

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

185,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Towards the Reduction of Vulnerabilities and Risks of Climate Change in the Community-Based Tourism, Namibia

Selma Lendelvo, Margaret N. Angula,
Immaculate Mogotsi and Karl Aribeb

Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.79250>

Abstract

Climate change is one of the contemporary issues in the world that has proven to have direct impact on the development of different nations. Community-based tourism has been identified as a potential contributor to household security. In this chapter, the analyses were derived from regional consultations in the two regions with community members, traditional leaders, and key stakeholders. In Namibia and particularly Kunene and Zambezi regions, community-based tourism has expanded, providing employment to the residents of these communities. Similarly, there has been an increase in joint venture agreements between local communities and external investors in areas such as constructions of lodges, tented camps and tour guiding. The community-based tourism sectors in Zambezi region and Kunene region are prone to climatic hazards, in particular, frequent floods and prolonged drought. This chapter recommends inclusive climate change adaptive strategies that promote climate proof infrastructure for tourism establishment. An effective community-based tourism intervention for the Zambezi region is necessitated by a well-informed and consultative planning and execution to reduce the effects of flood. For Kunene region, community-based tourism interventions should be aimed at addressing the risks resulting from drought. It should, therefore, prioritise sustainable water security and environmental management practices.

Keywords: tourism, gender, women, climate change, vulnerability

1. Introduction

Climate change is one of the contemporary issues in the world that has proven to have direct impact on the development of different nations. Established evidence through literature and research indicates that climate change poses socio-cultural, economic and environmental threats on the continent; these impacts remain experienced at spatial and temporal scales [1, 2]. Geographic impacts of climate changes have resulted in diverse approaches for mitigation and adaptation strategies to climate change. Intergovernmental Panel on Climate Change (IPCC) also have played a role in providing crucial information for execution of well-informed planning, global policy formulation and implementation processes, aiming to address climate change [1]. The global work on climate change does not only differentiate spatially but also reflects that climate change impacts are gendered owing to the different vulnerabilities between men and women.

Climate change adaptation is more a societal than a technical issue [3]. As a result, across the globe, particularly among developing nations, studies were conducted to develop reforms for gender mainstreaming [4–12]. Gender-differentiated climate change impacts and adaptive capacity is pronounced in Namibia and is considered an important factor in a vulnerability assessment research done at local level or communal areas. However, challenges to effectively address gender-differentiated impacts continue to occur. In most cases, the impediment behind addressing these gender imbalances arises from socio-cultural systems that traditionally favoured men. Gender inequalities in many societies were not only contributed by unequal benefits from different available opportunities but also have contributed to recurrent socio-economic disadvantages among women, making them more vulnerable to disaster [12]. It is evident that the poorest nations or components of the society are most disadvantaged during variable climatic conditions, because their livelihoods are heavily depended on climate-sensitive sectors such as agriculture. In addition, women- and children-headed households also form part of the poorer segment of most developing nations. Poor households in developing nations are expected to face tougher risks due to climate change over the coming decades, especially in the form of water and food shortages as well as other key human necessities and this will lead to increased vulnerabilities [13].

Livelihood strategies among the Namibian people have also been affected by climate change over the past decades. Agriculture is so far the most important livelihood activity in the country and has been severely affected by the variable climatic conditions. Unstable yields from agriculture have resulted in various livelihood diversification approaches gaining momentum to reduce climate change risks at household and community levels. The emergence of community-based natural resources management (CBNRM) in most rural communities of Namibia broaden the utilisation of land to buffer climate change-related hazards. Most specially, rural tourism advanced from the efforts of CBNRM to uplift the local economy and consequently assist to support households and community resilience to climate change. Being a semi-arid country, climate change affects different sectors and a greater part of the Namibian population; hence, it receives high priority and support at national level. The Namibian government ensured the accreditation of a local institution, the Environmental Investment Fund (EIF), with the Green Climate Fund (GCF) to enable the country to benefit from the GCF funding packages [12, 14].

Furthermore, the government ensured that a National Policy on Climate Change outlines the need for different institutions to develop programmes and initiatives to improve adaptations and reduce exposure of men and women to climatic change impacts. In addition, climate change adaptations should be mainstreamed in legislations and legal frameworks. For instances, Namibia has successfully developed a mainstreaming strategy for the disaster risks management programmes to enable the government to respond proactively to climate hazards. Sensitivity of a community to climate change risks can be reduced considerably by improving the adaptive capacity.

The global climate change frameworks are provided by the United Nations Framework Convention on Climate Change (UNFCCC) (which Namibia is a party to) that allow for global and local engagement efforts to address climate change mitigation and adaptation programmes. The global framework has also resulted in the development of the Namibia National Climate Change Policy in 2001 to provide a framework for addressing the resilience to risks resulting from climate change in the country [14]. The capacity of both men and women to adapt and cope with climate change has been reduced over time, and this has also been shaped by the gender relations. Climate change impacts have a potential to change gender and social relations at local level either positively or negatively. In most African cultural communities, duties and responsibilities are divided among husband, wife and siblings based on stereotypes of what men and women should do and how women should behave and not necessarily based on skills or ability [15, 16].

The majority of Namibian women have limited or no decision-making power within households and community. Women's lack of decision-making, gender-power imbalance and limited control of resources has direct bearing on how they respond to climate-change impacts [17]. Up until now, most of the policies and strategies aimed at developing and strengthening climate resilience of men and women continually fail to incorporate gender mainstreaming [18] or incorrectly formulate gender risks in policy development [19]. There is still insufficient understanding of the different adaptive strategies that men and women apply in order to secure their livelihoods in the face of climate change. Understanding gendered vulnerability, coping and adaptation strategies are vital for equitable interventions that are benefiting men, women and youth.

The results of this chapter are depended on regional consultations with community members and key stakeholders. In addition, secondary information in the form of government reports and publications, baseline studies on the communities of the targeted regions and also other relevant documentation on the subject of climate change and community-based tourism in the Kunene and Zambezi regions in Namibia were reviewed. The data and documentations were obtained from various offices in Namibia. In order to understand who influences what, where, how and why, and how activities in conservancies and community forests are implemented, the Harvard Gender Analytical Framework was used. The social relations approach framework helped the authors to analyse focus group workshop findings in order to understand the existing inequalities in distribution of responsibilities and power within conservancies and community forests in Namibia. Finally, the vulnerability framework was applied to identify the exposure and sensitivity of communities on impacts of climate change as well as their adaptive capacity to respond to these impacts. As a result, the multistakeholder

consultations yielded an in-depth understanding of gender, culture, climate change vulnerability and adaptation as well as developmental challenges among communities residing in conservancies and community forest areas.

2. Study area

Namibia is a sparsely populated country situated in the south-western part of Africa (**Figure 1**) with a total population of 2,113,077 of which 57% resides in rural areas [20] with a land area of 825,615 km². The 14 administrative regions in Namibia present landscape, economic and socio-cultural diversity. The sex-disaggregated population of Namibia is 1,091,165 females and 1,021,912 males. The percentage of female-headed households in Namibia is 44% with the three northern regions of Ohangwena, Omusati and Oshana having more female-headed households compared to male-headed counterparts [20]. The socio-economic status of households in rural areas differs significantly compared to urban areas. For instance, per capita income of households is differentiated by headship US\$ 595 for female-headed and US\$ 969 for male-headed households [21]. Likewise, unemployment rates are higher for women in rural areas (41%) than in urban areas (26%). These indicators illustrate low adaptive capacity in rural Namibia in general and female-headed households in particular.

The chapter will focus on the Kunene and Zambezi regions of Namibia. The Kunene region is located on the north-west of Namibia, bordering Angola in the north and the Atlantic Ocean in the west, with a land area of 115,260 km² [2]. The Zambezi region on the other hand is on the far north-east of Namibia. Zambezi region borders with Angola, Zambia, Zimbabwe and Botswana. The land area of Zambezi region is 14,784 km² [2]. Wildlife is the main tourism product in both Kunene and Zambezi regions [22]. Tourism enterprises are generally lodges, up-market safari camps, campsites, and the associated service enterprises [22–24]. Kunene and Zambezi regions have the highest number of registered conservancies with 36 and 17, respectively [25]. **Table 1** presents the description of the climate, tourism, and natural resources profiles of the two regions derived from secondary literature.

The implementation of community-based natural resources management (CBNRM) approach in Namibia has given birth to a growing local natural resources management and tourism establishments. The first four conservancies (covering about 16,821 km²) were gazetted by the Ministry of Environment and Tourism (MET) in 1998, namely, the Nyae Nyae Conservancy (Otjozondjupa region), Salambala Conservancy (Zambezi region), and Torra and #Khoadi //Hôas Conservancies (Kunene region). Five years later, the number of conservancies in Namibia had expanded to 70,995 km² after a further 29 conservancies were gazetted by the MET by the end of 2003 [34]. The number of conservancies continued to increase in the country and by the end of 2013, a total of 79 registered conservancies had been established in different regions on communal land. In total, 43.5% of the country's surface area was under wildlife conservation by 2013, consisting of which 16.8% are state-protected areas, 6.1% freehold conservancies, 0.8% tourism concession areas, 19.4% communal conservancies and 0.4% of community forests outside conservancy areas. By the end of 2016, there were 82 communal conservancies covering 161,900 km², registered in Namibia [25, 34].

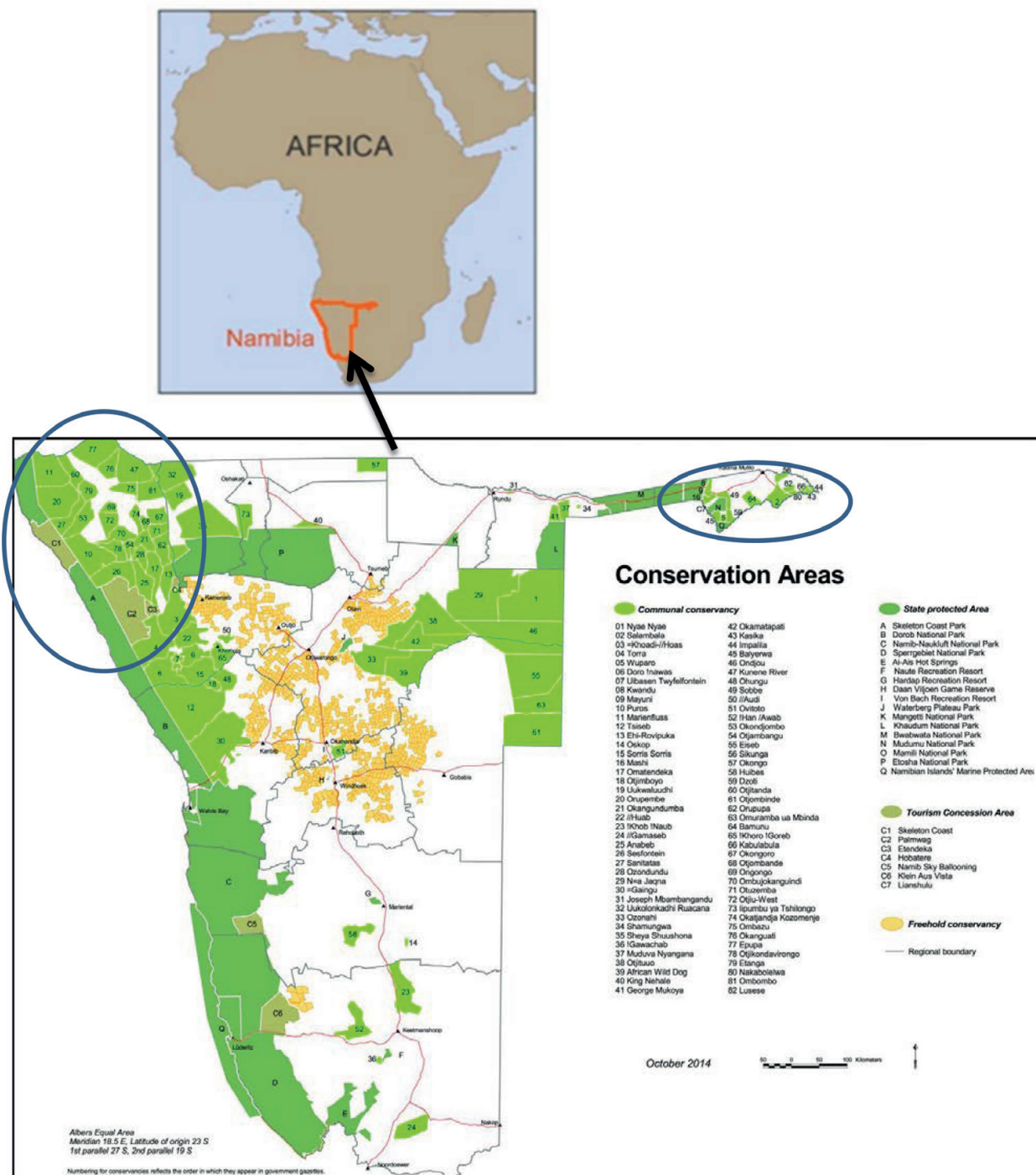


Figure 1. Namibian map showing conservation areas including communal conservancies. Circled parts represent the two study regions, Kunene and Zambezi regions [35].

In addition, the conservancy development in Namibia has also advanced community-based tourism, which benefits many rural households. By the end of 2016, conservancies had engaged in about 53 joint-venture enterprises, over a 1000 indigenous plant harvesters and also about 500 local craft producers, benefiting approximately 4000 inhabitants of the conservancies through employment and trading opportunities. In monetary terms, a combined income of US\$ 7,469,137 was generated by the conservancies and their private sector partners from the community-based tourism enterprises during 2016 [25].

Kunene region	Zambezi region
• Hosts Skeleton Coast Park as its entire western boundary with the Atlantic Ocean [26]. • Home to 86,856 inhabitants, representing 4% of the Namibian population [26, 20]. • Home to OvaHimba and Damara Ethnic groups of Namibia. • Rainfall in this region increases from north-west to north-east ranging from less than 50 to 400 mm, and is very sporadic [26]. • Possess 36 registered conservancies (44% of all registered conservancies in the country) [25]. • Boasts mountainous landscapes, semi-precious and precious minerals, underground water and springs. • 'Prides itself as the most ethnically and demographically diversified region because the OvaHimba lifestyle, tradition, values and culture have never transitioned to modernity even after centuries of colonialism' [27]. • There are wildlife species such as 'black rhinoceros, elephant, black-faced impala and Hartmann's mountain zebra' [29] and a large population of lions roaming outside National Parks' fence [28]. • Tourist attractions of value to visitors include 'unique desert dwelling large mammals [29] traditional cultures, quality of Kunene remoteness, and sense of isolation and perception of uncrowded 'exclusivity' [28, 29].	• One of the smallest regions in the country (14,785 km²) with a his population density of over 90,000 people live in this region, about 4% of the total Namibian population [30, 31]. • Have 'a fertile wilderness of riverine forests, flood plains, swamps and open woodland created by a complex network of rivers and relatively high summer rainfall' [30, 32]. • The average rainfall in Zambezi is about 700 mm and this makes it the wettest region in the country. • People in this region are subsistence farmers, mostly fisheries who make their living on the river bank of the Zambezi, Kwando, Linyanti and Chobe rivers. • Possess 17 registered conservancies (21% of all registered conservancies in the country) [25]. • Tourist attractions include the transboundary rivers, unique culture and craft of people. • The conservancies in the region benefits from the high number of tourists that frequent the area. • Popa Game Park and Bwabwata National Park are opposite to each other and have similar species of birds and animals. Furthermore, Bwabwata is a home to more than '35 large game species, including elephant, buffalo, impala, reedbuck, red lechwe, sitatunga, hippo, giraffe, zebra, and wildebeest' [33]. There are 400 recorded bird's species including 'kingfishers, herons, cormorants, African skimmers, wattled cranes, pygmy geese and African fish-eagles' [33]. All these ecosystems and their biodiversity beauty make Zambezi region an outstanding tourism destination [30, 33]. • High tourism potential in the region has attracted both domestic and international tour operators in the area who have established accommodation facilities. • The conservancies in the region benefits from the high number of tourists that frequent the area.

Table 1. Description of the regional profiles for the Kunene and Zambezi regions in Namibia.

Figure 1 illustrates the location and sizes of all registered conservancies in Namibia as at December 2016. This map also indicates conservancies from (see circles inserted) Kunene and Zambezi regions, the main focus areas for this chapter [35].

3. Projected climate change and existing vulnerabilities

3.1. Projected changes in temperature and rainfall for Namibia

According to the adaptation at scale in semi-arid regions (ASSAR) project, 'Average temperature trends in the semi-arid areas of Southern African have increased by 0.25°C per decade since 1960. Combined model results indicate a warming rate of between 0.32 and 0.38°C per decade to 2050, depending on future greenhouse gas emissions being either moderately reduced or not reduced at all. Very hot days are projected to occur about 20 times more per year in the 2030s than today. The total rainfall and rainfall extremes, projections for future rainfall are far less certain than those for temperature. However, it is likely that the rainfall variability of the recent past will continue into the future. Projections suggest that dry spells will increase in the future—the longest dry period in a year is projected to increase by about seven days in 2030 compared to today' [36, 2].

Other studies argue that projections for Namibia indicate that Namibia is exposed to the impacts of climate change. These studies further argue that mean temperatures in Namibia have increased by up to 0.5°C over the past half century and are expected to increase by a 5°C by 2100. Namibian rainfall extremes have become more frequent, and rainfall is projected to become more variable with a general trend towards decreased rainfall over the coming century [37].

The climatic and geographic climate of southern Africa, including Namibia, is prone to extreme weather and high annual rainfall variability [38]. It is projected that rainfall in southern African countries might show a decline by −0.6 mm/day with even greater annual variations by the end of the twenty-first century [39]. Recently, northern Namibia experienced long-lasting rainfalls during 2008/09 and 2010/11, which caused devastating floods [40]. On the other hand, the severe drought that Namibia experienced in 2013 had detrimental effects on many people [41].

3.2. Vulnerabilities to climate change for the community-based tourism in Kunene and Zambezi regions

Livelihoods of communities and farmers in northern Namibia have been predominantly depended on rain-fed subsistence agriculture augmented with the natural products. However, with the emergence of the community-based natural resources management approach introduced in Namibia since 1996, the benefits from wildlife, forest products and local tourism contributed to diversification of livelihoods among rural communities in the northern Namibia. The effects of climatic hazards in Namibian rural areas are severe because of the low socio-economic development and poor infrastructure. For instance, the flooding that was experienced in the neighbouring countries of South Africa, Mozambique and Zimbabwe during the year 2000 had disastrous affects, with 600 human fatalities,

200 bridges and 1000 km road damaged [38, 42]. High levels of poverty and dependency on the traditional agricultural systems also contribute to vulnerabilities towards climatic risks [41].

There are limited reports of flooding affecting the livelihoods of communities in the Kunene region, and it seems that drought may be the greatest climatic hazard. Severe drought events that were experienced in the country occurred during 1981, 1990, 1995, 1998, 2001, 2002, 2013 [41] and 2016 [42]. On the 24 June 2016, the Namibian President, Dr. Hage Geingob made a declaration and was quoted by a local newspaper, declaring a state of emergency due to severe drought experienced in the country: 'I declare that a state of emergency exists in Namibia on the account of the persisting national disaster of drought that exists in all regions of the Republic of Namibia' [43]. Another declaration of emergency due to drought was done by the Former President of the Republic of Namibia, Dr. Hifikepunye Pohamba in 2013.

'The year 2013 will always be remembered by Namibian farmers as one of the toughest and most challenging periods in 30 years due to the debilitating and devastating drought still threatening the agricultural sector and the country's food security' [44, 45].

The dependence on natural resources makes communities sensitive to climate variability, such as the extensive droughts experienced in Kunene region and annual floods in Zambezi region [46]. According to Schlechter [47], the effects of severe conditions such as drought and flood impact animal life in a negative manner, especially in conservancies where livestock and wildlife share resources. Species like hartebeest, gemsbok and the endangered black rhino were dying in the northern-west Kunene because of severe water scarcity. Migration of wild-life species to other areas in search for water is common during droughts, and this may lead to disruption of tourism activities in the region [48, 49].

The IPCC categorised the Zambezi basin as exhibiting the 'worst' potential effects of climate change risks among 11 major African basins [50, 51]. Unlike Kunene region in the far north-west, flood is by far the most common hazards in the Zambezi region involving the flooding of flood plains. In the dry season, most areas in the region can be reached by road, but after the rains, 80% of their surface area becomes flooded, cutting them off from the mainland [30, 32]. Long-term productivity of nature-based activities in the Zambezi region is affected by the frequent and heavy floods experienced. Flooding in the Zambezi region fluctuates in intensity depending on the annual rainfall received (**Figure 2**). Rainfall received during the season of 2009 resulted in the rising of the upper Zambezi River, causing severe floods that resulted in several casualties, fatalities and damage to property [52]. **Figure 2** shows that since 2007, the rainfall records indicate more frequent high rainfall followed by a below-average rainfall in 2010/2011 season.

The flood and drought hazards not only affect the agricultural livelihoods but also the nature-based tourism or ecotourism from which communities in communal conservancies earn a living. Tourism is an emerging economic activity in most communal areas of Namibia and is susceptible to natural disasters. The complexity of climate-related risks, coupled with the capacity of people in rural areas reduces the effectiveness of mitigation efforts, resulting in greater losses should a natural disaster occur. For example, developmental activities are likely to be affected by climatic events due to high water demand, poor or limited infrastructure,

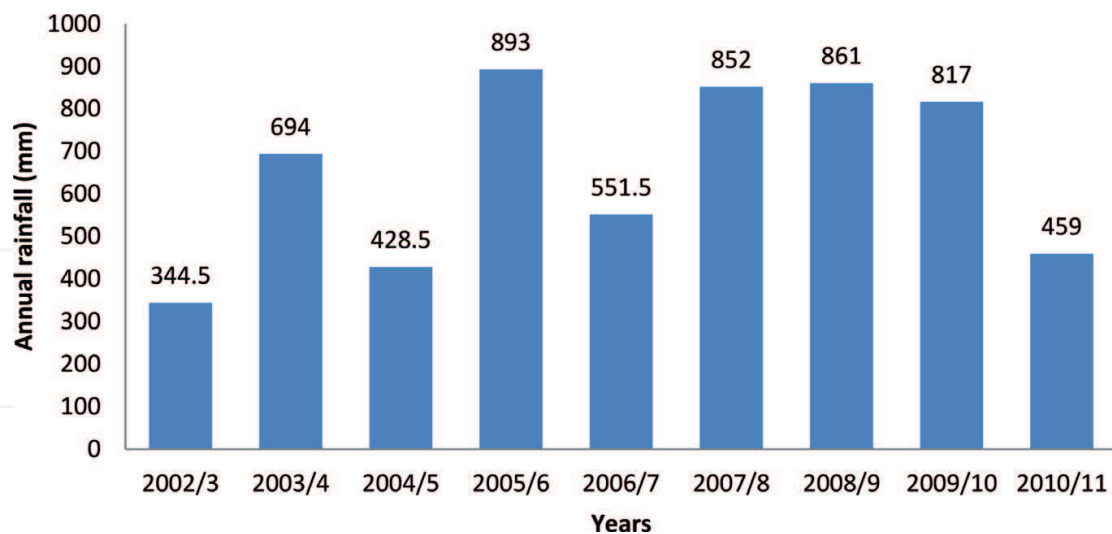


Figure 2. Annual rainfall of the Zambezi region during 2002/2003–2010/2011 rainy season [40].

degradation and disruption of land and environmental resources and human settlement patterns. Tourism in the two northern regions (Kunene and Zambezi) is primarily based on wildlife biodiversity, landscapes and cultural factors, despite the contrast of these aspects and scenery.

During the regional consultations, participants indicated climate risks that are affecting their conservancies and community forests and how these risks are affecting the tourism sector. The tourism sector and ecosystem services were indicated to be sensitive to climatic risks. Drought risks, for instance, lead to water scarcity impacting the tourism businesses, as well landscape scenery and wildlife populations upon which local tourism is depended upon. In Kunene region, veld fires and water scarcity had led to reduced operations or closure of some tourism establishment due to losses of vegetation, migration of game and in few instances, veld fires that destroyed campsite properties. This resulted in job losses and also reduced tourist visit to the region. Severe droughts lead to cancellations, reduced booked holidays and consequently, decline in tourist visitations [53].

Seasonal flooding has been identified as another climate risk that affects the tourism sector, mainly in the northern regions of Namibia. It makes roads inaccessible and also destroys tourist establishments. Disease outbreaks, in particular malaria, have been associated with stagnant waters created during flooding. However, tourist activities in the Zambezi region have been planned around its flood history in order to reduce the impacts that flooding may have on tourism in the area. For example, February–April are the months during which flooding is known to occur in this area, and these are the off-season months, when tourism activity is on its minimum. Recent intensified floods in the Zambezi region had resulted in the loss of field crops and livestock. Flooding also causes damages to infrastructure that affected many people in the region and led to the displacement of many families, a result threatening food security and livelihoods [40, 52]. Bosch [40] gave examples of the vulnerabilities within the tourism sector resulting from flooding hazards. Flooding during the year 2009 had been the worst in

40 years and had more devastating effect in the region than in the year 1969 [40]. For example, local people and tourists had to travel to and from Zambezi lodge or other reachable parking areas by boat, similarly Kalizo, Island View Lodges and Kalimbeza Fishing Camp were all only accessible by boat. In 2008, several other tourism establishments in Zambezi region were affected by the floods such as the Malyo Wilderness Camp, Camp Kwando and Namushasha Lodge's Airstrip, while in 2007, the Mukusi River Lodge was closed as the buildings were submerged in water [40].

Tourism is the source of livelihood diversification of households in both regions. Livelihood diversification strategies are important in Namibia because of the sensitivity to climate change presented in the form of semi-arid conditions. In addition, the impact of climate change on tourism business affects women more or leads to vulnerability among women through reduced earnings. In Namibia, women enjoy an advantage in the tourism workforce as well as most local-level Small-and-Medium-Sized Enterprises (SMEs) owned by women in the CBNRM sector [54]. Despite dominating the workforce, women from Kunene and Zambezi regions generally receive low wages, which make them more vulnerable to the toll of climate change. Generally, women in rural areas have limited educational qualifications, capital and access to land or property to compete with their male counterparts [55]. Many rural-based tourism opportunities have assisted women to obtain employment locally and other economic gains because they are not mobile or better skilled to migrate elsewhere.

4. Implemented measures to mitigate climate change risks and emerging gaps that need decision-making

4.1. Existing responses to reduce climate risks in Kunene and Zambezi regions

The adaptive capacity for climate change is crucial for minimising the effects that climate change may have on the community. This involves adjustments of actions and attitudes within the community to better cope with the impacts of climate change experienced. During focus group workshops with communities, coping strategies and adaptations to boost the tourism sector during drought or flooding were highlighted at different levels. The conservancy programme is hailed as a local-based institutional framework that works closely with the Namibian government to promote natural resources management and development of local-based tourism in rural communities. Most international and established local investors have been working with conservancies in developing local tourism to ensure long-lasting impacts of tourism on communities.

The responses to climate change risks on the tourism sector include improving the benefits accrued from natural resources in the event of droughts and floods. The major responses for the Kunene region in the case of drought were to particularly ensure water security for drinking, farming, business and wildlife. Initially, the response of the government has been reactive rather than proactive and long-term due to the absence of early warning information. The government spent millions in reacting to emergencies, which still left people unprepared

for the future hazards. During the 2003/2004 drought, the government spent approximately US\$ 21 million in provision of emergency relief [55]. However, recently, the responses have been geared towards adaptation and increasing the capacity among residents during such risks. The government has implemented projects in the Kunene region to drill boreholes and build earth dams in different constituencies of the region. Activities such as aquifer recharge and acquiring earth-moving equipment were among the responses suggested by communities for ensuring water security in the regions. Sustainable forest management strategies were also among the responses to prevent adverse impact of drought on tourism, emphasising mainly on the veld fire management such as putting up firebreaks and promoting sustainable harvesting of forest products through permits and capacity building. Women in the Kunene region harvest the *Commiphora* species products, which are used to produce perfumes for export and for sale to local tourists as a source of income to support their families. This initiative receives great support from government and some relevant stakeholders [56].

In terms of flooding in the Zambezi region, the Government spent about US\$ 8,241,099 on flood emergency response during 2009 [55]. Conservancies and government have also been working on adaptation strategies to reduce the impact of flooding hazards on communities, mainly providing assistance for people in lowlands to move to higher grounds permanently and promoting the use of flood resilient materials for residential and business construction. In addition, the government budget was also mainly geared towards ensuring connection and accessibility, even during floods, to different services location such as schools, hospitals, tourism areas and connecting communities. In order to sustain the source of income from the tourism sector, several strategies are employed by communities. Women from Zambezi region diversify to more drought resistance crops in order to supply the tourism-sector business outlets with local fruits and vegetables, despite the climatic events. In other areas, women travel long distances to collect antique natural products, including handcrafts that they supply to local tourism businesses. Although some products such as grass and fibre crafts are sold only by men, both men and women use different strategies to ensure the supply chain of these products. In general, the efforts in the country to increase the adaptive capacity and reducing the sensitivity to climate change risks, for both men and women, are presented in **Figure 3**.

4.2. Identified gaps and problems for building resilience

The climate change adaptation programmes and initiatives implemented should ultimately contribute to resilience of local communities and structures. The combination of the adaptive capacity assessment and the gendered social relations frameworks was used to analyse the gaps for resilience building resulting from the community consultations in the two regions. Both men and women from Kunene and Zambezi regions indicated to be accruing benefits from community-based tourism in different ways as well as participating in several activities involving natural resources management. Community-based tourism was rated in most consultations to play a crucial role in employment, training, income generation and empowerment opportunities for different segments of the communities such as the poor, unskilled and lowly educated, women, men and also the youth. A representative of the Namibia EcoAwards facilitating and promoting community-based tourism reflected on the following

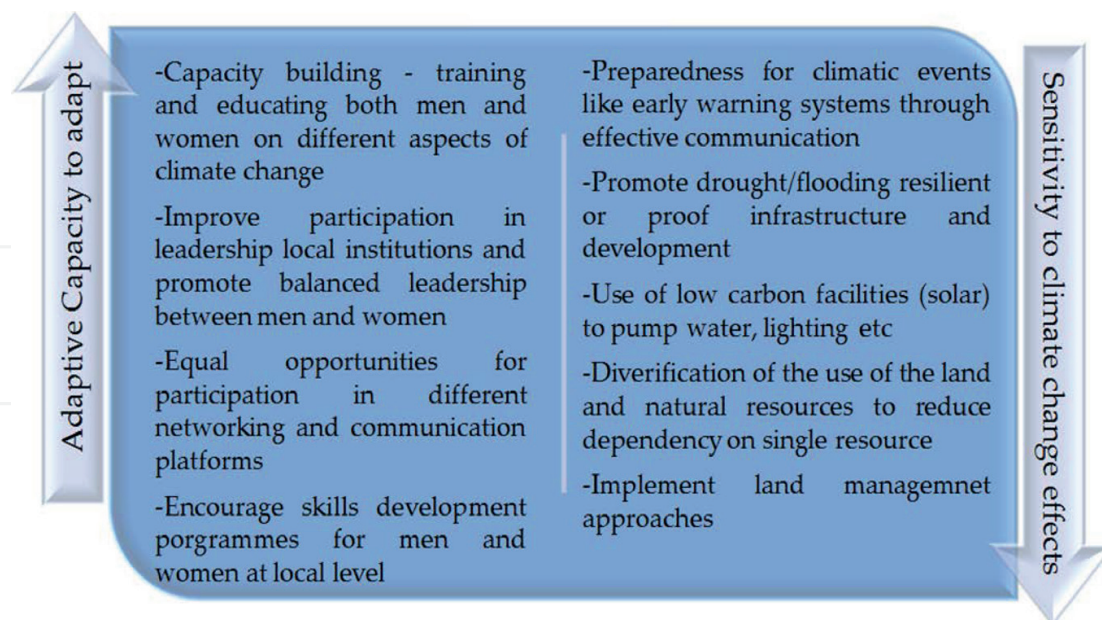


Figure 3. Key attributes for increasing the resilience of communities by increasing adaptive capacity and reducing exposure to climatic change impacts (source: authors).



Photo 1. A woman employed at a community-based tourism establish in the Zambezi region. Source: [25, 12].

‘The pillars of tourism in Namibia are women, I have seen women growing from cleaners to a quality manager within the tourism sector’. There are several stories that can be told about women employment in community-based tourism enterprises: **Photo 1** shows a woman who is a receptionist at the Camp Chobe in the Salambala Conservancy situated in the Zambezi region. This illustrates women empowerment a factor that has a potential to enhance agency and strengthen adaptive capacity of women residing in patriarchal communities. Patriarchy is dominant in Kunene and Zambezi regions.

Gaps identified from the analysis during the community consultations:

- Climate change risks and exposure affect both men and women: communities in the two regions face climate risks such as droughts, seasonal flooding, high temperatures, veld

fires and variable rainfall. The exposure to these climatic risks to the local people are also exacerbated by non-climatic factors involving population pressure, poverty levels of the people, cultural practices and belief systems and also governance-related aspects. Although men were likely to possess some levels of knowledge they use for leadership and acquiring better employment, communities in both the Kunene and Zambezi regions tend to be characterised by low levels of education and skills, which increase their exposure to these hazards.

- b. Human wildlife conflicts affecting farming and tourism operations: men and women from both regions are at the receiving end of human-wildlife conflict (HWC), which is worsened during the occurrence of the climatic events. During droughts, the water-dependent elephants cause damages as a result of water scarcity; they overcrowd water points and causing damages to water infrastructures. A community member from the Puros conservancy in the Kunene region cited their encounter on human-wildlife conflict when elephants raided homes in search of food during the 2016 drought. Women were more vulnerable to such incidents because traditionally they stay at home while men have travelled to the field with the livestock in search of pasture. The flooding periods in Zambezi put men, women and children at risks as they have to use canoes to access schools, markets and also work places. Crocodile attacks on community members are the highest during floods in Zambezi region.
- c. Gender division of labour within the tourism sector: men continue to dominate high-paying activities such as game-drive, tour-guiding and timber harvesting, while women mainly occupy low-paying jobs, such as cultural dance performers, cooks of traditional dishes, cleaners, waitresses and receptionists in the tourism accommodation establishment. Men's activities turn to be seasonal, resulting to short-term contract employment arrangements, while women's activities lead to permanent. Women are less engaged in negotiation of joint-venture deals in their communities, excluding their input on how to benefit from such ventures. Tourism joint venture negotiations remain the prerogative of men, resulting to women's views not taken into consideration. Generally, there exist lack of negotiation and legal skills among community members when entering into joint venture deals, making community member vulnerable in the process and unable to derive economic gains from these ventures. Conflict over the control over funds generated from joint ventures is a problem that is experienced and cause disruptions in the local leadership structures.
- d. Gender parities decision-making and leadership in community-based institutions: although Namibia is historically a patriarchal society, great strides had been made in local-based institution and tourism initiatives to engage women in leadership position. The Kunene and Zambezi regions are generally the strongest regions in practicing traditional values, which support the male domination in leadership. There are still some scattered instances in the two regions where women prefer to rely on their husbands for information, thus perpetuating gender inequality. However, through empowerment efforts, women have started forming part of leadership structures in these two regions. On average, 35% of women are conservancy committee members and the majority of the

women are in treasurer or secretary positions? [44]. Despite, being reluctant to take up leadership positions, women tend to show high level of participation in several voluntary community initiatives.

- e. Cultural barriers to adaptations to building resilience in the community-based tourism: Kunene region experiences cultural myths and perceptions that emerged as one of the biggest obstacles in obtaining gender equality among the OvaHimba community. There is a tendency to frown upon men who do not participate in male-dominated activities and on women who talk openly in meetings.

In both Kunene and Zambezi regions, the gender division of labour is rigid, where women are expected to be nurturers and men to be providers. For example, women are expected to stay at home and look after the household and children, while men are working outside the home. Both men and women lack the desire to diversify their livelihood and engage in activities that are not common in their cultures. Culture and slow attitudinal changes remain the key challenges to adaptation and building resilience in people of the Kunene and Zambezi Regions. Women attend meetings but do not contribute constructively owing to cultural norms that inhibit women to dominate discussions in public or to specific in the presence of men. A greater gap still exists between men's and women's roles in the conservancy and tourism enterprises.

The adaptation strategies that are generated through the analysis are used in the Harvard Gender Analytical Framework and the Social Relations Approach Framework to analyse the complexities in building resilience among communities in these regions. There is a need to find mechanisms to address issues that are hindering resilience building among communities through various programmes to sustain adaptation measures to reduce the impacts of climatic events on the contribution of tourism on communities. Local institutions such as conservancies are evidently important arrangement to reduce the vulnerability to climate change impacts through collective capacity building, income generation, empowerment, social networking, and lobbying agent for community members. The active participation of women in local institutions, either by attending meetings or being voted into leadership position, allows them to be part of a collective voice, leading to strengthening of common identities and local democracy. It is also believed that this will lead to collective learning and equal accessing of information for both men and women. Although women's representation on committees and attendance during meetings is strong, the views of women are still often not taken as seriously as those of men at meetings and other important platforms such as negotiation and or review of tourism joint venture contracts.

5. Conclusion

To this end, the book chapter has presented an assessment of gendered vulnerabilities in CBNRM focusing on Kunene and Zambezi regions of Namibia. The National Climate Change Strategy and Action Plan (NCCSAP) clearly indicates that climate change adaptation in Namibia especially among rural communities is crucial. The approach to address

vulnerabilities should consider that our societies are facing inequalities that could hinder the effectiveness of climate change adaptation efforts, and therefore, there is a need for responses to climate change risks to be gendered. In order to ensure that adaptation efforts are sustained, gender-responsive actions/activities that address and strengthen the inclusion of all members of the society including the most vulnerable women and men in local-level natural resources management and tourism sector should be implemented. The gender-responsive actions/activities should be designed in association with gender performance indicators and sex-disaggregated targets linked to the results framework that would guide the Monitoring and Evaluation (M&E) of the initiatives.

Additionally, the involvement of men and women must also consider marginalisation, age and social status of individuals in a given community in order to be inclusive. The methods of consultation must recognise existing cultural barriers in order to ensure women are represented as well as collaborating with local NGOs that work with women and other marginalised communities. Where there are disparities in capacities, training is recommended in order to participate meaningfully. In order to build a resilient community, the gender disparity between men and women in accessing information and capacity building opportunities should be addressed through gender-responsive initiatives. They should provide community wide training on critical areas to ensure equitable sharing and benefit of resources. For instance, they should provide legal training or support to local communities to improve negotiations of joint-venture partnerships. Therefore, in order to address impacts of climate change in the community-based tourism in Namibia, there is a need to identify and enhance synergies between mitigation actions and the adaptive capacities of women and men to deliver long-term benefits.

List of acronyms

ASSAR	Adaptation at Scale in Semi-Arid Regions
CBNRM	Community-Based Natural Resource Management
EIF	Environmental Investment Fund
GCF	Green Climate Fund
IECN	Integrated Environmental Consultants Namibia
IFRC	International Federation of Red Cross and Red Crescent Societies
IPCC	Intergovernmental Panel on Climate Change
M&E	Monitoring and Evaluation
MET	Ministry of Environment and Tourism
MGECW	Ministry of Gender Equality and Child Welfare
NACSO	Namibian Association of CBNRM Support Organisations

NCCSAP	National Climate Change Strategy and Action Plan
NGOs	Non-Governmental Organisations
NSA	Namibia Statistics Agency
SDGs	Sustainable Development Goals
SME	Small-and-Medium-Sized Enterprises
UNAM/SARDC	University of Namibia/Southern Africa Research Documentation Centre
UNFCCC	United Nations Framework Convention on Climate Change

Author details

Selma Lendelvo^{1*}, Margaret N. Angula², Immaculate Mogotsi¹ and Karl Aribeb³

*Address all correspondence to: slendelvo@unam.na

1 Multidisciplinary Research Centre, University of Namibia, Namibia

2 Faculty of Humanities and Social Sciences, University of Namibia, Namibia

3 Environmental Investment Fund of Namibia, Namibia

References

- [1] IPCC. Climate change 2014: Synthesis report. In: Pachauri RK, Meyer LA, editors. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, UK: Cambridge University Press; 2014
- [2] Namibia Statistics Agency (NSA). Namibia Census of Agriculture 2013/2014: Communal Sector Report. Windhoek: Ministry of Agriculture, Water & Forestry; 2015
- [3] Petzold J, Ratter BMW. Climate change adaptation under a social capital approach—An analytical framework for small islands. *Ocean & Coastal Management*. 2015;**112**(112):36-43
- [4] Dankelman I. Climate-change: Learning from gender analysis and women's experiences of organising for sustainable development. *Gender and Development*. 2010;**2**:21-29
- [5] MacGregor S. Gender and climate change: From impacts to discourses. *Journal of the Indian Ocean Region*. 2010;**6**(2):223-238
- [6] Babugura A. Gender and Climate Change: South Africa Case Study. Cape Town, Southern Africa: Heinrich Böll Stiftung; 2010
- [7] Mogotsi I, Lendelvo S, Angula M, Nakanyala J. Forest resources management and utilization through a gendered lens in Namibia. *Environment and Natural Resources Research*. 2016;**6**(4):79-90

- [8] Otzelberger A. Gender-Responsive Strategies on Climate Change: Recent Progress and Ways Forward for Donors. United Kingdom: University of Sussex, IDS & BRIDGE; 2011
- [9] Goh AHX. A Literature Review of the Gender-Differentiated Impacts of Climate-Change on women's and men's Assets and Well-Being in Developing Countries. CAPRI Working Paper No. 106. Washington, DC: International Food Policy Research Institute; 2012. DOI: 10.2499/CAPRIWP106
- [10] Moosa CS, Tuana N. Mapping a research agenda concerning gender and climate change: A review of the literature. *Hypatia*. 2014;**29**(3):676-694
- [11] Angula MN, Menjono E. Gender, culture and climate change in rural Namibia. *Journal for Studies in Humanities and Social Sciences*. 2014;**3**(1&2):225-238
- [12] Mogotsi I, Lendelvo S, Angula M. Gender Assessment Report for the EDA Project. Windhoek: Environmental Investment Fund; 2017b
- [13] ASSAR (adaptation at scale in semi-arid regions). In: Gendered Vulnerabilities to Climate Change: Insights from the Semi-Arid Regions of Africa and Asia. ASSAR Information Brief. Ottawa: CARIAA; 2016
- [14] Mogotsi I, Lendelvo S, Angula M. Gender Desktop Review for the EDA Project. Windhoek: Environmental Investment Fund; 2017
- [15] Ambunda L, de Klerk S. Women and customs in Namibia: A research overview. In: Ruppel OC, editor. *Women and Custom in Namibia: Cultural Practice Versus Gender Equality*. Macmillan Education Namibia: Windhoek; 2008
- [16] Babugura A. Gender and Climate Change: South Africa Case Study. Southern Africa: Heinrich Böll Foundation; 2010. Retrieved: <https://www.boell.de/en/navigation/climate-energy-South-Africa-9074.html>
- [17] Iipinga EM, LeBeau D. Beyond Inequalities: Women in Namibia. Windhoek and Harare: UNAM/SARDC; 2005
- [18] Alston M. Gender mainstreaming and climate change. *Women's Studies International Forum*. 2014;**47B**:287-294. DOI: 10.1016/j.wsif.2013.01.016
- [19] Arora-Jonsson S. Forty years of gender research and environmental policy: Where do we stand? *Women's Studies International Forum*. 2014;**47(B)**:295-308
- [20] Namibia Statistics Agency (NSA). Namibia 2011 Population and Housing Census Main Report. Windhoek: Namibia Statistics Agency; 2011
- [21] Central Bureau of Statistics. A Review of Poverty and Inequality in Namibia, Windhoek: Central Bureau of Statics. Windhoek: National Planning Commission; 2008
- [22] Ashley C. The Impacts of Tourism on Rural Livelihoods: Namibia's Experience. London: Chameleon Press; 2000
- [23] Massyn PJ, Humphrey E, Grossman D. Tourism Scoping Report—Kunene people's Park. Windhoek: Ministry of Environment and Tourism; 2009

- [24] NACSO. Namibia's Communal Conservancies: A Review of the Progress and Challenges in 2011. Windhoek: NACSO; 2013
- [25] NACSO. The State of Community Conservation in Namibia—A Review of Communal Conservancies, Community Forests and Other CBNRM Initiatives (2016 Annual Report). Windhoek: NACSO; 2016. Retrieved from: <http://www.nacso.org>
- [26] MET. Management Plan: Skeleton Coast National Park. Windhoek, Namibia: Ministry of Environment and Tourism; 2013. Retrieved: [www.met.gov.na/Skeleton Coast Management Plan.pdf](http://www.met.gov.na/Skeleton%20Coast%20Management%20Plan.pdf)
- [27] National Statistics Agency (NSA). Population and housing census: Kunene regional profile. In: Basic Analysis with Highlights from 2011 Census. Windhoek: NSA; 2014
- [28] Massyn PJ, Humphrey E, Grossman D. Tourism scoping report—Kunene peoples park. Prepared for: Ministry of Environment and Tourism, Directorate of Parks and Wildlife Management; 2009. <http://www.the-eis.com>
- [29] www.met.gov.na/about-met/wildlife-and-national-parks/272
- [30] International Federation of Red Cross and Red Crescent Societies (IFRC). Cost-Benefit Analysis Study Zambezi Region: Livelihoods Preparedness Intervention. Switzerland: IFRC; 2016
- [31] National Statistics Agency (NSA). Population and housing census: Zambezi regional profile. In: Basic Analysis with Highlights from 2011 Census. Windhoek: NSA; 2014
- [32] www.travelnewsnamibia.com/destinations/kavango-and-zambezi/zambezi-region/
- [33] www.travelnewsnamibia.com/featured-stories/another-form-paradise-nambwa/
- [34] [Registered conservancies in Namibia] (n.d). Retrieved from: <http://www.nacso.org>
- [35] [Namibian map showing conservation areas] (August 2017). Retrieved from: <http://www.nacso.org.na/resources/conservation-areas-map-a3>
- [36] ASSAR (Adaptation at Scale in Semi-Arid Regions). Planning for climate change in the semi-arid regions of southern Africa. In: ASSAR Information Brief #1. Ottawa: CARIAA; 2015
- [37] Spear D, Baudoin M, Hegga S, Zaroug M, Okeyo A, Haimbili E, Angula M. Vulnerability and adaptation to climate change in southern Africa. In: ASSAR Working Paper. Ottawa: CARIAA; 2014
- [38] Fauchereau N, Trzaska S, Rouault M, Richard Y. Rainfall variability and changes in southern Africa during the 20th century in the global warming context. *Natural Hazards*. 2003;**29**:139-154
- [39] Jury MR. Climate trends in southern Africa. *South African Journal of Science*. 2013; **109**(1/2):980
- [40] Bosch N. Flooding Caprivi. 2011. Retrieved from: <http://www.caprivi.biz/flooding.html>

- [41] Masih I, Maskey S, Mussá FEF, Trambauer P. A review of droughts on the African continent: A geospatial and long-term perspective. *Hydrology and Earth System Sciences*. 2014;**18**:3635-3649
- [42] UNICEF Namibia Humanitarian Situational Report. 2017. Retrieved from: https://www.unicef.org/yemen/YEM_sitreps_Dec2017.pdf
- [43] Kahiurika N. President Declares Drought an Emergency. *The Namibian Newspaper*. 2016. Dated: 2016-06-30
- [44] Staff Report. The Worst Drought in Memory. *New Era Newspaper*; 2013
- [45] <https://reliefweb.int/report/namibia/worst-drought-memory>
- [46] Integrated Environmental Consultants Namibia (IECN). Dealing with climate change: A community information toolkit on adaptation. A Resource Package Developed for Farmers and Natural Resource Users in the Kunene Region, Namibia. Windhoek: Ministry of Environment and Tourism; 2011
- [47] Staff Reporter. Drought kills rhino calf in Kunene. *New era newspaper report*. 2017, January 17. Retrieved from: <https://www.newera.com.na/2017/01/17/drought-kills-rhino-calf-in-kunene/>
- [48] Turpie J, Midgley G, Brown C, Barnes J, Pallet J, Desmet P, Tarr J, Tarr P. Climate Change Vulnerability and Adaptation Assessment for Namibia's Biodiversity and Protected Area System. Windhoek: Ministry of Environment and Tourism; 2010
- [49] Kapolo IN. Drought Conditions and Management Strategies in Namibia. Windhoek, Namibia; n.d
- [50] Kaseke E. Zambezi basin strategic planning in the context of a changing climate overview. Presentation. Harare: Zambezi Watercourse Commission; May 2016
- [51] Schlosser CA, Strzepek K. Regional climate change of the greater Zambezi River basin: A hybrid assessment. *Climatic Change*. 2015;**130**:9-19
- [52] Long S, Fatoyinbo TE, Policelli F. Flood extent mapping for Namibia using change detection and thresholding with SAR. *Environmental Research Letters*. 2014;**9**(3):035002
- [53] Thomas DSK, Wilhelmi OV, Finnessey TN, Deheza V. A comprehensive framework for tourism and recreation drought vulnerability reduction. *Environmental Research Letters*. 2013;**8**:8
- [54] NACSO. Community Conservation in Namibia: A Review of Communal Conservancies, Community-Forests and Other CBNRM Initiatives. Windhoek: NACSO; 2015
- [55] Ishila J, Zeidler J. Adaptation working group (AWG), investment and financial flows (I&FF) assessment. In: *Climate Change Adaptation Viewpoints Namibia Series*, Vol. 1(1). Windhoek: Ministry of Environment and Tourism; 2010
- [56] Lendelvo S, Munyebvu F, Suich H. Linking Women's participation and benefits within the Namibian community-based natural resources management program. *Journal of Sustainable Development*. 2012;**5**(12):27-39

