

Key considerations: bushmeat in the border areas of South Sudan and DRC

In the context of the current Ebola outbreak in the Democratic Republic of Congo (DRC), May 2019, this brief summarises key considerations about bushmeat (meat derived from wild animals for human consumption) in the context of preparedness activities in South Sudan. The brief details the socio-cultural and socio-economic significance of bushmeat amongst at risk communities and perceived risks of Ebola transmission through bushmeat. Its geographic focus rests on South Sudan's south-western border with the north-eastern border of the DRC, where Yambio is the state capital and primary population hub. Key considerations and recommendations are tailored for this specific area, and may not be necessarily generalisable for other parts of South Sudan or beyond.

The brief is presented in two sections. 'Section A' focuses on bushmeat in light of the immediate risk of Ebola transmission from the active outbreak in the DRC to South Sudan (i.e., cross-border human-to-human transmission and in relation to the bushmeat trade). 'Section B' focuses more broadly on bushmeat in this specific geographic area, and the longer-term risk of a new Ebola or other infectious disease outbreak in South Sudan, as related to local bushmeat practices (i.e., unrelated to the current outbreak in DRC). The structure of this brief is designed to separate these issues and to support response partners to differentiate between the priorities for immediate preparedness activities underway in South Sudan and longer-term prevention actions.

Zoonotic knowledge about Ebola continues to improve but remains contested. Despite these limitations, however, preparedness and response must be based on the available evidence. There have been three previous outbreaks of Ebola in Sudan: 1976, a recurrent outbreak in 1979, and 2004. All occurred in the specific geographic area covered by this brief, a dense forest habitat where research over the past four years has revealed wildlife populations that are believed to be carriers of Ebola. Communities across this area actively hunt, poach, handle and consume local bushmeat.¹ These factors are likely to have reinforced current local concerns about the perceived relationship between Ebola and bushmeat. It must be emphasised, however, that overly focusing on bushmeat risks distracting from other more important dynamics for epidemic preparedness and control. Links between bushmeat and Ebola are much more fragile than often thought, and at a time of crisis it is most important to maintain trust and openness with communities. Against this backdrop, public health engagement in this border area of South Sudan converges with political stability, peacebuilding and development, livelihoods, food security and the management of natural resources including wildlife conservation. A balance must be struck between what is sustainable ecologically and what is 'safe' in terms of infectious disease.

The brief was developed by Adrian Garside (King's College London) with support from Ingrid Gercama and Juliet Bedford (Anthrologica). It draws on expert advice from colleagues focusing on bushmeat and emerging infectious disease in the region; a rapid review of existing published and grey literature; interactions with government and traditional authorities, wildlife rangers and community members in the border areas; communication with experts responding to the current Ebola outbreak in DRC and leading preparedness activities in South Sudan; and lessons learnt from previous Ebola outbreaks. To complement and supplement the review, participatory rural analysis from an at-risk border community (Ndoromo) was reviewed, and Adrian Garside held focus group discussions with semi-urban and rural communities (Bangangai) in March 2019. This fieldwork builds on empirical evidence that he has gathered since 2011, working with communities in the South Sudan-DRC border area to focus on socio-cultural issues associated with wildlife, hunting and bushmeat practices, and the socio-economic issues around poaching and the bushmeat trade. It also draws on research conducted in the remote cross-border markets and on the pattern of human movement across this porous border.

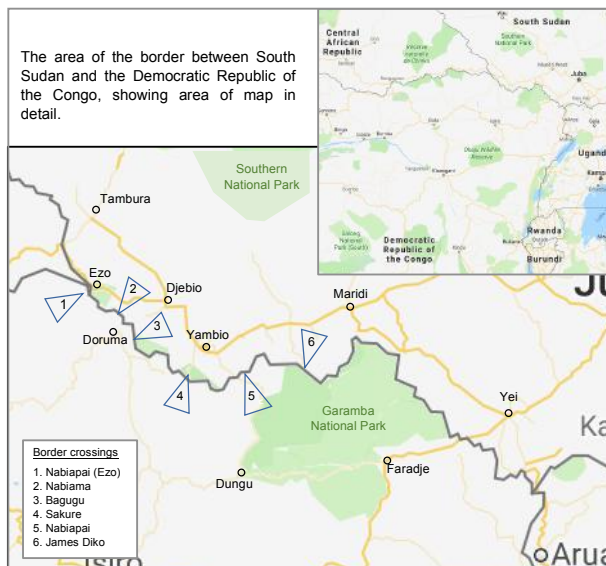
The brief was developed in response to a request from the South Sudan EVD Risk Communication, Social Mobilisation and Community Engagement (RCSMCE) Technical Working Group (TWG), the South Sudan National Task Force for Ebola (NTF) and the UNICEF Country Office in South Sudan. It aims to provide actionable recommendations based on a realistic analysis of the available, local resources. It is one of a series of briefs focusing on cross-border relations and preparedness efforts between DRC and neighbouring at risk (priority one) countries. Broader contextual issues are addressed in the forthcoming brief 'Cross-border Dynamics between South Sudan and the DRC'.² Prior to its finalisation, additional inputs and comments were provided by DeeAnn Reeder (Bucknell University), Tim Allen (London School of Economics), Théodore Trefon (Royal Museum for Central Africa), Melissa Parker (London School of Hygiene and Tropical Medicine), Tamara Giles-Vernick (Institut Pasteur), Naomi Pendle (London School of Economics), Melissa Leach (Institute of Development Studies), James Fairhead (University of Sussex), Paul Richards (Njala University), Daniel Cohen (Maccabee Seed Company), Lizz Yocum (UNICEF West and Central Africa Regional Office), Charles Kakaire (UNICEF East and Central Africa Regional Office), Satyajit Sarkar and Gopinath Durairajan (UNICEF South Sudan Country Office), and Sandra Banks (South Sudan Red Cross and University of Juba). The brief is the responsibility of the Social Science in Humanitarian Action Platform (SSHAP).

Section A: Bushmeat and the transmission of Ebola from the DRC outbreak into South Sudan

Since August 2018, the South Sudan National Task Force for Ebola, with support from international and national partners, has undertaken a range of preparedness activities aimed at preventing the transmission of Ebola into South Sudan from the active outbreak in North Kivu and Ituri Provinces in the DRC. As part of these measures, messaging about the risk of Ebola transmission through infected bushmeat from certain wildlife (bats, monkeys, antelopes) was introduced and emphasised risks associated with bushmeat handling. In February 2019, reports indicated that the bushmeat trade and bushmeat consumption was continuing 'as normal' in the border area of South Sudan and DRC. At the time of writing, the South Sudan EVD Risk Communication, Social Mobilisation and Community Engagement (RCSMCE) Technical Working Group (TWG) and its partners were developing a series of new messages and communication strategies. The following key considerations and related recommendations are offered in support of the ongoing preparedness strategy and communication efforts.

Key considerations

- **Risk of transmission of Ebola from DRC to South Sudan** – The transmission of Ebola into South Sudan from the current outbreak in DRC is very unlikely to occur in bushmeat itself. Rather, the risk of transmission is through human-to-human contact involving an infected person(s). Bushmeat is only a risk because it brings humans into contact with each other across the South Sudan-DRC border. It must be noted, however, that bushmeat is not the primary commodity that is traded across this border. Other more frequently traded commodities include maize, flour, ground nuts, dried fish, locally-brewed alcohol, wooden furniture, washing powder and soap, etc. Therefore, human interaction through trade is the issue that needs to be addressed, rather than bushmeat itself.
- **Porous borders** – South Sudan's border with the DRC is inhabited almost exclusively by the Azande, South Sudan's third largest ethnic group.³ The greater Zande population extends across the border area from South Sudan into north-eastern DRC (Haut Uele and Bas Uele districts) and south-western Central African Republic (Haut Mbomou). The border is extremely porous: daily movement back and forth occurs for a variety of socio-economic reasons resulting from familial and livelihood connections.⁴ Some families from South Sudan who fled during the fighting that began there in 2015 remain in DRC today. This tri-national border area would be better perceived as a borderland zone, rather than a borderline which would be impossible to effectively control and monitor through the dense forest.
- **Lack of infrastructure** – The level of under development in this border area follows decades of systematic repression from Khartoum and, more recently, the five years of civil war that has led to the present situation. By road, Yambio is only 420km from Juba, but insecurity has closed this route for all except a few protected convoys. Prior to the fighting, the deterioration of the roads made this a 15-hour journey at best. In the former Western Equatoria, there are only dirt roads and towns can become quickly inaccessible during the height of the wet season (August-October). Only the main urban centres (Yambio, Maridi, Tambura) have a telephone network, but it is poor with often only limited connectivity. The recent decline in infrastructure and the lack of affordable or available radios and batteries has notably reduced the practice of listening to the radio in remote rural communities in this area.⁵
- **Conflict dynamics** – The tri-border area has been the focus of periods of violent conflict over several years. It was designated a 'safe' route for civilians fleeing the second Sudanese civil war (1983-2005). Since the formation of community defence groups during the era of the Lord's Resistance Army (the LRA was most active in the area between 2007–2011), the Sudan People's Liberation Army (SPLA), the Armed Forces of the Democratic Republic of Congo (FARDC) and UN Missions in both countries have been unable to protect the rural border communities. Fluid conflict dynamics have continued to evolve in South Sudan since independence in July 2011. The return to civil conflict in South Sudan began in December 2013, and since 2015, the violence has been concentrated across the Equatorias.⁶ The forested borderland continues to provide a mix of safety, unhindered cross-border movement, trade and trafficking opportunities for a variety of actors on different sides of the fighting.
- **Bushmeat-related activity** – The Azande have long had a reputation for being prolific consumers of bushmeat.⁷ Communities in this area have hunted bushmeat rather than maintain livestock (due in part to the tsetse fly belt that extends into much of this area). Over decades, they have become nutritionally reliant on bushmeat as the preferred and primary source of protein in their agrarian diet. This applies to all sectors and levels of local society, which remain skeptical about bushmeat restriction campaigns. The bushmeat trade involves a chain of activities based on supply and demand stretching from the deep bush to urban population centres. The town of Yambio represents the primary demand for bushmeat in this area, with the neighbouring states' capitals of Tambura and Maridi (not in Zandeland), also providing centres for their bushmeat trades. There is a well-established chain of bushmeat handlers from the hunter/poacher who kills the animal and usually butchers, smokes and carries the meat, to the traders and those who further prepare it for consumption.⁸ Rather than the bushmeat itself, therefore, the low risk of transmission of Ebola from the current outbreak is related to the chain of human-to-human transmission from the rural borderland to the urban centres inside South Sudan (in the event that Ebola spread north in DRC).
- **Increase of the bushmeat trade** – The recent conflicts politicised the issue of bushmeat across the country for combatants, government authorities and the wider population. During the more intense periods of insecurity along the border, poaching became too risky as 'the sound of the gun' could bring unwanted military attention and poaching/hunting requires weapons and ammunition often accessed illicitly. However, the Revitalized Agreement on the Resolution of the Conflict in South Sudan (R-ARCSS, September 2018) has, over recent months, led to growing (although still fragile) political stability in this border area which, alongside ongoing food insecurity caused by the conflict, has increased the local trade in bushmeat. Against the country's backdrop of ongoing financial crises, bushmeat continues to provide one of only a very few economic opportunities to local communities. It is normal that increased security will allow for a corresponding rise in hunting/poaching compared with that conducted during periods of political violence.⁹



Map prepared by Adrian Garside

Key recommendations

- **Changing the bushmeat message** – This brief advises against a blanket ban on bushmeat, which would be completely unsustainable in this agrarian society. Much of the current messaging about Ebola and bushmeat in South Sudan has aimed to raise awareness about its perceived relationship with certain wildlife species and the risks involved in the bushmeat handling

process. Local enforcement agencies, who lack capacity regarding this complex issue, have taken this to mean a bushmeat ban should be imposed. Similarly, evidence generated during focus group discussions with urban, rural, government and community representatives (March 2019) suggested their consensus that messaging should be simple and firm, i.e. advocating for a total bushmeat ban rather than messaging which included naming individual species that could be hunted. This, it was suggested by discussion participants, would lead to confusion and 'trickery' and could undermine a strategy for improved bushmeat-related activities. The assumption of a total bushmeat ban is in contradiction to expert recommendations and also at odds with lessons learnt from the West Africa Ebola outbreak (2014-2016).¹⁰ Communication should focus on human-to-human transmission rather than bushmeat. A strategy to reverse the current general ban on bushmeat in South Sudan should avoid appearing to re-legitimise all bushmeat, as this could cause a rush of trade interactions. Rather, shifts in messaging and their resulting impact should be carefully monitored and timed with the availability of other protein (e.g. beef). As knowledge continues to develop at the community level regarding Ebola risk factors (through broader communication), messaging about bushmeat should focus on raising awareness about carrier species and improving bushmeat-related activities. Communication should be developed and tested with key communities, should be based on evidence from the latest scientific research, and be regularly reviewed and adapted in light of newly emerging information.¹¹

- **Underground trade in bushmeat** – The current messaging about bushmeat has not stopped the trade, rather it has pushed it underground making it more difficult to monitor and address. Government-led messaging and enforcement operations conducted primarily by the Wildlife Service and Police have closed the bushmeat markets in Yambio and reportedly at a number of rural and cross-border locations. In Yambio, this has simply pushed the trade 'underground'. At the time of writing, bushmeat was being sold door-to-door, often cutting out the middle-men. Direct transactions between poachers and consumers has ensured that bushmeat remains a good economic option for both groups. Some traders continue to be involved with transactions on street corners and 'safe places'.¹² Communication messages need to acknowledge this enforced situation and specifically target those groups that are now perceived to be party to a more illicit network, but which could form an important communication link between urban and rural populations. Engagement with these groups should focus on raising awareness about safer bushmeat handling practices, reporting unusual signs of sick/dead wildlife, and conveying information on sickness in people (e.g., basic community-based surveillance).
- **Conflict-sensitive communication** – Any strategy to be implemented in this cross-border area, must be designed and conducted in a conflict-sensitive manner and within the context of fluid security dynamics where perceptions of who has 'authority' and who is 'government' are contested. Therefore, the strategy should be one of all actors 'pulling together' for the health of the whole population. This requires a high degree of trust and it will be essential that local actors are visible in the Ebola effort (discussed further below). Like many parts of South Sudan, Azande society has become very militarised in response to decades of civil war and instability. Even in remote areas, direct (clear-cut) messaging draws a positive response, so long as it is passed through local authorities (i.e. rather than being perceived as a national directive), is well explained and appears logical.¹³ It is worth noting that the Wildlife Service and Police, who may be involved in a variety of cross-border activities, are locally recruited: in this area, personnel are recruited from the south-western area of South Sudan. Although they are part of the complex security architecture, the fact that they are perceived to be local (i.e. fellow Equatorians) can facilitate the de-escalation of possible tension. Wildlife Ranger Posts at the two local game reserves, Bangangai and Bire Kpatuos, could assist the Ebola prevention / preparedness teams deployed in their vicinity. The Ebola team at Basukingbe could push forward to cover the route from Bagugu (Wednesday market), where the track divides to Nzara or Nyesi. The Ebola team at Bangangai could move forward about 3km and co-locate with that Ranger Post which covers the route to Nabiama Market (Thursday market). The market at Nabiapai/Ezo (weekends) would need specific cover as several tracks lead to and from it.
- **Mode of communication** – Given the lack of infrastructure, communication strategies must not rely on technical solutions that may be available elsewhere in the region (e.g. WhatsApp messaging, radio penetration, mobile telephone communication, text messages). To date, an emphasis has been put on radio messaging, yet infrastructural support may be required for remote communities to receive better quality radio transmission from Yambio FM and ANISA FM (the radio network of the Catholic Diocese of Yambio and Tambura). In addition, the provision of radios (either wind-up or new radios with a supply of batteries) will be required if such rural communities are to receive more frequent radio communications. If and when radio communication has been established with rural communities, it should be in addition to (rather than replace) face-to-face dialogue and communication carried out by risk communication and community engagement partners. Previous research in this region has indicated that radio messaging in isolation can lead to increased local anxieties that further affect social and political structures.¹⁴
- **Two-way information flow** – A two-way flow of information should be quickly established whereby key messages and information can be cascaded to at risk communities whilst the population contributes to community-based surveillance mechanisms, reporting to authorities information about suspected cases or unusual cross-border activity. Lessons learnt from an INGO working amongst remote communities in this border area suggest that providing a motorcycle and fuel under contract, for example to Payam Administrators (town-level local government authorities), could be the most effective way to immediately facilitate communication flow from the rural areas. Establishing clear protocols is important here: it should be made clear that the motorcycle would be strictly for information reporting purposes only, and not for carrying suspect cases to treatment centres.
- **Language** – Juba Arabic is the most widely spoken language amongst the urban populations living in this area, although local languages such as Zande are often preferred. The use of local languages is essential for direct communication with affected and at-risk remote communities. Zande is a largely phonetic language, so written notices should be provided in Zande and English. Other local languages spoken around Maridi include Avokaya / Avukaya / Abukeia, Baka, Morokodo and Mündü, and around Tambura include Belanda Bor and Belanda Viri. On the DRC side of the border, Avokaya is also spoken (and has a number of dialects), Lingala is limited to the larger urban centres, and Bangala is widely used for trade.
- **Cross-border movements and traders** – As highlighted above, it is the cross-border movement that represents the greatest risk of an imported case of Ebola to South Sudan from the current outbreak in DRC. Despite cross-border collaboration, there appears to be a notable lack of communication and shared knowledge about cross-border movements. This needs to be improved through decentralised information sharing: for example, it may be more appropriate and effective for the State Task Force in Yambio to communicate directly with their counterparts in Ituri, DRC. There appears to be limited movement from the South Sudan borderland further south into DRC towards the location of the current Ebola outbreak. Rather, the main trade route from the South Sudan borderland into DRC extends east along the roads leading to northern Uganda (see map above). This

would be a major area to focus on should the current Ebola outbreak spread from DRC to Uganda, particularly given the South Sudanese refugee camps that are situated along this route. Communication with cross-border traders should focus on prevention behaviours and a two-way flow of information should be quickly developed. The leaders of trade organisations are usually based in the market areas of all Payams (local administrative headquarters) and also the main urban centres of Yambio, Maridi and Tambura. They should be engaged to cascade information to their colleagues, but also to act as part of a community-based surveillance system linking both urban and rural areas.

- **Urban populations** – Ebola messaging is already being conducted in urban centres, primarily through radio communications. The coverage of both radio and telephone networks is strongest in the urban areas. In terms of bushmeat messaging, it should be noted that the key urban centres (Yambio, Maridi, Tambura) represent the largest demand for bushmeat and are serviced by the economic-based trade conducted by organised poaching groups rather than by subsistence-level hunters in rural areas. Although messages should include risks associated with bushmeat handling practices, communication should focus on human-to-human interaction between those travelling into the urban centres from outside, particularly traders (in all commodities) coming from the DRC. Engaging with youth in urban centres is also critical (e.g., through schools, youth groups, football clubs, boda-boda riders, etc.).
- **Rural populations** – Many rural communities do not have access to communication infrastructures (e.g., telephone and radio networks) and engagement can only be achieved through direct, in-person communication in local language(s). It should be noted that many of these communities are beyond the ‘safe zones’ designated by the UN Department of Safety and Security (DSS). These communities frequently cross the borders to the DRC and Central African Republic due to familial ties. It should also be noted that an enduring effect of insecurity and the associated reduction in health supplies has led to a notable increase in their reliance on traditional doctors and local medicine. At the time of writing, Ebola-related communication with these communities was being conducted through Risk Communication Partners, a group of local and national NGOs and churches that was already established prior to the outbreak of Ebola in North Kivu in August 2018 (including the Ecumenical Church of South Sudan, covering Yambio-Tambura; OPEN, covering Maridi; and TRISS covering Mundri). Although these organisations are well trusted, operate at the front line and conduct some of the most urgent work, they are too small and under-resourced to achieve a high level of consistent and regular communication with all at-risk communities in the area. It is recommended the allocated Ebola-preparedness funding is reviewed to ensure the Risk Communication Partners have sufficient resources to continue to conduct their essential, front-line work. Key messaging should focus on the increased risk of human-to-human interactions across the border with DRC; community-level surveillance related to high-risk events and the identification of sick individuals; unusual signs in wildlife and strict avoidance of already dead animals; safe bushmeat handling processes; and the avoidance of local healing practices involving wildlife body parts.
- **Engaging poachers** – In designing targeted communication strategies, there is one particular group of poachers who should be directly engaged: a group of approximately 20-30 Jur Bel that arrived in Yambio from Lakes State in mid-2018. They are well-armed, operate as a group and represent a threat to rural communities. They have largely taken over the bushmeat trade for Yambio. Initially, they poached in the borderland between Sakure and Bagugu (see map above) before the Wildlife Service removed them as they threatened designated game reserves. They are currently most active in the area north of the Maridi-Yambio road, between the Ibbu and Sue Rivers.¹⁵ Members of the group are aware of Ebola messaging, but seek to counter it with their own messages claiming that only bushmeat from DRC is infected, whereas bushmeat from South Sudan and the Central African Republic is fit for human consumption. They are a well-known group that should be legitimately engaged in Ebola-related preparedness activities by the Wildlife Service or Police, with the backing of state governors. Engaging the group and developing a strategy to overcome their misinformation will require good intelligence and a responsive approach. If these and other poachers can be included in response efforts, they have the potential to be able to provide valuable local information including the early reporting of suspected cases and unusual signs of sick/dead wildlife, and to advocate for and start implementing improved bushmeat handling practices.
- **Mbororo cattle herders** – In communication and engagement strategies, specific consideration should be given for interacting with Mbororo cattle herders. The term ‘Mbororo’ is used to refer to cattle herders belonging to the Fulani group of nomadic peoples with historical routes in the Saharan region. In response to increasing population density, desertification and growing economy in herd numbers, they have slowly migrated along major river systems over recent decades, and in seasonally moving livestock between different grazing areas, pass along a pastoral, trading and poaching ‘corridor’ between Sudan, Central African Republic and north-eastern DRC. Although they occasionally enter South Sudanese territory, many local South Sudanese perceive the Mbororo to be linked with their old, ‘northern enemy’ (Sudan) and their presence usually results in state-authorised armed response. Mbororo have begun to compete with the Dinka to control the beef trade in Yambio and this has led to instances of violence and conflict. As well-armed poachers, Mbororo also have links to the Sudanese ivory trade, and poach for wildlife body parts (ivory, pangolin scales) as well as for bushmeat. They pose a significant threat to the border communities. Further research is needed into this network as it represents a little-known human corridor that links DRC through the Central Africa Republic to Chad and Sudan, which could represent a route for human-to-human Ebola transmission that would be very difficult to manage.

Section B – Bushmeat and associated risk factors in South Sudan

This section focuses on issues surrounding a new outbreak of Ebola (or spillover event) in South Sudan as a consequence of bushmeat activities. This has been an ongoing concern for many years that relates to emerging infectious diseases in general as well as Ebola in particular. Prevention requires longer-term strategies that tackle the socio-cultural, economic and nutritional aspects provided by bushmeat. Although this brief advocates for two strategies (an immediate strategy to lower the risk of the transmission of Ebola from DRC to South Sudan through human-to-human contact; and a longer-term strategy to address health risks posed by the reliance on bushmeat), some considerations and recommendations are related and there has been a tendency for the two to be run in tandem. It is recommended that they be conducted as separate strategies because longer-term sustainable interventions should not undermine the immediate need to prioritise the current Ebola outbreak.

Further considerations

- **Ebola and zoonotic research related to bushmeat** – Although bats have been cited as a host of the Ebola virus, the evidence remains very contested.¹⁶ Although the consumption of bats is practiced in parts of Central and West Africa, it is not a known practice for the Azande in South Sudan to eat bats so is not a focus of this brief.¹⁷ The most likely carriers of Ebola are primates (monkeys, great apes and humans). The border forest contains a large variety and number of primates and is the only area of South Sudan known to have chimpanzees (great apes).¹⁸ Duikers (small antelopes), brush-tailed porcupines and bush pigs have also been identified as potential carriers.¹⁹ The border forest contains an unusually large number and variety of all these species and they constitute a large component of the bushmeat consumed in this part of South Sudan.^{20,21} Carriers themselves die of the disease when infected, so the greatest risk is in handling and eating those animals that have already died. An infected animal that is carrying the disease may appear sick or already be dead. Therefore, bushmeat from sick or already dead wildlife is very high risk for the handler(s). The consumption of sick and already dead wildlife is practiced in South Sudan and needs priority attention. Carriers pass the Ebola virus through body fluids. This can be in the animal's blood, and also from scratches, dung and other body fluids.²² Human handlers of bushmeat are therefore vulnerable during bushmeat-related activities involving these species (killing, butchering, carrying and preparing). Evidence suggests that after thorough cooking, the risk of Ebola transmission from bushmeat to humans becomes negligible. This means that end-of-chain consumers have a viable reason to believe that eating bushmeat is safe: by the time it has been processed and well cooked it is very likely safe to eat. Messaging should therefore prioritise the need to improve the bushmeat handling process. Of course, not all primates or other carriers are infected with the Ebola virus, and the culling of carriers creates a risk of disease spillover rather than prevention of the disease.
- **Wildlife, biodiversity and South Sudanese law** – The tropical forest belt between South Sudan and DRC contains strategically important biodiversity. At the watershed for both the Nile and Congo, this area is important for the future health of Africa's two longest rivers. Protecting this environment will therefore have strategic impact on a significant human population as well as the vast biodiversity that this riverine system supports. In 1976, the DRC signed the Convention on the Illegal Trade in Endangered Species of Wild Fauna and Flora (CITES, the multilateral treaty to protect wild animals and plants). South Sudan has yet to become a signatory to CITES, however it has national laws for Wildlife Conservation and Protected Areas that were drafted after independence with assistance from conservation INGOs. Under its national laws all wildlife is protected in Game Reserves and National Parks. Outside Protected Areas, species are categorised under different levels of protection. The Ministry of Wildlife Conservation and Tourism recognises the potential opportunities in economic growth and development presented by the management of its wildlife estate. In March 2018, the Ministry issued a ban on all forms of hunting although its focus was on poaching for wildlife trophies and the enormous trade in bushmeat east of the River Nile (rather than in the area covered by this brief). A point to note is that national laws protect certain species – including primates and chimpanzees in particular – and designated wildlife Protected Areas. Ebola actors need to be mindful of these laws, and make a careful decision whether to work in accordance with them.

Further recommendations

- **Prioritise safe bushmeat handling** – Longer-term messaging should prioritise safe bushmeat handling practices. Research from DRC and West Africa suggests that around a third of hunters receive cuts to themselves in the butchering process, greatly increasing the risk of infection.²³ In almost all known cases in this area of South Sudan, bushmeat is butchered and smoked by the hunter in the vicinity of the kill, to preserve the meat. This is a good practice as it reduces the risk of disease transmission further along the bushmeat preparation chain. However, smoking can make it difficult to identify the species and may disguise if the animal had been sick or found already dead. Efforts need to be made to collaborate with bushmeat handlers, in particular hunters/poachers, to report unusual wildlife signs and in particular not to touch already dead wildlife. Drawing on lessons learnt from Ebola outbreaks elsewhere, messaging needs to focus on simple handling practices that reduce the risk of contamination through body fluids, such as hand washing with soap, the use of gloves and other care practices during butchering; the use of non-leaking bags to carry bushmeat.
- **Politicians and clergy (key influencers)** – A high degree of political will is required to address the trade and consumption of bushmeat. Like the rest of the Azande population, key influencers such as senior politicians and the clergy consume bushmeat but should be encouraged to 'lead by example' and provide credibility to bushmeat reduction and control strategies. Without their genuine support and active engagement, a strategy to control bushmeat will be difficult to implement. (Similarly, health partners should ensure that their local staff do not consume bushmeat, particularly on office premises, and it may be necessary for contracts to include a specific clause to reflect this). To secure the active participation of key influencers, a cascade approach should be adopted that includes all levels of the administration, starting with the Governors, to State Ministers, County Commissioners to Payam authorities, and across the church hierarchy. These officials should be involved in the design and development of effective communication strategies and should receive training, support and encouragement to engage their constituents (directly, through radio, in church etc.) to minimise risk factors associated with the handling of bushmeat and to promote alternative protein sources.
- **Urban populations** – The urban trading centres in this area of South Sudan represent the primary demand for bushmeat and should therefore be the key focus of bushmeat reduction strategies, rather than rural areas which have more limited opportunities for other protein. Previously, alternative sources of protein have been introduced into this area of South Sudan with some success, although as business opportunities rather than for bushmeat reduction. As stated above, engaging urban youth is critical (e.g., through schools, local musicians, youth groups, football clubs, boda-boda riders, etc.). Introducing an education module on bushmeat, nutrition, habitat and associated environmental risks would be in-line with the national curriculum, although the subject is not yet formally taught.²⁴
- **Collaboration with wildlife agencies** – The effective management of wildlife Protected Areas represents an opportunity for stability and development and has received popular support from national, state and local governments and communities in South Sudan. There are, of course, overlapping interests concerning wildlife conservation and bushmeat and the active role of wildlife conservationists in Ebola messaging runs the risk that their intent may be interpreted as prioritising the protection of wildlife rather

than reducing disease risk in humans. The wildlife conservation NGO Fauna and Flora International (FFI) has been running a community-based conservation programme in collaboration with the Wildlife Service since 2011. Two game reserves designated in the 1930s (Bangangai and Bire Kpatuos in the borderland area) are being managed as conservation peacebuilding initiatives with Community Wildlife Ambassadors from rural communities and the Wildlife Service. In essence, a post-conflict peacebuilding model (based on Gorongosa National Park after the Mozambique civil war) was implemented for these game reserves prior to the 2015 violence and enabled access and wildlife monitoring to continue through most of the recent fighting. This has ensured highly effective collaboration between the Wildlife Service, local and traditional authorities and communities in these areas. To date, the model has been piloted in these two game reserves only, and whilst it may be rolled out to other parts of the country, the recommendations concerning wildlife conservation and the Wildlife Service that are made here are for the specific border-area of South Sudan focused on in this brief. Protected Area management can provide an opportunity for people to work on a constructive, development basis that can facilitate sustainable bushmeat messaging and education, and tackle movement networks across the area in the longer-term. There could be also be valuable opportunities for enhanced reporting of information from these remote locations. FFI has an office in Masia, Yambio, and should be engaged for further advice and support on this specific matter.

- **Alternative sources of protein** – Food insecurity is a primary concern in these areas of South Sudan and there is a drive for integrated livelihood projects around food security and resilience. In the longer-term, reducing the demand for / dependence on bushmeat will require promoting and supporting the development of other sources of protein. This has cultural, nutritional, economic and security implications as well providing economic opportunities.
- **Ground-nuts** – The primary protein-based crop grown extensively across the area is ground-nuts (locally known as ‘g-nuts’). Ground-nuts have many nutritional qualities and communities could be encouraged to increase their ground-nut yield. Some advisors have recommended that partner agencies might consider introducing a subsidy for farmers to produce more of this crop for the urban market. For a population experiencing (serious) food insecurity, ground-nuts may be their best available source of substitute protein. Communication initiatives would need to carefully inform communities about the nutritional value of ground-nuts to secure their support for the crop and its consumption locally.
- **Fish** – Fish provides the best protein alternative to bushmeat in terms of both nutrition and local acceptance. Technically, fish from rivers are ‘bushmeat’ although applying the term in relation to fish is not helpful. The construction of fish farms increased during the years leading to 2015 and they were very popular. The recent insecurity has, however, led to difficulties in both maintaining the farms and ensuring reliable access between fish farms and markets. Importing fingerlings from Uganda has also been made difficult due to insecurity. This is an area where UN Agencies may provide assistance.
- **Domestic livestock** – Chickens are relatively common and a source of eggs and meat at the household level. Goats are common in urban areas but much less so in rural communities because of the damage they can cause to crops. Pig farming was in its very early stages in Yambio prior to the conflict and was proving popular, although has since slowed down. A focus on domestic livestock may provide opportunities to reduce the large demand for bushmeat in urban centres.
- **Cattle** – During periods of stability, beef is the primary meat available and consumed within the main population centres. It is not as popular as bushmeat, which is preferred for its taste even when beef is more readily available. When beef is available, however, it has notably reduced the reliance on bushmeat.²⁵ The Zande never developed cattle livestock due to the tsetse fly belt that still extends into this area of South Sudan. Amongst the agrarian, farming groups that exist in the Equatorial belt, the perception of cattle and pastoralism has come to represent the greatest threat to their land and farming livelihoods. It forms a violent conflict dynamic that will continue long after the current civil war. It is normal practice for state authorities to control the number of cattle entering their land, the entry points used and the routes to markets. This system should be maintained and as the numbers of cattle for market increase, messages of reassurance (e.g., via local radio) must make it clear that the introduction of increased cattle numbers is being well control. The UN Mission should also help facilitate the controlled movement of additional cattle to the urban centres. At the time of writing, Mbororo traders had recently undercut the Dinka beef prices in Yambio. The ensuing violence caused the Governor to ban all beef sales for a number of weeks and as a direct consequence, bushmeat consumption rose immediately. This indicates the need for the beef market to be carefully monitored but also highlights the important role beef can play in reducing bushmeat demand.
- **Further research** – Transmission routes of Ebola are known to evolve and a long-term concern for scientists is the mutation of Ebola into a virus that can be carried by a greater range of wildlife and potentially domestic livestock. Wildlife and zoonotic research are at a very early stage in this part of South Sudan – biodiversity surveys being conducted are to establish initial baseline data. Funding should be prioritised to conduct further, targeted research in zoonotics, hunting and bushmeat practices in this area.

Contacts

If you have a direct request concerning the response to Ebola in the DRC, SSHAP briefs, tools, additional technical expertise or remote analysis, or should you like to be considered for the network of advisers, please contact us.

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References

- ¹ The words 'hunting' and 'poaching' are usually used to determine legality, i.e. hunting is legal and poaching is not. However, these two words have also been used to differentiate between rural, subsistence hunting for bushmeat (which may be illegal); and poaching for economic gain such as for the bushmeat trade or for wildlife trophies such as ivory and pangolin scales. In the case of South Sudan where the rule of law is fragile, the latter use of the terms is more appropriate and forms the basis for how hunting and poaching is referred to in this brief.
- ² Please refer to forthcoming brief 'Cross-border dynamics between South Sudan and the DRC', due for publication in May 2019 (see www.socialscienceinaction.org)
- ³ Gurgong. Bringing South Sudanese Together. *Azande* <http://www.gurtong.net/Peoples/PeoplesProfiles/Azande/tabid/179/Default.aspx>
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- ⁶ Human Security Baseline Assessment, Issue Brief. (May 2017). *Spreading Fallout: the collapse of the ARCSS and new conflict along the Equatorias-DRC border*. Small Arms Survey.
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- ²¹ <https://www.zooniverse.org/projects/southsudanwildlife/south-sudan-diversitycam>
- ²² See for example: Kurpiers et al. (2016). Bushmeat and Emerging Infectious Diseases, in *Problematic Wildlife*. Springer International Publishing Switzerland; World Health Organization (2005) *Weekly Epidemiological Record*, 28 October 2005. <https://www.who.int/wer/2005/wer8043.pdf>; and Ordaz-Nemeth, I. et al. (2017). The socio-economic drivers of bushmeat consumption during the West African Ebola crisis, <https://journals.plos.org/plosntds/article?rev=1&id=10.1371/journal.pntd.0005450>
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