

In the Balance

Salween dams threaten downstream communities in Burma



A report by the
Mon Youth Progressive Organization

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Summary

The Salween is Southeast Asia's longest free flowing river and one of Burma's most important waterways. For the half a million people living where the river meets the Andaman Sea, the Salween is a way of life interlinked with its seasonal flows and daily tides. However, Burma's military dictatorship, together with Thai and Chinese investors, is moving ahead with plans to dam the Salween. The communities living downstream have not been informed or consulted about the dam plans or their potential impacts, even though their lives stand to be permanently altered.

This report describes the unique geography and ecology of the downstream estuary, where salt water meets fresh and the mainstream Salween and its two main tributaries are tidal for up to 75 kilometers inland. Numerous islands, some of them seasonal and some of them culturally sacred, are rich with fertile sediment that flows down the Salween each year. The delicate mix of salt and fresh water created by the seasonal flow of the river and the rise and fall of the tides determines daily life. Local people collect fresh water at high tide and store it in community pools for drinking and household use, and manage a system of canals to irrigate fields with fresh water and protect crops from salt water. In this way, villages subsist and provide farm produce to the capital city of Mon State and the five townships at the mouth of the Salween.

Natural seasonal floods irrigate and replenish fields, and support the migration of fish species that use flooded habitats as spawning grounds before returning to the sea. Fisher folk carefully follow the migration patterns of countless species to make their catch and provide fish paste, one of the essential ingredients of Mon food. Wild plants that grow in the unique mix of salt and fresh water of the estuary are used as medicines and food.

If the dams are built, the downstream effects, as studied elsewhere in the world, stand to alter the lives of over half a million people. These effects include altered river flows that cause higher concentrations of salt water to travel further inland. Changes in water quality, salinity, or seasonal flows are likely to make community water pools undrinkable and affect agricultural crops. Sudden and unnatural water surges increase erosion, destroy islands, and make the river dangerous to local communities. In addition, the decreased amount of sediment reaching downstream damages agriculture. A decline in fish catches due to interrupted migrations will impact the protein source of the local diet. Any one of these changes to the river would tip the balance fine-tuned over generations between self-reliant communities and their environment. Lastly, the proposed dams lie on active earthquake fault lines; dam breaks would be a disaster.

Yet, despite all these concerns and potential problems, those living downstream have not even been informed of the project and unknown to them, their future is left hanging in the balance. The suppression of free media and arrests, beatings, and extra-judicial killings of anyone that challenges the regime in Burma make it impossible to access adequate information or to question the projects. Any dam project needs to take into consideration the social and environmental impacts on those living downstream and, most importantly, allow for their informed consent. This is impossible under the military dictatorship in Burma. The Mon Youth Progressive Organization therefore calls on all parties to halt their investments and stop the Salween dam projects.

Photo. MI



Part I:

Introduction and background

This report presents a picture of life in the five townships at the mouth of the Salween River in Mon State, Burma, and how the people living there may be impacted by large dams planned upstream on the river. Hydropower development on the upper Salween will bring changes to the mainly Mon communities living downstream. However, these communities have not been informed of the plans or the potential impacts of proposed dams.

In addition to 13 dams slated to be built by China upstream, Burma's military regime and the Thai government have signed several agreements for the development of four dams on the Salween River in Burma (see map pg. 9). The dam sites are at Tasang in Shan State, and at Weigyí, Hatgyí, and Dagwin in Karen State. Together the dams have the capacity to produce an estimated 15–20,000 megawatts of power, or more than ten times the total capacity currently used by Burma. The power is intended for export to Thailand and possibly to the ASEAN power grid. The Chinese and Thai governments, as well as the Thai company MDX and Chinese companies Sinohydro and Gezhouba Group, have all signed agreements to invest in the

development of the dams.¹

While several concerned communities have presented the potential effects of these planned dams on communities upstream, the Mon Youth Progressive Organization (MYPO) realized the necessity of conducting research about the situation and potential impacts downstream. This report focuses on the living conditions, livelihoods, and lifestyles of the people who have depended on the Salween at its mouth for generations. It examines the possible economic, social, and environmental impacts of changes to the Salween River, especially disruption of water flow cycles, declining water quality, and changes in the amount of sediment flowing downstream. The report is a preliminary study and more comprehensive research should be done.

This report intends to awaken all efforts to stop destructive large-scale hydropower development in Burma, and to realize more suitable low-impact models of development that will be able to improve living standards for the communities downstream. Our emphasis and hope is to build an understanding of the lives and livelihoods of the downstream Salween and encourage the international community to support the campaign to stop the construction of dams on the Salween River. At the same time we hope to inform the downstream communities about the impacts of dams.

Methodology

A research team from MYPO traveled to Mon and Karen states in 2005 and 2006 to survey five townships at the mouth of the Salween River. The team surveyed more than one hundred villages that are using fresh water from the Salween and its two main tributaries for agricultural and household use. The team was also able to conduct thirty detailed interviews in some of the villages with farmers, fisher folk, mothers, traders, health workers, and community leaders. The

¹ *Dammed by Burma's Generals: The Karenni Experience with Hydropower Development from Lawpita to the Salween*, Karenni Development Research Group, 2006. To find out more about the projects, please see www.salweenwatch.org

interviews focused on livelihoods, experiences, difficulties, and culture related to the Salween River.

Background of the Mon people

The Mon, cousins of the Khmers, originally migrated from Mongolia to Burma between 2500 and 1500 BC.² They settled in some parts of Thailand, and in the Tenasserim and Irrawaddy deltas of Burma. The Mon are an agricultural people and have for generations settled along rivers and deltas where the soil is fertile. The Mon were also the first to bring Theravada Buddhism to Burma.

A series of Mon kingdoms spread their influence from the Irrawaddy delta to as far east as Cambodia up until the 14th century. After the fall of the famous Burmese Pagan dynasty, a Mon dynasty ruled Lower Burma from 1287 to 1539 with a brief revival during 1550–53. The last Mon kingdom was Hongsawatoi that ruled from 1740 to 1757 when a Burman king annexed the Mon kingdom. Thousands of Mon were executed and many Holy Scriptures and monasteries were burnt down; thousands more fled to Siam (Thailand) for safe haven. The Mon have ever since become a people without a country.³

After nearly 100 years of British colonization, Burma gained its independence in 1947. At that time, Mon leaders called for ethnic rights, including the rights to maintain Mon literature and culture, and to form a Mon Council for the Mon people. All of these demands were rejected and the new democratic government of Burma cracked down on Mon political activities, assassinated, arrested, and detained Mon leaders, and burned down villages. As a result, the Mon took up armed struggle like other ethnic peoples in Burma, initially under the leadership of the Mon People's Front (MPF), and later under the New Mon State Party (NMSP). The NMSP reached a ceasefire with the ruling military junta, then called the State Law and Order Restoration Council

² *The Mon, a people without a country*, Mon Unity League, 1997.

³ *Ibid.*

or SLORC, in 1995. Despite the agreement, the political activities of NMSP have been under constant pressure and disturbance by the regime. Human rights violations including forced labor, portering, rape, extortion, confiscation of farms without compensation, extra-judicial killing, and arbitrary arrests are ongoing in the state.

Current developments in Mon State

The population of Mon State is estimated at 2.5 million. Most people engage in agriculture; paddy fields, rubber and fruit plantations, and vegetable gardens abound in the rich soils of river basins. Fishing is also an important livelihood as the state borders the sea and benefits from its three main rivers: the Salween, Gyaing, and Ataran. Since the economy is heavily reliant on agriculture, land is critical to the survival and well-being of the Mon people. However, the ruling military is stealing this important resource through forced seizures of properties.

A detailed investigation of land confiscation in Mon State found that between 1998 and 2002 nearly eight thousand acres of farm lands were seized by the Burma Army and that no land owners received full compensation for their lost lands.⁴ Confiscation of paddy fields and fruit, betel nut, and rubber plantations continues to be a serious threat to livelihoods in Mon State today.

In addition to land confiscation, forced labor and extortion prevent people from working in their own fields and take away gains made from livelihood activities. High taxes on fisher folk as well as the forced use of boats by local SPDC (State Peace and Development Council – Burma’s military regime) authorities are hampering their occupation. Direct threats to human life and dignity are also perpetrated by the regime; documented cases of the conscription of “comfort women” and sexual assault by Burma Army soldiers are among some of the

⁴ *No Land to Farm*, Human Rights Foundation of Monland, 2003.

⁵ Please see *Catwalk to the Barracks: Conscription of women for sexual slavery and other practices of sexual violence by troops of the Burmese military regime in Mon areas*, WCRP and HURFOM, 2005. For updated news, please see www.rehmonnya.org.

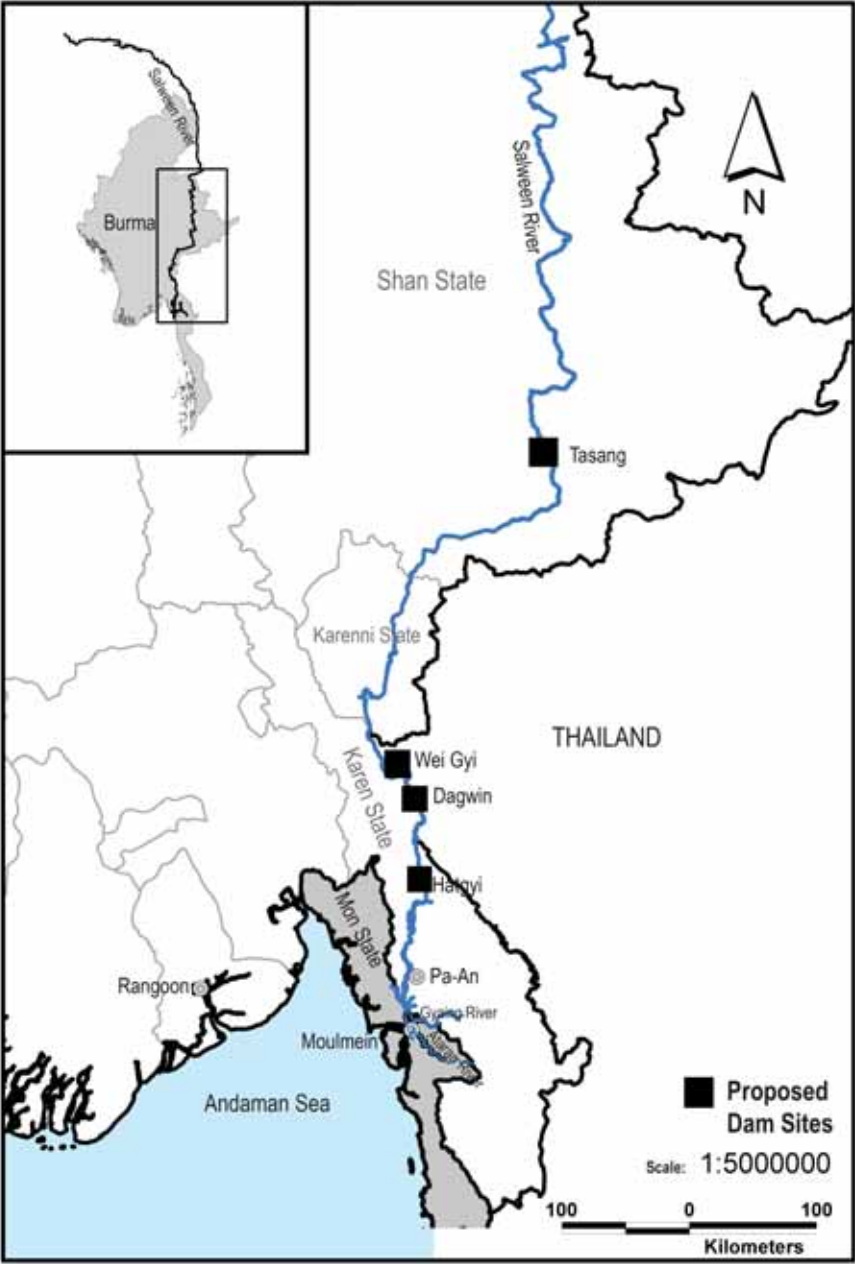
reports coming out of Mon State.⁵

Environmental degradation is also occurring in Mon State. For instance, the regime has cooperated with companies cutting wood and clearing forests for palm oil plantations across thousands of acres in Tenasserim Division, and contract farming arrangements between the regime and Thai companies for such plantations in Mon State are expected. Logging is also a problem. Environmental degradation damages local livelihoods and as people have no alternative occupations they are faced with many difficulties to survive.

The education system in Burma is deteriorating and school fees are too high for citizens to afford. If one high school student studies in a boarding school, it costs at least 1,000,000 kyat per year. This is very high for ordinary people. Some families are not able to earn such an amount even after they sum up the entire year's income.

Many youth and adults are leaving their villages to seek jobs in neighboring countries such as Thailand, Malaysia, and Singapore, as they are not able to bear the abuses and deplorable conditions inside the country and are aiming to improve their living standards elsewhere.

The Salween River and proposed dam sites in Burma



Part II:

The geography and hydrology of the Salween River

The Salween

The upper Salween River in China is the site of one of the richest temperate regions in the world in terms of biodiversity, according to the United Nations Educational, Scientific and Cultural Organization (UNESCO).⁶ The Thai government also designated the stretch of forest along the Salween River on the Thai–Burmese border as an important international wetland in 2000.⁷ Among the major river systems in Burma, the Salween is the longest free-flowing river and provides for the hundreds of thousands of people along its banks, and at its mouth where the river widens and meets the Andaman Sea in the Gulf of Martaban at Moulmein, the capital of Mon State. Here the river becomes tidal and local fisher folk say that there are hundreds of species of fish that transmigrate between the Salween and its tributaries. The mangrove forests and plants growing along both banks

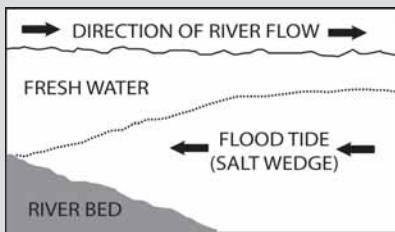
⁶ *The Salween Under Threat: Damming the Longest Free River in Southeast Asia*, Salween Watch, Southeast Asia Rivers Network, and the Center for Social Development Studies, 2004.

⁷ *Ibid.*

Estuaries: Unique ecosystems

Estuaries

- are where fresh water from rivers meets and mingles with salt water from oceans
- are among the most biologically productive ecosystems on Earth
- are the source of a food web that begins with conversion of the sun's energy into food energy by marsh plants
- are home to only certain types of plants—those that can flourish in the physical conditions peculiar to estuaries
- provide critical habitat for certain wild animals at some stage of their lives



In estuaries, fresh water is lighter than seawater and therefore flows above it. The nutrients carried in from the ocean in the river transform estuaries into very fertile areas for plant growth. In fact,

estuaries are among the most biologically productive ecosystems on Earth. Studies have shown that primary productivity, or the rate at which plants convert the sun's energy by photosynthesis into food that animals can use, is higher in estuaries than in grasslands, forests, and even areas of intensive agriculture.

Only certain types of plants can flourish in the physical conditions peculiar to estuaries, and each of these plants can grow in only certain parts of the estuary. One factor influencing the growth and distribution of plants in an estuary is its salinity, or the amount of salt in the water.*

* Copyright 2003 Canadian Wildlife Service & Canadian Wildlife Federation

of the river provide a natural protection against storm surges, tidal waves and erosion, and a special habitat for fish and other species. The downstream Salween has a rich estuarine ecosystem that has been sustained without being interrupted by harmful mega-development projects.

Main tributaries of the downstream Salween

Two main tributaries of the Salween, the Gyaing and Ataran rivers, are also significant for many villages; people depend on these waterways for agriculture, fishing, and sanitation, as well as for transportation and communication. These tributaries are also important spawning grounds for fish that migrate from the sea and the mainstream Salween.

Ataran River

The Ataran River originates in Three Pagodas Pass along the Thai border and flows west to meet the Salween. In Mon language, the river is well known as *Pee Ka Dot*, which is a kind of small fish, but this name is only used in the local Mon community. The river connects through the Salween to the sea and is also tidal. The river rises and falls with the tide past Moulmein and into Kyaikmaraw Township. Many locals use the river for traveling, especially in the rainy season when muddy roads are not passable. Even though it is a tributary, the Ataran is large enough for fishing boats and the state-run ferry transport goods from the local areas and bring goods back from the city to the communities along the river.

Gyaing River

Another important tributary is the Gyaing River (*Graing* in Mon language). Like the Ataran, it is tidal with a mixture of salt and fresh water. The river is very important for communication and transportation between the local people and the city. Ships transport people and local products such as wood, bamboo, roofing-leaves, as well as vegetables and fruits.

The locals along these rivers depend on the river water for growing

vegetables, farming rice, fishing, and household use. One elderly farmer said: “I am happy depending on growing vegetables and farming rice here, because we can get the water into our farm very easily. At the same time, there are a lot of fish in the river so we do not have to worry about buying fish dishes.”

The islands at the mouth of the Salween

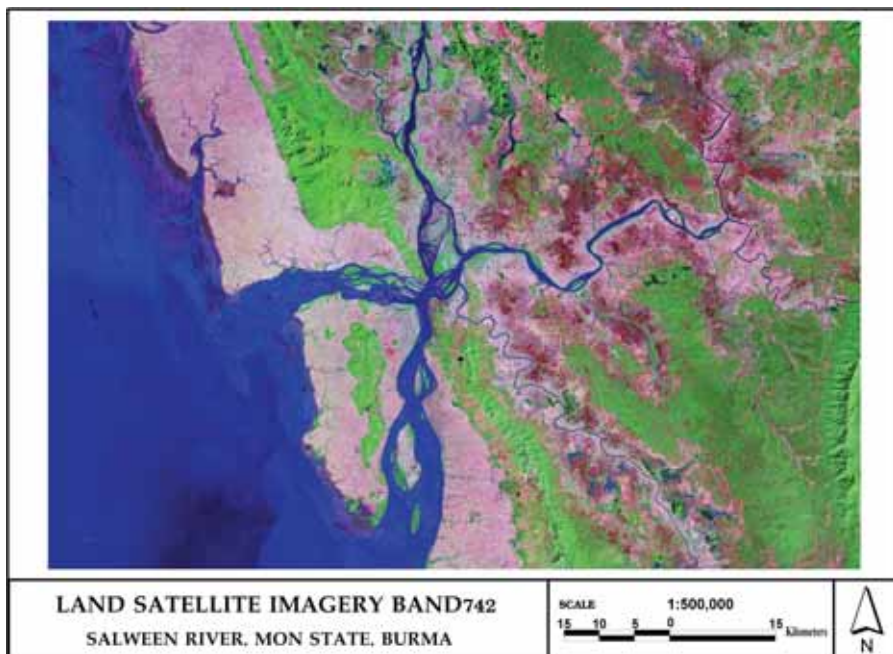
The entire township of Chaung Zon is made up of one big island and several smaller ones at the mouth of the Salween River and there are twenty islands in Paung Township as well. The islands are very fertile for cultivation of paddy, vegetables, and other fruit-tree plantations, making land on these islands more valued than in other places. The larger islands, such as Aung Ming Kalar, Hinta Kyon, and Kalar Kyon, are over 300 acres in size and have permanent villages. Other islands

Sacred Place: Bonlong Island

Many Buddhists living in Mon State believe that the water of *Kow Bonlong* (Bonlong Island)* is holy. Five rivers, the Salween, Notsami, Gyaing, Ataran, and Sandayor, come together at this island. The island not only has a unique geographical position, but contains many Buddhist relics, including hair relics of the Buddha. There are no villages on the island but there is an important pagoda with a monastery where monks and nuns reside. The Mintonmin king donated a golden bell to this pagoda in 1884, and many prime ministers have donated the land on the island and other necessities for the pagoda. Local people say that however strong the tide is, the water never rises up to the pagoda. People believe that the water in this sacred place can cure many diseases. Thus, many pilgrims bring the water from this place back home to keep as a holy remedy. Some people say it is powerful not only in curing diseases but also to release bad spirits from the house and body.

* In Burmese, *Gaung Say Kyun* or “head washing island”

Satellite image of the Salween estuary

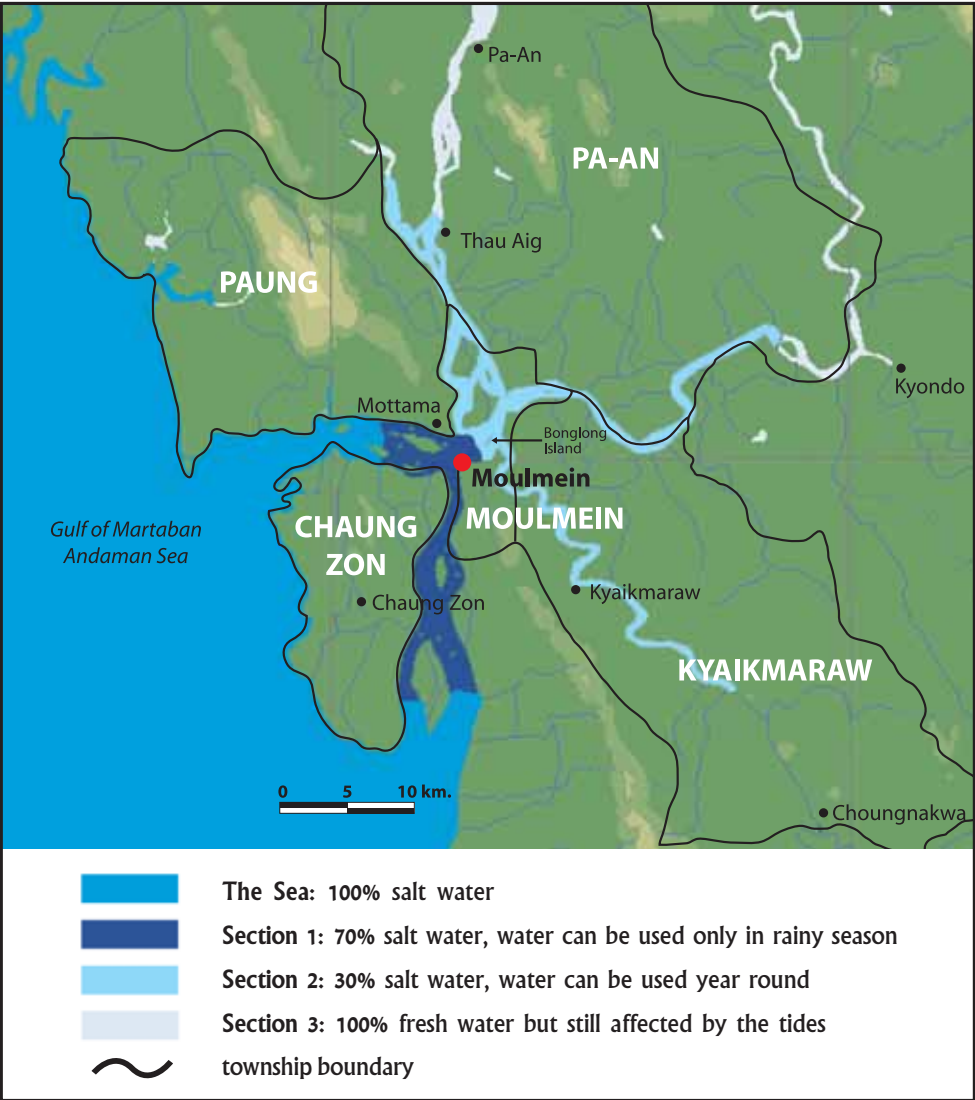


Source: Thailand Geo Informatics and Space Technology Development Agency

may not have permanent villages, but people live year-round on them nonetheless. They have a primary school for the children living on the island and return to the mainland only when there is a special occasion or festival in their home village. "It is better to live on the island because we do not have to pay for this and that to the government," said one island dweller.

While most islands are permanent, some are temporarily formed by new sediment and villagers vie for these fertile new lands even though they may only last for one year before being washed away or damaged by strong waves in the monsoon season. Since the current is interrupted by many big and small islands, its flow changes in many directions, causing some islands to be easily washed away and forming new islands and sand-banks. In the dry season in some areas, one can walk across at waist or knee level when the tide is low. When the tide rises up, the water will be full to the bank again.

The downstream Salween: fresh water meets salt water



Hydrology of the lower Salween

The tides

For up to 75 kilometers inland, the Salween and its main tributaries rise and fall with the tides of the sea. The tide is high twice a day, and the time of high tide changes by one hour every day following the influence of the moon. According to MYPO's assessment, the Salween is tidal for 25 km to Thau Aig village; the Ataran is tidal for 75 km until it reaches Choungnakwa village; and the Gyaing for 60 km until Kyondo village (see map). The tide is most obvious in April and May when the water levels of the rivers are the lowest.

The downstream Salween: fresh water meets salt water

The water in the Salween River can roughly be described as having three sections. The first section is at the mouth of the Andaman Sea, and has a high concentration of salt water. The second section is further upstream and has a higher concentration of fresh water. The third section has only fresh water, despite being affected by the tides.

Nearest the sea, villages can use water from the river for general purposes in the rainy season because the levels of fresh river water are high enough. Since the fresh water is lighter than the salt water, it rises to the top and can be scooped off for use. Villagers and vegetable gardeners usually collect water before the tide rises and after it ebbs. In the dry season, however, the levels of fresh river water are too low to flush out the salty sea water and it becomes unusable. "Dry season is a season of water shortage in our village" said one villager in this section of the downstream. "We have to store water in pools for household use; we can not think of growing vegetables in the dry season" said an island dweller.

The second section is further from the sea and thus has less salt water in the dry season and a nearly complete concentration of fresh water in the rainy season. This part includes many islands where paddy, vegetable and seasonal fruit farms provide food for Moulmein and

other townships. The residents in this area can use the water from the Salween River for the whole year without worrying about the ebbing and rising tides because the water is always fresh enough to use in the house and on the farm.

Eventually, even further from the sea, the concentration of fresh water is maintained year-round even though the river is still affected by the tides. This can be considered the third section of the river.

The downstream communities

According to MYPO's survey, there are approximately 100 villages and towns in the five townships that are situated along the Salween, Ataran, and Gyaing rivers⁸ and that directly use fresh water from the rivers for gardening, washing, cooking, and drinking. The city of Moulmein also relies on fresh water from the Salween for part of its drinking water supply (see below). In addition, there are 31 islands with ten permanent villages that directly rely on the rivers. The total population of these villages and Moulmein city is estimated at half a million people (see appendix). Any changes to the Salween caused by dams upstream will be most felt by the local people living in these areas.

While these villages are those that will be directly impacted, the rest of the population in the townships listed may also be indirectly affected from changes to the river.

⁸ The townships are Moulmein, Paung, Chaung Zon, Kyaikmaraw, and Pa-An. For a full list of villages and populations, please see the appendix.

A delicate balance

Mon State has a tropical monsoon climate. There are two distinct seasons: the monsoon or rainy season from June to October has heavy rainfall and high humidity while the dry season from October–May has low rainfall and lower humidity. The average annual rainfall in Moulmein is 482 cm, most of which falls during the rainy season. Paddy is a rainy season crop, so it is planted in June and harvested at the end of the year. Paddy fields are naturally flooded during the season and aquatic life can thrive in fields, providing a protein source for farmers and their families. After the rice is harvested, the fields are cleared and vegetables planted where there is enough fresh water access in the dry season. Fruit plantations may be productive year-round depending on the mix of fruits.

With these natural cycles, the farms located on the banks of Salween River inevitably face natural floods. In the rainy season, the high concentration of fresh water is harmless to the paddy, trees, and other vegetables and therefore floods are not dangerous. In contrast, in hot season, the concentration of salt water in the river is high; the local farmers are therefore afraid of floods during the hot season. The farmers are mostly afraid of the April–May tide because it has a high concentration of salt water. If salt water gets into the paddy farm or other plantations, the crops are severely damaged.



**Vegetable garden along the Salween -
Aung Min Kalar Kyun Island, Paung**

However, the islands and farms are rarely submerged by the salt water because the farmers have intimate knowledge of farming under such conditions. For instance, farmers make many canals in vegetable and fruit-tree fields so that they can immediately release the water out

along with the ebb. Before April and May, they have already harvested their crops and vegetables. So, although the salt water may come one or two times into the arable field, it does not affect the soil. Instead of damaging the land, it helps the soil gain nutrients and become healthier than it was.

It is clear that the residents have adapted to the natural cycles of the river systems. The rivers are beneficial for the locals and provide for their well-being. However, if the water was blocked by dams upstream, this delicate water system will change, potentially causing social and environmental problems that could damage thousands of people's livelihoods, as well as impact species and habitats that have existed in this site's ecological system from time immemorial.

Part III:

Downstream Impacts of Large Dams

Changes in river flow have drastically impacted the lives of millions living downstream from dams. They suffer from declines in fisheries, poor water quality and disruption of annual floods which once irrigated and fertilized their fields and recharged their wells.¹¹

There are many case studies that examine the downstream impacts of building dams throughout the world. These impacts are outlined on the following pages.

Water flows

Especially during the filling of the reservoirs upstream, the flow of fresh water downstream may be reduced. This may cause salt water intrusion which can be devastating to agricultural crops. A more well-documented effect of large hydropower dams, however, is an unnatural change in water flows. Water surges can increase river

¹¹ *Silenced Rivers: The Ecology and Politics of Large Dams*, Patrick McCully, 2001. All information in this chapter comes from *Silenced Rivers* unless otherwise noted.

Main environmental impacts of dams



A. Impacts due to existence of dam and reservoir:

1. Upstream change from river valley to reservoir.
2. Changes in downstream morphology of riverbed and banks, delta, estuary and coastline due to altered sediment load.
3. Changes in downstream water quality: effects on river temperature, nutrient load, turbidity, dissolved gases, concentration of heavy metals and materials.
4. Reduction of biodiversity due to the blocking of the movement of organisms and because of changes 1, 2, and 3 above.

B. Impacts due to pattern of dam operation

1. Changes in downstream hydrology:
 - a. Change in total flows;
 - b. Change in seasonal timing of flows;
 - c. Short-term fluctuations in flows;
 - d. Change in extreme high and low of flows.
2. Changes in downstream morphology caused by altered flow pattern.
3. Changes in downstream water quality caused by altered flow pattern.
4. Reduction in riverine/riparian/floodplain habitat diversity, especially because of elimination of floods.

bank erosion, destroy river bank gardens and islands, and cause accidents. Unnatural changes in water levels can also disorient migratory species, impacting fish populations and ultimately affecting species survival.¹² The change from natural cyclical water flows to ones that respond to

hydropower needs alone can change natural flooding cycles, which impacts agriculture productivity and fish catches.

“Over the last five to six years, the unusual and rapid changes in water flow and the height in the mainstream Mekong have resulted in the erosion of riverbank gardens...people along the river, particularly women, utilize these areas to grow a range of vegetables...”¹²

Water quality

The chemical, thermal and physical changes which flowing water undergoes when it is stilled can seriously contaminate a reservoir and the river downstream. (Silenced Rivers)

While water is in a reservoir, the levels of oxygen in the water and its temperature may change and this can harm fish and other aquatic life. Scientists are also now becoming aware of the accumulation of high levels of mercury in fish in reservoirs. This means that the water is contaminated and it can be a problem for humans also. Six years after a dam was completed in Canada, 64 percent of the Cree people living on the downstream estuary had blood mercury levels far exceeding the World Health Organization’s tolerance limit.

Decreased sediment

Dams and reservoirs trap sediment from the river, keeping it from

¹¹ *The Mekong’s Changing Currency*, Montree Chantawong, in Watershed, Vol. 11, No.2, November 2005–January 2006.

¹² *Ibid.*

reaching downstream. This deprives areas at the mouth of the river from nutrient rich soil and water that they usually receive every year. This loss of nutrients makes land less fertile and crops less productive. In addition to the impact on land, the water flowing downstream may be less nutrient-rich to fish species.

Structural changes

The impact from the loss of sediment is particularly significant at the mouth of the river. The coastline will be further eroded as it faces the waves without being replenished with sediment and islands could eventually disappear. Another source of erosion comes from the water released upstream. When water is released from a reservoir it is said to be “hungry”: it will recapture its sediment load by eroding the downstream bed and banks. These structural changes to the riverbed and banks, delta, and coastline could reduce the amount of arable farmland and force people to move off of islands.

Loss of biodiversity

...This fragmentation of river ecosystems has undoubtedly resulted in a massive reduction in the number of species in the world's watersheds. (Silenced Rivers)

There are many case studies that show how fish and subsequently local people are affected after dams are built. For instance, according to the Southeast Asia Rivers Network, after the Thai government built the Pak Mun Dam in northeastern Ubon Ratchatani province, 50 kinds of fish out of 100 disappeared and the remaining fish species gradually dropped in numbers. Hundreds of plants and herbs were also damaged.

Part IV:

Life downstream and how it may be impacted

“Normally, we do not have to spend a lot of money in our daily lives because we can get fish, crabs, herbs, nipa palm leaves, roofing materials, and firewood from the river, and various kinds of vegetables, fruits, and cooking oil from our farm. We can stand firmly on our land without money...”

– a farmer, age 50, Paung Township

“We do not have to worry about a job because we have full bins of paddy, a tank full of oil, vegetables in the farm, fish in the Salween River, chicken and pigs at the house – we only have to buy salt from outside” – a villager in Paung Township

People living on both sides of the river and on the islands have practiced traditional resource-based livelihoods for generations and still use traditional methods of farming, gardening, and fishing for a self-reliant lifestyle. They still practice a simple way of life, leaving for their fields early in the morning and returning back home at dusk time. Boats are the main means of transportation and communication from one village to another and to Moulmein and beyond. Since

boats with engines were introduced, row boats are only used within and between neighboring villages. Although some mainland villages have electricity generated for 2–3 hours per day, all of the island dwellers and some mainland villagers use candles and paraffin lamps. People go to sleep quite early, around 9:00 p.m., and get up at 4 or 5 in the morning.



Going to the fields - Kaw yowl village, Chaung Zon

Paddy, vegetable and fruit farming are the main livelihoods. Nearly every household raises its own house-fed animals and cattle, such as oxen and cows. Even though there are no forests around the villages, people can get enough wood for cooking and fencing by gathering driftwood that floats down with the current in the river.

If someone needs wood, he or she just goes out to the river by boat and gathers enough to take back home. Sometimes there is too much wood to properly navigate the river. One boatman explained the situation in August during heavy rainy season: “We could not find the way to run our boat due to all the wood, bamboo, and logs in the sea.”

In every village that has over 200 households, there is usually a single market which opens only in the morning time. Mostly only local products such as fish, shrimps, long beans, roselle, and so on are sold in the market.

Household water usage

People have settled along the rivers in order to get water easily for their farming and household needs. They usually do not face water shortage problems even though most do not have wells. Almost all villagers use water from the river for household use, and they usually have common pools for drinking water. Villagers say they have never

thought of digging wells. Said one villager: "Digging a well is an extra thing, and we do not think we need them while we have the Salween River and the pools." It is anyway impossible for island dwellers and some villagers to dig wells because the soil is usually not solid enough to support digging a deep and big hole. The soil collapses easily, destroying the surface of cultivated fields. Even in the few places they can dig a well, the water is too salty to drink. Thus, most people use water directly from Salween for daily use.



Washing and bathing in the Salween

Community water pools

The majority of villages along the Salween River use common pools which store rain water during the rainy season for availability in dry season. However, almost every dry season local people face water shortages. In these cases, villagers draw water directly from the Salween and keep it in an earthen jar overnight so that the sands settle to the bottom. They then use the water for drinking and general household use. The water is collected at high tide once the water level is stable and clear of any dry leaves; at this time the salt water is underneath a layer of fresh water and it is safe to scoop off and drink. Using local knowledge, the people are thus self-reliant and firmly able to stand on their feet.

In the city of Moulmein, purified drinking water is available for sale, but most people cannot afford it. Instead, they set up their own community water source by digging a pool in the earth and collecting water from a system of canals that draws water from the Salween. They usually drain water from the Salween to the pool and release it through a pipe system. Whenever a new ward is made in Moulmein, the people gather together to construct a new pool and pipe system.

Many Mons believe that by collecting water in this life, you may have rewards in the next life, hence digging pools are not only practical but an integral part of the culture and mindset of local people.

Agriculture

Communities downstream grow rice in the rainy season and some grow vegetables in the dry season. Fruit, rubber, betel nut, and other plantations are year-round operations. Almost all farmers also raise cattle as part of their farming system and catch fish in their (naturally flooded) fields during the rainy season. Almost all of the people living along the river and islands depend on vegetable gardens and paddy farms. Agricultural activities depend on the river water through a series of canals.

Use of canals for irrigation

Farmers usually have a main canal that links with the river and water from the canal is used to irrigate their crops. When the tide rises, the water level is high enough that the layer of fresh water on top automatically flows into the main canal and may enter many small canals connected to the main one. Then, if someone needs the water, they pump it into the fields or store it in prepared pools. “We usually do not have to pump the water by engine because the level of the water is higher than the canal which makes it easy to naturally flow into our canals” said one gardener in Paung Township. Water plants are also grown in the pools and picked to sell in the market. If the water is too salty, it is released out of the canals with the ebbing tide to protect the fields. Farmers and gardeners have learnt from the usual change of the flow and tides and understand when to store the water and release the water.

The low-tech natural system of canals provides well for local farmers. However, each farmer has to pay a fee according to the size of their farm in order for the authorities to build a canal. “I have to pay them 5,000 kyat per acre; since I have 15 acres it cost me 75,000,” said one farmer in Paung Township. Exemptions for poor farmers are not



A common water pool - Kwan Mahier village, Chaung Zon



Water is stored in clay pots for use in washing and household cleaning



Irrigation canal from the Salween River - Kaw Youl Village, Chaung Zon



A small sub-canal brings fresh water from the Salween to irrigate a vegetable garden and fruit orchard. Someone has placed a fishing net in the canal as well - Kwan Dong Rack, Chaung Zon

allowed because the authorities are quite strict.

At the present time, the locals are still able to use the water from rivers because of the low concentration of salt water. If the flow of fresh water from upstream is reduced, people may have to face salt water intrusion from the sea and if the concentration of salt water is too high, it could destroy farm lands and crops and impact cattle grazing areas.

Natural methods for paddy farming

Most farmers and gardeners do not own large amounts of land; one family usually has just 10–20 acres. If a family has more than 20 acres of farmland, it is said to be a rich family. Thus, one family can work on their farm without depending on other people or machines. These machines are very expensive and the cost of petrol is rising every day.

Although in recent years the military authorities have introduced farm machinery and new methods of farming such as using chemical fertilizers, farmers and gardeners are not attracted to these methods because of their high costs. They are concerned also about their land. “I do not want to use commercial fertilizers because it will affect the soil in the long term. If we use them, we have to use them every year and it will only exhaust us rather than providing profits. All in all, animal dung is the best fertilizer in making paddy farms because it improves the soil and does not have negative effects” said one 55-year-old farmer in Paung.

Still, farmers are not totally free from interference by the local agricultural authorities who sometimes force farmers to buy fertilizers. One local farmer noted that a pack of fertilizer cost 20,000 kyat (US\$17) – too expensive to afford. However, local authorities from the agriculture department instructed farmers to use the fertilizer and forced them to buy it through a compulsory agreement.

Box: Wild plants supplement subsistence agriculture

"I have lived in this area for long time and I have a net to catch fish in the river. I have a paddy and vegetable farm also. I love having the vegetable Nyathaza because it can prevent cancer, high blood pressure, and so on. The best part is that these vegetables are fresh and naturally growing along both banks of the Salween. We can depend on these plants.

Some fish also eat wild fruits and leaves. When certain fruits are in season, many kinds of fish gather under the trees. Then, we can catch a lot of fish with even our bare hands. Sometimes I thought that because of these plants along the rivers, several kinds of fresh-water fish came to survive in this area. If we didn't have these plants, I don't think we would have as many fish as we do now." – a villager depending on the banks of the Salween

There are many plants that are adapted to the fresh and salt water mixture along the downstream. They depend on the area where there is not too much concentration of salt or fresh water. Although some plants can grow in the condition of high concentration of salt or fresh water, some plants are very tender and fragile: it means that they would disappear from the area if either salt or fresh water had a higher concentration than the other or the balance of the two was disturbed.

According to the locals, they can use these plants in many ways, as food or in making traditional medicine. Some plants are able to cure hypertension and other illness; some are made into a tea to prevent cancer and other diseases.

Local farmers usually use oxen, cow, chicken, pig and other house-fed animal dung to fertilize their crops because they have these resources already and there is no need to waste money on chemical fertilizers. They gather the dung at their houses or huts and put it on the fields 10–20 days before the rain touches the earth. “Even though our fertilizer is not as productive as the government’s fertilizer, it can still produce 50–60 baskets (approx. 1,300 kg) per acre and it maintains the fertility of the land” said one farmer in Paung. Using commercial fertilizers has not proved suitable for these self-reliant local communities.

Vegetable growing and fruit-tree tending

Many local people from the townships at the mouth of the Salween have benefited from gardening vegetables and maintaining fruit-tree plantations. One vegetable gardener from Moulmein Township explained: “Many vegetables, such as cabbage, eggplant, tomatoes, and several kinds of beans fetch a high price in the market.”

There are several kinds of fruits and vegetables which demonstrate the Salween’s rich and sound environment. The townships mainly grow green chilies and peppers, various kinds of beans, such as soybean, green bean, snow bean, French bean, as well as tomatoes, cabbage, cauliflower, romaine lettuce, eggplant, cucumbers, leafy greens, etc. As soon as paddy is harvested, the fields are cleared and a space is cultivated to grow these vegetables. All of these crops use the water from the Salween River. Due to the good fertility of the river banks and islands, many people can earn an income from growing vegetables. One local vegetable gardener who has grown chili for many years said that he can earn a handsome profit each season from his 2 acres of land. “After paying for the workers and fertilizer, I still have about 1,500,000 kyat (US\$1,250),” he said.¹³

¹³ This is a significant amount. UNICEF reports that in 2004 the Gross National Income per capita in Burma was just US\$220.

Mangos and bananas from the islands at the mouth of Salween River are well known. They grow according to the season and are not yet harvested out of season like in other countries. In the season of mangos, plenty scatter on the ground and anyone can pick them up to eat. There are also coconut and sugar cane plantations on the islands and the mainland. These fruits are loaded onto boats and sold in Moulmein and other places as well. In the evening time, there are many boats parked at Moulmein docks with several kinds of vegetables and fruits, and many sellers are crowded there. This clearly shows that the Salween River has been beneficial to the many communities it meets.

Raising cattle and other farm animals

“We use the oxen for farming and loading things, and its dung is used as fertilizer on the paddy and vegetables so that we do not have to buy fertilizers from the shop.”



Boys and their cattle on the way back home from a days work -Sack Cow village, Chaung Zon

Many villagers along the Salween River raise cattle, goats, chickens, ducks, and other domesticated animals. Raising cattle is an integral part of their farming systems – cattle can work for the farm, provide fertilizer for paddy fields, and are important assets. A long time ago, one's wealth

was measured by one's possessions, not money. If someone owned a lot of farmland and/or cattle, they were considered rich in the village.

Even though many things have changed nowadays, the people along the river still raise oxen and cows as a business because the cattle are



Rice fields - Nat More Village, Chaung Zon Island



Banana garden - Kyar Kyun Island, Paung

Photo: MI



A boat with farm produce comes in to the port at Moulmein



Small boat harbor - Kaw Mu Pon village, Chaung Zon Township

easily fed in large pastures and paddy fields outside the village after harvest time. Oxen and cows fetch a very good price because of the high competition between cattle traders on the Thai–Burmese border. For some families, selling cattle can provide a large sum of money.

Since the farmers in this area work in the paddy farms only in the rainy season, the fields are fallow in the dry season, allowing grass to grow which is a good resource for the cattle. The farmers always keep straw in a haystack for the cattle to consume in the rainy season and in necessary times. In the rainy season, the oxen and cows are used for cultivation and other agriculture-related purposes.

Most of the cattle in this area drink water from man-made canals that are connected with the Salween River. Thus, the river not only benefits the people along the river but also the cattle.

Fishing

“I usually use the net and kyapazat for catching fish in the river. The fish are not affected like they are by the bigger commercial fishing boats. I use an engine-assembled boat; sometimes I turn off the engine and use an oar so that I can save petrol. Nowadays the petrol price is like gold and it is very expensive. We do not compete with each other for catching fish as not many people are interested in this occupation. So, we can still say that the fish are abundant in the Salween River. We can survive with this occupation and I still believe that we can firmly depend on it if we do not use high technology.”* – a fisherman from Wa Kyi village

The residents and island dwellers at the mouth of the Salween River have been using traditional ways of fishing for generations. Most of

* A kind of net that has a wide mouth and the end is very narrow—used for catching fish (kyapazat is a Burmese word)

the villages in the southern part of Chaung Zon depend on fishing as an occupation. Since these villages are close to the sea, there are many big fishing boats and many kinds of dry fish, fish pastes, and fish sauces are produced from these villages. As the area is a gateway of fresh and salt water fish, the local fishermen can make a good living earning between 1–300,000 kyat (USD 80–250) per season.

In the past, fish were usually sold in the village and sometimes to neighboring villages as well. Starting in 1995, fish chilling companies have signed contracts with the SPDC to operate businesses in the Andaman Sea and Salween River. They buy fish from local fishermen and export them to Japan, China, and Thailand. At first the companies only bought big fish, but now they buy almost any kind and size of fish. Gradually, it has become harder and harder to find good fish in the local markets because the good quality fish are sold to these companies.

Fisher folk are facing pressures from the military. Sometimes Burmese soldiers demand a local boat in order to patrol the area at the mouth of the Salween. The boat owners receive no payment for the cost of petrol or use of the boat. “Although they do not regularly patrol the islands, we have to go and work on whatever they demand us to do for them” said a fisherman from Abit.

Types of fish and migration patterns

“In rainy season, a lot of fish migrate into our farms through the canals. In this time, we can catch them to make dry fish, fish paste, and sour fish to keep and have for the whole year. For us, we do not have to buy these kinds of fish in our daily lives and it saves a lot of money. If we did not have a season of fish migration, we would have to face many problems in our daily lives. Without fish paste, we cannot make food; our soup and curry are mainly based on fish paste. Fish paste is the most important ingredient to make curry and soup in Mon

cooking, and all Mon people love having it. Our meal is not complete without fish paste.” – Mon villager on the bank of Salween River

The mouth of the Salween River is where fish migrate up-and-downstream between the sea and the rivers. According to the local people, there are well-known cylindrical-fish (locals call them *Kaplon pain*), hilsa (locals call *Nyathaloke*), Spanish mackerel (locals call *Kahadi*), mango-fish, bummalo, snakehead, catfish, feather back, Hamilton’s carp, river catfish, and so on. These fish are dual-dependent (fresh and salt water-based).

Fisher folk also report seasonal movement of fish between the mainstream Salween and its tributaries. From the main stream to the Gyaing, Ataran, and other tributaries, certain freshwater fish species live in the rivers only at certain times of the year. Fisher folk report that with the exception of a small number of fish species living in these rivers year round, specific fish species are only present at different times of the year. These migrations are widely believed to occur in correspondence with the cyclical and regular river flows of the mainstream Salween and its tributaries as determined by the monsoon climate.



Photo: MI

Fish market in Moulmein

Throughout the five townships at the mouth of the Salween River, the downstream communities and local fisher folk remark on the

importance of the Salween's tributaries as well as the seasonally-flooded paddy farms and forests. During the rainy season, when the river is at its highest level and paddy farms and forests are flooded, fish and other aquatic species use these important habitats as spawning grounds and places to seek refuge and food. They feed heavily on aquatic plants, leaves and fruits, earthworms, insects and other terrestrial invertebrates, and aquatic invertebrates, including shrimps, crabs, mollusks, and other fish.

At the beginning of the rainy season, fish come to lay their eggs in the paddy farms in the upper part of the (downstream) Salween River and its tributaries. These fish are very helpful to protect against some paddy-destructive insects in the field and are an important food source for the farmers and the residents along the river. After three months, before harvest time (around September), these fish return to the Salween again so that they can keep surviving on into the cold and dry seasons when the fields have no water left for them to survive.

Other migrating fish include the *Nyathaloud*, *Kapaloi Pain*, *Nyagin*, and *Kamanyot*, all of which are well-known in the Mon community. They are most easily caught in the mainstream and tributaries. They fetch a good price in the market, and the majority of people love eating them. Most townships in Mon State sell them every day in raw-fish markets and they have been a good source of nutrition for the people living along the Salween banks and its tributaries.

Unfortunately, there is no party paying much attention to the migration patterns of fish species except the local fisher folk and farmers whose farms are nearby the river banks. One community leader said to the research team: "We need to conduct research of freshwater fish species and their distinctive features as well as the cycles of migration up and down the main stream and tributaries." With limited sources and time, it is hard to present a full picture to the readers. It may be that the migrations of the fish in the Salween are more extensive and more diverse in terms of the number of species

migrating than we currently know.

As there is not yet a dam barricading the Salween and affecting its seasonal water flows and levels, all these fish still migrate freely into paddy farms and tributaries, surviving in a rich and uninhibited habitat. Natural seasonal floods at the mouth of the Salween are predictable and beneficial to the local people. The life cycles, and therefore the very existence, of various Salween fish depend on the seasonal flows of the river, the rapids and deep pools of the Salween and its tributaries that sustain migrations and provide habitats and conditions in which fish can feed and reproduce. Hence, the Salween's seasonal flows, water quality, and natural flooding patterns are essential to the continued existence of the Salween fisheries – and the people who depend on the fisheries for their food and livelihood security. This rhythmical movement of the water, regular as the respiration of a living organism, sustains unknown numbers of fish species and provides for hundreds of thousands of people.

Fisher folk catch fish species according to certain dates in the lunar calendar and this allows them to gain plenty of fish; they usually use this knowledge in their occupation and are not interested in seeking other forms of knowledge because others are not appropriate with the environment. As the flow of the river is natural, it is not difficult to predict fore-coming tides and surges. In contrast, when man controls the flow of the water upstream, fisher folk's knowledge may be useless. It will take many years for them to learn about and cope with the change in their environment. For example, fisher folk in Cambodia found that their traditional dry season fishing gear became ineffective due to changes in water fluctuations after the Yali Falls dam was built upstream.¹⁴

¹⁴ *Op cit. II.*

Loss of livelihoods and migration

“Even though those living upstream of a dam will be flooded, at least they can still use the water. But downstream, the whole ecosystem will be affected and salt water is dangerous for our crops. We may not be able to drink the water or farm our vegetables.” – a Mon leader

The riverside and island communities are subsistence economies that depend heavily on the Salween and its tributaries’ natural resources for their drinking water and diet. If river water becomes too salty or full of heavy metals, community water pools will become undrinkable. Any decrease in cropland productivity will negatively affect subsistence agriculture; changes to the river banks will impact river bank gardens that provide important food sources. Any decline in fish catches will impact a staple source of protein. Villagers will be unable to meet their needs adequately.

There is evidence from other dams that changes in the river have adversely affected activities that villagers once depended on for income. An economic valuation study comparing pre-dam circumstances of villagers living downstream along the Se San River in Cambodia and their situation after the dam was built found an average decline in household income of 57%.¹⁵ As the locals along the Salween are mostly living at subsistence levels, it is highly likely that they will be forced to migrate, most probably to other countries, to find work.

¹⁵ *Down River, The Consequences of Vietnam’s Se San River Dams on Life in Cambodia and their Meaning in International Law*, NGO Forum on Cambodia, 2005.

Part V:

Not informed

Although the military is promoting mega projects toward developing the country, they have failed to assess what the people's basic needs are and whether or not these mega projects can meet those needs. Regardless of whether the electricity from the Salween hydropower schemes goes to locals, city-dwellers, or those in neighboring countries, the ecosystem along the downstream will be altered by building dams upstream. For the half a million people that are living within the ecosystem at the mouth of the river, this will inevitably lead to changes in their daily lives. Despite this, local residents have not been informed or consulted about the dam plans.

The locals living along Salween downstream have no access to any information regarding the Salween dams. They know nothing about the dams or their potential impacts, and so they do not think that the dams will be a problem for their livelihood. After being told of the dam plans, one farmer told the research team: "We live downstream, very far away from the sites of dams and not in the area of submersion, so I don't think we will face any problems."

However, when the locals were asked what they would do if dams were built on the Salween and the water levels decreased at certain times, affecting the flows into the canals, they kept quiet and insisted that the government is not going to make dams upstream because the plan has not been shown on the television yet.

Some do not believe it's actually possible to build a dam on the Salween at all. When one member of the research team told a group of villagers about the potential construction of the dams, they did not believe it. "I don't think someone can build a dam across the Salween River because it is too wide" said one villager. The locals still believe that the stability of the river's water flow as it is now will remain forever even after being told about possible effects on water levels as a consequence of dam construction upstream.

Since the Salween River sustains the livelihood of local people, it is imperative to consult them and provide adequate information regarding the project. Yet no one living downstream has been consulted about the project by the government or any other party. Even the local authorities do not know about the dam plans. According to the advice of the World Commission on Dams (WCD) and other guidelines, it is not only important to make a feasibility study at the site of dam construction but it is also essential to consult with all impacted peoples, including local residents downstream. Right now these important stakeholders in the dam project know nothing about the project. Their concerns must be taken into consideration.

Precarious health

According to the World Health Organization, the healthcare system in Burma at the moment is among the worst in the world.²¹ Locally, those living along the banks of Salween and its tributaries already suffer from ailments such as malaria, respiratory infections, and skin

²¹ *World Health Report 2000: Health Systems- Improving Performance*, World Health Organization (WHO), 2000.

Box: The World Commission on Dams' recommendations

In November 2000 the World Commission on Dams proposed a new framework for development based on respect for human rights. The WCD recommended that before taking a decision to build a dam, the needs for water, food and energy should be clearly assessed. All options should be considered, and first priority should go toward improving the efficiency of existing systems. Those who would be affected should be involved in decision-making processes and should be among the first to benefit from projects. No dams should be constructed without the acceptance of affected people. Indigenous and tribal peoples should be given special consideration.*

* Information from: *Dammed Rivers, Damned Lives: The Case Against Large Dams*, International Rivers Network, 2003. For more information on the WCD recommendations, visit www.dams.org

diseases. All of these are made worse by a bad system of sanitation and poor quality of water.

The release of dirty water from reservoirs has resulted in health problems for people living downstream of different dam projects around the world. For example, people living in the Amazon basin suffered from skin rashes and other health impacts when dirty water was released from the Tucuruí reservoir.²² Those living downstream of the Yali Falls dam in Cambodia reported increased incidents of diarrhea, stomach infections, eye irritations, and skin rashes after the dam was built.²³

Safety concerns

The local population is very knowledgeable about the natural flow and seasonal changes of the river. If the dams are built, however, the

²² *Op cit.* 11.

²³ *Op cit.* 15.

unpredictable nature of the river due to water releases and surges will be difficult to adapt to, especially if the people downstream are not informed of water releases. The Salween River flows roughly and wildly in rainy season, especially when it is swelled by recent rains. Locals have to carefully control boats and ships. "I am not afraid of anything except big water surges because they can destroy everything," said one fisherman in Paung Township.

In April 2005, at least 62 Hindu pilgrims were killed in India when the water from the Indira Sagar dam of the state-run Narmada Hydroelectric Development Corporation was released without warning during a religious ceremony.¹⁶ Along the Mekong River in eastern Shan State, Lahu villagers have reported boating accidents and sudden unexpected surges on sunny days caused by fluctuations in the water's flow.¹⁷ Aside from boating deaths, villagers in Cambodia also described incidents of children drowning or being swept away while bathing, playing or working in or near the river.¹⁸ Those who use the water from the river for taking a bath in the river, washing dishes, cooking, and cleaning house, may face changes or dangers in their routine lives due to unnatural and unexpected water surges caused by releasing water upstream at the dam site.

Worse than the dangers that surges present, however, is the possibility that a dam may even break. The world's worst dam disaster occurred in Henan province in central China in 1975. As many as 230,000 people may have died.¹⁹ Concerns have been voiced that the sites of the proposed Salween dams along the Thai-Burmese border lie on

¹⁶ "Death toll rises in Indian dam tragedy." 12 April 2005. <http://www.waterpowermagazine.com>

¹⁷ "Deadly Changes: Unpredictable water surges and unprecedented low water levels on the Mekong have human costs," *Undercurrents: Monitoring Development on Burma's Mekong*, Lahu National Development Organization, July, 2006.

¹⁸ *Op. cit.* 15.

¹⁹ *Op. cit.* 11, p. 117.

active earthquake fault lines.²⁰

There have been no assurances that a proper social or environmental impact assessment of the dam projects will be done, that there will be a proper and well-monitored construction process, or that local residents will be provided with adequate information regarding water releases and the potential dangers of the dams. Half a million people living at the mouth of the Salween have thus been placed at unnecessary risk.

Lack of assessment and information damages livelihoods

In late 2005 the regime touted the completion of the Moulmein-Mottama bridge across the Salween as an achievement for development. However, local farmers from Chaung Zon said that after the bridge was completed, the



The bridge while under construction

direction of the water's flow changed due to the supporting columns of the bridge. The new flow pattern of the river hit the banks and caused them to collapse. The banks had been important arable land for the community for a long time. Hundreds of rice fields rapidly collapsed like nothing seen before in the past. Other farmers whose farming lands are located near the banks of the river now fear losing their own lands. As this example shows, when changes are introduced to farmers without access to information, their occupation will be damaged.

²⁰ "Salween Dam sites proposed by EGAT situated on active faults", Interview with Associate Professor Dr. Panya Jarusiri, Taskforce on Seismic Study of Chulalongkorn University, Salween News Network, March 2005.

Photo: M1



Part VI:

Conclusion

“Actually, we can predict when the rain comes and when the water will rise and ebb and the best time for growing vegetables. If there is rain before the Songkran water festival, the rainy season will come early, and if it rains after Songkran, the rainy season will come late. However, the rain will come 40 days after Songkran no matter what. The rising tide lasts for 2–3 hours and then it begins to ebb. At this time, the fishermen can catch a lot of fish in the river and they can make much money. When we know all these things, it makes us safe living on the bank of the river. We know what we have to anticipate at certain times. We act in accordance with the change of our environment.” – a farmer along the Salween

As the locals downstream experience changes in their environment, they are able to adapt their activities and occupations. Since they have lived with and adjusted to the local ecosystem for generations, they do not think of any forthcoming environmental problems. However, if changes come that are different from what they have been familiar with, this will jeopardize their usual routines and daily chores, especially fisher folk and local farmers. Changes in water levels

and flows, in sediment load, and water quality would directly impact local livelihoods and food security.

Still, the military regime in Burma is forging ahead with foreign investors to build dams on the Salween River in Burma. The regime has not informed or consulted those living along the Salween or its main tributaries. The suppression of a free media, arrests, beatings, and extra-judicial killings of democracy advocates, and human rights violations against villagers across the country, make it impossible to access information or question the projects.

As water is the basis of all lives on earth, it is essential for local people to have complete access to this resource. Developing alternative livelihoods is difficult for the locals because their traditional occupations of rice farming, vegetable gardening, raising cattle, and fishing have been sustained from the time of their ancestors and are integral to their culture and identity. One hundred villages and towns located at the mouth of Salween River – half a million people – depend on these sites.

It is time for all the concerned parties to think of the potential impacts on all the peoples of the Salween as all people and all things are interdependent and the impacts on one community can also spread to another community. For example, because of lack of employment and other impacts on the locals, hundreds of thousands of people from Burma may transmigrate to Thailand and other neighboring countries.

MYPO has surveyed the communities living in the five townships at the mouth of the Salween River and presents in this report their situation. Drawing on some previous studies, we can foresee some potential impacts that the Salween dams may have on these communities. However, there are many questions and uncertainties that should be more comprehensively studied. The local people deserve a better assessment and more information about the potential changes

caused by the dams' construction and the impacts those changes will have on their livelihoods. Most importantly, the Mon people should have a say in whether any dam should be built at all.

Any dam project needs to take into consideration the social and environmental impacts on those living downstream and, most importantly, allow for their informed consent. This is impossible under the current military dictatorship. The Mon Youth Progressive Organization therefore calls on all parties to halt their investments and stop the Salween dam projects.

Communities at the mouth of the Salween

Name of the village	Number of Households	Estimated population
Pa-An Township		
Kaw Taw	300	1,500
Kaw Put	200	1,000
Kwan Kadoe	300	1,500
Kaw Nut	400	2,000
Bar Taw	350	1,750
Kaw Lar	400	2,000
Bar Ktoe	450	2,250
Zar Tapyin	1,300	6,500
Kaw Lamu	400	2,000
Kaw Krang	350	1,750
Kaya Manya	450	2,250
Kwan Samlan	700	3,500
Kwan Kraing	500	2,500
Kwan TeLime	500	2,500
Kwan Dekrare	400	2,000
Kwan Poe	300	3,000
Kwan Nongjork	250	1,250
Kaw Daylie	300	1,500
Kaw Kyaik-Latpan	350	1,750
Kwan Kaw Nhat	350	1,750
Kwan Kaw lar	360	1,800
Thau Aig	1,750	8,750
Kyaik Nhot	300	1,500

Note. Population estimates are based on minimum number of households in each location and an average family size of five persons. *Names in italics are islands.*

Communities at the mouth of the Salween

Kha Aung Kraite	500	2,500
Wa Rite	200	1,000
Kaw Kayot	100	500
Kaw Meat	400	2,000
Kadopkadone	150	750
Kwan Tar	1,500	7,500
Kwan Kawpain	1,000	5,000
Kwan Kawkay	450	2,250
Kwan Kawchak	150	750
Kwan Krip	300	1,500
Kwan Kropkraik	300	1,500
Kwan Kani	1,000	5,000
Kwan Krangday	1,500	7,500
1 new island – no name	No permanent population	
Paung Township		
Kaw Karan	No permanent population	
Mottama	2,851	17,515
Myine kalay	400	2,000
Duyin Sage	250	1,250
Zee Zon	400	2,000
Kyor Kyan	350	1,750
Wa Kyi	300	1,500
More Be	500	2,500
Kalar kone	200	1,000
Kaw Plain Kyun	150	750
Main Ma Hla Kyun	50	250

Communities at the mouth of the Salween

Natmore	200	1,000
<i>Kaw Chain</i>	450	2,250
<i>Kaw Tome</i>	300	1,500
<i>Kaw Pok</i>	200	1,000
<i>Mamoe Kyun</i>	No permanent population	
<i>Mardoe Kyun</i>	No permanent population	
<i>Kyar Kyun</i>	No permanent population	
<i>Byaing Kyun</i>	No permanent population	
<i>Aungmingalar Kyun</i>	50	250
<i>Shwedingar Kyun</i>	30	150
<i>Yinwine Kyun</i>	No permanent population	
<i>Kaw Pon Kyun</i>	No permanent population	
<i>Thain Kwin Kyun</i>	No permanent population	
<i>Myayadanar Kyun</i>	No permanent population	
<i>Zarkatone Kyun</i>	No permanent population	
<i>Shwe Dingar Kyun Kyi</i>	No permanent population	
<i>Singoung Kyun</i>	No permanent population	
<i>Kyun Shay</i>		
<i>Kalar Kyun</i>	30	150
2 new islands - no name	No permanent population	
Chaung Zon Township		
Klwi	500	2,500
Mu Naung	270	1,350
Thaung zon	750	3,750
Down yat	450	2,250
Kaw Mupon	270	1,350

Communities at the mouth of the Salween

Ka Nyor	1,300	6,500
Boe Nak	500	2,500
Sack Cow	870	4,350
Chaung Zon	1,750	8,750
Nat More	660	3,300
Karite Tit	650	3,250
Kwan Tal	645	3,225
Ma Yam	790	3,950
Kaw yowl	260	1,300
Kwan Wie Kyaik	120	600
Kwan Lmine	185	925
Kwan Dayaw	680	3,400
<i>Hindar Kyun</i>	100	500
<i>Kaw Mupone Kyun</i>	No permanent population	
<i>Kwli Kyun</i>	No permanent population	
2 new islands - no name	No permanent population	
Kyaikmaraw Township		
Mut mu	350	1,750
Kwa krop	350	1,750
Barana	1,000	5,000
SanKlom	250	1,250
Dammaza	500	2,500
Kwan Karana	1,000	5,000
Kwan Sanklom	250	1,250
Kwan Dammaza	500	2,500
Kwan Kawpalaine	450	2,250

Communities at the mouth of the Salween

Nyone Ping Zate	300	1,500
Kyon Wone	400	2,000
Krain Joine	300	1,500
Wa Krome	200	1,000
Kyaikarome	400	2,000
Wahami	300	1,500
Kwan Para	300	1,500
MoeKroe	300	1,500
Kyaikmaraw	N/A	N/A
Wa Kanine	200	1,000
Kawpanote	400	2,000
Nyite Tone	400	2,000
Kwe Wone	350	1,750
U Lay	400	2,000
Kaw Sap	400	2,000
3 new islands - no name	No permanent population	
Moulmein Township		
Moulmein*	60,000	300,000
Kwan Mumu	350	1,750
Dawie Kyun	50	250
Kaw Hala	40	200
Kaw Karen	30	150
TOTAL		533,465

* This is a conservative figure for the population of Moulmein. Estimates range from 3-450,000.

List of interviews conducted for this report

No	Age	Sex	Nationality	Occupation	Township
1	52	M	Mon	Rice farmer	Chaung Zon
2	45	M	Burman	Vegetable gardener	Paung
3	31	F	Mon	Vegetable gardener	Paung
4	40	M	Mon	Fisherman	Chaung Zon
5	35	M	Burman	Fisherman	Chaung Zon
6	50	M	Mon	Cattle farmer	Chaung Zon
7	27	F	Mon	Vegetable gardener	Paung
8	80	M	Mon	Elder	Chaung Zon
9	32	M	Burman	Vegetable gardener	Chaung Zon
10	37	F	Mon	Farmer	Chaung Zon
11	60	M	Mon	Education official	Chaung Zon
12	30	M	Mon	Fisherman	Paung
13	56	M	Mon	Farmer	Paung
14	35	M	Mon	Vegetable gardener	Pa-An
15	70	M	Mon	Elder	Pa-An
16	40	M	Burman	Fisherman	Pa-An
17	45	F	Mon	Vegetable gardener	Pa-An
18	37	M	Burman	Vegetable gardener	Moulmein
19	50	M	Mon	Farmer	Chaung Zon
20	32	M	Burman	Farmer	Chaung Zon
21	50	M	Mon	Cattle trader	3 Pagodas Pass
22	50	M	Mon	Trader	Moulmein
23	38	F	Burman	Vegetable gardener	Moulmein
24	42	M	Mon	Fisherman	Chaung Zon
25	33	M	Mon	Banana gardener	Moulmein
26	55	M	Mon	Coconut gardener	Moulmein
27	34	M	Mon	Boat driver	Kyaikmaraw
28	35	M	Mon	Farmer	Kyaikmaraw
29	60	M	Mon	Vegetable gardener	Pa-An
30	31	F	Mon	Health worker	Pa-An
31	25	F	Mon	Teacher	Pa-An
32	40	M	Burman	Farmer	Kyaikmaraw
33	35	M	Burman	Farmer	Paung
34	47	M	Mon	Vegetable gardener	Chaung Zon

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About MYPO

The Mon Youth Progressive Organization (MYPO) is a youth organization founded in 1999 by youth, students and community-based activists dedicated to social justice, equality, peace and democracy in Mon State. MYPO is working to empower youth, to preserve Mon literature and culture, and to strengthen civil society. MYPO advocates for democracy and human rights in Mon State and for peaceful and democratic change in Burma.

MYPO builds up the capacities of its members with educational and professional trainings so that it may be a competent professional youth organization in the future Burma. MYPO is strengthening its networks with civil society organizations and is a member of the Student Youth and Congress of Burma (SYCB). SYCB promotes unity among different ethnicities to build a future peaceful Burma. MYPO joins hands with other ethnic youth and democratic forces dedicated to building a democratic society based on justice and equality.

To learn more about the Salween dam projects and find out what you can do, please visit www.salweenwatch.org