A Journey of Incremental Steps for the Orang Asli

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Abstract The human quest for sustainable development impacts public health and social welfare as well as the endurance of plant and animal species that humans share space with. Environmental policies designed to mitigate the negative impacts of developmental activities on the environment, more often than not emerge from critical needs rather than foresight. This paper characterizes the context of environmental law in play during implementation of the first and second Malaysian development plans (1966–1975). The paper characterizes the approach used to convert mature forest landscapes into productive palm oil and rubber tree plantations. The paper reflects incremental policy changes made to mitigate the negative impacts of development on the Orang Asli environment.

Keywords Orang Asli · Sustainability · Development · Ecosystem · Conservation · Human health · Ecology

Purpose The year was 2017, and with reference to the Orang Asli, I had been invited to share my perspective and experience in Malaysia from 1973 to 1976. Historical context is important to gain perspective of the content of my remarks. Understanding the dependence of Orang Asli on the health of forest systems they occupy is key. Similarly, country knowledge of ecosystem functions and mitigation options for reducing negative effects of economic development on social health and values were at a different place than they are today. My reflections are a high-altitude snapshot of the implementation of the Second Malaysia Plan (1971–1975) in Pahang state, Peninsula Malaysia, *which most affected the Orang Asli lifestyle.* I noted the unwanted environmental consequences of development affecting Orang

"There is Nothing New Under the Sun: What Has Been Will Be and What Will Be Has Been" King Solomon, 450-180 BCE

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Asli at the time, and new strategies employed to mitigate those effects. However, all observations noted here are germane to all Malaysians today.

Background

Generally, and internationally speaking, the time the First (1966–1970) and Second (1971–1975) Malaysia Plans were implemented was an interesting period of time in the evolution of environmental awareness (Government of Malaysia 1966, 1971). In the United States (US), for example, the 1960s and early 1970s were times of great idealism, tragedy and social unrest (King 1963; Woodstock Festival 1969; Beetles 1970; Young 1972). In 1962, Rachel Carson's book *Silent Spring* documented the effects of pesticides in the food chain (Carson 1962a, 1962b); Martin Luther King Jr made his famous "I Have a Dream" speech advancing civil rights in August 1963 and president John F. Kennedy, who established the Peace Corps, was assassinated in November the same year; humans set foot on the moon in 1969; Earth Day was established in 1970 (The History of Earth Day 2019) ; and multiple social gatherings, such as the legendary Woodstock, are examples of watershed events that transformed environmental awareness and activism around the world. Environmental concerns were also addressed in music: The Beetles, Joni Mitchell, and Neil Young to mention a few.

Prior to the 1960s, most developed countries were primarily concerned with wilderness and conservation of resources, such as timber. But this emphasis changed as the 1960s loomed! Countries began to fully understand the relationship between pollution, environmental integrity, and human health and social welfare. Political activism increased with the aim of preventing environmental degradation. This led to an intensifying call by people and the media for governments to reduce and/or mitigate negative effects of development on the environmental, and to reduce pollution, besides regulating developments closely.

Of course, people have adjusted to changing environmental realities since creation. This is true for all people, including the Orang Asli. Nevertheless, it was during the 1960s and early 1970s that social consciousness was greatly advanced. For example, in the US, more benchmark environmental legislation was passed during these two decades in the country's history, and it has remained so ever since. The Multiple Use and Sustained Yield Act (1960), Clean Air (Clean Air Act 1970), Clean Water (Clean Air Act 1972), Soil and Water Conservation Act (Soil and Water Conservation Act 1977), Threatened and Endangered Species Act (Endangered Species Act 1973), NEPA (National Environmental Policy Act 1978) and scores of other "green" legislations were among those enacted. The important thing is that such legislation flowed NOT out of foresight, but of hindsight — being mostly triggered by adverse effects of development on environmental hygiene, health and social wellbeing.

Despite the global progress in understanding the relationship between human health and the integrity of ecological systems, as in the US, most policymakers in developing countries believed that ecology was a luxury that could not be afforded from the onset. The approach was to develop first, generating economic opportunity

and wealth, and then subsequently fix and repair unwanted environmental consequences. This approach and worldview were much at play in Malaysia during the Second Malaysia Plan. The country was excited about economic opportunities, about providing jobs for people and about wealth redistribution, thus giving Malays a foothold in the national economy. Tun Abdul Razak, who was the prime minister at that time, had many issues to deal with, but was very focused in creating economic opportunities for the people. It was an exciting time, filled with hope and anticipation. However, from the onset, the lifestyle of the Orang Asli had been the most negatively affected by implementation of the Stategic Malaysia Plans for economic development through forest conversion.

One year after completing graduate school (forest ecology), my wife and I joined the Peace Corps in January 1973, and I was offered a teaching position at Institut Teknologi MARA (ITM) in Shah Alam in Selangor state. It was a privilege to teach the first forestry class at ITM, in which I taught Basic Forestry and Silviculture. The young men and women in my class were among the brightest I have ever worked with. The students were well informed about world events, environmental issues and enjoyed much of the same music (noted) that I thought I had left behind in the US (Fig. 1).

Fig. 1 The first Forestry Class of 1973 at Institut Technology MARA (ITA) in Shah Alam, Selangor, Malaysia
Standing from left: Basri, Shahrulzaman, Ahmad Mohamed, Ismail Ahmad, Ariffin Abdullah, Zainal Abidin Hashim, Che Aziz Che Ali, Rosni, Halib, Zubair, Adnan, Zaaba, Samsudin Sueet, Zulkifly Harun, Zulkifli, Aziz Awang Tera and Jubri Mahmud
Seated from left: Ismail Nawari, Ismariah, Awalludin Ramlee, Zahriah Anis, Ahmad Shamsuddin, Bakar Daud, Azizun Karim, Kamarudin, Shiela Abee and Jamaliah Mahmud

Methods

There were no textbooks, so I developed manuscripts for the two courses I taught. From the onset, my students, friends, and colleagues asked difficult questions related to the environment and ongoing developments. Hours were invested in researching available literature, talking to multiple interdisciplinary specialists both locally and abroad (Forest Institute researchers, university colleagues, bank officials, venture capitalists, consultants, and government officials). Many field trips were taken in Land Rovers and helicopter flights over Pahang Tenggara (southeast of Pahang state in Peninsular Malaysia). Orang Asli families were also interviewed in the forests of Pahang. Virtually everyone was "hungry" for knowledge and ideas to address emerging environmental issues. In retrospect, no one really understood the full impact of ongoing activities on environmental systems, but everybody was hoping for the best.

I taught and consulted at Institut Technology MARA (ITM) for 1 year and was invited to join the newly established Southeast Pahang Development Authority (Lembaga Kemajuan Pahang Tenggara or DARA) as a Developmental Ecologist. The federal government agency was formed under the Southeast Pahang Development Authority Act 1972 and was put in charge of all developments in southeast Pahang, spanning four districts (Rompin, Pekan, Bera and Maran) with an area of 1,002,197 hectares. After completing my Peace Corps assignment, I continued working with DARA via the Asian Development Bank.

Observations

All societies have scenarios for human development. Social constructs and "regulatory" frameworks vary from country to country. As noted, the constructs for safeguarding the environment concurrent to development emerge over time and are usually formulated in response to perceived needs. During the implementation of the Second Malaysia Plan, the country did not have a ministry for the environment, and there was an absence of environmental laws, regulations, and standards related to soil erosion, protection of aquatic and riparian areas, air quality and effluent emission. The main yardstick for measuring developmental success was acres of forest converted to productive land and the jobs it created. In the massive land conversion and economic developmental process, no one meant to do harm to the ecological systems or people, the Orang Asli in particular, but environmental harm nevertheless was committed. This is the story of human development in all developed and developing countries.

From the onset of implementing the First and Second Malaysia Plans, the Orang Asli were caught up in the industrialisation of Malaysia. The Orang Asli Act was established in 1950 and while it was a work in progress, the initial idea was to provide safe and stable reservations for displaced natives to reside in, and presumably

benefit them through the national development programme that uprooted them in the first place. Basic infrastructure like housing, health services and schooling were provided at the reservations.

In 1972, the Orang Asli represented only 2–3% of the total population in Malaysia (about 11.5 million). Little science-based information was available on the population's diversity, languages, and lifestyle attributes. They were a small population group with no money, status or influence. They practiced shifting cultivation and many family units were diffusly scattered throughout the Malaysian Forests. The government could not sacrifice the economic needs of the nation for a handful of people, so it provided a reservation system for displaced Orang Asli and hoped for the best.

Land conversion and related development then proceeded at a rapid pace, often encroaching on native land. With the rapid population growth of other races (indigeneous Malay, Chinese, Indian), the Orang Asli could not thrive and would end up becoming fewer as a percentage of the whole. The hope was that and with any success of the Orang Asli transitioning into adjacent cash economies, they would all but disappear as an underserved, undeveloped people.

In Pahang Tenggara, however small and diffusely scattered the Orang Asli populations were, they primarily occupied the gently rolling lowland forests. Shifting cultivation in small units was evident in certain areas, while individual home structures near rivers could be observed from the air. For the most part, the Orang Asli were land security dependent — being hunter-gatherers, and fishermen, with incidental agricultural subsistence in their lifestyle. Depending on cash economies and being wage security dependent were exceptions to the rule. The Orang Asli "earned" their living from the forests and river systems they live in. Protecting their designated land and associated river systems and integrating the Orang Asli into cash and wage security economies engulfing them was the challenge.

One interesting thing is that while visiting an Orang Asli reservation, some of my Malay colleagues did not want to have their pictures taken next to an Orang Asli. I am not sure why this was so. Perhaps they did not want to be mistakenly identified as "one of them". The Orang Asli bathed and fished in rivers and their tributaries. Often, I would come across the Orang Asli washing their clothes and bathing in rivers near forest clearings or plantations (Figs. 2 and 3).

While it may not be a scientific survey, through multiple interviews conducted with Orang Asli families, it was learned that their average lifespan was less than 50 years, and child mortality was high. Some small huts built for them by the government had holes burnt through the floors because someone had started a fire for heating or cooking.

At a reservation in Tasik Chini, Pahang, there were no permanent gardens seen in or around the Orang Asli huts. A nurse practitioner noted that many of the resident Orang Asli that came to stay in the reservation often returned to the jungle after a while (Figs. 4, 5 and 6).

Ecological realities that affected all Malaysians, the Orang Asli in particular, included concern over the pace of development and its negative environmental effects. Newspapers in the nation's capital of Kuala Lumpur often featured

Fig. 2 Local residents washing clothes at a river in Pahang, Malaysia (1974)

Fig. 3 A local washing and bathing in a river in Pahang, Malaysia (1974)

Fig. 4 Orang Asli children in Tasik Chini, Pahang, Malaysia (1974)

Fig. 5 An Orang Asli family outside their hut at a reservation in Pahang, Malaysia (1974)

numerous articles about small particles from mining activities, fish deaths in rivers, "smelly" waterways poisoned by palm oil mill effluent and wildlife conflicts in newly established plantations. I remember being very impressed with the quality of reporting and that the newspapers had truthfully reported on emerging issues.

Fig. 6 An Orang Asli family waiting for their meal to cook in Pahang, Malaysia (1974)

Lack of Sequential Clearing for Towns

When my wife (Sheila K (Holcomb) Abee) and I arrived back in Malaysia to work in ITM, we were provided a new house in Shah Alam (Fig. 7). While it was a beautiful house, the environmental setting was tragically and unnecessarily hostile — the landscape was baking under the hot sun! Concurrently, multiple monsoons eroded all but the subsoil away thus not only creating a hostile living environment but also choking river systems and estuaries with erosion sediment. Basically, more land was cleared for town development in a year, but the structures and facilities could not be built fast enough, leaving denuded soils exposed to the elements for years.

Due to the massive forest conversion programme, the market for timber became depressed. Huge trees of unknown species were cut down and left behind. Out of the 2,000 stems per hectare of standing biomass in lowland forest systems, less than 25 trees were removed for utilisation. The rest were bulldozed and burned on site, making way for palm oil plantations (Fig. 8).

The soil in Pahang is mostly infertile, being useful mainly for root support and water movement. Basically, available nutrients for forest growth were "juggled" aboveground by the standing biomass. Nutrients were recycled above the soil profile. Thus, with the forest liquidation process, the majority of the nutrient biomass was immediately lost, leading to the need for large amounts of fertiliser being used per oil palm tree to establish and maintain plantation growth.

Fig. 7 New homes for ITM lecturers in Shah Alam, Malaysia (1973)

Fig. 8 Cleared land for oil palm plantation in Pahang, Malaysia (1974)

Flooding and Landform Stability

Pahang river systems are very mature, snaking slowly with oxbows through the landscape. Deforestation occurred in large blocks across landscapes with no provision to avoid or protect tributaries and wet areas that flooded biannually with each monsoon. Consequentially, tributaries became choked with erosion sediments and new channels were often formed 100 m from the original, stable channel (Fig. 9). Related aquatic resources were diminished. In areas that flooded twice per year and were planted with oil palm, chemicals like fertilizer, herbicides and pesticides would wash into streams, thus negatively affecting water quality and related aquatic life.

In the 1970s, there was no technology available to treat palm oil mill effluents. The mill effluents were directly discharged into river systems (Fig. 10). In certain places, local residents would construct small dykes along the effluent canals to capture the waste and extract any leftover palm oil (Fig. 11). Numerous complaints were noted from local residents about fish deaths and foul water in the rivers they used for food subsistence and to bathe or wash their clothes in.

Tasik Chini and Tasik Bera were the only two fresh water lakes in Peninsular Malaysia that were recognised as United Nations Education, Scientific and Cultural Organisation (UNESCO) research sites. Both areas contain Orang Asli reservations. Aside from small units of historic shifting cultivation, in 1974, the water catchment areas and lakes there were largely pristine (Fig. 12). There was very little inventory information about wildlife and biodiversity in the surrounding areas, which were about to be deforested for development.

Fig. 9 New oil palm plantation in Pahang, Malaysia (1974)

Fig. 10 An effluent discharge canal at a palm oil mill in Pahang, Malaysia (1974)

Fig. 11 Palm oil effluents captured in an effluent discharge canal in Pahang, Malaysia (1974)

Fig. 12 A 1974 picture of a landscape in Tasik Chini, Pahang, which is a UNESCO research site

Role and Contributions of DARA

Mohd Saufi Abdullah was the director of DARA when I was working there in 1974. The agency was then responsible for providing oversight in implementing the Second Malaysia Plan in Pahang Tenggara. Basically, thousands of hectares of lowland forest were converted to palm oil and rubber plantations, and 27 new townships had been planned or were under some level of construction to house the workforce. Saufi was the pointman for everything, including resolving complaints from the people. He had a phenomenal team that I was privileged to be a member of. Saufi and his staff coordinated with the Asian Development Bank, the Federal Land Development Authority (Felda), the Malaysian Agricultural and Research Development Institute (Mardi), and many other organisations to ensure that development could proceed smoothly in the vast area under DARA's jurisdiction. He and his staff were active listeners and knew how to influence people for a good outcomes. He believed in the old adage that an ounce of prevention is worth a pound of cure.

A healthy river fishery, good water quality for drinking and bathing, landform stability, effluent control and forest conservation were key to helping ensure a less painful transition for the Orang Asli into stable reservations. In general, DARA was concerned about the environmental hygiene of all Pahang citizens. Under Saufi's leadership, the staff developed the following vision.

DARA encouraged the development of Malaysia's first-ever microbial treatment system to break down and render palm oil effluent less harmful to the environment.

Fig. 13 Enlarged palm oil effluent holding tank in Pahang, Malaysia (1974)

The size of the mill discharge holding tanks were enlarged, enabling more utilization of palm oil and less discharge into rivers (Fig. 13). Additionally, discharge effluent was designed to flow through a series of large anaerobic and facultative ponds. Through these holding ponds and related mocrobial activity, the biochemical oxygen demand (BOD) was significantly reduced to 500 ppm — still considerably high by today's standards — but that level was the best that technology could allow at that time, and it was very much lower than the raw effluent (Fig. 14).

Land clearing for the development of new towns was done sequentially. If a new town was not scheduled or if the infrastructure was not timely built up, the land would not be cleared. The goal was to coordinate the pace of clearing with development, and not the other way round, thus reducing offsite effects caused by erosion of bare ground. DARA also encouraged leaving strips of trees, green belts for parks within the townships developed (Fig. 15). These treeded areas would cool and filter the air around the communities. It was also hoped that such would create employment in urban forestry.

When developing human settlements, DARA recommended that buffer zones of mature forest — three to five times the height of mature trees of about 100–170 m — be left undisturbed on each side of perennial tributaries. This was to help ensure landform stability and protect related aquatic systems (Figs. 16 and 17).

DARA recommended that areas with biannual floods during the monsoon be left alone with their native vegetation. This ensured the stability of the land and prevented pesticides and fertiliser run-offs from entering rivers.

Fig. 14 Anaerobic and facultative ponds to break down palm oil effluent in Pahang, Malaysia (1975)

Fig. 15 New sites for a township with green belts developed by DARA in Pahang, Malaysia (1975)

Fig. 16 Forested buffer zone around riparian areas in Pahang, Malaysia (1975)

Fig. 17 Forested buffer zone left adjacent to a perennial stream in a development site in Pahang, Malaysia (1975)

Fig. 18 The condition of the Tasik Chini watershed catchment area in Pahang, Malaysia, after the land was cleared in 1976

In Tasik Chini, DARA recommended that the catchment area draining into the lake be left undisturbed and, in any event, that native forest areas should be no less than five times the height of mature forests. Unfortunately, in 1976, perhaps an unintended consequence of rapid development, an oversight occurred when the forest was cut down right to the edge of Tasik Chini itself — the UNESCO research site and Orang Asli reservation. This was a sad thing (Figs. 18 and 19). DARA also documented the existing baseline air quality at various locations.

DARA recommended that innovative efforts be undertaken to integrate the Orang Asli into the national development programme, specifically to employ and train them to do forest work (harvesting of minor forest products, timber, forest stand development work, reforestation, etc). DARA envisioned such work would occur in both virgin, undisturbed stands, as well as in protective green belts, as defined above.

Fast forward to 2000, I returned to Malaysia and presented a paper at the International Union of Forest Research Organisations (IUFRO) World Congress. Subsequently, I returned to Pahang Tenggara and went to see the Tasik Chini catchment area that had been cleared to the water's edge in 1976. As I stood there 24 years later under the canopy of mature oil palm trees, I reflected on the status of the lake's watershed and the whole of Pahang Tenggara in general. I thought of the history of man and his efforts to "sustainably develop" his life through time. While much had changed in Tasik Chini, with visible effects (eutrophication rate, reduced diversity, reduced size and function of the Orang Asli reserve), I was amazed at the resiliency of the watershed in light of rapid developments in the area. The productivity

Fig. 19 Tasik Chini water edge in Pahang, Malaysia (1976)

of the oil palm plantations and jobs they created had impressively contributed to the nation's economy.

I also wondered how the Orang Asli fared during those last 24 years. Were they also resilient and did they assimilate into the new reality? Of course, shifting of cultivation openings in mature forests had occurred in the past, but these quickly reverted to their original diverse forests. Now, a sea of intensively managed mono crops dominated the landscape, where the Orang Asli had once roamed and made their subsistence living.

Currently, there is no such "living" anymore in the new "forested" plantations of palm oil and rubber trees. I asked myself, what could "we" have done differently to better protect the river systems and riparian areas of Pahang in general, and the watershed of Tasik Chini in particular? In the final analysis, does it matter? Yes, I still think it does!

Conclusion

King Solomon once said there is nothing new under the sun: what has been will be and what will be has been. What continues to change over time is not the drive to sustainably meet human needs to ensure respective definitions of well-being, but the way we characterise our needs, wants and desires. It is the way we approach our work — sustainable development. However else defined, sustainable development is an enduring ability to create jobs in rural communities; the availability of commodities to support life functions and aspirations; and a healthy and productive environment, providing a host of essential features (clean air, clean water, fisheries,

landform stability, etc.), and which is home to and inclusive of our heritagr of plant and animal species. It is vital to ensure that our home and heritage of plants and animal species will survive throughout generations to come. Of course, there are multiple ideas of what sustainable development means, what it looks like on the ground, and how it should be achieved. We see that in the emerging conversations today about climate change and how to maintain viable populations of threatened and endangered species.

The day after I visited Tasik Chini in 2000, I was invited to visit DARA's office. Old friends, not forgotten, were there — Tuan Haji Samsudin Othman, Tuan Haji Mohd Zin Abd Karim, Tuan Haji Ab Ghani Mustaffa, Tuan Haji Mohd and Tuan Yunus Haji Hussain. The conversation flowed easily and was heartfelt. Just before we parted ways, director Othman asked what I thought about sustainable development in Malaysia. Being so far removed, I told him that I did not know how to answer the question, but I suggested this: If people in the new towns, along rivers or in the forest could still catch fish, wash their clothes, bathe and safely drink the water supply, then I think Malaysia has done well. If not, a problem well defined is just half solved.

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