UNESCO World Heritage Centre - IUCN

Reactive Monitoring Mission
Selous Game Reserve (United Republic of Tanzania)

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Mission Report, January 2014

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LIST OF ABBREVIATIONS AND ACRONYMS

AFCONE	African Commission on Nuclear Energy
AIS	Alien Invasive Species
AfESG	African Elephant Specialist Group
ARMZ	Atomredmetzoloto (part of Russian State Atomic Energy Corporation)
BAKWATA	National Muslim Council of Tanzania
BRN	Big Results Now
CCT	Christian Council of Tanzania
CFRD	Concrete Faced Rockfill Dam
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSR	Corporate Social Responsibility
DAWASA	Dar es Salaam Water and Sewerage Authority
DAWASCO	Dar es Salaam Water and Sewerage Cooperation
DPG-E	Development Partners Group on Environment
DSOCR	Desired State of Conservation for the Removal of the Property from the List of World Heritage in Danger
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiative
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
ETIS	The Elephant Trade Information System
FZS	Frankfurt Zoological Society (also known as FZG)
GMP	General Management Plan
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IAEA	International Atomic Energy Agency
ICMM	International Council on Mining & Metals
IHA	International Hydropower Association
IISD	International Institute for Sustainable Development
ISL	In-Situ Leaching (In-Situ Leach Mining)
IUCN	International Union for Conservation of Nature
KfW	Kreditanstalt für Wiederaufbau
MDA	Mining Development Agreement
MIKE	Monitoring the Illegal Killing of Elephants (CITES-led)
MIKES	Monitoring the Illegal Killing of Elephants and other Endangered Species
MNRT	Ministry of Natural Resources and Tourism
MoU	Memorandum of Understanding

MRP	Mkuju River Project
MW	Megawatt
NEMC	National Environment Management Council
NGO	Non-governmental Organization
OECD	Organisation for Economic Co-operation and Development
OUV	Oustanding Universal Value
RUBADA	Rufiji Basin Development Authority
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SAIIA	South African Institute of International Affairs
SCP	Selous Conservation Programme
SEA	Strategic Environmental Assessment
SGR	Selous Game Reserve
SOC	State of Conservation
SoOUV	Statement of Outstanding Universal Value
SRESA	Strategic Regional Environmental and Social Assessment
TAEC	Tanzania Atomic Energy Commission
TAHOA	Tanzania Hunters and Outfitters Association
TANAPA	Tanzania National Parks
TAWASA.Net	Tanzania Water and Sanitation Network
TAWA	Tanzania Wildlife Authority
TAWIRI	Tanzania Wildlife Research Institute
TEC	Tanzania Episcopal Conference
TEITI	Tanzania Extractive Industries Transparency Initiative (under EITI)
ToR	Terms of Reference
UAV	Unmanned Aerial Vehicle
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCA	Wildlife Conservation Act
WCD	World Commission on Dams
WD	Wildlife Division (MNRT)
WHC	World Heritage Centre
WMA	Wildlife Management Area
WWF	World Wide Fund for Nature

EXECUTIVE SUMMARY

The vast Selous Game Reserve (SGR) is an extraordinary protected area and World Heritage property of global conservation significance. Compared to most protected areas, SGR is in a privileged position due to its enormous scale and relative remoteness. Nevertheless, there can be no doubt about serious ascertained and potential threats to SGR in the view of the mission. At the same time, the mission is unaware of irreversible impacts at this stage. Key areas of concern are the direct and indirect consequences of the massive and ongoing poaching triggered by demand for ivory and rhino horn, challenges to funding and management in the broadest sense, possible impacts of the Mkuju River Project, possible future resource extraction based on recent legislative changes and large-scale development projects proposed within and near SGR. Less noticed and apparently not a target of systematic monitoring or current management efforts are Alien Invasive Species (AIS). AIS are at least locally an issue in the non-consumptive tourism areas and should receive more attention in future monitoring and management.

Against the backdrop of the Statement of Outstanding Universal Value (SoOUV), which makes explicit reference to "globally significant populations of African Elephant and Black Rhinoceros", the most acute finding of the mission is the alarming surge in poaching. Poaching had reached high levels in SGR in the 1970s and 1980s, but eventually a strong response had allowed a partial recovery of affected wildlife populations. However, a recent survey confirmed unprecedented population declines. The world class population of African Elephant (*Loxodonta africana*) in the SGR and its surroundings is reduced to a historic all-time low. Observers consulted by the mission unanimously agreed that the status of Black Rhinoceros (Diceros bicornis) can only be described as bleak. The pressure on this critically endangered species is such that the IUCN Red List has ceased to publicize detailed distribution data for security reasons.

Despite some encouraging re-consolidation of overall management, there appears to be no coherent governmental response which could halt or even reverse the documented poaching trends. A controversial anti-poaching campaign in late 2013 was suspended on the grounds of alleged human rights violations. **The mission therefore concludes that the dramatic decline of the populations of African Elephant and Black Rhinoceros constitutes a clear ascertained danger to the Outstanding Universal Value (OUV) of the property in line with paragraph 180a)i) of the Operational Guidelines and recommends that the World Heritage Committee inscribe the SGR on the List of World Heritage in Danger.** The mission considers that this formal acknowledgement of an ascertained danger to SGR will assist the State Party in drawing national and international attention and support.

The inscription of any property on the List of World Heritage in Danger triggers an obligation to develop a "Desired State of Conservation for the Removal of the Property from the List of World Heritage List" (DSOCR) and to elaborate and implement "corrective measures". At the time of the mission, the results of the recent wildlife survey had not been officially released, i.e. the mission was not in possession of confirmed data while in country. The mission was thus not in a position to make a final recommendation on danger-listing. Consequently, no specific discussion on "corrective measures" and a DSOCR took place with the State Party during the mission.

The DSOCR, jointly with associated indicators and timelines should be developed as an integral part of and guidance for the development of an emergency anti-poaching initiative and a long term plan to structurally ensure adequate funding and management. The DSOCR should encompass clear indicators for the recovery of the populations of African Elephant, Black Rhinoceros and keystone species, such as apex predators. Furthermore, the DSOCR should set clear indicators for appropriate overall management effectiveness. To avoid further deterioration of the OUV, the mission proposes the following broad directions for the corrective

measures, to be refined jointly with Tanzanian authorities and colleagues and supported by the World Heritage Centre (WHC), IUCN and others as desired by the State Party.

1. Immediate development and implementation of a comprehensive emergency anti-poaching initiative with the objective to halt poaching in the Larger Selous Ecosystem, including but not limited to the property, the Selous-Niassa Corridor, the Kilombero Valley and the adjacent Wildlife Management Areas (WMA) within 12 months. The programme should bring together and engage all relevant governmental institutions, non-governmental stakeholders and cooperation actors, in particular NGOs, multilateral and bilateral donors and agencies, tourism operators, the Mkuju River Project and WMAs.

2. Beyond the emergency response to current poaching, structural consolidation of funding mechanisms and levels, as well as restoring adequate management are needed to ensure the full recovery and long term maintenance of the OUV and the many additional values and services of the property.

The mission understands that the current situation of the African Elephant in SGR has triggered some debate on the appropriateness of commercial trophy hunting. Given the substantial contribution of hunting revenues to the management and conservation of SGR the banning of commercial hunting in SGR would be ill-advised and counterproductive in the view of the mission. The mission therefore considers that there is no technical justification to ban trophy hunting provided full transparency, reinvestment of revenues in conservation, compliance with sustainable use principles and scientifically sound and independently set quotas and age limits. Discussions with hunting operators indicate a strong willingness and capacity to contribute to monitoring and anti-poaching. This potential should be further realized under governmental guidance and authority.

Discussions with donor representatives illustrated both serious concern about the current situation and a strong willingness to contribute to solutions. There are tangible options to respond to the current crisis in a joint effort with bilateral cooperation and several NGOs. The mission encourages an open discussion with donors about the current situation of SGR and concrete entry points for addressing the situation. The mission further encourages the State Party to also directly communicate with the World Heritage Centre about support options, such as Emergency Assistance from the World Heritage Fund.

As the overall state of conservation of SGR in terms of available habitat is still good, eventual recovery of wildlife populations seems possible in principle. However, it can be argued that there is another difference compared to the previous peak in poaching besides the unprecedented scale. Unlike in the past, the Larger Selous Ecosystem and linkages to other important wildlife habitats are under increasing pressure. Poaching today coincides with ongoing range and habitat loss and increasingly severe human-wildlife conflicts in the growing agricultural areas near SGR.

Funding and management have gone through cycles over the last decades with observable consequences in terms of management effectiveness. The mission notes that consulted colleagues unanimously considered the current funding and management effort as insufficient in light of the scale and logistics that come with managing a large and remote protected area. Experienced Tanzanian colleagues estimated the current funding and staffing levels to be at roughly 50 % of the required level.

In line with recommendation 11 of the 2008 reactive monitoring mission and a corresponding reference in the subsequent decision of the World Heritage Committee (33COM 7B.8) the mission notes that the management of SGR as part of a larger landscape is ever more important at a time of increasing demand for land and resources in the Larger Selous

Ecosystem. The demand includes land and water for large agricultural schemes, such as the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), road construction, mining and proposed dams. Landscape connectivity, in particular corridors to other protected areas, the Selous-Niassa Corridor, buffer zones and possible strategic additions to the property should become a systematic consideration in development planning. It is clear that the effective consideration of the landscape level requires enhanced coordination and cooperation across sectors and institutions. Perhaps most importantly in the long term, a more meaningful consideration of the wider landscape would more strongly integrate the needs of local communities. To this day, the benefits of SGR for the growing population living in the property's vicinity are minimal. At the same time, the mostly poor rural residents bear important costs in the form of crop damage and other forms of human – wildlife conflict, including lethal accidents. Experience from around the world shows that poor rural residents living next to protected areas not only without tangible benefits but bearing high costs are a recipe for conflict and poor conservation results. Wildlife Management Areas (WMA) are a promising form of meaningful local involvement and benefit-sharing. The mission considers that strengthening WMA in the surroundings of SGR is among the best investments in the long term future of SGR.

Despite being located outside of the World Heritage property today, the uranium mine known as the Mkuju River Project (MRP) raises important questions in terms of its possible impacts on water quantity and quality. Internal and independent long-term monitoring within and beyond the mining areas is a basic requirement by any standard. However, the mission was not provided with information, which would amount to a coherent approach to developing and implementing such monitoring. Furthermore, the access facilitated by the mine to previously remote areas increases the likelihood of illegal activities. Control and law enforcement efforts beyond routine efforts in and around the mining area are indispensable. While there is no documentation of major impacts at this stage, independent monitoring and increased attention to this new entry point for illegal activities will have to be part of management in the regional sector of SGR for decades to come, including after active mining operations. Beyond the MRP, the provisions of the Wildlife Conservation Act (WCA) raise concern about possible future prospecting and mining. While the WCA explicitly prohibits most prospecting and resource extraction, the exceptions made for gas, oil and uranium constitute a potential dilemma with SGR's World Heritage status. The World Heritage Committee in 2013 (36COM8B.43) highlighted the "unique and exceptional manner" of the decision regarding the Mkuju River Project, which excludes the possibility of future mining projects based on minor boundary modifications in the view of the mission.

The mission was able to access more detailed information than earlier missions on two planned dam projects. The projects do not manifest themselves in major tangible impacts at this stage even though it can be and has been argued that the establishment of a camp for the early feasibility studies for the Stiegler's Gorge Project has contributed to opening up a previously remote area and may have facilitated poaching at the time. Some observers suggest that the camp was at the origin of major poaching of Black Rhinoceros in the 1980s in that part of the Northern SGR. The mission was unable to determine the exact status of the Stiegler's Gorge Dam project. If constructed, the Stiegler's Dam would undoubtedly induce massive change, put an end to the status of large and central parts of SGR as an undisturbed natural area and may call the World Heritage status into question. While the Kidunda Dam Project does not appear to raise fundamental concerns about the overall future of SGR, its construction would inevitably have impacts on the property. Moreover, there are conflicting versions of the exact plans for this dam. The impact assessment made available to the mission touches upon the World Heritage status of SGR but neither provides a specific analysis of World Heritage considerations nor does it suggest meaningful conclusions in this regard.

Given the scale, complexity and multitude of current and planned development schemes, a Strategic Environmental Assessment (SEA) lends itself as an instrument to better understand the situation, options, trade-offs and scenarios at the landscape level beyond the assessment of individual projects. Tanzanian legislation would seem to require such an assessment and the Committee is on record for specifically requesting an SEA in 2013 (37COM 7B.7).

In conclusion, the mission considers that SGR continues to be a vast tract of intact land of global conservation importance. The dramatic survey results of the elephant population indicate an entirely new scale of poaching. While the above current and potential threats on the horizon require careful and comprehensive analysis and decision-making at the landscape level, the need to practically respond to the poaching crisis in SGR is most urgent. In the view of the mission, an inscription of SGR on the List of World Heritage in Danger is fully in line with the *Operational Guidelines* and a positive step to trigger urgently needed national and international attention and support. The following list provides an overview of the full set of recommendations. All recommendations are explained in detail in the various sub-chapters of chapter 3.

Recommendation 1
The State Party should confirm the commitment to consider Selous Game Reserve off limits to prospecting and mining, as stipulated in the Wildlife Conservation Act. This should include oil, gas and uranium, for which legal exceptions are in place since 2009, which are incompatible with World Heritage status and which could not be facilitated by further boundary modifications.

Recommendation 2
The State Party should develop and adopt as soon as possible the necessary regulations and/or subsidiary legislation for wildlife corridors, buffer zones, migratory routes, dispersal areas and WMA, to facilitate the application of corresponding stipulations of the Wildlife Conservation Act.

Recommendation 3
The State Party should develop and implement, as soon as possible within 12 months, a comprehensive emergency anti-poaching programme with the objective to halt poaching in the Larger Selous Ecosystem, including but not limited to the property, in particular the Selous-Niassa Corridor, the Kilombero Valley and the Wildlife Management Areas adjacent to the property. The programme should engage all relevant governmental institutions and non-governmental stakeholders, in particular NGOs, donors, tourism operators, the Mkuju River Project and WMAs.

Recommendation 4
The World Heritage Committee should launch an appeal to the international donor community to provide technical and financial assistance to the State Party to develop and implement the comprehensive emergency anti-poaching programme.

Recommendation 5
The establishment of TAWA should be finalized as soon as possible while ensuring that at least 50 % of the revenues generated from SGR can be re-invested in SGR in support of the emergency anti-poaching programme and the structural rehabilitation.

Recommendation 6
The State Party should develop a strategy to manage the Selous Game Reserve at the wider landscape level of the "Larger Selous Ecosystem", including but not limited to existing protected areas, WMAs and the Selous-Niassa Corridor. In particular, landscape components of outstanding conservation and connectivity importance should be identified and managed in line with existing provisions under the Wildlife Conservation Act. The political and technical transboundary cooperation with Mozambique and the Niassa Game Reserve should be consolidated following up on earlier efforts and an existing MoU. The landscape level management of the property should be formalized under the World Heritage Convention

through the establishment of a buffer zone and potentially by strategic additions to the World Heritage property.

Recommendation 7
The involvement of, and benefits for, local communities should be further enhanced, in particular by consolidating Wildlife Management Areas as a promising entry point and framework.

Recommendation 8
The State Party should consolidate its domestic capacity and use external expertise as needed to ensure comprehensive and independent monitoring and compliance of the complex mining operations at the Mkuju River Project, Tanzania's first uranium mining site. In particular, the establishment of an independent quantitative and qualitative water monitoring system is indispensable, which should include monitoring points beyond the mining concession area.

Recommendation 9
The State Party should ensure full risk preparedness and establish clear response mechanisms in case of possible future contamination incidents associated to extractive activities outside its boundaries.

Recommendation 10
In line with Paragraph 172 of the Operational Guidelines, the State Party should inform the World Heritage Committee in case In-Situ Leaching (ISL) will be considered as an extraction technique in addition to or as an alternative to open pit mining. If ISL is to be considered, an additional Environmental Impact Assessment would be applicable, prior to any approval.

Recommendation 11
The State Party should unambiguously and in writing clarify the current status of planning and decision-making regarding the Stiegler's Gorge project.

Recommendation 12
Given the potential serious negative impacts on the OUV of the property, the State Party should ensure a comprehensive understanding of the impacts, risks, costs, benefits, and alternatives as a basis for any decision-making regarding the Stiegler's Gorge Dam both in the form of an in-depth EIA and a comprehensive SEA (see also Recommendation 17 regarding this SEA), taking into account the Outstanding Universal Value of SGR. In line with paragraph 172 of the Operational Guidelines, these assessments should be submitted to the World Heritage Committee for review, before any final decision on the project is made.

Recommendation 13
The World Heritage Committee should call on States Parties to the Convention and private sector companies considering technical or financial support or involvement to the proposed Stiegler’s Gorge project, not to take any investment decision before it has been demonstrated that the project can be implemented without negatively affecting the Outstanding Universal Value of the property. States Parties concerned should be reminded by the World Heritage Committee of Article 6.3 of the World Heritage Convention which stipulates that each State Party not "take any deliberate measures which might damage directly or indirectly the cultural and natural heritage (...) on the territory of other States Parties (...)".

Recommendation 14
The State Party should unambiguously clarify the status of planning, decision-making and impact assessments regarding the Kidunda project in writing supported by all relevant documents.

Recommendation 15
The State Party should complete the existing ESIA for the Kidunda Dam Project to ensure comprehensive consideration of the relationship between the multiple planned projects and the World Heritage status of the Selous Game Reserve, respect ESIA requirements and report accordingly, including on all implications in terms of the OUV and procedural options. This

includes full consideration of the apparently planned future addition of a hydro power component. In line with paragraph 172 of the Operational Guidelines, the completed ESIA should be submitted to the World Heritage Committee for review, before any final decision on the project is made.

Recommendation 16
Future management planning should fully consider Alien Invasive Species (AIS) through a specific AIS management plan.

Recommendation 17
Following up on the existing request by the World Heritage Committee, the State Party should conduct an SEA for the Selous Game Reserve and its surroundings so as to fully assess the costs, benefits, risks, interlinkages and alternatives of the various ongoing and planned development schemes and projects.

Recommendation 18
Given the ascertained danger to the OUV, the mission recommends that the World Heritage Committee inscribes the SGR on the List of World Heritage in Danger according to paragraph 177 and in particular paragraph 180 of the Operational Guidelines.

Recommendation 19
Given that the status of Black Rhinoceros in SGR appears at least as dramatic as the status of African Elephant, the State Party should prepare a rapid situation assessment in order to take effective conservation, enforcement and management action in relation to rhino poaching in the property.

Recommendation 20
States Parties known to be destinations of the illicit trade in ivory and rhino horn should be reminded by the World Heritage Committee of Article 6.3 of the World Heritage Convention which stipulates that each State Party not "take any deliberate measures which might damage directly or indirectly the cultural and natural heritage (...) on the territory of other States Parties (...)".

1. BACKGROUND TO THE MISSION

Building upon an even earlier designation, the Selous was set aside as a hunting reserve in 1905. Subsequently, the boundaries of the Selous were repeatedly extended to include wildlife migration routes, until the area eventually became what is today Selous Game Reserve (hereafter SGR). SGR comprises vast areas of roadless, mostly undisturbed open woodlands and floodplains, grasslands, riverine forests and major expanses of Miombo Woodlands. Numerous rivers and creeks belonging to the Rufiji Basin, including the centrally located Rufiji River itself, meander freely through the landscape, flanked by extensive sandbanks. SGR has iconic status as one of the few remaining vast uninhabited areas in Africa with a high degree of naturalness. In 1982, the game reserve was inscribed on the World Heritage List under natural criteria (ix) and (x), sometimes informally referred to as the "biodiversity criteria". SGR is Tanzania's largest protected area and among the largest terrestrial World Heritage properties worldwide. The property extends over more than five million hectares (50,000 km^2), an area roughly the size of Costa Rica and exceeding the surface area of Switzerland.

The property is renowned for being home to extraordinary populations of large mammals, including an elephant population of global importance - even though recent survey data call this notable attribute into question. The SGR is the heart of what can be referred to as the Larger Selous Ecosystem. Besides the property itself, it includes, but is not limited to, the Mikumi and Udzungwa National Parks, Kilombero Game Controlled Area (a Ramsar site), several adjacent Wildlife Management Areas (WMAs) and the Selous Niassa Corridor, totalling more than 10 million hectares (100,000 km^2). The Selous–Niassa Corridor constitutes the crucial link between SGR and the likewise vast Niassa Game Reserve in nearby Mozambique; a link that is reportedly suffering from increasing fragmentation and disturbance.

While SGR is in a privileged position due to its sheer size and remoteness, major conservation issues are well documented. They include both internal challenges and external threats. A severe poaching crisis in the 1980s drastically reduced the globally significant populations of African Elephant (*Loxodonta africana*) and, even more dramatically, Black Rhinoceros (*Diceros bicornis*). Formal World Heritage documentation suggests a 90% drop of the populations of the latter species (see 1986 State of Conservation report, available at http://whc.unesco.org/en/soc/1552), calling the very survival of the species in SGR into question (Stephenson, 1987). In hindsight, it seems surprising that the situation at the time did not trigger the inscription of SGR on the List of World Heritage in Danger.

In the early 1990s Tanzania strongly responded to the temporary crisis, joining forces with German bilateral cooperation and other supporters in an encouraging example of donor coordination (Baldus *et al*., 2003). The management effort could successfully be stepped up, bringing poaching largely under control. A revenue retention scheme became the decisive instrument underpinning the recovery of the property by enabling costly operations in a vast and logistically challenging setting. The retention scheme built on the substantial revenues generated from tourism in SGR, in particular trophy hunting, and allowed SGR to financially stand on its own feet (Baldus *et al*., 2003). It is important to understand in this context that the property is divided up into lucrative hunting blocks almost in its entirety (44 out of 47 blocks according to the current General Management Plan), with a smaller area in the north allocated to non-consumptive nature-based tourism. According to the retention scheme 50 % of revenues could be directly re-invested in the management and conservation of the game reserve.

However, over the years funding levels and management effort and effectiveness declined. The retention scheme remained legally in place but appears to have been reduced or even de facto suspended at times. Once more, serious questions about the future of SGR were raised and it became clear that poaching pressure on Elephant and Black Rhinoceros was again on

the rise in line with disturbing trends across African range countries. In addition, earlier concerns about large-scale development projects re-entered the debate. Reports re-surfaced about two major dam projects and various commercial resource extraction projects. The World Heritage Committee is on record for consistently expressing its strong or even "utmost" concern about the reported situation at all Committee sessions since 2006 (30COM 7B.3 / Vilnius; 31COM 7B.3 / Christchurch; 32COM 7B.3 / Quebec; 33COM 7B.8 / Seville; 34COM 7B.3 / Brasilia; 35COM 7B.6 / UNESCO; 36COM 7B.5 / Saint Petersburg; 37COM 7B.7 / Phnom Penh). The Committee concerns triggered two earlier reactive monitoring missions in 2007 and 2008, respectively, to shed light on the above issues. The full text of the above decisions and the two mission reports are publicly accessible at http://whc.unesco.org/en/list/199/documents/.

More recently, a uranium mining project in the SGR known as the Mkuju River Project (MRP) prompted a controversial debate. Eventually, the mining was permitted through the Committee's adoption of a so-called minor boundary modification "in an exceptional and unique manner" (36COM 8B.43), excising some 20,000 hectares in the southwest of the property. The Committee Decision means that the mining project is today formally outside of the boundaries of the World Heritage property. At the same time, the mining area remains within the game reserve as legally defined at the national level. From a formal World Heritage perspective, the debate has therefore moved from the question of appropriateness of mining to the possible impacts of a large mining project in the immediate vicinity of a World Heritage property.

In summary, there are well-documented and serious concerns about the future of SGR, stemming from major question marks surrounding conservation funding and management, as well as threats within and outside of the boundaries from poaching and large-scale development projects. While the key issues as such appear to be well-known, earlier World Heritage documentation reveals a lack of clarity in terms of details and the exact status of planning of the above development projects. In order to shed light on the current status, Decision 37COM 7B.7 of the World Heritage Committee requested the State Party of Tanzania to invite a third reactive monitoring mission to be jointly conducted by IUCN and the World Heritage Centre (WHC).

As detailed in Annex 2 the Terms of Reference focussed on poaching, overall management, including within the broader landscape, two planned dam projects and extractive industries, in particular the uranium mining known as the Mkuju River Project. The mission was comprised of Tilman Jaeger, Nelson Guma (both representing IUCN) and Guy Debonnet (WHC) and took place from 02 to 11 December 2013. This report documents the reactive monitoring mission according to the standard structure of reactive monitoring mission reports. Following this background section is a brief overview of the national policy framework (chapter 2). Chapter 3 discusses and assesses the main conservation issues prior to an assessment of the overall state of conservation (chapter 4) and conclusions and recommendations (chapter 5). Following the list of references (chapter 6), the annex provides the reader with additional information on the property and the mission, including maps, a detailed agenda and a full list of people met. An executive summary in the very beginning provides readers with a quick overview, including an enumeration of all recommendations. The full appreciation of the recommendations requires the reading of the explanatory text in chapter 3.

2. NATIONAL POLICY FOR THE PROTECTION AND MANAGEMENT OF THE WORLD HERITAGE PROPERTY

Selous Game Reserve has the status of a game reserve under the Wildlife Conservation Act (WCA) of 1974, which establishes and defines the protected area categories. The Act was amended in 1978 and 2009. The 2009 amendment includes an important modification, which is the explicit permission of prospecting for and mining of oil, gas or uranium in game reserves under defined conditions, notwithstanding the continued general prohibition of prospecting and mining in game reserves. This constitutes a fundamental change, also from the perspective of the Wildlife Policy of 2007, according to which “the government is committed to ensure that wildlife and wetlands areas remain pristine to safeguard in-situ biodiversity and tourism products" and which also states that "all major development activities, including mining are prohibited inside core wildlife protected areas (...)". The mission notes that the World Heritage Committee in its decision 34 COM 7B.3 expressed its "utmost concern" about this weakening of the legal protection of the property. While the State Party responded that any such project would be subject to an Environmental Impact Assessment (EIA), so far the State Party has not made a clear commitment to refrain from future prospecting and mining inside SGR due to its World Heritage status.

Given that wildlife is a key (economic) resource in - and often around - game reserves, the WCA is a central piece of legislation, regulating also all forms of hunting. The WCA makes reference to "wildlife corridors, buffer zones and dispersal areas", as well as "migratory routes" and Wildlife Management Areas (WMA), i.e. it does not restrict wildlife management to protected areas. The WCA is therefore also an important legal foundation for addressing the linkages between SGR and the Larger Selous Ecosystem. Development planning schemes near protected areas are required to take the WCA into account. This is particularly relevant for major development schemes, such as the Southern Agricultural Growth Corridor of Tanzania (SAGCOT). However, the mission was informed that while in 2012 regulations were adopted under the 2009 act for the WMA, so far no regulations or other subsidiary legislation have been adopted for wildlife corridors, buffer zones and dispersal areas, hindering the application of the promising general provisions of the WCA.

Other relevant key legislation includes the Forest Act and the Tourism Act and corresponding regulations. The particular cases of the proposed dam projects and the Mkuju Mining Project bring additional legislation into play. Given the recent changes of the WCA in terms of mining the legal framework for mining could become increasingly important in the future of SGR. In no particular order, relevant legislation includes but is not limited to the Tanzania Mining Act (2010) and possibly the Petroleum Act (2008), the Electricity Act (2008), the Energy and Water Utilities Regulatory Authority Act (2001), the Water Resources Management Act (2009), the Environmental Management Act (2004) and the associated Environmental Impact Assessment (EIA) and Audit Regulations (2005) and Strategic Environmental Assessment (SEA) regulations (2008), as well as the Public Procurement Act (2004).

A number of general policies beyond nature conservation and wildlife management are relevant as a framework and include national policies on the environment, water, energy, tourism, land and land use planning, agriculture and livestock, minerals and energy among others (see SGR General Management Plan for a comprehensive overview at the time of writing). More recently, the Tanzanian government has announced an initiative named "Big Results Now" (BRN), which draws on a Malaysian development model and which, if pursued, could have major effects on a range of sectors, including infrastructure, energy, water and agriculture.

With the exception of the area excised from the World Heritage property for the Mkuju River uranium mining project, SGR - as legally defined in Tanzania - and the World Heritage

property spatially coincide. The management authority is the Wildlife Division (WD) of the Ministry of Natural Resources and Tourism (MNRT). While a Chief Warden or Project Manager is appointed to oversee overall management, the enormous area of SGR is divided into eight sectors for management purposes, each under a Sector Manager. More than 90% of SGR are allocated as hunting concessions with the remainder divided in blocks dedicated to non-consumptive tourism. The SGR General Management Plan (GMP) 2005-2015 was adopted in 2006 and provides the framework for the management of the Reserve (United Republic of Tanzania/Ministry of Natural Resources and Tourism/Wildlife Division, 2005). The GMP states that implementation is to be based on annual plans of operation while stressing that implementation requires the functioning of the retention scheme and "well informed and committed staff at all levels" as "prerequisites".

There is an ongoing discussion about the establishment of an autonomous Tanzania Wildlife Authority (TAWA). The establishment of TAWA is stipulated in the above mentioned WCA and the World Heritage Committee is on record for "urging" the State Party to "finalize (its) creation" (36COM 7B.5). The State Party has confirmed its commitment to TAWA in formal communication, such as most recently the governmental 2013 State of Conservation report. According to the State Party the process is underway. At the time of writing this report it had not been brought to a conclusion. The World Heritage Committee likewise urged the State Party to "reinstate" the revenue retention scheme. In previous reports, the State Party explained that both processes were intricately linked with each other in the sense that "when TAWA becomes operational, the revenue retention scheme will automatically be reinstated" (see 2012 State of Conservation report, see http://whc.unesco.org/en/list/199/documents/). The mission was informed that the revenue retention scheme has been functional again since 2013 at 50 %. Upon its establishment TAWA would be able to retain all of its revenues. While adding to funding security and providing an incentive to generate income, the question of allocation remains. SGR would no doubt be an important contributor to the future revenues of TAWA and this should be fully reflected in re-investment in SGR. In recognition of SGR's exceptional scale and importance, a specific retention scheme for SGR could be envisaged.

Recommendation 1
The State Party should confirm the commitment to consider Selous Game Reserve off limits to prospecting and mining, as stipulated in the Wildlife Conservation Act. This should include oil, gas and uranium, for which legal exceptions are in place since 2009, which are incompatible with World Heritage status and which could not be facilitated by further boundary modifications.

Recommendation 2
The State Party should develop and adopt as soon as possible the necessary regulations and/or subsidiary legislation for wildlife corridors, buffer zones, migratory routes, dispersal areas and WMA, to facilitate the application of corresponding stipulations of the Wildlife Conservation Act.

3. IDENTIFICATION AND ASSESSMENT OF ISSUES

The current and potential conservation issues in SGR appear to be well known as such and have been consistently referred to in past World Heritage Committee decisions. This includes the most recent decision dated 2013 (37COM 7B.7), which is the basis of the reactive monitoring mission and which is provided in full text as Annex 1. The recommendations of the 2007 and 2008 missions likewise make reference to the multiple conservation issues. According to the terms of reference it was considered useful to structure the key issues under five thematic headings for the purpose of this report. These are (i) poaching; (ii) management; (iii) extractive industries; (iv) possible dams; and (v) additional threats.

3.1 Poaching in the Selous Game Reserve: local Symptom of a global Crime

A recent report on international wildlife trafficking places the illegal commercialization of wildlife and wildlife derivates among the most lucrative criminal activities worldwide, even when illegal fishing is not taken into account (Wyler *et al*., 2013). Trade in elephant ivory and rhino horn is among the most profitable forms of illicit trade in wildlife and wildlife derivates. The ensuing pressure has led to the listing of Black Rhino in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) as early as 1977, banning all commercial trade. In 1989, after a first peak in global trade and poaching in the 1970s and 1980s, the African Elephant and all of its parts were likewise included in Appendix I of CITES. The ban has since been in effect for the African Elephant with the exception of Botswana, Namibia, South Africa and Zimbabwe, where trade in this species and its derivatives was moved back to CITES Appendix II, i.e. is permitted under strict conditions. The subsequent recovery of elephant populations is commonly attributed to CITES trade regulations and major anti-poaching efforts.

Nevertheless, poaching has surged alarmingly again over the last years, triggered by newly increasing demand for ivory and rhino horn. A major situation analysis of the status of African Elephant at the UN level reports a pronounced upward trend in poaching across Africa from 2007 onwards (UNEP *et al*., 2013). While acknowledging that not all African populations have been affected, the assessment notes more than a tripling of illicit trade in ivory since 1998 and concludes that the current situation amounts to the most serious conservation crisis of the African Elephant since 1989. Since the CITES-led programme "Monitoring the Illegal Killing of Elephants" (MIKE) became operational in 2001, numbers of recorded elephant carcasses linked to poaching have peaked in 2011, coinciding with the 2011 all-time peak in seizures of large ivory shipments documented in the Elephant Trade Information System (ETIS), another monitoring tool under CITES. The increase in large-scale shipments is widely considered as an indicator of substantial and well-organized trade between African and Asia. The majority of seized ivory is shipped by container from Indian Ocean ports in East Africa. According to ETIS statistics Tanzania and Kenya are currently the major exit points, accounting for 16 of the 34 large-scale seizures between 2009 and 2011.

Black markets for ivory and rhino horn drive poaching. A rising demand from Asia is well documented, particularly from the main end-use markets, China and Thailand (TEPS, 2013; UNEP *et al*., 2013; Wyler *et al*., 2013), and Viet Nam. Poaching and trade are facilitated by multiple internal and external factors, such as limited or lacking law enforcement, institutional failure, corruption, abundance of small arms due to armed conflicts and common impunity of criminal networks controlling trade. Further factors documented in recent overviews include unregulated domestic ivory markets in many African cities and an increasing number of expatriate buyers residing in Africa associated with infrastructure and mining projects (UNEP *et al*., 2013, see also Wyler *et al*., 2013, and Environmental Investigation Agency, 2010). Rural poverty and precarious livelihood options have plausibly been linked to the ability of organized criminals to recruit, bribe or threaten local residents, officials and law enforcement personnel. Wyler *et al*. (2013) point out the possibility of involvement of military staff and non-state armed

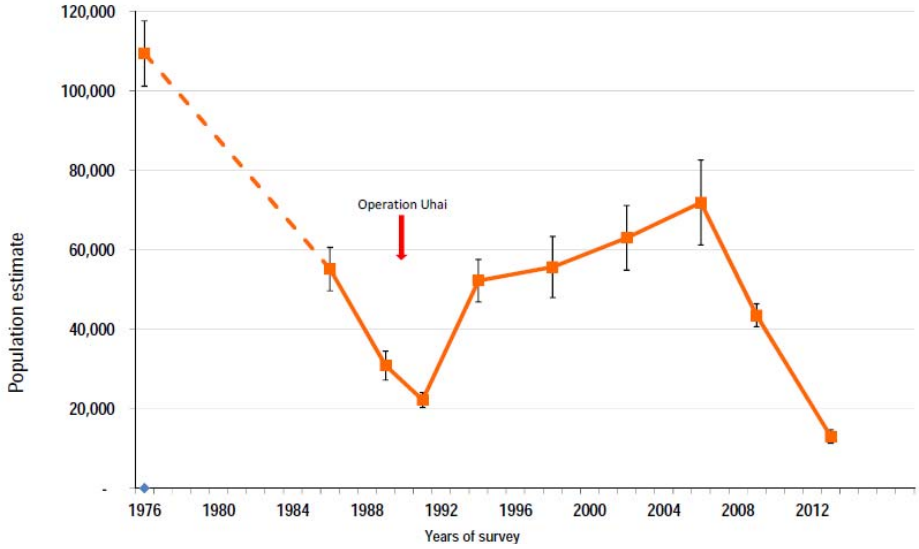
groups in poaching and trade for monetary gain in several African countries. The situation has long been critical for Rhinoceros but is also starting to put elephant populations at local extinction risks. The pressure could threaten the long-term survival of both species, given that the high levels of poaching coincide with habitat and range fragmentation and loss, as well as increasing human-wildlife conflict in areas of human population growth and agricultural expansion.

International attention and the momentum to respond has been picking up again, e.g. at the level of CITES and at major meetings, such as the African Elephant Summit in December 2013 in Gaborone, Botswana, and the London Conference on the Illegal Wildlife Trade in early 2014. Regional guidance is available from the African Elephant Action Plan, a framework approved as a consensus document by all 37 African range States in 2010 (http://cites.org/sites/default/files/eng/res/16/E-Res-16-09.pdf).

African Elephant and Black Rhino have a prominent role in the World Heritage history of SGR. The Statement of Outstanding Universal Value (SoOUV) explicitly highlights the global significance of the corresponding populations - along with populations of numerous other large mammals, such as the endangered African Wild Dog (*Lycaon pictus*). Despite heavy losses, both Tanzania and SGR continue to be globally significant for the African Elephant, see for example UNEP *et al*. (2013) and TEPS (2013) for useful regional and country-level overviews. Along with Botswana and Zimbabwe, Tanzania accounts for more than half of the continental population of the species (UNEP *et al*., 2013) and the extraordinary importance of SGR within Tanzania is routinely pointed out in the literature (see for example Baldus *et al*., 2003 and 2000; UNEP *et al.*, 2013, Borner *et al*., 1986, Borner, 1981). Scientific publications, the formal World Heritage documentation and direct communication with Tanzanian colleagues confirmed that SGR underwent periods of heavy poaching before, notably in the 1970s and 1980s. During what some colleagues referred to as a "management breakdown" poaching peaked in the late 1980s. Eventually, an anti-poaching campaign named "Operation Uhai" (Swahili for "life") by the wildlife department, police and military brought down poaching to levels which allowed for the recovery of populations.

The elephant population of the Selous has repeatedly been surveyed. Available elephant data (i) stem from different sources, (ii) are partially based on differing survey methods and (iii) refer to slightly differing areas. The accuracy of some survey data was therefore repeatedly qualified as "debatable" by in-country colleagues. While this must be considered in the interpretation of past surveys and time series, all consulted observers agreed that the available data provide a reasonable indication of the order of magnitude and trends of poaching. There is widespread agreement that historic elephant numbers exceeded 100,000 into the 1970s but went down to some 30,000 in the late 1980s. In an impressive recovery, up to 60,000 were estimated around 2002 and eventually some 70,000 in 2005/2006, less than 10 years ago.

Following consistent reports about heavily increased poaching, a major aerial survey was conducted in 2013. The (preliminary) results took many by surprise by reporting only slightly more than 13,000 individuals in an area much larger than SGR itself, with elephants scarce (Mikumi National Park, Selous-Niassa Corridor) or locally missing altogether (Kilombero Valley Floodplain) in areas where they used to be abundant (TAWIRI, 2013). The age of carcasses and the very scale indicate that poaching levels must have been very high for years even before drawing the major recent attention. The following chart provides an indication of the trend since 1976 while keeping in mind the above caveat in terms of comparability and reliability of some of the data used.



Elephant population trend in the Selous-Mikumi Ecosystem 1976 – 2013 (**Source**: TAWIRI, 2013).

Tanzania and in particular SGR used to be strongholds for Black Rhino. Today, all 3 subspecies are known to have suffered disproportionally across Africa during the first major wave of poaching. According to the IUCN Red List of Threatened Species Black Rhino populations across Africa are estimated to have declined by 97.6% since 1960. Borner (1981) estimated that SGR was home to some 3,000 individuals as recently as 1981, the largest population on the continent at the time. The Statement of Outstanding Universal Value (SoOUV) for SGR refers to more than 2,100 individuals at the time of inscription (1982). While the differing numbers illustrate a lack of clarity, both numbers contrast sharply with 2010 Red List data, which states a total population size of only 25 in all of Tanzania for the subspecies occurring in SGR. Apparently, efforts were made in the 1990s and 2000s to better understand the situation but no conclusive information on results could be obtained by the mission. Reportedly, efforts came to a halt in 2008 due to permit issues and conflicts between involved actors. It was explained to the mission that the efforts to conserve the SGR Rhino population did not encompass rhino translocations from elsewhere. If accurate, this would further add to the extremely high conservation value of a Rhino population possibly remaining in SGR. Clarity on the status of Black Rhino, particular consideration in anti-poaching and a coherent conservation strategy are desperately needed if Black Rhino is to have a future in SGR.

Past decisions by the World Heritage Committee and State of Conservation (SOC) reports reflect the earlier poaching peak, subsequent recovery and recent concerns. Noteworthy references include but are not limited to:

- Decision 10COMIX.A.18-19 (Paris, 1986) mentions the possibility of inscription on the List of World Heritage in Danger;
- The 1987 SOC report recommends that the State Party submit a request for inscribing this site on the List of World Heritage in Danger;
- Decision 11COM VIII.18 (Paris, 1987) requests a progress report to be submitted for the next Committee session while Decision 11COM X.25 approves international assistance request for equipment for anti-poaching measures;
- Decision 32COM 7B.3 (Quebec City, 2008) requests a detailed report, including on the "status of wildlife populations, the levels of hunting and poaching";
- Decision 33COM 7B.8 (Seville, 2009) "notes with concern the reported significant declines of several species (...) and also recommends that a new survey is undertaken in 2010 (...)";

- Decision 34COM 7B.3 (Brasilia, 2010) requests the State Party to elaborate an "anti-poaching programme, in collaboration with local and international NGOs and other stakeholders";
- Decision 35COM 7B.6 (UNESCO, 2011) urges the State Party to "develop and implement an emergency plan to strengthen anti-poaching activities in the property in order to cope with the alarming increase in poaching";
- Decision 36COM 7B.5 (Saint-Petersburg, 2012) reiterates "utmost concern" about the multiple threats affecting the property's Outstanding Universal Value (OUV), including high levels of wildlife poaching (particularly of elephants);
- Decision 37COM 7B.7 (Phnom Penh, 2013) requests a reactive monitoring mission mandated to assess poaching among other conservation issues.

As recently as 2007 a reactive monitoring mission report mentioned "reports of recent increases in elephant poaching allegedly involving government officials", but concluded that there was "no evidence" of poaching having a "negative impact on the Selous elephant population". The same report makes reference to a 2006 aerial census indicating a positive trend in elephant numbers, while at the same time reporting significant declines of Buffalo, Hippo, Wildebeest and Impala between 2002 and 2006. The 2007 mission expressed concern that the increased poaching activity may have been a direct consequence of cuts in the SGR operational budget. The 2008 reactive monitoring mission report raised the possibility of elephant poaching in and around SGR, but concluded that there was no evidence of negative impacts on the Selous elephant population.

The poaching sections in the two earlier mission reports are noteworthy for at least two reasons. First, the current data contrast sharply with the situation, or at least the perception of the situation, only 6 to 7 years ago. Second, African Elephant and to a lesser degree Black Rhino have been drawing most of the recent attention despite hints at population declines of other mammals species. There are objective and subjective reasons for this selective view. The African Elephant is a megaherbivore and keystone species. Through its feeding behaviour it influences the vegetation through removal, selection and seed dispersal in addition to more complex interactions with other species and the abiotic environment. Thereby, elephants can shape entire landscapes and strongly influence biodiversity at all levels. Elephants also have high symbolic value in many cultures and they are highly valued in consumptive and non-consumptive tourism and as a status symbol. It can thus be argued that the particular attention routinely given to elephants is justifiable even though it is difficult to understand why the fate of Black Rhino in SGR does not appear to have sparked comparable interest and concern. It is interesting to note in this context that there appears to be limited information and discussion on the status of apex predators despite their likewise major ecological role. The African Wild Dog is today among the rarest large mammals on the African continent and deserves more attention. The large felids Lion and Leopard have important populations in SGR and high economic value in the trophy hunting business. Packer *et al.* (2011) report that trophy hunting is a "primary driver of a decline in lion abundance" in Tanzania's trophy hunting areas and qualify the portion of removed male lions as "unsustainable", whereas the results of their study for Leopard appeared less conclusive. While specific analysis of the situation in SGR is beyond the scope of the mission documented in this report, the study is a reminder of the need to carefully identify and enforce adequate quota and selection of individuals across all target species. While it is widely recognized that trophy hunting can not only be acceptable but can be a decisive incentive in large carnivore conservation, unsustainable harvesting levels and inappropriate selection of individuals counter that logic.

Tanzania has a clearly defined legal basis in terms of anti-poaching. Law enforcement is among the strategic objectives of the current Tanzania Elephant Management Plan for 2010 to 2015 (TAWIRI, 2010). The country has shown its dedication and ability to respond to poaching in the past. Despite the controversy surrounding the recently suspended anti-poaching "Operation Tokomeza" (translatable as "Wipe Out" or "Terminate") there are important and

encouraging signs of reaction. While it would be simplistic to restrict the complexity of the situation to a direct causal link between management funding and poaching intensity, a relationship between the surge in poaching in SGR and reduced funding and management is plausible. The return of the revenue retention scheme is encouraging and can once more provide the financial basis for management and law enforcement. Furthermore, an experienced and respected former leader has been re-appointed as the Chief Warden of SGR. New staff has been recruited, albeit mostly as volunteers for the time being. There was a consistent view among consulted stakeholders that the re-appointment of the Chief Warden was bearing first fruits. In the high risk environment of anti-poaching efforts rangers cannot be expected to put their lives on the line and to resist to corruption without credible leadership, adequate recognition, high motivation, intact morale and adequate payment, including rewards and allowances.

It does not come as a surprise that voices questioning commercial hunting are becoming louder at a time of a poaching crisis. The mission understands that the current situation of the African Elephant in SGR has triggered some debate on the appropriateness of commercial trophy hunting. However, it is important to note that there is a clear legal basis for trophy hunting in SGR. Hunting is in principle fully in line with "sustainable use" as defined in the Operational Guidelines (paragraph 119). Trophy hunting can make a significant contribution to conservation through revenue generation but also through the presence of actors with an incentive to maintain the resource underpinning their business. Given the substantial contribution of hunting revenues to the management and conservation of SGR the banning of commercial hunting in SGR would be ill-advised and counterproductive in the view of the mission. The mission therefore considers that there is no technical justification to ban trophy hunting, provided full transparency, adequate benefit-sharing, reinvestment of revenues in conservation, compliance with sustainable use principles and with scientifically sound and independently set quotas and age limits are in place. Discussions with hunting operators (and MRP management) indicate a strong willingness and capacity to contribute to monitoring and anti-poaching. This potential should be further realized under governmental authority.

The case can be made - and has been made - that the current scale of the poaching challenge comprises multiple factors beyond the control of site management and even the national level. In the view of the mission, this is an accurate assessment and it is therefore clear that a comprehensive response must consider the demand side and increasingly sophisticated structures of organized crime. The situation has implications for other States Parties to the World Heritage Convention, given that “each State Party to this Convention undertakes not to take any deliberate measures which might damage directly or indirectly the cultural and natural heritage referred to in Articles 1 and 2 situated on the territory of other States Parties to this Convention” (Article 6.3 of the Convention). In-country, there is a need to enhance performance and coordination of the various institutional actors involved in anti-poaching and control of illicit trade. At the same time, the complex nature of poaching and trade must not serve as an excuse for a lack of action. SGR is an excellent example of successful responses to past poaching peaks by stepping up anti-poaching efforts.

In summary, the (preliminary) results of the survey published shortly after the mission indicate that the current poaching crisis constitutes a historic low point. The combination of increased demand for ivory, enhanced access to and landscape transformation in the Larger Selous Ecosystem make for an unprecedented challenge. The scale is strong evidence that poaching in the SGR is part of a much wider problem of organized international crime, which requires responses at the level of trade, on the demand side, as well as local law enforcement. Local action must be based on a clear strategy and adequate funding under governmental leadership but in partnerships with other actors, such as NGOs, (hunting) tourism operators and bi-lateral and multi-lateral cooperation. There is a need to both respond to the acute crisis and to ensure a structural and long-term consolidation of funding and management to reduce the risk of comparable future poaching crises.

An emergency response should commence as soon as feasible. The recent Operation Tokomeza illustrates that making resources available is not enough. There is a need to ensure systematic aerial and terrestrial surveillance and patrolling, rapid intervention capacity to deal with poaching incidents and an intelligence network. Efforts should rebuild the technical anti-poaching capacity of SGR and, at least equally important, ensure leadership and staff morale and motivation. The costs are substantial due to the size and remoteness of SGR and the major equipment needs. The emergency programme could be funded partly by the retention scheme, but additional funding would be needed. It is crucial that the donor community and other stakeholders, namely NGOs and hunting and tourism operators mobilise additional funding as soon as possible to support the emergency programme. It deserves to be mentioned that Tanzania is working with the German Government on preparing a substantial bilateral cooperation programme in support of SGR which may present important opportunities.

Recommendation 3
The State Party should develop and implement as soon as possible a comprehensive emergency anti-poaching programme with the objective to halt poaching in the Larger Selous Ecosystem, including but not limited to the property, in particular the Selous-Niassa Corridor, the Kilombero Valley and the Wildlife Management Areas adjacent to the property within 12 months. The programme should engage all relevant governmental institutions and non-governmental stakeholders, in particular NGOs, donors, tourism operators, the Mkuju River Project and WMAs.

Recommendation 4
The World Heritage Committee should launch an appeal to the international donor community to provide technical and financial assistance to the State Party to develop and implement the comprehensive emergency anti-poaching programme.

3.2 Management of the Property and the surrounding Landscape

Effective management of protected areas of the scale of SGR inevitably requires substantial and reliable resources. Most observers agree that SGR often times received insufficient financial support and that this was directly reflected in management effectiveness and conservation success. Past decisions by the World Heritage Committee consistently expressed concern about both funding and management of SGR, in particular during the time of the de facto suspension of the revenue retention scheme (see for example 33COM7B.8, Seville, 2009; 34COM7B.3, Brasilia, 2010; 35COM7B.6, UNESCO, 2011; 36COM 7B.5 and 36COM 8B.43, Saint-Petersburg, 2012). The most recent decision (37COM7B.7, Phnom Penh, 2013) welcomed positive signs but requested more clarity on the effectiveness of reported measures. In the view of the mission the situation has since improved and there appears to be a political awareness of the need for stronger support to SGR. The need for consolidation is ever more important not only due to the surge in poaching but also due to increasingly rapid landscape change in the Larger Selous Ecosystem. This section is therefore divided into two sub-chapters on funding and management and the consideration of the broader landscape, respectively.

3.2.1 Conservation Financing, Institutional Set-up and Management Planning

Recent decisions by the World Heritage Committee expressed serious concern about an "evident deterioration of management" (36COM 7B.5) and inadequate funding. It is important to recall that SGR received special status in 1994, which permitted the retention of 50 % of income generated. As a consequence of this newly introduced incentive, income increased significantly from trophy hunting and non-consumptive tourism at the time. The relative growth of non-consumptive tourism income exceeded the one from trophy hunting, while in absolute terms trophy hunting was responsible for the vast majority of the revenues (Baldus *et al*.,

2003). SGR was on its way to become a model of self-sustaining park management while still contributing significantly to the general treasury. The 2007 reactive monitoring mission report states an impressive increase from less than USD 1 million in 1994 to almost USD 3 million in 2004. It is well-documented that the unprecedented revenues and parallel donor support, namely through the German-funded Selous Conservation Programme (SCP), significantly improved the management and management infrastructure of SGR. Regrettably, after international support was phased out, funding and accordingly management were significantly reduced. While the retention scheme was never formally abolished, it was apparently de facto suspended or "bureaucratically blocked", as one Tanzanian colleague put it. Serious underfunding and understaffing for several years were a widely acknowledged consequence. The 2007 reactive monitoring mission concluded that the resources available at the time did not permit the maintenance of the integrity of SGR. The 2008 reactive monitoring mission came to the same conclusion and reiterated a recommendation to re-establish the revenue retention scheme as the basis for managing and conserving SGR.

Despite the revenue retention being in place again and some encouraging consolidation of management, experienced Tanzanian colleagues estimated the current staffing and funding to be at roughly 50% of the needs. For the foreseeable future the considerable revenue from tourism will remain a key pillar of SGR management. Tourism is an intended and theoretically ideal use of game reserves, provided enforcement of adequate regulations, responsible management and a favourable balance of impacts versus benefits. Trophy hunting is particularly important, as detailed in sub-chapter 3.1, but requires full transparency and functioning control mechanisms. The revenue retention scheme must be maintained but there are clear indications that additional funding is needed at this point in time. It must also be ensured that at least a substantial proportion of revenues generated can be re-invested in SGR itself. The envisaged autonomous Tanzania Wildlife Authority (TAWA) is expected to retain 100 % of all revenues. While this would strengthen the overall funding security for protected areas under the mandate of TAWA and wildlife management, the allocation of revenues will be decisive. SGR can be expected to generate a significant part of TAWA's future revenues. It will be critical that a substantial part of revenues derived from SGR can be directly re-invested in SGR itself. The 50 % agreement of the 1990s can serve as an indication of an appropriate order of magnitude.

For several years Tanzania has been in the process of establishing an autonomous, parastatal body named TAWA. TAWA would become the primary governmental institution in charge of all protected areas in mainland Tanzania other than national parks and the Ngorongoro Conservation Area. The mission was informed of important advances and that the process was in the final stage after major and time-consuming consultation. The mission further learned that a draft Cabinet Paper had been submitted to the Cabinet Secretariat and that the paper would be finalized upon Cabinet review. Various steps have to be followed, including approval by an interministerial Committee. A draft law ("The Tanzania Wildlife Authority Act 2013") has been under formal review and was reportedly commented on by the Wildlife Division at the time of the mission and about to be re-submitted. According to the draft law the tasks of TAWA would include administering SGR. TAWA would also have a clear mandate in wildlife management beyond protected areas. The draft contains strong provisions for benefit-sharing with and involvement of local communities based on the 2009 Wildlife Conservation Act. While MNRT confirmed to have concluded its contribution, it was not in a position to provide a clear timeline for the establishment of TAWA. The mission is unaware whether recent changes in the MNRT may have affected the process and strongly recommends the conclusion of the process as soon as feasible.

Given that resource use by communities is legally prohibited in game reserves, a strong management focus in SGR is set on patrolling and law enforcement. Non-consumptive tourism and hunting tourism are in this sense an exception to the strict conservation status and as such require careful consideration. The mission learned that the specific tourism strategy

requested by the World Heritage Committee based on the recommendations of the 2007 and 2008 reactive monitoring missions (33COM 7B.8, Seville/2009) remains to be developed. Given the importance of tourism for the financial sustainability of SGR and the possible impacts of tourism there is a continued need to follow up on this earlier Committee request in the view of the mission. Ideally, a specific strategy and plan to guide consumptive and non-consumptive tourism should be incorporated into the next General Management Plan (GMP).

The current GMP was elaborated to cover the period from 2005 to 2015. The comprehensive document is thus to be updated shortly. The updating presents an opportunity to consider and respond to the current pressure on wildlife in SGR and the multitude of ongoing and proposed development schemes. The elaboration of the new management plan should be based on an assessment of the implementation and of the 2005 – 2015 GMP. The future GMP must not only be coupled with adequate and secure funding but requires strong leadership and capable and motivated staff to ensure its implementation. The widely acknowledged positive role of the current Chief Warden (Project Manager) is encouraging but the reliance on one individual indicates certain fragility.

In line with the Terms of Reference the mission considered emerging conservation issues to the degree possible during a short visit. Alien Invasive Species (AIS), which have received hardly any World Heritage attention in SGR besides a brief reference in the 2008 reactive monitoring mission report, constitute such an emerging issue in the view of the mission. Given severe other challenges, it is unsurprising that AIS have so far not attracted major attention. To the best of the knowledge of the mission no systematic assessments have been conducted and no protocols to prevent invasions are in place in the tourism areas. Besides tourism, new roads and encroachment in the surroundings increase the likelihood of AIS. Possible construction of dams would entail a major risk for species introductions.

Personal observations by the mission in the non-consumptive tourism areas and a presentation made available to the mission provide evidence of the presence of Red Water Fern (*Azolla filiculoides*), Water Lettuce (*Pistia stratiotes*) in the Rufiji River and in several SGR lakes and Giant Sensitive Plant (*Mimosa pigra*) in rivers and wetlands on the eastern and western side of SGR just outside the reserve boundary and most likely to be found in nearby SGR. There are also records of the widely distributed invasive weed *Lantana camara*. In the view of the mission, AIS may already constitute a considerable conservation issue. Telling from experience elsewhere in comparable settings, it is important to better understand the situation and options to address invasions and to minimize the risk of further invasions.

In summary, in the short term management should focus on anti-poaching, as detailed in the previous sub-chapter. Beyond the emergency response to current poaching, structural rehabilitation is needed to ensure funding and management levels required for the full recovery and maintenance of the Outstanding Universal Value of the property. The mission considers that the new GMP soon to replace the 2005 – 2015 version provides a major opportunity to develop a framework to respond to a changed and changing overall setting. The new GMP is expected to coincide with the formalization of TAWA, which ideally could constitute a new beginning in the history of SGR. There is an ever more important need to consider the Larger Selous Ecosystem in future management planning based on the existing mandate of the Wildlife Division and the anticipated mandate of TAWA in wildlife management within and beyond SGR. This need is detailed in the following sub-chapter.

Recommendation 5
The establishment of TAWA should be finalized as soon as possible while ensuring that at least 50 % of the revenues generated from SGR can be re-invested in SGR in support of the emergency anti-poaching programme and the structural rehabilitation.

3.2.2 Managing the Larger Selous Ecosystem

Despite the enormous size of SGR the dynamics of the wider landscape are ever more important for its future for multiple reasons. The extraordinary values of SGR have historically been protected and buffered by large adjacent areas of high conservation value. The broader landscape, sometimes referred to as the Larger Selous Ecosystem and roughly twice the size of SGR itself, thereby has been contributing to the integrity and resilience of SGR. The Larger Selous Ecosystem includes several formally protected areas and links SGR to other parts of Tanzania and with neighbouring Mozambique. Over time, the previously sparsely settled landscape has seen important population growth and the expansion of agriculture. Road infrastructure has been increasing and will no doubt further increase. Furthermore, the numerous ongoing and proposed development projects and schemes in the Larger Selous Ecosystem will inevitably induce change.

According to the Wildlife Conservation Act there are concrete options to position nature conservation and wildlife management by legally designating wildlife corridors, dispersal areas, buffer zones and migratory routes. This option constitutes a major mandate and opportunity in the Larger Selous Ecosystem. However, the legal stipulations largely remain to be put in practice. In the view of the mission, a better understanding of the conservation values, functions and linkages of the Larger Selous Ecosystem is required. Wildlife corridors are particularly promising but quick action is needed given the increasing pressure (see TAWIRI, 2009). The Selous–Niassa Corridor, linking SGR to the likewise vast Niassa Game Reserve in Mozambique, is a telling example. The World Heritage Committee repeatedly made reference to this corridor and there is widespread agreement on its conservation importance. It is likewise accepted that the need to maintain the corridor is ever more urgent given agricultural encroachment, illegal logging and poaching, as well as ongoing and planned development projects. Despite longstanding practical project experience in the area, there is currently neither a clear understanding of the situation nor a coherent conservation approach according to consulted colleagues. In the perception of the mission the discussion on the Selous-Niassa Corridor appears largely disconnected from the SGR discussion. While the transboundary dimension has encouraging foundations going back at least to the 1990s consulted colleagues suggested limited tangible progress. The mission learned that there is a bilateral Memorandum of Understanding between the two governments but that there was little tangible process in its implementation.

Despite major environmental services from global to local level, it is important to point out that SGR has very limited tangible benefits for an increasingly large rural population in the property's immediate vicinity. The category of game reserve excludes resource use by local communities, including livestock grazing and harvesting of non-timber forest products. While human–wildlife conflicts are common adjacent to SGR, local communities only marginally benefit from tourism revenues. It can thus be argued that SGR not only provides limited benefits but that local communities bear tangible costs. This situation is the consequence of an "exclusive" conservation approach, which has come under growing scrutiny for several reasons. It is now widely accepted that benefit-sharing is a matter of rights but also likely to produce better conservation results in the long term provided that rights are linked to clear and enforced rules and obligations. Today, community needs are fully embedded in the current Wildlife Conservation Act, the Wildlife Policy of Tanzania and the draft documents regarding TAWA. Rights compatible with conservation have already been granted to communities near SGR. This is a good basis but the potential remains to be fully realized. The Larger Selous Ecosystem would lend itself as a model for putting the legal stipulations systematically into practice given its importance and the acuteness of pressure and landscape change.

Wildlife Management Areas (WMA) are a relatively recent model of wildlife management in Tanzania. The underlying logic is that tangible economic benefits serve as an incentive for local communities to conserve and manage wildlife and to accept and support nearby protected areas. Tangible benefits can include concession fees from consumptive and non-

consumptive tourism and (revenues from the sale of) game meat etc. As a form of community based wildlife management, WMA are still experimental in Tanzania even though the legal framework has been granting clear and important rights for years. Recent changes have bolstered the legal position of communities. Discussions with involved colleagues and representatives of one WMA suggest that many questions remain to be answered. WMA have to compete with game reserves areas and other WMAs, i.e. they have to be attractive, intact, accessible. Marketing in a sophisticated and highly specialized tourism segment is required. Political and technical support is needed and so is capacity development, including but not limited to business development and technical skills. Investors and partners are required, which in turn require promising conditions and resources. Where such basic conditions cannot be met, no unrealistic expectations should be raised. Nevertheless, WMA may well constitute the most promising legal and conceptual opportunity to initiate community-based wildlife management with a much stronger role of and incentives for local communities (see Ashley *et al*., 2002).

In summary, there is a real risk that ongoing and planned development in the surroundings of SGR will severely compromise the extraordinary conservation importance of SGR and areas nearby. The situation differs from the past when SGR was embedded in a sparsely populated landscape with mostly undisturbed ecological linkages with SGR and areas of comparable conservation values. At a time of a growing rural population and increasing development pressure the conservation prospects of SGR could be optimized by re-visiting the overall setting of the property within the broader landscape. Additions of contiguous and/or distinct areas to the property are conceivable but require further analysis. Similarly, the designation of formal buffer zones based on existing legislation and in line with the Operational Guidelines could be envisaged. Given the scale and complexity the mission considers that the addition of Undendeule Forest Reserve as a "compensation" for the excision of the area for the Mkuju River Project, as was proposed by the State Party, requires further reflection. This reflection should consider other options, which may achieve better conservation results. In the view of the mission there are two priorities in terms of conservation at the landscape level. First, a systematic situation analysis as the basis for conservation planning is needed. Jointly with the SEA requested by the World Heritage Committee (see 3.6) this would provide a sound basis for full consideration of nature conservation in land and resource use planning in the broader landscape. From a procedural perspective under the World Heritage Convention, several scenarios are thinkable. They may encompass strategic additions to cover adjacent and/or distinct areas of outstanding conservation significance and the designation of key areas for maintaining the long-term integrity of the site as formal buffer zones of the property. The viability of migratory corridors has been assessed; the available research should be reflected in connectivity planning. Second, there is a need to strengthen the coordination and cooperation among the various governmental, private and civil society actors. The establishment of a platform bringing together key actors and stakeholders of the Larger Selous Ecosystem would be a concrete step to initiate such exchange.

Recommendation 6
The State Party should develop a strategy to manage the Selous Game Reserve at the wider landscape level of the "Larger Selous Ecosystem", including but not limited to existing protected areas, WMAs and the Selous-Niassa Corridor. In particular, landscape components of outstanding conservation and connectivity importance should be identified and managed in line with existing provisions under the Wildlife Conservation Act. The political and technical transboundary cooperation with Mozambique and the Niassa Game Reserve should be consolidated following up on earlier efforts and an existing MoU. The landscape level management of the property should be formalized under the World Heritage Convention through the establishment of a buffer zone and potentially by strategic additions to the World Heritage property.

The mission suggest that an expert workshop could be organized, involving conservation biologists, IUCN and other experts to help designing this strategy. The State Party could consider submitting a request for International Assistance from the World Heritage Fund to organise this workshop.

Recommendation 7
The involvement of, and benefits for, local communities should be further enhanced, in particular by consolidating Wildlife Management Areas as a promising entry point and framework.

3.3 Extractive Industries

Over the last years prospecting and mining have been drawing increasing attention in the World Heritage arena. Turner (2012) provides a useful overview of the debate, including case studies. The World Heritage Committee is on record for consistently confirming the incompatibility between mining and World Heritage status in numerous decisions. A position statement by the International Council on Mining & Metals (ICMM), which brings together leading mining companies, national and regional mining associations and global commodity associations, contains a commitment of its members to consider all World Heritage properties as no-go areas for both prospecting and mining (ICMM, 2003). Likewise in 2003, the globally operating Shell Group declared that it would refrain from future exploration and exploitation of mineral and hydrocarbon resources in natural World Heritage properties. More recently, the globally operating oil and gas company TOTAL adopted a similar commitment.

The SGR has long been known to harbour deposits of minerals and hydrocarbons. The debate on prospecting and mining in SGR goes back at least into the 1970s. In the 1980s, Shell (prior to the above mentioned declaration) conducted major oil prospecting operations and established two experimental wells within SGR. While the operations were eventually abandoned, the grid of transects is visible to this day and is widely assumed to have facilitated the poaching wave of the 1980s. The formal World Heritage documentation includes references to prospecting and/or mining in and near SGR in the 2007 and 2008 mission reports, as well as in all State of Conservation Reports and World Heritage Committee decisions since 2006 (30COM 7B.3 / Vilnius, 2006; 31COM 7B.3 / Christchurch, 2007; 32COM 7B.3 / Quebec City, 2008; 33COM 7B.8, Seville, 2009; 34COM 7B.3 / Brasilia, 2010; 35COM 8B.46 and 35COM 7B.6 / UNESCO, 2011; 36COM 7B.5 and 36COM 8B.43 / Saint-Petersburg, 2012; 37COM 7B.7 / Phnom Penh, 2013).

More recently, the debate has focused on uranium mining, in particular the Mkuju River Project (MRP) described in the following sub-chapter. The World Heritage discussion is restricted to the perspective of the Outstanding Universal Value of SGR and therefore does not encompass the complexity of uranium mining. The mandate of the mission does not include the question of whether mining as such is adequate or not in the location.

3.3.1 Uranium Mining at the Mkuju River Project

Tanzania has no history of uranium mining. Understandably, there is a debate about the implications of incipient uranium mining. TEC/BAKWATA/CCT (2012) provide a useful overview of some of the issues at stake. According to the 2009 governmental State of Conservation report, the Tanzanian government issued uranium prospecting licenses to Mantra (inside SGR), Western Metals and Uranex (both adjacent to the Southwestern SGR).

An overview of the African experience in uranium mining by the South African Institute of International Affairs (SAIIA) concludes that the capacity to ensure full compliance with laws and agreements is severely limited in the region (Dasnois, 2012). The author notes that "uranium mining requires great technical expertise and sufficient skilled staff to inspect mines and analyse reports regularly". Based on experience elsewhere in Africa further concerns

mentioned include the transparency of financial flows from companies to host countries and benefit-sharing with local communities.

The uranium mining project known as the Mkuju River Project (MRP) has a well-documented history from a World Heritage perspective. Following complex discussions, the World Heritage Committee in 2012 adopted a decision permitting the excision of the proposed mining area from the World Heritage property in an "exceptional and unique manner" according to defined conditions (36COM 8B.43, see also 36COM 7B.5). Through the above decisions, the World Heritage focus has shifted from adequacy of mining to compliance with the Committee requests made in order to minimize and mitigate the impacts associated with uranium mining. More concretely, decision 36COM 8B.43 requests the State Party to:

"*a) Provide additional valuable wildlife forest area to compensate for the excised area of Selous Game Reserve for inclusion into the property to the effect of further maintaining and enhancing the OUV of the property,*

b) Ensure enhanced and effective protection of the Selous-Niassa corridor,

c) Not to engage in any mining activity within the Selous Game Reserve World Heritage property after exclusion of the Mkuju River Mining site as per the decision of the 36th session of the World Heritage Committee,

d) Ensure that the investors contribute to the Protection Fund (provided for in the Wildlife Conservation Act N°5 of 2009),

e) Complete the process of establishing a Tanzanian Wildlife Authority by November 2013 which will ensure 100% retention scheme for the management of the Selous Game Reserve,

f) Not to undertake any development activities within Selous Game Reserve, and its buffer zone without prior approval of the World Heritage Committee in accordance with the Operational Guidelines for the implementation of the World Heritage Convention;"

The decision further urges the State Party to ensure:
"*a) That the environmental management and monitoring plan is implemented,*

b) that economic and social needs of the local population and workers are respected and that social conditions in and around the Selous Game Reserve, in particular linked to the Mkuju River Mining site, are subject to monitoring, and

c) that the mining activity and processing of the uranium is carried out corresponding to state of the art international standards in adherence to International Atomic Energy Agency (IAEA) rules governing the processing of uranium materials".

The preparations at the MRP have since progressed. A major base camp, road infrastructure and test drilling are operational even though tests appear to be on hold for the time being. At the occasion of a site visit, the mission was informed that the operations were originally started by Mantra Resources Australia through Mantra Tanzania Ltd. Atomredmetzoloto (ARMZ), a branch of the Russian State Atomic Energy Corporation, subsequently took over Mantra Resources Australia in 2011. According to the site manager, ARMZ has also acquired majority shares of Canada-based Uranium One Inc. in 2010. It was further explained to the mission that Uranium One Inc. today formally funds and operates Mantra Tanzania Ltd., which in turn operates the MRP.

The mission learned that prospecting has been conducted since 2007, entering the stage of feasibility studies in 2009. An Environmental Impact Assessment (EIA) was conducted in 2009, and the mission was informed that approval was granted in 2012 and that subsequently a special mining license was issued in April 2013. A Mining Development Agreement (MDA) apparently had not been concluded by the time of the site visit, but was said to be under ongoing negotiation. MDAs are among the more sensitive issues in the extractive industries

and a wealth of guidance has been developed over the last years, including for example a useful overview and a template by the International Institute for Sustainable Development (IISD, 2012). According to company representatives mining is expected to start in 2014 or 2015. The expected initial mine life was stated to be of 12 years, not counting a planned construction phase of two years. The operator has the option to apply for the extension of the mine life during operations.

The originally planned extraction method is open pit mining. At the occasion of the site visit, the mission discussed the possible use of In-Situ Leaching (ISL) following up on unconfirmed reports of plans to apply this method instead of, or in addition to, open pit mining. ISL is among the common methods of uranium recovery besides underground and open pit recovery. Put simply, ISL is a method, whereby the leaching solution is circulated through the ore bearing formation through a system of boreholes. Minerals are dissolved and recovered for processing (see IAEA, 2000, for a detailed overview of uranium extraction methods). Company representatives confirmed some additional deposits had been discovered which were situated below the water table and that for the exploitation of these deposits ISL was under consideration, with the eventual selection depending on technical and economic viability. The mission notes that the selection of the recovery method has major implications in terms of possible impacts and their assessment, control, monitoring and disaster preparedness. The regulating authority NEMC stated to be unaware of the possible application of ISL methods at the MRP, informally confirming that ISL would trigger additional EIA requirements.

ISL has a comparatively small surface expression and reduced exposure risk for personnel. Equipment can in most cases be decontaminated and used elsewhere (IAEA, 2000). According to independent uranium mining experts consulted after the mission, the key environmental issue is water, both in terms of the large quantities required in the process and in terms of contamination risks of both groundwater and surface water. More concretely, the mining raises questions in terms of water cycle management, water monitoring and contamination risk preparedness.

The risk of water contamination is an important concern regardless of the extraction method. However, containment of the leaching solutions in the ore seams is a particular and sensitive concern of ISL (IAEA, 2000). In all types of uranium mining, the complex tasks in terms of contamination risks include the protection of surface and underground water through the best possible isolation from contaminated water, aquifer restoration planning, surface reclamation and adequate plant decommissioning. In the case of ISL, contact areas of the water circuit and surface and groundwater are particularly critical. The operators have the burden to prove that restoration of the aquifer in which the ore is located to pre-mining conditions is technically and economically feasible under the conditions of a given site. This requires extensive study and testing, such as a detailed understanding of the hydrogeology of the site, groundwater modelling, including consideration of possible groundwater movements.

According to independent mining experts consulted before and after the mission, there is a need for regular monitoring of strategically located control points, dams, evaporation ponds and tailings for fluids that may escape the production cycle and could enter surface water and/or groundwater. This would include the valley fill which according to company representatives is planned for the storage of overburden and tailings. Tailings accidents are not uncommon and have resulted in major and costly environmental damage, including in the widely publicised case of Doñana National Park, a natural World Heritage property in Spain (see UNEP/TIE, 2002 for a global overview and lessons learned). Accidents are a realistic scenario and every effort must be made to minimize the risk, frequency and intensity of contamination events, complemented by emergency preparedness. The long term geotechnical stability of natural and man-made barriers (dams) and tailings must be ensured at all times, including post-mining. Precautions must also consider deflation (wind erosion) of

contaminated material. As the operator is in most cases not required to monitor beyond the concession area, a framework for monitoring beyond the mining areas must be established. Independence of sampling in addition to checks on company sampling and independent laboratory testing are standard requirements according to consulted experts. Monitoring should ideally start before prospecting and cover all stages of operations and eventually post-closure monitoring.

In addition to internal legal monitoring and testing requirements governmental oversight and effective coordination and cooperation between the various involved governmental institutions are crucial. The mission understands that the Tanzania Atomic Energy Commission (TAEC), the Ministry of Energy and Minerals and NEMC are key governmental actors. The Ministry of Water has a department in charge of the Rufiji Basin, which likewise has an important role. The department is not to be confused with the development authority RUBADA, which is under the Ministry of Agriculture and has a different role in the same basin (see chapter 3.4). It is important to note that the MRP continues to be located inside SGR as legally defined in Tanzania despite having been excised from the World Heritage property. This implies a strong role for MNRT through the Wildlife Division as the management authority of SGR. The mission was informed that an inter-institutional Uranium Task Force has been set up under the Prime Minister's Office but its exact role and mandate could not be established.

Applicable legislation includes reference to uranium in the Mining Act and 2010 regulations on radioactive substances. UNEP/TIE (2000) and Environment Canada (n.d.) provide excellent thematic overviews of relevant experience and available guidance and regulations. Given the lacking experience cooperation with countries with a history of uranium mining would appear most useful and apparently there are contacts to this effect. The mission was informed that cooperation with the European Union was envisaged based on a June 2013 expert visit.

During the site visit the mission was also informed of efforts to support anti-poaching under a CSR scheme. In the view of the mission the primary company focus in terms of environmental impacts should be impact monitoring and environmental management under a coherent Environmental Management Plan while the access facilitated by road construction also implies a responsibility to contribute to anti-poaching. The company should further contribute to coordinated governmental efforts under full governmental authority. The mission strongly discourages parallel efforts. For example, despite undisputed potential, the current experimental use of Unmanned Aerial Vehicles (UAV) does not appear to tangibly contribute to anti-poaching unless it will be embedded in a functioning response system, authorized and led by the government.

The mission concludes that the MRP appears well advanced. Unless commodity prices will delay or (temporarily) stop the project, extraction is expected to go ahead. After careful consultation with independent experts, review of publicly available technical IAEA documents and discussion with NEMC, the mission concludes that the potential application of ISL would constitute a major change of the overall project which would require additional EIA considerations. Given the location of the mining site within the Rufiji Basin, to which SGR belongs, it is clear that both excessive use of water and possible contamination events would directly impact on SGR. However, even if ISL were not applied, there is a need for internal and independent monitoring. In the view of the mission, there are three key concerns from a World Heritage perspective: First, the road infrastructure and presence of staff pose a number of risks unrelated to the nature of mining per se. It is the responsibility of the involved company to make every effort to minimize the risks. Control and anti-poaching efforts beyond routine levels are needed. Contributions by the mining company are needed but have to occur under the authority and guidance of MNRT. Second, impacts on water quantity and quality and other environmental impacts need to be independently monitored and responded to as required. This in turn requires adequate funding and expertise. Third, a possible application of In-Situ Leaching (ISL) in addition to or alternative to open pit mining in the view of the mission would

trigger additional EIA requirements given that the scenario is not covered by assessments made available to the mission.

Recommendation 8
The State Party should consolidate its domestic capacity and use external expertise as needed to ensure comprehensive and independent monitoring and compliance of the complex mining operations at the Mkuju River Project, Tanzania's first uranium mining site. In particular, the establishment of an independent quantitative and qualitative water monitoring system is indispensable, which should include monitoring points beyond the mining concession area.

Recommendation 9
The State Party should ensure full risk preparedness and establish clear response mechanisms in case of possible future contamination incidents associated to extractive activities outside its boundaries.

Recommendation 10
In line with Paragraph 172 of the Operational Guidelines, the State Party should inform the World Heritage Committee in case In-Situ Leaching (ISL) will be considered as an extraction technique in addition to or as an alternative to open pit mining. If ISL is to be considered, an additional Environmental Impact Assessment would be applicable, prior to any approval.

3.3.2 Possible Future Prospecting and Mining

The overall situation requires analysis beyond individual projects given that the 2009 Wildlife Conservation Act explicitly permits prospecting and mining of oil, gas or uranium in all Tanzanian game reserves. As documented in earlier mission reports, the Mkuju River Project is not the only proposed mining project in or near SGR that has attracted attention over the last years. The mission was informed of two other uranium mining exploration concessions south of SGR, one of which apparently overlaps with the adjacent Undendeule Forest Reserve. Both prospecting projects have reportedly been suspended for the time being due to the currently low price of uranium. No information on the exact status of other prospecting or mining projects could be obtained by the mission. A publicly accessible mining cadastre visualizing and detailing prospecting and mining application and licensing data suggests strong mining interests in and near SGR (see www.flexicadastre.com/tanzania). While it is important to note that the online mapping application and data base includes the disclaimer that the Ministry of Minerals and Energy (MEM) is currently carrying out data validation, the source suggests a large number of applications for licenses and active prospecting licenses, including several active uranium prospecting licenses within SGR. The disclaimer suggests a direct link to MEM even though the exact nature of the database is not specified on the website. The public source also suggests several active prospecting licenses for resources other than uranium, oil and gas within SGR which would appear to be incompatible with the status of game reserve according to the Wildlife Conservation Act.

The Wildlife Conservation Act since 2009 grants the option of prospecting and mining for uranium, oil and gas provided four defined conditions are met. These are (i) compliance with applicable EIA; (ii) payment of a "protection cost" by investors; (iii) payment of applicable concession fees and (iv) the government being the "initiator of such undertaking" (20,3) notwithstanding a general prohibition of prospecting and mining in game reserves (20,2). The inconspicuous section has drawn little attention in the World Heritage debate even though the implications are potentially enormous.

The mission is concerned about the potential other uranium exploration projects inside the SGR and notes they are in contradiction to the Committee request to not engage "in any mining activity within the Selous Game Reserve World Heritage property" (decision 36COM 8B.43). The mission considers the State Party should clarify the status of these potential

exploration concessions and confirm that SGR is off limits to further mining or oil exploration (see recommendation 1).

3.4 Proposed Dam Development

The Terms of Reference mandated the reactive monitoring mission to assess the status of two planned dam projects known as Stiegler's Gorge and Kidunda, respectively. The Stiegler's Gorge dam has been discussed for decades with the primary purpose of hydropower generation whereas the Kidunda project is primarily an attempt to respond to the increasing water demand of Dar es Salaam. Although missions were conducted in 2007 and 2008 and both projects have been brought to the attention of the World Heritage Committee at various sessions, the exact state of governmental planning and decision-making, let alone potential impacts on SGR's Outstanding Universal Value, could never be established by the World Heritage Committee. Based on the available information, Committee decisions repeatedly expressed utmost concern about likely impacts on the property's Outstanding Universal Value, urged the State Party to abandon plans incompatible with World Heritage status and requested more specific information. The following sub-chapters summarize the mission findings based on site visits, review of documents and discussions with both proponents and critical observers prior to drawing conclusions and proposing recommendations.

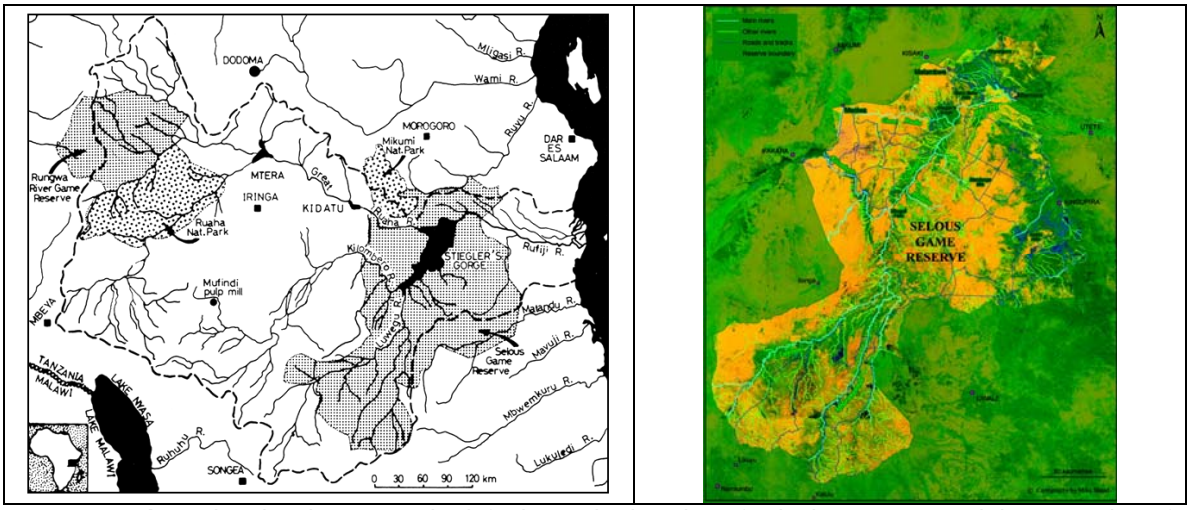
3.4.1 Stiegler's Gorge proposed Dam

Stiegler's Gorge is a narrow passage of the Rufiji River, located in the heart of SGR just north of its geographical centre. Damming the Rufiji River in the canyon would result in a large flooded area within the central area of SGR. This is illustrated in the below maps, which also visualize that the Rufiji River and its tributaries can be described as the central arteries of the SGR. The Rufiji River basin is the largest of Tanzania's nine major basins and its "single-most important" (Bernacsek, 1980, see also United Republic of Tanzania, 2013 and 2006). It occupies roughly one fifth of the mainland and drains into the Indian Ocean opposite Mafia Island in a vast delta of enormous economic and ecological importance. The basin receives about one third of the mainland's total precipitation, predominantly during the two rainy seasons. In addition to the main basin, the Rufiji basin comprises three large tributary basins and three major floodplains. While only one urban centre is located within the basin (Iringa), some of Tanzania's major cities are located in the basin's immediate proximity, including Dar es Salaam and the national capital Dodoma.

The Rufiji River's extraordinary environmental services are undisputed and have been attracting scholars and planners for more than a century (see for example Hoag, 2013, Calas *et al*., 2010). They include but are not limited to (potential for):

- nutrient provision for agriculture:
- water provision for agricultural irrigation, industrial and human consumption;
- river and delta fisheries;
- positive effects on productivity of marine fisheries through nutrients and extensive mangrove habitat in the river mouth;
- consumptive and non-consumptive tourism;
- integral part of an undisturbed biodiversity conservation area of global importance;
- hydroelectricity.

Multiple projects have been implemented or proposed in the basin to make use of selected environmental services. As the tapping of environmental services can strongly influence the flow of other environmental services, trade-offs are the norm in water basin management. There can be no doubt that the future basin development should be based on careful analysis of the best available information and coordination between the many involved sectors, institutions and stakeholders. The fact that development projects may also directly or indirectly impact on the Outstanding Universal Value of SGR, as recognized under the Word Heritage Convention, adds an additional layer to the complexity.



Maps 1 and 2: The sketch map on the left shows the location of Stiegler's Gorge and the extension of the potentially flooded area (Source: Bernacsek, 1980). The map on the right illustrates the central location of a major part of the Rufiji River and many of its main tributaries within SGR (Source: www.wildlife-baldus.com/selous_game.html; cartography by Mike Shand).

The history of the debate surrounding Stiegler's dam and some critical impacts the project could cause are well documented. It serves as a case study in several books (e.g. Hoag, 2013, Calas *et al*., 2010) and in a major review of impacts of large hydropower development projects in developing countries focusing on the role of development cooperation (FIVAS, 1996). Following a phase of intensive promotion in the 1970s and early 1980s, initial enthusiasm gave room to a more nuanced consideration of the economics and the complex consequences of the project. The literature suggests that recognition of risks and impacts resulted in a reluctance to fund on the part of donors. For some time, the plans appeared to have been abandoned altogether. However, over the last years credible reports and media coverage have been indicating renewed interest. Despite repeated information requests by the World Heritage Committee and by the World Heritage Centre and efforts to obtain information during the World Heritage missions in 2007 and 2008 no information was made available permitting a clear understanding of the state of planning. The most recent governmental reporting dated February 2013 stated that MNRT had not been notified on any possible planning advances by the time of reporting and that it would bring such information to the attention of UNESCO. At the most recent Committee session (Phnom Penh, 2013), decision 37COM 7B.7 was adopted as detailed in Annex 1. Building upon earlier Committee decisions, the decision took note that no official notification on dam projects was presented by the State Party and expressed "concern" about reported advances in planning. Furthermore, the Committee reiterated its "utmost concern" that the Stiegler's Gorge dam could "seriously damage the Outstanding Universal Value" of SGR. It urged the State Party to "respect its commitment not to undertake any development activities within Selous Game Reserve and its buffer zone without prior approval of the World Heritage Committee in accordance with paragraph 172 of the Operational Guidelines".

From a World Heritage perspective, the planned location of the dam, its vast reservoir and required infrastructure deserve to be emphasized. All major infrastructure, including road access and transmission, would be situated entirely within the boundaries of SGR or inevitably would have to cross central parts of it. It is also important to understand the scale of the project, which would amount to the largest dam construction in the history of the country. A recent report and a presentation by an involved Brazilian company were made available to the mission. Basic data according to these sources can be summarized as follows (ODEBRECHT, 2013):

- Overall potential of 2,100 Megawatt (MW), with a target of 1,048 MW in a first phase;
- Total Construction Cost: USD 2,362 million (2012 estimate);
- Concrete Faced Rockfill Dam (CFRD) dam with a height of 126 m and width of 700 m;
- 22,000,000,000 $m^3$of live storage;
- 2.2 % of SGR surface to be flooded, i.e. some 1,100 km^2 or 110,000 hectares;
- Major excavations would be necessary;
- Four saddle dykes would be required along the southern edge of the reservoir due to low elevation requiring an estimated 4,000,000 m^3 of earth/rock fill;
- 200 km transmission line to Dar es Salaam with a subsequent second line at a later stage.

In addition to MNRT, the mission met with representatives of the Ministries of Water and Energy and Minerals, respectively, the Rufiji Basin Development Authority (RUBADA) and the National Environment Management Council (NEMC). RUBADA is an autonomous authority created by law under the Ministry of Agriculture. Its mission is the promotion of "development" in the entire Rufiji Basin, including hydropower. NEMC was established by Parliament in 1983. Among other tasks NEMC oversees EIA/ESIA processes and procedures. Its mandate includes the review, approval or rejection of ToRs and reports related to the above, and the facilitation of consultation at the proposal stage according to scale and complexity. The mission also met with donors, cooperation agencies and NGOs. Given the scale of the project it is noteworthy that governmental representatives of both ministries could not confirm the exact project status. It was repeatedly suggested that the interest in hydro power had decreased in light of the discovery of major gas deposits and a related debate about the overall Tanzanian energy mix. At the occasion of the final debriefing of the mission the Minister of Environment hinted at conflicting mandates of the various ministries and other institutions involved. For example, RUBADA strongly promotes hydropower at a time when the responsible Ministry of Energy and Minerals explicitly makes the case for reducing the reliance on hydropower. The Minister further noted that by the time of the debriefing MNRT had not been involved in current discussions on the Stiegler’s Gorge project despite being in charge of the management of SGR.

Nevertheless, RUBADA expressed full support to the construction of Stiegler's Gorge dam, suggesting governmental support and a strong mandate and role in the decision-making. According to RUBADA, the planning has considerably advanced and a concrete engineering proposal has been made by Brazilian company ODEBRECHT based on a July 2012 MoU between the construction company and RUBADA. RUBADA further stated that discussions on funding are taking place with both the Chinese and the Brazilian governments. The above mentioned company presentation makes reference to the company's intention to "work closely with the Brazilian authorities to secure funding". The state of possible discussions with the Chinese government could not be verified. The Director General of RUBADA expressed confidence in speedy project approval and implementation. Next steps suggested were the clarification of technical details, as well as the securing of environmental licenses and funding. While the championing of development projects is in line with RUBADA's role, it seems noteworthy that other governmental institutions with roles and mandates in the Selous Game Reserve and/or the Rufiji Basin appeared to be unaware of the recent developments described by RUBADA and questioned a lead role of that institution. A recent Strategic Regional Environmental and Social Assessment (SRESA) conducted for the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), goes so far as to question the technical capacity of RUBADA (United Republic of Tanzania, 2013). The same source suggests that RUBADA is "focusing on promotion of the Stiegler's Gorge hydropower project and facilitation of investor access to land" which would appear to be a rather narrow focus in such a complex setting. Furthermore, the SRESA expresses room for RUBADA to "incorporate key environmental and social considerations" into its activities.

The suggestion of speedy project approval under the leadership of RUBADA contrasts sharply with the complexity described in the literature on Stiegler's Gorge, the above concerns noted in the SRESA and opinions expressed by numerous governmental and non-governmental colleagues consulted during the mission. Particular attention should be granted to concerns expressed by an interested party itself (ODEBRECHT, 2013), which makes reference to concerns about biodiversity and communities, impacts of associated infrastructure, impacts of workers, as well as impacts on river morphology and water quality. Remarkably, the company presentation makes no reference to a climate-change risk-analysis, a basic parameter in terms of the overall viability of hydropower projects; this is particularly critical in Tanzania, which has experienced numerous blackouts in recent years from low flows in its hydro-dams according to colleagues consulted during the mission. Another relevant and comprehensive source of information is the above quoted Strategic Regional Environmental and Social Assessment (SRESA, United Republic of Tanzania, 2013). The assessment refers to the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), which overlaps with the basin and largely depends on its water provision. Specifying inevitable trade-offs, the SRESA points out competing water demand for agriculture both upstream and downstream. The assessment discourages dam construction on the main stem of the basin, i.e. the Rufiji River, and explicitly at Stiegler's Gorge.

Another reminder of the risks inherent to a lack of careful planning, monitoring and coordination is the conflicting use of water on the Great Ruaha River. The Mtera and Kidatu dams were constructed on this river in the 1970s, the former being Tanzania's main hydro power supplier. Put simply, water upstream of the hydropower plants is heavily used for irrigation, predominantly paddy rice. Agricultural irrigation schemes have been expanded to the point of seriously affecting the flow of the Great Ruaha River. The effects of the increased water abstraction on downstream power generation at Mtera are dramatic, besides severe impacts on the nearby Usangu wetlands. The Great Ruaha is in the Rufiji Basin and is a major tributary of the Rufiji River. In fact, the modified flow of the Great Ruaha River already reduces the water flow at Stiegler's Gorge, as some 15% of the Rufiji flow is contributed by the Great Ruaha River (WREM, 2012).

In line with the above quoted Committee decisions, and based on widespread agreement by technical colleagues, the mission considers that the project would inevitably affect the Outstanding Universal Value of the Selous Game Reserve and that this would require specific analysis. Both the World Heritage dimension and the broader discussion surrounding the Stiegler's Gorge project would benefit from re-visiting past analysis. A wealth of information is easily accessible. While the mission does not have the data needed to quantify the different impacts the dam project could have on the property, it notes the following considerations, factors and possible direct and indirect impacts identified during the mission:

- Risks of decreasing water supply due to natural change and/or increasing upstream abstraction, in addition to increased evaporation from dam reservoirs;
- Sedimentation in the reservoir as a challenge to long term economic viability;
- Floating alien invasive plants could cover the reservoir, bringing maintenance concerns and pollution risks associated with possibly necessary chemical control. If chemical control is not applied, the floating invasive alien plants would affect water quality and increase the rate of water loss due to transpiration;
- Eutrophication of the reservoir;
- Loss and direct impacts on terrestrial habitats through flooding of the upstream river, including rare canyon habitats and important habitats for critically endangered species such as Black Rhinoceros;
- Disturbance during construction and maintenance of dam and associated infrastructure and social and environmental effects of construction towns, possibly aggravated by migrant fishermen likely to be attracted by the vast reservoir;
- Fragmentation and disturbance through road infrastructure and transmission lines;

- Loss of nutrient and mineral rich sediments downriver with effects on agricultural productivity and food security but also river morphology and erosion, including in the ecologically and economically important delta;
- Disruption and modification of downstream flow patterns through controlled water release differing from natural patterns, including in the floodplains which constitute some of the richest habitats for wildlife and are the basis for non-consumptive tourism in SGR;
- Secondary impacts related to "door-opener" effect of new road access to dam, saddle dykes and transmission corridors, such as in-migration and illegal resource use, including elephant and rhinoceros poaching. Colleagues consulted during the mission suggested a surge in poaching during the operations of the field camp near Stiegler's Gorge in the 1980s;
- In addition, roads, construction, disturbances and the transportation of building materials will also provide pathways and ideal disturbance sites for introducing more invasive alien species;

The mission notes that during the debriefing meeting at the Ministry, the Director of Wildlife considered that the impacts of the Stiegler's Gorge Dam on SGR and the World Heritage site would undoubtedly be huge. The mission further notes the following economic and environmental impacts which could affect the areas beyond the property:

- Reputational risk for consumptive and non-consumptive tourism in one of the last remaining large-scale natural areas and resulting potential negative economic impacts given the importance of tourism for the national economy;
- Effects on river, delta and marine fisheries through impacts on fish migration and reproduction in the basin and the mangrove areas of the delta;

In the view of the mission, the process suggested by RUBADA is incompatible with the scale of the project and its possible implications. The draft Terms of Reference for the EIA elaborated by RUBADA were shared with the mission. The quality and scope of the draft ToR are inadequate and fail to meet the most basic national and international standards, including those defined in applicable Tanzanian EIA legislation. More concretely, it is not clear how the views of the many governmental institutions with a mandate in the Rufiji basin and those of civil society have been or will be integrated in decision-making. Both the protected area status and the World Heritage status are touched upon in the ODEBRECHT presentation, but no evidence for any in-depth consideration of the implications the dam would bring to the site's World Heritage status was provided to the mission. Discussions with representatives of the Ministry of Water and NEMC confirmed the impression that an assessment of an entirely different order of magnitude would be indispensable and legally required. It was consistently confirmed that such an assessment had not been initiated. Furthermore, it was suggested that an assessment would constitute a complex and time-consuming exercise which would have to involve many sectors and stakeholders. At the macro level, this encompasses the evolving discussion on Tanzania's energy mix, including in light of the discovery of major gas deposits.

In the view of the mission, the debate and process could benefit from the evolving international debate surrounding large dams. Proponents say that hydroelectricity is a green form of energy. While it is true that hydroelectricity per se does not depend on fossil fuels and generally has a lower greenhouse-gas footprint than fossil fuels, the high social and environmental impacts and the sometimes disappointing longer term economic viability are widely accepted elements of today's more nuanced debate. Recent research has looked into the production of greenhouse gases, especially methane, over the life of reservoirs, concluding that in some cases overall higher emissions can be comparable to or even exceed emissions from fossil fuel plants (Lima *et al*., 2008). Given the wealth of experience and available guidance (e.g. World Commission on Dams, the Equator Principles, IFC Performance Standards, World Bank Guidelines, IHA Sustainability Protocol), it seems

outdated and unhelpful to frame large dams as a development versus conservation scenario today. The World Commission on Dams (WCD, 2000), the most comprehensive independent review of the global experience with large dams, stresses the fundamental need to analyse the distribution of costs and benefits. This is often not done even though it is the only possibility to assess whether benefits outweigh the risks and inevitable social and environmental costs. It also calls for a comprehensive needs and options assessment, to determine what solutions are best from a variety of standpoints, including but not limited to economic.

Regrettably, the mission could not receive an unambiguous confirmation of the concrete planning status of the proposed dam. The mission concludes that possible construction would constitute a fundamental modification of SGR and would amount to nothing less than the end of the property's status as an iconic "wilderness" area. The formally adopted "Statement of Outstanding Universal Value" recognizes SGR as "one of the largest remaining wilderness areas in Africa, with relatively undisturbed ecological and biological processes". Given the nature, scale and location of the project, the mission concludes that major direct and indirect impacts on the property's Outstanding Universal Value are to be expected. A full EIA is therefore required according to national legislation and taking into account international standards. The EIA will have to specifically consider the World Heritage status of SGR and impacts on its Outstanding Universal Value, in conformity with IUCN's World Heritage Advice Note on Environmental Assessment. The EIA should specifically take into account that the OUV cannot be compensated for. The mission notes that the State Party does not appear to be in possession of the required information to make an informed decision on the risks, costs and benefits of the proposed dam. Given the well-documented complexities of large dams in multiple-use river basins, it seems inconceivable to proceed with a project of this scale prior to comprehensively understanding its many implications. The mission understands that in line with the role described earlier NEMC would have a key role in the entire assessment and licensing process. Given parallel development planning, an SEA is required beyond the EIA at the project level, as requested by the World Heritage Committee in 2013. An SEA would shed light on cumulative effects, the relationship of the planned dam and associated infrastructure with other projects, environmental services and demands, as well as alternative scenarios. The mission notes the existing IUCN Guidance on Environmental Assessment and World Heritage, which provides more details on how World Heritage should be taken into account in the process (IUCN, 2013, available online).

Recommendation 11
The State Party should unambiguously and in writing clarify the current status of planning and decision-making regarding the Stiegler's Gorge project.

Recommendation 12
Given the potential serious negative impacts on the OUV of the property, the State Party should ensure a comprehensive understanding of the impacts, risks, costs, benefits, and alternatives as a basis for any decision-making regarding the Stiegler's Gorge Dam both in the form of an in-depth EIA and a comprehensive SEA (see also Recommendation 17 regarding this SEA), taking into account the Outstanding Universal Value of SGR. In line with paragraph 172 of the Operational Guidelines, these assessments should be submitted to the World Heritage Committee for review, before any final decision on the project is made.

Recommendation 13
The World Heritage Committee should call on States Parties to the Convention and private sector companies considering technical or financial support or involvement to the proposed Stiegler's Gorge project, not to take any investment decision before it has been demonstrated that the project can be implemented without negatively affecting the Outstanding Universal Value of the property. States Parties concerned should be reminded by the World Heritage Committee of Article 6.3 of the World Heritage Convention which stipulates that each State Party not "take any deliberate measures which might damage directly or indirectly the cultural and natural heritage (...) on the territory of other States Parties (...)".

3.4.2 Kidunda proposed Dam

The proposed Kidunda Dam on the Ruvu River would be located in the Morogoro region some 130 km south-west of Dar es Salaam near the north-eastern edge of SGR. In addition to the Ruvu River itself, the flooded area would include the final stretch of the Mgeta River to the location of its current confluence with the Ruvu River. Like the Stiegler's Gorge the project idea has a long history, including from a formal World Heritage perspective. The proposed dam project raises some questions similar to the ones described in the previous sub-chapter but differs in several important ways. While the location of the proposed dam infrastructure would be located outside of the World Heritage site, both the planned flooding of areas within SGR and indirect impacts on SGR require full consideration, as consistently stressed by the World Heritage Committee over the last years. In chronological order the World Heritage documentation prior to the December 2013 reactive monitoring mission can be summarized as follows:

- Committee Decision 30COM 7B.3 (30th Session, Vilnius, 2006) requested the State Party to "commission independent EIAs of all (...) dam development activities that could potentially affect the integrity of the World Heritage property";
- A June 2007 reactive monitoring mission made reference to the Kidunda Dam Project. The mission was informed of a modification described as an attempt to reduce the impacts of the project on SGR. The mission also learned that alternatives, including investments in maintenance and repair of the distribution infrastructure, were being considered at the time. The mission report recommended that the World Heritage Committee request clarification (Recommendation 6);
- Committee Decision 31COM 7B.3 (31st Session, Christchurch, 2007) noted that the information requested at the previous Committee Session had not been provided and requested the State Party to assess and report on the potential impacts of the dam; no response was received prior to the 2008 reactive monitoring mission;
- In response to the 2007 mission report, the World Heritage Committee at its 32nd Session (Quebec, 2008) expressed "concern" about the dam project;
- The 2008 reactive monitoring mission overflew the proposed construction site but was unable to meet with the responsible governmental institution due to the unavailability of management; requests for a written statement on the part of DAWASCO after the mission failed to trigger a State Party response;
- According to the governmental State of Conservation report received on 17 February 2009 the latest dam design would result in a reservoir of some 25 to 30 km^{2}with "minimal impacts" on SGR according to an EIA. Referring to the EIA, the governmental report suggested a flooded area of some 2 km^{2}within the World Heritage property, and proposed de-gazetting of the area under consideration. A copy of the EIA was not provided along with the report;
- The mission report pointed out that prior to the proposed de-gazetting, the State Party would have to formally request a change of the property boundaries as per paragraphs 163 to 165 of the Operational Guidelines. The mission was able to acquire the executive summary of an EIA dated March 2008. The document suggests a permanent flooded area of 2 to 4 km^{2}within SGR depending on the seasonal variations. According to the design assessed in the EIA other areas permanently flooded would include some 10 km^2 of the Mkulazi Forest Reserve and some 13 km^2 of the Gonabis Wetlands and the Jukumu Wildlife Management Area (WMA) adjacent to SGR. The EIA summary acknowledged some disruption in wildlife migration routes but otherwise suggested minor impacts on SGR arguing on the grounds of the limited flooding within SGR. The main concern documented by the mission is the discrepancy between the assessed scenario and the stated target capacity of 150 million m^3 of the reservoir. According to the mission report, a reservoir of such scale would appear to require a different dam design. Meeting the target capacity would therefore appear to result in an alternative scenario not covered under the EIA, i.e. requiring a new EIA;

- Committee Decision 33COM 7B.8 (33th Session, Seville, 2009) expressed its "utmost concern about (...) potential dam projects (...)";
- Committee Decision 34COM 7B.3 (34th Session, Brasilia, 2010) reiterated the request to inform the World Heritage Centre of "all planned activities within and in the vicinity of the property which could impact its Outstanding Universal Value, including dam (...) projects, and provide an Environmental Impact Assessment before taking a decision on these projects". Moreover, the Committee requested detailed information on the status of the Kidunda Dam Project;
- Committee Decision 35COM 7B.6 (35th Session, Paris, 2011) reiterated its "utmost concern" about the "different development projects", including the Kidunda Dam Project, urging the State Party to "ensure that the design of the Kidunda dam will not affect the Outstanding Universal Value of the property and avoid flooding part of the property or key wildlife areas on its boundaries";
- Decision 36COM 7B.5 (36th Session, Saint Petersburg, 2012) once more reiterated the Committee's "utmost concern" about the multiple planned projects, including the Kidunda Dam Project, which would be "likely to cause serious and irreversible damage to the property's OUV";
- Decision 37COM7B7 (37th Session, Phnom Penh, 2013) requested the reactive monitoring mission documented in this report, explicitly tasking the mission to "asses the status of the Kidunda dam".

The above chronology illustrates the long record of strong concern and repeated information requests. At the time of the mission, the information requests had not been fully met with satisfactory responses. In order to better understand the history and current status, the mission also reviewed a soft copy of the 2008 Terms of Reference (ToR) for consulting services for the preparation of the Kidunda Dam Project, including the ESIA (United Republic of Tanzania / MWI, 2008), which provide useful background information. The ToR make reference to earlier studies by JICA and Norconsult, a stakeholder consultation workshop in 2007 and a "preliminary EIA" by Norconsult dated 2008. Along with the Kimbiji aquifer near Dar es Salaam the Kidunda Dam Project is presented as one of the two "most promising options" to secure Dar es Salaam's water supply. While the mission could not overfly the area as planned due to weather conditions, the situation could partially be clarified through discussions with various governmental representatives, in particular DAWASA. The mission also met with a representative of a consulting firm involved in feasibility studies and recent impact assessments, Studio Pietrangeli. By the time of the mission no impact assessment had been submitted to the World Heritage Centre as required by paragraph 172 of the Operational Guidelines. However, upon request, the mission was provided with electronic copies of an ESIA dated October 2012 during a meeting at the end of the mission. The ESIA, consisting of three separate documents (executive summary, full report and annexes), was reviewed after the mission.

The project planning as initially described to the mission appears to have shifted from a much larger multi-purpose dam considered in the 1990s to a smaller design focussing on the water supply of Dar es Salaam. Further design changes include the moving of the planned dam site some 12 kilometres downstream, apparently to reduce flooding within SGR. According to longstanding observers, concerns about impacts on SGR could have played a role in the re-design and also in a reluctance to fund the project on the part of donors. According to United Republic of Tanzania / MWI (2008) the Ruvu River currently provides some 90% of the drinking water for the approximately 4 million inhabitants of the city in addition to some industrial water use via two intakes on the lower Ruvu River. In this sense, the Kidunda Dam Project would not tap new water resources but would regulate the existing key water resources supplying Dar es Salaam. No water abstraction at the dam site is foreseen. Rather, the objective of the dam and the reservoir is described as securing downstream abstraction.

Even observers critical of the Kidunda Dam Project fully acknowledged the need to improve the city's water supply. However, it was repeatedly pointed out that challenges in this regard go well beyond the quantitative supply side but may also stem from outdated distribution infrastructure, inefficient organization of distribution and an inadequate billing system. It is plausible that the supply side is only one factor in the complex equation of providing water to several millions of people. While this analysis is beyond the scope of the mission, it seems relevant to document the complexity and to consider critical voices in the debate.

Inconsistent with the exclusive focus on water provision, the dam is described as a multi-purpose dam on the public website Studio Pietrangeli Consulting Engineers (accessed during the course of the mission). This seems surprising as the above mentioned ToR describe the focus on water supply as a "preliminary mitigation measure" in response to social and environmental concerns. Nevertheless, it was explained by governmental representatives that the addition of a hydro power component is indeed foreseen at a later stage. This contradiction with the above mentioned 2008 ToR raises questions in terms of EIA / ESIA requirements, for example as regards the additional construction at the site and for transmission infrastructure and access roads. While the ESIA made available to the mission explicitly makes reference to future hydro power plans, the scenario is not assessed. The mission therefore concludes that no impact assessment has been conducted for a multi-purpose scenario even though governmental representativesdescribed this scenario as the current state of planning. In the view of the mission team, the addition of a hydro power component would inevitably trigger a need for an updated or new EIA/ESIA.

The 2008 ToR made explicit reference to the World Heritage status of SGR and suggest a flooded area of 4 to 5 km^2within SGR, differing from the range from 4.3 to 6.3 km^2, depending on performance level, stated in the 2012 ESIA. In order to meet compliance with national legal social and environmental requirements, as well as with World Bank safeguard policies a broad range of tasks is defined in the ToR, covering for example biodiversity, endangered species, involuntary resettlement and ancient burial sites in the area proposed for flooding. Unexpectedly, the more specific objectives and tasks make no further reference to SGR's World Heritage status.

Contracted by DAWASA, Studio Pietrangeli Consulting Engineers conducted an ESIA, published in October 2012. According to NEMC, the document has not been formally submitted. According to the full report, the Kidunda Dam Project primarily serves to secure domestic and industrial water supply. However, power generation for "the region and the national power network" is confirmed as an objective. This contradiction between the ToR acquired by the mission and the final ESIA report in terms of the overall dam purpose could not be fully clarified. Possibly, the ToR known to the mission are not identical to the ToR used for the ESIA. This could not be verified as the ESIA documents provided to the mission do not include the full text or date of the applicable ToR.

The ESIA report was reviewed from a World Heritage perspective. Serious overall environmental impacts are acknowledged; in the wording of the ESIA "main impacts" listed include:

- "Reduction of grazing availability for migratory herbivores;
- Flooding of riverine zones;
- Further obstacle to the seasonal migration corridor Selous-Wami Mbiki;
- Easy access to protected natural resources;
- Changing of ecosystem and potential disappearance of endangered species."

A "potential loss of the SGR status as a World Heritage Site" is mentioned but not elaborated on in detail. The otherwise comprehensive report illustrates limited familiarity with basic World Heritage requirements, procedures and key documents. The ESIA contains no single

reference to the *Operational Guidelines* as the decisive normative framework. While there are references to the 2007 mission, the more recent 2008 mission is not mentioned in the report. At the same time, some statements appear to refer to the 2008 rather than the 2007 mission. The World Heritage Committee as the Convention's decisive body and its repeated decisions referring to Kidunda are not mentioned. The mission considers that inaccurate statements and the failure to consider applicable World Heritage procedures raise serious questions. There is also no evidence of communication with Tanzanian institutions in charge of relationships with UNESCO in general and the World Heritage Centre more specifically. Annex B of the ESIA is presented as "written communication with UNESCO". However, the material provided is restricted to a copy of a letter addressed to UNESCO's Dar es Salaam Office in which the consulting firm requests information on the claimed discovery of new species in the Kidunda area in 2007.

Furthermore, the ESIA does not put any statements on World Heritage into context and fails to draw any meaningful conclusions. Finally, the incorrect use of Red List terminology and categorization in the ESIA indicates limited familiarity with this standard species conservation instrument. The mission recalls that IUCN has recently produced an advice note on environmental assessments and World Heritage (IUCN, 2013, available online.

Despite the minimal coverage of World Heritage, the ESIA contains important information on conservation values, in particular of the Gonabis wetlands / floodplain and the Ukutu Wildlife Management Area (WMA).The wildlife importance of both areas is fully acknowledged. Remarkably, the ESIA refers to the Gonabis floodplain as an "indispensable extension for the Northern Selous wildlife". Rustagi (2005) studied the ecological and socio-economic values of the area which would be affected by the dam. The author concluded that the wide variety of ecosystems and habitats are home to an impressive biodiversity featuring numerous endangered and vulnerable species. For several mammals species the area appears to support the highest population densities anywhere in the wider Selous Ecosystem. Important wildlife movements occur between the potentially flooded area and SGR. Wildlife constitutes a major problem for local residents but also a major potential resource for consumptive and non-consumptive tourism. Attempts to consolidate the WMA approach in the area are based on capturing the value of that resource (see for example Ashley *et al*., 2002).

Tanzania's National Environment Management Council (NEMC) is the key institution dealing with EIA and ESIA. NEMC's authority includes the review, approval or rejection of ToRs for EIA/ESIA and the EIA/ESIA reports. The mission discussed the Kidunda Dam with senior NEMC representatives. While they informed the mission that the ToR and scoping study of the ESIA referred to above had been completed, they stated that no final documents had been submitted and therefore NEMC had no position on the dam project proposal at the time of meeting. No conclusive information on the time schedule could be received.

The mission concludes that – contrary to the proposed Stiegler's Gorge Dam - the Kidunda Dam Project does not appear to raise fundamental concerns about the overall future of SGR. However, given the physical overlap between the reservoir and the World Heritage property, the wildlife importance of the areas contiguous with the northern Selous, and inevitable indirect impacts there clearly are important relationships to SGR and its World Heritage status. The mission notes that while the feasibility studies and impact assessments made available during the mission provide a rich source of information, they fail to provide a meaningful assessment of the possible World Heritage implications and contain important gaps and factual errors. The mission notes a regrettable mismatch between the repeated requests for clarification by the World Heritage Committee over the last years and the superficial and inaccurate coverage of World Heritage in the ESIA. In the view of the mission, the information provided therefore does not allow for an encompassing consideration of the World Heritage implications of the possible dam construction, as requested by the World Heritage Committee. The mission considers that the EsIA needs to be completed to ensure adequate consideration

of the World Heritage status, possible impacts on OUV and the identification of procedural options. The above mentioned IUCN advice is a useful source of recent guidance in this regard. Moreover, the possible future addition of a hydropower component should be clarified. If indeed intended, the future scenario would require additional assessment which to the best of the knowledge of the mission had not been initiated at the time of writing this report.

Recommendation 14
The State Party should unambiguously clarify the status of planning, decision-making and impact assessments regarding the Kidunda project in writing supported by all relevant documents.

Recommendation 15
The State Party should complete the existing ESIA for the Kidunda Dam Project to ensure comprehensive consideration of the relationship between the multiple planned projects and the World Heritage status of the Selous Game Reserve, respect ESIA requirements and report accordingly, including on all implications in terms of the OUV and procedural options. This includes full consideration of the apparently planned future addition of a hydro power component. In line with paragraph 172 of the Operational Guidelines, the completed ESIA should be submitted to the World Heritage Committee for review, before any final decision on the project is made.

3.5 Additional Threats

Less noticed and apparently not a target of systematic monitoring or current management efforts are Alien Invasive Species (AIS). Anecdotal evidence and personal observations by the mission indicate that exotic plants are at least locally an issue in the non-consumptive tourism areas. A powerpoint presentation made available to the mission photographically documents the presence of *Azolla filiculoides*, *Pistia stratiotes* and *Mimosa pigra*. Road construction in the surroundings, the Mkuju River Project and possible construction of dams bear a high risk as entry points for invasive plants. Telling from experience in comparable settings it is important to better understand the situation and options to address existing invasions and to minimize the risk of further invasions.

Recommendation 16
Future management planning should fully consider Alien Invasive Species (AIS) through a specific AIS management plan.

3.6 Cumulative Impacts of Development in the Larger Selous Ecosystem

Given the scale, complexity and multitude of planning schemes and mining interests, a Strategic Environmental Assessment (SEA) lends itself as an instrument to better understand the situation, options, trade-offs and scenarios at the landscape level beyond the assessment of individual projects. Tanzanian legislation would seem to require such an assessment and the Committee is on record for requesting an SEA in 2013 (37COM 7B.7).

Given common confusion about the exact difference between EIA and SEA it was considered helpful to insert the following comparative table drawing on OECD (2006). The key point is that EIAs by design fail to identify and assess interlinkages between the effects of different projects thereby providing a limited basis for sound decision-making in settings with multiple projects.

EIA	SEA
Applied to specific and relatively short-term (life-cycle) projects and their specifications.	Applied to policies, plans and programmes with a broad and long-term strategic perspective.
Takes place at early stage of project planning once parameters are set.	Ideally, takes place at an early stage in strategic planning.
Considers limited range of project	Considers a broad range of alternative

alternatives.	scenarios.
Usually prepared and/or funded by the project proponents.	Conducted independently of any specific project proponent.
Focus on obtaining project permission, and rarely with feedback to policy, plan or programme consideration.	Focus on decision on policy, plan and programme implications for future lower-level decisions.
Well-defined, linear process with clear beginning and end (e.g. from feasibility to project approval).	Multi-stage, iterative process with feedback loops.
Preparation of an EIA document with prescribed format and contents is usually mandatory. This document provides a baseline reference for monitoring.	May not be formally documented.
Emphasis on mitigating environmental and social impacts of a specific project, but with identification of some project opportunities, off-sets, etc.	Emphasis on meeting balanced environmental, social and economic objectives in policies, plans and programmes. Includes identifying macro-level development outcomes.
Limited review of cumulative impacts, often limited to phases of a specific project. Does not cover regional-scale developments or multiple projects.	Inherently incorporates consideration of cumulative impacts.

Tanzania has SEA regulations according to NEMC. The mission was informed that SEA are a governmental responsibility whereas EIA can be a governmental or private obligation depending on the proponent of a given project. There are practical examples of SEA in Tanzania, e.g. in the realm of off-shore oil and gas and the transport system. The mission findings documented in this report confirm the usefulness of the SEA requested by the World Heritage Committee.

Recommendation 17
Following up on the existing request by the World Heritage Committee, the State Party should conduct an SEA for the Selous Game Reserve and its surroundings so as to fully assess the costs, benefits, risks, interlinkages and alternatives of the various ongoing and planned development schemes and projects.

3.7 Implementation of Committee Decisions

In the decision requesting the reactive monitoring mission documented in this report (37COM 7B.7) the World Heritage Committee urged the State Party to implement the recommendations of the 2008 reactive monitoring mission as well as its commitment to conservation concerning the minor boundary modification granted for the Mkuju uranium mine as requested in Decision 36 COM 8B.43 (note that the formal text incorrectly refers to a "2010 reactive monitoring mission" which was not conducted). Given the multitude of Committee decisions and references therein it was considered useful to provide an overview for the purpose of this report.

The 2007 reactive monitoring mission formulated a first set of comprehensive recommendations. In decision 31COM 7B.3 (Christchurch, 2007), the World Heritage Committee urged the State Party to implement these recommendations. The 2008 mission largely drew on the 2007 recommendations. The subsequent Committee decision (33COM 7B.8, Seville, 2009) endorsed both the 2007 and the 2008 mission recommendations while stressing in particular the following points:

"a) Reinforce the capacity of the management authority, the Wildlife Division, to manage the property, in particular by increasing its human and financial resources and by reinstating the Revenue Retention Scheme,

b) Strengthen the implementation of the General management plan (GMP) and ensure regular and independent evaluations of its implementation,

c) Develop a detailed Tourism Strategy for the property, in line with the recommendations and principles outlined in the GMP, with a clear vision for both consumptive and non-consumptive tourism,

d) Further optimize the wildlife management in and around the property, by:

(i) Developing a transparent system for allocating hunting blocks,

(ii) Establishing hunting quotas in a transparent way based on improved scientific and technical information systems,

(iii) Improving ecological monitoring systems, including the development of integrated databases that capture and analyse existing information from trophy reports provided by hunting companies, ranger patrol reports, anti-poaching reports and aerial surveys. Such systems would fill information gaps and provide a better basis for wildlife management,

(iv) Reinforce efforts to further develop community based wildlife management around the Property and draw upon lessons learned from other African countries who have ` successfully developed community managed wildlife areas,

(v) Enhance the capacity to carry-out anti-poaching activities."

More recently, the Committee in its decision approving the excision of the area of the Mkuju River Project (36COM 8B.43, Saint Petersburg, 2012), the World Heritage Committee, in addition to ensuring "adequate environmental management of the Mkuju River Project", urged the State Party to ensure to:

"a) Provide additional valuable wildlife forest area to compensate for the excised area of Selous Game Reserve for inclusion into the property to the effect of further maintaining and enhancing the OUV of the property,

b) Ensure enhanced and effective protection of the Selous-Niassa corridor,

c) Not to engage in any mining activity within the Selous Game Reserve World Heritage property after exclusion of the Mkuju River Mining site as per the decision of the 36th session of the World Heritage Committee,

d) Ensure that the investors contribute to the Protection Fund (provided for in the Wildlife Conservation Act N°5 of 2009),

e) Complete the process of establishing a Tanzanian Wildlife Authority by November 2013 which will ensure 100% retention scheme for the management of the Selous Game Reserve,

f) Not to undertake any development activities within Selous Game Reserve, and its buffer zone without prior approval of the World Heritage Committee in accordance with the Operational Guidelines for the implementation of the World Heritage Convention.

For the sake of clarity the multitude of past requests and recommendations was distilled to 5 main thematic areas for the purpose of this report. These here are listed and briefly commented upon hereafter.

Institutional Set-up, Revenue Retention Scheme and Management

The expected establishment of TAWA has a clear legal foundation and is reportedly part of ongoing institutional reform. The process has not been concluded and no specific timeline was suggested to the mission. The Revenue Retention Scheme was stated to have been legally in

place over the last years but de facto suspended for an extended period. It appears to be partially restored but its eventual consolidation appears to be linked to the eventual establishment of TAWA. It is essential that the revenues derived from SGR, mostly from trophy hunting and non-consumptive tourism be re-invested in SGR. There are encouraging indications of increasing management efforts compared to recent years but the funding and staffing levels are widely considered insufficient. In the view of the mission the recommendations under this thematic area remain to be fully implemented.

Status of Wildlife Populations and Responses to Poaching

The recent survey is a positive step by removing any doubts about the acuteness and severity of the current poaching crisis. Despite the improved data and an attempt to conduct a major anti-poaching campaign there is no adequate response to poaching for the time being. The mission recommends inscription of SGR on the List of World Heritage in Danger in order to increase the chances of sufficient national and international attention to effectively respond to the situation.

Extractive Industries

The Mkuju River Project appears to require additional consideration in terms of water management and risk preparedness. Possible application of ISL would prompt additional EIA requirements. In the view of the mission, the recommendations in this regard remain to be fully implemented. In terms of possible other prospecting and/or mining the changed legal framework and active licenses suggested in a publicly accessible cadastre raise questions which remain to be answered by the State Party.

Planned Dam Development

While it is clear that the possible construction of a major dam at Stiegler's Gorge could call the World Heritage status of SGR into question, there are inconsistent signals in terms of the viability and likelihood of construction. The current status of planning of Stiegler's Gorge Dam remains to be communicated by the State Party. The main concern about the Kidunda Dam at this stage is a lack of meaningful consideration of the World Heritage status of SGR. Recommendations to this effect remain to be followed up upon.

The Larger Selous Ecosystem

Several recommendations can be merged under this heading. This includes the "effective protection" of the Selous-Niassa Corridor, the possible addition of "valuable forestland" to the property and the consolidation of adjacent WMA. The mission considers that the complexity, scale and urgency of the broader setting call for a comprehensive analysis. An SEA, requested by the Committee in 2013, could shed light on many question marks. It could also help optimize the overall design of the World Heritage property and buffer zones. The possible addition of some areas as a "compensation" for the excised area without in-depth analysis would appear somewhat simplistic. In the view of the mission, a more comprehensive analysis is needed to assess the options for an enhanced overall design of the property.

Despite important progress the mission notes that a number of earlier requests by the World Heritage Committee require further attention. The partial reinstatement of the Revenue Retention Scheme is encouraging and has permitted a reconsolidation of management. This has also allowed a first response to poaching, another key recommendation and request. However, as detailed earlier, a much more decisive and comprehensive response is needed both to address the current crisis and to ensure the long term future of SGR.

4. ASSESSMENT OF THE STATE OF CONSERVATION

Statements of Outstanding Universal Value (SoOUV) summarize the "Outstanding Universal Value" of a given World Heritage property at the time of inscription. The statements contain specific reference to the inscription criteria, integrity, and long-term management and conservation requirements. Since 2007 the adoption of SoOUV is binding for any new inscription on the World Heritage List. For all properties lacking a formal statement a so-called retrospective SoOUV must be elaborated for adoption by the World Heritage Committee. As officially adopted documents, SoOUV are a key reference for the formal assessment of the state of conservation under the World Heritage Convention.

In 2010, the World Heritage Committee adopted the retrospective SoOUV of SGR (Decision 34COM 8E, see Annex 6 for full text). The statement highlights the vast scale and largely undisturbed nature of SGR, which contribute to setting SGR apart as a protected area of global importance. It further stresses that the integrity of the property is also a function of SGR's location within a much larger landscape of major conservation importance in its entirety. In this context, the SoOUV makes explicit reference to the Selous-Niassa Corridor, which is the link to another extraordinarily large and important protected area, the Niassa Game Reserve in neighbouring Mozambique. Furthermore, the statement stresses the diversity of ecosystems and habitats, as well as floral and faunal biodiversity. In addition to citing the impressive populations of numerous large mammal species, the populations of African Elephant, Black Rhinoceros and African Wild Dog are emphasized as globally significant.

The SGR continues to be a largely intact protected area due to its sheer size, relative remoteness and the absence of inhabitants and major infrastructure. The mission is not aware of any indications that a substantial transformation of the property has occurred or is acutely imminent. While the Mkuju River Project raises questions in terms of possible impacts on water quantity and quality and facilitation of access to previously remote areas, the removal of some 20,000 hectares from the property to permit the mining operations does not appear to fundamentally alter the overall state of conservation of SGR as such.

It is undisputable, however, that important change is underway in the Larger Selous Ecosystem given that this is the very objective of current governmental planning. The Southern Agricultural Growth Corridor of Tanzania (SACGOT) serves as a major example in this regard. Various development projects in progress or in planning both within and near the property require careful consideration of their relationship with the World Heritage property if the landscape connectivity is to be understood and maintained. Possible development projects within the property are even more sensitive from a World Heritage perspective, as they would inevitably compromise the undisturbed nature of SGR, one of the property's key attributes documented in the SoOUV.

The arguably most acute impact on the state of conservation is the stunning surge in poaching after partial recovery of target populations from an earlier peak in poaching in the 1980s. As detailed in chapter 3.1, the results of a recent survey mark an all time low of the elephant population beyond even the most pessimistic expectations. Black Rhinoceros is not considered in the preliminary results of the above survey and the mission could not identify reliable data on status and trends. However, consulted colleagues, hunting operators and other observers unanimously suggested that the fate of Black Rhinoceros may be even more dramatic. Past data for the species suggest a bleak status and future for the species in SGR. The mission is not aware of any indications that the rapid downward trend has since been reversed.

The renowned elephant population of SGR constitutes a unique value in its own right, including from the perspective of the SoOUV. The population continues to migrate across large unfenced areas within and outside SGR - unlike many other elephant populations today. The African Elephant is also of critical importance as a flagship species symbolizing SGR, as a keystone species shaping habitats and entire landscapes through their foraging behavior and their important role in seed dispersal; and as a highly valued target species for hunting and non-consumptive tourism. Provided adequate quota and functional and transparent funding mechanisms, the revenues generated from hunting and observing elephants alone can make a substantial contribution to conservation funding in SGR, and have done so in the past.

According to UNEP *et al*. (2013) the acute poaching crisis exceeds the earlier surge in poaching in the 1980s in scale and pace across most range countries, an alarming trend confirmed by TAWIRI (2013) for the Larger Selous Ecosystem. The surge coincides with increasing pressure on the surroundings of SGR and the degradation or even loss of migration routes and linkages to other areas within the range of the population. It is also widely accepted that current funding, staffing and overall management are considerably below the level required to ensure effective control and law enforcement in SGR.

The mission considers that the dramatic decline in the elephant population confirmed by the recent survey data, constitutes an ascertained danger in line with paragraph 180a)i) of the Operational Guidelines.

Recommendation 18
Given the ascertained danger to the OUV, the mission recommends that the World Heritage Committee inscribes the SGR on the List of World Heritage in Danger according to paragraph 177 and in particular paragraph 180 of the Operational Guidelines.

Recommendation 19
Given that the status of Black Rhinoceros in SGR appears at least as dramatic as the status of African Elephant, the State Party should prepare a rapid situation assessment in order to take effective conservation, enforcement and management action in relation to rhino poaching in the property.

The mission notes the efforts by the State Party to address this unprecedented poaching crisis, in particular through the reinstatement of the revenue retention scheme. In addition, the large scale anti-poaching operation “Tokomeza”, involving several Ministries and the Army demonstrate the political willingness to tackle the issue. Nevertheless, its highly controversial implementation and subsequent suspension also illustrate severe difficulties in doing so in practice. The mission considers that despite the efforts, there is currently no adequate response in place which is capable of halting the poaching crisis in the short term. Therefore the populations of the target wildlife species are likely to further decline. In the view of the mission the State Party requires technical and financial support to develop and implement an adequate response strategy.

It is important to recall that the increasing international demand for ivory and rhino horn is driving the poaching. It is well documented that trade in wildlife and wildlife derivates today is a highly sophisticated field of organized crime, structurally comparable to illicit trade in narcotics. While this reality may seem overwhelming from the perspective of an individual protected area or even an individual range country, it is clear that the first response can only happen at the site level or national level. The successful management response to the poaching crisis of the 1980s in SGR is an encouraging example in this regard. At the same time, it is clear that an effective response to the illicit trade in ivory and rhino horn must address illegal trafficking and demand at the international level. The unintentional but undeniable harm indirectly inflicted on the integrity of SGR by the demand for these products in other States Parties suggests an obligation under the Convention and other applicable intergovernmental agreements, namely

CITES. From a World Heritage perspective, there is a clear responsibility on the part of States Parties known to be the destinations of illicit trade according to Article 6.3 of the Convention, which refers to damage caused directly or indirectly by States Parties to the cultural and natural heritage on the territory of other States Parties.

Recommendation 20
States Parties known to be destinations of the illicit trade in ivory and rhino horn should be reminded by the World Heritage Committee of Article 6.3 of the World Heritage Convention which stipulates that each State Party not "take any deliberate measures which might damage directly or indirectly the cultural and natural heritage (...) on the territory of other States Parties (...)".

Given the explicit reference of the SoOUV to the now severely decimated wildlife, the mission after careful consideration concludes that a recommendation for inscription on the List of World Heritage in Danger is not only warranted according to the Operational Guidelines but could be positively used to address the current challenges. The mission is convinced that this is a case were danger listing can assist the State Party to attract domestic and international political attention and support. The mission considers that the State Party should consider to request the status so as to proactively acknowledge the challenges and to attract further domestic and international political attention and support. This would follow the successful example of several State Parties in the recent past which requested inscription on the List of World Heritage in Danger rather than leaving it for the World Heritage Committee to decide. Preliminary discussions suggest a possible willingness to consider this option.

As the overall state of conservation of SGR in terms of available habitat is still good, eventual recovery of wildlife populations seem possible in principle. However, it can be argued that there is another difference compared to the previous peak in poaching besides the unprecedented scale. Unlike in the past, the Larger Selous Ecosystem and linkages to other important elephant habitats are under increasing pressure. In other words the poaching today coincides with ongoing range loss.

In summary, SGR continues to be an extraordinary protected area of global significance with comparatively good conservation prospects provided urgent and effective responses to acute and potential longer-term threats and a balanced approach to conservation and development in the Larger Selous Ecosystem. Consulted wildlife experts are cautiously optimistic that the availability of large tracts of intact habitat could even permit an eventual recovery of severely reduced wildlife populations provided that the current trends can be halted and eventually reversed. However, the dramatic survey results of the elephant population illustrate an unprecedented scale of poaching and strongly confirm the need for an immediate response at the site, national and international level. This response requires adequate funding and staffing of SGR above current levels and international coordination and cooperation as regards trade and demand.

5. CONCLUSIONS AND RECOMMENDATIONS

The vast Selous Game Reserve continues to be an extraordinary place of global conservation significance. Compared to most protected areas, SGR is in a privileged position due to its vast scale and relative remoteness. The property is, however, not isolated from increasing pressures and threats, including an acute and unprecedented surge in poaching triggered by high demand and increasing prices for ivory and rhino horn. While there are no indications of irreversible impacts, there are important ascertained and potential threats to SGR in the view of the mission. Key areas of concern are the direct and indirect consequences of the massive and ongoing loss of wildlife to poaching, challenges to funding and management in the broadest sense, possible impacts of the Mkuju River Project, possible future resource extraction based on legal changes in 2009 and large-scale development projects proposed within and near SGR.

Against the backdrop of the SoOUV, the most acute finding of the mission is the alarming surge in poaching. The world class population of African Elephant in the SGR and its surroundings is reduced to a historic all-time low. Observers consulted by the mission unanimously assumed that the status of Black Rhinoceros is even bleaker. After the suspension of a controversial anti-poaching campaign in late 2013, there appears to be no coherent governmental response which could reverse or even halt the documented trends. **The mission therefore concludes that the dramatic decline in the elephant and black rhino constitutes an ascertained danger to the OUV of the property in line with paragraph 180a)i) of the *Operational Guidelines* and recommends that the World Heritage Committee inscribe the SGR on the List of World Heritage in Danger.** The mission considers that inscribing the SGR on the List of World Heritage in Danger will assist the State Party in drawing adequate political and international attention and support to address the situation.

The inscription of any property on the List of World Heritage List in Danger triggers an obligation to develop a "Desired State of Conservation for the Removal of the Property from the List of World Heritage List" (DSOCR) and to elaborate and implement "corrective measures". At the time of the mission, the results of the recent wildlife survey had not been officially released, i.e. the mission was not in possession of confirmed data while in country. Therefore, the mission was not yet in a position to make a firm recommendation on danger-listing and no specific discussion on "corrective measures" and a DSOCR took place.

The DSOCR, jointly with associated indicators and timelines should be developed as an integral part of and guidance for the development of an emergency anti-poaching initiative and a long term plan to structurally ensure adequate funding and management. The DSOCR should encompass clear indicators for the recovery of the populations of African Elephant, Black Rhinoceros and keystone species, such as apex predators. Furthermore, the DSOCR should set clear indicators for appropriate overall management effectiveness. To avoid further deterioration of the OUV, the mission proposes the following broad directions for the corrective measures, to be refined jointly with Tanzanian authorities and colleagues and supported by the World Heritage Centre (WHC), IUCN and others as desired by the State Party.

1. Immediate development and implementation of a comprehensive emergency anti-poaching initiative with the objective to halt poaching in the Larger Selous Ecosystem, including but not limited to the property, the Selous-Niassa Corridor, the Kilombero Valley and the adjacent Wildlife Management Areas (WMA) within 12 months. The programme should bring together and engage all relevant governmental institutions, non-governmental stakeholders and cooperation actors, in particular NGOs, multilateral and bilateral donors and agencies, tourism operators, the Mkuju River Project and WMAs.

2. Beyond the emergency response to current poaching, structural consolidation of funding mechanisms and levels, as well as restoring adequate management is needed to ensure the full recovery and long term maintenance of the OUV and the many additional values and services of the property.

The future of the Larger Selous Ecosystem will to a large extent define the long term future of SGR. Efforts should consider the landscape level and involve local communities in benefit-sharing. Wildlife Management Areas (WMA) are a promising form of doing so.

Extractive industries and planned dams require additional scrutiny. An SEA, requested by the World Heritage Committee in 2013, is the adequate instrument to better understand the situation and to inform decision-making.

The following list provides an overview of all recommendations. All recommendations are explained in detail in the various sub-chapters of chapter 3.

Recommendation 1
The State Party should confirm the commitment to consider Selous Game Reserve off limits to prospecting and mining, as stipulated in the Wildlife Conservation Act. This should include oil, gas and uranium, for which legal exceptions are in place since 2009, which are incompatible with World Heritage status and which could not be facilitated by further boundary modifications.

Recommendation 2
The State Party should develop and adopt as soon as possible the necessary regulations and/or subsidiary legislation for wildlife corridors, buffer zones, migratory routes, dispersal areas and WMA, to facilitate the application of corresponding stipulations of the Wildlife Conservation Act.

Recommendation 3
The State Party should develop and implement, as soon as possible within 12 months, a comprehensive emergency anti-poaching programme with the objective to halt poaching in the Larger Selous Ecosystem, including but not limited to the property, in particular the Selous-Niassa Corridor, the Kilombero Valley and the Wildlife Management Areas adjacent to the property. The programme should engage all relevant governmental institutions and non-governmental stakeholders, in particular NGOs, donors, tourism operators, the Mkuju River Project and WMAs.

Recommendation 4
The World Heritage Committee should launch an appeal to the international donor community to provide technical and financial assistance to the State Party to develop and implement the comprehensive emergency anti-poaching programme.

Recommendation 5
The establishment of TAWA should be finalized as soon as possible while ensuring that at least 50 % of the revenues generated from SGR can be re-invested in SGR in support of the emergency anti-poaching programme and the structural rehabilitation.

Recommendation 6
The State Party should develop a strategy to manage the Selous Game Reserve at the wider landscape level of the "Larger Selous Ecosystem", including but not limited to existing protected areas, WMAs and the Selous-Niassa Corridor. In particular, landscape components of outstanding conservation and connectivity importance should be identified and managed in line with existing provisions under the Wildlife Conservation Act. The political and technical transboundary cooperation with Mozambique and the Niassa Game Reserve should be consolidated following up on earlier efforts and an existing MoU. The landscape level management of the property should be formalized under the World Heritage Convention

through the establishment of a buffer zone and potentially by strategic additions to the World Heritage property.

Recommendation 7
The involvement of, and benefits for, local communities should be further enhanced, in particular by consolidating Wildlife Management Areas as a promising entry point and framework.

Recommendation 8
The State Party should consolidate its domestic capacity and use external expertise as needed to ensure comprehensive and independent monitoring and compliance of the complex mining operations at the Mkuju River Project, Tanzania's first uranium mining site. In particular, the establishment of an independent quantitative and qualitative water monitoring system is indispensable, which should include monitoring points beyond the mining concession area.

Recommendation 9
The State Party should ensure full risk preparedness and establish clear response mechanisms in case of possible future contamination incidents associated to extractive activities outside its boundaries.

Recommendation 10
In line with Paragraph 172 of the Operational Guidelines, the State Party should inform the World Heritage Committee in case In-Situ Leaching (ISL) will be considered as an extraction technique in addition to or as an alternative to open pit mining. If ISL is to be considered, an additional Environmental Impact Assessment would be applicable, prior to any approval.

Recommendation 11
The State Party should unambiguously and in writing clarify the current status of planning and decision-making regarding the Stiegler's Gorge project.

Recommendation 12
Given the potential serious negative impacts on the OUV of the property, the State Party should ensure a comprehensive understanding of the impacts, risks, costs, benefits, and alternatives as a basis for any decision-making regarding the Stiegler's Gorge Dam both in the form of an in-depth EIA and a comprehensive SEA (see also Recommendation 17 regarding this SEA), taking into account the Outstanding Universal Value of SGR. In line with paragraph 172 of the Operational Guidelines, these assessments should be submitted to the World Heritage Committee for review, before any final decision on the project is made.

Recommendation 13
The World Heritage Committee should call on States Parties to the Convention and private sector companies considering technical or financial support or involvement to the proposed Stiegler’s Gorge project, not to take any investment decision before it has been demonstrated that the project can be implemented without negatively affecting the Outstanding Universal Value of the property. States Parties concerned should be reminded by the World Heritage Committee of Article 6.3 of the World Heritage Convention which stipulates that each State Party not "take any deliberate measures which might damage directly or indirectly the cultural and natural heritage (...) on the territory of other States Parties (...)".

Recommendation 14
The State Party should unambiguously clarify the status of planning, decision-making and impact assessments regarding the Kidunda project in writing supported by all relevant documents.

Recommendation 15
The State Party should complete the existing ESIA for the Kidunda Dam Project to ensure comprehensive consideration of the relationship between the multiple planned projects and the World Heritage status of the Selous Game Reserve, respect ESIA requirements and report accordingly, including on all implications in terms of the OUV and procedural options. This

includes full consideration of the apparently planned future addition of a hydro power component. In line with paragraph 172 of the Operational Guidelines, the completed ESIA should be submitted to the World Heritage Committee for review, before any final decision on the project is made.

Recommendation 16
Future management planning should fully consider Alien Invasive Species (AIS) through a specific AIS management plan.

Recommendation 17
Following up on the existing request by the World Heritage Committee, the State Party should conduct an SEA for the Selous Game Reserve and its surroundings so as to fully assess the costs, benefits, risks, interlinkages and alternatives of the various ongoing and planned development schemes and projects.

Recommendation 18
Given the ascertained danger to the OUV, the mission recommends that the World Heritage Committee inscribes the SGR on the List of World Heritage in Danger according to paragraph 177 and in particular paragraph 180 of the Operational Guidelines.

Recommendation 19
Given that the status of Black Rhinoceros in SGR appears at least as dramatic as the status of African Elephant, the State Party should prepare a rapid situation assessment in order to take effective conservation, enforcement and management action in relation to rhino poaching in the property.

Recommendation 20
States Parties known to be destinations of the illicit trade in ivory and rhino horn should be reminded by the World Heritage Committee of Article 6.3 of the World Heritage Convention which stipulates that each State Party not "take any deliberate measures which might damage directly or indirectly the cultural and natural heritage (...) on the territory of other States Parties (...)".

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7. USEFUL LINKS

http://whc.unesco.org/en/list/199
Official website of UNESCO's World Heritage Centre on the Selous Game Reserve, including access to key documents.

www.african-elephant.org
Official website of the African Elephant Specialist Group (AfESG).

www.cites.org/eng/prog/etis/index.php
Information about the Elephant Trade Information System, a partnership between CITES, TRAFFIC and African Elephant range States

www.iucnredlist.org
Official website of the IUCN Red List of Threatened Species™ searchable by species.

www.teiti.or.tz
Official website of the Tanzania Extractive Industries Transparency Initiative under the global EITI.

www.mnrt.go.tz
Official website of the Ministry of Natural Resources and Tourism of the United Republic of Tanzania (MNRT).

www.pietrangeli.com/kidunda
Company information on the Kidunda project by an involved consulting firm commissioned by DAWASA.

www.sagcot.com
Official website of the Southern Agricultural Growth Corridor of Tanzania (SAGCOT).

www.wildlife-baldus.com
Personal website of Dr. Rolf Baldus containing a wealth of information on SGR and specifically the Selous-Niassa Corridor, including the full text of numerous documents in pdf-format.

www.tanzania.go.tz
Official government portal of the United Republic of Tanzania.

www.mem.go.tz
Official website of the Tanzanian Ministry of Energy and Minerals.

www.flexicadastre.com/tanzania
Online mapping application publicly displaying the prospecting and mining cadastre for mainland Tanzania.

www.cheetahandwilddog.org
Useful website dedicated to the two charismatic predator species.

www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=CBE3CD59-1&offset=8&toc=show
Section of Environment Canada providing an overview of guidelines, objectives and codes of practice at the Canadian and international level.

8. ANNEXES

Annex 1: World Heritage Committee Decision 37COM 7B.7 (2013)

Annex 2: Terms of Reference of the 2013 reactive monitoring mission

Annex 3: Mission Agenda

Annex 4: People met during the Mission

Annex 5: Maps

Annex 6: Statement of Outstanding Universal Value

Annex 7: Photographic Documentation

Annex 1: World Heritage Committee Decision 37COM 7B.7 (2013)

Selous Game Reserve (United Republic of Tanzania) (N 199bis)

The World Heritage Committee,

1. Having examined Document WHC-13/37.COM/7B,
2. Recalling Decisions **36 COM 7B.5** and **36 COM 8B.43** adopted at its 36th session (Saint-Petersburg, 2012),
3. Welcomes the anti-poaching measures initiated by the State Party as well as the reinstatement of the retention scheme and requests the State Party to submit as soon as possible a report on the efficiency of these measures;
4. Takes note of the fact that no official notification has been made to the Ministry of Natural Resources and Tourism on any proposed hydroelectric power projects in the property but notes with concern that the planning of the Stiegler's Gorge dam project is reportedly advancing and a proposal for the development of the project was presented to the Government;
5. Reiterates its utmost concern that the Stiegler's Gorge dam project could seriously damage the Outstanding Universal Value of the property and urges the State Party to respect its commitment not to undertake any development activities within Selous Game Reserve and its buffer zone without prior approval of the World Heritage Committee in accordance with paragraph 172 of the *Operational Guidelines*;
6. Also urges the State Party to implement the recommendations of the 2010* reactive monitoring mission as well as its commitment to conservation concerning the minor boundary modification granted for the Mkuju uranium mine as requested in Decision **36COM 8B.43**, in particular adding valuable forestland to the property and finalizing compensation in line with the prescribed national legal procedures, including gazettement;
7. Also requests the State Party to undertake a Strategic Environmental Assessment to comprehensively identify the cumulative impacts of the following developments, assess least damaging alternatives and plan mitigation measures as appropriate: mining, energy, agriculture and associated infrastructure, such as road building, both within the property as well as in important wildlife corridors and dispersal areas that are critical for maintaining the Outstanding Universal Value and integrity of the property;
8. Further requests the State Party to invite a joint World Heritage Centre/IUCN reactive monitoring mission to the property to assess the state of conservation of Selous Game Reserve, including the impacts of elephant poaching, the management of the impacts of the Mkuju uranium mine adjacent to the property, asses the status of the Kidunda dam and Stiegler's Gorge dam projects as well as the implementation of the recommendations of the 2010* monitoring mission;
9. Requests furthermore the State Party to submit to the World Heritage Centre, by **1 February 2014,** a progress report on the implementation of the above, as well as a progress report on the implementation of Decision **36COM 8B.43,** for examination by the World Heritage Committee at its 38th session in 2014, **with a view to considering, in the case of confirmation of ascertained or potential danger, the inscription of the property on the List of World Heritage in Danger.**

* Note that the decision text incorrectly refers to a 2010 reactive monitoring mission. The correct date is 2008.

Annex 2: Terms of Reference

Reactive Monitoring Mission Selous Game Reserve – Tanzania / 02 – 11 December 2013

At its 37th session, the World Heritage Committee requested the State Party of Tanzania to invite a joint World Heritage Centre / IUCN reactive monitoring mission to Selous Game Reserve World Heritage Site (Decision **37 COM 7B.7**). The objective of the monitoring mission is to assess the state of conservation of the property, including impacts from elephant poaching, the management of the impacts from the Mkuju river uranium mine adjacent to the property, assess the status of the Kidunda dam and Stiegler's Gorge dam projects, as well as the implementation of the recommendations of the 2010* reactive monitoring mission. The mission will be conducted by Guy Debonnet from the World Heritage Centre, and Tilman Jaeger and Nelson Guma representing IUCN.

In particular, the mission should address the following key issues:

1. Assess the extent to which the Outstanding Universal Value is currently affected by the existing threats of which the source is located both inside the sites' boundaries as well as its surrounding environment, and including the Mkuju River Uranium Mine, elephant poaching, and the combined and cumulative effects of all threats affecting the property;
2. Assess the current situation with the Stiegler's Gorge and Kidunda dam projects within the property and its immediate vicinity, including a review of the updated feasibility study for Stiegler's Gorge. Further advice should be provided to the State Party as required in terms of the requirements for the Environmental Impact Assessments of both projects to specifically assess impacts on the property's Outstanding Universal Value;
3. Review progress with the implementation of the recommendations of the 2010 reactive monitoring mission and the conservation commitments made by the State Party upon the granting of the boundary modification for the Mkuju uranium mine, as requested in Decision **36 COM 8B.43**, in particular adding valuable forest land to the property, and ensuring enhanced and effective protection of the Selous-Niassa corridor;
4. In line with paragraph 173 of the *Operational Guidelines*, assess any other relevant conservation issues that may negatively impact on the Outstanding Universal Value of the property, including the conditions of integrity and protection and management;
5. Based on the results of the above assessments make a recommendation regarding the possible inscription of the property on the List of World Heritage in Danger.
6. If the mission concludes that the inscription of the property on the List of World Heritage in Danger is recommended, is should also develop a proposal for the Desired state of conservation for the removal of the property from the List of World Heritage in Danger and a set of Corrective Measures, including a realistic timeframe for their implementation.

The mission should be assisted to conduct the necessary field visits to key locations, including the proposed locations of the Stiegler's Gorge and Kidunda dams, the location of the Mkuju uranium mine, the Selous – Niassa corridor between Tanzania and Mozambique, and the valuable forest areas planned to be included in the Reserve. If possible, an aerial reconnaissance of the property and the corridor should be included in the programme to get an overview of its general state of conservation.

In order to enable preparation for the mission, it would be appreciated if the following items could be provided to the World Heritage Centre (copied to IUCN) as soon as possible, and preferably no later than one month before the mission:

a) The most recent version of the management plan of the property;

b) Comprehensive time-series data on poaching, particularly of elephants;

c) The updated feasibility study of the Stiegler's Gorge dam project, and the latest available (draft) Environmental Impact Assessment of the Kidunda dam project;

d) Detailed documentation clarifying the measures taken to manage the impacts of the Mkuju River uranium mine on the property, including impacts on its hydrology;

The mission should hold consultations with the Tanzanian authorities at national and provincial levels, in particular senior representatives of the Ministry of Natural Resources and Tourism, the Ministry of Energy and Minerals, the Government Wildlife Division, and the Rufiji Basin Development Authority (RUBADA). In addition, the mission should hold consultation with a range of relevant stakeholders, including i) researchers; ii) NGOs (in particular FZS, WWF and others who are supporting the management of the property of the corridor); iii) representatives of the company that will operate the Mkuju uranium mine; iv) tourism sector representatives (including representatives of the tourism hunting sector); v) representatives of local communities; representatives of the bi-lateral and multi-lateral cooperation partners supporting the management of the property and of the Selous – Niassa corridor such as KfW; and representatives of the National Environment Management Council (NEMC). Based on the results of the above-mentioned assessments and discussions with the State Party representatives and stakeholders, the mission will develop recommendations to the Government of Tanzania and the World Heritage Committee to conserve the Outstanding Universal Value of the property and improve its conservation and management. It should be noted that recommendations are made within the mission report (see below), and not while the mission is still on-going.

The mission will prepare a concise mission report on the findings and recommendations of this reactive monitoring mission no later than 6 weeks after the end of the field visit, following the standard format.

* Note that the Terms of Reference incorrectly refer to a "2010 reactive monitoring mission". The correct date of the mission referred is 2008.

Annex 3: Mission Agenda

01 December 2013

Arrival of mission team in Dar es Salaam

02 December 2013

09:00 MNRT briefing of Director, Wildlife Division and selected staff

12:20 UNESCO Office briefing, Officer in Charge

13:00 RUBADA, Executive Director

15:00 NEMC, EIA Directorate, two Principal Environmental Management Officers

03 December 2013

07:00 Flight from Dar es Salaam to Songea

10:00 Courtesy meeting Regional Commissioner (RC) / Personal Assistant RC
(Drive to Namtumbo)

13:30 District Commissioner

14:30 District Executive Director

(Overnight in Namtumbo)

04 December 2013

(Drive to Mkuju mining site)

10:00 Visit of Regional SGR Office

11:00 Arrival in Mkuju camp

12:00 Induction Mkuju camp and mining site and presentations, Country Manager, Safety Manager, Environmental Manager

(Overnight in Mkuju camp)

17:00 Site visit of planned mining area

05 December 2013

07:30 Departure to Songea

08:00 Brief visit camp of game scouts supported by Mantra

(Overnight in Songea)

06 December 2013

08:00 Flight Songea to Stiegler's Gorge landing strip

17:00 Meeting with lodge management

18:00 Meeting with RUBADA

(Overnight in Mivumo River Lodge)

07 December 2013

06:00 Visit of downriver non-consumptive tourism area

09:00 Visit of abandoned camp used during feasibility studies near Stiegler's Gorge

16:00 Boat trip upriver on the Rufiji to proposed dam site

(Overnight in Mivumo River Lodge)

08 December 2013

(Travel Stiegler's Gorge to Dar es Salaam)

09 December 2013 (public holiday)

09:00 Nicola Colangelo

13:00 WWF Tanzania / WWF Mozambique

10 December 2013

11:45 Ministry of Water and TAWASA, SP Consulting Engineers

13:45 Ministry of Energy and Minerals

16:00 TAHOA

19:00 Chief Warden, SGR

11 December 2013

08:00 GIZ, KfW, Gauff

11:00 DPG-E Meeting (UNDP, UNEP, European Delegation, GIZ, Finnish Embassy)

15:00 Debriefing MNRT

12 December 2013

Departure of mission team

Annex 4: People met during the Mission

Listed by last name in alphabetical order.

Paul C.L. Anspach	Natural Resources Manager, JBG/Gauff Ingenieure
Simon Anstey	Head of Terrestrial Programme, Coastal East Africa Network Initiative WWF
Gianluca Azzoni	Delegation of the European Union
Peter Banyoko	MNRT Selous
Haezel Barber	UNEP
André Baumgarten	Technical Adviser, FZS
Hassan Bendeyeko	Regional Administrative Secretary, Ruvuma
Zacharia Bongole	Ministry of Energy and Minerals
Nicole Bolomey	Programme Specialist, Culture and Development, UNESCO Office in Dar es Salaam
Anna Caprile	DPG-E Secretariat
Nicola Colangelo	Coastal Aviation
Abdul Wahab Coulibaly	Officer in Charge, UNESCO Office in Dar es Salaam
Dorothé Gräfin Strachwitz	JBG/Gauff Ingenieure
Bell'Aube Houinato	Country Director, WWF Tanzania
John E. Kaaya (field mission)	Senior Game Officer
Ponjoli-Joram Kabepele	Delegation of the European Union
Khamis Kagesheki	Minister, MNRT
Ishmael Kakwezi	DAWASA
Boniphace N.M. Kasiga	Director of Technical Services, TAWASA
Herman Keraryo	Acting Assistant Director, Wildlife development, MNRT
Jafari Kidegesho	Assistant Director, Wildlife Utilization, MNRT
Benson Kibonde	Chief Warden, SGR/ MNRT
Joseph M. Kubena	Sector Environmental Coordinator, Ministry of Water
Mikko Leppanen	Environmental Issues, Embassy of Finland
Abdukadir Luta Mohamed	ALM / TAHOA
Abdula S. Lutawi	District Commissioner, Namtumbo / Ruvuma Region
Kamugenyi Luteganya	Principal Environmental Management Officer, EIA Directorate, NEMC
Gertrude Lyatuu	UNDP
Nalimi Madatta	PE, Ruvuma Landscape, WWF Tanzania
Georgy K. Makumbule	National Coordinator, RLP, WWF Tanzania
Aloyce Masanja	Director General, RUBADA
Shidumu Mawe	PE, Ruvuma Landscape, WWF Tanzania
Anthony Massawe	Programme Officer, DAWASA
Modester Mushi	DAWASA
John Muwa	MNRT
Asa Mwaipopo	Country Manager, Uranium One
Geofrey R. Mwanjela	Terrestrial Programme Officer, WWF Tanzania
Johnnie Ntukula	Section Manager, Environment, Mkuju River Project, Mantra Tanzania Limited
Dorothe Nett	Project Manager, NRM project GIZ
Edson W. Ngabo	Ministry of Energy and Minerals
Imani R. Nkuwi (field mission)	Project Coordinator, SGO – PC, WD/MNRT
Elias Obadia	KOCKS Consult
Silvanus Okudo	Wildlife Division, MNRT
Eric Pasanisi	President, TAHOA/ MD, Pasanisi Safaris
Anabela Rodrigues	Country Director, WWF Mozambique

Fredrick Rugiga	Principal Environmental Management Officer, EIA Directorate, NEMC
Luke Samaras	Luke Samaras Safaris Ltd / TAHOA
Ally B. Samaje	Acting Commissioner for Minerals, Ministry of Energy and Minerals
Peter Scheren	Leader, Coastal East Africa Initiative
Alexander N. Songorwa	Director of Wildlife, WD/MNRT
Hilário Sitoe	Conservation Manager, WWF Mozambique
Evelyne Swai (field mission)	Antiquities Department, MNRT
Maimuna K. Tarishi	Permanent Secretary, MNRT
Franco Terragni	Environmental Specialist, Pietrangeli Consulting, Italy
Cornelis van den Berg	Manager SHEQ, Uranium One
James Wakibara	Chief Ecologist, TANAPA
Roberto Zolho	Ruvuma Landscape Coordinator, WWF Mozambique
Committee Members	Mbarang'andu Wildlife Management Area

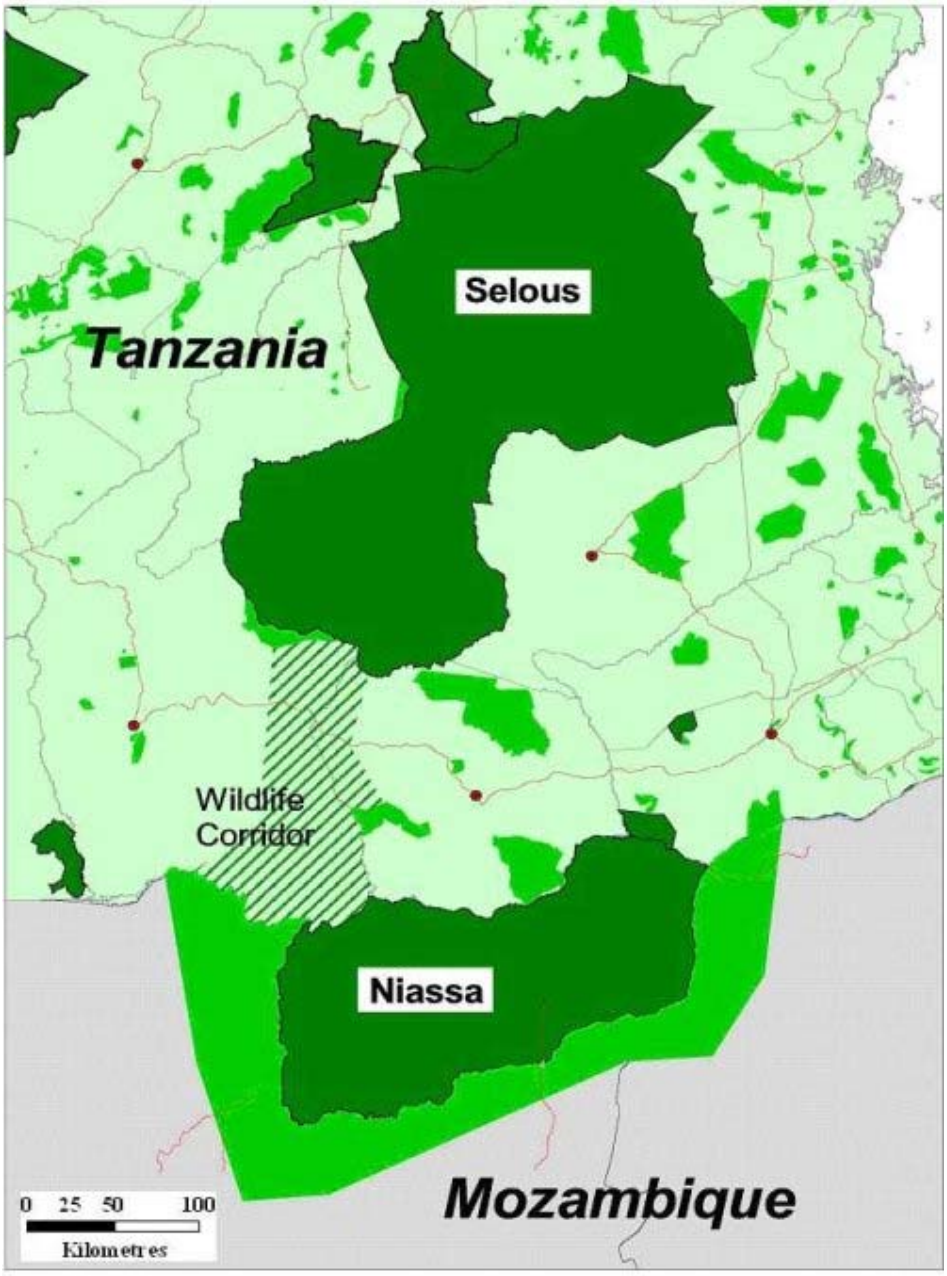
Annex 5: Maps

Map 1: Protected Areas of Tanzania

This map illustrates the location of SGR in Tanzania and also gives a sense of the enormous scale of both the property and the broader conservation complex which includes several adjacent protected areas.

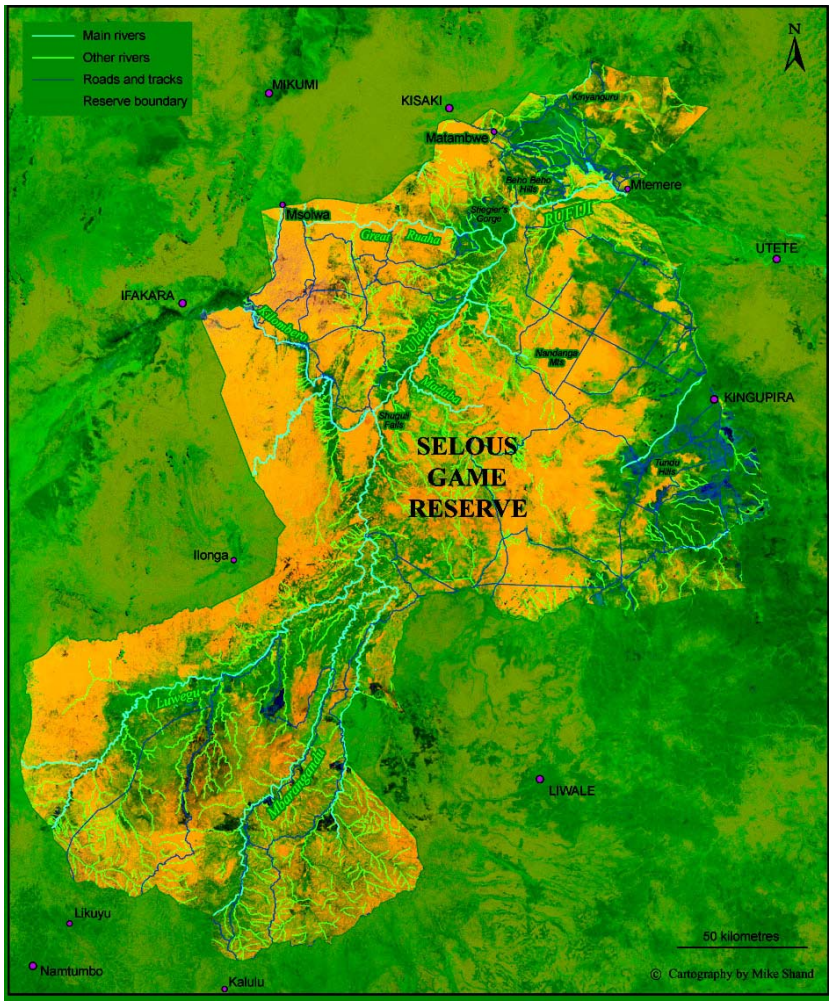
Source: http://pctanzania.org/repository/Environment/Tech%20Manual/tz_protected_areas.jpg

Map 2: Schematic overview of Selous and Niassa Game Reserves



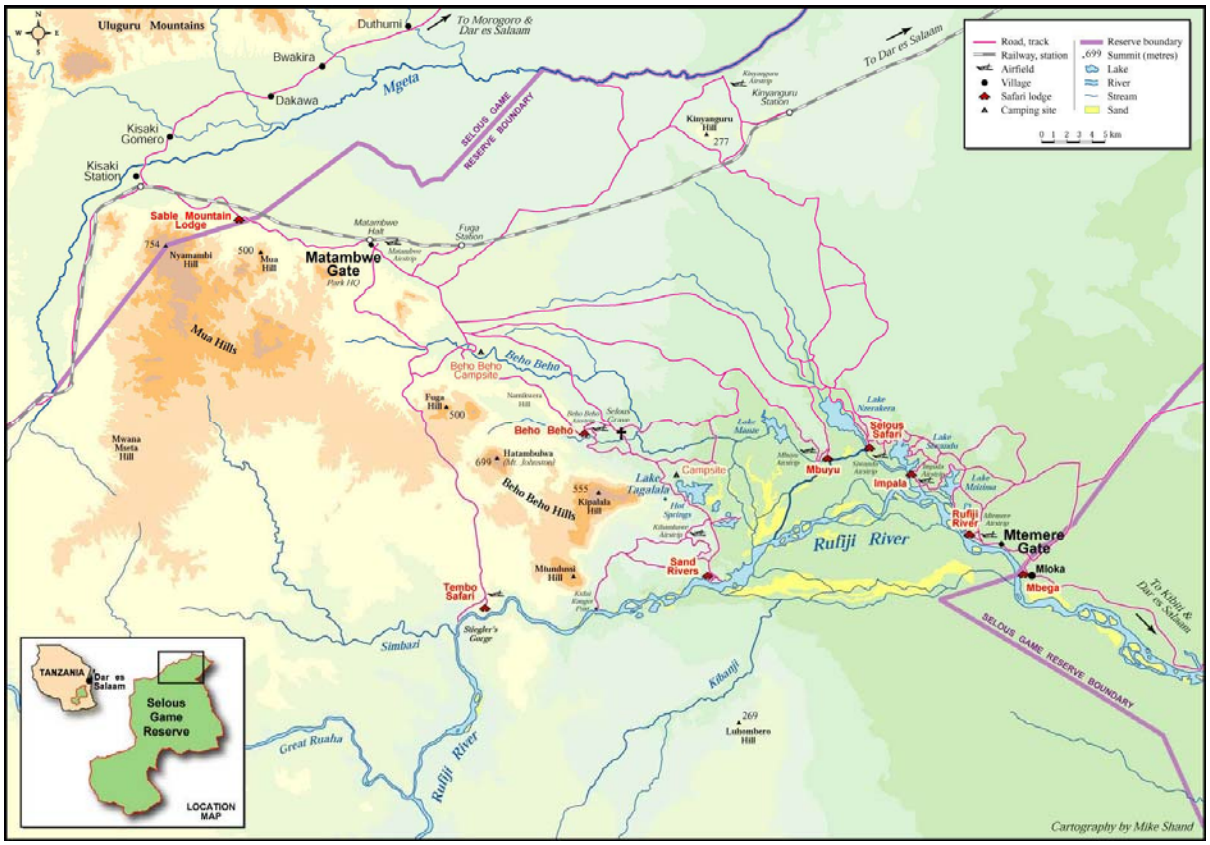
This map gives a rough idea of the location of SGR in relation to the Niassa Game Reserve in neighbouring Mozambique, including the rough location of the corridor linking the two. **Source**: www.tzwildlifecorridors.org/corridors/selous-niassa/

Map 3: The Rufiji River, backbone of Selous Game Reserve



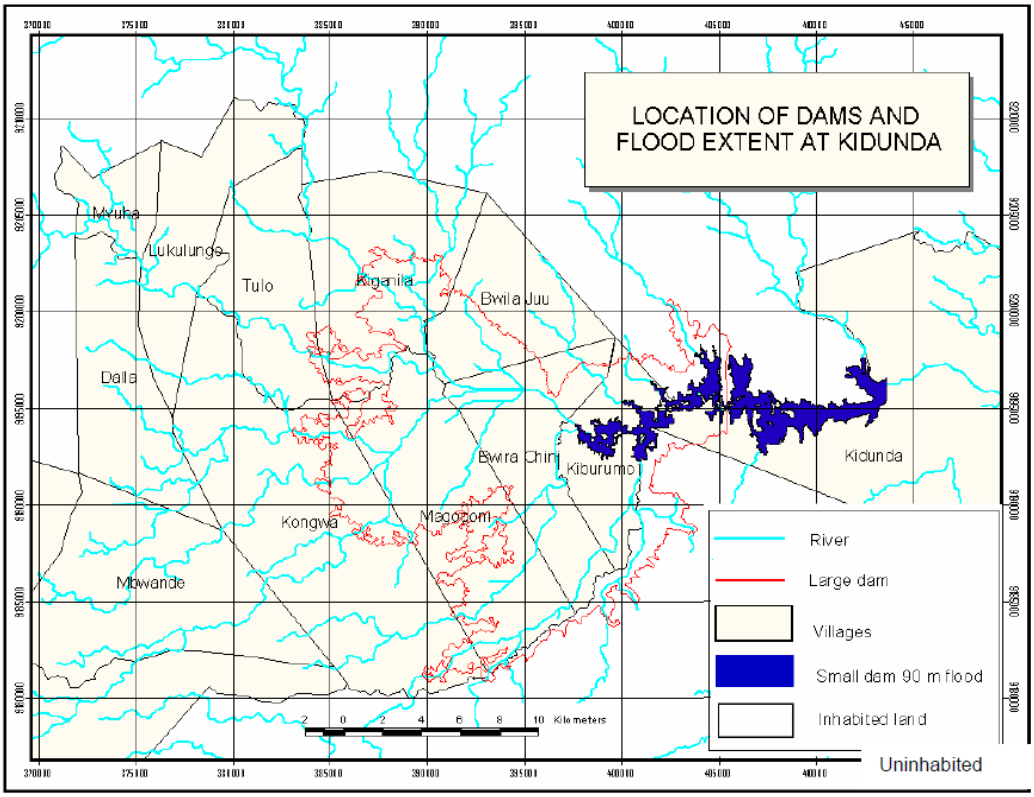
This map illustrates the central importance of the Rufiji River system within SGR. The map likewise visualizes that modifications of the water quality and/or quantity in the headwaters of the basin inevitably have effects on SGR. **Source:** www.wildlife-baldus.com/selous_game.html. Cartography: Mike Shand.

Map 4: Northern Selous Game Reserve



This map of the Northern SGR displays the location of Safari lodges used for non-consumptive tourism, illustrating their tight relation to the Rufiji system downstream of the proposed Stiegler's Gorge dam. **Source:** www.wildlife-baldus.com/selous_game.html. Cartography: Mike Shand.

Map 5: Location of dams and flood extent at Kidunda



This map displays the location of dams and nearby villages and the extent of flooding according to two alternative scenarios. **Source:** United Republic of Tanzania / DAWASA, 2008.

Annex 6: Statement of Outstanding Universal Value

Selous Game Reserve (Tanzania)

Brief synthesis
The Selous Game Reserve, covering 50,000 square kilometres, is amongst the largest protected areas in Africa and is relatively undisturbed by human impact. The property harbours one of the most significant concentrations of elephant, black rhinoceros, cheetah, giraffe, hippopotamus and crocodile, amongst many other species. The reserve also has an exceptionally high variety of habitats including Miombo woodlands, open grasslands, riverine forests and swamps, making it a valuable laboratory for on-going ecological and biological processes.

Criterion (ix):
The Selous Game Reserve is one of the largest remaining wilderness areas in Africa, with relatively undisturbed ecological and biological processes, including a diverse range of wildlife with significant predator/prey relationships. The property contains a great diversity of vegetation types, including rocky acacia-clad hills, gallery and ground water forests, swamps and lowland rain forest. The dominant vegetation of the reserve is deciduous Miombo woodlands and the property constitutes a globally important example of this vegetation type. Because of this fire-climax vegetation, soils are subject to erosion when there are heavy rains. The result is a network of normally dry rivers of sand that become raging torrents during the rains; these sand rivers are one of the most unique features of the Selous landscape. Large parts of the wooded grasslands of the northern Selous are seasonally flooded by the rising water of the Rufiji River, creating a very dynamic ecosystem.

Criterion (x):
The reserve has a higher density and diversity of species than any other Miombo woodland area: more than 2,100 plants have been recorded and more are thought to exist in the remote forests in the south. Similarly, the property protects an impressive large mammal fauna; it contains globally significant populations of African elephant (*Loxodontha africana*) (106,300), black rhinoceros (*Diceros bicornis*) (2,135) and wild hunting dog (*Lycaon pictus*). It also includes one of the world's largest known populations of hippopotamus (*Hippopotamus amphibius*) (18,200) and buffalo (*Syncerus caffer*) (204,015). There are also important populations of ungulates including sable antelope (*Hippotragus niger*) (7000), Lichtenstein's hartebeest (*Alcelaphus lichtensteinii*) (52,150), greater kudu (*Tragelaphus strepsiceros*), eland (*Taurotragus oryx*) and Nyassa wildebeest (*Connochaetes albojubatus*) (80,815). In addition, there is also a large number of Nile crocodile) and 350 species of birds, including the endemic Udzungwa forest partridge) and the rufous winged sunbird). Because of this high density and diversity of species, the Selous Game Reserve is a natural habitat of outstanding importance for in-situ conservation of biological diversity.

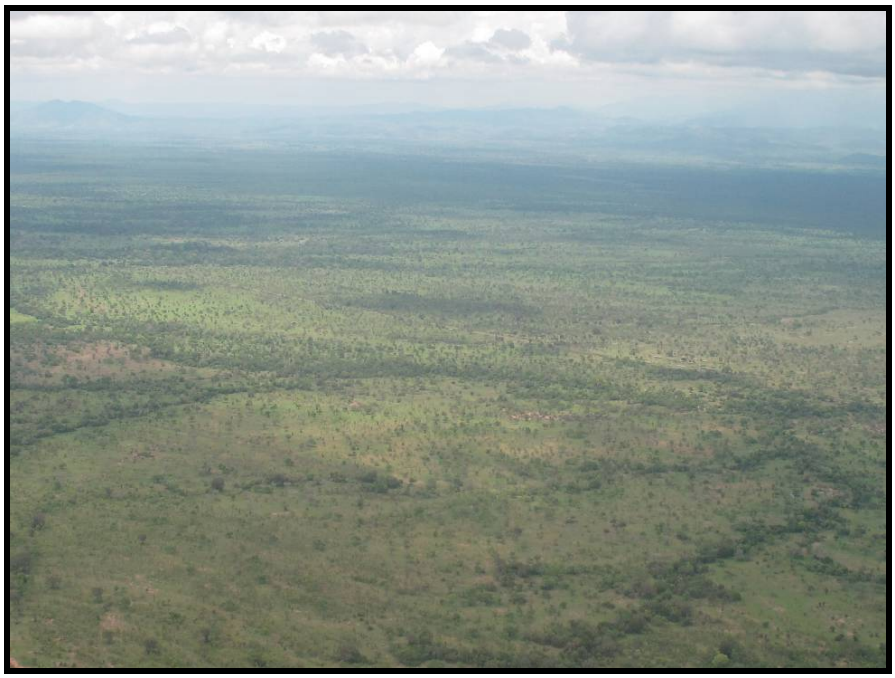
Integrity
With its vast size (5,120,000 ha), the Selous Game Reserve retains relatively undisturbed on-going ecological and biological processes which sustain a wide variety of species and habitats. The integrity of the property is further enhanced by the fact that the Reserve is embedded within a larger 90,000 km2 Selous Ecosystem, which includes national parks, forest reserves and community managed wildlife areas. In addition the Selous Game Reserve is functionally linked with the 42,000 km2 Niassa Game Reserve in Mozambique, and this is another important factor that ensures its integrity. With no permanent habitation inside its boundaries, human disturbance is low.

Protection and management requirements

The Selous Game Reserve has appropriate legal protection and a management plan has been developed. It is managed as a game reserve, with a small area (8%) in the north dedicated to photographic tourism while most of the property is managed as a hunting reserve. As long as quota are established and controlled in a scientific manner, the level of off-take should not impact wildlife populations and, in fact, should generate substantial income which needs to be made available for the management of the reserve in order for the system to be sustainable. A detailed tourism strategy for the reserve needs to be developed, in line with the framework and principles outlined in the management plan. The income generated by those activities needs to be made available for the management of the reserve in order for the system to be sustainable. The large size of the reserve presents important management challenges in terms of the levels of staffing and budget required. Key management issues that need to be addressed are: control of poaching, in particular of elephants and black rhinoceros; ensuring sufficient benefits for the local communities through the wildlife management areas and the improved management of hunting and photographic tourism. Enhanced surveillance and ecological monitoring systems are required to provide a better scientific/technical basis for management of the property's natural resources, as well as to better understand the impacts/benefits of consumptive and non-consumptive tourism. The most significant threats are related to exploration and extraction of minerals, oil and gas, and large infrastructure plans; environmental impact assessments need to be conducted for all development activities in the vicinity of the property that are likely to have an impact of the property's Outstanding Universal Value. To ensure long term integrity of the property it is important to ensure its management as part of a wider Selous ecosystem and to take the necessary measures to maintain the functional link to Niassa Game Reserve in Mozambique.

Annex 7: Photographic Documentation

All photos by IUCN/Tilman Jaeger

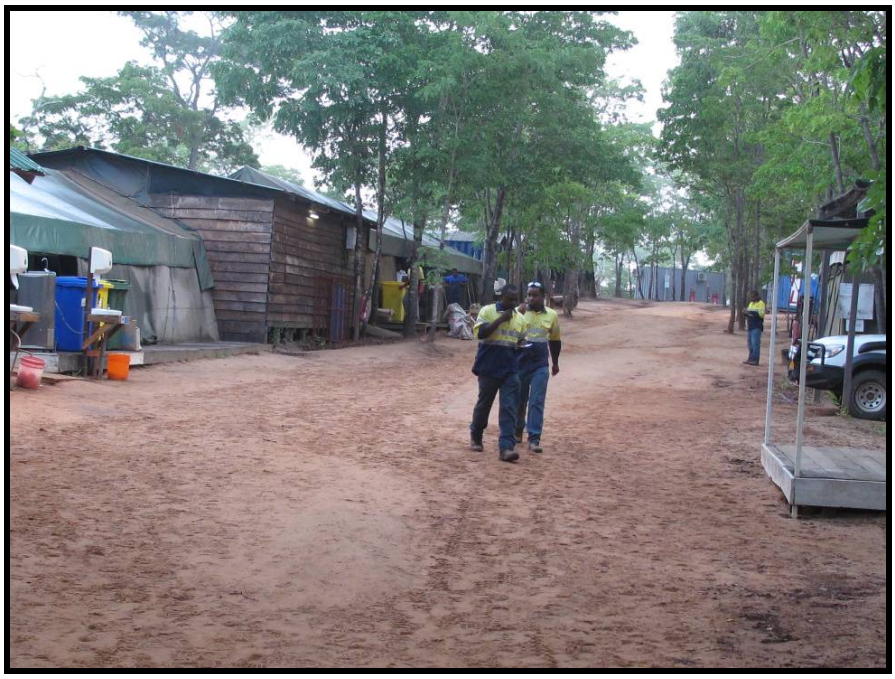


Photograph 1: Aerial view of the landscape in the interior of Selous Game Reserve. The mission team was given the opportunity to get an impression of the vast and roadless interior of Selous Game Reserve during several flights.

Photograph 2: Agriculture and settlements near Selous Game Reserve. While the Selous Game Reserve is not inhabitated the population in the adjacent areas has been strongly increasing for decades raising ever more urgent questions regarding the relationship between the World Heritage property and the surrounding landscape.

Photograph 3: Mkuju River Project. The mission visited uranium test drilling areas in the Selous Game Reserve near the revised boundaries of the World Heritage property. The location is within the headwaters of the Rufiji basin, the central river system of Selous Game Reserve.

Photograph 4: Mkuju River Project. According to current planning described to the mission tailings and overburden will be stored in a large valley fill currently covered in dense Miombo woodlands.



Photograph 5: The main camp of the Mkuju River Project is located within Selous Game Reserve in an area that was excised from the World Heritage property.

Photograph 6: The Mivumo River Lodge is a high end tourism lodge on the Rufiji River at the exit of Stiegler's Gorge in the non-consumptive tourism zone in Northern Selous Game Reserve.

Photograph 7: Proposed site of the Stiegler's Gorge dam. The reactive monitoring mission visited the location of the proposed Stiegler's Gorge dam by boat travelling upriver from the Mivumo River Lodge.

Photograph 8: Sign in Undendeule Forest Reserve near Selous Game Reserve. The sign on the border of this forest reserve contiguous with SGR illustrates that local resource use is prohibited in the reserve, as it is in SGR. The lack of legal use options for local communities is highly problematic given widespread poverty and human – wildlife conflicts near SGR.

Photograph 9: Giraffe near the Rufiji River. The system of wetlands and lakes connected to the Rufiji River, shaped by seasonal flooding, is of major wildlife importance and the basis for the non-consumptive tourism in Selous Game Reserve.