



Chapter Six

Spilling Blood over Water? The Case of Ethiopia

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Introduction

“The wars of the next century will be about water”

Ismail Serageldin, Vice-President of the World Bank¹

The main conflicts in Africa during the next 25 years could be over the most precious of commodities – water. The Nile River, with part of its source in Ethiopia, is considered to be a likely flashpoint for such conflicts.² Areas of ‘water stress’ are likely to see increased competition as populations grow and the available fresh water per capita decreases.³ Reconciliation is complex because many large rivers such as the Nile are trans-boundary. Indeed, as Wolf confirms, “water ignores political boundaries, evades institutional classification and eludes legal generalisations.” In addition, the most recent legal document on international waters, the 1997 Convention on Non-Navigational Uses of International Watercourses, is vague and sometimes contradictory. International agencies historically deal with international water resource disputes to only a limited extent.

However, despite the potential for conflict over water, there is little evidence that water has *ever* been the cause of international warfare. War over water is neither strategically rational, hydrographically effective, nor economically viable. Indeed, not only would such conflict be unlikely from a strategic point of view, but countries, regions and communities tend to share a strong interest in an orderly development of river systems, frame water development and use plans cooperatively. For example, despite their often adverse environmental impacts, dams can reduce seasonal variability of river flow for all connected nations. Hydropower generated in one country can be exchanged regionally and water-based transportation tends to be inexpensive and creates strong ties across countries and regions.

Though international wars over water have not occurred, there is evidence to suggest that the lack of water in certain contexts has led to localised political instability and violence. For example, some analysts suggest that conflict between herders and farmers is increasing.⁴ Indeed, farmer-herder conflict over water is documented in Mali⁵, the Ivory Coast⁶, and Burkina Faso.

While such conflicts might be cited as ‘conflicts over water’ it must be questioned to what extent water (specifically its scarcity) is the defining and/or dominating cause. Do conflicts occur where water is abundant, or where its availability is variable? What other factors influence and/or control the conflicts or their resolution? What role do conflict prevention and resolution mechanisms play in such conflicts and how successful are they in the ever-changing societies and environments that are found today?

For example, in Ethiopia development, and not water, is the more important source of conflict.⁷ Development-oriented conflicts include: disagreements between different users over the allocation of waters, land rights, or maintenance issues; conflicts between users and the authority responsible for the project over inappropriate design of infrastructure, peasant relocations, water charges, or management issues; conflict between project beneficiaries and non-beneficiaries; and, conflict between donor agencies and the recipient country over design, management, environmental impact, and financial issues.⁸

Water resources in Ethiopia are of national importance. Although overall there is sufficient water supply in Ethiopia, great spatial and temporal variability of water limits its development, management and equitable distribution. Not only is there a lack of rainfall in certain years, but also significant seasonal variability. Many areas of Ethiopia are highly vulnerable to extreme ecological stress brought about by scarcity. Add to this the suggestion of potential conflicts over water development, and the contentions over the Nile River Basin and its use, and it is possible to envision conflict over water in Ethiopia.

It is vital, therefore, that the role of water in conflict be thoroughly assessed to inform the design of conflict prevention strategies. This chapter will focus on two important water basins in Ethiopia – the Awash Valley and Nile River basins. Both basins are at the centre of water development in the country and therefore are important axes of competition and conflict.

Background to the Conflict

Ethiopia’s location in the Horn of Africa has had a significant impact on its historical development. Geography has shaped to a greater or lesser extent conflict both inside the country and with its neighbours. Any analysis of conflict in Ethiopia must appreciate the rich and manifold linkages between Ethiopia and its neighbours in the Horn of Africa. These linkages had an important bearing on conflict dynamics in Ethiopia in the past and today.

Ethiopia’s central location in the Horn is strategic, carrying many advantages and disadvantages. For example, Ethiopia’s long and complicated border has been a flashpoint for conflict on many occasions. The eastern and southern borders, in particular, have seen recurrent competition for scarce resources

between interacting, trans-boundary pastoralist groups. These groups were divided by the imposition of artificial boundaries by European imperial powers.

Historical Context

The origins of present-day Ethiopia date to the 2nd century BC in the Axumite Kingdom. The power of the kingdom was initially limited to a small region in the northern highland plateau of Tigrai. It then expanded extensively in all directions and covered large parts of northern Ethiopia and the Red Sea coastline.⁹ The existence of the kingdom depended on exacting tributes from the territories it controlled, as well as trade with most parts of the Arabian Peninsula.

The centre of power then shifted south, following the decline of the Axumite Kingdom due mainly to the rise of Islam and disruption of trade routes. This shift led to the emergence of a medieval state, which claimed to descend from 'the Solomonic line' to legitimise its rule. The shifting locus of the state to some degree followed the search for available resources, primarily arable land to cultivate, as well as a need to reinforce the strength of the state and protect it from conquest. The greatest phase of expansion occurred during the 14th century when the Abyssinian Kingdom enveloped most of Tigrai, Shoa and western Ethiopia. One distinctive feature that characterised most of this period is that the main form of rule of the dependent territories was expressed through the extraction of tributes, rather than direct rule. The subject territories or regions were in large part independent from the centre and had their own kings, chieftains, and elites, as well as their own armed forces. Thus, power was diffuse and administration was highly decentralised.

Another important connection with the inception of the state and its ruling classes in Ethiopia was the introduction of orthodox Christianity during the Axumite Kingdom. Christianity was used to legitimise and strengthen the power of the ruling class during this era.¹⁰ With the continued expansion and consolidation of power through a combination of force and assimilation, the mainly Amhara and Trigrean conquerors spread their language, culture and religion into ever-distant areas, until the 15th century.

In the 16th century Ethiopia experienced a major transformation when Muslim Somali and Afar forces invaded the Abyssinian Kingdom. The Oromo were also attacked during this time. Both invasions greatly weakened the central state and the country dissolved into components of powerful provincial dynasties (with the exception of Shoa, then the southernmost tip of Ethiopia), until the mid-nineteenth century.¹¹

The centralising tendency continued under different emperors in the north and Shoa consolidating their power. Centralisation of the state culminated during the rule of Menelik II, who expanded his authority and controlled

most of southern Ethiopia. European imperialism was encroaching into the Horn of Africa at the time. Italy, France and Britain claimed different parts of the Horn with the result that present-day Somalia was partitioned among the three European powers. Britain also controlled Sudan to the west. Italy claimed the Red Sea coast from Assab to Massawa.

In the face of these colonial incursions, Menelik expanded to the south to stave off the threat of further colonial expansion in the region and to ensure independence for Ethiopia.¹² Another factor underlying Menelik's expansion to the south was the desire to control its vast and rich land and natural resources to relieve the growing famine further to the north. Others explain Menelik's expansion as imperialist.¹³

The seeds of conflict were planted as the central state expanded and imposed a new political and administrative system onto customary social formations. This was manifest in several ways. As the central state expanded outward, competition for valuable land and natural resources was common. At the same time, different groups moved inwards to Ethiopia in search of land and resources. The Oromo invasion of the Ethiopian plateau in the 16th century is one example.

The roots of ethnicity can also be traced to this period since the various ethnic groups in all parts of Ethiopia fell under the control of a centralised military controlled by the Amhara and Tigrean, who assimilated minority ethnic groups under their control. Markakis noted that "... forced assimilation not only was rejected by subordinate groups, but also encouraged them to invoke their own cultural symbols, most often in religion and language, in the propagation of what may called 'dissident nationalism'".¹⁴ Ethnicity, however, was not a root cause of conflict in Ethiopia at the time. The various armed conflicts between and among the ruling groups in different areas of Ethiopia were based mainly on regional sentiments rather than on ethnic identities. "In the old Ethiopia, regionalism – as an expression of particularistic sentiments anchored on feudal relations – was a major source of conflict".¹⁵

Religion was a significant factor in conflict in Ethiopia, particularly in the 16th century when the Muslim invasion had a devastating impact on the then predominantly Christian highland areas, followed by widespread and forced conversions to Islam.

Not dissimilar to the process elsewhere, state formation in Ethiopia was punctuated by violent interstate and intra-state conflict. The nature of conflict between the various regional powers that vied for control of the state was nearly always violent. In the process "divergent groups were integrated, not always successfully, into a central state which reflected the values of an elite strongly Christian orthodox group".¹⁶ This being said, the authority of the Ethiopian rulers before the rule of Menelik II was highly diffuse and shifted between different regions. In the early period, regionalism rooted in feudal relations was the main source of conflict rather than 'ethnicity'. State control

meant acquisition and control of resources by the ruling elite and the state soon became the main focus of conflict.

The southward expansion in Ethiopia occurred at the same time as the imperialist intrusion into the Horn of Africa. In the process of colonialist expansion, boundaries were drawn which divided peoples accustomed to free movement throughout the region. The imposition of hard boundaries significantly restricted movement of peoples accustomed to a different way of life. The Somali people, for example, were partitioned into five states, namely: British Somaliland, Italian Somalia, French Djibouti, British Kenya and Ethiopia. Likewise the Afar pastoralists were divided between present-day Ethiopia, Eritrea and Djibouti. The partitioning of ethnic groups increased conflict between pastoralists and also served to pave the way for interstate conflict and tension between neighbouring Horn countries. One example is the Ishaq-Ogaden conflict over the Hausa pastures that closely relate to the Ethio-Somali conflict.

With the emergence of the modern state during Haile Selassie's reign, central state power was consolidated. Following the defeat of the Italians, Eritrea (formerly an Italian colony) was federated with Ethiopia by the United Nations. The emperor unilaterally abrogated the resolution in 1962. This marked the beginning of an armed struggle in Eritrea for independence that lasted for more than 30 years. During this period, ethnicity became a significant factor in conflict and a rallying issue for dissident groups in Ethiopia. Many ethnic movements sprouted in different parts of Ethiopia. Some analysts point out that the Ethiopian state was not successful in fully integrating the peoples and territories over which it expanded, in particular the pastoralists who inhabited the lowlands bordering Somalia and Kenya, with the result that no 'national' identity would emerge. State penetration and domination of diverse identity groups expanded considerably in the last century but without sufficient emphasis on the identification, participation, and loyalty of the citizen to the embryonic nation state.

It is difficult to make a clear distinction between the internal conflicts arising within Ethiopia and the conflicts with neighbouring countries. The linkages between intra-state and interstate conflicts are manifold. For instance, during the war for Eritrean independence, the Eritrean liberation fronts were headquartered and supported by Sudan, while at the same time the liberation forces of southern Sudan had their bases in Ethiopia. Similarly, the Somali movements in the Ogaden region also keep bases in Somalia.¹⁷

During the Cold War, military capability and the centralisation of power were common to Ethiopia, Somalia and Sudan. The risk of conflict between states was heightened as they began to forge alliances with the two superpowers. The United States initially established a strategic relationship with Ethiopia in the 1940s and continued until the monarchy was toppled and replaced in 1974 by a military regime, or the *Dergue*, which claimed socialist

loyalties.¹⁸ The geopolitical landscape changed dramatically after the military assumed power in Ethiopia. When Somalia claimed the Ogaden region as part of 'Greater Somalia' and war ensued in 1977, the Soviet Union sided with Ethiopia, increasing military aid significantly to enable the Ethiopians to defeat Somalia. Arms proliferated throughout the Horn during the Cold War, intensifying conflicts both before and after the fall of the Berlin Wall.

Other regional powers also play a role in the Horn of Africa. For example, Egypt's interests in securing control of the Nile waters appears to have played a role in its support of the Eritrean struggle for independence.¹⁹

One of the main actions of the *Dergue* was to dismantle the feudal land tenure system and redistribute rural land to peasants. It was assumed that land redistribution to the peasants would redress the basic source of poverty and ultimately conflict between different classes in Ethiopia. Although the land reform initially found favour with the rural poor, peasants later opposed the government's forced policy of establishing cooperatives and villages. Opposition movements were also violently repressed, including the Ethiopian Peoples Revolutionary Party (EPRP). The war with the Eritrean liberation movements escalated and other movements emerged, including the Tigrean Peoples Liberation Front (TPLF) that later became the Ethiopian People's Revolutionary Democratic Front (EPRDF). After a series of debilitating wars, the EPRDF, led mainly by the TPLF, toppled the *Dergue* and took power in 1991.

A number of factors led to the downfall of the *Dergue*. The policy of centralisation in both political and economic terms and the armed suppression of political and ethnically based opposition forces had led to popular discontent. The regional movements, increasingly established along ethnic lines, became stronger and finally succeeded in gaining popular support, undermining the legitimacy of the *Dergue*, and leading eventually to its collapse.

With the EPRDF assuming political power, a federal system of government decentralised many administrative functions to regional units, delineated mainly along ethnic lines. The EPLF (Eritrean People's Liberation Front) took control of Eritrea at the same time and formally gained independence in a referendum held in 1993. Article 39 of the Constitution promulgated in 1995 gives "Every Nation, Nationality and People in Ethiopia an unconditional right to self-determination, including the right to secession".

This policy of ethnic federalism and decentralisation is meant to prevent conflicts caused by centralisation and the consequent ethnic tensions that prevailed prior to 1991. Furthermore, decentralisation under a federal system of government is intended to encourage local and regional participation in decision making, thereby improving accountability and legitimacy of the government at the regional and federal level and, in the end, reducing underlying tensions and minimising conflict. It is also intended as a means to widen access to resources in the regions and to ensure political stability.²⁰

However, there are political and economic risks associated with decentralisation, particularly considering that regional administrative units are formed roughly along ethnic lines. This may influence the allocation of resources at the expense of some ethnic and religious groups, thereby leading to politicisation and mobilisation along ethnic lines. Decentralisation may also threaten those who hold power at the central level. Another potential cause of conflict may be that ethnic majorities in a given region may neglect the concerns of minority groups inhabiting their region.

It is too early to determine whether the current policy of ethnic federalism will minimise conflict in Ethiopia. As pointed out earlier, the policy itself entails high risks relating to ethnic differentiation and the misallocation of resources.

To date, Ethiopia has been involved in two interstate conflicts, with Somalia to the east and Eritrea to the north. Officially, both conflicts were rooted in competing territorial (boundary) claims. The sources of the Ethiopia-Somalia war in the 1970s date back to the colonial period when the Somali people were divided between Somalia, Somaliland, Kenya, Ethiopia, and Djibouti. Following the establishment of the Somali Republic in 1960 and the beginning of Somali nationalism, the government of Somalia claimed the Ogaden region that was under Ethiopian administration. The government in Somalia wished to consolidate the different Somali clans under one Somali nation. Somalia initially occupied most of the Ogaden and penetrated further into other towns in the eastern part of Ethiopia (but eventually was defeated by Ethiopia in 1978), which were aided militarily by the Soviet Union. Tense relations between Somalia and Ethiopia have existed since the war in 1977–1978.

Although boundary conflict and nationalist fervour were the sources of the conflict between Ethiopia and Somalia, access to and control of resources were closely related to competing claims to the Ogaden.

The immediate cause of the Ethio-Eritrean conflict was over a contested border. However, many assert that the real cause of conflict between the two countries goes beyond the border dispute and can be traced to the prior relationship between the two governments.²¹ Before coming to power, the TPLF, which is the dominant party in the present ruling party, the EPRDF, and the EPLF, were allied in armed opposition to the *Dergue*. Moreover, Eritrea gained independence through a referendum in 1993 that was supported by the present government.

Throughout the period prior to the border dispute, relations between the two governments were cordial both on the political and economic fronts. Relations soured in 1997 when the Eritrean government introduced its own currency, the Nakfa. This prompted Ethiopia to state that trade between the two countries should be made in hard currency. Controversy also emerged over port procedures and charges in the Eritrean ports of Massawa and Assab. Ethiopia also found it expeditious to import oil products and other

import items through the port of Djibouti instead of subsidising the refinery in Assab. Border trade issues along the Tigrean and Eritrean border also proved to be contentious because of the requirement of payment for Ethiopian goods in hard currency. Even before the two governments came to power in the early 1990s, some argue there were political and ideological differences between them, exacerbated by their ascent to power.²²

It is interesting to note that one of the contested areas, Bada, which is found in the Afar Depression, is an irrigated area with four villages. Historically, Eritrea administers two villages and Ethiopia administers two villages. A *wadi* (seasonal river) divides the villages administered by Ethiopia and Eritrea, and was formerly accepted as the boundary. The water was allocated between the communities – 75% for the Eritrean side and 25% for the Ethiopian side. Before the fall of the *Dergue*, Bada was administered jointly by the EPLF (the Eritrea side) and by the TPLF (the Tigrean side). After the defeat of the *Dergue*, the Bada area was left undefended, and the Afar National Liberation Front (ANLF) and the Afar Revolutionary Democratic Front controlled the area from 1989. After 1991 both the Eritrean and the Ethiopian government were fighting the Afar liberation forces to gain control of the area. In July 1997, Ethiopian forces moved into the area but subsequently withdrew. The Eritrean government refers to Ethiopian occupation of Bada as one of its justifications to occupy Badme and other disputed villages on the border.²³

Soon after the military control by Eritrea of the border areas it claimed to be its own, Ethiopia sought a peaceful solution to the crisis. Rwanda and the United States facilitated an attempt to peacefully reconcile the two sides that included a series of consultations between the two countries, a set of recommendations and a general implementation plan.

On 4 June 1998, the Ethiopian government announced that it accepted the facilitators' proposals. However, though the Eritrean government stated that the recommendations formed a good basis for a comprehensive solution, the process could not be finalised. At the 38th session of the Assembly of Heads of State and Governments of the Organisation for African Unity (OAU), the summit endorsed the proposals made by the facilitators and decided to send a delegation of heads of state to Addis Ababa and Asmara to investigate the cause of the dispute and to advance the facilitators' plan for a peaceful settlement.

After a series of talks with both sides, it was apparent that although both sides accepted the peaceful resolution of the dispute in principle, Eritrea's unconditional withdrawal from the territories it occupied from 6 May onwards remained a sticking point. Ethiopia demanded that Eritrea should withdraw from the territories it invaded before meaningful negotiations for peace could proceed. Eritrea demanded the demilitarisation of the entire border between the two countries without agreeing to withdrawal from the territories it occupied.

The OAU mission continued with its efforts to develop a peace plan with a Committee of Ambassadors coordinating talks with both countries from

30 June to 9 July 1998. The committee prepared a report on this basis and the ministers of foreign affairs of Burkina Faso, Djibouti and Zimbabwe, as well as the secretary general of the OAU, subsequently endorsed the recommendations during a meeting in Burkina Faso the following month. A framework agreement was then submitted to the two, supported by the UN Security Council and the European Union.

The recommendations included:

- a commitment by both parties to put an immediate end to all hostilities;
- the redeployment of the armed forces (Eritrea) present in Badme town and its environs to positions held before 6 May 1998 and the reinstatement of the Ethiopian civilian administration;
- the deployment of a group of military observers to supervise the withdrawal; and
- the demilitarisation of the entire common border.

Ethiopia announced its acceptance of the framework agreement proposed by the OAU delegation on 9 November 1998, while Eritrea remained silent. The situation deteriorated from this point and war broke out towards the end of February 1999. After the first counter-offensive on the Badme front by Ethiopia, Eritrea announced to the UN Security Council that it accepted the framework agreement. However, within days of accepting the framework agreement, Eritrea rejected the Ethiopian demand for a complete and unilateral withdrawal of Eritrea forces from all of its occupied territories.

The war now escalated and Ethiopia launched repeated military offensives in May 2000 against Eritrea. Ethiopia reclaimed all territories previously occupied by the Eritrean forces and occupied further territories inside Eritrea. After a bloody war, on 18 June, Ethiopia and Eritrea signed a ceasefire as a first step toward a comprehensive peace agreement. A subsequent peace agreement signed in Algiers formally ended the two-year war. A UN peacekeeping mission, UNMEE, has been deployed in a demilitarised zone in the border area to monitor the ceasefire agreement, to observe the full withdrawal of troops from the area and to facilitate the demarcation of the border.

Ethnic Conflict

Conflict between different ethnic groups within Ethiopia is common. Between pastoralist groups, these conflicts often involve competition to control grazing lands and water supplies, and they increase during drought. However, the nature of communal conflict in Ethiopia took new forms following the demarcation of boundaries. This demarcation fragmented groups and impeded cross-border movements essential to the viability of customary resource-use systems. The Haud pastures found in the Ogaden region, for example, were long a

source of conflict between the Ogaden and the Ishaq Somali clans, shared as they were among the Ishaq, the Dolbahanda, the Marehan, the Bayedehan and the Ogaden.²⁴

Earlier competition to control the Haud pastures rarely entailed large loss of life. Instead, traditional institutions (known as the *diya*) effectively contained and resolved these types of conflicts. Following the colonial scramble for control of the Horn of Africa, conflicts took on a more political nature. The Ogaden, where the Haud pastures are situated, came under Ethiopian territory under the 1887 Anglo-Ethiopian Agreement. Since the Ishaq were under British administered Somaliland and outside Ethiopian territory, claim to the Haud pastures between the Ogaden and Ishaq clans became a territorial dispute.

Markakis explains, "The border was a serious obstacle to the pastoralists of the British colony because it impeded their entry to the Haud. The Ogaden, on the other hand, were increasingly resentful of such intrusions in what they had come to consider their own territory ..." ²⁵ Subsequently, after the border was demarcated, control of the Haud pastures became increasingly political. The Ogaden and the Ishaq shifted their allegiances to the Somalian and Ethiopian governments, as well as rebel groups, as was politically expedient.

Underlying Sources of Conflict

There is no single source of conflict in Ethiopia. Instead, many factors intertwine and overlap to lead to the onset and perpetuation of conflict. Access to and control of resources by the state and other factions is a critical dimension of conflict, although the immediate sources of conflict are typically expressed in ethnic, territorial, ideological, or class terms.

The ethnic conflicts that have featured prominently in Ethiopia to date also stem from the marginalisation of some groups by a state that monopolises control over the production and distribution of resources. By holding such power over resources, the state has the ability to favour one group, historically the highland Amhara and Tigray ruling elites in Ethiopia, while discriminating against other groups, such as the Oromo or Somali in the south and east. Dissidence and rebellion flourish when certain areas or groups are neglected in the process of development and allocation of resources.

The peripheries in Ethiopia, where most pastoralists live, were neglected for a long time and have never really been economically and socially integrated into Ethiopia. When there was an attempt to do so the development needs of the community itself were not considered. For instance, a highland agricultural economy was imposed on the Afars in the Awash Basin and development in the Basin has favoured commercial farmers and state partners. The interests and development needs of the Afar pastoralists were rarely accounted for, sparking conflict between the Afar pastoralists and the state.²⁶

In almost all instances of interstate and intra-state conflicts in Ethiopia, there is little evidence of attempts at peaceful resolution. Many disputes lead to violent conflict. The struggle to control the central state between the various contenders in the early period of state formation up to the downfall of the *Dergue* was, in most cases, violent. Even the territorial dispute between Ethiopia and Eritrea became violent, despite protracted diplomacy and other interventions to prevent war.

One reason for recurring violent conflict in Ethiopia is the absence of democratic institutions to negotiate disputes and mediate competition. There exist various traditional institutions in Ethiopia that have their own customary methods to prevent and manage conflict. However these are rarely employed in high-level conflicts involving the central state, which plays an exaggerated role in every aspect of conflict prevention, management and peacebuilding. Religious institutions could particularly play a larger role in preventing and managing conflict given the respect they command.

Overview of the Environment

Ethiopia is a landlocked country. The total land area is approximately 1.2 million square kilometres. The physical landscape is highly variable and diverse, incorporating mountain chains, a flat-topped plateau (above 1 500 metres above sea level), deep canyons, rivers, valleys and rolling plains. The central highlands are split from the north-east to south-west by the Rift Valley, which is some 40–60 kilometres wide and dotted by a string of lakes. Altitudes range from 110 metres below sea level in the Dallol Depression to more than 4 500 metres in the Simien Mountains.²⁷ Steep lands (defined by areas with a slope exceeding 30%) are estimated to cover about 33% of the highlands and only 21% of lands have a slope less than 8%. As a result suitable areas for cultivation are limited.²⁸

The area of arable land in the country is approximately 13.2 million hectares, or 12% of the total land area. Cultivated lands cover an estimated six million hectares, or 45% of all arable lands. Small-scale farmers occupy 96% of the cultivated area, while the remaining 4% is cultivated by the state or by producers' cooperatives.²⁹ The total estimated population in 1994 was 63.5 million.³⁰ The population growth rate is estimated to be 3.1% per annum.³¹ Life expectancy at birth is 43 years and the percentage of the population with access to safe water is estimated to be only 26%, averaging only 15% in rural areas.³²

Population growth is increasing stress on land and natural resources. Between 70–90% of the population live in the highlands and mainly in rural areas, where 95% of all food is produced and an estimated two-thirds of all livestock are raised.³³ The average land holding is only 1.09 hectares in size.³⁴ Large disparities in income are common in Ethiopia: the poorest fifth

of the rural population (made up of resource-poor farmers, landless, land-poor and pastoralists) have a consumption level equal to that of only one tenth of the richest 20% of the population.³⁵

The lowland areas are traditionally dominated by less extensive agricultural practices such as pastoralism. Indeed, it is estimated that there are between 3.4 and seven million pastoralists³⁶ in the country who occupy approximately 60% of Ethiopia's land mass.³⁷ The highest population of pastoralists is found in the regions of Somali (53%), Afar (29%) and Oromiya (10%).³⁸

Pastoral lands, in general, experience low annual precipitation averaging 400–700 millimetres and in many areas drought can occur on a regular basis.³⁹ As a result, pastoralism as a land use depends upon scarce water supply from the rivers that flow through the lowlands from the highlands. Access to water has been severely curtailed in recent years due to changing land use practices and attempts to develop large-scale agriculture and irrigation schemes.

Agriculture

In 1995, the Ethiopian agricultural sector (dominated by smallholder agriculture) contributed approximately 55% of GDP. It accounted for 85% of export and 80% of total employment.⁴⁰ This suggests a very low labour return. The country's export market is highly dependent on coffee, which generates 60% of foreign exchange earnings.⁴¹ In 1994–95, five crops accounted for the majority of cereal production: maize (15.75%), teff (25.78%), barley (12.29%), sorghum (12.39%) and wheat (10.76%).⁴² However, the remaining production is made up of a wide variety of crops. Ethiopia is one of twelve world centres of outstanding biodiversity. Many crops and plants are suspected to have originated in Ethiopia, such as coffee, okra, mustard, varieties of peas, millets, sorghum, yam, watermelon and oriental sesame.

The growth rate of agricultural production is small. From 1992–93 to 1998–99, for example, it was only 2%. Though some attribute this to a lack of fertilisers and high-yielding crop varieties, there are many political, economic, environmental and social reasons for this slow growth. These include a continued lack of investment in small-scale production methods, little support for the peasant economy and rural development, civil war and social disorder, regime change and ineffectual government.

The lack of support given to rural areas can be attributed to an historical bias towards the development of urban centres. This development approach was based on a core-periphery mentality. Indeed, it is suggested that the government supported and continues to support the urban elite at the expense of the underprivileged and less politically powerful rural populations. As a

European Union representative explained, there continues to be a lack of investment and innovation in the agricultural sector. Instead, rural farmers continue to farm using customary methods, cultivating the same crops, using the same techniques, with similar unwanted environmental effects.⁴³

In addition, the lack of basic infrastructure, including transportation systems and telecommunication facilities, hampers agricultural production and food distribution. Approximately 20% of the national highway network is paved – a total of 4 000 kilometres – with few interconnecting linkages between adjacent regions. As a result nearly three-quarters of the country's farmlands are more than half a day's walk from all-weather roads⁴⁴.

Climate and Water Resources

The most limiting factor in the agricultural sector is climate variability and uncertainty. The impact of climate variability is aggravated by a lack of investment in the agricultural sector and low state and local capacity to mitigate adverse conditions. Climatic changes directly influence the distribution of natural resources throughout Ethiopia and influence the agricultural suitability of many lands. Annual rainfall varies from less than 100 millimetres along the border with Somalia and Djibouti to 2 400 millimetres in the south-western highlands. The national rainfall average is 744 millimetres. Rainfall generally occurs in a five-monthly unimodal rainy season from May to September in the western part of the country. However, in the southern and eastern highlands, there is a pronounced bimodal rainfall distribution, with the first and generally smaller rains (*belg*) peaking in April, and the second, more intense rains (*keremt*) peaking in August/September. The main dry season extends from October to February, being longer and drier in the north.⁴⁵

Recurrence of drought is a common phenomenon in Ethiopia and affects large numbers of the population (see Table 1), particularly in the lowlands, where rainfall varies from less than 200 millimetres to 800 millimetres. Most recently, the 2000–2001 drought in Ethiopia affected approximately 10.5 million people, mainly in the southern part of the country.⁴⁶

However, from a national perspective, and despite recurrent drought and variable rainfall, Ethiopia has abundant inland water supplies totalling 8 800 square kilometres.⁴⁸ At current levels of potential fresh water resources per capita of 1 924 cubic metres per year, Ethiopia is endowed with one of the largest fresh surface water resources in sub-Saharan Africa. It has 11 large lakes and is the source of 14 major rivers. Twelve rivers are trans-boundary, flowing outside the country. The Awash (though this may in fact supply Djibouti's lakes with water under ground) and the Omo River that fills Lake Turkana on the Ethiopia-Kenya border are the only rivers that do not flow outside Ethiopia.

Table 1: Drought history between 1965 and 1992⁴⁷

Year	Numbers affected
1965	1.5 million
1969	1.7 million
1973	3 million
1977	300 000
1978	1.4 million
1979	23 000
1983	2 million
1984	5 million
1985	7.75 million
1987	7 million
1989	2.3 million
1990	6.5 million
1991	6.2 million
1992	0.5 million

The main drainage basins in Ethiopia are the:

- Blue Nile (Abbay) and the Baro-Akobo that flow to Sudan and eventually to the Nile;
- Tekeze-Atbara that enters Eritrea and Sudan;
- Wabi-Shebelle and the Genale-Dawa that enter Somalia;
- Gibe-Omo that flows south to Lake Turkana (of which there is only a small and receding part in Ethiopia); and
- Awash (which flows in the direction of Djibouti) and the central lakes.

Most rivers in Ethiopia are seasonal, with approximately 70% of the total run-off occurring during June, July and August. Consequently, the development of water resources through irrigation and hydropower depends on large storage reservoirs. Dry season flow originates from springs, which provide a continuous supply for small-scale irrigation. River water contains heavy sediment loads. Most rivers flow through deeply incised gorges and navigation is interrupted by waterfalls. Thus, access to a large percentage of Ethiopia's river network is difficult.

The total annual water resources are estimated to be 110 cubic kilometres, of which 76.6 cubic kilometres drain into the Nile Basin. Usable groundwater resources are estimated to be 2.6 cubic kilometres for both Ethiopia and Eritrea, though it is suggested that this estimate is based on little hydro-geological information.⁴⁹ A small fraction of groundwater supplies rural water needs. Traditional wells are widely used by pastoralists. The number of these wells, as well as boreholes and *birkas* (concrete storage tanks), has increased due to development aid projects.

There are 11 major lakes in Ethiopia. Lake Tana, situated in the Abbay River Basin, is the largest with a surface area of 3 600 square kilometres. It has a high development potential, including irrigation, hydropower, fisheries, navigation and tourism. Seven of the other major lakes are situated in the Rift Valley in the southern part of the country, which, it is suggested, have experienced large 'natural' fluctuations in hydrological regimes since the end of the Middle Palaeolithic period. Among these, only Lake Zwai is fresh water. Despite this, the lakes are reasonably productive, having large amounts of fish. Extensive deposits of soda ash are found in Lakes Shala and Abyata. In addition, some lakes are popular tourist attractions, aided more recently by the completion of a tarmac highway between the Rift Valley lakes area and Addis Ababa.

Management of Water Resources

Past Schemes

In spite of the large water supplies in Ethiopia, little water is captured and utilised within the country. Most water flows outside Ethiopia into neighbouring countries. Approximately 1% of the total flow of Ethiopia's rivers is used for power production and 1.5% for irrigation. Traditional irrigation methods have been employed for centuries on small-scale schemes including simple river and stream diversions that generally serve small villages. The diversion structures are rudimentary and subject to frequent damage by floods. Constant repairs are required that involve great labour expenditures. These 'water-user cooperatives' should provide each beneficiary with access to water on an equal basis, and equity in water distribution is a strong factor guiding allocations. The schemes are managed either by traditional, elected elders known as 'water fathers' or 'water judges' and/or more recently by Peasant Associations (PAs).

In comparison, 'modern' water development schemes are a relatively new phenomenon in Ethiopia. Development projects began in the 1950s to enlarge national agricultural production, increase power generation and to establish a municipal water supply for Addis Ababa and a few other major

towns. These were concentrated in the Awash Valley (later spreading to the Rift Valley and the Wabe Shebelle Basin) and fed the growth of agro-industrial enterprises, including sugar estates, and fruit and cotton farms. In the past, the technology transfer and operational management were entrusted to a small technical and managerial elite working under large-scale foreign interests. Today, agro-industrial operations are managed as parastatal enterprises. In the majority of cases, the development of agro-industrial schemes did not involve the local farming population, nor traditional knowledge and irrigation methods. As a result, modern water development projects to support agro-industrial schemes have by and large bypassed the peasant farmer.

Large irrigated farms became the responsibility of the Ministry of State Farms under the 1975 Rural Land Proclamation. Almost all small-scale irrigation schemes built after 1975 were made into producers' cooperatives. These further undermined the role and potential of traditional irrigation systems. Today, many producer cooperatives are being privatised or divided as part of land redistribution programmes.

Level of Present Irrigation

It is difficult to know exactly how much irrigated land exists in Ethiopia, though it seems likely that the area of land under irrigation has decreased in recent years, mirroring international trends. Recent estimates put the total area of land under irrigation in Ethiopia at 160 000–198 000 hectares. This estimate includes traditional, communal, private and public schemes (see Table 2) of varying degrees of scale (see Box 3). Many schemes are concentrated (approximately 48%) in the Awash Valley, where 92% of all large schemes were built prior to 1990.⁵⁰

Many irrigation schemes were mismanaged or fell into disrepair. Moreover, many producers' cooperatives were recently abandoned owing in large measure to local opposition. In the Lower Awash Valley, an estimated 13 000 hectares of irrigated lands were abandoned, and another 8 000 hectares were abandoned in the Middle Awash Valley. Even before irrigation schemes in the Awash Valley were widely abandoned, many did not work to their full potential. It is estimated that in the Lower, Middle and Upper Awash, the efficiency of irrigation schemes is only 40% owing to inadequate levelling of land, and mechanisms to control and measure water. Traditional irrigation methods used by smallholder farmers are frequently inefficient as well, owing to a lack of appropriate technology, information, inputs and extension advice. Many schemes are vulnerable to variable water supplies, in part because water supplies are inadequately managed.⁵¹ The low productivity of small-scale irrigation schemes reflects these production constraints.

Table 2: Estimated existing irrigation schemes by category⁵²

Category	Hectares
Traditional schemes	64 000
Modern communal schemes	30 662
Modern private schemes	5 414
Public irrigation schemes	61 060
Total area currently under irrigation	161 136

Box 3: Types of irrigation schemes found in Ethiopia⁵³

- Small-scale (approximately 64 000 hectares in 1995): These consist of a single peasant association (the local administrative area), up to 200 hectares in size, for which assistance in development or improvement is carried out on a self-help basis with some support from the Ministry of Agriculture. About 359 000 farmers benefit from traditional, small-scale irrigation systems.
- Medium-scale (approximately 44 000 hectares in 1995): These schemes range in size between 200 and 3 000 hectares, and include several peasant associations. They require greater government assistance, predominately through the Ministry of Water Resources (MoWR). At first intended as a self-help, low-cost method of agricultural development, they were later modified for commercial production of coffee, sugar and cotton.
- Large-scale (approximately 90 000 hectares in 1995): These are centrally managed state farms for commercial production, and are 3 000 hectares or greater in size. They are planned and designed by the MoWR and constructed under its supervision.

Irrigation Potential

Between 1.8 and 3.74 million hectares of land are suitable for irrigation in Ethiopia, including 165 000 to 400 000 hectares that are more suited to small-scale irrigation development. However, there is a lack of adequate information on irrigation in Ethiopia. The River Abbay in the Nile River Basin has the highest irrigation potential.⁵⁴ At present, large and medium-scale irrigation covers less than one percent of the Nile River Basin, which is nonetheless the largest percentage of any basin in Ethiopia.⁵⁵

Estimates from 1988 put the cost of developing large-scale irrigation schemes at between US\$ 18 000 and US\$ 25 000 per hectare, without accounting for the cost of water storage. Costs for developing medium-scale

schemes are between US\$ 10 000 and US\$ 15 000 per hectare and US\$ 2 300 and US\$ 3 400 per hectare to develop small-scale irrigation schemes.⁵⁶ The high cost of irrigation development is a great investment constraint that prevents further irrigation development in the country. The government has attempted to overcome investment constraints, but has been unsuccessful thus far. For example, in the early 1990s, the government shifted to a market-based economic policy. A number of medium to large-scale irrigation projects were initiated by the government at the time in anticipation that private investors would continue to develop the schemes as commercial farms. However, investors have not done so and the schemes have been abandoned (see Table 4).

Table 4: Suspended large and medium-scale schemes⁵⁷

Project	Hectares	Remark
Gode irrigation project	8 000	Diversion weir completed
Alwero irrigation project	10 000	Dam completed
Lower Omo irrigation project	10 000	1 200 ha developed but not operational
Meki-Zwai irrigation project	3 000	1 000 ha developed but not operational
Alaba-Kulito irrigation project	3 700	Construction of dam started but abandoned
Borkena irrigation project	3 000	Construction of dam started but abandoned
Angelele irrigation project	3 000	1 000 ha developed
Jijiga	3 000	Completed but not functioning properly
Total	43 700	

Rural Water Supply

The provision of water supplies in Ethiopia is among the lowest in Africa. The strong bias toward urban development historically means that the provision of water supplies in rural areas is particularly low. In 1996 an estimated 19% of the rural and 80% of the urban population (31.3% excluding the capital Addis Ababa) had access to safe water. The overall total for Ethiopia is only 26%. In addition, water is rarely treated in rural areas, meaning that access to potable water is restricted to wells and protected springs. Thus the great majority of Ethiopians use unsafe and polluted water, and are at risk for a great variety of water-borne diseases.⁵⁸

A large number of non-governmental organisations and development agencies are involved in projects to enhance rural water supplies, mainly by providing pipes, tankers and constructing dams, wells and/or storage tanks. Although many projects have benefited rural populations, the effectiveness of some projects is questionable.⁵⁹ Local ownership of projects is rare.⁶⁰ Lack of local ownership means that local peoples have little incentive to help in the upkeep and development of water supply projects. Thus, the infrastructure of many projects deteriorates after the organisation or agency that implemented the project leaves.

Many large-scale donor-funded water development projects have generated greater problems. The donor funded Jijiga Dam and irrigation scheme in the Somali region of Ethiopia, for example, has cost an estimated US\$ 24 million to date, but is still not operational. One assessment of the project reported that, "the dam leaks, has insufficient input flow to fill even during heavy rains and is completely unacceptable to the local pastoral community who have demonstrated their displeasure with the project by breaking everything that is breakable and carrying away stones in the sluice-way that are useful for other purposes."⁶¹ The report concludes that unless local issues and concerns are appreciated and addressed, "the dam will be a source of future insecurity in the area".⁶²

Power Sector Development and Hydroelectricity

Water management problems and investment in inappropriate development projects are common in the hydroelectric sector as well. Although Ethiopia has a large potential for hydroelectric development, only 1% has been exploited to date. For example, it is estimated that the 'economic' (that which could be exploited at economic costs by present-day technologies) hydroelectric potential is nearly 100 times Ethiopia's demand for electricity. However, the supply system itself is currently capacity constrained, with hydro generation capacity challenged to meet demand in terms of peak power and annual energy output. Variable rainfall and recurrent drought further constrain hydroelectric development. At older installations siltation of reservoirs has reduced storage capacity, thereby accentuating spillage requirements in flood situations and worsening water shortages during dry periods.

Furthermore, many hydroelectric projects were suspended owing to:

- Lack of spare parts for the older plants (with the original suppliers of equipment, all foreign, often having changed addresses or no longer manufacturing the required parts);
- Lack of design details and references to be used in ordering the replacement parts; and
- Shortage of water for running the plants, which are all run-of-river types, especially during the dry season when neighbouring peasants compete to access and use water for irrigating the farms.⁶³

Despite this, and in line with the priorities of the new water policy, hydro-electric development is being accorded far greater attention, with effort being focused on the rehabilitation of old hydro plants, the study of new schemes, and the construction of new plants.

Institutional Arrangements

The federal government established the Ministry of Water Resources (MoWR) in 1996 to further develop and implement a new national water resources plan. The MoWR is mandated to develop water policies, and to undertake implementation, operation and regulatory work concerning water. Prior to its establishment, planning and development in the water sector was constrained by the lack of a central institution for coordinating all planning, development and policy related to water. But the design of the ministry has not proved to be efficient.⁶⁴

In June 2000, the MoWR released the Ethiopian Water Resources Management Policy (EWRMP). The overall goal of the policy is “to enhance and promote ... the efficient, equitable and optimum utilisation of the available Water Resources of Ethiopia for significant socio-economic development on a sustainable basis”. The basic principles informing the policy are the following:

- Water, as a natural resource, is for the common good of the Ethiopian people.
- Every Ethiopian has a right of access to water of sufficient quantity and quality to satisfy basic human needs.
- Water should be recognised as an economic and social good.
- Water resources development should be rural-centred, decentralised, participatory and integrated in approach.
- Water resources shall be managed according to the norms of social equity, systems reliability, economic efficiency and sustainability.
- Participation of stakeholders, especially women, shall be promoted in water resources development.

The MoWR is responsible for upstream water resources control and development activities, including determining conditions and methods for optimal allocation of water, as well as how water that flows between different administrative regions will be used. The ministry is also responsible for enforcing all water policy and laws. Activities downstream are carried out by different organisations under the general guidance of the EWRMP. Within the regions the responsibility of both urban and rural water supplies has been given to the national regional states. As a result regional governments have established water bureaux and commissions or authorities.

Devolution to the regional level of responsibility for managing water resources reflects the current government's interest in decentralisation as a political-administrative framework. The government's decentralisation policy was initiated in 1992 with National/Regional Self-Governments Establishment Proclamation No. 7, whereby Ethiopia was divided into 14 regions. The number of regions has since been reduced to nine federal region states and two administrative councils. The regional states are Afar, Amhara, Benshangul-Gumuz, Gambella, Harari, Oromiya, Somali, Tigray and the Southern Nations, Nationalities and Peoples Region (SNNPR). Addis Ababa and Dire Dawa are the two administrative councils.

In August 1995 the Federal Democratic Republic of Ethiopia was established pursuant to a new constitution. The official aims of the new constitution are to:

- transform the command centred economy into a 'market-oriented' economy;
- promote continuous economic growth;
- alleviate the structural dependence of the economy on external inputs and promote self-reliance; and
- create an enabling environment for popular participation through the devolution of power to the regions to promote equitable and socially just management of resources.

Decentralisation and the establishment of autonomous administrative regions are meant to bring the government closer to the people. By doing so, it is anticipated that decision-making will reflect local needs, though at the current time the regional governments remain highly dependent on Addis Ababa for their capital and recurrent budgets pursuant to ongoing negotiations with international financial institutions and bilateral donors. This greatly affects their power to make decisions independently of the central state. Furthermore, the present divisions between different regions cut broadly along ethnic lines. Each region roughly reflects the geographic distribution of the dominant ethnic group. The boundaries between several regions are not yet finalised due to the sensitivity of the regionalisation and the complicated legal and policy reform process on which it is based.

The national and regional councils, which are intended to be elected, have the power "to issue designs, directives and strategies for the development and protection of the environment". The executive committee has the power to "make all appropriate efforts to develop, utilise and preserve the national/regional heritage and natural resources of the region pursuant to the general policy guidelines of the [then] Central Transitional Government"⁶⁵. It is assumed that in the future the role of central ministries will be limited to the following functions:

- formulating policy and preparing national sector plans and budgets (including regional allocations);
- ensuring law enforcement;
- undertaking national studies and research;
- assisting and advising regional administrations; and
- entering into contracts and international agreements that have national significance.⁶⁶

In each Region there are specialised sector bureaux that implement sectoral policies and programmes in consultation with the regional executive. As described above, the regional water bureaux are the main institutions to develop and manage water resources in the country. Beneath the regional council, there are democratically elected councils at the *wereda* (district) and *kebele* (village or villages) levels. At the moment these have few human and financial resources, impeding the effective implementation of the government's decentralisation process.⁶⁷ The *wereda* has a similar structure to the regional self-government outlined above. National and regional councils have the power to create intermediate administrative structures between the regional and the *wereda* units. Most regions have done so, creating two or more zones per region, although the recent emphasis is to maintain a more decentralised structure down to the *wereda* level.

In relation to management of water resources, there has been no devolution of authority below the regional water bureaux to the *wereda*. This complicates the management, operation and maintenance of water resources and infrastructure at local rural and urban levels. Further constraints include:

- an absence of community management (community participation) units in the organisational structure of the water sector;
- lack of skilled and experienced labour, especially in technical fields; and
- institutional weakness in managing, operating and maintaining existing facilities.⁶⁸

Ethiopia has a long history of insecure 'ownership' rights to land. The present government has initiated some positive policy changes, such as abolishing the frequent reallocations of land by peasant associations that were common throughout Ethiopia during the last government. The constitution affirms that land remains under the 'control' of the people first and then to the government. The purchase and sale of land is prohibited. Landholders are entitled only to usufruct rights⁶⁹ to land and resources, such as trees. Any investor wanting to engage in large-scale agriculture must obtain land on a lease agreement from the relevant regional government. No land may be given in a manner prejudicial to the rights and interests of peasants. An investor must also

provide a feasibility study that includes assessment of environmental impacts and proposed protection strategies.⁷⁰

The rights of secondary land users are affirmed under the 1997 Environmental Policy. It states that secondary users have the right to uninterrupted access to land and resources, including trees, water, wildlife and pasture. In addition, the policy affirms the need to protect customary rights to access land and resources, as well as customary uses that are constitutionally permissible.⁷¹

Nonetheless, it will be some time before these policies are enforced and land-holders and users enjoy the benefits of greater tenure security. The present government has yet to formulate a clear land policy to indicate possible law reforms to strengthen tenure rights for landholders and users. Until the government formulates a land policy and proposed law reforms, most rural populations will continue to have insecure tenure rights to land and resources. Lack of tenure security has discouraged farmers and other land users from making investments in physical infrastructure, planting and maintaining trees, or replenishing soil fertility.

Officially, land is allocated through peasant associations. Moreover, peasant associations are expected to educate their members about environmental protection and sustainable farming methods. In other areas, traditional authorities allocate land, such as in pastoral areas. In Borana, pastoralists rely on deep well complexes for water during the dry season. These wells are recognised as belonging to a particular clan or group of families. Economic and religious life centres on the wells and they are a recurrent theme in Borana politics. Wells require extensive maintenance and no one can use the wells without the consent of the *konfi*, or traditional leader, who manages the wells on behalf of the clan under the 'well council' (*cora ella*).

The *konfi* will rarely deny a migrating pastoralist access to the well since it is imperative to preserve amiable social ties. However, he will instruct the pastoralist when he can water his animals, as well as limit the number of animals that can be watered and the length of the stay.⁷² The daily routines at the well are supervised by an officer known as *abba hirega*, 'the father of the watering order'.⁷³

Up to now, the development of land and natural resources was not guided by long-term planning. As Shibru Tedla describes, the absence of a planning framework for land and natural resources has resulted in uncoordinated development, with many conflicts between different government agencies. Examples include the extraction of soda from Lake Abijata (a protected area) and the development of a state coffee farm in Bebeke (a priority state forest area). Tedla suggests that "the absence of land use planning has become the root cause of conflict between government and peasants or pastoral people who traditionally depended on land prior to such developments".⁷⁴

The lack of coordination in developing land and resources is apparent else-

where. Examples include the delineation of national parks in areas used by pastoralists and agro-pastoralists, the development of large state fuel wood plantations in areas of mixed smallholder agriculture, the establishment of large-scale irrigation schemes in vital pastoralist dry season grazing areas, the alienation of large areas of smallholder agriculture for state farms, and the establishment of resettlement schemes in areas unsuitable for rain-fed agriculture. In addition, there has been uncontrolled expansion of smallholder agriculture into areas either used by pastoralists for wet season grazing or by the state for conservation purposes. Examples include: the expansion of rain-fed agriculture into the grazing areas of the Afar, Boran and Somali pastoralists; the expansion of agriculture into the natural forests; and the intrusion of livestock into national parks.

Hillman suggests that

“... the system of centralised decision making has resulted in policies of land use being applied in a ‘blanket’ fashion over large areas of the country, that in fact differ very greatly in ecological conditions. Further, the available information on the natural resources, climate and terrain of the country is limited, such that there has been no time to carry out the research necessary prior to the application of ... policies and changes in land use”.⁷⁵

This has resulted in ill-informed and uncoordinated decision making that in many cases has resulted in unwanted environmental and socio-economic impacts.

Environmental Impact of Poor Water Management

Poor management and coordination of different water uses is manifest in adverse environmental impacts on water quality and quantity. The most significant of these results from many of the large-scale irrigation schemes and other commercial practices that have attempted to harness Ethiopia’s water resources. First, the water levels of many lakes have dropped, such as Lake Zwai in the Rift Valley. Since irrigation in this area is continuous, its effect on water levels is magnified during times of low precipitation and high evaporation. Second, several rivers were diverted for irrigation purposes, not only those that flow into Lake Zwai, but also into Lake Abijata. This caused water levels to subside in both lakes because of the reduced inflows. In addition, rivers were also diverted into lakes to *increase* water levels for irrigation, causing dramatic biological and ecological changes. The chemistry of Bishoftu Crater Lake was completely altered, including a three-fold increase in the concentration of nitrate and a more than 200-fold drop in phosphate-phosphorous concentration.⁷⁶

Adverse environmental impacts were caused by commercial practices, such as mineral extraction and/or discharges from various food, beverage and textile factories. For example, in Lake Abijata the loss of water was exacerbated by the discharge of effluents from a nearby soda ash extraction plant. Fish production has reduced considerably since the breeding grounds of fish species that spawn in the shallower parts of the lake were degraded.⁷⁷ In addition, there is heavy pollution of waterways due to domestic sewerage. For example, it is suggested that the Awash tributaries from Addis Ababa are 'loaded' with sewerage.⁷⁸

Finally, irrigation in the Awash Valley has worsened salinity of land. Indeed, in the 1980s thousands of hectares of irrigated land in the middle Awash were abandoned owing to salinisation and waterlogging after only five or fewer years of irrigation farming.⁷⁹ Lack of appropriate water management practices is widely claimed as the main reason.⁸⁰

Poor water management decisions have had many negative social impacts, particularly for local inhabitants and rural poor. Pastoralists that inhabited lowland areas identified for large-scale irrigated agriculture were expelled from customary key grazing areas, preventing their access to vital water points. Prohibiting pastoralists from using these grazing areas has significantly reduced their ability to cope with chronic water scarcity and recurring drought. Customary mechanisms used by pastoralists to mitigate water limitation and ecological stress are delicate (see Box 5), and depend on access to key environments, such as riverine areas that have been alienated for the purpose of agricultural development.

Box 5: Pastoral coping mechanisms in Somali region, Ethiopia⁸²

Coping mechanisms used by pastoralists vary and depend on the level of group wealth. Common ways of responding to drought include:

- Selling strong he-camels and lactating camels
- Reducing meals
- Trekking long distances with livestock in search of better pasture and available water supplies
- Changing the composition of livestock herds (from cattle to goats and sheep)
- Sending some younger family members to reside with relatives in urban areas
- Out-migration of the able bodied in search of labour (normally to Somalia)
- Slaughtering more animals to substitute meat for grain as last resort
- Petty trading
- Collecting and selling gum and frankincense
- Burning and exporting charcoal to Somalia
- Begging

Most irrigation development has been in areas used by pastoralists, and in a policy and legal context that does not protect the land and resource rights of pastoralist populations. Conflict has been common, as pastoralists continue to defend their rights to access and use key resource areas. Yacob Arsano explains:

“... due to the lack of clear land tenure policy, the three Ethio-Italian irrigation projects in the Jijiga agro-pastoral area (Chinaksen, Biyo and Elbahe) have been caught up in land tenure related conflicts. The Government-sponsored Gode irrigation scheme was scornfully condemned by the Somali pastoralists well before its devastation during the Ethio-Somali war of 1977/78 ... [And,] in the Woiyto Valley of southern Ethiopia, the ethnic agro-pastoralists (the Tsemako, Albore, Hamer etc.) are at loggerheads with the Birale Agricultural Enterprise which competes for land and water resources.”⁸¹

Irrigation schemes are typically developed along the banks of the main rivers, crossing areas inhabited by pastoralists, thus limiting access to water supplies and pasture use in the dry season. This has increased pressure on and competition to access and use of other resource areas. The expansion of agricultural production into pastoral areas has increased natural resource competition as displaced pastoral groups move in search of pasture and water for their herds, often in areas used by other pastoral groups.

Grazing systems used by pastoralists to graze livestock are characterised by seasonal movements along known migratory routes, defined kinship networks and long-standing traditional political alliances. Pastoralists' political systems are not based on defined and static territorial units but on fluid and dynamic social units, with power and influence widely distributed. Territorial attachment is an alien concept – pastoralists depend on freedom of movement and widely disperse the different types of stock for which they are responsible. Dividing stock by species, age and condition and distributing them in different spatial areas, to be cared for by kinsmen, bond partners and stock associates, minimises risk.

Increasingly, pastoralists are diversifying their livelihood systems, including cultivating small plots where and when possible. As a result, formerly common property resources are being captured, protected and their access controlled as private property by different individuals and groups. There is a lack of supportive policies to protect access to common property resources. At the same time the traditional authority that protected access to common property resources in the past has been weakened by the imposition of more modern political-administrative authorities. This has resulted in open access and exploitation of valuable common property resources in many areas.⁸³

A complex system of resource rights has evolved in some pastoralist areas. For example, in the Somali region, a system of rights to access and use

resources has developed that depends on the scarcity or abundance of water, the labour expended to exploit it and the ability to add value to it (for example, by storing it for sale during times of scarcity). As Hogg explains:

“... surface water, such as a river, natural depression or pools after rain is regarded as a gift of God and free for all to use. Water that has been contained in a dam, cistern or pond made by man or which is found in a well dug by man is regarded to varying degrees as the property of an individual or his sub-clan. Deep wells are generally the property of a sub-clan. Shallower wells are normally the property of extended families. Individuals and lineages own ponds (*hara*). Nowadays individual ownership of ponds appears to predominate. Often a group of individuals will come together to dig and maintain a pond. *Birkeda* are built and owned by well-off individuals, who sell the water in the dry season. A person will excavate a *birkeda* in his own clan territory.”⁸⁴

Participating in these complex water alliances is increasingly important to guarantee rights to access water. Contributing to water alliances, therefore, is essential to sustain livelihoods. Some suggest that water alliances are of more importance and value today than are the blood relations that formed the basis of pastoral institutions in the past.⁸⁵ Water, it would appear, may now run thicker than blood.

On an annual basis and at a national level Ethiopia has sufficient water to meet the demands of its people. However, because of its variable spatial and temporal distribution, water in Ethiopia is scarce. During 2001, Ethiopia experienced both excessive flooding, particularly in regions of the south-west where over 10 000 people were displaced, and continuing drought in the south-east, particularly the Somali region. In addition, individuals and different groups within society have varying entitlements to water and abilities to ‘capture’ and protect water sources from other potential users. Therefore a situation often exists where water may be abundant for one group or individual and at the same time be scarce for another.

Some have described water as a *renewable* resource.⁸⁶ However, water can also be considered a non-renewable resource in Ethiopia. The country experiences highly variable rainfall throughout the year and between years, including successive years of drought. Ethiopia relies almost totally on rainfall as the source for replenishing water supplies, but lacks the capacity to store rainfall or harness it before it flows into neighbouring countries.

It is apparent that on an annual basis water in Ethiopia is a non-renewable resource whose distribution is highly uneven. Alternating abundance and scarcity of water in Ethiopia is the outcome of unpredictable interactions between many factors that are not exclusively ‘climatic’ or ‘ecological’. Thus, their impact is also likely to stretch beyond mere biological or ecological fluctuations.

Land and natural resource managers have developed sensitive systems and devised a number of methods to cope with resource scarcity and to mitigate its impact on livelihoods. For example, pastoralists move livestock between different key resource environments contingent on the availability of water and pasture for grazing. Access to resources depends on collective 'rights' that are consistently re-negotiated subject to social and ecological fluctuations. These negotiations are delicate, and include tried methods for resolving competing claims.

However, the effectiveness of customary resource sharing systems is rarely recognised by the current governments, nor by past governments, all of whom were keen to increase the productivity of the land. In spite of concerted government and donor effort, poverty reduction and food security do not appear achievable in the near future. There are serious structural constraints such as diminishing farm size and a lack of tenure security, as well as an absence of an overall framework to coordinate planning. Short-term needs of some sections of the population are overriding the longer-term needs and strategies of others. The outcome is likely to be continued food insecurity, increased environmental degradation, and perhaps, an increase in resource conflict.

Although the present government has expressed a strong commitment to rapid progress in the provision of safe water, particularly to the rural population, the problems of doing so are massive. They require large, coordinated and thoughtful investments that are based on the decision-making input of local communities. As it stands, the development of water supplies will in the best-case scenario merely keep up with population increase.

It is unclear what changes in patterns of rainfall distribution will occur in the Horn of Africa and specifically in Ethiopia in the near and/or distant future. It is certain, however, that the population will increase and, as agriculture intensifies, there will be an increasing demand for water. The renewed emphasis on investment in irrigation and hydroelectric schemes is promoted by growing demands. Oromiya state authorities recently declared that 26 irrigation projects would begin in 2001, opening 2 054 hectares of arable land for cultivation. At a national level, 13 dams are planned to generate power and irrigate a 590 000 hectare development project.

However, the development of water resources is constrained by a number of factors. One is a persistent organisational problem within institutions responsible for water development. Although the establishment of commissions responsible for water, agriculture and environmental development and rehabilitation at the regional levels helped to overcome organisational difficulties, many regional governments lack the capacity to develop water resources or to mediate between the different interests and parties involved. In addition, the pace of developing appropriate technologies to harness water resources, that are suited to the ecological nuances of Ethiopia, is slow. Most

water developments are ambitious and rely on technologies that do not harness local methods or ecological knowledge.

It is clear that variability in water resources will persist in spite of ongoing and planned water developments. Water management plans must account for the geographic and social complexity of water and the need for adaptable, flexible and site-specific strategies. Water must be fairly allocated between competing uses including hydropower, irrigation, industry and domestic water supply for small-hold cultivation and the watering of livestock. The rights and needs of both upstream and downstream users need to be recognised and guaranteed to prevent conflict, which is possible only through scrupulous and unbiased ground assessments. It is critical to understand the sources underlying the onset and continuation of conflict. The following case study will explore different layers of conflict in the Awash River Basin.

Case Study 1: the Awash River Basin

Background and Recent Developments

The Awash River Basin is part of the Afar Autonomous Region and is divided into five zones and 29 *weredas*. It is located in the north-east part of Ethiopia bordering Eritrea and Djibouti. The basin covers approximately 70 000 square kilometres, covering 6% of the total area of Ethiopia.⁸⁷ The Awash River's catchment area is 112 700 square kilometres.⁸⁸ The basin is divided into the Upper Valley, which receives medium rainfall and is inhabited by pastoralists and farmers, and the Middle and Lower Valleys, which receive low and erratic precipitation and are almost entirely inhabited by pastoralists, with few agro-pastoralists and peasant farmers. Mean annual rainfall ranges from 160 millimetres over the northern lowland to 1 600 millimetres at Ankober in the highlands north-east of Addis Ababa.

The area is considered to be one of the poorest, least developed and neglected regions of the country.⁸⁹ As Bryden argues:

“... at best, the Afar National Regional State ... is poignant testimony to the emptiness of past commitment, by both governments and aid agencies, to the development of Ethiopia. At worst, the region's historical neglect and relative underdevelopment implies a legacy of imperial exploitation and exclusion from whatever progress other parts of the country have enjoyed. The vast majority ... have seen virtually no improvement in living standards for decades, if not centuries. ‘Development’ when it has taken place, has usually taken the form of assimilation by the central Ethiopia state and partial annexation to Ethiopia's highland economy – a process perceived by many Afar to represent economic and cultural imperialism rather than ‘progress’. Development schemes in the Afar region

have historically reflected the priorities of central governments or select commercial and political interests, while the needs and aspirations of the Afar people have been chiefly disregarded.”⁹⁰

Nicol et al further claim that:

“... under both Haile Selassie and the Dergue, maintenance of power and authority was equated with the appropriation of resources for the centre and conversely, with denial of access to peripheral communities. In pastoral areas such as the Afar state, state capture and exploitation of land adjoining the Awash has, [as a result,] left a legacy of resentment which directly impacts on resource management in the region.”⁹¹

Bryden describes the Afar region and Awash Valley as a fractured political landscape reflecting clan and regional differences and a lack of relation between governors and many of the inhabitants.⁹² In 1997, the total population of the Afar region (all groups) was estimated to be 1.1 million. The Afar are the largest pastoral group in the valley and inhabit the entire basin from Awash station up to Djibouti's border. Traditionally, they have practised transhumant migration between dry and wet season pastures within a radius of approximately 50 kilometres.⁹³ However, the Somali Issa have expanded westwards towards the Awash Valley over the last 50 years, partly due to the fact that agricultural production has increased significantly along the banks of the Wabe Shebelle River, upon which the Issa depend for pasture and water supplies.⁹⁴ Expanding agricultural production has resulted in a restriction of movement for all pastoral groups, including smaller groupings of Kerreyu, Jille, Arsi, Ittu and Argoba.⁹⁵

The current situation in the valley is the direct result of past government policies. Though the region is historically marginal compared to the rest of Ethiopia, the government attempted to develop the region in the 1950s, channelling substantial investments into the valley, and established large state farms in the valley to produce mainly cotton and sugar cane. Commercial agricultural production was introduced with little concern for those already inhabiting the area – primarily pastoralists – who were evicted from their lands. Military force was used to protect state investments in commercial agriculture. Armed conflict ensued. Many of the developments in the valley involved investment by international companies such as the Dutch HVA Sugar Cane Estates. The government of Italy supported the construction of the Koka Dam. These projects went ahead despite recognition that they would undermine pastoralist livelihoods, particularly Afar livelihood systems.⁹⁶ Table 6 summarises the larger evictions and displacements over time in the Afar Valley.

The Awash Valley Authority (AVA) was established in 1962 as an autonomous public authority with the responsibility to coordinate and administer the development of natural resources in the valley, and particularly those in the upper

and middle areas. Though the AVA was mandated to involve local communities in development initiatives, it did not do so.⁹⁷ The authorities embarked on a programme of granting land to concessionaires based on the constitutional provision that made all lands used by pastoralists state land. Under the Civil Code introduced in 1960 the right to claim land title could only exist if it could be proven that land taxes had been paid for 15 consecutive years. As the pastoralists had paid no land tax, and because their habitation of these lands was not officially recognised, the state claimed that the land was abandoned.⁹⁸

By 1971 an area of 9 800 hectares of land was under plantation (including Metahara and Abadir).¹⁰⁰ As a result, the prime land near to the Awash River that was used seasonally by pastoralists during the dry season and during droughts was no longer accessible.¹⁰¹ At the same time, flooding was prevented through the construction of dykes. These drastically changed the ecology of the river valley, restricting the seasonal growth of pasture that pastoralists depended on.¹⁰² It also prevented annual fertilisation of the land through the deposition of silt.¹⁰³

Table 6: Groups evicted from the Awash Basin area⁹⁹

Groups evicted	The reason for eviction and displacement	Year	Compensation
Jille	The Dutch HVA Wonji and Shoa sugar cane estates. Construction of Koka Dam and creation of Galila Lake. Assignment of land for other urban and rural development projects.	1950s 1960s	None
Arsi	Nura Erra irrigation scheme	1950s–1960s	None. However, they continue to practise pastoralism in hilly Tibila area.
Kerreyu	Sugar cane development between Kesseme and Awash Rivers. Awash National Park which resulted in loss of 80 000 ha of dry and wet season grazing land.	1950s 1966	None
Afar	Commercial agricultural development along river beds. Construction of Koka Dam. Awash National Park.	1950s–1960s	Resettlement. Wage labour, although this was rarely taken up.

Livestock diseases (internal parasites and others) spread and livestock health suffered owing to the agro-chemicals used in the plantations. Pastoralist conditions were worsened by the 1974 ban on firing the range that was used by pastoralists to renew pasture, control bush encroachment and eradicate pests such as ticks.¹⁰⁴ Their desperation increasing and their options decreasing, pastoralists sporadically invaded the plantations to graze their livestock.¹⁰⁵

Some effort was made to settle the evicted pastoralists, mainly Afar, as a token compensation for alienated land. It was thought that this would also serve the purpose of bringing the pastoralists under state control. However, as Ayalew Gebre describes, "attempts to sedentarise the nomadic Afar proved to be largely unsuccessful because it did not take into account the ethos of the would-be beneficiaries and therefore failed to develop strategies of persuading the people of the usefulness of the scheme."¹⁰⁶

Not all the Afar were bypassed by developments in the valley. Some participated to a certain degree and gained some economic benefits as a result, such as employment on the state farms. However, "such trends sowed the seeds of further conflict within Afar political structures as a growing Afar capitalist class undermined traditional clan elders. This was a factor in the violent conflict that followed in the Dergue period".¹⁰⁷

The Awash National Park was gazetted in 1966, covering 803 square kilometres between Metahara and the Awash Station. Previously, the park area was predominately used by the Kerreyu and Afar pastoralists for dry and wet season grazing before being alienated and enclosed for the park.¹⁰⁸ As a result, competition between pastoralist groups, as well as with the Arsi Oromo (who had already lost a large proportion of their land due to the Nurra Era Plantation) increased as they moved in search of pasture and water supplies. In addition, access to key dry season springs was lost.¹⁰⁹

In the early 1970s Issa herders from the Somali region encroached into areas inhabited by Afar pastoralists. The Afar petitioned the government to check this movement. However, the government felt that it was not able to risk damaging its fragile relationship with the Issa-dominated Djibouti government, considered an important international ally. The government requested the Afar to share the limited resources of the Awash with the Issa. The 1975 Land Reform nationalised all lands including commercial developments and grazing lands in the Awash Valley. The land reform increased conflict over access to land and other resources. Violence broke out in the area between the government, pro-government groups and armed pastoralist groups, including the Afar and Issa. The unity of different pastoralist groups, already questionable, receded further.¹¹⁰

In addition, land alienation negatively impacted the traditional communal spirit of the Afar. Individual land 'ownership' encouraged new frictions over the use and sharing of grazing resources to develop. "As grazing land became

more scarce clans stopped being accommodative to each other ... The traditional values of solidarity on the question of land use and tenure ... were [*sic*] destroyed."¹¹¹ The ruling highland elite who border and were encroaching onto traditional Afar lands in the north promoted individual ownership of land and property in Afar, as they did elsewhere. Contact between outside developers and the Afar evolved into ever more violent conflict as the Afar became increasingly marginalised from their lands and sought alternative areas to graze their herds. At the same time the highland population to the north and north-east of Afar areas was growing and looking for new lands to cultivate.¹¹²

In the 1980s a development project was initiated in the middle part of the valley (near Awash Town). Financed by the European Community (though other donors funded the project, including the World Bank), the Amibara project illustrates how 'development' actually exacerbated conflict in the valley. The project focused on developing large-scale commercial agricultural schemes. It displaced Afar clans, and, by disrupting dry and wet season grazing patterns, particularly in and near to the Alledighi Plain, it increased the likelihood of conflict between Afar and Issa pastoralists. The Alledighi Plain is a vast fecund area with abundant resources. However, as Desta Asfaw explains, "neither the Afar nor the Issa use it because, as if by mutual agreement, it is reserved as a battlefield. The contestants move around this contested area with their livestock heavily guarded by a military escort."¹¹³

By 1997, it was estimated that 52 000 hectares of dry and wet season grazing land was lost. Of this 23 000 hectares (44%) had been lost owing to the direct encroachment onto pastoralist lands through the development of irrigation schemes, many of which were located in the higher potential grazing areas.¹¹⁴ Environmental problems, such as salinisation, worsened. The widespread loss of grazing areas used by pastoralists stressed natural resources that were still accessible, particularly during periods of drought. During drought, it was common for the Afar to slaughter calves to save the mother and to trek long distances to collect fodder for milking cows. The most desperate response of Afar stricken by drought was to allow their herds to invade the cotton fields of the irrigation schemes.

Today, at least 80% of the indigenous population in the Afar River Basin rely on subsistence production systems, predominately transhumant animal husbandry. Few Afar have settled along the banks of the Awash River or have settled in towns along major transport routes.¹¹⁵ The basin lacks most services, including hospitals and schools, and there is a low level of education. Persistent drought remains a problem in the basin with several zones experiencing increasing scarcity of water and animal fodder.

In addition, the recent conflict between Ethiopia and Eritrea has displaced some 30 000 Afar close to the disputed border.¹¹⁶ The presence of large contingents of armed forces in the area resulted in the further depletion of local resources and the commandeering of equipment meant to benefit pastoralist

production. For example, a new water-drilling machine provided by the government for the Afar was forcibly taken by the local army to drill watering points near to the Ethiopian border. During this time the machine was broken and no attempts were made to mend or replace it.¹¹⁷

In many areas of the basin far from the river, the provision of water remains a great problem. Access to clean water is especially low. During drought, water must be imported from outside at considerable expense. For example in Buxe, in 1996, water was being sold at a cost of Ethiopian Birr 800 (approximately US\$ 120) per tanker.¹¹⁸

The main water supplies are hand-dug wells, deep/shallow drilled wells, springs, ponds and rivers. In rural areas, people may travel 15 to 20 kilometres to collect water for human and livestock consumption. Before 1993, along the Assab-Bati road and in the Tendaho Farm Development, 751 shallow and deep wells were drilled. Of these wells, 34 were unproductive and salty, and thus were not used, six wells did not have pumps installed, and 35 of the remaining ones had different pumps installed in them. When the Tendaho Farm stopped functioning and the military camps in the area were removed, 29 wells fell into disrepair. In general, by 1993, most of the water supply systems that existed prior to 1985 were not functioning due to lack of maintenance. After the formation of the regional administration, the water development bureau, with assistance from neighbouring regional administrations, ESRDF (Ethiopian Social Rehabilitation and Development Fund), non-governmental organisations, UN agencies, and the European Economic Commission built and rehabilitated 125 water systems (see Table 7). Today, the water supply coverage for the entire region is only 16.45%, and only 14.33% in outlying rural areas.¹¹⁹

Table 7: Water supply systems in the Afar region¹²⁰

Zones	Number of towns	Rural villages	Sources of water supply				
			Deep wells	Hand-dug wells	Rivers	Springs	Total
Zone 1	5	25	37	18	–	–	55
Zone 2	1	9	2	5	–	3	10
Zone 3	6	26	15	20	2	3	40
Zone 4	1	5	6	2	–	–	8
Zone 5	1	10	5	7	–	–	12
Total	14	75	65	52	2	6	125

Table 8: Existing and potential large scale irrigation areas in Awash

Location	Existing (ha)	New or expansion area (ha)	Total ha
Upper Valley	23 300	10 600	33 900
Middle Valley	19 900	35 100	55 000
Lower Valley	25 600	36 900	62 500
Total	68 800	82 600	151 400

Conflict is ongoing in the Awash River Basin, much of which is inter-ethnic and inter-clan in nature. Conflict and changes to patterns of resource use have led to widespread social impacts, including protectionism, stronger clan affiliation, ill health and mortality, and increasing illiteracy.¹²¹

As described above, the capture and closure of key resource areas used by pastoralists is a critical parameter that defines conflict in the basin today. Commercial interests are favoured over the interests and development needs of local communities. In addition, growing numbers of highland people have moved into lowland towns to farm and engage in trade.¹²² Some pastoralists, including Afar, rent land to the cultivators to generate income and to purchase food and other basic commodities. Payment for the use of the land tends to be in the form of 20–30% of the value of the crop produced.¹²⁴

Changes to land use had many unwanted impacts. Pastoral migrations were widely disrupted, forcing pastoralists to seek alternative ways of averting risk and sustaining herds. Conflict between neighbouring groups has intensified and the pressure on remaining resources has increased. Development of the Awash River Basin has continued unabated in the meantime. The Awash River Basin remains the most intensively developed basin in Ethiopia, although some schemes have fallen into disrepair. The total irrigated area is estimated to be 68 800 hectares (see Table 8), accounting for nearly three-quarters of the total existing irrigation schemes in the country, with another 82 600 hectares planned for expansion.¹²⁵

Since the change of government in 1991, and the introduction of neo-liberal economic policies, the state has embarked on the sale of some assets including many irrigation schemes. In addition, the government has supported the return of land within irrigation schemes to select clans. However, redistribution of land has fuelled greater conflict among the Afar.

A recent survey revealed that resources are the major source of conflict between Afar and other groups in the Awash River Basin, while territory was another important source of conflict.¹²⁶ Consciousness of clan 'territory' is more intense nearer to the Awash River, whereas exclusive rights to land are

less important further from the river. The Alledeghi Plain, for example, is considered open grazing land for all Afar.¹²⁷ However, since traditional rules to restrict resource use have broken down, the Alledeghi Plain is being heavily overgrazed.¹²⁸

Meanwhile, conflict continues between the Issa and Afar in Amibara, and is expanding northward along the Djibouti road above Gewane town. The Issa are now dominant in many of the small trading towns along the road. They have formed alliances with contraband traders from Djibouti who supply illegally imported industrial goods from Dubai and other areas.¹²⁹ The Issa also trade in cattle. Highland peoples from the north are also involved in trade in towns such as Metahara.¹³⁰ The Afar do not engage in trade because they lack the skills and knowledge to effectively participate in the market, their population is widespread and diffuse, and because of some cultural prohibitions. The Afar control no trading routes.¹³¹

The growing predominance of the Issa in parts of the basin has caused fear among the Afar that trade and mercantilism are a precursor to the Issa staking greater claims to own adjacent lands. This has caused a number of clashes between the Afar local government and the Issa, who in many cases do not recognise the Afar's jurisdiction. The tension has resulted in insecurity and low intensity conflict along the Addis-Djibouti railway and Addis-Asseb road, including the deaths of several lorry drivers.¹³² This has resulted in the closure of the road on several occasions, bringing the conflict national attention.

Conflict also continues in the southern part of the basin near to Metahara. The national park remains strongly contentious, as does the large sugar cane plantation in the area. The core area of the national park has been severely reduced as grazing and farming encircle the park and go beyond the original park boundaries. The area surrounding the park is severely degraded. Frequent clashes between the Afar and the Kerreyu have occurred inside the park itself. Both groups avoid areas near to the park and the park itself as a result, although they have excellent grazing areas that were used historically as drought reserves.

During the drought in 1996 and 1997, herders lost many livestock in the nearby Kerreyu. Highly nutritive seasonal grasses near to the park were unused owing to the pervasive tension and ongoing conflict. In fact, it is suggested that the imperial government of Haile Selassie actually constructed the Dinkuku Pond in the area of the national park to discourage the Kerreyu and the Afar from grazing in and near to the park. The logic underlying Selassie's strategy was that the two hostile groups would keep retreating backwards away from the pond and pastures, to avoid confrontation.¹³³

Authority for managing the national park remains with the federal government through the Ethiopian Wildlife Conservation Organisation (EWCO), although most other national parks are under the jurisdiction of regional governments. In the case of the Awash National Park, it was felt that the current Afar government did not have the capacity to address the problems in the

park, and indeed the capacity of the EWCO is questioned. At the moment, for example, in the core area of the park, any cattle found grazing are removed and impounded until fines are paid for their release.

During a recent dry period the Kerreyu tried to graze large numbers of cattle within the park boundaries and, in retaliation, it was rumoured that the government authorities killed some cattle. As a result, the Kerreyu forcibly moved further into the park and set fire to some areas.¹³⁴ Attempts to address these conflicts continue with the restructuring of a CARE-funded integrated conservation and development project in the park environs. Wildlife authorities are being trained in negotiation instead of enforcement. In addition, CARE is establishing water supply points outside the park boundaries in an attempt to provide alternative supplies for pastoralists.¹³⁵

The sugar plantation employs large numbers of daily labourers from regions south of Afar, including from Borana. The four groups of pastoralists present in the area (the Afar, Agorba, Kerreyu and Issa) compete for access to grazing lands and water as the local populations grow and natural resources are placed under increasing pressure. Invasive bush plants, notably *Prosopis unifera*, are encroaching on the flood plains and agricultural land. Grazing that would otherwise have prevented the spread of invasive weeds was prevented¹³⁶

Most large trees were removed to produce charcoal (previously controlled by traditional authorities) and the land is rapidly degrading. Fighting has also broken out between pastoral groups, particularly between the Kerreyu, the Issa and the Afar, and also with the government, who are represented mainly by highland peoples.¹³⁷ The situation is aggravated by Issa movements into the area from the north-east, and from as far as Djibouti.¹³⁸ All conflicts increase in likelihood and severity during times of drought as the struggle to gain access to resources intensifies.

The lack of official concern to resolve these conflicts, for example, by stemming the flow of non-native groups such as the Issa into the region, raises pertinent concerns linked to national politics and identities. In the case of the Issa, this is particularly clear. Because Ethiopia is now dependent on Djibouti for access to the Red Sea, the government is reluctant to damage relations with Djibouti by preventing the movement of Issa (the politically dominant ethnic group in Djibouti) into the Afar region. As Nicol et al suggest, "Ethiopia may have to subjugate the claims of Afar [and other] pastoralists to their interests in increased control of water and land resources, in order to maintain beneficial relations with Djibouti."¹³⁹

Conflict Prevention and Resolution

At a local level, however, there are more determined attempts to resolve and prevent further conflict, or at least to minimise the more violent aspects of conflict.

For example, among pastoralist groups there are traditional institutions to manage access to and distribution of resources. Traditional institutions may assume a stronger role in preventing, mitigating and resolving conflict.

Within Afar communities, decision-making and conflict resolution is largely the responsibility of elders and religious leaders, exercised through institutions such as *xeraa*, *mablo* assemblies and sanction-executing structures called *finna*. Traditionally, a communal tenure system is the basis of land 'ownership' in areas inhabited by Afar. Usufruct or access rights to land are sanctioned under communal tenure systems, under which land cannot be purchased or sold.¹⁴⁰ Through birth, all Afar have a right to access land. Tradition and custom guarantee these rights are passed to offspring. The Afar are conscious of territorial boundaries (though these are considered flexible) since every tribe and clan has its own clearly demarcated territory that is guarded by scouting parties called *giba*. Grazing land is divided among the clans and sub-clans within a tribe in accordance with customary law. One clan is not allowed to use the resources of the other without their knowledge and prior consent. In times of resource scarcity or stress, clan resources are often shared. Resource sharing is the basis of strong traditions of reciprocity among Afar.

The Afar are led by the Aussa Sultanate. The various clan heads (*kebo-abba*), elders' council (*daar-idola*), the sanction-executing body of the clan (*finna*) and the various assemblies (*mablo*) serve as repositories of the Afar culture, customary administration and customary rules and regulations (*afar-madda*). The clan heads (*balabats*) and clan elders not only administer the clan territory but they also allocate and lease land under their control (as nominees of the state) for private and communal uses. This includes the utilisation and management of natural resources, supervising redistribution of resources and livestock animals, and the adjudication of conflicts.

Traditional institutions, as Nicol et al describe, "are generally very effective in the mediation function in intra-group conflicts. They also take on the role of appealing to the government in the event of large-scale conflicts between their respective groups and negotiate on behalf of their respective parties at peace conferences often organised by the government."¹⁴¹

A series of 'peace conferences' were recently held in the Afar region. They were organised by the government and led by the interior minister. Peace conferences involved the establishment of joint peace committees at various levels. These included the involvement of the DPPC (Disasters Prevention and Preparedness Commission). It is suggested that these meetings are having some success in reducing military engagement and inter-group killing, reducing cattle theft and establishing a degree of tolerance between belligerent groups. They are assisted, in some cases, by traditional peace-building institutions.¹⁴²

It is also argued, however, that much more could be done than is currently being achieved, and in fact, the meetings have little substance or capacity

to address the root causes of conflict.¹⁴³ For example, Issa encroachment onto Afar lands is the root source of conflict between the Issa and the Afar. Issa argue that they have nowhere else to go and are supported by the government, who are unwilling to stem their movement into the Afar region. Negotiating competing Issa-Afar claims to land in the Awash River Basin will require delicate diplomatic negotiations between the governments of Ethiopia and Djibouti. In this case, local level negotiations are less capable of redressing the root source of conflict.

Women fulfil an important role in conflict prevention and resolution. Women frequently act as 'go-betweens' for competing clans. Between warring clans in Afar, women act as messengers and mediators for the elders and male members of the clans. They will meet with other women in recognised 'no-man' areas wearing specific sheepskin clothes showing that they come in peace. They will then return to their male counterparts carrying messages, demands and prospects for resolution. Similar arrangements exist within the Kerreyu. It is suggested here that women are helpful for building peace because there they are considered to be safe, based on cultural ideas of femininity.¹⁴⁴

In general, there less stigma is associated with women making peace and resolving conflict. In the Afar region, women from competing Afar and Boran groups graze cattle in certain 'no-go' areas between the two groups that are considered too risky for men. They will remain under cover of the bush within their recognised boundaries. If women go too close to the enemy lines, however, they may be abducted by the men of the different group and taken as booty, though it is unlikely that they will be physically harmed.¹⁴⁵

Intermarriage between clans and even ethnic groups is also a longer-term means of preventing and resolving conflict.¹⁴⁶ This usually involves an exchange of a number of women from one clan or group with another. It is hoped that stronger blood ties between different groups resulting from intermarriage will help to prevent further conflict. At a recent 'Peace Conference' held in Awash in 2000, it was suggested that Afar and Issa exchange 50 women from each group for marriage as a way of resolving the conflict in the long term.¹⁴⁷

The Changing Nature of the Conflict

Conflict in the Awash River Basin is multi-layered and involves many competing groups. The changing dynamics of conflict in the basin entail competition for scarce natural resources. However, as was evident in the last half a century, it is often the comparatively abundant nature of natural resources in specific micro-environments, and the uneven distribution of some resources, that is the more critical 'ecological' source of conflict. Powerful groups, including the government, commercial corporations, town-based entrepreneurs, and rich

stockowners invested in commercial farming and ranching ventures, are attempting to 'capture' pockets of valuable natural resources from traditional users, including pastoralists, who have little or no means of protecting their land and resource rights beyond armed resistance.

There is little question that conflict in the Awash River Basin is about access to and control of land and natural resources, which trigger an assortment of other factors significant to a comprehensive explanation of conflict in the basin. Conflict increases during periods of ecological stress, such as droughts, when key natural resources necessary to sustain both subsistence and commercial production become scarce. Some suggest that if all local conflicts (particularly in pastoral areas) were geographically mapped, they would overlap water supplies.¹⁴⁸ Conflict involving competition to access and control natural resources gradually are 'ethniced', as competing groups tend to protect claims for their own clans or lineages. As Davies suggests, "in times of scarcity the rules change."¹⁴⁹

Although land and natural resources can be seen as the 'triggering factor' of conflict, the historical, social, economic and political contexts in which natural resource competition occurs is absolutely crucial to a full understanding of the wider conflict. It is within this context that the real sources of conflict are identifiable, such as inappropriate land policies, political motives, and prioritising commercial or conservation interests above the interests and needs of local communities. The sources of conflict have been aggravated in recent years as social and political formations evolve and the role traditional authorities in preventing and managing conflict declines. As Dejene Aredo and Abdurahman Ame confirm, "the increased conflict over scarce pastoral resources is the result of the deterioration in their livelihood triggered by cyclical drought and escalated by ineffective social and political organisation."¹⁵⁰

Additionally, the nature of land and natural resource competition is changing from access and use, such as to pastures and water points, to permanent claims to own land and exclusive control of critical natural resources. In pastoral areas, as a result of increasing pressure to protect resource access, combined with the influence of farmers, government bodies and the developmental activities of non-governmental organisations, there is a trend toward private ownership of land and away from sharing common property, land and natural resources.

The mobility of pastoralists has declined, sedenterisation of formerly mobile groups is increasing and additional fences and barriers are further obstructing customary patterns of resource use in the dry lands of the Awash River Basin. Today, access to certain resources, such as water, involves money, assuming that money is available to do so, which it frequently is not in traditional pastoral livestock economies. At the same time, attitudes have shifted: individual ownership is favoured over reciprocity

and support of kin.¹⁵¹ Many pastoralists themselves are more individualistic in their outlook.¹⁵²

This can only serve to undermine the pastoral system which is founded on reciprocal exchanges, mutual dependence, social networks of support, and resource sharing. Ongoing social changes in pastoralist communities signal a radical shift in inter and intra-ethnic group relationships. This involves moves away from resource sharing based on kinship and descent, toward radically new types of relationships based on territoriality or locality, external assistance (famine relief), market relations and the 'modern' institutions of the nation-state.

At the same time, claims to own land have raised the level at which prevention and management is required, from micro or local scales to macro or national and regional scales. Pastoralists can rely on little legal or institutional support to defend their land and resource rights. Arguably, Ethiopia's new constitution and environmental policy do offer some protection from, for example, being evicted from inhabited land. However, the need for bylaws that provide legal and written backing is vital if the land and resource rights of pastoralists are to be protected from more powerful interests with access to information and legal and institutional expertise. This requires urgent attention at the regional and national levels.

Indeed, a supportive land policy is vital for the continued viability of pastoralist production systems in Ethiopia. The absence of a land policy in the past was a crucial variable underlying conflict in pastoral areas. Decisions continue to be made at the federal level, which has little understanding or concern for local issues in peripheral pastoralist zones. As Nicol et al contend: "The government plans on the basis of laws and proclamations which are devised centrally, for instance over land tenure and sovereignty over resources, at a local level *de facto* resource sovereignty is exercised by those with a local monopoly on the use of force."¹⁵³ The lack of a clear land policy deepens the feeling of insecurity in rural pastoralist areas and prevents long-term planning as well as effective resolution and prevention of conflict.

As conflicts involving land and natural resources have intensified in many areas, such as in the Afar region, they become more like blood feuds, as reprisals are made for lost group members. Today small arms and light weapons are readily available in the Awash Basin, as they are throughout the Horn of Africa. The accessibility of small arms and light weapons, including automatic machine guns and grenades, has dramatically intensified the level and deadliness of conflicts, effectively revolutionising their nature. The purchase of guns (mainly kalashnikovs) is a primary expenditure of Afar households.

Competition over the distribution of munitions is common. Not only are arms and weapons used for self-defence, but they have also become powerful symbols of heritage. Recent attempts were made by the government to disarm

the Afar pastoralists through a decree that all illegal weapons should be surrendered to the administration.¹⁵⁴ Limited demobilisation of the Afar population has increased their vulnerability to other armed groups, not least the Somali Issa, who, it is suggested, may well receive arms illicitly from Somalia.¹⁵⁵ Somalia, it is explained, is a state which remains in pursuit of an expansionist policy that in the past has attempted to attain parts of the Awash Valley to form a Greater Somali nation.

Conflict, therefore, is set to continue for the near future as pressure to control land and natural resources increases. In particular, commercial interests will grow as the exploitation of land and resources is encouraged to generate much-needed government revenue and local income. Many resources that are currently only being used for small-scale local and national use have the potential to be exported regionally and internationally. Indeed, it is suggested that there are large, actual or potential mineral resources, such as gold in the Adola of Borana, natural gas in the Ogaden, salt mines in the Afar, or soda ash in the Rift Valley.¹⁵⁶ Gold, for example, has already been the source of local conflict in the south of the country around Omo. The Surma peoples in the lowlands regularly ambush highland peoples who have come to the area to pan, collect and return gold to the cities for sale. It seems likely that these resources, including water, will become the source of greater competition and conflict as Ethiopia develops infrastructure to utilise and exploit resources, supported by investments from overseas business interests.

Regionalisation

The ongoing regionalisation process has benefited certain ethnic groups through recognition and support for dominant parties in a certain area. For example, the Afar and Somali dominate their so-named federal states. However, it may also affect the allocation of resources at the expense of certain ethnic or religious groups, and thereby lead to the politicisation and mobilisation of identity. Indeed, because regionalisation has occurred along ethnic lines, it is likely that certain groups who currently are not fairly represented or have little power to influence critical decision-making processes will remain marginalised and vulnerable to exploitation by more politically powerful groups.

Within the Afar regional government, groups such as the Kerreyu and Argoba are barely represented. Changes in distribution of land with the recently defined regions between Somali and Oromiya regions have escalated ethnic conflict in the Borana area (specifically between the Somali clans in Liben and Arero wards in the Borana lowlands). As Alem Hadera Abay imparts: "The ethnic-based regionalisation and mapping of administrative regions has created or added more tension to what is a conflict-prone part of Ethiopia."¹⁵⁷

It is suggested that in regions dominated by ethnic groups such as the Afar and the Somali, pastoralists now have a high degree of power independent of the central state, including decision-making pertaining to the management of land and natural resources. Local and regional participation in decision-making should be encouraged and the accountability of regional and central governments improved. As federal entities, the regional states are empowered to write their own constitution, elect a state legislature, set up state administrative machinery and devise their own development plans. A major constraint to the development of the Afar region in the past has been chronic instability and the absence of effective administration.

As Bryden points out:

“After several years of gross mismanagement under previous regimes, the new regional government gives cause for optimism that the next few years will see real progress. Already, considerable emphasis is being placed on the ‘Afarisation’ of social services – the training and employment of Afar personnel in posts previously held by members of other social ethnic groups.”¹⁵⁸

However, at the same time, it is suggested that “in essence, this is an act of superimposing modern state machinery onto a transitional pastoral socio-political structure”.¹⁵⁹ It is yet to be seen what effect regionalisation will have on emergent social and political formations in the Awash Basin. Moreover, “central authorities, whose commitment to decentralisation is needed for reform, may see diffusion as a threat to their power. In these senses, structuring local government requires an understanding of the structure of incentives facing political leaders at both central and local government levels.”¹⁶⁰

At this time, many regional governments are weak, inexperienced and lack the capacity and human and financial resources to carry out their responsibilities. Though certainly, there are now opportunities to redress the uneven nature of development within some regions, in many others limited human and financial capacities hinder any forward progress. There is little capacity or knowledge to plan and coordinate conflict resolution effectively, for example. In addition, there is some inequity in support from the federal government, with certain regions receiving considerably greater support and resources (including for capacity building) than others.

If this serves to increase regional disparities in effective development planning, finding effective solutions to the pastoral-irrigation problem, for instance, will be further postponed. In addition, the spatial variability of natural resources between the regions is great: some regions are substantially richer in natural resources than are others. However, transfer of resources between regions to balance uneven distribution of natural resources is complicated by poor transportation and communications infrastructure. This also

limits the ability to add value to resources, with the exception of very valuable resources such as gold and ivory.

Several regional boundaries are yet to be firmly decided and demarcated. This includes the Somali region boundaries bordering both Afar and Borana.¹⁶¹ A referendum is proposed to decide where the boundaries will be demarcated. It is an extremely contentious issue and whatever the decision is, it is likely that conflict will continue. This is particularly the case for the Somali-Afar border, over which violent conflict continues, as described earlier in this chapter. The government may decide to take the boundary along the Awash-Asseb road, dividing the towns along the route between the different groups.

However, the Afar will never accept this, as their original lands stretched much further to the east. It remains to be seen whether the government will prioritise its relationship with the government in neighbouring Djibouti and its process for a united Ethiopian state (that includes the Somali region) over the interests of the Afar. In fact, some suggest that keeping the current boundary with 'dotted lines' rather than 'solid lines' as boundaries, so allowing some room for flexibility and manoeuvring between the regions is a better alternative to a hard boundary. Up to now, a more flexible boundary has successfully averted more intense conflict that may arise when firm demarcation of the boundary is decided.¹⁶²

It is encouraging that pastoralists, for example, now have greater opportunities to participate in national political and economic life. Certainly many will benefit from recognition (though partial) of their cultural rights and the development opportunities made possible by development funds given by the federal government to regional states. However, a large number of risks remain, including for renewed conflict. For instance, the use of underground water and rivers for irrigation is likely to worsen the scarcity of available pasture and surface water for grazing livestock.

Continuing sedentarisation and urbanisation are likely to further disrupt customary grazing patterns, while increasing the overall demand for livestock. Uneven distribution of development benefits between different groups in regional states will fuel additional conflicts. The new bureaucracy accompanying regionalisation may affect traditional authority and administration, including its composition and how effectively it maintains social control. One observer notes that "conflict is to be anticipated especially in leadership and law".¹⁶³ Finally, cross-border initiatives may become increasingly difficult as regional identities and protectionism of regional interests are pursued more fervently.

Continued Emphasis on Large-scale Production and Unsuitable Intervention

Large-scale irrigation has been the central focus of formal development in the pastoralist inhabited Awash River Basin since the late 1950s. Since the 1970s

some programmes have officially sought to more equitably share the benefits from irrigation with neighbouring pastoralists by increasing their participation in some schemes. However, in most cases participation is minimal, and not what is envisaged by enthusiasts of so called 'participatory' development. In fact, as it was shown, water development has often *increased* the vulnerability of pastoralists to the very risks that they were intended to minimise, such as drought. Furthermore, as Helland contests, "water projects, have, in many cases, unintentionally rearranged social relationships as well, by disregarding local views on appropriate distribution of rights and management of resources, to the extent of threatening mutual assistance networks and other socially constructed means of averting risk in this high-risk environment."¹⁶⁴

There are some shifts in donor-funded projects to become more aware of the possible unwanted impacts of development projects they finance. However, for many in the Awash Basin, it is too little, too late, as the effects of past negligence continue to be felt. Nicol et al suggest that, "... EU engagement in the Awash Valley has actually exacerbated the risks of violent conflict," rather than reduced them¹⁶⁵. In addition, within some donor agencies, there remains an emphasis on large-scale infrastructural projects that have little benefit for local communities, especially pastoralists who are still viewed by some donor representatives as reckless and unsustainable in their ways of managing land and natural resources.¹⁶⁶

Many policy makers still believe that sedenterisation and ranching is the best way to improve pastoralist livelihoods. Resettlement and the expansion of private agricultural production on pastoralist rangelands are being encouraged. Resettlement and the expansion of agricultural production, however, will eventually make it impossible for pastoralists to sustain their subsistence production strategies and customary methods of resource use. For example, in the Afar region, the development strategy of the regional water bureau appears to be making the same mistakes that were made under earlier development projects. In 1995, a policy statement by the chief of the regional water bureau, cited in the *Ethiopian Herald* newspaper, asserted that the regional water development strategy was aimed at:

"... helping nomadic pastoralists change their mode of life and lead a sedentary existence. Such thinking would seem to contradict the growing body of evidence that 'sedenterisation' programmes have been almost universally unsuccessful and frequently damaging, partly because local ecosystems cannot tolerate non-pastoral methods of land- and water-use over the long term and partly because they require a traumatic socio-cultural transformation of the target communities".¹⁶⁷

The emphasis of development in pastoralist areas remains to exploit its resources for national economic advancement, rather than to meet local needs. In fact, Ethiopia is currently in the process of surveying some 15 valleys for

potential resource development, most of which are in arid or semi-arid areas inhabited by pastoralists.

Today, the Awash Basin Water Resources Administration Agency coordinates, administers, allocates and regulates the utilisation of the surface water resources of the Awash Basin. Like its predecessors, the Awash Basin Board (set up in 1998) and the AVA, it will have to address the prospect of growing privatisation, environmental degradation and conflict. Indeed, though it has been proposed that most of the cotton state farms be privatised, the pace of redistribution is very slow. In the meantime, public irrigation schemes are facing formidable problems including a lack of cash flow, seasonal flooding and inadequate management.

Blanket-style policies continue to be formulated at a federal level and are uninformed of the complexities and nuances of different local areas. Many policies, therefore, are inflexible to local needs. As Alem Hadera Abay argues: "Policies in Ethiopia tend to be highly land oriented and lack specificity and sensitivity to the pastoral way of life."¹⁶⁸ In the future, place-specific strategies are needed within an overall flexible policy framework. These strategies must be framed on the variability and peculiarity of local ecology, including land and natural resources. As Gezachew Abegaz explains, the "characterization of the land resources in terms of the major patterns of change in resources management and their hypothesized causes and effects are the key elements in designing place-specific strategy and policy frameworks."¹⁶⁹

At the same time, development through aid interventions needs to be more conscious of the *real* impact of development projects and whether these optimise use of scarce ecological and human resources. As Ayelew Gebre Mariam suggests:

"Water points development should be integrated with natural resource management. Extra water supplies in the rangelands should not be developed without regard to the grazing capacity of the area. The resource imbalance may disturb former use patterns and may accelerate resource depletion. Uneven development of water resources should be balanced, and the drilling of boreholes in deep well areas should be avoided. Water development is not about replacing the existing indigenous water sources."¹⁷⁰

How to ensure adequate water supplies, yet prevent the decline of pastures on which livestock production depends, is a dilemma that policy makers and practitioners alike now face.

There are more recent attempts to move away from large-scale agricultural production schemes to more intermediate and targeted interventions. In 1994, the European Union provided ECU 1.9 million for the Afar Pastoral Development Project (APDP), which was implemented by the newly appointed regional government. The project was modestly successful, directly

involving many local communities in implementation. However, a follow-up project was not approved by the central government, forcing the European Union to withdraw.

A smaller project is currently being initiated by FARM Africa (a British NGO) within zones 1 and 5 of Afar regional state, continuing with the same approach as the APDP and recruiting former APDP staff.¹⁷¹ The project focuses on suitable uses of land along the Awash River to support pastoralist food and livestock needs. The longer-term goals are to be decided through the development of a Community Action Plan. However, the project may cause conflict.¹⁷² For example, the neighbouring Issa are unhappy that the Afar are the focus of the project and are therefore refusing to cooperate with FARM Africa. Conflict prevention and resolution is recognised as an important component of the project and there are moves to establish innovative and acceptable means to resolve conflicts between all parties. This is part of a wider project involving FARM Africa and SOS Sahel and that is seeking to establish useful conflict prevention and resolution initiatives at the local level.

Conflict in the Awash River Basin cannot be sustained. In many areas, the desperate state of many local communities is testimony to the need to formulate new and innovative responses to chronic resource scarcity and pervasive insecure rights to land and natural resources for the rural poor. Difficult, informed and fair decisions regarding land and development need to be made at the federal and regional levels. Bryden explains:

“The marginal territories of the Horn of Africa tend to be places of chronic conflict and instability, and although their populations suffer most from its consequences, the states in which conflict occurs are also affected. Scarce resources that could be better invested elsewhere are consumed by violence and the latent potential of the land and its people goes untapped.”¹⁷³

Despite this, there is little concerted effort to explore and instigate more thoughtful and appropriate conflict prevention and resolution measures to address ongoing conflicts in Ethiopia. Partly this stems from the low priority of the Awash Basin nationally. Although conflict in the Awash Basin has severe impacts in the basin and beyond, the conflict is rarely translated to higher level ‘water wars’. As a result, there are few official attempts to develop effective methods to resolve conflict in the basin. Instead, the attention of national policy makers and government officials is on regional issues, such as conflict over the allocation of Nile waters. Nevertheless, as Nicol et al suggest, “it is not impossible to envisage larger-scale ‘water wars’, although the potentially huge (and futile) cost far outweighs any significant gain from ‘capturing’ water in this way.”¹⁷⁴ This requires recognition by all parties involved, including the government, when weighing the costs and benefits of further expansion of commercial agricultural schemes in arid and semi-arid lands.

At the same time “the support of traditional conflict resolution institutions through recognition of their importance to conflict prevention and resolution is essential.¹⁷⁵ Though Article 78 (5) of the constitution gives power to the House of People’s Representatives and state councils to establish or give official recognition to religious and customary courts to adjudicate disputes, they are not given legal backing.¹⁷⁶ Indigenous mechanisms need to be better understood and reviewed in terms of their functionality with particular reference to their relevance and application at different levels of conflict.¹⁷⁷

Government and regional level policies to prevent and resolve conflict have, so far, had minimal impact.¹⁷⁸ There needs to be increased ‘cross-fertilisation’ of method and concept between modern and traditional systems. Indeed, according to the respondents at a conflict resolution workshop in Borana, for example, it was stressed that, “in order to be able to resolve the [current] conflict over land it is ... necessary and essential to restore the authority of the elders in the zone and encourage and help them to dispense their customary laws.”¹⁷⁹

Advantages of traditional methods for conflict prevention include that they have the ability to respond to crises quickly, and they can reduce the resources used for court cases, thereby saving scarce public funds. In addition they are seen as more accessible, affordable and fair.¹⁸⁰ However, they are poorly understood, not least due to the fact that in some areas traditional methods are hidden from outside observers.¹⁸¹

Outside mediators can help to resolve conflicts. However, they must have a good understanding of the history and changing and complicated dynamics of the conflict, as well as be respected and trusted by all stakeholders. This is rarely easy. For example, those considered of a respected age among the Afar and able to act as elders in conflict resolution are older than those of the Issa, possibly because the Afar tend to live longer than the Issa.¹⁸² As such, the Afar have little respect for Issa elders, who it is said, can be easily intimidated by their Afar counterparts.

However, the relationship between the Afar and other pastoral groups is often more amiable and demonstrates that resource competitions do not always result in conflict. For example, in the western part of Afar region, it is observed that “... the Afar and Oromo enjoy a relatively peaceful relationship. The Oromo not only teach the Afar how to plough but also sometimes work for them. In addition the Oromo get Afar cattle in exchange for grain”.¹⁸³ In many cases, peaceful competition between different natural resource users depends on risky but tested systems of agreement and negotiation. Local, customary processes of negotiation and consensus building should be given greater institutional support and be used as the basis on which to enlarge peace building.

Conflict resolution is now a key undertaking of many intervention agencies. What is needed, suggests Irwin, is to untangle the complex network of issues underlying resource conflict and competition.¹⁸⁴ An initial strategy

may include analysis of existing conflict, including the impact of recent ecological and social change, and linkages between these and their causes and impacts, in order to identify where intervention is appropriate and effective. There is also a need to understand and identify any gaps in the methods used to prevent and resolve conflict. At the same time, it is essential to explore pathways in politics and policy to redress conflict. Ascertaining the relationship between resource users and resource uses, the types of conflict that exist and their sources and alliances may help to identify areas for intervention in conflict prevention and resolution.

In addition, development agencies require new roles. A shift in bias from technical development to social development is needed, although the two disciplines remain closely interlinked. "Until resource conflicts are resolved or at least systems are in place to enable conflict resolution, the livelihoods, resource management systems and capacities of pastoralists will continue to be disrupted and undermined."¹⁸⁵

The international community has begun to recognise the need for more sustainable solutions to livelihood challenges, as well as the need to integrate conflict prevention and resolution into the overall design and implementation of development projects. For example, the UNDP office in Ethiopia is strengthening upstream policy interventions. The primary objective of Project ETH/97/005 'Support to Water Resources Development and Utilisation' programme is to assist the government to formulate and implement water policy, water codes, and strategies at the federal level.

Some additional components of the water programme include building federal and regional institutional capacity for the design and implementation of small-scale irrigation and water resources development projects, including water supply and sanitation, and strengthening the dissemination of meteorological information and hydrological services for Ethiopia. Strengthening national capacities to cope with crisis, including shortage of rainfall, cyclical drought and famine through the design and implementation of early warning systems, pre-disaster planning and prevention strategies, may help to alleviate poverty and promote food security, key policy objectives of the government, UN agencies and international financial institutions. To support these programme activities UNDP has allocated US\$ 7.5 million.¹⁸⁶

The European Union recognises that the human and material costs of violent conflict undermine efforts to foster sustainable development and the need to support programmes to address the root causes of violent conflict. In addition, a shift can be seen in European Union peace-building and conflict prevention policies, which now focus upon democratisation, human rights and other projects that aim to reduce inequality. However, their policies have not been backed by the necessary shifts in resources to programme-level support and, in fact, there is a tendency to continue and often increase support to large-scale infrastructure projects. However, large-scale infrastructure projects rarely

consider the specific needs of poor communities vulnerable to conflict, nor do they support peace building in conflict areas.

In addition, there remains little recognition of the linkages between issues of land and resource rights and conflict in most areas. 'Environmental' issues are rarely accounted for in conflict mitigation strategies in Ethiopia.¹⁸⁷ Within the United Nations, environmental or ecological issues as sources of conflict are not considered a priority.¹⁸⁸ One small encouragement is the inclusion of pastoralism and conflict issues in a recent World Bank Regional Consultation on food security in the Horn of Africa, based on the cross-cutting theme of "Environment, natural resources and social issues".

Conflict prevention and resolution mechanisms need to be coordinated with environmental warning and response systems. There has been a government early warning system in Ethiopia since 1976. Since 1993 there is a distinct effort to decentralise decision making and to add other responses other than just food aid. This official system has had a fairly reliable track record of timely and accurate warnings of forthcoming emergencies. The official government system is supplemented by a number of parallel systems including USAID FEWS, WFP needs assessment, FAO harvest assessment, and formal and informal monitoring and networking carried out by non-governmental organisations. The record of *responding* to early warning information is less impressive. For example, the *Dergue* government in 1984 ignored information suggesting impending famine until it was too late, and subsequently there were problems with timely donor response.¹⁸⁹

The situation found in Awash is extremely complex. Establishing the true sources of the conflict in the basin is difficult and remains contested. It is clear, however, that though conflict in the basin appears to centre on land and resources, there are numerous other factors that are important in understanding the conflict. These are deeply embedded in history, politics and socio-economics, and which may have little or no direct relationship with ecological or environmental factors. For example, though it is apparent that environmental degradation is occurring in many parts of the basin as pressures on remaining and relatively accessible resources increase, one factor alone cannot be held responsible for this. As described earlier, environmental 'degradation' is influenced by a range of actions rooted in geopolitics and the inequitable distribution of resources at national, regional, local and household levels. As such, simple environment-conflict linkages are of little use in understanding and resolving conflict in the basin.

Although there is certainly some truth in the theoretical concept of 'resource capture'¹⁹⁰ in relation to the past and current conflicts found in Awash, this is the result of a wide range of factors, including the relative *abundance* of some resources in the basin. The case of the protection of irrigation schemes that were subsequently a primary scene of conflict provides one example. There is no evidence to suggest that when irrigation schemes

were established, the 'capture' of land and resources (water) had any relationship with local population growth and environmental decline, which Homer-Dixon refers to as 'environmental scarcity'. Instead, the establishment of the irrigation schemes in key resource areas used by pastoralists was the result of decisions reached by more powerful sectors of society to use the relatively abundant resources for personal and, arguably, 'public' good. That this environmental discrimination was at the expense of marginal, less powerful groups within society was immaterial.

Furthermore, the power of such marginal groups, particularly pastoralists, is increasingly reduced over time owing to the 'transitional' nature of their society. Pastoralists are struggling to 'modernise' and adapt their livelihoods and cultural practices to current political, social and economic stresses across the landscape. As a result, what have been described as 'social fault lines' have developed, such as a breakdown in traditional authority and control. "Social fault lines," can be "manipulated by 'actors' in struggles over social, ethnic, political, and international power" resulting in violent conflict that is triggered by the environment.¹⁹¹ This would appear to be the case in Awash, where local communities, particularly pastoralists, have been manipulated by governments and used in relation to the heavy mix of social, ethnic, political and international issues that shape the fractured political landscape of the Afar region. As a result, violent conflict triggered by environmental issues has ensued.

Conflict in the Awash Basin is likely to continue.¹⁹² To prevent the situation from becoming more violent will require that ecological factors in conflict receive greater research and policy attention. Furthermore, ecological factors should be fully recognised and accounted for in conflict prevention and resolution processes and policies. At the same time, the inherently political nature of such conflicts needs to be recognised. Many sources of conflict can only be addressed at regional and national levels. A more concerted effort should be made to do so. Links should also be made with the local actors in building peace. Learning and applying traditional methods of conflict prevention and management must be a priority for regional and national conflict prevention and management strategies. National strategies, however, may become more difficult as regions become stronger and regional identities more firmly established. Therefore, it is vital that work begins now to ensure that a firm basis for conflict prevention/resolution is established across regions and the country.

Case Study 2: the Nile Basin

The focus here is on the water resources of the Nile and the three major states competing to control Nile waters, namely, Ethiopia, Sudan and Egypt. The Nile waters originating in Ethiopia, the Blue Nile, are hydrologically

distinct from those flowing from the White Nile Basin (Rwanda, Burundi, Uganda, Tanzania and Kenya). The Blue Nile, which originates from Lake Tana in the Ethiopian highlands, contributes the major part of the water resources of the Nile going downstream to Sudan and Egypt. Accordingly, it is Egypt, Sudan and Ethiopia that have a major stake in the management and use of Nile waters, which may be a potential source of conflict in the future. Moreover, the current Nile Basin Initiative (as described below) also accounts for this possibility: Ethiopia, Sudan and Egypt are grouped as the 'Eastern Nile Basin countries'.

A significant part of the average annual flow of the Nile (estimated at 84 billion cubic metres at Aswan High Dam in southern Egypt) originates from the Ethiopian plateau, crossing Ethiopia's western boundary into neighbouring Sudan and then to Egypt, before emptying into the Mediterranean Sea. Ethiopia contributes 86% of the total annual flow of the Nile going downstream to Sudan and Egypt, whose major river basins are the Baro-Akobo (Sobat), Abbay (Blue Nile) and Tekezze (Atbara). In fact, the Blue Nile contributes approximately 95% of the Nile waters during the long rainy season (July–September), and 86% overall annually. The remaining 14% is contributed by the White Nile catchment area that includes Rwanda, Burundi, Tanzania, Uganda, Zaire, Kenya and Sudan. Sudan and Egypt do not contribute to the waters of the Nile but are the predominant users of its waters to date (Table 9).

In this sense, it comes as no surprise that Egypt, which is the lowermost riparian state and almost entirely dependent on the waters originating outside its borders, is concerned by the development and use of Nile waters in Sudan and Ethiopia. Ethiopia is similarly concerned with water resources development downstream in Egypt and Sudan because of the fact that these might pre-empt its own plans to develop the water resources of the Nile flowing within its territory. In other words, the Nile is a key factor determining the relationship between Egypt, Sudan and Ethiopia, and is a potential source of conflict.

From a hydrological point of view, the Nile ties Ethiopia, Sudan and Egypt, forming the basis and opportunity for integrated and cooperative management and use. However, the existence of political boundaries and consequent divergent national interests and priorities has led to competing and sometimes conflicting interests and demands over the use of its waters. The use of Nile waters has been politicised, and remains contentious between the different basin countries. Historically the Nile was developed to meet the unilateral needs and demands of the two downstream riparian states (Egypt and Sudan) without any tangible benefits for Ethiopia.

Egypt's major strategy (and to a lesser extent that of Sudan) was to secure an uninterrupted and stable supply of Nile waters. The Nile is vital for agricultural production and freshwater supplies in the two countries, but originates

Table 9: Contribution to the Nile¹⁹³

Catchment	Tributary	Annual contribution (%)	Flood period (%)
Ethiopian highlands	Blue Nile (Abbay)	59.0	68.0
	Sobat (Baro-Akobo)	14.0	5.0
	Atbara (Tekezzie)	13.0	22.0
Equatorial lakes	Bahr-el-Jebel (Upper White Nile)	14.0	5.0
Total		100	100

outside its borders. The fear that a hostile power in the upper reaches of the Nile might sometime in the future 'block' water flows downstream led European colonial powers and Egyptian leaders to seek different means of controlling the Nile and to coordinate the development of water resources throughout the basin.¹⁹⁴

For instance, the construction of the High Dam at Aswan in Egypt was primarily geared to ensure security against the consequences of unreliable annual flow of the Nile and the need for securing control over the water supply of the Nile by the downstream states.¹⁹⁵ The Dam fragmented use plans and development strategies in the Nile Basin with no involvement of the other upstream countries or consideration of their national development interests, including Ethiopia.

There is no comprehensive agreement on the use and allocation of Nile waters to date. The bilateral agreement concluded between Egypt and Sudan in 1959, otherwise known as the 1959 Nile Waters Agreement, allocated the entire flow of the Nile to the two downstream states to the exclusion of the upstream riparian states.

The current unbalanced allocation of Nile waters is unlikely to persist into the future. Ethiopia is faced with increased population pressure, and consequently is increasing its demand for the use of the Nile waters to meet its development needs, including improving rural livelihoods in the Ethiopian highlands. The importance of using the Nile waters for irrigated agricultural production in Ethiopia is considered of crucial priority in order to mitigate uncontrolled environmental degradation and recurring drought and famine in Ethiopia over the past several decades. Growing demands for Nile waters by the different basin states has fuelled competing demands, leading to tension and potential conflicts should an agreement not be reached.

The growing population, particularly in Ethiopia, is increasing demands for Nile waters. The total population of the Nile Basin countries in 1995 was

estimated to be around 250 million and is expected to reach 640 million by the year 2025. The population of Ethiopia will more than double from its current 60 million to 120 million, while Egypt's population is estimated to reach 94 million by 2025. This means that Ethiopia's population will be 20% higher than Egypt's by the year 2025. Increased demands for Nile waters may contribute to greater interstate tensions as the different basin states demand larger shares of the available Nile water supply, particularly in light of the absence of a basin-wide agreement on allocating Nile waters at present.

The economies of the different Nile Basin countries are predominately agriculturally based. Egypt's share of the agricultural sector as a percentage of its GDP significantly declined from 34.3% in 1955 to 20% in 1990 as a result of its expanding industrial sector.¹⁹⁶ In comparison, Ethiopia and Sudan's share of the agricultural sector is still significant, amounting to 40% and 36% of total GDP respectively. Over 80% of the Nile waters are used for irrigated agriculture in both Egypt and Sudan, while Ethiopia has not developed Nile waters flowing through its territory. The agricultural policies of all three countries are to attain national food security by increasing domestic food production, mainly by increasing irrigated agriculture.

Since the agricultural sector is the largest water consumer, there are growing pressures on the already limited Nile waters, leading to competing demands among Egypt, Sudan and Ethiopia. Currently, only Egypt has been able to diversify its economy away from agriculture. Moreover, Egypt imports two-thirds of its food requirements and this trend will continue despite efforts to boost domestic production.¹⁹⁷ Egypt's current agricultural policy and the economic viability of expanding agricultural production through reclamation of new lands are widely questioned.

Instead, it is suggested that Egypt import 'virtual' water in food staples instead of relying on current Nile water supply to increase domestic food production.¹⁹⁸ However, Egypt considers its strategy of increased agricultural production as a matter of national interest and security and does not seem willing to pursue a virtual water policy, at least in the short term. Both Ethiopia and Sudan lack the capacity to diversify their economies in the short to medium term because of their weak economies and current domestic instability. They will therefore likely continue to depend on the water resources of the Nile to boost their agricultural production.

In addition, the role of external actors in contributing to the potential conflict in the Nile should not be underestimated. Britain's presence as a colonial power in Egypt, Sudan and in the East African territories (Uganda, Kenya and Tanzania) enabled it to ensure the protection of Egyptian interests as the primary user of the Nile, mainly because of British strategic and economic interests in Egypt at the time.¹⁹⁹ This was done through a series of agreements with the upstream riparian countries aimed to ensure non-interference with the flow of the Nile by upstream states without the prior consent of Egypt

and/or Sudan. The validity of these agreements is a source of controversy and disagreement between the upstream riparian countries and the downstream countries in the post-independence period. All the upstream riparian countries, including Ethiopia, reject the validity of these agreements because of their colonial and unilateral nature, while Egypt and Sudan claim that these treaties are still valid because they are boundary agreements.

Apart from the Nile waters, there is little that binds Ethiopia with the two downstream countries in terms of economy, language, culture and religion. Egypt and northern Sudan are predominantly Islamic and Arabic speaking. Moreover, they were both under British colonial control from 1889 onwards. It is at this time that the first steps towards economic and hydrological ties were taken. However, there is also the fact that Egypt's perception of Sudan was historically colonialist because of Egypt's commercial and military dominance in the region. Moreover, the engagement of superpowers in the basin during the Cold War, and shifting allegiances at the time influenced by increased control over the water resources of the Nile, increased tension among the basin countries.

The other factor that has limited development of Nile waters in the basin is the weak economies of the different countries. Except Egypt, which has a comparatively stronger economy, the other riparian countries lack the investment and capital to develop infrastructure to harness the Nile waters. Thus, the role of bilateral and multilateral agencies in promoting cooperation is vital, since they can target funds to projects having mutual benefits for the different basin states. The policies of some international financial institutions such as the World Bank (which follows a 'no objection' criteria for providing funds) are often criticised on the basis that it increases the risk of conflict between the riparian states by neglecting to give necessary funding to develop water resources in Ethiopia, which may alleviate widespread poverty and food insecurity in the country.²⁰⁰

Historical Factors in the Conflict

For the two downstream countries, particularly Egypt, securing an uninterrupted and stable Nile water supply has been the foremost concern of political leaders from time immemorial. Control of Nile water is a primary strategic concern for Egypt since it is highly dependent on Nile waters to sustain the livelihoods of its people historically and today. Indeed, the oft-quoted expression that "Egypt is the Nile, and the Nile is Egypt" has lent some credence to the Nile being considered by many Egyptians as a symbol of national security.

The sense of vulnerability and consequent fear that upstream countries might block the waters have largely guided Egypt's management and policy on Nile water. Egypt uses a mixture of complex technological, legal and political means to attain greater water security.

During the early period of the pharaohs, irrigation in Egypt was largely dependent on the floods coming from the Ethiopian highlands. The scarcity or abundance of rainfall in Ethiopia, therefore, was strongly related to harvest sizes in Egypt. Egyptian rulers used to believe that the reduction of the flow of the Nile was due to Ethiopian rulers diverting the flow of the Nile. In some periods, Egyptian pharaohs sent tribute to Ethiopian kings for them not to obstruct the Nile waters.²⁰¹ There were also instances when Ethiopian kings threatened to divert the course of the Nile, particularly when it was believed that Orthodox Copts in Egypt were being persecuted.

Irrigated agriculture expanded continuously in Egypt, enabling cultivation of large land areas under perennial irrigation by the end of the 19th century. It was, however, after Britain colonised both Egypt and Sudan that a series of ambitious schemes were proposed to develop the Nile waters in upstream countries in order to increase water flow downstream (in Egypt). These plans, otherwise known as the century storage schemes, were later abandoned mainly due to Egyptian fears that its economic fortunes would be tied inextricably to the actions of upstream basin states. The Egyptians preferred to construct a giant over-year storage dam at Aswan that would be located entirely within Egyptian territory. This, it was felt, would enable Egypt to finally secure under its control water supplies from the Nile, rather than depend on delicate resource-sharing arrangements with upstream basin states.

The Aswan High Dam may have served to enhance Egyptian control of the national water supply by protecting it from fluctuations of the annual flow of the Nile coming from upstream countries, particularly from the Ethiopian plateau. It also serves as a political symbol of national security to Egyptians. However, the dam had many critics from its inception because of its questionable economic viability and the fact that the loss through evaporation from the dam is among the highest in the world.²⁰²

British colonisers tried to secure water supplies from the Nile for Egypt through a series of agreements that invariably sought to invoke Egypt's first claim to use Nile waters. One of the main concerns in this period was to ensure that the major flow of the Nile originating in Ethiopia should not be interfered with. Accordingly, Britain signed a protocol in 1891 to which Italy, as the colonial power in Eritrea, undertook not to construct works on the Atbara (Tekezze) that might modify the downstream flow of the Nile. In 1902, Britain, on behalf of Sudan, concluded an agreement with Emperor Menelik of Ethiopia. One of the provisions stated that Ethiopia should not undertake any construction works on the Blue Nile, Lake Tana or the Sobat (Baro-Akobo) that would reduce the flow of the Nile except with the agreement of Britain and Sudan.

During the post-independence era, the most significant agreement was the 1959 Nile Waters Agreement that allocated the entire flow of the Nile between Egypt and Sudan. The allocation was based on the annual flow of the Nile

estimated on average at 84 billion cubic metres. By this agreement, Egypt was allocated a share of 55.5 billion cubic metres and Sudan 18.5 billion cubic metres, while 10 billion cubic metres was left as loss from evaporation at the Aswan High Dam. This agreement also envisaged possible future claims by upstream riparian countries and provided that if the claims of any riparian states be accepted by both parties (Egypt and Sudan) then the accepted share would be equally deducted from their current share. It is worth noting here that this implies consent by the two downstream countries, Egypt and Sudan, before any upstream country is allocated a share of Nile waters.

There are still divergent positions between the upstream and downstream countries as to the validity of both the colonial agreements and the 1959 Nile Waters Agreement. As a bilateral agreement, the 1959 Nile Waters Agreement is effective only between Egypt and Sudan. However, some contend that this bilateral agreement gives Egypt and Sudan an 'established', 'historic' or 'acquired' right over the waters of the Nile, and therefore the agreement is non-negotiable and should be respected by the upstream riparian countries.²⁰³ On the other hand, others stress that the Nile Waters Agreement is a bilateral agreement and could not in any way affect the rights of upstream states to utilise the waters of the Nile and that the claim to historic rights has no basis in current international law.²⁰⁴

Likewise the colonial agreements are also rejected by the upstream riparian states mainly because of their colonial and non-reciprocal nature. Ethiopia has made its position clear in several official communications to the effect that these agreements do not affect its rights to use Nile waters within its territory to pursue its development objectives.²⁰⁵ It is also noted that one of the major sticking points in the current Nile Basin Initiative is the status of the existing agreements. Egypt and Sudan still claim that any water use in upstream countries should not affect existing water allocation agreements.

Apart from the various colonial and post-colonial agreements intended to unilaterally secure control of the Nile waters, historical records show that Egypt attempted to secure the origin of the Nile in Ethiopia through repeated incursions in Ethiopian territory. The Battle of Gedarif in 1882 and the Battle of Gura in 1832 are examples.²⁰⁶ The war of words between Egypt and Ethiopia is still frequently rife, particularly at times when Ethiopia proposes plans to develop its share of the Nile waters. Past acrimony has dampened potential cooperation in sharing the Nile waters fairly between Egypt, Sudan and Ethiopia.

Evident from the above is that there has not been a significant attempt in the past to achieve basin-wide cooperation in the Nile, because the river has never been considered a common resource between the different basin countries. Rather, unilateral development of the Nile was and remains the rule. Past utilisation of Nile waters aimed to achieve one objective: to ensure the secure control of Nile waters for Sudan and, particularly, Egypt. Water

resources development in the Nile was premised largely on achieving water security for Egypt irrespective of the potential demands that the other upstream states such as Ethiopia may have at any future time. Egypt considers secure control of the Nile waters an issue of national survival, as indicated earlier.

On the other hand, for several decades, Ethiopia is increasingly vulnerable to recurrent drought and famine. This is commonly attributed to dependence on rain-fed agriculture in the Nile Basin in Ethiopia. Attainment of food security in the country requires the development of irrigated agriculture on a large scale, which will affect the current allocation of waters to downstream riparian states. Moreover, irrigated water resources development in the Ethiopian plateau is the only alternative that could stem worsening environmental degradation within the basin and prevent mass migration of the increasing population to other areas of Ethiopia.²⁰⁷

It is cautioned that “close attention needs to be given by all concerned to the implications of the probable doubling of the population of the Ethiopian Nile Basin during 1996–2020, with respect to the impacts on food security, use of the Nile waters and increased potential for conflict if that population continues to depend on peasant farming”.²⁰⁸ In the light of this, future cooperation among Ethiopia, Sudan and Egypt might depend on the extent to which Egypt and Sudan are prepared to relinquish a portion of their allocation of Nile waters to give way to consumptive hydraulic works in Ethiopia.

Increased Competition over Limited Nile Water Supply

One of the most crucial issues that tends to fuel tensions between the two downstream countries, Egypt and Sudan, on the one hand, and Ethiopia, on the other, is the equitable distribution of the water supply of the Nile among these basin states to satisfy their national water demands. The most contentious issue is that of water demand for irrigated agriculture, which consumes most of the Nile waters.

Egypt is already using its allocated share under the Nile waters agreement (55 billion cubic metres) and possibly even an additional six billion cubic metres, as Sudan is not yet in a position to use its allocated share. Ethiopia is currently in need of water for irrigated agriculture to attain national food security and mitigate famine and drought, to which its growing population is highly susceptible. This is currently estimated at around 30.5 billion cubic metres according to the recent master plan studies conducted in the three sub-basins of the Nile.²⁰⁹

However, Egypt and Sudan do not appear ready to reduce their allocations of waters to accommodate claims by Ethiopia. Both Egypt and Sudan argue that the share of Nile waters endows them with an historical right that is sacrosanct and not negotiable. In fact, Egypt is currently increasing its

irrigated area substantially through desert reclamation schemes in the Sinai and in the south-western area of the county, under the New Valley Development Project. These projects apparently require an estimated additional eight billion cubic metres of water annually.²¹⁰ Egypt's position is that any reduction of its share of Nile waters under the 1959 Nile Waters Agreement will be ruinous. Said contests: "... major dams intended for long-term storage at the Blue Nile headwaters ... will seriously affect the water available to Egypt and Sudan. For Egypt, in particular, they could wreak havoc on the many land reform projects underway in the Delta, Sinai and Upper Egypt."²¹¹

Others argue that the construction of the reservoirs upstream on the Blue Nile in Ethiopia will benefit all three countries by significantly reducing the loss of water through evaporation at the High Aswan Dam, as well as carefully regulating the upstream flow to prevent further losses there.²¹² Collins explains: "... ironically, the Blue Nile plan if properly managed would not substantially affect the water available to Egypt and the Sudan. Under appropriate working arrangements the amount of water for irrigation throughout the Nile Basin could actually be increased."²¹³ There exist possible alternatives for cooperation in the Nile Basin that would be mutually beneficial to all basin countries and mitigate tensions that currently exist between Ethiopia and downstream riparian countries. However, to attain this level of cooperation will require confidence-building measures between the different basin countries.

Egypt's intransigence lies in its concern of losing control of its water supply from the Nile. Ethiopia may need to reassure the Egyptians that its proposed developments of Nile waters will not reduce the share of waters Egypt currently enjoys. Wittington and McClelland contend, "...the possibility of the Blue Nile reservoirs being operated during drought to strategically withdraw water from Egypt is an ancient nightmare of Egypt, and Ethiopia must offer specific and concrete proposals to allay Egyptian fears in this regard."²¹⁴

Political Relations

Use and control of the Nile waters has greatly influenced the political relations between Egypt, Sudan and Ethiopia. Because of the perception in many Egyptian circles and by Egyptian leaders that any change in allocation of Nile waters is a threat to their national security, Egyptians on occasion have insinuated threats of force. These threats were usually in response to Ethiopia officially asserting its rights to use the Nile waters. In 1979 when Ethiopia announced that it would use the waters of the Blue Nile, Egyptian president Anwar Sadat responded by threatening to bomb any diversion projects. Egypt has also accused Ethiopia on several occasions of cooperating with Israel to build dams on the Blue Nile, although there is no concrete evidence to support this allegation.²¹⁵ In a recent article in *Al-Hayat*, Said contends that

Ethiopia's plans to use the Nile waters was politically motivated and not based on any genuine need to do so. He attributes this to the instigation of the United States during the reign of Emperor Haile Selassie or the Soviet Union during the military regime.²¹⁶

Past relationships between the basin states are marred by a lack of mutual trust. Political alliances in the Cold War era have also stoked tensions between the different basin states. Ethiopia's support of the Sudanese People's Liberation Army (SPLA) and Sudan's support of the Eritrean Peoples Liberation Front (EPLF) have also contributed to the postponement of negotiations on the Nile. Moreover, even where Egypt and Sudan attempt to cooperate with Ethiopia in sharing the Nile waters, Ethiopia is deeply suspicious because it feels that any agreement would favour the Egyptian and Sudanese interests over Ethiopia's.

One of the basic objectives of the current Nile Basin Initiative, which is discussed at length in the next section, is to build trust and confidence among the Nile Basin states concerned.

Cooperative Efforts on the Nile

The first intergovernmental initiative to promote cooperation in the Nile Basin was established in 1967. It was known as the Intergovernmental Committee for the Hydro-Meteorological Survey of Lake Victoria, Kyoga and Lake Albert (the Hydromet Project) and was funded by the UNDP. The basic objective of the project was to collect and analyse hydrological and meteorological data in the Great Lakes catchment area. It also envisaged laying the groundwork for intergovernmental cooperation in the storage, regulation and use of Nile waters. All Nile Basin countries, except Ethiopia, were members of this organisation, based in Entebbe, Uganda. Ethiopia joined Hydromet as an observer in 1971. Ethiopia opted to remain an observer to the Hydromet mainly because Egyptian and Sudanese interests dominated its agenda. Hydromet did not discuss substantive issues, including the allocation of Nile waters, or entitlements of upstream riparian countries to use Nile waters.²¹⁷ The Hydromet ended in December 1992, because member states felt a need to redefine the objective of future cooperation in the Nile Basin to the satisfaction of all riparian countries in order to achieve a lasting basin-wide cooperation in allocation and use of Nile waters.

Following the Hydromet, the Technical Cooperation Committee for the Promotion of the Development and Environmental Protection of the Nile Basin (TECCONILE) was established in 1992 with the initial support of the Canadian International Development Agency (CIDA). Egypt, Sudan, Tanzania, Uganda, Rwanda and Zaire were members, while the other four riparian countries, namely, Ethiopia, Kenya, Burundi and Eritrea participated as observers. In conjunction with the establishment of the TECCONILE, a

Council of Ministers of Water Affairs of the Nile Basin states was formed acting as the highest decision making body. At its third meeting at Arusha, Tanzania in 1995, the council of ministers endorsed the Nile River Basin Action Plan that identified several projects of regional and sub-regional interest. One of the projects is known as the Nile Basin Cooperative framework (otherwise known as Project D3). It was endorsed by all the countries and is currently being implemented with the support of the UNDP.

In 1995, the council of ministers requested the World Bank to take a lead role in coordinating the inputs of external agencies to finance and implement the Nile River Basin Action Plan. This was accepted by the World Bank, which undertook the task in partnership with UNDP and CIDA. A review of the Nile River Basin Action Plan was undertaken and led to the formation of what is currently called the Nile Basin Initiative.

The Nile Basin Initiative (NBI) was officially launched in Dar es Salaam, Tanzania in February, 1999 at an Extraordinary Meeting of the Nile Basin Council of Ministers. For the first time, all Nile Basin states became members of the NBI, with the exception of Eritrea. It is envisaged that the initiative will serve as a transitional mechanism pending an agreement to be reached amongst the Nile riparian countries on a permanent legal and institutional framework under the ongoing Nile Basin cooperative framework that is part of the NBI.

The NBI is governed by a Council of Ministers of Water Affairs of the member countries. This Council is the highest decision-making body and has the responsibility of setting out policy and guidance on issues related to the Nile waters. Under the council is a technical advisory committee that consists of two senior officials from the member countries who give support and technical advice to the council of ministers. A secretariat was also established in Entebbe, Uganda, which began operations from June 1999.

The NBI is guided by a commonly agreed shared vision: "... to achieve a sustainable socio-economic development through the equitable utilisation of, and benefit from, the common Nile Basin water resources".²¹⁸ To translate the shared vision into concrete actions, the NBI comprises two main complementary strategic action programmes, namely, the Shared Vision Programme (SVP) and the Subsidiary Action Programme (SAP).

The SVP is a basin-wide programme that is intended to create an enabling environment for cooperative action in the Nile Basin through building trust, and negotiating capacities and skills of the different delegations. Projects aim to contribute to building a strong foundation of mutual trust among the Nile Basin countries by enlarging human and institutional capacity and creating the opportunity for basin-wide engagement and dialogue. These, it is believed, will facilitate agreement on a permanent legal and institutional framework.

The framework is currently under negotiations by the riparian countries as part of the Nile Cooperative Framework Project. The SVP currently

comprises seven projects, including the Nile Trans-boundary Environmental Action; Nile Basin Regional Power Trade; Efficient Water Use for Agricultural Production; Water Resources Planning and Management; Confidence-Building and Stakeholder Involvement; Applied Training and Socio-Economic Development and Benefit Sharing. The indicative cost to implement the above seven projects is estimated at approximately US\$ 122 million.

As indicated earlier, negotiation on establishing a cooperative framework is ongoing, with the support of the UNDP since 1995 (Project D3). The main purpose of the Nile River Basin Cooperative Framework is to agree upon a set of legal and institutional principles on the basis of which future cooperation on the use and management of Nile waters is to proceed. A panel of experts composed of three members from each Nile Basin country was formed in 1997 to establish a set of commonly agreed legal and institutional principles to cooperatively manage the Nile waters. Although agreement was reached on some provisions, there are still disagreements on some substantive issues in the document. The issues that remain unresolved relate to the status of existing agreements, the relationship between the principle of equitable entitlement and the obligation not to cause significant harm, as well as procedures related to planned projects within the Nile Basin.²¹⁹ As in the past, Egypt and Sudan are opposed to any reduction of their allocation of waters under the 1959 agreement. Meanwhile, upstream riparian states demand a new water sharing agreement.

Of particular significance are the subsidiary action programmes which aim to identify water resource development projects at the sub-basin level involving two or more countries and to account for "... benefits and effects of planned activities on other countries".²²⁰ Possible development projects are hydropower development and interconnection, irrigation and drainage, environmental management, river regulation, drought and flood control, and water use efficiency improvements. Accordingly, the subsidiary action programmes were developed on the basis of two distinct sub-basins, namely, the Eastern Nile Subsidiary Action Programme (ENSAP) comprising Egypt, Sudan and Ethiopia, and the Nile Equatorial Lakes Subsidiary Action Programme (NELSAP) comprising Burundi, the Democratic Republic of Congo, Kenya, Rwanda, Tanzania and Uganda. Egypt and Sudan also joined as participants in the development of the programme in November 2000.

The ENSAP (which includes Ethiopia, Sudan and Egypt) identified a set of seven major sub-projects deemed to be mutually beneficial to all basin countries. These include: the Eastern Nile Planning Model Sub-Project; Baro-Akobo Multi-purpose Water Resources Development Sub-Project; Flood Preparedness and Early Warning Sub-Project; Ethiopia-Sudan Transmission Interconnection Sub-Project; Eastern Nile Power Trade Investment Programme, Irrigation and Drainage Sub-Project; and the Watershed Management Sub-Project. Of these, four (Eastern Nile Planning Model; Flood Preparedness and Early Warning;

Ethio-Sudan Transmission Interconnection and Watershed Management) are considered to be 'fast-track' and will proceed at an accelerated pace for final appraisal. These initial investments are considered to be of crucial importance to build confidence among the riparian countries, as well as to demonstrate real results on the ground after years of policy dialogue. An Eastern Nile Regional Office is being set up in Addis Ababa, Ethiopia.

To secure the required financial support from the international community for the cooperative water resources development projects and other projects identified in the strategic action programme of the NBI, an International Consortium for Cooperation on the Nile (ICCON) was initiated by the World Bank. The first meeting of ICCON was held in Geneva, Switzerland in June 2001. The participants at the meeting included the international donor community, the Ministers of Water Affairs of the Nile Basin states and some Ministers of Finance and Planning, as well as other water resources experts from the basin countries. Donor statements at the meeting supported the strategic action programme as an important step to achieving cooperation in the Nile Basin. The ICCON promised initial financial support of at least US\$ 140 million and support for the first phase of the US\$ 3 billion investment programme in the respective sub-basins once the projects are ready for funding.²²¹

The Nile Basin Initiative can be seen as an important step in paving the way for Nile Basin countries to seriously consider cooperation in the utilisation and management of the Nile waters. Ethiopia has for the first time joined such a cooperative initiative with the expectation of being able to significantly tap the water resources of the Nile to meet the various demands of its growing population.

All basin countries seem to consider the NBI as a positive step that should lead to a stronger cooperation in the future. However, the expectations of the different riparian states of the current cooperation differ. Ethiopia expects to get tangible benefits in terms of increased agricultural production and generation of hydropower to export to Sudan. It also intends to improve environmental management by reducing population pressure in areas of high population density during the first phase of the projects identified in the eastern Nile. Egypt and Sudan do not want their uses of Nile waters adversely affected by developments in Ethiopia. However, it is recognised that the projects identified during the first phase are of limited significance and that they will not meet all the water demands within the basin, particularly for irrigated agriculture.

Conflict Prevention and Resolution

The Nile Basin Initiative (NBI) is a positive step forward because it provides some incentives, mainly financial, for the Nile Basin countries to move forward to identify and eventually implement joint and mutually beneficial projects.

To what extent these projects will meet the basic demands of upstream countries such as Ethiopia, particularly in the area of irrigated agriculture, is undetermined. The NBI has also helped to convene water resource experts, politicians, and bureaucrats from the riparian countries to substantively consider different options for cooperation, and to reconcile the different interests and views of competing basin countries. Mutual trust and understanding of differing perspectives also seem to have improved among the negotiators involved in the process.

The riparian countries are more open to raising public awareness on negotiations and the issues that are under consideration by the different countries. The benefits of cooperation are more widely espoused through the media and by organising workshops that involve various stakeholders. This seems to have generated greater confidence among the public that the current cooperation is intended to enhance the welfare of the different basin peoples.

However, there are still some areas where little understanding has yet been reached, particularly regarding legal principles and institutional mechanisms that serve as the basis for future water allocation and management of Nile waters. Egyptian and Sudanese positions regarding allocation of Nile water are unchanged from earlier negotiations.

From a conflict prevention and management perspective, the role of the World Bank and other multilateral and bilateral funding agencies such as the UNDP and CIDA is useful in bringing together the competing basin countries. The World Bank's experience in the Indus River dispute between Pakistan and India seems to have influenced the approach to conflict prevention and resolution in the context of the Nile. In both cases, the main instrument is the provision of financial support for investing in water resources development projects that encourages the competing sides to see tangible benefits on the ground.

The World Bank was highly successful in resolving the conflict over water in the Indus Basin case. This may also be possible in the Nile Basin. However, there are certain differences in the Nile that may challenge cooperation among the Nile Basin states. First, the number of riparian states participating in negotiations is greater in the Nile Basin. More diverse national interests, therefore, are at stake. Second, the lower riparian states, particularly Egypt, have been the major beneficiaries to date in the Nile Basin and may not want a significant change in the present allocation of Nile waters, even should such change reduce regional tensions. Ethiopia in this case may abandon consensus-building initiatives. However, Ethiopia may withdraw in any case if it feels that no significant benefits are forthcoming from the initiative process.²²²

It is in no country's interest to pursue a unilateral policy of developing water resources that will increase the possibility of competition and conflict rather than seek ways of cooperation and consensus building. Previous conflict and political instability in Ethiopia has helped to postpone the issue of

water allocation. However much instability and conflict have contributed to the passive acceptance of past inequalities in the allocation of Nile waters, they are not factors that one can depend on in the future.

The Nile Basin Initiative is a step in the right direction and might bring mutual benefits to the different riparian countries. One can sense from consulting those directly involved in the negotiations that there is greater confidence that the current cooperative initiative is the only way to achieve tangible results towards a long-lasting solution for cooperation in managing and using the Nile waters.

Conclusion

Social and political issues have rarely been factored into water development and utilisation programmes in the past. This chapter has highlighted the role of social and political factors in resource competitions in Ethiopia. Indeed, the distribution and use of water is a highly contentious issue from the water point all the way up to the regional basin level in north-east Africa. To some extent, recognition of potential conflict over the use of waters that flow beyond Ethiopia's borders has constrained their development. The lack of technical skills and international investment, coupled with chronic political instability and conflict, has meant Ethiopia has not developed the Nile waters, for example.

At a national level, serious conflict and competition over the distribution and uses of water remain. These centre on large-scale water schemes that were constructed beginning in the 1950s to expand agricultural production, increase power generation and supply water to Addis Ababa and a few major towns. The irrigation schemes, however, were developed without consideration of local needs and uses of key resource environments where the irrigation schemes were constructed. As a result, conflicts have occurred between local communities, commercial companies, government authorities and others. Poorly informed and planned aid and development interventions have worsened the insecurity of rural poor in many areas.

The irrigation schemes were, to a large extent, concentrated in the Awash Valley to sustain state-owned sugar estates and fruit and cotton farms. In most cases, the irrigation schemes failed to involve the local farming populations and ignored schemes devised using customary methods to irrigate smallholder plots. At the same time, the development of large-scale irrigation schemes forced traditional land users such as pastoralists off the riverine lands. Pastoralists, however, are highly dependent upon the key resource areas near to the river for dry season pasture, as well as access to water points.

The livelihood strategies of pastoralists that were prohibited from accessing resources near to the river were completely undermined. Pastoralists were

forced to reorganise customary grazing patterns, leading to greater tension and competition as rights to resources throughout the area were challenged. In addition, pastoralists were not able to use many areas of arable land and plentiful pasture because of persistent insecurity and conflict. As a result, in recent years there has been an increasing emphasis on protecting resources from other users, including constructing fences around pastures and 'privatising' the use of wells. Traditional values of reciprocity and resource sharing are threatened by growing individualism and protectionism.

Ironically, many irrigation schemes have since fallen into disrepair and thus are either not functioning at full capacity or at all. This is common throughout Ethiopia where technical know-how and access to mechanical parts for repairs is low. In addition, the very nature of the water proves incapacitating: the flow of water is highly variable, thus requiring the use of large storage facilities. Silt also concentrates, reducing the storage capacity of dams and damaging equipment. Despite government investment and support in the early 1990s, commercial support for irrigation schemes has not been forthcoming and a number of proposed schemes throughout the country were suspended or abandoned. Where schemes are functioning, local opposition is common, and expressed by lack of support in the way of maintenance and 'vandalism'. Unless local or community issues are addressed within irrigation and other development schemes, then conflict and insecurity will persist in areas of 'development'.

Conflict continues in the Awash Valley. The majority of the indigenous population still relies on transhumant animal husbandry. The area lacks most services and there are continual food and water security problems. Patterns of pastoral migration have been disrupted, alternative strategies have been sought (including land enclosure and sedentarisation), conflicts between neighbouring pastoral groups have intensified and the pressure on remaining resources has increased. Since the change of government in 1991 and the introduction of market-based policies, the state has embarked on the sale of some of its assets, including many irrigation schemes. This has fuelled further conflict as some clans were favoured in the sale of land from irrigation schemes.

National level water resources are currently managed by the Ministry of Water Resources (MoWR), which acts as a reasonably unified central water organisation. The ministry is mandated to develop policy and undertake implementation, operation and regulatory work of water, including irrigation. However, the organisational set up is sorely lacking in capacity and efficiency, and as a result the ministry has little power to implement a sound water policy, particularly one that addresses the very complex issues of social equity and conflicts so intricately tied up with water usage.

The MoWR is responsible for upstream water resources control and development activities, including the determination of conditions and methods for optimal allocation and utilisation of water that flows across more than one region. The ministry is expected to work closely with regional water bureaux

and commissions or authorities, though in reality the flow of information, skills and capacity between the different levels of government is severely hampered by internal politics and the lack of resources. Lower levels of the institutional hierarchy, such as the zone, *wereda* and *kebele* levels are incorporated in decision making to an even more limited degree. Community participation in water development and decision making is virtually non-existent. In addition, there is little evidence to suggest that either the ministry or the regional governments have incorporated conflict analysis and resolution within their policies and practices. These issues need to be urgently addressed in the future as pressure increases to improve the effectiveness of water development and utilisation increases.

Plans are underway for the construction of 13 power-generating dams and an irrigation development project covering 590 000 hectares of land through the joint projects designed by the Nile riparian states. Coordinating offices to manage and facilitate these joint projects involving Ethiopia, Sudan and Egypt, will be opened in Addis Ababa. In addition, regional governments are mobilising resources to expand irrigation.

However, for these schemes to be sustainable, a number of constraints need to be addressed, including continuing organisational problems within the institutions responsible for water, as well as the development of appropriate technology that is sensitive to Ethiopia's varied topography and natural constraints. But most importantly, the social impacts of water development must be fully considered and mitigated where possible. Adaptable, flexible and site-specific strategies are required, and the potential and actual conflicts between different water users identified. The rights and needs of both upstream and downstream users must be understood and guaranteed. And local and national conflict prevention and resolution mechanisms need to be incorporated into all aspects of water development, including international agreements for water use. This includes ongoing negotiations over the allocation and use of Nile waters.

It should be recognised that conflict can have positive results and should not be viewed in a completely negative light. Conflict can bring underlying issues out into the open, and bring parties together for negotiation. Positive, non-violent outcomes are possible through conflict. In this way, conflict is transformative. However, this requires a relatively level playing field, which is in many cases missing, such as in the Awash River Basin. Levelling the playing field will require difficult decision making to distribute resources required in negotiation and dialogue more equitably. Decisions to build peace must be informed and 'fair' in order to be effective. In addition, donors must increase support to enhance the capacity of federal, regional and local institutions to undertake conflict prevention and resolution and to facilitate participatory peace dialogue at all levels.

This study answers a number of critical questions concerning the linkages between ecology, environment and conflict in Ethiopia. However, the broader

social, political, economic and historical context in which competitions for land and resources occur is vital to comprehensively understand the role of 'ecological' factors in conflict in Ethiopia. These are embedded in geopolitics, imperialism, ethnicity, international issues (such as trade), strategic interests, as well as the (un)democratic institutions of the state.

On an annual basis and in normal years, Ethiopia has more than sufficient fresh water for the needs of its population. However, its distribution is highly variable. Water, therefore, can be considered to be both abundant and scarce at varying times and places, and for different groups and individuals. In areas of scarcity, land and resources can trigger conflicts. These conflicts have intensified due to resource capture by stronger elements in society. Therefore, though water and other ecological resources do play an important role in conflict, they cannot be separated from broader issues, including social inequities, economics and politics. Indeed, it is among these variables that the deeper and enduring sources of the conflicts can be located.

Conflict also occurs where water is comparatively abundant. However, the source of these conflicts is identifiable in the longer history of resource capture and protection by the government, commercial and conservation interests. As the case study has shown, in the Awash River Basin the establishment of both the irrigation schemes and the Awash National Park has meant that customary users of land and resources, primarily pastoralists, were marginalised and forced to move into one another's territories. As a result, conflict to access and control resources has ensued.

Conflict involving land and resources is likely to increase unless the root sources are recognised and addressed. Although Ethiopia is now engaged in negotiations at an international level over the allocation and use of Nile waters, the country needs to prioritise negotiations to resolve land and natural resource conflicts at the regional and local levels as well. To date, investment in such negotiations and other conflict prevention and resolution mechanisms has been minimal. There is little evidence that the true sources of conflict, which include ecological factors to some degree, are being assessed and incorporated. Though traditional mechanisms have existed, these are under increasing pressure and there is a risk that their potentially positive input has been lost. It is vital that the issues explored above are addressed if the predicted future water wars are to be prevented.

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