

[MUSIC PLAYING]

HONG CHING GOH: What is a mangrove forest? Mangrove are the only forests found on the edge of the sea in warm sub tropical and tropical environments. They can be easily recognized by the dense tangle of [INAUDIBLE] roots that make the trees appear to be standing on stilts above the water. Mangrove are a valuable resource. They are estimated to provide at least \$1.6 billion annually in [INAUDIBLE] services, the multiple benefits that humankind enjoys from ecosystems.

This value is in the realm of national GDP's such as that of the Virgin Islands. In recognition of the significance of mangrove, the Ramsar Convention for conservation and sustainable utilizations of mangrove was signed on the February 2nd, 1971. February 2nd has been declared World Wetlands Day.

A unique mix of marine and [INAUDIBLE] species live in mangrove ecosystems, especially in Asian region. The calm, sheltered waters among the mangroves' roots provide breeding, feeding, and nursery grounds for fish and anthropoids. Herons, spoonbills, and even eagles make their nests in the upper branches of mangrove trees. Reptiles are plenty.

Mangrove play a very important role in soil formation and shorelines protection. Their unique above ground root structures dampen watered currents. They also reduce the impact of strong winds and tidal wave that accompany tropical storms. Mangrove are among the most carbon rich forests in the Tropics, containing an average 1023 mega grams carbon [INAUDIBLE], at least three times that of the upper tropical forests.

Mangroves' wood is most commonly used as a source of fuel for local communities, and as the primary construction material for boats, houses, and furniture. In addition, mangrove [INAUDIBLE] fisheries, the main source of livelihood for many local communities. Mangrove also contain great medicine of value including [INAUDIBLE], bleeding and malaria, to name a few. Cannonball mangrove fruit, for instance, is used to treat diarrhea.

In many parts of the world, mangrove also bear great cultural significance for local communities, such as the indigenous peoples of the Torres Strait Islands, who have used Australia's mangrove for more than 40,000 years. Despite its importance, the rate of mangrove deforestation is among the highest of any forest type. And urbanization has been identified as a significant threat to the survival of these coastal flagship natural resources.

Urbanization refer to the concentrations of human population into discrete areas. Cities, leading to the transformations of land. It is a global phenomenon that is intensifying especially in low and median income countries. Today, half of the world's populations live within 60 kilometers of the sea, and three quarters of all the largest cities are located on the coast.

While cities foster economic, growth, and offer the vast majority of employment opportunities, urbanization also brings congestion and pollution. It also escalates [INAUDIBLE] such as displacements of native peoples and urban poverty. The fundamental change it causes, however, is the transformation of nature.

Globally, urban development is the major driver of climate change, producing half of all greenhouse gas emissions. Luckily, land in coastal area is reclaimed for property development, and mangrove forests are transformed into open water fronts. Malaysia is a median income country located in Southeast Asia. We have a total coastline of 4,675 kilometers.

In these coastal areas, mangrove forests are found, which, at the end of 2006, were estimated at 107,802 hectares in Peninsula Malaysia alone. Today, very few mangrove remain. Over 18% of the mangrove were lost between 1975 and 2005, primarily due to conversions of land for agriculture, shrimp ponds, or open development. Johor, Malaysia's southernmost state, is home to more than a quarter of the total remaining mangrove in Peninsula Malaysia. Is also home to [INAUDIBLE] areas of international importance for conserving biodiversity.

All three of these [INAUDIBLE] are located within Iskandar Malaysia. Established in 2006, Iskandar Malaysia is a national special, economic region, located in southern Johor, just across the straits from Singapore. It is modeled the Pearl River delta economic zone of China, with the purpose to capitalize on its existing synergies with Singapore.

The region has a land size that is three times that of Singapore, and is administrated by the Iskandar Regional Deferment Authority, or [INAUDIBLE]. The indigenous group around [INAUDIBLE] once practicing a nomadic lifestyle, have settled down along the southern coast of Johor. They live in coastal areas and river estuaries, and like many other local people, are dependent on mangrove for their livelihood. Today, mangrove conservation in Johor is becoming critical.

With fast phase urbanization taking place in Iskandar Malaysia, local and indigenous groups dependent on mangrove face the truth of losing their homes and source of livelihood. Iskandar Malaysia aims to be a strong and sustainable metropolis of international standing. To support this vision, three mangrove management strategies can, and should be pursued.

Strategy one. Ecotourism as a mangrove environmental service. An ecotourism project in Iskandar Malaysia has been launched in 2013. However, it was limited to a single village Kompang Sona Melayu, at the Melayu River. Meanwhile, a study on tourism potential of the [INAUDIBLE] region was conducted in 2010, but the actual implementation has not taken place.

It is promising that tourism, with education at its core, can be ecologically and economically beneficial to local villages. However, this strategy and its benefits must be shared by more communities to include both the local and indigenous people in the [INAUDIBLE] district, along [INAUDIBLE] River, as well. In addition, capacity building for tourism operations, and the linkage between local businesses and tourism networks at the state level must be established. For this, the Ministry of Tourism and Culture must take the lead in working with all relevant stakeholders.

Strategy two. Technology for mangrove monitoring. The applications of GRS and remote sensing in mangrove management must be incorporated in the existing manual monitoring practices by the Johor forestry department. These technologies are powerful at systematically and periodically measuring the effectiveness of ongoing management practices. Subsequently, this provides a more defensible basis for management actions towards conservation.

SPEAKER: Remote sensing is one of the latest technology, I wouldn't say latest because it is there in the market since 1970s, is the only practical way to get rapid information about mangrove changes.

HONG CHING GOH: Strategy three. Core management for mangrove governance. The institutional structure for managing natural resources in most developing countries, including Malaysia, is based on a top down approach, and is very much development driven. In light of sustainable city's development objectives, and the current state of mangrove destruction, combination among interdependent governance structures is the core of effective mangrove management.

As land is prescribed as state matter under the federal constitution, the agencies dealing with mangrove, such as the Department of Environment, are merely technical advisers reviewing land development proposals. They have little power when it comes to land development decision making. It is recommended that these agencies be given more power, and be directly involved in the decision making process.

Moreover, [INAUDIBLE] impact assessment requirement must be strictly enforced. At the local level, the Iskandar regional development authority has initiated efforts to include local communities in mangrove conservation projects. However, the scope of participation is confined to public [INAUDIBLE] and the capacity building related to resource consumption.

MADAM IVY WONG ABDULLAH: Within IRDA we've got a social development division that works closely with the communities to ensure that whatever economic development that we bring to the region, it needs to have the inclusion of the people. For example, closely to mangrove communities is the [INAUDIBLE] so we have been working closely with them for the last few years to build the capacity of the community in arranging visits by tourists to the surrounding mangroves. So boat visits to the mangrove forest, and also to the kelong, where the community is rearing mussels, green mussels, and also some fishes. So I think the sea bass and all that. We're working with the people because there's a platform that was created, Friends of Iskandar Ramsar, to work with them in carrying out educational research programs.

HONG CHING GOH: It is [INAUDIBLE] that the level of participations amongst local and indigenous communities be expanded, and that they are not only given the rights to use mangrove resources as granted by the authorities, but also the rights to take part in managing those resources together with government agencies. For that, core management becomes a viable means to bring all stakeholders together despite their different interests.

Here, finding the right mix of stakeholders to govern the resources becomes the key. The Senai Pulai Forest Reserve, an area in urgent need for protected area status, provides a example of the need for a core management strategy. At present, harvesting this on a 20 years rotation schedule, is the major economic activities here. The mangrove management plan is outlined in the overall forestry management plan but this will expire in 2015.

VINCENT K.K. CHOW: If it is talking about the role of the forestry, I think they're doing a very good job. Although you see mangrove being cut, but this is on rotation basis, small areas where the concessionary will replant. So the only fear is the original species maybe wiped out because they're going to mono-cropping.

HONG CHING

GOH:

Therefore, the preparations of a comprehensive management plan specifically for mangrove forest is urgently needed to indicate the permitted land uses, the carrying capacity of those uses, and the stakeholders that need to be involved in the management process. Apart from the tree shortages just described, the potential for moral considerations and religious values to play a unifying and revitalizing role in mangrove conservation, and nature conservation in general, must be further explored in development planning and at the societal level.

In fact, a holistic approach to land use development planning, known as the total planning doctrine, was introduced in the mid-1990s by the federal government of Malaysia. It aims to integrate physical and social planning with moral and spiritual values. However, little evidence shows the implementations of the approach in reality.

At the societal level, the dominant religious customs have been still mainly confined to discrete practices, rather than a way of life, which has the potential to cultivate a direct connection between humans and the environment.

WAN MOHD

[NON-ENGLISH]

YUSOF WAN

CHIK:

HONG CHING

GOH:

Urbanization is one of the most complex and important social economic phenomena of the 21st century. It is forceful, irreversible, and constantly evolving. It also represents a major change in the extraction and consumptions of nature resources, and the way that society interacts with nature. Yet, if we only see cities as a problem, we fail to recognize how cities offer improved quality of life, and serve us the centers for culture.

The strategies recommended in this video for mangrove governance in Iskandar Malaysia incorporates a wide range of appreciations for mangrove. This [INAUDIBLE] the quest for a meaningful practice of sustainable urban development. At the regional level the strong presence of mangrove and indigenous people presents an opportunity for Iskandar Malaysia to be a unique living model of a developing countries that substantially improve the metropolises by making the relationship between nature, culture, and view environment a synergized and symbiotic one.

At the national level, mangrove conservation directly supports Malaysians' efforts to reduce carbon emission in light of the global climate change agenda. So are there strategies likely to be useful for other cities facing similar development driven challenges? Yes, they are. These studies is an example of [INAUDIBLE] learning by sharing lessons and ideas through digital communication.

Similar to the case of Iskandar Malaysia, many emerging cities in developing countries are rich in natural resources and culture, and striving for economic development has put tremendous pressure on these precious assets. Meanwhile, transparency has been a key concern in developing countries. Yet little evidence reveals that transparency alone can make a significant contribution towards sustainabilities' goals.

Benefits sharing and capacity building, as highlighted in the mangrove management strategies in this video, are believed to be the enabling factors for transparency to achieve its effect. However, the prioritizations of these strategies require careful considerations of the past and present, political and social cultural context of the city, as well as the state and the ideologies behind the region's economic development activity. Bye bye.

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