

# **ASEAN OPPORTUNITIES IN THE AGE OF CLIMATE CHANGE**

## **Value creation of several billion USD in mangrove restoration and new bio-economy**

**by U Aye Lwin and Dr. Arne Fjortoft**

**Worldview International Foundation, Myanmar**

Climate change is a fact. We are all painfully aware of the dramatic consequences.

28 years after the Kyoto protocol and 2 year after the UN Paris Climate Conference, the global community is slowly coming to grip with the problem. We have the solutions, the challenge is now to move fast enough to avoid the tipping of no return.

Last year was a watershed in global climate alerts. The red line of 400 particles CO<sub>2</sub> per million in the atmosphere was breached. This is the scientific limit for keeping temperature increase to below 2 degree Centigrade. The climate challenge has therefore become more serious than ever before. The historic buffer to store CO<sub>2</sub> in the atmosphere has been exhausted. From now on, every ton CO<sub>2</sub> climate gases added to the atmosphere will rapidly bring us closer to the feared tipping point. It is therefore not enough to reduce emissions, but we also need to mitigate accumulated emission which last over 300 years in the atmosphere.

Asian Development Bank expects ASEAN to become the largest energy consumption region in the world by 2050. Future energy development in this region will have massive global impact. The ASEAN Plan of Action for energy cooperation approved by the ministerial meeting in 2016, is an important step by targeting 23% renewable energy by 2025. Based on the rapid global growth of renewable energy, there is reason to believe ASEAN will have most of its energy from renewable by 2050. Clean and low cost energy is the future.

Globally, renewable energy is doubling every year. 2016 recorded 50% increase in installation of solar energy, up to 76,600 megawatt. Nearly the same was generated by windmills. This is a remarkable achievement in competition with fossil fuel. The price of solar energy from the newest plant in Abu Dhabi is USD 2.4 cents per kWh. And taking into account rapid improvement in technology, solar power and ocean wind mills may be the dominant technologies for the future, until even cheaper renewable energy is introduced. We live in the age of the possible, driven by powerful market forces. Much will happen in ASEAN during the next few years. Cost effective technologies will solve most of the emission problems. The age of fossil fuel will finally come to its end. But what will happen to over 400 ppm CO<sub>2</sub> stored in the atmosphere for up to 300 years, and still increasing? This has to be reduced. But all technical experiments in mitigating CO<sub>2</sub> so far has proven to be extremely expensive, with no safe long-term storage.

The answer is in mobilizing nature. This is an area in which ASEAN can take global leadership. ASEAN's rich bio-diversity with potentials for large scale tree planting, and especially mangrove restoration and REDD+ conservation of forest resources. This will create long-term values by mitigating large amount CO<sub>2</sub> for permanent storage in the ground at a cost far less expensive technical processes. ASEAN holds 46% of the world's mangrove forests on its 173,000 km shorelines. ASEAN has potential to become a super power in climate action. Indonesia holds the largest mangrove area in the region, estimated by FAO to around 3 million Ha, followed by Malaysia, Myanmar, Thailand, Philippines, Vietnam and Brunei. Each of the countries can reverse the trend of climate change by conserving existing mangrove forests estimated to be around 5 million Ha, and in addition restore large areas in adaptation to climate change by conserving existing mangrove forests estimated to be around 5 million Ha, and in addition restore large area in adaptation to climate change.

The global losses of mangrove forests are three times faster than losses of rainforests. Myanmar has lost over 1 million Ha since 1980, according to FAO. The vulnerable Delta Region has only 16% left of its original mangrove forests, according to the latest NASA report. SEA level rise is already affecting low lying agricultural land. The delta region with 6 million people is in danger of losing its capacity as the country's rice bowl. There is still an opportunity to reduce this imminent risks by planting mangrove trees on the shorelines. But this window of opportunity is fast closing. It demands immediate action.

In spite of efforts to reverse this dangerous reduction of vital bio-resources in ASEAN countries, stronger legislation and more awareness is needed, in combination with practical action. There is an urgent need to focus on practical implementation by physically planting trees.

It is estimated that 30% of the lost mangrove forests in ASEAN can be restored, of around 3 million Ha, equal to mitigate over 600 million tons CO<sub>2</sub> during 20 years growth of trees. The commercial value in tradable carbon units based on average 2016 price, could be over USD 4.5 billion, or as much as USD 24 billion in case USD 40 per ton is reached during next 10-15 years, as estimated by several institutions are result of the 2015 Paris Climate Agreement. This represents large business potentials. It is a win-win situation for the global community, as well as countries and coastal communities in ASEAN, providing tangible benefits for millions of people in the region.

Mangrove is a wonder tree, mitigating up to 5 times more CO<sub>2</sub> than terrestrial trees, and storing carbon permanently in the ground. It save lives and properties from increasingly extreme weather, build up the shorelines as a buffer from sea level rise, protecting coral reefs and sea grass meadows from run offs and sea pollution, producing cold air equal to 3 room sized air conditioners per tree, increasing sea food resources by up to 50%, in addition to many other eco-system services upholding lives on our planet. This miracle tree is a God-sent gift at a time of crisis. Any further delay in utilizing this wonderful natural resource in a sustainable manner is a loss to natural, local and private economies. It is time to make mangrove restoration a focal point of climate action in ASEAN and beyond, especially in implementing the UN Sustainable Development Goals, every ASEAN country has accepted as urgent national targets.

In cooperation with coastal universities in Myanmar, Union Government, Regional Governments, NGOs and coastal communities, we have since 2012 had the privilege to be partner in 3 years research, followed by 3 years practical implementation in mangrove restoration in Myanmar. This comprehensive pilot project has potential to restore at least 100,000 Ha during a few years. It can meet 50% of the target set at the UN Ocean conference in June this year, for restoring at least 20% of lost mangrove forests by 2030. The conference concluded that living mangrove forest is the answer to healthy oceans at a time of urgent need to maintain oceans capacity of 83% carbon sequestration, with 50% by coastal habitat like mangrove, sea grass and coral reefs. Coastal wetlands cover less than 1% of the ocean, but store over 50% of seabed's rich carbon reserves. This is the only habitat that can continuously sequester and store carbon in soil for millennia. It is a natural resource of great value to ASEAN countries.

Our target of 100,000 Ha restoration in Myanmar during the next few years is within reach. It can even be more than double that amount if only we have additional resources. Myanmar has like all other ASEAN countries knowledgeable, competent professionals to undertake this kind of projects, with thousands of willing hands ready to plant in their communities and to share future benefits. It is time to unlock this national human energy in practical action. It has been proven that living trees are more valuable than dead. VCS carbon units have a potential to create market value of up to 100 years, in contrast to renewable energy projects with carbon credits limited to 20 years. It is time to become result oriented, to count the number of planted trees, instead of the number of conference, workshops and meeting. This is the time for action.

In the wake of mangrove restoration, additional economic potentials are emerging like.

1. Production of bio-fuel from salicornia bean and nuts from Pongamia Pinata mangrove associate. Aviation industry and others are in need of new sustainable fuel.
2. Bio Fuel can also be produced from nypa mangrove palm sap. Nypa produces 50% more sugar than same area of sugar cane. The sap can also be used napa forests in ASEAN.
3. Sustainable mangrove forest management of fast growing Sonnerata apetala and Sonnerata griffithi species of bio fuel, food, medicine, bio-plastic and other products for a growing world market.
4. Mangrove restoration represents large economic potentials in the age of a new bio-economy, which is estimated to become larger than the present oil and gas industry. ASEAN with its rich bio-diversity has the potential to become the leading bio-economy region in the world.

We live in the age of the possible. Today is time for action. There is no reason for despair. Let us align our future with nature to benefit from successful methods proven during millions of years. Sustainable development can be achieved by a new ASEAN vision for a better future, based on science and knowledge in line with new global market potentials.

