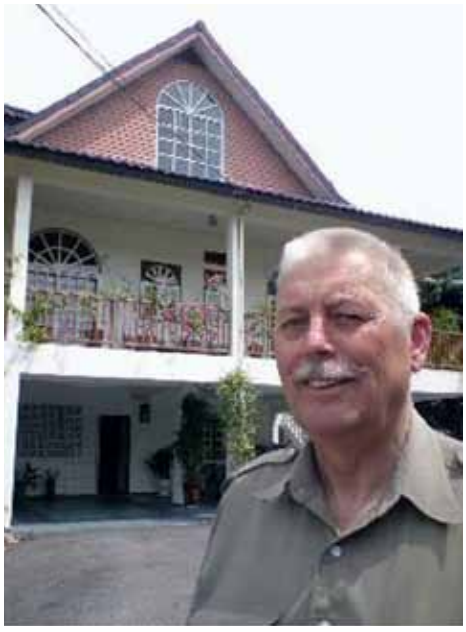
How the Tropics Can Help Overcome World Food Deficit

Mohd Peter Davis, an agriculture specialist in Malaysia, gave this interview to Limari Navarette-Bedford, of LPAC-TV, as part of the series on "Biospheric Engineering: Planetary Defense of Humanity," posted April 24 at www.larouchepac.com. Davis, who recently resigned as a visiting scientist at the University of PutraMalaysia, has had a long career in animal husbandry and agronomy, beginning in England, then Australia, and in recent years, in Malaysia, where he has specialized in high-productivity agriculture systems.

In her introcution, Navarette-Bedford noted that the tropical countries of the world, which comprise 40% of the world's population, provide unique challenges in food production, but also, great advantages.



Courtesy Mohd Peter Davis

Mohd Peter Davis

LPAC: On this show, we've discussed a lot of the solutions that can be applied to dealing with the challenges that humanity faces, and I know that you and your associates have done some remarkable work on some of these ideas, that can be applied to the tropical regions of the world, to make these nations food self-sufficient. So what I want to start out asking you about, is the work you've done in deep tropical agriculture, and how this is going to make regions of the world self-sufficient, which are currently struggling.

Davis: When I came to Malaysia about 20-odd years ago, I started to do sheep production. Not out of choice, really, but it was because they had imported 3,000 sheep from Australia, and I came a couple weeks after that, and we found that they were dying at the rate of 10% per month. So, after one year, there would be none left.

So, since I'd worked with sheep and sheep research with a government research organization, CSIRO [Commonwealth Scientific and Industrial Research Organization] in Australia, I put my opinions forward. I said, look, you have to isolate these sheep from the environment. The environment is just too harsh for them to live. And so we did this, and this led to a long line of research over about seven years, where we basically overcame all the problems. We housed the sheep. We put them into raised wooden sheds. We fed them byproduct, waste product. And we got to the point where we could produce lambs for the dinner table in four months. So it was a highly productive system.

Meanwhile, my close colleague, who was an entrepreneur—he had started off at the same university, but he'd gone out to venture into animal production, and we used to meet quite often at conferences and that, where he'd be exhibiting what he was doing, and we were presenting academic papers. He said to me, "You scientists are crazy. With what you're proposing, you'll send every farmer broke."

And I said, "Well, what are you going to do about it?" That's when we became friends and collaborated, and what he said was, "Your sheep shed is 10 times too expensive; there's a much more basic one."

Then he said, "You're feeding them all byproducts," and he said, "The natural food of animals, sheep, goats, cattle, is grass." I said, "The grass is no good here." He said, "My grass is all right—yours is no good." He

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The breed of sheep chosen for the Deep Tropical Agriculture system in Malaysia: the Australian White Head Dorper crossed with Merino. The Dorper breed naturally sheds wool, so there's no need to shear.

always had this big fight with the academics, and they wouldn't talk with him, because he was upsetting them all the time. He just spoke his mind. He said, "You're crazy. You'll never get any production."

The Deep Tropical System

So, he developed this system. I came around to his way of thinking, and he developed really the Deep Tropical Agriculture system.

Now, what it is, basically, is that he is able to grow grass on a plantation scale. Now, Malaysia is a plantation country, one of the biggest producers of rubber and palm oil in the world. So we're used to thinking big-scale, in tree production. He applied the same thinking to grass. He started off with the small lots, and developed it into about 200 acre lots of grass. This was a special grass. He had been all around the regions. He travelled a lot, picking up ideas, but particularly for the developing countries. He used to go to Africa a lot, he said, because they've got some very good farming ideas. And then, in Southeast Asia.

He discovered really that the small Thai farmers were using this particular grass from Africa, and he liked it a lot, because he noticed that, unlike most grass, there was no fungus on it. And it is fungus that really kills the productivity of grasses.

So, he brought some seeds over to Malaysia, and they grew remarkably well. And he got it right the first time. He, sort of through instinct and intuition, picked the right species. It was perfect for Malaysia. No diseases, no pests, no animal predators or anything like this. And the grass got very dense.

Now this grass, because it's in the tropics—originally came from the tropical areas of West Africa—grows about three feet in one month. Or, it grows, really, one inch per day. And when he cuts this grass, and then feeds it to animals, sheep, cattle, or cows, they grow particularly well, because grass is their natural food. They're much happier—the animals; they put on more weight. They're more content all 'round.

We realized, by perfecting this system, this was the solution for animal production in tropical regions, particularly the humid tropics where Malaysia is. We're in a situation in Malaysia, whereby we've got the highest rate of biomass production in the world, because of the rain forests, that region. Compared with temperate, European-style countries, and parts of North America. We've got ten times the amount of production of grass growth, and yet we're completely unable to grow animals. We import 95% of our milk, we import about 90% of our cattle, we import all of our sheep, a long list. Our whole animal production, for all intents and purposes, is almost zero.

So, this was the big contradiction. When we look back into the history a bit, this had been going on for 500 years. Malaysia, and all this region, was colonized for about 450 years, by different European groups—the last ones in Malaysia were the Brits. But we've been making the same mistakes over and over again: that we imported temperate animals from the colonial countries, and we tried to do grazing in the humid tropics and the animals basically died. Just like our Australian sheep died.

Too Many Species

Then we realized we found a solution to grazing: Don't do any grazing. It's too hard. We've got too many species. We've got all the 50 million species on Earth, in Malaysia. Everything can survive here, but nothing can go to bigger populations. But the idea of agriculture is to increase the species—be it corn or wheat or animals—in our favor. And we can't do that. We can get away with it in more temperate countries, because the

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This animal production unit can house 100 sheep.

competition, really, from other species is far less.

So, as soon as we do this, we have our own choice of feed—we discovered a cute way of doing it, in plantations. And then, we put our animals in completely protected barns. These are protected from all predators. We have virtually disease-free barns, which are climate-controlled, extremely well-ventilated, kept absolutely cool and well ventilated. No smells. We pay particular attention to the feces; with cows, it's to scrape off every two hours, and with the ventilation right, there are no flies, no smells at all. And with the sheep, even these years, we just put the sheep on a metal flooring—all the feces just drop down. Clean it out every day, before flies reproduce. All the dung it goes back onto the plantation. It provides about half of the fertilization required, so it saves you a lot of money.

With that situation, we've overcome really all of the barriers to animal production in the humid tropics, and then throughout the tropics.

So, we regard it as a big breakthrough, because we can do this throughout the tropical region. Now, tropical regions—look at the map of the world. The big bulk of biomass is there in the tropics. It's all of Africa, the Middle East, India, all of Southeast Asia—a very vast thing.

This is why we call it Deep Tropical Agriculture—deep tropics really meaning rain forest country, but we have sufficient sunlight, and rainfall in the other areas.

Now, the key thing is, of course, getting a lot of these areas that are dry—we must get a supply of either rain water, or in extreme cases, like in deserts, nuclear-desalinated water will do the trick.

From the Top Down

LPAC: Now, going back to the idea you brought up about this special kind of grass that was imported from Thailand into Malaysia: In Malaysia, as you describe it, there is a great abundance of food; there is a great abundance of species, and of diversity of species. And that is very productive in itself. But at the same time, it poses certain challenges in which, as you said, there's a certain force in the biosphere that's competing with the livestock. It's coming in, it's consuming the food source for the livestock, before the livestock is able to make use of it.

I reviewed, from Vernadsky's *Biosphere*, this discussion of there being a friction, or a force, within the biosphere, that maybe is not perceptible, but it's very active. He says: "Although this movement is continually taking place around us, we hardly notice it, grasping only the general result that nature offers us: the beauty and diversity of form, color and movement. We view the fields and forests with their flora and fauna, and the lakes, seas, and soil, with their abundance of life, as though the movement did not exist. We see the static result of the dynamic equilibrium of these movements, but only rarely can we observe them directly."

So, I just wanted to bring that up, to give our audience the sense that, what you're looking at is not just a solution from the standpoint of—we're dealing with one problem, we're going to find something to directly address it. Instead, let's look at the entire process of the biosphere itself, and actually address, from the top down, the entire process, rather than just bring in more cattle, or get more land, in order to deal with the food problem.

So I wanted to hear your thoughts on that.

Davis: I think I understand where Vernadsky is coming from. It seems that the biosphere is static, fairly static, you know, the appearance of it, just looking at it. Its appearance when you wake up in the morning, it's much the same, and all the rest. But, underneath all of that is a fantastic reproductive rate of all species. Each species has an enormous reproductive rate, and I've

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This climate-controlled shed for highly productive, temperate-breed cattle and cows, can be located near human housing.

often wondered, why do we need so much? Why don't we get one frog—why do we need 10,000, a million of them?

Every species is doing that, massively overproducing.

So this really is what man has exploited, in the whole history of agriculture, certainly from the time of settled agriculture, say, 10,000 years ago, when the Egyptians stopped running the seas in big ships—and during the Ice Ages they were doing that, in two or three Ice Ages they were going through that—planting, taking seeds, when they had planted them in the Summer, and then coming back for them, for the next Summer. That was the origin, I think, of agriculture.

But after the end of the last Ice Age, they went into settled agriculture in Egypt, and that's what really enabled 10 million people to grow now to 7 billion, the development of agriculture. So, we were exploiting, I think—what Vernadsky is saying—there's tremendous movement that's occurring in the biosphere.

Now, all species are doing exactly the same as what we select when we grow wheat in the field, or corn, or mass produce animals. Every species does that. We just give them the opportunity, but with 60 million species on Earth, some say 100 million species, there's an intense competition. So all looks static, but underneath it all, is this thing that we can really exploit. And I think we've only just come to the beginning of it, really, not the end of it. Agriculture is what we need—we're always going to need agriculture for feeding people. I think we might be centuries and centuries away from mass producing, or chemically producing, food in a factory. I don't think we're going to be doing that for a long time.

And I don't think there's any need to, because we can get more and more efficient. We've been practicing grazing systems for 10,000 years in the world. That's getting pretty weary now, because it's not enough to support a growing population. Now, we're going to a higher form of production, but I think it's only just one step up. There's many more steps after that, and an infinite number of steps as we go on, to get the full potential of this reproductive potential, reproductive ability, of each species.

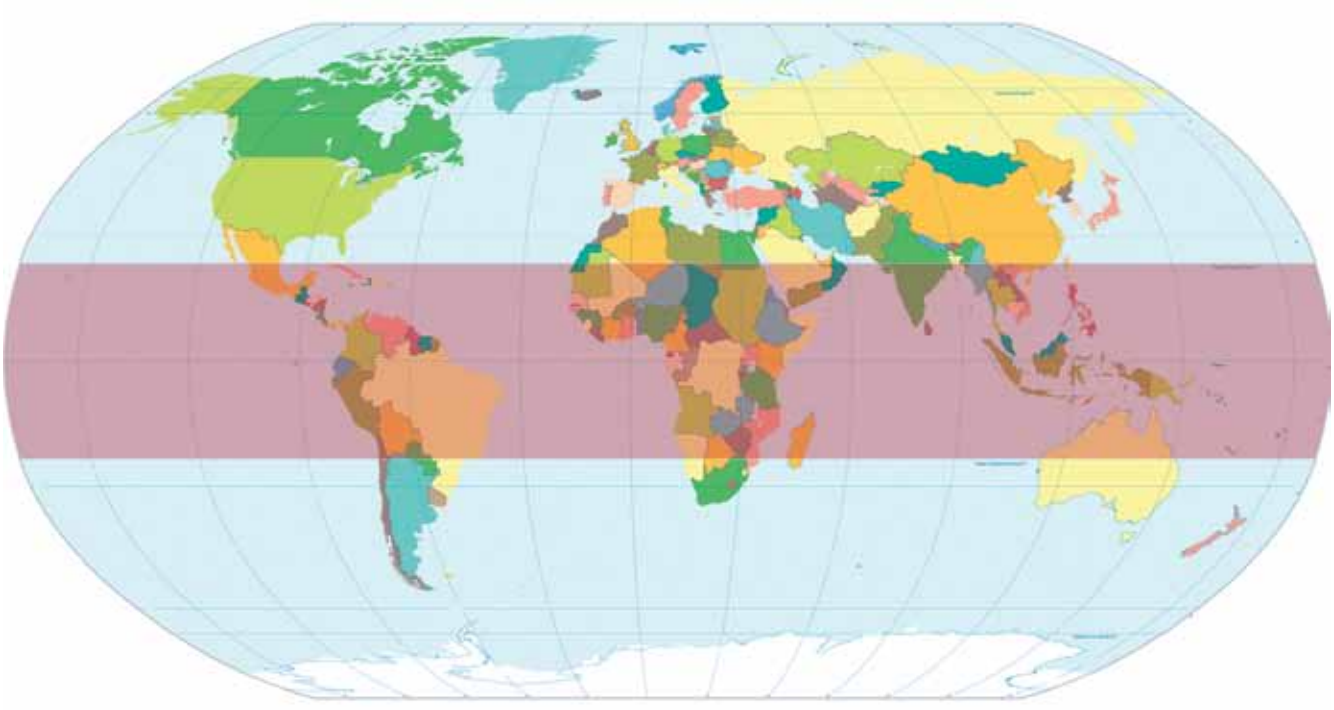
Now, figurewise, what we need to do in the 21st Century, if we had our way—the population will increase to 11 billion by the end of the 21st Century. We're already short of food. Most people just don't get enough animal protein and milk at all. So, we need to increase animal production, milk production, by fourfold. We can easily do that even from the tropics, I think. I'm looking into how much land that we would need, with the present productivity; and then we've got other parts of the world where aspects of the tropical model, we might be able to use.

We seem to be a long way from the Egyptians 10,000 years ago, but as far as the biosphere is concerned, we're not very far.

NAWAPA XXI

LPAC: One of the last things I wanted to ask, was about the NAWAPA XXI report [http://larouchepac.com/nawapaxxi], that we just released from LaRouchePAC. In the United States, we're not in a tropi-

FIGURE 1
The Tropical Zone



In the humid parts of the Tropical Zone shown here—including Malaysia, and the Brazilian and African rainforests—there is rapid, dense biomass growth potential.

cal region—we're in what you would call the temperate zone of the globe. And you can say, we're not as productive; there's not the kind of rapidity with which things grow in a climate like Malaysia, for instance. But you see, with NAWAPA, the process of taking the waters that are abundant in the North, in Canada and Alaska, and bringing them down through the continent, where you have a great imbalance in agriculture, in terms of our ability to produce food, based on extreme dry climates in the Great American Desert. And we can address that directly.

But, it's fascinating to also think of, as you describe in Malaysia, you have, for instance, trees that grow at a really, really rapid rate—more rapid than in other parts of the world—and those can be exported to desert regions are well. So, I think it's really fascinating to begin to think of, not just our continent, where we're starting to address some of the imbalances that occur, but to think about the entire globe. And because mankind is able to take the whole process into his mind, as one process—even within a single thought—then we're able to address these particular imbalances or shortages from the standpoint of the whole globe, and not just the standpoint of the borders of your country.

Davis: Well, I think that the NAWAPA project is obviously the key, the key type of project that needs to be done. Because there's the old saying, "Where there's water, there's life." Where there's no water, there's no life at all. We cannot make up for the lack of water. We can make up for the lack of sunlight. We just put grow-lights in; we put special lights like the horticulturalists use for growing plants, when they've got no Sun, or not the right wavelength. So, that's very easy. Technologically, we can just have grow-lights, big ones. But we can't replace water. We can't do without water.

So, that's the first thing that has to be addressed. And we can't do that without power—basicallly, electricity. Once we've got water and electricity, then we can do more or less everything. All we're talking about is how efficiently we can do it.

In the tropical regions, where we've got maximum sunlight, we've got maximum temperatures for growing plants, and good humidity, we'll have a higher rate.

But in temperate zones, with water and with power, we can get sufficient amounts to feed populations. And of course, North America and Europe are this way. They haven't got ideal weather for growing plants, and yet they're able to feed their populations. But it's done at the expense of vast tracts of land.

I was impressed when I last went back to my home country, England, actually, and I went by train—every square bloody inch of land is farming land—there's nothing else left. And you think, that's how much land you need to feed 50 million people. America is the same. We're beginning to run out of the grazing land, so we've got a system whereby you could do Deep Tropical Agriculture in these countries, and it would greatly reduce the amount of grazing land necessary. You'd still use your good grazing land, but more marginal ones, you'd put this more productive system in.

Exporting Trees

The other part of your question about, can we export? Yeah, sure.

The best thing for Malaysia to export would be trees. Because we proved that, this being a plantation, we can grow trees better than anybody else. The only one that can beat us is say, Brazil, but they're 50 years behind in infrastructure. They get their infrastructure up, and then they can become a mass exporter of trees. And it's quite easy. You can grow them in up to four years, and at four, I call them teenaged trees, and then they can be exported. We say, this is Malaysia, nursery of the world.

And we put this idea forward about six years ago, and one of our collaborators—this is a nurseryman—the last time I saw him, a month or so ago, he said to me, "Everything you were saying was right. We're now exporting to Saudi Arabia. We're exporting Malaysian trees now to Saudi Arabia." And I said, "Why don't they grow their own?" He said, "They can't, it's no good."

So, you can imagine exporting teenagers—they're very robust! So, with the trees there.

So, this will be good. Large, large numbers. Just put them into containers. You have all the health checks done before. They're very concerned that we don't bring any pests that can attack their date palms—I guess that's a major crop.

Other countries: Australia, we see really as the supplier of advanced genetic animals. Australia basically, because it's got such a hopeless environment, totally hopeless—there's hardly any species there. A few kangaroos and things like that, and nothing else, when you go into Australia. I travelled once from Darwin to Brisbane when I first entered Australia, and I hitchhiked all the way—seven days. And apart from the service stations, I didn't see one tree, I didn't see one animal, one bird, or anything. The most God-forsaken country on Earth. I thought it was the Moon.

But Australia is ideal for growing up all sorts of species, disease-free and all that. We get our supply of animals, breeding animals, from Australia. So, you can take advantage of a very bad environment for growing animals in—in deserts—and you'll know it's going to be clean, a clean animal.

All different parts of the world. We should really do a mapping of the world, and say, what can you contribute most to the rest of the world? What's the ideal crop to do? You know, tree, plant, animal—and every country will have some advantage.

LPAC: Wow! That's an exciting prospect. Thank you very much for being with us. We'd like to have you back soon.