

The climate is changing. Low carbon development is an approach to reducing carbon dioxide emission and mitigating global warming. Human activities in cities produced 78% of global carbon emission. This is because most cities rely heavily on fossil fuel-based energy.

Low carbon development refers to ways of shaping economic growth so that greenhouse gas emissions can be kept to levels that can be absorbed by nature. Low carbon development involves a push towards simpler lifestyles that rely on environmentally friendly technologies.

Hello, my name is Isiaka Adeyemi Abdul-Azeez, and I'm a research scholar with the MIT-UTM Malaysia Sustainable Cities Program. In this video, I will discuss why and how low carbon development is proceeding in the second largest city in Malaysia, Johor Bahru.

The city is in the Iskandar Malaysia region, which has announced a goal of reducing carbon emission by 58% by year 2025. I will reflect on some of the city's achievements and the challenges it faces in meeting that target. Johor Bahru is one of the five local authorities in Iskandar Malaysia region. It is an important flagship for low carbon development in the region. The city is a regional transport manufacturing hub and a main shopping destination for tourists from Indonesia and Singapore. At present, it very disorganized and much messier than its glitzy neighbor Singapore. In an effort to compete with Singapore, the Malaysian government announced a commitment to sustainable urban development.

Its goal was to attract foreign investment in Johor Bahru's industrial, commercial, and real estate activities. Economic investment usually means more construction of buildings, more manufacturing and industrial development, more retail and shopping activities, more concentration of human activities, and more energy consumption for transport and electricity. Under normal circumstances, all these would increased carbon emission. However, the government is trying to promote economic growth while reducing the carbon intensity.

How can this be done? And how is low carbon development being practiced in Johor Bahru? Two key organizations are leading the low carbon initiative in Johor Bahru. The first is the Office of Low Carbon Society, at the University of Technology in Malaysia, also called UTM. Professor Ho Chin Siong, the head of the Low Carbon Society office at UTM explains some of their practices he has been trying to encourage in Johor Bahru.

We use the concept of [INAUDIBLE], where they have already some form of [INAUDIBLE], or [INAUDIBLE], and then other thing is the climate change policy. How can be integrate them together in such a way that urban planning can decarbonize?

That plan basically guided us how to be low carbon. And then, from there, we prepared another plan called the Road Map, that is the [? implementation ?] of the plan. And then at the moment, we are now going into more detail, working with the local authorities, with the mayors, with the engineers.

The second organization concerned with promoting low carbon development initiatives in Johor Bahru is the Iskandar Regional Development Authority, also known as IRDA. Together with UTM, IRDA, is helping local authorities prepare actions plans for reducing carbon intensity. Mr. Boyd Joeman explains what IRDA is doing along these lines.

The process of getting to that point is very important. So municipal, critical. And that's why we are working with the five local authorities to prepare their own low carbon action plan at the municipal level. Through that process, we can then say we have done one step further from regional to municipal. They can then look at it from the point of view of how they developed their respective areas.

So we bring them to Japan and let them see a bigger picture-- how it is being done in a developed country. And then they bring back, and then the disseminate and share the information. So through that process, IRDA can play a big role in terms of making sure that everyone is connected, as it were.

Regarding what has been achieved thus far in Johor Bahru, Professor Ho has this to say.

The first thing, I think, awareness. Awareness of the [INAUDIBLE]. Low carbon strategy is not a new term anymore in this Iskandar area or in [INAUDIBLE] area. People are talking about low carbon society. And people believe that, actually, low carbon society will improve the quality of life.

Another achievement is the creation of environmentally friendly rural communities. One of these villages, [INAUDIBLE], has been supported by the government as a model for low carbon lifestyle. The village has implemented a series of action plans in various sectors, such as agricultural and waste disposal, that demonstrates how a community can live more sustainably. [INAUDIBLE] project was adopted by the residents of [INAUDIBLE] and shows how the population can benefit socially, environmentally, and economically through various low carbon development efforts.

Among the key obstacles to promoting low carbon development is changing the mindset of those who have not embraced the need to reduce carbon intensity. Professor Ho offers some suggestions regarding ways of changing local thinking.

The [INAUDIBLE] approach is actually focusing on co-benefits. I think it's too early stage for the [INAUDIBLE] country, when they tell them, OK, let's go for low carbon. Let's save the planet. Let's cut down CO₂, it may not make sense to many of them. But if you tell them that there is a co-benefit-- for instance, by going low carbon, you can save money. By having low carbon you have a co-benefit of better air quality, better health, better quality of life. By having even going green, or low carbon, you can do composting, or you can do recycling, and then by doing that activities, you can generate certain extra income for the family. Those are co-benefit, I believe strongly, that help us to promote it.

Measuring and monitoring carbon emissions from electricity and the transport sector is carried out for IRDA by UTM and Japanese researchers, as Mr. Boyd Joeman explains.

Through the Low Carbon Society blueprint, which was prepared by UTM in Japan, [INAUDIBLE] University and [INAUDIBLE] University and the NIS. Through that, they did the homework, i.e., what are the existing emissions or the output of electricity, for example, or transport.

So from then on, we have a base figure, 2005. At this point, it's being monitored through the project, i.e. by UTM in Japan. But eventually, IRDA needs to sit down and monitor it ourselves.

One cannot manage what one cannot measure, and monitoring is only possible once there is agreement on what to measure. Emissions from transport and electricity production must be measured and monitored.

MOSFET is an emissions measuring tool that is being used to assess carbon dioxide emission from transport and electricity. The tool measures fossil fuel-based energy use by category, type, and sector. It inventories electricity use in kilowatt hours and liters of fuels. These are automatically converted into carbon dioxide equivalents. The emission reduction goal can be achieved using MOSFET to monitor the carbon reduction from transport and electricity in Johor Bahru.

The Malaysian economy is growing at almost 2% per year, so reducing carbon intensity will not be easy. The way forward is to create support for the world we want to live in. Reducing carbon intensity and promoting low carbon development in Johor Bahru and elsewhere would require a change in the mindset of many people.

It will also be necessary to agree on what to measure and how to monitor changes in carbon intensity in each sector. More low carbon model villages should be created to show how low carbon development can meet the needs of the population. Other experiments and prototype living arrangements will be necessary to convince people that change is possible.

Shifting to clean energy will undoubtedly be important. Along these lines, Johor Bahru will probably need to implement financial incentives to encourage investment in renewable energy, along with multiple changes in consumer behavior. City planners will need to explain what less energy intensive patterns of development might look like.