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Multimedia super corridor means fibre optics future

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MALAYSIA was recently visited by one of the world's top fibre optics scientists. Professor Mustafa Abushagur of the University of Alabama in Huntsville, the United States, came on a personal study tour after having listened to our Prime Minister's speech in Los Angeles several months ago on Malaysia's venture into Information Technology through the establishment of the Multimedia Super Corridor.

He had also had the opportunity to meet various members of the Prime Minister's delegation. Through discussions with them, he found himself "very impressed by their seriousness and commitment to making the MSC a reality".

He believes Datuk Seri Dr Mahathir has a clear vision of where Malaysia is heading. In his view, Malaysia has the credibility to follow through on the MSC, taking a huge leap toward achieving Wawasan 2020 which, according to Abushagur, is in itself a highly respectable aim.

His visit to Malaysia has fuelled his belief in our country.

Abushagur revealed a great many astounding facts about fibre optics. A fibre optics network is the backbone of the MSC project. According to Abushagur, it will replace the good old copper wire.

"When speaking of communication, we are talking about a very hungry bandwidth that can only be provided by fibre optics. Copper cables would cause bottlenecks. Through fibre optics, massive amounts of information can be processed and shifted at considerable speed, as though there is no time lapse. This is what technical people call "real-time".

Abushagur is approachable and unaffected. He believes anyone can acquire knowledge with sincere effort and patience, faith in oneself, and faith in the Almighty.

He attributes his character to a very pleasant upbringing in Libya. His father was a religious man and, though lacking in formal education, he recognised its importance. His father's emphasis on integrity, honesty and hard work propelled Abushagur through Tripoli University with the highest grade. Leaving Libya in 1975, he obtained a Ph.D at the California Institute of Technology.

He taught at the University of Rochester, then set up the Optoelectronic Engineering programme at the University of Alabama in Huntsville - a city which is a major high technology centre. NASA is in Huntsville, as is the US Army missile command.

Abushagur's fields of interest are optical computing, optoelectronics (the integration of optic fibres and electronics) and fibre communication.

Fibre optics is his forte and his love. He has written over 70 technical papers, numerous books, and chapters in books on his field, and has actively participated in countless conferences.

"Since 1976," he says, "the use of fibre optics has skyrocketed to the extent that it can stretch from the Earth to the Moon 28 times over!"

But its potential has hardly been tapped. The real stumbling block is getting the fibre to desks and homes; this currently entails much labour and high cost.

The advantages of fibre optics are numerous, its drawbacks none. For example, it can carry thousands of television channels and at the same time allow for the internet, teleconferencing, telecommunication and hundreds of other possibilities. Lifestyles will change as people have more time to spare for social interaction without affecting productivity

and efficiency. They will spend very little time moving from one place to another in order to accomplish work of any kind. In fact, people will be able to accomplish more in less time.

Abushagur has contributed much to the fibre industry. His inventions have made possible the use of lasers to measure fibre optic properties while they are being made. This is used by all manufacturers, including Corning, the biggest fibre optics maker in the world.

Remember the explosion of the space shuttle Challenger in 1986? It was discovered the cause was a gas leak because of a faulty "O" ring. Abushagur remedied that in 1992, using fibre optics in the "O" ring to continuously monitor quality, and give warning in case of a fault.

Fibre optics can be used as "smart structures" on bridges to monitor the condition of the structure; In aircraft, it is the "smart skin" used on the hull, checking the structure for weakness. It far outperforms all other materials in existence, including ultrasonic ones.

In medicine, we don't need to use the needle to count red cells in blood. A strand of fibre optics, so much thinner, can, at a touch of the skin and without causing any pain, measure blood sugar levels in blood, pH, temperature, and so forth.

Abushagur shares his excitement with Malaysia about the future of the MSC. He believes Malaysia will be among the forerunners in Multimedia Information Technology. He emphasises that education is the key to pushing the nation ahead.

To this end, Malaysia is doing the right thing in establishing "smart schools", multimedia universities, and so on.

The MSC should develop its own technology, not simply copy wholesale under license from others. Abushagur has expressed his willingness to share his knowledge; he feels he can do so by helping develop certain devices to increase the capacity of fibre optics which could be manufactured in Malaysia for the world.

Before he concluded, he reiterated the importance of the role of the younger generation. He has very high regard for the youth of Malaysia, and emphasises the paramount importance of a good education.

The next generation must also be equipped with the right spiritual knowledge to shield them from evil influences.

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