON 1.7. Engage in & develop joint activities with district health officers (district/community livestock and agriculture officer, livestock field officers) to promote best practices	**TANAPA, TAWIRI, LG,** JGI	FY11-FY15		
DCON 1.8. Establish regulations and hold park staff, researchers, tour operators, tourists, film crews and people who habituate	**TANAPA, TAWIRI**	FY11-FY15		

chimps accountable for complying to relevant health behaviours.				
DCON 1.9. Establish the means to monitor implementation of improved health and hygiene practices described within the guidelines for all relevant target groups.	**TANAPA, TAWIRI**, JGI, FZS, researchers	FY11-FY15	**Goal - MDG-4A&6C:** By 2015, people living near chimpanzee habitat are less affected by infectious diseases (respiratory infections, diarrhoea, polio, etc.), than in 2010. This goal will contribute to MDG Target 4A:Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate; and also MDG Target 6C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.	• Incidence of infectious disease • Incidence, prevalence and death rates associated with tuberculosis • Proportion of 1 year-old children immunized against measles • % of chimpanzee deaths due to preventable infectious diseases
DCON 1.10. Finalise and pilot standardised disease surveillance and health monitoring system (humans/chimps/livestock).	**WD,TANAPA, TAWIRI, MOH**, JGI, UPP, LPZ, EARTH Inc.	FY12-FY15		
DCON 1.11. Develop national disease contingency plans to address different chimpanzee disease problems including policies on what should be done with a sick chimp.	**WD,TANAPA, TAWIRI,** JGI, LPZ	FY11-FY12		
DCON 2. Promote the regulation of chimp habituation practices outside of protected areas	**TANAPA, TAWIRI,** FZS, JGI	FY10-FY15	**Objective – DIS6:** By 2012, the habituation of chimps outside of protected areas follows regulations that consider risks to chimpanzee wellbeing and establish habituation criteria and protocols.	• Enforcement level of habituation regulations • Existence of mechanisms to regulate chimp habituation (regulations,

				certification process, protocol, best-practices, etc.)
DCON 2.1. Form an inter-institutional team to develop criteria and protocols for the habituation of chimps outside of protected areas, and to develop simple formats on priority health behaviours which the most relevant human users of chimp habitat (i.e. park staff, researchers, tour operators, tourists, film crews and people who habituate chimps) are required to read and agree to.	**TANAPA, TAWIRI**	FY10-FY12		
DCON 1.8. Establish regulations and hold park staff, researchers, tour operators, tourists, film crews and people who habituate chimps accountable for complying to relevant health behaviours.	**TANAPA, TAWIRI**	FY10-FY15		
DCON 1.9. Establish the means to monitor implementation of improved health and hygiene practices described within the guidelines for all relevant target groups.	**TANAPA, TAWIRI,** FZS, JGI	FY11-FY15	**Goal - MDG-4A&6C:** By 2015, people living near chimpanzee habitat are less affected by infectious diseases (respiratory infections, diarrhoea, polio, etc.), than in 2010. This goal will contribute to MDG Target 4A:Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate; and also MDG	• Incidence of infectious disease • Incidence, prevalence and death rates associated with tuberculosis • Proportion of 1 year-old children immunized against measles

			Target 6C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.	
DCON 3. Promote the effective collaboration of the MOH, MNRT, TAWIRI, TANAPA to intensify health activities in critical areas where contact between humans and chimps is more likely	**WD, TANAPA, TAWIRI, MOH**, JGI, EARTH Inc.	FY11-FY15	**Goal - MDG-4A&6C:** By 2015, people living near chimpanzee habitat are less affected by infectious diseases (respiratory infections, diarrhoea, polio, etc.), than in 2010. This goal will contribute to MDG Target 4A:Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate; and also MDG Target 6C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases. **Objective - DIS1: By 2020,** no "epidemic" due to preventable infectious disease is observed (epidemic defined as > 20% of population dying in a given region due to the same disease outbreak within one year).	• Incidence of infectious disease • Incidence, prevalence and death rates associated with tuberculosis • Proportion of 1 year-old children immunized against measles • % of chimpanzee deaths due to preventable infectious diseases
DCON 3.1. Once guidelines have been adopted, organise a meeting with the Ministry of Health and the Ministry of Natural Resources and Tourism (and relevant institutions within), to identify collaboration opportunities around the theme of joint health risks and	**MOH, WD, TANAPA, TAWIRI,** "disease control champion" as facilitator	FY11-FY15	**Objective - DIS3:** By 2013, TANAPA, TAWIRI and the Ministry of Health work in partnership to implement the guidelines for disease control and tourism.	• % of research, tour operations or research permits not compliant with established health behaviours

preventive actions.				
DCON 3.2. Once guidelines have been adopted, organise local/operational-level meetings with staff from the MOH and MNRT (and relevant institutions within), and other relevant stakeholders in priority areas, to identify collaboration opportunities around the theme of joint health risks and preventive actions.	**MOH, WD, TANAPA, TAWIRI,** "disease control champion" as facilitator, JGI, EARTH Inc.	FY11-FY15	**Objective - DIS3**: By 2013, TANAPA, TAWIRI and the Ministry of Health work in partnership to implement the guidelines for disease control and tourism.	• % of research, tour operations or research permits not compliant with established health behaviours • Adherence to guidelines
DCON 3.3. Funding secured for health interventions in target communities	**MOH, TANAPA, TAWIRI,** JGI, EARTH Inc.	FY11-FY15		
DCON 3.4. Participate in district health planning meetings in all areas where chimpanzee and human habitat overlap, and promote the inclusion of strategies to reduce direct and indirect contact between humans and chimpanzees (to reduce risk of disease transmission) in official district health annual plans.	**MOH,** TANAPA, TAWIRI,	FY11-FY15	**Objective – DIS5:** By 2014, the implementation of guidelines at the community level is actively promoted and monitored by Community and district health committees, Roots & Shoots in some areas (a JGI program operating internationally) , Tacare/GGE (JGI), WCS, and others.	• Adherence to guidelines • % of research, tour operations or research permits not compliant with established health behaviours •
DCON 3.5. Provide technical assistance to strenghten capacity for diagnostics, data	**WD, TAWIRI, TANAPA, MOH**, LPZ/Earth Inc, JGI,	FY11-FY15	**Objective - DIS4:** By 2014, capacity exists within authorities and supporters (researchers, community members) to collect	• Existence of baseline data on chimp and human disease • Existence of monitoring

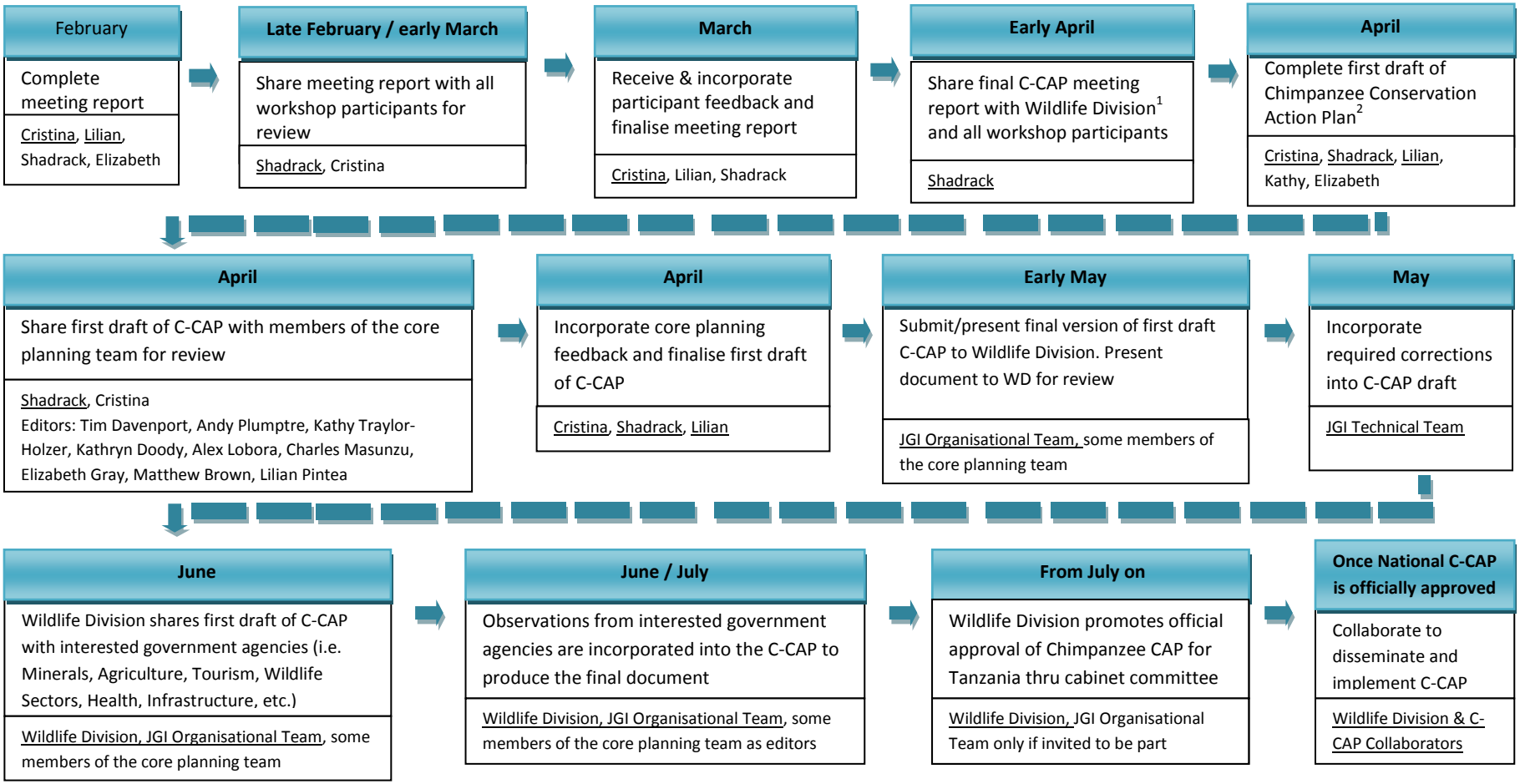
collection and analysis on chimp and human health. Includes agreeing on standardised definitions of clinical signs and diagnostic tests and their thresholds, and ensuring an ongoing collection and assemblage of data that would establish a baseline (normal) level of disease and provide a basis for periodic monitoring.	FZS?, UPP and researchers		and analyse information on chimp and human health in chimp habitat.	and collaboration protocols to monitor chimp health • Existence of monitoring and collaboration protocols to monitor human health
NCAC 1. Promote health awareness and education through a "National Chimpanzee Awareness Campaign" linking chimpanzee and human well-being, especially where contact between humans and chimps is more likely.	FZS, WCS, TANAPA, TAWIRI, JGI, UPP, DC, EARTH Inc.	FY10-FY15	**Objective: NCAC4:** By 2015, 75% of Tanzania's population is aware of the presence, importance and legal status of chimpanzees, and the majority of people living in chimp habitat feel proud about protecting chimps, and see the benefits that chimp protection brings to human well-being.	• % of residents in chimp habitat that perceive a benefit from chimp protection on human health • Perception of residents in chimp habitat about a sense of pride regarding chimp protection
NCAC 1.1. Identify someone to coordinate the development and promotion of the National Chimpanzee Awareness Campaign		FY10-FY15		• Advocate identified to coordinate the development and promotion of the National Chimpanzee Awareness Campaign
NCAC 1.2. Develop a National Chimpanzee Awareness Campaign		FY10-FY11		• Awareness campaign vetted by multi-institutional team

NCAC 1.3. Raise / identify funding		FY10-FY12	**Objective – NCAC1:** By 2011, initial funds have been secured to promote activities established in the awareness campaign, and in subsequent years funds are secured to carry out priorities.	• % of priority activities which have sufficient funding
NCAC 1.4. Create materials		FY11-FY12		
NCAC 1.5. Start implementation		FY11-FY12		
NCAC 1.6. Conduct an assessment to determine what benefits are derived from Reserves by local communities near chimpanzee habitat	FZS, WCS, TANAPA, TAWIRI, JGI, DC, Not Specified	FY11-FY12	**Objective - NCAC2:** By 2011, a report has been produced to determine what benefits are derived from reserves by local communities near chimp habitat.	• Report showing what benefits are derived from Reserves by local communities near chimp habitat
NCAC 1.7. Raise awareness among National leaders and communities about the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land	TANAPA, JGI	FY11-FY12	**Objective – NCAC3:** By 2011, the majority of National leaders and communities are aware of the importance of reserves and the importance of protecting chimpanzees also on General Land and on Village Land. **Objective – ILUP4:** By 2015 all villages that have chimpanzee habitat or corridors on their land develop Land-use Plans that designate critical habitat as interconnected village forest reserves	• Perception about the importance of chimp habitat protection
NCAC 1.8. Raise awareness with community members about the risk of disease and about prevention techniques		FY11-FY15	**Objective – NCAC6:** By 2015, 80% of villagers surveyed understand the risk of contagious disease to human and chimp well-being, and know about prevention techniques.	• Percent of villagers surveyed who understand the threat posed by contagious diseases to humans and chimps, and who know about prevention techniques.

NCAC 1.9. Raise awareness with communities about environmental degradation and its effects on human wellbeing		FY11-FY15		
NCAC 1.10. Raise awareness with communities about improved agriculture and alternative farming methods		FY11-FY15	**Objective - CA1:** Agriculture outside designated areas is reduced to XXX, by 2015.	• Forest converted to agriculture • Yield per acre
NCAC 1.11. Raise awareness with communities about the negative effects of fire on natural resources including water, and the importance of controlling fires and burning early		FY11-FY15	**Objective - FIRE 3: By 2015**, fire-fighting crews are trained in 30 villages. **Objective-NCAC5:** By 2015, 80% of villagers surveyed understand the threat fire poses for natural resources.	• Number of villages with a trained fire-fighting crew. • Percent of villagers surveyed who understand the threat fire poses to natural resources compared to baseline survey.
NCAC 1.12. Raise awareness in markets that depend on charcoal produced in or near chimpanzee habitat about feasible alternative energy sources, to decrease demand.		FY12-FY15	**Objective – CHAR1:** By 2020, charcoal production has stopped in chimpanzee habitat.	• % of households within priority markets, that no longer depend on charcoal • Has of chimp habitat cleared for charcoal production • evidence of chimp presence

Appendix 21. Next steps after Chimpanzee CAP Meeting, as initially defined, to contribute to a National C-CAP Document:

The following diagram shows the steps and initially estimated timeline, which was not possible to meet because the people responsible for completing products were not able to be dedicated full-time to these tasks. Underlined names indicate lead responsibility



[1] The Wildlife Division should have the meeting report available for preparing annual budgets, which need to be submitted for approval in July. For this purpose they preferred having the meeting notes due for circulation in March.

[2] To the extent possible, the format of the C-CAP will follow the structure of official formats used for wildlife conservation plans in Tanzania.