THE NILE

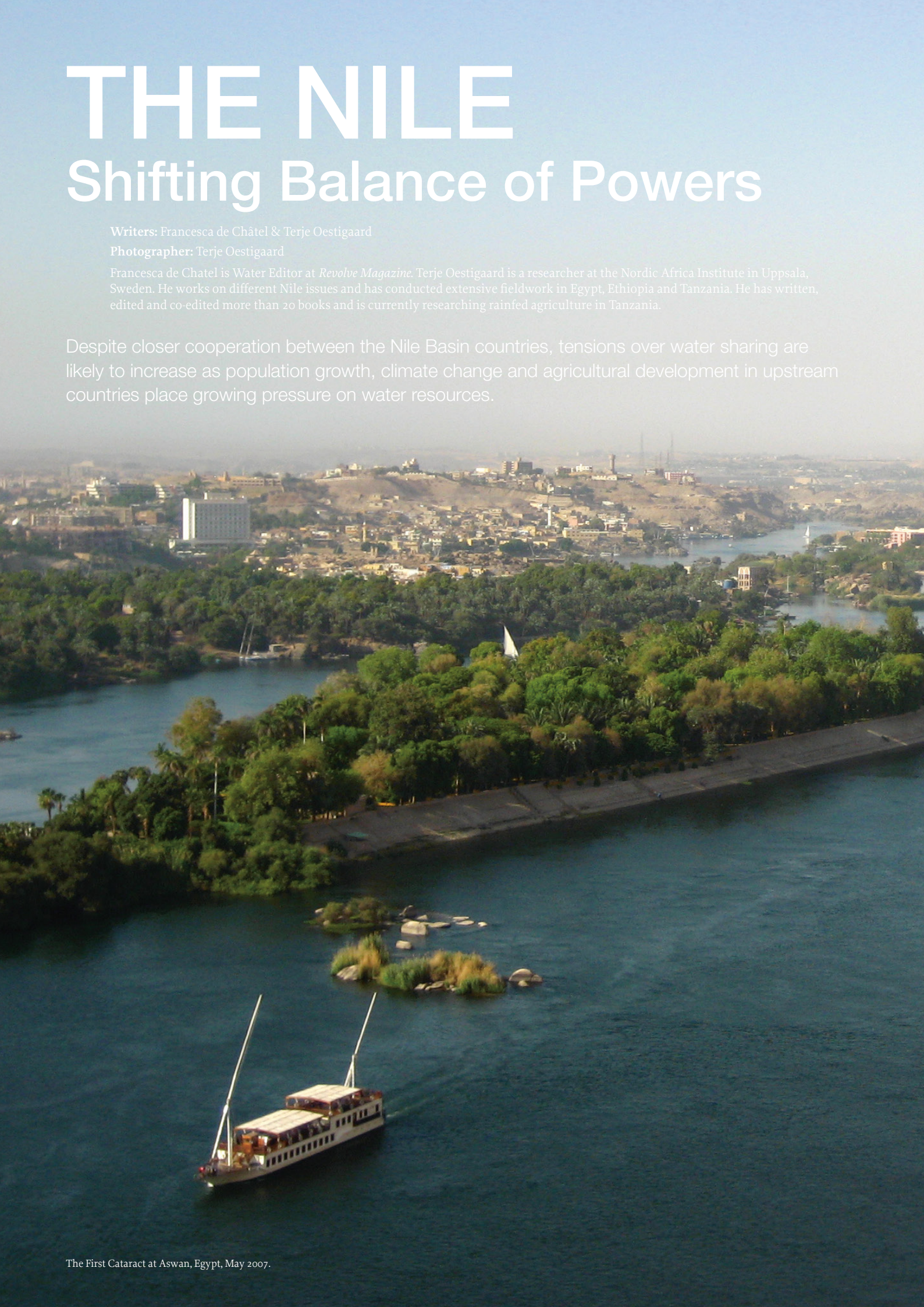
Shifting Balance of Powers

Writers: Francesca de Châtel & Terje Oestigaard

Photographer: Terje Oestigaard

Francesca de Chatel is Water Editor at *Revolve Magazine*. Terje Oestigaard is a researcher at the Nordic Africa Institute in Uppsala, Sweden. He works on different Nile issues and has conducted extensive fieldwork in Egypt, Ethiopia and Tanzania. He has written, edited and co-edited more than 20 books and is currently researching rainfed agriculture in Tanzania.

Despite closer cooperation between the Nile Basin countries, tensions over water sharing are likely to increase as population growth, climate change and agricultural development in upstream countries place growing pressure on water resources.



The First Cataract at Aswan, Egypt, May 2007.

In the long-running "water wars" debate the Nile has been quoted often as an example of a river basin where armed conflict is sure to erupt. The threats and counter-threats issued by Nile Basin states are presented as proof that violent confrontation is looming – from former UN Secretary General Boutros Boutros Ghali's repeated declaration that "the next war in the Middle East will be fought over water" to World Bank Vice President Ismail Serageldin's statement in 1995 that the wars of the 21st century would be about water.

Quick to dispel what they claim to be baseless rumors and media hype, officials from both upstream and downstream countries today vehemently deny that such tensions exist in the Nile Basin. "Media reports about tensions in the Nile Basin are not accurate," Alemayehu Tegenu, Ethiopia's Minister of Water and Energy, told *Revolve*. "Normally there is no tension between us and we do not accept media reports that claim otherwise." Tegenu and his counterparts from Sudan and South Sudan emphasized the great sense of goodwill between the 11 Nile Basin countries – Burundi, the Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania and Uganda.

Even Egypt, which just last year issued defiant statements regarding future water development schemes in upstream countries, has adopted a conciliatory tone in recent months. "It is in Egypt's best interest to arrive at an amicable solution," Osama El-Magdoub, the Egyptian Ambassador to Sweden, told *Revolve*. "What we are asking for is not something rigid or unjust to other states. All we are saying is that it is important for upstream countries not to initiate projects that will affect the amount of water arriving in downstream countries."

It is a far cry from the belligerent statements issued less than two years ago by Egypt's then-Minister of Water and Irrigation, Mohammed Nasreddin Allam, who said in May 2010 that Egypt's share of the Nile's water was "a historic right" and a matter of national security to Egypt. "We won't under any circumstances allow our water rights to be jeopardized," he said, adding that Egypt reserved the right "to take whatever course it sees fit to safeguard its share".

But while all parties today talk about the "win-win approach" and hasten to emphasize the importance of not harming their neighbors, many are at the same time forging ahead with ambitious irrigation and hydropower projects. As climate change and population growth place further pressure on water resources in the basin, this inevitably raises the question of whether the 11 Nile Basin countries will succeed in sharing the Nile equitably. And can all parties really be winners?

The Blue Nile flowing from Lake Tana in the background, Ethiopia, September 2009.

Upstream vs. Downstream Rights

With a length of 6,671 kilometers, the Nile is generally considered to be the longest river in the world, draining an area of approximately 3.5 million square kilometers, equivalent to about a tenth of the African continent.

The river's two main tributaries, the White Nile and the Blue Nile, meet in the Sudanese capital Khartoum to form the Nile proper. The river has an annual average flow of 84 billion cubic meters, as measured at Aswan near the Egyptian-Sudanese border. The Blue Nile, the Atbara and the Sobat, which all rise in Ethiopia, contribute approximately 85 percent of the water that reaches Aswan. The White Nile, which draws its water from Lake Victoria and its tributaries, contributes the remaining 15 percent of the Nile waters.

As in the Euphrates-Tigris Basin, the water-sharing controversy along the Nile opposes upstream countries – Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda – and downstream Egypt and Sudan.

However, unlike many other river basins, where downstream countries are usually seen as the weaker actors, Egypt – and to a lesser extent Sudan – have traditionally been seen as the "Nile powers".

Together, these two countries currently lay claim to the total 84 billion cubic meters of Nile water – 18.5 billion cubic meters for Sudan and 55.5 billion cubic meters for Egypt – under a bilateral water-sharing agreement that was signed in 1959. This agreement replaced a 1929 treaty between Egypt and Great Britain, which was acting on behalf of its East African colonies, present-day Uganda, Kenya, Tanzania and Sudan.

Over the years, upstream countries have voiced increasing discontent with this arrangement, which was made before many of them had gained independence and which denies them what they see as their rightful share of the Nile waters.

"The 1929 and 1959 agreements are not binding to the upstream countries," said Yacob Arsano, an associate professor of political science at Ethiopia's Addis Ababa University. "The upstream countries were not signatory to these agreements and their interests were not considered in either of the agreements, which entirely ignore their rights."

However, downstream Egypt, which draws 97 percent of its water from the Nile, insists that it has "historical rights" and fears that upstream developments will reduce its current share. It argues that the Nile is Egypt's lifeblood, while upstream countries can rely on supplies from other rivers and rainfall.

The upstream countries counter that the previous agreements, which give Egypt the right to "inspect and investigate" the whole length of the Nile, form an obstacle to their own development. More specifically, these agreements prevent upstream countries from developing hydropower dams that would help them address the severe electricity shortages they face and implement irrigation projects.

A New Agreement

In a bid to dampen tensions and build trust among the Nile Basin countries, the World Bank and the United Nations established in 1999 the Nile Basin Initiative (NBI), a 10-year project aimed at encouraging sustainable development in the Nile Basin countries.

One of the initiative's key objectives was to develop a new water-sharing agreement that would include the upstream countries. After years of negotiations, the Nile Basin Cooperative Framework Agreement (CFA) was issued in May 2010. However, instead of uniting the parties, the new agreement once again sowed discord in the basin, with Egypt and Sudan leaving the negotiating table in 2010.

Unlike previous agreements, the CFA focuses on water-sharing principles and does not outline specific water allocations per country. Yet Egypt and Sudan perceived the wording of the agreement – and more specifically the omission of any mention of their current allocations – as a threat to their water security.

The life-giving Nile and the barren desert, Egypt, May 2007.

However, this did not stop Ethiopia, Tanzania, Uganda, Rwanda and Kenya from signing the agreement in 2010, a move which marks a turning point in the history of the Nile Basin. "The importance of the CFA lies in the fact that these [upstream] countries acted alone, disregarding the opposition from the traditional powers on the Nile, Egypt and the Sudan," said Terje Tvedt, an historian and professor of geography at the University of Bergen in Norway. "Compared to many different initiatives during the 20th century, the CFA represents an entirely new direction."

Two controversies surround the CFA. One centers on Article 14b, which states that the Nile Basin States agree "not to significantly affect the water security of any other Nile Basin State". Egypt and Sudan have argued that this compromises their share of the Nile and instead proposed the phrase "not to adversely affect the water security and current uses and rights of any other Nile Basin State" – a wording that would guarantee their current allocations.

Over the years, upstream countries have voiced increasing discontent with this arrangement, which was made before many of them had gained independence and which denies them what they see as their rightful share of the Nile waters.

However, instead of uniting the parties, the new agreement once again sowed discord in the basin, with Egypt and Sudan leaving the negotiating table in 2010.

"There is a point of difference on Article 14b of the agreement," Kamal Ali Mohammed, Sudan's Minister of Irrigation and Water Resources, told *Revolve* in August 2011. "[The upstream countries] took Article 14b out of the legal framework and they are explicitly saying 'we don't recognize your existing rights'. We are trying to find a compromise to this."

In addition, Egypt and Sudan want decisions concerning the Nile Basin to be made by consensus and not majority vote, which would make it possible for a single country to veto any decision. In practice, this would give Egypt or Sudan the possibility to block any upstream projects they perceive as threatening.

Egyptian Worries Over Ethiopian Mega-Projects

Regardless of Egyptian and Sudanese objections, the upstream countries are moving ahead. After the first five countries signed the CFA in 2010, Burundi joined in March 2011, providing the required two-third majority that will make the agreement valid after ratification. The next step will be the creation of a Nile Basin Commission that will oversee water development projects throughout the basin.

Observers say that it is a matter of time before the downstream countries sign the CFA as well. Ana Cascao, a program manager at the Stockholm International Water Institute (SIWI), argues that Egypt is unlikely to remain on the sidelines for long. "Egypt would never stay out [of the commission]," she said. "It has an interest in cooperating with all the countries in the basin." Far from harming Egypt's water security and long-term interests, she believes large parts of the CFA actually protect Egypt's position. "Of course Egypt is afraid that the CFA and the subsequent creation of a Nile Basin Commission will lead to the implementation of new projects. But I think this is blindness. New projects are already being implemented – even in these 10 years of cooperation."

In this context, Ethiopia is the one to watch. The "water tower of Africa", which provides approximately 85 percent of the water that arrives at the Sudanese-Egyptian border,

The Blue Nile flooding the outskirts of Khartoum, Sudan, August 2007.

has to date been incapable of exploiting its own water resources. While the country has an annual water availability of an estimated 123 billion cubic meters – the equivalent of one and a half times of the annual flow of the Nile measured at Aswan – it only makes use of 3 percent of this water, with the bulk flowing across its borders.

Failure to develop the country's abundant water resources has had a knock-on effect on food security: Ethiopia currently only irrigates 5 percent of its irrigable land and its population is frequently exposed to food shortages and famine. In addition, the country, which remains one of the poorest in the world, has a high population growth rate and faces severe problems of environmental degradation.

In a bid to lift itself out of a decades-long vicious cycle, the Ethiopian government has launched an ambitious development plan that will use water and hydropower as the pillars for economic growth. A series of dams and irrigation projects throughout the country are set to increase electricity supply and reduce Ethiopia's chronic dependence on food aid. The centerpiece of this development scheme is the $4.5-billion Grand Renaissance Dam on the Blue Nile, which was announced in March 2011 and which is set to be the tenth largest dam in the world.

The announcement of such a large-scale project would previously have prompted an aggressive response from Egypt. However, recent political events in the downstream country have noticeably lightened the mood in the basin. The fall of Hosni Mubarak was rapidly followed by diplomatic overtures, with Egyptian governmental and non-governmental delegations visiting several upstream countries in a bid to "turn a new page in Egypt's relationship with the Nile Basin countries", according to former Egyptian Prime Minister Essam al-Sharaf. Most significantly perhaps, the frosty relationship between Egypt and Ethiopia has started to thaw, with the announcement in September 2011 of the creation of a trilateral team of experts from Egypt, Ethiopia and Sudan to assess the impact of the Grand Renaissance Dam on the Nile flow.

"We all agree that the Nile is a bridge, it is not a barrier," Ethiopian Prime Minister Meles Zenawi said at a press conference in Cairo following the bilateral meeting in September. "The future is a new relationship between Ethiopia and Egypt based on a win-win strategy. The past is a past based on a zero-sum game. That is gone. There is no going back."

In a startling about-turn, Sharaf went so far as to describe the planned Grand Renaissance Dam as a "source of benefit". "We can make the issue of the Grand Renaissance Dam something useful," he said. "This dam, in conjunction with the other dams, can be a path for development and construction between Ethiopia, Sudan and Egypt."

The rhetoric surrounding the CFA has also been tempered. According to Ambassador El-Magdoub: "We believe that we should find ways for upstream countries to benefit from the water and implement development projects without affecting the amount of water received by the other countries. Do we stick to 14b to the letter? I don't think it's necessary. We are not saying 'give us water and have scarcity'. That's not the approach. The approach is 'let's be fair'."

Balancing demand and supply

Beyond all the handshaking and the general feel-good atmosphere in the basin, the question still remains: will there be enough water to go around in the future?

More than a third of the African population lives in the Nile Basin countries, which have a combined population of 370 million inhabitants, with 200 million living in the basin. According to the UN, this figure is set to nearly double by 2030 with up to 700 million people living in the Nile Basin countries and 400 million in the basin itself.

Ethiopia has one of the fastest-growing populations in the basin. According to UN figures, the country's population is set to rise from approximately 82 million inhabitants today to 145 million in 2050. In Egypt, which already suffers from water scarcity,

Tis Abay, the Blue Nile Falls, in Ethiopia, September 2009.

the population is expected to grow from the current 81 million inhabitants to 123 million in 2050. This growth, coupled with increased demand as living standards improve, will mean that per person water shares will be drastically reduced, not only in Egypt but throughout the Nile Basin.

The added threat of climate change, which is likely to lead to higher temperatures, more frequent droughts and reduced rainfall in certain parts of the basin, will further impact the flow of the Nile.

Such prognostics may appear to spell disaster — and presage armed conflict — in a region that is already affected by poverty and underdevelopment. However, water experts in the region as well as outside observers point to the enormous amount of water that is wasted throughout the basin — from evaporation in dam reservoirs, lakes and marshes, to inefficient water management and wasteful agricultural practices. For example, a yearly average of 10 billion cubic meters of water evaporates from the reservoir of Egypt's High Aswan Dam, known as Lake Nasser.

"Some estimates show that the total amount of water to be utilized in upstream countries is less than what is wasted in evaporation from Lake Nasser, in rice paddies and through flood irrigation in Egypt alone," political scientist Yacob Arsano said. "Mitigating wastage and mismanagement of water in all basin countries would provide the best opportunity to save water."

Egypt also stands to gain from a rationalization of domestic water use. Of the 55.5 billion cubic meters of Nile water that is allocated to the country every year, around 86 percent is used in agriculture, where inefficient traditional irrigation methods, such as flooding, are practiced on 88 percent of the irrigated land. And while Egypt is classified as a "highly water-stressed" country, it continues to cultivate and export water thirsty crops. In 2010, the country exported between 600,000 and 800,000 tons of rice and produced 131,500 tons cotton.

According to Ambassador El-Magdoub, the Egyptian government is aware of this inefficient water use and working hard to reassess crop choices, modernize irrigation methods and improve urban networks. In addition, Egypt is seeking to tap into alternative sources of water through desalination and use of treated wastewater, he said.

Increasing Supply

Water experts in the region, as well as outside observers, point to the enormous amount of water that is wasted throughout the basin – from evaporation in dam reservoirs, lakes and marshes, to inefficient water management and wasteful agricultural practices.

Egyptian water experts also argue that huge gains are to be made in upstream countries, not just through rationalization of agricultural or urban water use, but also by capturing rain water and water that is now lost to evaporation along the course of the Nile.

Egyptian scientists claim that the Nile Basin receives a total of 1,660 billion cubic meters of rain a year. In that context, they argue Egypt's use of 55.5 billion cubic meters of this water is negligible, particularly given that the Nile is its only source of water, whereas upstream countries can rely on other rivers, groundwater and rain.

"There is physically speaking more than enough water for everybody in the Nile Basin," historian Terje Tvedt said. "But the question is: how interesting is this observation?"

Tvedt argues that while overall water availability in the basin may be high on paper, it is not a given that all of this water can and will be exploited.

"Hydrological experts from Egypt and Sudan claim that between 20 and 30 billion cubic meters of water is lost annually in the swamps of South Sudan," he said. "Others will argue that this swamp ecology should

not be tampered with. If this argument wins through, then the 30 billion will be available for the rest of the basin on paper only."

The exploitation of the Sudd marshes in the newly independent state of South Sudan remains a highly sensitive topic. Scientists estimate that half of the water that flows into the 135,000-square-kilometer area is lost to evaporation, and say that losses could be greatly reduced by building a canal to channel the water more directly upstream.

Originally conceived by the British in colonial times, the Jonglei Canal Project was partly implemented by Egypt and Sudan in late 1970s with the aim of recovering 4.8 billion cubic meters per year.

Through the creation of several other such diversion canals at various points in the Sudd, the Egyptians hoped to recover an annual total of 18.5 billion cubic meters from the White Nile. However, work on the first project was interrupted in 1984 when the violent civil war erupted between the local African tribes and the Sudanese army.

Egypt and Sudan remain strong advocates of the Jonglei Canal, which would increase water flow to the downstream countries. But the project remains taboo among officials from the newly independent South Sudan, who consider it one of the causes of the conflict that ravished their country in the 1980s and 1990s. The large-scale diversion of water from the Sudd would have far-reaching effects on the local environment and lifestyles.

Moreover, increasing the flow of the Nile is certainly not a priority for South Sudan. The world's youngest state is today also one of the least developed. According to Emmanuel Parmenas of the Ministry of Water Resources and Irrigation of South Sudan, the country faces huge challenges in the domain of infrastructure, clean water supply, sanitation, security, health services and education. "Our main challenge at the moment as a new republic in Africa is that we lack clean and safe water supply infrastructure, both in urban and rural settings," he said. "We were overwhelmed by the return of people to South Sudan. Over 80 percent of our population is rural and supplying them with water is a great challenge."

Parmenas added, however, that expanding irrigated agriculture is one of the main pillars of South Sudan's long-term development plans. Observers argue that while South Sudan is unlikely to lay claim to a share of the Nile in the near future, it could nevertheless play a significant role in the basin – particularly for downstream countries – as it holds the key to increasing the flow of the Nile.

"Some people argue that South Sudan is quite unimportant, since the White Nile only contributes 10 to 15 percent of the total water flow of the Nile at Aswan," Tvedt said. "But this argument overlooks the important fact that according to some experts the flow of the Nile can be increased by up to 30 percent in South Sudan."

Betting water security against food security on the increasingly volatile and risky international market hardly seems a valid alternative to the development of sound regional riparian cooperation.

Competing Interests

Developments in Ethiopia and Sudan are likely to have a greater impact on the flow of the Nile in Egypt. The Ethiopian government has outlined ambitious plans for the development of a series of hydroelectric dams and irrigation projects, which will not only boost the country's electricity supply, but also improve food security.

According to historian Terje Tvedt, the impact of these projects on the Nile flow remains unclear. "It depends on the purpose of the dams," he said. "Ethiopia's Tekeze dam has helped even out the flow of the Atbara River, thus improving conditions for irrigation and agriculture in eastern parts of Sudan. If Sudan uses more of its share of the Nile because of this, less water will flow to Egypt."

The Ethiopian government estimates that the country could generate a total of 45,000MW of hydropower. However, in addition, it has outlined plans to massively develop irrigated agriculture in a bid to improve the country's food security. According to one Ethiopian official, the country aims to expand irrigated agriculture from the current 250,000 hectares to more than 2.5 million hectares by 2015. Despite insistence from the Ethiopian government that these projects will not affect the flow of the Nile, it is hard to see how a ten-fold expansion of irrigated land would not influence the amount of water flowing downstream.

However, SIWI's Ana Cascao questions to what extent Ethiopia will be able to implement its plans. "[Ethiopia] doesn't have the capacity to use this water, except if they conceive of a mega-project to transport water over huge distances, but they would not be able to finance this," she said.

Cascao believes agricultural development in Sudan could have a greater impact on downstream flow. Following the secession of South Sudan, the north has lost significant oil resources, making agriculture an important source of revenue for Sudan in the future. Moreover, Sudan has extremely fertile soils, particularly in the Gezira Triangle between Khartoum, Kassala and Kosti where the British developed irrigation networks in the early 20th century. "The potential is enormous," Cascao said. "We're talking about extremely fertile, flat land and an irrigation scheme that already exists, even if it needs upgrading."

Stranded ferry on the Nile in Sudan, August 2007.

Slowed by civil war and political strife, Sudan has never used its full share of Nile water allocated in the 1959 agreement. Of the 18,5 billion cubic meters of water, only 12,5 to 14,5 billion is used in Sudan while the remainder flows downstream to Egypt. A series of development projects throughout the country aims to maximize on water resources in order to develop Sudan's agricultural sector and hydroelectric potential. According to the Sudanese government, the country will require 32 billion cubic meters of water by 2025 for food security and other essential uses. The daunting race towards food security drives these massive development plans that will no doubt have a ripple effect downstream.

The question remains: will there be enough water for all these schemes? Some propose the trade of water, as an international commodity or even currency, as a way to bypass investment in hydropower and irrigation projects. But betting water security against food security on the increasingly volatile and risky international market hardly seems a valid alternative to the development of sound regional riparian cooperation.

The verdict is out. Water security in the Nile Basin can no longer be divorced from increasingly urgent issues of food security and energy supply. The future of urbanization, climate change, increased drought, and decreased rainfall do not simplify the task at hand. It is exactly the shared nature of the predicament in the Nile Basin that should push its communities to work together in finding a sound and sustainable regional solution.

The development of Nile Basin countries will not only shape the north-eastern corner of Africa; it will have implications beyond the continent. The shared challenges that lie ahead have been part of the Common Framework Agreement negotiations and efforts to achieve more equitable utilization of Nile waters in the decades to come. The future, as always, remains unpredictable and uncertain. Tensions, conflict, geopolitical shifts and cooperation will take place at different places and times. But the steps taken in the Nile Basin are to be watched carefully, as examples for other shared river basins facing growing stress on food and water security.