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## **SCIENCE, HISTORY AND THE KASIKILI ISLAND DISPUTE**

The recent Kasikili Island boundarydispute between Namibia and Botswana generated a wealth of scientific and historical information that is now in the public domain. It is probably the largest available collection of copies of documents and maps relating to the colonial era in the Eastern Caprivi and adjacent region of Botswana. The current knowledge on the hydrology and geomorphology of this region now rivals that of the adjacent Okavango system. Much of this material is either new or was previously inaccessible. Scientists play an increasingly important role in the resolution of disputes, even at international level. This article describes some of the information that has become available and also provides an account of the interplay between science, history and international law that is of general interest.

On 29 May 1996, the governments of Botswana and Namibia jointly notified the International Court of Justice (ICJ) in The Hague of a special agreement between the two states for submission to the Court of the dispute between them concerning the location of the boundary around Kasikili/Sedudu Island. Under the terms of the special agreement, the parties asked the Court to `determine, on the basis of the Anglo-German Treaty of 1 July 1890 and the rules and principles of international law, the boundary between Namibia and Botswana around Kasikili/Sedudu Island and the legal status of the island.' In effect the Court was requested to

determine whether the island was within Namibia or within Botswana. If the main channel of the Chobe River passes to the south of the island the island lies within Namibia, otherwise it is within Botswana.

The hearing took place at the Peace Palace in The Hague in February 1999.<sup>(n1)</sup> The two countries were represented by ten international lawyers from Namibia, Botswana, the United Kingdom, the United States, Germany and France. Written and oral presentations were made to the Court by six scientists (regarding hydrology, geomorphology, cartography and history).

There were three rounds of written exchanges, including scientific reports, during the three years that separated the submission to the Court in 1996 and the hearing in 1999. These documents plus the verbatim records of the oral presentations to the Court are now in the public domain. The records of the oral pleadings at the hearing can be retrieved from the web site of the International Court of Justice at <http://www.icj-cij.org/cjwww/idocket/ibona/ibonaframe.htm> They total about 600 pages, and provide a good starting point for further study. The written memoranda submitted by the two parties total some 3800 pages and include 2200 pages of copies of historical documents and 80 copies of historical maps. There are seven reports on the hydrology and geomorphology of the Eastern Caprivi and adjacent parts of Botswana, totalling 520 pages. Photographic material recorded by the author includes a thousand still photographs and three hours of videography.

### **Kasikili Island**

Kasikili Island (called Sedudu Island by Botswana) is a small island some three square kilometres in area, in the Chobe River 20 km upstream of its confluence with the Zambezi River. The island is inundated for several months of each year by overbank flow from the Zambezi. During the dry season large numbers of elephants, buffalo and other game congregate on the island. The game on the island and along the Botswana banks of the Chobe further upstream are a major tourist attraction, and game viewing by boats on the Chobe is a flourishing tourist industry.

Figure 1 is an aerial photograph of the island taken in 1981. This is one of twelve sets of aerial photographs spanning the period 1925-1998. The direction of flow in the river is from the bottom to the top of the photograph, which was taken in the dry season when there was little or no flow in the Chobe River. The water level in the channels in the vicinity of the island is controlled by the level of the Mambova Rapids four kilometres downstream of the island.

The three channels in the photograph have fundamentally different morphological characteristics. The Spur channel on the left is a relict channel that is blocked by sediment at its upstream end. The smooth, parallel banks of the northern channel in the middle of the photograph are in sharp contrast with the characteristics of the southern channel at the bottom of the picture. The four parallel sediment bars in the southern channel are prominent in the later aerial photographs. The eastern limb of the southern channel is a straight, fault-controlled feature that extends all the way through to the Mambova Rapids.

Namibia maintained that the southern arm of the southern channel is a thalweg channel within the wider main channel. The generally accepted definition of thalweg is the line of deepest water along the length of a river channel. The main channel is characterized by two readily discernible parallel banks, the four parallel sediment bars within the channel, and a smooth bed. The surface texture of the bed of the wider channel contrasts with the striation patterns on the surface of the rest of the island. Botswana maintained that the wider channel is the

floodplain of the southern channel, and that the northern channel is the main channel.

The hydrological characteristics of the flow in the Chobe River at the island are unusual. The annual reversal of the direction of flow was reported by early travellers, but was fully explained for the first time in Namibia's scientific reports. There is a perennial flow from the Zambezi into the Chobe between Kasikili Island and the Mambova Rapids via two anabranching channels. As the flow in the Zambezi increases at the beginning of the wet season, it increases the level of the water in the Chobe at the rapids. This creates an upstream water surface gradient and as a result water moves upstream past Kasikili Island.

It was previously assumed that the anabranching channels were the source of water that moved up the Chobe for many kilometres upstream of the island. Studies associated with the dispute showed that the general upstream movement of water in the Chobe at the beginning of the season was as a result of the overbank flow from the Zambezi, which entered the Chobe on a wide front upstream of the island. The flow of water in the Chobe from the Zambezi was greater than previously assumed, and the duration of the flow reversal was less than previously assumed.

### **The identification of the main channel of the Chobe River at Kasikili Island**

The 1890 treaty between Great Britain and Germany identified the spheres of influence of the two countries in Africa. Great Britain ceded the island of Heligoland to Germany, and gained Zanzibar in return. The boundaries of German South West Africa were defined. The eastern part of the northern boundary followed the 18th parallel of south latitude until it reached the Chobe River, and it then followed the Chobe to its confluence with the Zambezi. The boundary along the Chobe River was defined as the centre of the main channel (English text) and the thalweg of the main channel (German text).

These two definitions are unambiguous although not identical. However, the word thalweg has specific legal connotations when applied to navigable rivers. This led to questions such as what knowledge did the negotiators of the treaty have of the region in general and of the hydrology and navigability of the Chobe River in particular? Historical material was retrieved from the national archives of the United Kingdom, Germany, Namibia, Botswana, South Africa and other sources in order to provide this information.

Another important question was what is the definition of the main channel of a river? Logically it is the channel that carries the most water. As the island is submerged for several months of the year, this was not a simple problem of flow measurements. Although both countries produced some flow measurements, the interpretation of these measurements was strongly contested. Hydrological and geomorphological studies were undertaken by both countries to identify the main channel by indirect means. The scientific material assembled for these studies rivals that of the adjacent well-studied Okavango swamps in Botswana.

If navigability is the criterion for identifying the main channel, is the main channel the deepest channel, or the channel most used for navigation at the present time, or the channel capable of carrying the vessels of largest tonnage in future? If it is the deepest channel, how is the depth measured? These alternative and conflicting definitions were debated at length.

### **Historical occupation of Kasikili Island**

The Masubia people of the Eastern Caprivi traditionally practised subsistence agriculture on the Zambezi floodplain. They grew crops and grazed their cattle on the fertile soils in the dry season, and retired to higher ground during the wet season when the floodplain was

inundated. What evidence was there to support Namibia's contention that they lived on Kasikili Island in the past? Did their seasonal occupation constitute ownership? Why did the British authorities in the then Bechuanaland not object to this occupation if they considered that the island was within Bechuanaland? A whole volume of evidence on the history, migration and practices of the Masubia and other people of the region was assembled for this aspect of the dispute.

## **Maps**

Maps dating back to 1890 and aerial photographs dating back to 1925 were important items of evidence in the dispute. Recent satellite images also played a role in the interpretation of the geomorphology and hydrology of the Zambezi and Chobe river systems in the Eastern Caprivi.

## **Livingstone, Schwarz and Thirstland Redemption**

David Livingstone spent some time at Linyanti on the Chobe River. In November 1853, he made his epic journey from this village by dugout canoe down the Chobe to its confluence with the Zambezi.(n2) He crossed the Zambezi at Kazangula and travelled overland down the left bank of the river to the Victoria Falls.

Livingstone speculated on the relationship between the Victoria Falls and Lake Ngami and postulated the former existence of a great lake in the northern Kalahari, the waters of which were drained away by the Zambezi River through means of a great rent in the earth that created the Victoria Falls. This prompted Professor E.H.L. Schwarz to publish a series of papers(n3-n5) in which he proposed the construction of a weir across the Chobe River, the purpose of which would cause a considerable expansion of the area of Lake Ngami, which would turn the Mbabe, Masabe and Chobe swamps into large lakes, and the overflow would go down the Botletle River and fill up the Makarikari basin. A sheet of water this size, some 15,000 square miles, in the middle of the Kalahari would turn this great thirstland into an evaporating dish supplying rain clouds for the whole of South Africa'.(n3)

Despite criticism in the press and scientific journals, his proposal generated great public enthusiasm. As a result, the South African Department of Irrigation undertook an extensive reconnaissance of the Zambezi, Chobe and Okavango rivers in 1925.(n6) The study resulted in the production of the first detailed map based on aerial photography in southern Africa. The aerial photographs and the map were to feature in the Kasikili Island dispute.

Twenty years later as a result of renewed public pressure, the Department of Irrigation carried out another detailed investigation.(n7) These two reports are seldom referenced in the scientific literature yet they contain extensive details of soundly based hydrological and geomorphological studies. Together with their references they are a good starting point for further hydrological and geomorphological studies of the Eastern Caprivi.

## **The colonial administrators**

The accounts of the resident colonial administrators provided valuable information on the early history of the Eastern Caprivi, adjacent northern Botswana and the people in this large region. Their reports and the correspondence with their cross-border colleagues became important evidence during the dispute.

As a result of the conclusion of the 1890 treaty, Germany's sphere of influence extended eastwards from German South West Africa along the narrow Caprivi Strip to the Zambezi

River. Britain's sphere of influence included Lake Ngami and extended northwards to the Zambezi. The Chobe was their common boundary from the 18th degree south latitude to its confluence with the Zambezi.

Imperial Resident Kurt Streitwolf was the first German administrator. He arrived in the Caprivi in 1909 and established his headquarters at Schuckmannsburg near the Zambezi River.<sup>(n8, n9)</sup> It is difficult to imagine a more unsuitable site for the administrative headquarters of the region. Even today it can only be reached by four-wheel-drive vehicles.

Streitwolf was accompanied by four military officers and 14 policemen. Accounts of the German suppression of the indigenous people, which resulted in the German-Herero and German-Nama wars, preceded him. Many of the Masubians, including the Masubia royal family, fled across the Zambezi. Streitwolf persuaded them to return and established a system of indirect rule. He convened the Masubia Khuta, which elected Chikamatondo as Regent. After his election, Chikamatondo and the entire Masubia traditional authority were incorporated into the German colonial administration. This system of indirect rule continued throughout the subsequent period of rule under British and South African administration until Namibia's independence in 1990.

Von Frankenberg succeeded Streitwolf and produced an excellent map of the Caprivi that also featured in the dispute. In 1914, at the beginning of the First World War, he surrendered to a mixed British force in a bloodless encounter. From 1914 to 1921 the Caprivi was under British martial law and placed under the jurisdiction of the Resident Commissioner of the Bechuanaland Protectorate. In 1921 the whole of South West Africa came under South African control as a League of Nations Mandate. It continued to be administered by the British authorities on behalf of South Africa until 1929. It was administered from Windhoek until 1939 and thereafter directly from Pretoria.

The most colourful of the colonial administrators was Major W.E. Trollope, South African Resident Magistrate and Administrator from 1939 to 1953. He featured prominently in the developing dispute between the South African and British governments regarding the ownership of Kasikili Island. His story is buried in the correspondence in the South African and Namibian archives and is well worth a biographer's attention. His discussions and joint reports with his British counterparts stationed in Kasane were key components of the dispute.

Eventually Trollope fell out with the newly elected National Party government in South Africa. Correspondence on file in the archives shows his increasing intransigence, which eventually resulted in an instruction to return to Pretoria. He ignored the order and when his replacement arrived, Trollope asked him if he had a permit to enter the Caprivi! Trollope resigned and died soon afterwards. His grave is beneath a large tree on the bank of the Zambezi at Katima Mulilo.

### **The shooting incident and Botswana's dilemma**

The incident that precipitated the present dispute occurred in October 1984, when a unit of the Botswana Defence Force (BDF) fired on a South African Defence Force (SADF) unit patrolling in a boat in the southern channel at Kasikili Island. The maps used by the SADF showed the boundary in the southern channel, whereas the BDF maps showed it in the northern channel.

The governments of South Africa and Botswana wisely decided to resolve the boundary difference by peaceful means. This hinged on the determination of which of the two channels

was the main channel of the Chobe River. However, Botswana was faced with a political and legal dilemma.

Before 1966, South Africa had treaty-making powers in terms of its mandate over South West Africa subject to the prior approval of the Council of the League of Nations. In 1966 the United Nations terminated South Africa's mandate. In 1970 the Security Council of the United Nations declared South Africa's presence in South West Africa illegal and called on all states to refrain from any dealings with the government of South Africa that implied recognition of South Africa's illegal occupation. This was confirmed in an Advisory Opinion of the ICJ in 1971. Therefore, neither Botswana nor South Africa had the international legal capacity to enter into any form of international agreement in respect of Namibian boundaries.

In November 1984, in the aftermath of the shooting incident, Botswana had discussions with the president of the United Nations Council for Namibia and with representatives of the South West African Peoples Organization (SWAPO) at the United Nations. These bodies did not object to Botswana having discussions with South Africa on the boundary issue.

In December 1984, representatives of Botswana and South Africa met in Pretoria to discuss the problems that arose from the shooting incident. The meeting agreed that a joint survey should take place to determine whether the main channel of the Chobe River was located to the north or to the south of Kasikili Island.

From this time onwards science played an increasingly important role in the resolution of the dispute. Using echo-sounding equipment of the South African Department of Water Affairs, the surveyors determined that the average depth of the thalweg of the northern channel was greater than that of the southern channel. In their joint report of July 1985, they concluded, 'The main channel of the Chobe River now passes Sedudu/Kasikili Island to the west and north of it.'

South Africa did not respond to subsequent requests by Botswana to confirm the location of the boundary in the northern channel. Botswana then maintained that the minutes of the meeting authorizing the survey provided evidence that an intergovernmental agreement was concluded.

South African troops withdrew from the Caprivi towards the end of 1989, pending Namibia's independence. Namibia maintained that Botswana hoisted its national flag on Kasikili Island in 1991 after Namibia's independence, while Botswana declared that this happened several years earlier.

The newly established state of Namibia made its first formal protest to Botswana early in 1992. This led to an appeal to President Mugabe of Zimbabwe, then chairperson of the Frontline States. In May 1992, a meeting of the presidents of Namibia and Botswana in the presence of the President of Zimbabwe, agreed to refer the dispute to a Joint Team of Technical Experts (JTTE), three each from Namibia and Botswana, to determine the location of the boundary in terms of the 1890 Anglo-German Treaty. After several rounds of discussions, the JTTE reached a deadlock and in 1994 recommended that the dispute be referred to the ICJ for a final and binding determination.

### **Conservation status of the island**

Botswana stated in its submission to the Court, 'If the Court were to rule in favour of Namibia, the decision would immediately remove the Island from the range of the wildlife as they would be hunted down on the Island, as was done in the rest of the Caprivi. Thus, in the

interest of conservation I respectfully submit that the Court should rule in favour of Botswana. By so doing, the Court would make a clear statement on conservation to all mankind, including Namibians.'

Namibia responded by pointing out that its constitution contains a clause requiring the state to ensure the "maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future." Namibia also stated that there are five fully operational national game parks in the Caprivi region, and that 'the communities of Ngoma, Kasika and Impalila want to establish their own conservancy but this is being held over due to the Kasikili Island boundary dispute. Kasikili Island would be part of this conservancy.'

### **The role of the scientists in the resolution of the dispute**

The ratio of ten lawyers to six scientists who made oral presentations to the ICJ during the Kasikili Island dispute is an indication of the increasing role played by scientists in the resolution of international disputes. This is a challenging role. The scientist has several obstacles to overcome, starting with the realization that while science is logic based, the law is based on precedent. Precedent in international law can go back a century or more, and it is often difficult to reconcile science with the precedent-based legal decisions and their application to modern conditions.

The procedures used in the ICJ differ somewhat from those in national courts, in that scientists can play a more direct role in the oral presentations to the Court. In contrast to the subordinate role played by expert witnesses in most legal systems, the ICJ allows the parties to appoint non-legal advocates who present the scientific aspects to the Court in the same way that lawyers present the legal aspects. This procedure poses a severe strain on scientists, who have to maintain their personal and professional integrity while under pressure from lawyers who have to ensure that no legally embarrassing statements are made in the scientific reports.

Scientists have to make decisions on the nature of their reports, bearing in mind that they are addressing lay audiences. The modern tendency is to rely on visual images rather than introduce mathematical or verbal descriptions. Mathematical equations can be presented as graphs and verbal descriptions can be replaced by video or photographic images. In the oral presentations the quality of the visual material and the tempo of the presentation have to be such that they will maintain the interest of the Court throughout the presentation.

The court is expected to rule on the dispute by the end of this year.

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Fig. 1. 1981 aerial photograph of Kasikili Island in the Chobe River. The island is approximately 3.2 km long and 1.5 km wide. Most of the island is submerged during the wet season.

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