

**Working Paper on Social-Ecological Resilience Series
No. 2009-011**

**An Historical Analysis of Vulnerability and Resilience
in a Semi-Arid Region of Zambia**

By

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Department of History, University of Zambia**

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Vulnerability and Resilience of Social-Ecological Systems

RIHN Research Project E-04

Research Institute for Humanity and Nature (RIHN)

Inter-University Research Institute Corporation, National Institutes for the Humanities

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ABSTRACT

This article is about the Valley Tonga's resilience to ecological vulnerability often induced by near chronic drought conditions that have, over centuries, characterised their region and occasionally by flooding of the Zambezi; prior to 1958 and of Lake Kariba after 1958. The Valley Tonga are the inhabitants of the Gwembe Valley, a trough sandwiched by unbroken range of escarpments on the south and north of the Zambezi river. The valley located in the middle Zambezi River basin in Southern Province of Zambia. Since long time ago, this region has been subject to hunger and famine largely because of its semi – arid nature. The article explores the various mechanisms the Valley Tonga have applied and exploited to survive their unfriendly environment.

The article suggests that the Tonga's resilience has largely depended on their ability to forecast good and bad weather patterns ahead. This ability to interpret climatic changes of their environment has enabled them to prepare ahead of an expected negative eventualities. The Valley Tonga, the article explains, have remained in the valley despite chronic environmental setbacks, often leading to food crises, for several reasons. The bush has been a granary as it has provided them with food in bad and even good times. They have also managed to live in the environment, outsiders have perceived as notorious, because they have cultivated economic and social networks based on the moral economy paradigm. The valley Tonga have exploited even seemingly negative occurrences such as disastrous floods to their advantage; receding flood regime created an opportunity for winter or dry crop cultivation. The introduction of colonial regime at the turn of the twentieth century, added yet another dimension to the Tonga's survival strategies. Labour migration, colonial intervention through famine relief and introduction of commercial and fishing upon the formation of Lake Kariba became a source of their resilience to ecological shocks.

Key words: Resilience, Vulnerability, Semi-aridity, famine survival networks.

半乾燥熱帯地域の早ばつの影響と生存戦略
—南部ザンビア・グウェンベ溪谷の事例

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要旨

本稿では、生態系の脆弱性に対する低地トンガのレジリアンスについて言及する。それは、何世紀にもわたって引き起こされてきた常襲的早ばつ、1958年以前のザンベジ河の洪水、1958年以降のカリバ湖の洪水とといった特徴によって生じたものである。低地トンガとはグウェンベ溪谷の居住者であり、そこはザンベジ河の南部と北部の丘陵地の切れ目のない連なりに挟まれた盆地である。グウェンベ溪谷はザンビア南部州のザンベジ河岸の中流部に位置する。以前から、この地域は半乾燥地であることから飢えと飢饉にさらされてきた。本稿では厳しい環境の中で生存するために低地トンガが適用し利用してきた、さまざまな仕組みを調査する。

トンガのレジリアンスは主に彼らが良い天候と悪い天候を事前に察知する能力に依存していることを本稿は示唆する。環境における気候の変動を解釈する能力によって、彼らは期待される負の出来事が起こる前に準備することを可能とするのである。本稿が述べる低地トンガは、常襲的な環境の妨げにもかかわらず溪谷に居住しつづけ、しばしばいくつかの理由によって食料危機に直面した。灌木林は食料倉庫であり、天候が悪いときにも良いときにも食料を彼らに供給した。そしてかろうじてこの環境で生存を続けた。モラルエコノミーを基盤とした社会経済的ネットワークを構築していた彼らは外部者からは有名であった。低地トンガは深刻な洪水のような一見して負の出来事さえも利用した。洪水が後退したあとには、乾季栽培の機会が訪れたのである。20世紀初頭の植民地政府の下では、トンガは別の生存戦略の側面を追加した。労働移動、植民地政府の飢饉救済を通じた介入、カリバ湖形成後の商業的漁業の導入などが彼らの生態系のショックに対するレジリアンスの源となった。

キーワード：レジリアンス、脆弱性、半乾燥、生態環境、飢饉生存ネットワーク

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An Historical Analysis of Vulnerability and Resilience in a Semi-Arid Region of Zambia

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Introduction

In 1992, I presented a research proposal to the faculty of the Department of History of the University of Zambia towards my planned Master of Arts dissertation. The topic of research was about hunger in the Gwembe Valley Chiefdom of Mweemba, with my current understanding of food crises debate and definitions thereof, it should actually have been on famine in the Chieftaincy. At the end of the presentation Professor Hugh Macmillan posed a very challenging question to me; it had to do with the continued occupancy by the Valley Tonga of an environment that little supports their agricultural food production systems. My response was ambiguous and clumsy. I explained in the context of ancestral obligations that they could not leave their ancestors' graves unattended to because they have to visit them for intercession in case of troubles caused by unforeseen forces." Yet I was aware of my paternal and maternal grandmother's and grandfather's bones respectively that were slowly or quickly dissolving under the waters of Lake Kariba, but my family continued living in this "condemned" environment.

Until recently, concepts of vulnerability and resilience were very remote from my ecological vocabulary, but the concept of moral economy has been familiar. When I acquired the two concepts into my vocabulary, I realised that I should have responded to Professor Macmillan's inquiry or observation in a more academic context. However, since then I have known that the home for the Valley Tonga has been and perhaps will remain the Gwembe Valley because they have built resilience against its ecological threats.

This paper is about the Valley Tonga's resilience to ecological vulnerability often induced by drought and occasionally floods over the years. Their resilience is depended

on a number of economic and social constructions they have developed over the years. The paper attempts to explain these constructions in the context of the Tonga's perpetual occupancy of an environment that is seemingly hostile to their mode of production and ultimately to the political economy of their survival. The paper draws largely from anthropological, historical and sociological perspectives of vulnerability and resilience.

Located in the middle Zambezi basin, the Gwembe Valley in Southern Province of Zambia is one of the most semi-arid regions in the country; other such regions include Sesheke in Western Province, Nabwalya in Mpika in Northern Province and Luano Valley in Central Province. Due to its semi-aridity the region has experienced chronic droughts oscillating between moderate and severe, which often have resulted in hunger and famine. In fact, drought conditions have accounted for most hunger and famine episodes in the region. During such occurrences, both humans and livestock suffer the trauma of lack of adequate food, and safe drinking water and palatable grass for livestock. In the past, prior to colonial intrusion, loss of human life due to stress was common. In the recent past drought conditions have taken a heavy toll on livestock, especially on the cattle population.

The Valley Tonga are the long-term inhabitants of the Gwembe Valley. Evidence suggests that they have lived in the Gwembe valley since the Early Iron Age and actually interacted with Late Stone Age peoples,¹ yet the area has won itself a reputation among *non-indigene* as notorious. Upon the colonisation of the country at the turn of the last century, no colonial official dared to live there. Such officials viewed it as punishment to work in the region. Even men of God dared not attempt spread the Word in this region. During the first fifty years of their existence in Zambia, the Society of Jesus missionaries feared to establish themselves and evangelise in the Gwembe valley because of its perceived harsh climate.²

¹ Andrew Roberts, *A History of Zambia*, (London: Heinemann, 1976) 43.

² Jesuit Archives, Jesuite Novitiate, J. Torrend to The Rev. Superior, St Stanislaus' Noviate, Guelph, Ontario, 10 Nov. 1931, 4.

One may wonder therefore why the inhabitants of this region, mostly the Tonga, have continued to live in a region that is hostile to their lives and their modes of production and, indeed, existence. An ordinary Valley Tonga, challenged with the issue of their hopelessness and of been trapped in an environment that is oppressive and cruel would surprise their challenger that nothing was wrong with them and indeed their “condemned” environment. The Tonga have remained in that semi-arid environment, an environment that promises nothing to an outsider, yet full of hope and excitement to its long time dwellers. At the core of their sustained livelihoods lies their knowledge and interpretation of their indigenous ecological surroundings accumulated over a very long time and other social constructions for scarcity survival. Their pride of the valley therefore is in their suffering.

This paper suggests that the Tonga’s resilience is due to their ability to predict good and bad seasons or interpret climatic variations of the environment. Their ability to apply indigenous knowledge was fundamental to their survival in the unfriendly milieu. The Valley Tonga also managed to live in the valley because of their considerable knowledge of ‘famine’ foods. Because of this age-old knowledge to understand and interpret nature’s early warning system of impending drought and food scarcity, they in turn developed social networks and economic strategies to cushion themselves against the impact of ecological setbacks, based on a moral economy foundation. Sometimes they exploited natural occurrences such as floods to their advantage. These strategies were not static and as such, should be viewed in the context of time and space, though the paper does not strictly engage in time and space discourses.

Birds, Trees and Weather Patterns as Early Warning Systems

Since drought and consequent food shortages have been the lot of valley people, the people of this region developed through time, a symbiotic relationship with their environment. The Tonga have learnt how to understand climatic change or meaning from plants; the time of the year an observed plant or a set of plants bud is significant enough to warn them of an impending food disaster or a great feast. These early warning systems have prepared them against an impending drought and food crisis. Valley-associated fruit

trees such as *Tamarindus indica*, *Musiika*, have provided early warning against an impending drought or partial rain failure. Accumulated collective indigenous knowledge suggests that an excessive *Tamarindus indica* fruit precedes a poor agricultural season.

The times or periods of migratory birds, whether aquatic or land have been of significance in early warnings against impending disaster or period of plenty. The time of the arrival of flamingos or indeed their non-arrival will inform the Tonga whether a particular agricultural season is anything to get excited about or not. Exploitation of indigenous knowledge to understand and interpret climatic change and variations remains a great asset for the Tonga's resilience against vagaries of nature that threaten their agricultural cycle. In 2007, Hiromitsu Kanno documented a number of indicators read from trees, wind patterns and direction and some behaviour of insects that people of Sinazongwe district in the Gwembe Valley use to predict the outcomes of agricultural season and flood cycle.³ Local fishermen of Lake Bangweulu in Zambia's Luapula Province have depended for a long time on the lake surface temperature to determine friendly and unfriendly lake waves and storms. The Lozi of Western Province of Zambia have used spiders to predict high or normal floods. The presence of many cobwebs is an indication that the coming season will be one of heavy floods. This may suggest that spiders sense danger much earlier than human beings do and migrate from the plain ahead of the commencement of the rain season. The Tonga have historically interpreted such climatic indicators. Ecologically good and bad times have therefore not been a surprise to the Gwembe Valley people; they have been part of their resilience that has reduced their vulnerability to the ecological stress associated with their livelihoods. Overall, the observations over time have enhanced both human and livestock resilience and reduced vulnerability to livelihoods and survival stresses.

Besides its semi-aridity and associated ecological setbacks, the Gwembe valley sometimes experiences temperatures above or below regional average of between 38 to

³ See Hiromitsu Kanno, 'Local climate and 'proverbs of weather forecasting in Sinazongwe' in Chieko Umetsu (Project Leader) *Vulnerability and Resilience of Socio-Ecological Ststems* FY2007 FR1 Project Report, Project 1-3FR March 2008 (Kyoto: Research Institute for Humanity and Nature, 2008) 66-69.

45 degrees Celsius for the hottest period, especially during the months of October and November and 5 degrees Celsius for the coldest period between late April and early August respectively. High temperatures coming before October may indicate the possibility of an early onset of the rainy season so may the brief period of the cold season suggest a similar occurrence. The Gabbra of northern Kenya have utilised oral tradition to predict weather patterns and as such can tell whether the season ahead will be wet or dry.⁴ The *marabouts* of Mali and Mauritania have a reputation among the farmers and herders as advisers about possible patterns of rainfall.⁵

Such traditionally acknowledged indigenous knowledge has been a factor in the resilience to ecological vulnerability of the Valley Tonga as they give early signals of good and bad times ahead. The early warnings about seasonal or climatic changes prepare the Valley people in advance to adopt survival mitigation measure before the actual onset of a drought. Colson observed that 'One's chances of surviving a famine depend very much on decisions made fairly early on, about how to husband one's physical and social resources'.⁶ Short and long-term responses were employed depending largely on the anticipated gravity of the drought. Temporary migrations both intra and inter between regions of southern Zambia have sustained the characteristics of the survival of the Tonga against droughts and associated calamities. Rationing and restrictions on consumption of available foodstuff and recourse to dependence on wild products are some of the measures adopted. Long-term responses to drought involved among other approaches social and economic relationship. During droughts, livestock were trekked to neighbouring areas where water and grass were available. This is true of both the period before and after the Kariba resettlement in 1958. A livestock owner entrusted to the care of a relation in an area that was less prone to drought conditions. This assured such a cattle owner of a reserve herd should that under his care die due to lack of pasture or water in his immediate area.

⁴ M.C. Jedrej, 'The role of rain makers' in Jeffrey C. Stone (ed.) *Pastoral Economies in Africa and Long Term Responses to Drought* Aberdeen: Aberdeen University African Studies Group, 1991) 54.

⁵Jedrej, 'The role of rain makers', 54 -55.

⁶ Elizabeth Colson, 'In Good Years and in Bad: Food Strategies of self-Reliant societies'

Floods and Tonga Resilience

Since the Biblical Floods of Noah's time, flood regimes are a bad sign, a bad occurrence that inflicts suffering among inhabitants of that unfortunate region in which they occur. The Nile River floods tormented Egyptians millions of years before their civilisation took root. Although occasionally disastrous, the floods remained a blessing to the country; they deposited annually million tones of sediment very rich in nutrients that fostered agricultural production. This is also true of the Gwembe Valley, especially prior to the 1958 forced relocation where floods caused food shortages to throw its inhabitants into situations of panic and desolation when their rainy-fed crops submerged into floodwaters and eventually destroyed through rot. Such situations were common. In 1947-48, floods were unusually high and the Zambezi River flooded so much that rainy-fed crops above the margins of the river channel perished. The deltas of tributary rivers, which constituted the main areas of cultivation, were destroyed by the floods.⁷ Nevertheless, such crop devastating floods were a rare occurrence in the history of ecological vulnerability of the Gwembe Valley. In the recorded collective memory of the Valley Tonga, such floods, in addition to those of 1947-48, occurred during the 1951-52 and 1956-57 seasons. The latter were the 'highest anyone ... could remember' at Kanchindu in present day Sinazongwe district.⁸

Ironically, the floods, when they occurred at the right time of the year, for example, after harvesting the rainy-fed crops in March or April, were an event looked forward to with a lot of anxiety; it was an occurrence accompanied by great joy and relief. Scudder observed that flood irrigation had been practiced by the valley Tonga for a long period.⁹ Their resilience should be associated with this natural phenomenon. Indeed the flood pattern of the Zambezi River was the major ecological factor that determined food production among the Valley Tonga. When floods came late, the riverine cultivator celebrated. In such a normal year of annual floods, the banks of the Zambezi produced

Journal of Anthropological Research, 35, 1 (1979) 25.

⁷ National Archives of Zambia SEC 2/1294, S.D. Face, Annual Report on African Affairs, Gwembe District, Southern Province, 1948, 29 February 1948.

⁸ United Church of Zambia Archives (UCZA) 680, B.D. Jinkin to Nightingale, March 27 1957.

green maize crops and cucurbits. In a famine year, the cultivated riverine gardens provided food security.

Emphasizing the importance of flood irrigation Scudder gives an account of his experience of a flood of late 1950s:

In 1956-57, I found the Gwembe Tonga system of flood recession cultivation practiced on both sides of the river by villagers living close to the Zambezi. After the floodwaters began to recede in March-April, farmers staggered the inter-planting of a succession of crops as water levels dropped, with planting continuing throughout the cold season, and with the lowest cropped area on the riverbanks harvested just before the river began to rise in December. In most floodwater gardens, maize, legumes, and cucurbits were interplanted, with smaller areas cropped, with smaller areas cropped in other vegetables and a local variety of Turkish tobacco.¹⁰

The floods also annually replenished soil fertility of these gardens to the delight of cultivators.

Although occasionally floods have occurred and destroyed crops, as was the case in March 1999.¹¹ In recent times, the receding waters of Lake Kariba have continued to provide hope in times of drought and food shortages in those areas where the local people still have access to the waterfront of the lake. Using old claims of land ownership, *tutongo*, before resettlement some fortunate Valley Tonga whose claims have remained outside the ambit of international elements continue to depend on such holdings both in bad and in good years.

Nchelela, receding floodwater cultivation, has been widely practiced in the recent droughts as a resilient strategy. During the drought episodes of the 1980s, 1990s and of the current decade the drawdown area of Lake Kariba, for instance, has become

⁹ Thayer Scudder, 'A History of Development and Downturn in Zambia's Gwembe Valley: 1901 – 2002' in Chet Lancaster and Kenneth P. Vickery (Eds) *The Tonga speaking Peoples of Zambia and Zimbabwe: Essays in honor of Elizabeth Colson* (Lanham: University Press of America, 2007) 321.

¹⁰ Scudder, 'A History of Development and Downturn', 321.

important for cultivation and even for livestock grazing. By the close of the 1990s, there were over 5,000 acres of area available for cultivation.¹² Most Valley Tonga will not therefore panic when famine or hunger threatens the region because of such an alternative, not of course that all the inhabitants have access to the riverine gardens, but through social networks the benefits derived from these gardens accrue to many other persons.

Spirits, Vulnerability and Resilience

As in other societies belief in the spirits and their role in people's lives, whether individually or severally, should not be underplayed in interpreting people's or groups of people's resilience to the forces of nature. In Central Africa, apprehension about ecological issues is addressed through religious institutions such as cults and shrines.¹³ Werner observed that the Lungu of Lake Tanganyika basin are controlled by the Kapembwa shrine where they, when need arises, send offerings to ask for rain or other things 'involving the benevolence of nature'.¹⁴

Because of its semi-aridity, efforts to control rains were a critical element in the Gwembe valley. Like elsewhere on the Tonga plateau, in the valley shrines were built at graves of eminent men, usually pioneers of new areas of settlement.¹⁵ The failure to interpret natural phenomena and associated happenings is in itself a source of solace encouragement and perseverance. The Valley Tonga, like their counterparts elsewhere in Central Africa, developed their resilience by recourse to the forces of nature. Central to their resilience in this respect is that their lives are not regulated by the mortal, but by the spirits of their dead ancestors, *Basangu*. *Basangu* can afflict the area with drought or

¹¹ See *Times of Zambia*, Wednesday, March 10, 1999: 5.

¹² Scudder, 'A History of Development and Downturn', 339.

¹³ See J.M. Schoffeleers, 'Introduction' in J.M. Schoffeleers (ed.) *Guardians of the Land: Essays on Central African Territorial Cults* (Gwelo: Mambo Press, 1978) 1-23.

¹⁴ D. Werner, 'Miao Spirit Shrines in the Religious History of the Southern Lake Tanganyika Region: The Case of Kapembwa' in J.M. Schoffeleers (ed.) *Guardians of the Land: Essays on Central African Territorial Cults* (Gwelo: Mambo Press, 1978) 105.

¹⁵ Elizabeth Colson, "Rain-Shrines of the Plateau Tonga of Northern Rhodesia" *Africa*, 18, 4 (1948) 277; Roberts, *A History of Zambia*, 77 and Emerson Machila, 'A History of the Malende among the Tonga of Southern Province of Zambia: A Case study of Chief Hanjalika's area, 1890-1986' (M.A. Dissertation, University of Zambia, 1987)12.

cattle epidemics. A successful agricultural season therefore is attributed to the blessings of the spirits and its failure to their anger.

In the Lower Tchiri, there is a belief that behind every drought or epidemic is caused by annoyed or angry spirits.¹⁶ When such a distress occurs attempts are made to appease the angry spirits or to request them to intercede through prayers or offerings of some kind. The Valley Tonga, like their plateau counterparts request the spirits to intervene in their day-to-day lives. However, when prayers or offerings are not accepted it means their suffering after all is divine and as such should not cause panic.

Social Networks

Ecological disasters, be it earthquakes, floods, drought, famine or pestilence, have never been known to cause uniform suffering among all their victims. The recent *tsunami* was in most respects a selective disaster, even the most devastated areas had at least some survivors; however, few compared to those who perished in the process of the most disastrous floods of our time. Over time the realisation that ecological setbacks affect society differently despite the proximity of an area affected to that not affected have prompted the human elements in a disaster-affected area to cultivate some form of social networks of convenience with other areas just in case the catastrophe does not occur in one of the complementary region. Most of the social constructions were based on moral economy.

The social networking consciously entered into in the recent decades has been a major drought response and survival mechanism for a long time. Bond friendships, consciously arranged marriages, kinship relations and a corpus of other social relationships have sustained the Tonga from drought-associated vulnerabilities. The Valley Tonga have evidently been resilient to ecological changes, more importantly to drought, which has been the menace of their existence. They too have undoubtedly demonstrated resilience to drought related shocks including successful health care maintenance when all odds

¹⁶ Elias C. Mandala, *The End of Chidyerano: A History of food and everyday life in Malawi, 1860 – 2004* (Portsmouth, HN: Heinemann, 2005) 30.

appear to have been against this. There are two main social networks that the valley Tonga utilised as mechanisms to cushion the effects of ecological setbacks, namely kinship and bond friendship alliances.

In Africa and indeed in other continents the theory moral economy has been widely applied to form social networks. These relations have played a vital role in surviving natural calamities. They played a significant function in provision of food to some of the members of the community who cannot withstand the impact of a food shortage or famine. The Zigua of North-Eastern Tanzania sustained subsistence during the periods of food scarcity partly because of social relationships that granted them food security.¹⁷ *Oluganda kulya* (Kinship is eating), a Kiganda saying, is a traditional reminder to Banganda people of Uganda of the significance of kinship relations in ensuring food security in times of want.¹⁸

The Valley Tonga have maintained through time institutions that ensured the continuity and strength of established social alliances.¹⁹ To survive in their “harsh” environment they cultivated and exploited kinship and bond friendship alliances. Scudder observes that these institutions developed by groups of people who cultivated and maintained them to ‘assure themselves of a place of refuge during famine years’.²⁰

Kinship networks, which include marriage alliances and relations of affinity, assume a critical role during periods of hunger and famine. In bad years, when food shortages are endemic and when individual or family initiatives to obtain food within the confines of their means are overstretched, the first step the Tonga take is to turn to members of their kin group not affected or less affected by famine or hunger. As death, famine times were

¹⁷ See James Giblin, ‘Famine and Social Change during the Transition to colonial rule in Northeastern Tanzania, 1880-1893’, *African Economic History*, 15(1986), 87.

¹⁸ See Christine Obbo, ‘Food sharing during food: case studies from Uganda and Ciskei’ in Johan Pottier (ed.) *Food Systems in Central and Southern Africa* (London: SOAS, 1985) 265.

¹⁹ Elizabeth Colson, *The Social Organisation of the Gwembe Tonga*. 9Manchester: Manchester University Press 1960) 36. Colson, ‘In Good Years and in bad’, 23.

²⁰ Thayer Scudder, *The Ecology of the Gwembe Tonga*, (Manchester: Manchester University Press, 1962) 242.

periods of amending previously soured relationships with a kin.²¹ This sociological aspect of food scarcity and security has long been part of Valley Tonga resilience against ecological setbacks. Eighteen ninety nine was a famine year in the valley and many valley people with relations on the Tonga plateau and upland Valley temporarily migrated to these regions to stay with relations.²² Colson observed that in periods of scarcity a man or woman with food had a social obligation to share that food with relatives or women.²³ Evidence shows that social networks, especially kinship alliances were very important during the valley famines of 1931-32, 1941-42 and 1955-56.²⁴

Touring Kalomo-Gwembe in 1931, Macrae observed that because the 'famine was very severe' many families Mweemba from the riverine region of the chiefdom were trekking to relatives in the escarpment areas as early as February.²⁵ During the 1941-42 famine, a large number of families from the Valley chiefdom of Mweemba were as early as April 1942 staying with relatives in the plateau Tonga villages. Craufurd-Benson reported that by that month people from Chief Mwemba's (sic) area 'were already making inroads upon the food supplies from Chief Siasikabole about 87 miles on the plateau ... acquired from relatives'.²⁶ Reliance on relatives as famine survival mechanism was evident also during the 1955-56 problems. On tour of duty of the Valley in September 1955, Akashambatwa-Lewanika wrote that due to the 'real shortage of food', many men and women were away from their villages and in neighbouring upland villages looking for food among relatives.²⁷

²¹ Chet S. Lancaster, 'Reciprocity, redistribution and the male life cycle: variations in middle River Tonga Social Organisation' *African Social Research* 2 (1966) 141-42; Elizabeth Colson, *Marriage and Family Among the Plateau Tonga of Northern Rhodesia* (Manchester: Manchester University Press, 1958) 20-21.

²² Interview with Siamwiza Simukabe, Village Mudodoli, Chief Mweemba, Sinazongwe District, 5 May 1992.

²³ Elizabeth Colson, 'Trade and Wealth among the Tonga' in Paul Bohannon and George Dalton (eds.) *Markets In Africa* (Evanston: Northwestern University Press, 1962) 615.

²⁴ Bennett S. Siamwiza, 'Hunger in the Gwembe Valley: A Case Study of Mweemba Chieftaincy, 1905-1987' (M.A Dissertation, University of Zambia, 1993) 55-56.

²⁵ National Archives of Zambia (NAZ) SEC1/1366, F.B. Macrae, District Officer. Kalomo, to the Provincial Commissioner, Batoka, September 1931.

²⁶ National Archives Zambia (NAZ) SEC1/1366, Vol. III, Craufurd-Benson, District Officer, Kalomo, Report to Provincial Commissioner, Southern Province, June 17, 1942.

²⁷ National Archives Zambia (NAZ) SEC2/1019, R. Akashambatwa-Lewanika, African Assistant, Gwembe District, 23 September, 1955.

Another social network used as a hedge against ecological vulnerability was the institution of marriage. Among the Luo of Western Kenya, relational alliances through marriage assured access to food during periods of scarcity. Cohen noted that in arranging marriages ‘there was a consciousness of the value of extending networks of support over long distances and into different zones of production.’²⁸ Such arrangements were common in the valley, especially before the Gwembe Local Authority banned childhood betrothals in 1952.²⁹ Prior to these developments girls were engaged in marriage at a very tender age even before they reached puberty, usually between the main valley and upland valley or plateau Tonga families. Upland Valley men and women occasionally married their daughters to plateau Tonga men.

Bond friendship, *bulongwe* or *buzolwani* in Valley CiTonga was yet another social network of critical significance in surviving ecologically induced vulnerability. The Sarwa of Ngamiland in Botswana have a similar institution called *hxaro*, based on mutual trust and gifts. The alliance, often established across broad ecological regions, played a major role in times of famine and other natural disasters.³⁰ Although it is difficult to date the beginning of bond friendship, it has been established that it is an old institution among the Valley Tonga. The custom represented an attempt to develop a perpetual claim on people with whom one had no kinship or any other alliance. As it was among the Sarwa, bond friendship among the Valley Tonga and their neighbours depended on sharing of items including food. The relationship was established between people in the same ecological setup, but very often, it was formed between people inhabiting different ecological regions.³¹ During periods of food shortages, each person had a roster of bond friends whom he kept in mind for use in hunger times.³²

Academic disciplines and scholarship have a tendency to draw from and appreciate each other. This academic and scholarship co-existence has in the recent years of scholarly

²⁸ David William Cohen, ‘Food Production and Food Exchanges in the Pre-colonial Lakes Plateau Region’ in Robert I. Rotberg (ed.) *Imperialism, Colonialism and Hunger* (Toronto: Lexington Books, 1983) 7-8.

²⁹ Siamwiza, ‘Hunger in the Gwembe Valley’ 56-57.

³⁰ R.K. Hitchcock, ‘Traditional Response to Drought in Botswana’ in Madalon T. Hinchey (ed.) *Proceedings of the Symposium on Drought in Botswana* (Gaborone: Botswana Society, 1979) 91-97.

³¹ Colson, *Social Organization*, 47.

discourse fortunately continued. Recent studies from the Tonga Plateau and the Gwembe Valley have revealed a pattern of persistence of these survival institutions. Although not necessarily focusing on a vulnerability and resilience equation, Ishimoto's recent article on human network relations in the Sinazongwe district in the Gwembe Valley indicates the continued existence and creation of social networks that can be utilised in case the ecological environment becomes unstable.³³ Ishimoto's concerns are with the family, neighbourhood, and religious, scholastic, recreational and networks constructed or reconstructed in income earning activities. These networks have assumed some important role in most Zambian communities. In an ecologically unstable area such as the Gwembe Valley, these institutions have provided vulnerable groups with some survival mechanism by the way they have contributed to other non-food related survival issues. These social networks have supported involved groups in times of illness, death and other associated stress causing periods.

'The Bush, Our Granary'

'The Bush, our granary' was Villas Sikuteka Syamunsila's answer to my question on how the Valley Tonga had survived the negative outcomes of their environment, especially drought and famine.³⁴ The forest and its fauna, flora and related consumable products of the bush were part of the Valley Tonga granary system not only in bad ecological years but also even in good years, although in the former situations they assume prominence in the fight for survival against the adversities of nature.

Dependence on the products of the forest during periods of ecological stresses has been part of humanity's wider subsistence economy and as such it has a history as long and as old as *Homo sapiens sapiens*. As is the case all over the world products of the wilderness played and have continued to play a vital role in times of food shortages and mitigation procedures not only in the Gwembe valley or indeed between the Valley Tonga, and elsewhere in Africa. The nineteenth century Basotho subsisted on the seeds of *moseeka*

³² Colson, *Social Organization*, 56.

³³ Yudai Ishimoto, 'Human Networks in Southern Province, Zambia: An Overview' in Chieko Umetsu (Project Leader) *Vulnerability and Resilience of Socio-Ecological Systems* FY2008 FR2 Project Report, Project E-04 (FR2 (Kyoto: Research Institute for Humanity and Nature, 2009) 86-95

grass during famine and hunger periods while the Basotho herd boys survived partly on edible roots and tubers, the *Lihoete*, while women gathered besides the seeds of *moseeka*, some vegetables and greens, *meroho* of the wild.³⁵ During the *Mtunya*, the famine that ravaged central Tanzania during and after the post-First World War period most victims of the famine turned to the forest where natural products provided relief.³⁶

The Valley Tonga are fortunate that their ecological set up has, since time immemorial, provided them with a wide variety of edible fruits and indeed wild animals upon which they turned to in bad years. During the 1931-32, famine Read commented that:

There is no district in the country that is entirely devoid of food if crops fail and Gwembe is particularly fortunate in the quantity and variety of forest produce available. In addition to vegetable produce, there are many species of game, duck, geese, game birds, etc. The forest can supply a considerable amount of food at different times of the year.³⁷

Undertaking an ecological study of the Valley Tonga, Scudder confirmed Read's observation when he identified in the Middle Zambezi River alone thirty-two famine foods.³⁸ These food included grasses with edible seeds, plants with edible seeds, fruits, bulbs and tubers. *Impunga* (*Urochloa_mossambicensis*) and *musonde* (*Sorghum halepense*) are some of the main grasses that provided edible seeds. *Muunga* (*Acacia albida*) and *mukololo* (*Lonchocarpus capassa*) are some plants whose seeds provide food. Knowledge of famine foods and techniques of their preparations are built into the Tonga systems of resilience to drought and flood induced food shortages.

So far, the paper gives the impression that all is rosy and that nothing disturbs the Tonga way of life during drought and food shortages. This is not the case. The fact that the

³⁴ Interview with Villas Sikuteka Siamunsila, Chief Mweemba, Sinazongwe District, 28 April 1992.

³⁵ Elizabeth A. Eldredge 'Drought, Famine and Disease in nineteenth century Lesotho' *African Economic History* 16 (1987) 76.

³⁶ See Gregory Maddox, 'Mtunya: Famine in Central Tanzania, 1917-20', *Journal of African History*, 31, 2 (1990) 181-197.

³⁷ J.G. Read, *Report on Famine Relief: Gwembe, 1932*, (Lusaka: Livingstone: Government Printer, 1932) 24.

³⁸ Scudder, *The Ecology of the Gwembe Tonga*, 212- 213.

Valley have not been a static population and that their age old indigenous knowledge of drought preparedness and survival measures are fading away due to influence of “modernization” does suggest that they may be a people at risk and vulnerable, in the very near future. Most young people of the valley see no value in the earlier generations’ survival through, for example, wild fruits and tubers. Very few young people of twenty to forty years of age can identify edible fruits, besides the very common ones, let alone tubers. There are also political factors that have reduced resilience to food production and indeed that have negatively affected the application of indigenous knowledge as insuring a source of livelihood during an approaching drought.

Resilience in a New Milieu

Very often discussions on vulnerability and resilience, particularly when associated with food scarcity and even water, have ignored the contribution made to ease the suffering of those outside the victim community. Partly the Valley Tonga’s resilience is understood in their ability to exploit modern facilities such as labour migration or modern employment opportunities. They have also been fortunate to exploit outside famine relief. The fragility of their ecological and to some degree, social environment has since the onset of colonialism continued to reduce threats to their way of life.

Labour Migration

The advent of colonial rule at the turn of the twentieth century added a new dimension in the Valley Tonga’s resilience to environmental shocks. Evidence of labour migration as a famine strategy among the Tonga comes from the famines of 1908-09 and 1911-12. The British South Africa Company, then in charge of the then North Western Rhodesia and North Eastern Rhodesia, deliberately encouraged able-bodied young men to seek work out of their region with the view to making them earn money to buy food.³⁹ In 1928-29 during some localised food shortages in the Gwembe chiefdom of Mweemba, Reverend

³⁹ B.S. Siamwiza, ‘Famine in Zambia, c.1825- 1949’ (Ph.D. dissertation, University of Cambridge, 1998) 180.

Lyon of the Primitive Methodist Missionary Society, based at Kanchindu Mission reported an ‘exodus of able-bodied lads in search of work’.⁴⁰

This response to famine and other associated ecological stresses characterised the famines of 1931-32, 1941-42, 1947-48 and 1951-52. The number of men migrating was high, usually depending on the gravity of the famine. During the famine of 1931-32 for instance 1,826 out of 2, 471 able bodied men from four villages sought wage labour outside the country.⁴¹ Labour migration was also a feature of even post-colonial era. In the hunger years of 1968-69 and 1973-74, for instance, the rate of rural – urban movement in search of wage employment appreciably increased.⁴² The strategy applies elsewhere in African rural communities as the case is in the Gwembe valley. Evidence from some recent preliminary studies of the Sahel region indicates that labour migration has been ‘internalized in the livelihood system of the village people’.⁴³

Famine Relief

Since the food crisis of the *Inzala Mpati*, the Great Famine of 1908-09, the government has provided food for the victims. During the 1908-09 crisis the British South Africa Company administration, in charge of the country then, distributed free food rations among the famine victims throughout the affected areas in the Valley. The operation provided grain both for immediate consumption and seed for the next farming season, although most seed, especially of maize, was eaten as food because of the severity of the famine.⁴⁴

⁴⁰United Church of Zambia Archives (UCZA) 579, Lyon, Kanchindu, 1928.

⁴¹ National Archives of Zambia (NAZ) SEC1/1366, Vol..II, Famine Relief – Gwembe, 1931: Report of Provincial Commissioner, Batoka to Chief Secretary, 6 June 1942.

⁴² Colson, ‘In good Years and in bad’, 26.

⁴³ Yudai Ishimoto, ‘The Introduction of Labour migration and solution for the Impacts by Sahelian Agro pastoralists – The case study of a village in northeastern part of Burkina Faso’ ‘Human Networks in Southern Province, Zambia: An Overview’ in Chieko Umetsu (Project Leader) *Vulnerability and Resilience of Socio-Ecological Ststems* FY2007 FR1 Project Report, Project 1-3FR March 2008 (Kyoto: Research Institute for Humanity and Nature, 2008) 71.

⁴⁴ NAZ BS2/145, 1908 March 31 – 1909 My 27, Reports on District Sub-districts.

Since 1908-09, the Valley Tonga have received food relief during periods of famine.⁴⁵ During the 2005-6 food shortages, relief was provided for in Sinazongwe district within the Valley. In this district alone, six institutions were involved in food relief, each with its specific objectives and plan of action.⁴⁶

The provision of food during famine, although condemned in some scholarly circles as a cause of inertia and dependence syndrome among victims of famine is a critical element in protecting lives from starving to death. The fact that the provision of emergency food relief is now part of the cohort of the strategies applied to fight food vulnerability in the region means that it has become part of the Valley Tonga's resilience against ecological vulnerability. Since the re-introduction of a democracy in 1991, this system of resilience has been highly politicised. Evidence shows that during the 1995/96 famine not only in the Gwembe Valley but also elsewhere food shortages occurred there was interference from politicians in food distribution.⁴⁷ Gradually valley people have come to realise that their political leaders "have an obligation" to ensure food availability, whether free or for work in times of scarcity. In the era of democracy and of free press, neglecting famine relief and indeed concealing the presence of a food shortage is a political scandal. A Member of Parliament in whose constituency a famine or food shortages occur has a responsibility to report the scourge and to cajole the government to provide food to the starving people.

Fishing

Fishing has been one of the economic activities of the Valley Tonga. They caught fish on a small scale for subsistence using various methods. A variety of fish species were caught in tributary rivers of the Zambezi, streams and shallow waters of the Zambezi.⁴⁸ However, there was no commercial fishing as such although fish could be exchanged with other items of subsistence nature. Fishing for commercial purpose was probably

⁴⁵ See Siamwiza, "Hunger in the Gwembe Valley", 84-104; Siamwiza, "Famine in Zambia".

⁴⁶ Keiichiro Matsumura "The early Warning System and Food Security" Overview' in Chieko Umetsu (Project Leader) *Vulnerability and Resilience of Socio-Ecological Ststems* FY2007 FR1 Project Report, Project 1-3FR March 2008 (Kyoto: Research Institute for Humanity and Nature, 2008) 115-117.

⁴⁷ Greata P.A. Banda, 'An Assessment of the 1995/96 Programme against Malnutrition (PAM) drought Food relief programme' (Lusaka: Social Recovery Project, May 1997) 54-55.

constrained by limited technology. The fact that fishing activity was confined to the tributary rivers, streams and shallow waters and not “the deeper waters of the Zambezi channel”,⁴⁹ may suggest a limited technology to enable them venture into such waters.

During the preparations for the resettlement of the Valley Tonga between 1955 and 1957 the colonial authorities responsible for the Gwembe district faced many challenges of a critical shortage of land for all sorts of utilisation, worse was the inadequacy of arable land. In order to ease the already foreseen pressure on limited amount of land, officials involved in the resettlement programme unanimously agreed that some valley men, especially the young, should be encouraged to take up fishing for a living. This concern pre-occupied district officials in the early years of resettlement.⁵⁰ Fishing would not only provide the victims of resettlement with protein essential for a health diet, but would also enable them develop a cash economy which was critical to meet their needs; including purchase of food should an agricultural season turn out to be poor.⁵¹

In 1956, two years ahead of resettlement, some men were trained to take up fishing. In July and August of that year, a course was conducted in draw net fishing method for a wide range of people who included not only villagers, but also schoolteachers and some local businesspersons. In order to ensure continued in-house training of the would be fishermen after resettlement, Fish Guards were posted and stationed in resettlement areas close to the lake to work as fishing instructors.⁵²

In 1958 shortly before resettlement was effected some men were taken on a tour of some Luapula fishing centres so that they could have an on the spot idea of commercial fishing

⁴⁸ See Thayer Scudder, ‘Fishermen of the Zambezi’ *Rhodes-Livingstone Journal*, 27 (1960) 41-49.

⁴⁹ Scudder, ‘A History of Development and Downturn’, 315.

⁵⁰ NAZ SEC2/1024, N.C. G. Boxer, District Officer, Gwembe District, Gwembe Tour Report no. 5 of 1960: Annexure 4, Agriculture and Fishing, October 1960; SEC 2/1025, Alan Prior District Commissioner, Gwembe District, Gwembe Tour Report no. 6 of 1961. Chief Mweemba, Annexure: Fishing. Comments by the District Commissioner, 16 October 1961.

⁵¹ Monica M. Cole, ‘The Rhodesian Economy in Transition and the role of Kariba’ *Geography*, 47 (1962) 31.

⁵² W.H. Reeve, ‘Progress and Geographical significance of the Kariba Dam’ *The Geographical Journal*, 126 Part 1 (1960) 144.

activities.⁵³ A vigorous programme to train aspiring fishermen was embarked on throughout the Valley by the officials of the Department of Game and Fisheries.⁵⁴ When the lake eventually formed, it was stocked with bream fish from the Department's ponds in Chilanga near Lusaka, the capital of the country.⁵⁵ Initially the response was slow and perhaps even discouraging to the architects of the scheme. In the first eight months of the sealing of the dam in 1958, only 407 men fished on the lake. The position changed in 1961 when a Mr. Ellwood contracted some fishermen to supply him with smoke dried fish.⁵⁶ This arrangement popularised fishing among the local men because of the availability within their reach of the market for their catch. The arrangement attracted a large number of men to take up fishing. By the close of 1962 there were 2,000 local men fishing on the lake.⁵⁷

In order to encourage local men to take up fishing for their living a fisheries training centre was established in December 1961 at Sinazongwe, then a sub-district of the Gwembe District with the aim of improving fishing methods. The centre provided skills in modern fishing techniques and state of the art in fishing, boat building and other related fishing strategies.⁵⁸ In 1962, the centre expanded with the funds from the Freedom from Hunger Campaign.⁵⁹ During the Zimbabwe war of independence, between 1968 and 1980, fishing on the lake depressed because the lake became part of the battlefield. In 1980 Zimbabwe, attained self-rule and fishing resumed.

The story I have told about the development of the fishing industry in the Gwembe Valley is intended to demonstrate that after 1958 following the formation of Lake Kariba and consequently the resettlement of a large population of the Valley, the Tonga added another strategy to their resilience against ecological vulnerability. Fishing became a

⁵³ 'Gwembe Troubles' *Nshila* 17 (16 September, 1958) 2.

⁵⁴ Elizabeth Bailey, 'Gwembe People Plan their future' *Nshila* 12 (8 July 1958) 3.

⁵⁵ See Siamwiza, 'Hunger in the Gwembe Valley', 137.

⁵⁶ NAZ SEC 2/1025, A.R. Fisher, District Officer, Sinazongwe, Gwembe Tour Report no. 6 of 1961. Annexure: Fishing, September, 1961

⁵⁷ Siamwiza, 'Hunger in the Gwembe Valley', 137.

⁵⁸ Northern Rhodesia Government, *Development Plan for the period 1st July 1960 to 30th June 1965*. (Lusaka: Government Printer, 1962) 21.

⁵⁹ Great Britain, Colonial Office, *Report on Northern Rhodesia for the year 1962* (London: HMSO, 1963) 28.

hedge against drought induced famine or hunger. During the food shortages resulting from the droughts of the years between 1981 and 1987 many valley men took to fishing in order to survive the scourge. This also happened during the drought years of 1991-94, 1996, and 1998 as well as during the droughts of the current decade. During the bad years of the period between 1981 and 1987 Colson and Scudder observed that:

Although the gill net fishery is still depressed and largely in the hands of fishermen from other districts, again the fish are there and the number of Gwembe fishermen is already beginning to increase.⁶⁰

They sold their catch in Lusaka, the capital city, Livingstone and other town along the line of rail. The money raised was used to purchase not only grain and other foodstuffs, but also other requirements.

Conclusion

The Gwembe Valley is a semi-arid environment prone to drought and recurrent hunger and famine, yet there has been very little out of the Valley migration. This paper set out, therefore, to investigate the source of the Valley Tonga's resilience to ecological vulnerability largely induced by drought and occasionally flood. The paper has established that the Tonga have developed over the years a number of strategies not only to survive their hostile milieu, but also to prepare for bad times. They have exploited indigenous knowledge to read a bad season ahead of them and prepare to face its outcomes. Even seemingly, negative attributes of their area, attributes such as floods over the years have become a source of hope to survive food shortages. Social networks have been constructed and maintained purely as a survival mechanism. The bush with its variety of edible products has been their granary for centuries they have lived in the region. The paper has also established that the introduction of colonial rule led to the creation of migrant labour system, which became an added means of surviving food shortages in the Gwembe as men sought wage labour during famines. The introduction since 1908 of externally driven famine relief has also become part of the Tonga resilience

⁶⁰ Elizabeth Colson and Mary E.D. Scudder, *An Evaluation of the Gwembe South Development Project*(Binghamton: Institute for Development Anthropology, 1982) 10.

to ecologically induced setbacks. It has further been established that although the construction of the Kariba Dam caused hardships among the people of the valley the Lake that formed has become an important source of common resource property, fish, that the Tonga have depended upon during drought and flood induced food problems.

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