

## Manager@Work: Growing the university of the future

Professor Tan Sri Dato' Dzul kifli Abd Razak

Article

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The title of Universiti Sains Malaysia's submission - which runs into more than 100 pages - to the Ministry of Higher Education for consideration as an Apex (Accelerated Programme for Excellence) university is "Transforming Higher Education for a Sustainable Tomorrow". Indeed, its vice-chancellor, Tan Sri Dzul kifli Abdul Razak, strongly believes that there is a need to transform higher education if Malaysian universities are to be sustainable, and to remain relevant to society.

In the following excerpt from his interview with Dorothy Teoh and Aznita Ahmad Pharmsy, he elaborates on the concept of sustainability and the challenge for USM in fulfilling the Apex mandate.

### **M@W : What are your plans for USM in order to achieve the Apex goal of becoming a top-notch university within the next five years?**

Dzul kifli: Although a lot of people talk about Apex being top-notch and things like that, from our perspective, it is almost starting from ground zero. If you look at our plan, we call it transforming higher education for a sustainable tomorrow. It's always at the back of our minds. The university will never make it if higher education does not transform.

You want to talk about the playing field, the sort of playing field you are looking at, and only then can we start focusing on universities. My opinion, being a VC for seven years going on eight, [is that] the platform for higher education isn't properly constructed, meaning to say that it is over-regulated, [and] mechanisms are actually not really in place for universities to perform.

If you're talking about the university as a runner, your track must be done well. If your track is not done well, no matter how good you are, you'll never achieve whatever you want to achieve - gold medal, world class or whatever. So, that's why when we talk about transformation, it is not just the transformation of USM, it is the transformation of higher education, and it goes well with what the Ministry [of Higher Education] is trying to do with its strategic plan, its action plan, that looks at higher education as a total package.

So on the micro level, if you ask me, that is the first thing that we need to do, to get to grips with what higher education is all about, using the strategic plan of the ministry, and then look at what is possible for the university.

### **You say that the platform for higher education is not properly constructed. Does that mean with this Apex selection you will be able to de-construct the platform and re-construct it?**

I want to think in those terms, because one of the things we've been asking the ministry is, can we have our own charter? In other words, we're not going to just tinker with what we have today, but we're going to transform. Transformation means you're going to have to overhaul a larger part of it and if we take the PM's words - he used the words 'education revolution' - it's even more drastic. You really need to revolutionise the whole thing.

So, I don't see how we can be a world-class university - again, I have problems with those words - if we are not prepared to look at higher education as a whole. Five years is a short time. If you really want to rush through these five years, many things have to change. It's not only the universities, it's the ministry itself, central agencies, the whole works, that must support this initiative.

### **So basically, you're asking for autonomy.**

Because the word is such a dirty word in politicians' eyes, particularly when they talk about autonomy, many people have misconstrued it... But, that's what a university is all about. A university is about shaping the future, that's why I like this Apex programme, because it's about the future, not about the past. It's not about how good we were formerly, but how can we shape the future.

And for that to happen, we need to have flexibility; flexibility to think, flexibility to implement. And that's what autonomy means to me. Autonomy with a lot of accountability, of course. You're not going to see us going for a state of anarchy, but we would take full responsibility to develop a nation, to develop its people, so that we can be at par with everybody else and work as a team. That is what Apex is to me at the end of the day.

### **But the framework for what Apex is hasn't been set yet, right?**

Yes, that's the first discussion. We are given, after they announced the Apex status, three to four months to configure how we're going to launch this, and my first requirement is that perhaps we need to have a new framework to work towards this change. And that new framework means we need to have a new set of laws, new set of guarantees that we would work through. It's just like when we launched the MSC (Multimedia Super Corridor), there's a kind of Bill of Guarantee on what is workable and what you're supposed to do. Until that is in place, it is difficult to visualise how far we can go.

The moment we launch Apex, we must be very sure what we are able to do and how we're going to do it and there must be full agreement with everybody who is involved in this. To my mind, Apex is not something for USM alone. I look at it as a national agenda, as part of the strategic thing. It so happens that we're the 'scapegoat' or the 'guinea pig', as it were.

### **So in fact, you are the trailblazer. Where USM leads, the expectation is that the other universities will follow.**

Exactly. And if we fail, maknanya (means) the whole nation has failed. Universities will probably be very disappointed that we were given a chance but we didn't make good.

### **And the cost of failure would be very high.**

I wouldn't want to imagine. For us, failure is not an option. The university has been given a task to do and I think we will have to go on with it and everybody must understand that failure is not an option.

### **When you say failure is not an option, are you referring to the specific targets of the top 200 and the top 100?**

That is not even an issue, you know. If you look at some of the neighbouring countries, they want to be top 100, they want to be top 50, they want to be top 10. To quote a southern neighbour, they are prepared to pay [to attract] top-notch scientists. It is almost like a football club kind of transaction. I need a scorer, I bring in the scorer and I pay. I'll give you the space, I'll give you the remuneration that you need, I'll give you all the support - you perform. Most governments do that. So, top 50, top 100, is not even a challenge in that sense. Give me the money, I will do it for you.

### **So that is the by-product of getting the process right.**

Exactly, but the question here is, basically, how do Malaysians do it. For example, some of the people who... perform may not be their citizens anyway because these are people they brought in. Just like the football team, the top scorers may be...

### **... African or European.**

Yeah, maybe an imported player, but the challenge for us would be how to groom Malaysians to be that scorer. How do you groom Malaysians to be the key players in tech or biotech or... whatever field or endeavour you choose? That would be the challenge. You have to have a very detailed plan of what needs to be done.

### **You talk about detailed plans; at the micro level this would be curriculum and quality of faculty, research facilities...**

Yes. The detailed plan that we had worked out when we presented this to the ministry. If you want to compete now, given the change that is happening outside - I give you a very simple analogy. If you look at the history of higher education, MIT (Massachusetts Institute of Technology) was set up in the 1800s... for the purpose of trying to grapple with the emerging Industrial Revolution. So, there is a sense of purpose why MIT was set up. That's why if you look at MIT, it's very good with the process of industrialisation. It works very closely with companies, science and technology and all those things. Because it is purpose-built to handle those kind of issues that were emerging at that particular time.

Now, if you ask me to please become MIT, my question is, for what purpose? The whole question of purpose for universities in Malaysia in that particular regard is not really well-defined. So, do I become MIT because now you want me to work with industry like MIT does? If that's the case, you must understand that MIT has got maybe, what, 150 years' lead time to work with industry. What kind of lead time do you give me? Fifty years? Five years? Can I become MIT when they took 150 years to be what it is now? Those are issues that need to be understood. So, in our case, when we say Apex university in this particular programme, we ask the same question. What is the purpose of USM, or any university for that matter, in the 21st century? What would be the emerging issues? What would be the issues of relevance as far as the universities and society are concerned?

That's why we came to the notion that sustainability is an issue. A hundred and fifty years ago you can produce a car that pollutes, nobody cares. But nowadays, if you talk about science and technology, the question of pollution, CO2 emissions, global warming, climate change, the whole world is now being factored in. So you cannot talk about science and technology as though it was 150 years ago. Other factors come into play. That's why the whole issue of sustainability becomes important for us. That is why we chose this idea of "Transforming Higher Education for a Sustainable Tomorrow".

### **When you talk about sustainability, are you linking it more to, well, the environment? How do you link that to human capital and the country's competitiveness?**

When we talk about sustainability, the whole concept of sustainability itself is a very huge concept. It's a concept that does not bind itself to the environment and ecology alone, although that is something that you see. It is beyond human beings, it is not even human capital. It's about human beings, the quality of life of a human being. And human capital is probably just part of it.

Therefore, we have looked at sustainability and say, 'Look, if you really want to compete on the world stage now, what is it that other people have not done that we need to do?' If you were to talk about technology per se, we'd probably be hard-pressed for time to compete with people. We do not have a very good technology platform, meaning to say that we've been doing research all along using this so-called applied research focus, whereas when you talk about platform technology, you're basically talking about basic research. It's almost like the chassis of a car. If you produce a good chassis, then you can build whatever car on top of it. At the end of the day, it's the chassis that would determine what car you're going to build.

In our case, when we look at basic science, we do not have very strong basic science. Our science has always been focused on applied, applying somebody else's basic. So if you're not good at basic science, what is it that we need to look at? So we say 'Look, when you talk about sustainability, one of the bigger issues is basically how do you promote quality of life of the four billion people who are now languishing at the bottom of the economic pyramid living on US\$3 (RM11) a day?' You have about 6.5 billion people around the world but four billion, two-thirds, are really not well-catered for in terms of health, education... name it, I think you'll probably be right.

The question we ask ourselves is, if now I want to work on a science project, say health, what sort of project will I choose? Would I go for a drug that has good margins and perhaps caters for one or two million people? Viagra is a good drug for erectile dysfunction... But when it comes to brass tacks, nobody has actually died of erectile dysfunction. So, why do we want to invest the limited resources and energy we've got to produce another competitor, Tongkat Ali B8, while there are millions of people dying of very simple diseases like diarrhoea, typhoid, dysentery and cholera? The technology is there. Why can't you use this existing technology in such a way that it benefits the millions, billions, of people who are now being deprived of this technology? I give you an example, perhaps typhoid. It's a very common disease in Third World countries, touches many lives. But diagnosing typhoid would probably take three to four days. And to do it, you need to have this refrigeration system to take wherever you want to go. And although we have this refrigeration system, when you go to the remotest areas, there's no electricity. So, what do we do? What we have done is taken this particular technology, innovate it and now we can diagnose typhoid within 15 minutes [without needing] this refrigeration. So, you can take a kit that's small, go to the remotest part of the world, do your diagnosis there. You will get results in 15 minutes and you can already institute the treatment there and then. You will probably save lives.

### **This is something that USM has come up with?**

We have done [it] and commercialised it already. It has been commercialised in 12 countries around the world... And this is where we use the Blue Ocean Strategy - we are not competing head-on. We are competing in the areas you think you're not relevant and we want to make that our niche and our strength. In the pipeline there are at least 10 of those diagnostic kits, most of them (for) tropical diseases. I cannot give you the right figure but in the last, at least more than a decade, out of the 11,000 new drugs that have been invented, I think less than 10 have something to do with tropical diseases. And we are living in the tropics, why are we not concerned about this?

So, sustainability to us is the main base now. We need to invert the pyramid and say, look, when we talk about sustainability, the four billion matters to us.

### **So this entire idea of sustainability in the (Apex) presentation, was that your edge over the other universities?**

I believe so. In the sense that because it is new, in the sense that most of the established universities are not into it, they probably have their own forte, like MIT would probably want to work on what they're good at. For us, this will be the purpose for a new university in the 21st century. So anything to do with sustainability would be something we're interested in.

When I took over the university in 2001, the question that I asked myself and the whole university was 'What is it that we can do better?' Do we do the same thing all over again or is there something new we can do... And the whole question of sustainability comes up very, very quickly in a different form.

On that score, we have launched a programme called 'Kampus Sejahtera', meaning to say I'm now empowering the students and the staff to look at the university as if it's their own and tell us how they can make it better.

Under that programme, we give them five things. One is that they must volunteer to work and solve the problem. If you don't like the drains because they clog, you try and solve the problem. We also understand that this is a learning institution and therefore... if you want to solve that particular problem, you need to research it. In other words, they must be data-driven, there must be some research platform. You [must] be objective. You probably have no resources, so we say why don't you 'in-source' rather than outsource? There are many experts in USM, use them, they will advise you. In other words, you build a team of people who work on a project. And at the end of the day, my requirement would be to document it... and you submit that information to the university with a solution. If the university likes it, the university will adopt it as a policy decision and we will reimburse all the money they have incurred. So that opens up, thankfully, a whole new spectrum of how people interact within the university. There are now 20 monographs on projects ranging from transport to food, plants and worms. You cannot imagine the wealth of ideas that students have got. Talking about tapping their talent and creativity, this is one successful way of doing it.

And that is why the whole concept of 'university in the garden' comes in... When you leave the university, you must make sure you leave a better university than the one you found when you came in, not like a hotel. And then they say, okay, let's work on a garden concept because the garden is something that you tend to, you make sure it's properly trimmed, fertilised, it grows and stuff like that. So, we came up with the tagline of the 'university in the garden'. That tagline is now no longer just an aesthetic tagline, it's not just about how beautiful it is, it has got other subliminal concepts attached to it. And to talk about garden, essentially, we're talking about diversity, variety of plants, flowers, trees.

Higher education must be about diversity of ideas, supremacy of ideas, it must be about people of different cultures and different beliefs, different principles, interacting with one another. So that alone has given us a very good set of ideas of what higher education is all about. Right now, higher education in Malaysia is like a plantation or a factory.

That's one, and the second thing is, a garden always conjectures an atmosphere of peace, harmony. So we're talking about how you harmonise knowledge with one another. You are in arts and I'm in science. Do we need to fight all the time because we are of different disciplines? So we came up with the idea of how to get people to work together across disciplines. Because from the little experiments that we do, if we put people from different disciplines together to work on a project, the solutions that come out are much richer.

**These trans-disciplinary projects that students have done seem to give the impression or convey the idea that you're already starting to build a foundation to move towards Apex status. The buy-in is there already.**

Yes. I mean that's the lucky bit, that we started this work in 2001. We've been forecasting that this is where we want to go.

**So do you foresee any challenges in trying to align and mobilise the entire university population, from faculty to students?**

In a sense, I'm lucky. If you go down to the [USM] booths [at the Bio Malaysia 2008 exhibition] now, everybody would be talking about sustainability... There's one booth which you should visit, Dr Shamsu Mohamad's. What he does is he invents colour pigments from natural sources. He does not believe in artificial ink because ultimately, it will poison the Earth. He's now creating colours from natural resources and his group has managed to recycle a whole banana plant. The project is called 'USM - Going Bananas' because they noticed that each time they go to the village, after harvesting the banana fruit, the whole plant will go to waste (because bananas only fruit once). So they ask themselves how do they recycle this? And down there you will see a project by Dr Noor Aziah Abdul Aziz- she has managed to convert a whole banana fruit, the peel, into flour and that flour can be changed into noodles, bread, crackers.

So what we've done is basically transfer that technology to a few villages and now, when they harvest the banana plants, they will also take these things and change it into flour at the same time. What we do with the trunk, the biomass, they've now converted the biomass into paper. And the paper is 40 times stronger than the ordinary paper you use and it's natural. It's biodegradable.

**So this particular focus would continue anyway, with or without Apex status?**

Yes, because it's so enriching for us, you know, it changes a lot of things within the university and there's a lot more focus [than] people doing research for publication, which is important but has no ultimate goal.

**USM has a long tradition of collaboration with industry - was that before your time even?**

Yes. If you read some of what I wrote in the press, it goes back to the first vice-chancellor, [Tan Sri] Hamzah Sendut. I was a student [at USM then] and he was instrumental in putting in this new innovative idea. The late [Tan Sri] Noordin Sopiee, he came to the university in 1998, I remember, and... he said that whatever is casual in USM is innovative in other universities. And I think this is because of Hamzah. Hamzah thought very differently. Even the curriculum, we all had to do our minor outside our own discipline. What we're doing now is basically broadening that. When you talk about trans-disciplinary and all that stuff, I think that foundation was laid 40 years ago.

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