

SPEECHES

JULY 8TH, 2015

At the United Nations in New York

UNITED NATIONS ACADEMIC IMPACT AND
AMRITA UNIVERSITY PRESENT

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

UNAI-START

Conference Series

Skills & Technology
Accelerating Rapid
Transformation



AMRITA
VISHVA VIDYAPEETHAM
UNIVERSITY
Established: 1983 (of UGC Act 1956)

On 8 July at United Nations Headquarters, the United Nations Academic Impact Initiative (UNAI) and Amrita University co-hosted a one-day conference on "Technology for Sustainable Development". Over 700 people joined in person as well as many others following online. The event is the first in a series of discussions entitled START, Skills and Technology Accelerating Rapid Transformation.



TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

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INTRODUCTION TO KEYNOTE ADDRESS BY RAMU DAMODARAN

Ramu Damodaran

Chief, United Nations Academic Impact

I jotted down eight of the points that the Administrator [of the United Nations Development Program, Helen Clark] referred to in our Looking Forward to 2030, the process we are trying to start today—poverty, discrimination against women, sanitation, waste water management, water resources, infectious diseases, biodiversity and social cohesion—and I was trying to reflect upon what the academic community can do upon this, and suddenly it occurred to me that on every one of these there has been a contribution by Mata Amritanandamayi, the [Mata Amritanandamayi] Math and Amrita University.

Poverty—Under Amma’s leadership more than 100,000 children [from] poor households across India have received scholarships so that they can get education to become working adults.

Discrimination Against Women— [Amma] has 6,000 Self Help Groups of women across India, and another v1,000 in the Andaman Islands, where women work with women to be able to create opportunities in what are referred to as the cottage industries and the small-scale sector.

Sanitation—Under Amma’s leadership women are being taught plumbing, masonry, wiring, so they can construct the toilets that they have been denied by the history and by the heritage, and [they are also taught] the rules and basic principles of hygiene, so that the problem of lack of sanitation can be resolved through personal commitment and endeavor.

Waste water Management—The Amrita Institute of Nanotechnology is working on a remarkable program where they create what they call “microbial fuel cells,” using bacteria in waste water as a source for energy, while at the same time cleansing the water and making it potable and fit to drink.

Water Conservation—Another program called “In Deed With Nature,” where people are taught through courses on how they can conserve water and, again, access it when they need it, so that they conserve it at a time when they have a surplus. Again, Amrita University

Infectious Diseases—You have again the Institute of Nanotechnology at Amrita University that has set up laboratories working on every aspect of disease control. And the fact that you have to have two considerables in this: 1) good quality and 2) affordability. And that is the secret of treating diseases, infectious and otherwise. But, in particular, a laboratory has been set up specifically for infectious diseases at the university.

Bio-Diversity—Amrita University is located in the Western Ghats of India, one of the 18 biospheres declared in the world. And since it began 13 years ago, it has planted 100,000 trees on the barren landscape of where the campus began. It has used technological innovations native to that part of India, using coconut husks at the bottom of pits so that they can retain moisture and fertilize the trees that have been planted there. That is Amrita’s contribution to Bio-Diversity.

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And, finally, the very telling point that the Administrator [Helen Clark] made about Social Cohesion. And this goes back to Amma's program of Embracing the World and the philosophy that at the heart of social cohesion, at the heart of the global peace we seek, must be the warmth, the compassion, the understanding of person to person. And if that begins, if you embrace another individual, you embrace the world. That we owe to you, Amma and to your leadership.

I am now honored to ask the Chancellor of Amrita University, Mata Amritanandamayi to speak.



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RECONCILING ANCIENT SPIRITUAL WISDOM AND MODERN TECHNOLOGY FOR SOCIETAL TRANSFORMATION

Keynote Address By Sri Mata Amritanandamayi *Chancellor, Amrita University*



I offer my humble salutations to all the dignitaries gathered here today. I would also like to take this opportunity to express my heartfelt gratitude to the United Nations Academic Impact for organizing this event, and to the principles of unity that the United Nations represents.

Some of you may wonder, "Does a spiritual person like Amma have a place here?" It is my faith in the validity of spiritual knowledge that has brought me here in front of you today. I often reflect deeply on the future of the Earth, the preservation of nature, and the disappearing harmony between humanity and nature. This contemplation has led me to the conviction that science, technology, and spirituality must unite in order

to ensure a sustainable and balanced existence of our world. The present age and the world around us demand this transformation.

Day by day, science and technology are rapidly growing in an uncontrollable manner. Nobody knows where this growth is leading. When we look around, we see developers, producers, distributors and consumers all seem to be caught in a frenzy to acquire the latest, greatest and largest things. The current state of humanity is like that of a child let loose in a candy store.

Today, while lying in our bed we can order anything to eat, drink, watch or listen to, and it will be delivered right to our home. We don't need to go to a store anymore to buy new or used things. There are websites for anything and everything. The internet is revolutionizing the world, which is good. Now, we can buy anything with a single click of our finger - except one thing - Love.

We all have air-conditioned houses, cars and offices. But, many people cannot fall asleep in their air-conditioned rooms, and must depend on sleeping pills. Some even commit suicide in their air-conditioned mansions.

What does this mean? We cannot find peace of mind through external comforts alone. For this, we need to air-condition the mind. Spirituality helps to achieve this.

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We live in the age of the Internet. Wherever we go on the planet, we need to have Internet. But, along with a connection to the Internet, we also need to rediscover our 'Inner-net' connection. Spirituality teaches us how to manage both our internal and external worlds. For one who knows how to swim, frolicking in the ocean waves is a delightful experience, but one who is unable to swim will quickly drown.

What is happening to society? Caught up in the speed of life, mankind has forgotten basic human values; we belittle their significance. We attempt to justify all the violence and unrighteousness we commit, from the individual level to the international level. We then thrust our rationalization of these actions on the rest of society.

There have been problems in the world from the beginning of time. For ages, society has suffered from war, conflict, discrimination based on caste, creed and social position, as well as disharmony in the family. But, our ancestors had a different outlook on life. They had an inherent awareness of three factors - humans, nature, and the invisible power that harmoniously unites them.

Their vision of life did not only take into account the physical existence of individuals and nature. They believed in a power that forms the foundation of nature and every living being; an invisible power that connects all beings with nature. They recognized this power as the most important part of life. They also believed that all of nature and each and every living being in the universe are like beads of variable forms and sizes, strung on a single thread of creation. This is why they gave so much importance to sharing, caring, consideration and empathy. Today, we have labeled this mentality as 'primitive,' rejecting their way of living.

Looking at modern life, we see a society of plenty steeped in misery. Excessive greed has blinded mankind, and the incidence of inhumane actions is on the rise, as a result. Mental agitation and stress have caused new and hitherto unknown kinds of diseases.

Humanity is at a crossroads. At present, mankind lives solely depending on science and technology. However, in light of our current situation, we should at least try to incorporate spiritual thinking, as well.

Recently, we have witnessed so many natural calamities and alarming changes in the global climate, including rapidly increasing global warming. We need to ponder deeply on whether human effort alone will be enough to put a halt to the imminent worldwide catastrophe.

In the olden days, because people lived in tune with nature, they would look for an auspicious day before planting or cutting down a tree. Before cutting a tree, people would first worship it, and then apologize, saying, "Please forgive me for the action I am about to perform. It is only out of necessity that I am cutting you down." But, what happens today? Not only do we rarely plant trees, we relentlessly destroy them and all of nature.

When Amma was a child, people would apply cow dung to their wounds. This would help them heal faster and prevent infection. But, if we were to do the same today, our wound would instantly become infected. What used to be medicinal in the past has now turned poisonous. This is how polluted nature has become.

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Just as we celebrate Mother's Day, Father's Day, Valentine's Day and Thanksgiving with a lot of fanfare, we should have a day to respect and worship Mother Nature. On that day, everyone in the world should try to plant at least one tree. This could even be on New Year's Day, so we start the year on an auspicious note. If we do so, this planet will become a paradise. A tree is like a house that we construct for Mother Earth.

There is a rhythm to everything in creation, an undeniable relationship between the entire universe and every living creature in it. The universe is like a vast interconnected network. Suppose there is a net. If it is shaken in one place, the vibration is felt throughout. Similarly, whether we are aware of it or not, all of our actions reverberate throughout creation—whether performed as an individual or as a group. We are not individual islands but links of a common chain.

Harmony exists when man, nature, and the power beyond both of them function as one. However, now we only give importance to human beings and their discoveries. Our lives today have no place for values. The general belief is that values are irrelevant and superfluous.

In order for any engine to function smoothly, it needs oil. The "oil" that helps us live without much friction is our values. These values are developed through spiritual thinking.

There are two types of education: education for a living and education for life. When we study in college, striving to become a doctor, lawyer, or engineer, this is education for a living. On the other hand, education for life requires an understanding of the essential principles of spirituality. The real goal of education is not to create people who can understand

only the language of machines. The main purpose of education should be to impart a culture of the heart – a culture based on enduring values.

Spirituality is also a science -- it is a valid branch of knowledge that cannot be ignored. The scientific community is researching the physical world in an attempt to discover the secrets of the universe. In reality, spiritual scriptures recount the experiences of those who performed intense inner inquiry in order to unfold the same secrets. When we try to view spirituality through mathematics, physics and logic alone, we may fail to grasp its subtleties. We need to approach it with the faith of a child, and with the wonder that shines in a child's mind and eyes. Renowned scientists of the past viewed the universe and its subtleties with awe and wonderment. Their research had the inquisitiveness and faith of an innocent child. In fact, many past and present eminent scientists acknowledged spirituality towards the end of their lives. But, by then it was too late. Amma prays that the scientific community leading the world today does not make this same mistake.

Life is a perfect combination of logic and mystery -- perhaps more mysterious than logical. In all areas of life, the head and heart should go together. For example, when white sand and sugar are mixed together, it is very difficult to separate the two, even for an intelligent human being. However, the seemingly insignificant ant -- representing humility -- will come and easily manage to eat only the sugar.

Amma was born in a small fishing village, where 90% of the people lived off daily wages. Many people in the village had valvular heart disease. Even though they were diagnosed with blocks in their cardiac valve, they could not undergo surgery as the valves were only available from abroad

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and were very costly. So, people who should have lived until age seventy or eighty died by the time they were thirty or forty. Amma would think, "If only we could find a way to make valves that were not so expensive." This is how Amma became interested in doing research for the sake of serving the poor.

Infant mortality is a major issue in many countries. To investigate the causes of this trend, we visited many villages in India. In some villages, we saw that women were eating mainly herbs and shrubs. When asked why this was the case, she explained, "Our husbands earn daily wages and they only find work every 3-4 days. Due to our lack of income, we get very little food and we end up giving this to our husbands. In order to suppress our hunger, we eat these specific herbs and shrubs." They subsist on the same diet even while they are pregnant. How will the children born of such malnourished women survive?

Some women in other villages said, "Many of our husbands spend all their income on alcohol and bad habits. They come home drunk and abuse us. Even though we have enough food at home, we just cannot

find the will to eat." In some villages, women have no education and are illiterate, so their husbands easily exploit them by forging their signatures even for what little government aid they could have received. This is why we started literacy programs for women. We also decided to give these women vocational training using haptic devices.

The current gap between the haves and the have-nots is the bane of the entire world, and this disparity is increasing daily. A mountain on one side and an abyss on the other—such is the current situation. On one hand, there are those who live, squandering millions upon millions on luxuries. On the other hand, there are those who struggle in hunger and pain to make enough for just one meal—to make enough for just one day's medicine. If we postpone reducing this gap any longer, it will culminate in violence, even widespread riots. A bridge of love and compassion joining these two groups is desperately needed.

Poverty is a terrible plight upon humanity, destroying all goodness and talent. It is the cause of all moral degradation.



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Once, when Amma was giving a program abroad, a group of homeless children who more or less lived underground in the city's subway lines came for darshan. They had drawn pictures for Amma. Most of the pictures were violent scenes of bombs, missiles and battleships. One child drew a picture of Jesus Christ and Mother Mary, but they had guns in their hands. When Amma asked the child why he had drawn Jesus Christ with a gun, he said, "When he's hungry, won't he need to eat? If he has a gun, he can pull it out and mug someone." Amma asked, "Son, is the only way to get money by pulling a gun on someone?"

The boy replied, "That's what my dad does."

"Can't your father work to earn money?" Amma asked.

The boy replied, "My dad is healthy enough to work. He went for many interviews, too, but no one would ever hire him. No one will hire people like us. That's why my dad uses a gun. That's how he is supporting us."

The personal experiences and situations witnessed by children make deep impressions in their minds. Poverty and the sense of inferiority it creates often manifest as violent tendencies, even at a very young age. This is how the values in society erode. Love and compassion are especially needed in such situations.

Many people are cynical about spirituality. What is spirituality? True spirituality is compassion in action - it begins and culminates in compassion. If we could transform compassion from a mere word into a path of action, we would be able to solve 90% of the world's humanitarian problems.

The first step to helping others is imparting awareness. In spite of taking regular medication, if a diabetic continues to eat sweet food, their blood sugar level will increase. So, diet control and lifestyle modification are as important as medication. Amma remembers an incident that happened in one of the villages that we adopted (as part of our Amrita Serve or Live-inLabs Project). Initially, we taught a core group of people in each village about toilet building, and we left the actual building to them. When we revisited these villages after a while, we noticed that people were not using the toilets. They would open the door of their new restroom, look inside as though they were visiting a temple, then they would close the door and go to the nearby lake to relieve themselves, as usual. At this point, we began educating the villagers, explaining that open defecation leads to water and soil pollution, which further contaminates our food and leads to all kind of parasitic infections, such as hookworm, etc. This helped in creating the much needed awareness in the community.

When we try to love or serve without understanding those whom we are serving, we often end up harming society and ourselves. In order for service to be beneficial, it needs to go hand and hand with discernment. This is the essence of sustainable development.

A fish was splashing about in the river. A monkey that had come to quench his thirst noticed the fish. He thought, "That poor fish is suffering, trapped by the current. I must save it!" In his impulsive sympathy, the monkey rushed over to catch the fish, and placed it on the riverbank. The fish started gasping for air and died soon after.

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What if the monkey had tried to understand the fish before removing it from the water? What if he had asked, "May I take you out of the water?" The fish would have replied, "Oh, no! If you do that, I'll die!" Acting without understanding is akin to the monkey's attempt to save the fish. The heart and intellect must come together in all of our actions.

Once, a man brought a 10-year-old boy to Amma. He wanted Amma to raise the boy in the ashram and told her the story of how he became an orphan. His father had died two years before, so his mother and sister went to work in a candle factory near their home. Then his mother was diagnosed with chronic kidney disease and was unable to work as she was bedridden. Even though his sister was paid very little, it was just enough to make ends meet.

After a while, laws were established that banned child labor. The owner of the candle factory was arrested, and his company was shut down. All the children working there were let go. Distraught at the loss of their only source of income, the mother sent her son to school in the morning and then she poisoned her daughter and herself.

It is justifiable to shut down such factories, but we often forget the families of the young children who depend on these factories in order to live. In our attempt to resolve a problem, if we only see one aspect and fail to see the other, the repercussions are experienced by people who have no other recourse.

People ask, "What is the significance of spirituality?" Spirituality helps us to develop the discernment to differentiate between what is essential and what is excessive. For example, we need a watch to tell time.

Both a \$100 and a \$50,000 watch will do that. If we buy the hundred-dollar watch and use the remaining money to help the poor, it would be a great service to society. Though we may see a thousand suns reflected in a thousand pots of water, there is really only one sun. Likewise, the consciousness within all of us is one and the same. With such an attitude, we will be able to cultivate a mind that considers others before ourselves. Just as our right hand rushes to comfort our left hand if it is in pain, may we love and serve others as we would our self.

There are two types of poverty in the world. The first type is due to the lack of food, clothing and shelter. The second type is the poverty of love and compassion. We need to tackle the second type of poverty first. For, if we have love and compassion, we will wholeheartedly serve and help those who lack food, clothing and shelter.

In a village there was a beautiful statue of a mahatma with outstretched arms. On a plaque beneath the statue, these words were inscribed, "Come into my arms." Over the years, the arms broke off. The villagers loved the statue and were very upset. They gathered together to try to decide what to do. Some suggested that the statue should be taken down. Others objected, saying that new arms should be made. But, finally, an old man stood up and said, "No. Don't worry about making new arms. Leave it without arms." The other villagers responded, "But what about the plaque underneath? It says, 'Come into my arms.'" The old man replied, "No problem. Just below the words 'Come into my arms,' you should add, 'by letting me work through your hands.'" We must become the hands, eyes and ears of God. Our inspiration, strength and courage must come from God. Then, fear, doubt and sin will never stain us.

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The sun does not require candlelight. Similarly, God needs nothing from us. Sooner or later, the body will perish. Therefore, isn't it better for it to wear out from activity than to let it rust away from lack of use? Otherwise what's the difference between people and worms? Worms also eat, sleep, reproduce and eventually die. What more are we doing with our lives?

Children, whether or not God exists might be a source of debate. Whatever be the case, no rational person can ever say that suffering humanity does not exist; we can see suffering with our own eyes. Amma considers service to such people to be worship of God. Amma prays that this self-sacrificing attitude awakens in her children. May the world come to realise through all of you that the waters of love, compassion, selflessness and sacrifice have not dried up in human hearts.

In the village where Amma was born, there was only one faucet for about 1000 families. At most, each person could fill only one pot of water, but that itself would require waiting from morning until night. Sometimes, we wouldn't end up getting any water at all. Because of these experiences, if Amma ever sees water leaking from a tap, she feels like her blood is pouring in place of the water. We may think, "How can we stop wasting water? Who do we turn to for a solution?" Amma lived without even basic amenities and witnessed the suffering of those around her. As a result, whenever she sees another person in pain, she instinctively feels the need to help them. Nature is our mother. While our birth mother may keep us on her lap for a few years, Mother Nature keeps us on her lap for our entire lifetime.

Amma has one wish. All universities should send their students to impoverished rural villages or city slums for at least one or two months

during their education. They would be able to see directly the issues and problems that the poor face. They could then develop solutions and write papers on everything they studied. This would help us to help the poor in the most effective way and, at the same time, awaken compassion in today's youth.

Today, universities and their researchers are ranked mainly based on the amount of funding they receive, the number of papers they publish and their intellectual caliber. Faculty are promoted according to the same criteria, as well. Along with this, we should take into consideration how much we have been able to use their research to serve the lowest and most vulnerable strata of society. This would be like gold becoming fragrant. In our approach to sustainable development, we should not forget that it is by strengthening the people at the base of the pyramid that the entire edifice of society becomes healthy and strong.

Segregating science and spirituality has been the greatest crime against humanity in the past century. These two main branches of knowledge that should have gone hand in hand were divided and practitioners were either labeled as modern scientists or representatives of religious faiths. "Only scientific discoveries apply to logic and intelligence. They are the only truth. Religious faith is blind and misguided." This was the ideology that was popularized. All the recent natural disasters and the alarming changes in the global climate are challenging the further survival of this beautiful earth we live in. Now, many people cannot help thinking that all this may be the result of weighing science and spirituality on opposite sides of a scale and deeming that one is much greater than the other. If we want our actions to bear the desired results, three factors are needed: the proper time, self-effort and God's grace.

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Amma gives the example of a man who has to travel a long distance in order to attend a job interview. He wakes up early in the morning, gets in the car and reaches the airport on time. But after checking in, he hears that the plane's engine is having some mechanical problem or the weather is too bad to fly; so the flight is cancelled. In this case, the man put forth enough effort and he reached the airport at the correct time. But because he didn't have grace, he was unable to attend the interview. Similarly, we need God's grace to make all our actions complete and meaningful. Spiritual practices and compassion are not two, but one. It is our own selfless actions that come back to us as God's grace.

May the tree of our lives be rooted in the soil of love. May good deeds be the leaves, kind words be the flowers, and peace be the fruit. May the world flourish as one family, united in love. May we thus be able to create a world in which peace and contentment prevail. This is Amma's sincere prayer.

Lokah Samastah Sukhino Bhavantu
"May all beings everywhere be peaceful and happy."

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THANK YOU ADDRESS AND LAUNCH OF THE PORTAL BY RAMU DAMODARAN

Ramu Damodaran

Chief, United Nations Academic Impact

Thank you, Amma. Thank you for that—what is now a distinction—what is an “education for life” and what is an “education for living.” And allow me to echo your hope that with the Sustainable Development Goals and all that the United Nations can do, the two can fuse together in harmony so that we will have education for both life and for living.



When Amma spoke about reconciling the heart and intellect, I think, as most of you know, we, at the United Nations are an organization of acronyms. Ambassador Nambiar would recall that the year that he joined the Indian Foreign Service, we had a conference in Delhi of the United Nations conference in Trade & Development, and we had signs all over Delhi saying “UNCTAD”... “UNCTAD”... and people said, “What does UNCTAD stand for? And someone said, “Under No Circumstances Take a Decision.” But we’ve progressed since then, and I think that the one thing that we have achieved in the MDG’s and the Millennium Development Goals is the fact that we have to really not only be aware of a situation, but to take action, and that leads me to the acronym—which I would like to propose to you—which is going to animate START-AMRITA: Awareness Must Result in Taking Action. And we are going to begin that collaborative action today with a portal which Amrita University has designed at the request of the Department of Public Information and the United Nations Academic Impact. I’d like to invite Dr. Venkat Rangan to please join me as we launch this portal, and thank you, Swami Amritaswarupanandaji, for being with us as well.

**“ AMRITA: AWARENESS MUST RESULT
IN TAKING ACTION.”**

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SPEECH BY HELEN CLARK

Helen Clark

UNDP Administrator

It is an honour to join Sri Mata Amritanandamayi, Amrita University, and United Nations Academic Impact in welcoming you to the Skills and Technology Accelerating Rapid Transformation (START) for Sustainable Development programme. Sustainable development is at the very heart of the new global development agenda being negotiated at the United Nations this year.

When the new agenda is launched in September, it will contain Sustainable Development Goals (SDGs). These will supersede the Millennium Development Goals (MDGs) which have guided global development priorities for the last fifteen years.

The new agenda is shaping up to be ambitious and transformational. It will apply to all countries, and span the three strands of sustainable development - the economic, social and environmental. It will address the many interlinked challenges our world is facing.

In the course of 2015 three other major development related agendas are also being advanced.

- The future framework for financing development will be discussed next week in Addis Ababa at the third international conference on this topic.

- The COP21 climate change talks in Paris at the end of this year are expected to reach a new global agreement.
- The new global framework on disaster risk reduction was agreed in Japan in March.

Taken together, these four major processes and outcomes make 2015 a once in a generation year for global development. We need to maintain momentum and global solidarity on building a more peaceful, just and prosperous world.

Without doubt there has been tremendous progress on lifting people out of poverty during the period targeted by the MDGs from 1990 to now. Growth in emerging economies has been driving convergence between what was traditionally regarded as a poor and developing 'south' and a rich and developed 'north' - although clearly huge gaps remain between the poorest and most vulnerable nations and those with high levels of human development.

Between 1990 and 2010, extreme income poverty halved, and the likelihood of a child dying before their fifth birthday was nearly halved. More children in developing countries are enrolled in primary schooling for at least some time, and infant and child mortality rates are well down.

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SPEECH BY HELEN CLARK

Maternal death rates are down too, although not nearly enough, and significant progress has been made on combating HIV, malaria, and tuberculosis.

Yet there is considerable unfinished business from the MDGs, and both new and old challenges are daunting. For example:

- Inequalities are growing in the majority of the world's countries, developed and developing, with very few exceptions. Wealth, opportunity, and ultimately power is increasingly being concentrated in the hands of the few. High levels of inequality limit the political will to address poverty, tearing at the very fabric of our societies.
- Protracted conflict has badly destabilized countries from the Sahel to the Horn of Africa and from the Maghreb to Iraq and Afghanistan. Radical insurgents from Boko Haram to Al Shabaab on the African continent and Al Qaeda and IS in the Middle East are making life unbearable for those on whom they prey. War and conflict bear a huge responsibility for generating the displacement of almost sixty million people from their homes in our world today.
- Then there is the devastating impact of natural disasters where disaster risk reduction either hasn't been undertaken or hasn't been adequate. Climate change, and rapid urbanization are putting more and more people in harm's way. Severe floods, droughts, cyclones, earthquakes, and tsunami still cause immense loss of life, livelihoods, and infrastructure. Nepal has suffered extraordinary damage from earthquakes in April. Vanuatu and Tuvalu in the South Pacific were devastated by Cyclone Pam in March.

- Other shocks also flow from under-development. Guinea, Liberia and Sierra Leone are still trying to stop the deadly outbreak of Ebola. Before the outbreak, the economies of the three countries were among the fastest growing in Africa. They were knocked sideways not by commodity price shocks or global recession, but by the failure of health and other systems to contain the outbreak at the earliest stage.

- Last, let me emphasise that global environmental challenges, including the costs of climate change, are mounting. The impact of climate change threatens all countries, but especially the poorest and the most vulnerable. While low income countries are the least responsible for climate change, they are bearing the greatest costs in terms of lives lost, livelihoods damaged, and housing and other infrastructure destroyed.

These challenges call for bold approaches to building a more just, peaceful, and sustainable world. The alternative is a world characterized by even more turmoil and instability than the one we know today.

In the current set of proposed Sustainable Development Goals (SDGs) before UN Member States, there are goals and targets which relate to economic growth, infrastructure, energy, and strengthening capacities to trade and attract investment. The agenda tackles the MDGs' unfinished business, and the challenges of environmental degradation and rapid urbanisation. It prioritises tackling inequalities - indeed the importance of leaving no one behind is a defining feature of the new agenda.

SPEECH BY HELEN CLARK

As well, and for the first time explicitly, the proposed new global development agenda affirms that development requires peaceful and inclusive societies, justice for all, and effective, accountable, and inclusive institutions at all levels.

So what is it going to take to achieve this ambitious vision? The SDGs will remain mere words on paper unless they can be implemented.

Financing is obviously important, and that will be the subject of the international conference in Addis Ababa next week. But achieving sustainable development is an all-of-society endeavor. Governments cannot achieve such an agenda alone. The participation of citizens and civil society is needed at every step, along with the input of science, research and academia, and the dynamism of the private sector.

From the contribution of architecture, engineering, and environmental and other sciences to sustainable development; to that of the health sectors and sciences to public health; to the humanities as a basis for tolerance and intercultural understanding; and to the legal, accountancy, and public service professionals, everyone's input is needed so that, by 2030, for example:

- extreme poverty could have been completely eradicated;
- all forms of discrimination against women and girls could have been ended;
- modern sanitation facilities could be provided to the one in three people who still don't have them;
- the amount of wastewater being dumped - untreated - into watercourses and coastal areas could be significantly reduced. Currently

around eighty per cent of wastewater worldwide is untreated;

- the water stress which two thirds of the world's population are expected to be facing by 2025 could be alleviated;
- a huge drop in HIV/AIDS infections could be achieved. The SDGs foresee ending the HIV/AIDS epidemic, as well as of tuberculosis, malaria and neglected tropical diseases by 2030;
- biodiversity loss which undermines livelihoods, health, and food and water security could be curbed. This is critically important to the post-2015 development agenda;
- the drivers of conflict and instability could be addressed by strengthening social cohesion, establishing the rule of law and the capacity for peaceful dispute resolution, and making governance more inclusive and effective.

To achieve all this - and much more - all countries will also need to have:

- reduced inequalities, so that women and men, and girls and boys, can be equal partners in the life of their countries, and have equal life chances;
- given youth more voice and opportunities;
- improved jobs and livelihoods;
- built greater resilience to disasters; and
- taken a wide range of actions to combat climate change and its impacts.

These challenges call for big partnerships to tackle them head-on. The communities of endeavor represented here today must be part of these partnerships.

SPEECH BY HELEN CLARK

Some solutions will demand policy, legislative, financial, and/or regulatory changes. Overall, radical adjustments are needed in the way we live, work, produce, consume, generate our energy, transport ourselves, and design our cities.

There have been many calls for a “data revolution” to go hand in hand with the new agenda. Progress needs to be measured. Data for that must be available, be of good quality, and be easily accessed. Capacities to analyse it are needed for good policymaking and for effective monitoring by parliaments, citizens, and media.

Through meetings like this one, global knowledge and insights can be shared and applied to building the better, fairer future the world’s peoples want and deserve.

By harnessing humanity’s knowledge and technologies, and by ensuring access to finance, we can fulfil our destiny of being the first generation able to eradicate extreme poverty, and the last generation able to prevent catastrophic climate change.

The United Nations attaches great importance to the START programme. We look forward to hearing of the outcomes of this meeting. Thank you for joining us in New York today.



TECHNOLOGY FOR **SUSTAINABLE** DEVELOPMENT

UNAI-START
Conference Series

SPEECH BY H.E. MR. KAZA IMNADZE

H.E. Mr. Kaza Imnadze

Permanent Representative of Georgia to the United Nations

It is an honour to be here today to address the first in a series of discussions established by the United Nations Academic Impact entitled Skills and Technology Accelerating Rapid Transformation (START).

The idea of UN was conceived "to save succeeding generations from the scourge of war". But to achieve this ultimate goal we first need to save succeeding generations from the scourge of ignorance. Ignorance is the cause of all evils, be it wars and conflicts, inequality, poverty, or climate change.

What is so special about this series, about UNAI and its partnership with Amrita University, and the new portal that was unveiled this morning, is that it brings academia together to address the most difficult challenge mankind has to face - ignorance. Eradicating ignorance by bringing scientific enlightenment and technology can bridge the existing gaps and help achieve sustainable development for all.

As we celebrate the 70th anniversary of the signing of the Charter of the United Nations, your work today is a model of the ideals embodied in that document. The Charter calls upon all the peoples of the world to reaffirm "the dignity and worth of the human person" and to "promote the economic and social advancement of all peoples."

The Charter's principle of equality became more forcefully articulated three years later when the UN General Assembly adopted the Universal Declaration of Human Rights.

It proclaims in the first sentence of its very first article that "All human beings are born free and equal in dignity and rights." Of course, many of you know these documents and its history, but it is nonetheless important to reaffirm our belief in them, and that brings me back to today's conference. UNAI, Amrita University and other partner academia, your commitment to the employment of technology to benefit all human beings is a bright example of the best ideals of the UN.

Science should be pursued for the benefit of mankind, rather than its destruction by war. This is a fundamental belief of the UN and your conference today helps advance this very ideal, as it imagines the widest possible benefits of science for the greatest range of people.

I am here today not only as a representative of a UN member state, my country Georgia, but also as the Chairperson of the Committee on Information. The COI is the body that reviews and provides guidance on the policies and activities of the UN Department of Public Information, of which United Nations Academic Impact is a part of.

As the UN matures we strive to be not just a body of nations, but an organisation that is guided by the people, for the people, as we work collectively to make our world a better place. In pursuit of this goal, over the last 70 years the UN has increased its commitment to reach out to all sectors of society, and the UNAI is a prime example of this engagement.

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

UNAI-START
Conference Series

SPEECH BY H.E. MR. KAZA IMNADZE

UNAI was founded in 2010 as an initiative of the Secretary General to be the United Nation's outreach to higher education and the academic community. In less than five years UNAI has enrolled more than 1000 universities in more than 130 countries.

Amrita University is one of the members, and when they proposed a conference on science used for the benefit of societal and individual development, UNAI was delighted by the prospect of facilitating this important discussion and doing so here at UN headquarters. The partnership between UNAI and Amrita University is testimony to the power and possibilities of collaboration between the academia and the United Nations.

I'd like to take this opportunity to mention two other UNAI initiatives. On July 24th, 70 students from 42 countries will convene to speak at the General Assembly. These students are winners of the Many Languages One World competition, co-sponsored by ELS Educational Services and UNAI. The competition asked students to write essays about the post 2015 development agenda in an official United Nations language rather than their own. Also, on June 26th, the exact day of the signing of the Charter, UNAI and its partner, the UNHate Foundation, co-hosted an event to announce the winners of the Diversity Contest. The task was for young adults to write proposals to end intolerance. There were ten winning proposals selected and each winning individual or group received 20,000 euros to carry out their proposals.

We look forward to a world that is more multilingual and more tolerant as a result of these two UNAI projects.

I want to conclude by thanking Amrita University and its founder and chancellor Mata Amritanandamayi (Amma). So often the secular or spiritual leaders among us neglect the needs of the most disadvantaged, but Amrita University and the chancellor are truly admirable counterexamples. You have dedicated yourselves to research on amazing technology, and you have devoted that technology to the betterment of the poor, women, and those in greatest need.

I want to quote Amma's words that she said few years ago, that still resonate strongly and is particularly opportune to recall them today at this conference: "We can no longer afford to see these two streams of knowledge [scientific knowledge and spiritual wisdom] as flowing in opposite directions. In truth, they complement one another. If we merge these streams, we will find that we are able to create a mighty river—a river whose waters can remove suffering and spread life to all of humanity."

You represent the best values of equality and dignity for which the UN strives for, and on behalf of my colleagues here at the UN, we are grateful that you all came here today to share with each other, and with us, such inspiring work. We are delighted to have you serve as the opening of our series of conferences on technology or START. (we do love acronyms at the UN, as my good friend and colleague Ramu Damodaran said when opening today's conference).

Indeed it was a good start, and the ideas sounded today will definitely sprout into actions to achieve sustainable development, and help make a reality of what our predecessors articulated as they founded this institution 70 years ago. Thank you.

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

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TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

PRESENTATIONS

- Dr. Shantikumar V. Nair, *Amrita University*
- Dr. Claude Bernard, *Monash University*
- Dr. Seeram Ramakrishna, *National University of Singapore*
- Prof. Rao R. Bhavani, *Amrita University*
- Dr. Ken Salisbury, *Stanford University*
- Dr. Silvia Hostettler, *EPFL University, Switzerland*
- Dr. Maneesha Ramesh, *Amrita University* / Dr. Maarten van Steen, *University of Twente, Amsterdam*
- Dr. Bipin Nair, *Amrita University* / Dr. Tai-Ping Fan, *University of Cambridge*

NANOTECHNOLOGY ENABLED RAPID TRANSFORMATION: HEALTHCARE, ENERGY, WATER

Dr. Shanti Kumar Nair

Dean of Research, Amrita University

Since the early 1990's when the concept of nanoscale and its technological potential was beginning to be realized, the scientific community has come a long way in addressing many of the scientific questions pertaining to how reduction of scale to this size regime can not only create new technologies but can substantially add value to existing technologies as well. Three areas of global significance where the technology has immense potential are healthcare, energy and water. Since 2006 Amrita University has been intensely involved in the translation of this technology to low cost solutions for the benefit of society through many international collaborations with such universities as Monash University, Australia; National University of Singapore (NUS), Singapore; Rice University, USA; Stanford University, USA; EPFL, Switzerland; University of Connecticut, USA and many others. In this presentation, Amrita University with two of our closest international partners, Monash University and NUS, will present on the societal frontiers of nanotechnology. The present talk by Amrita will focus on why we need to tap at the nanoscale, what potential is there to exploit this size scale, what are the challenges we face on the road to societal translation and what potential solutions can be contemplated. Examples of technologies under development by Amrita to illustrate some of the potentials of this technology in the three areas of healthcare, energy and water are presented.



One example is of a nanotech-based and light-based diagnostic tool for low-cost cancer screening of people with particular reference to oral cancer, a major killer in India. A second example is new nanoscale antibiotics and nanomedicines to overcome drug resistance, one of the biggest challenges we face in healthcare today. Third is an example of low-cost electrical storage-integrated solar panels with potential for long life that can reduce the carbon footprint and provide a solution to those who do not have grid access as in remote villages. The final example is that of a woven nano-cloth using conventional textile technology that has the potential for water purification and also for more advanced applications such as implants and other medical devices.

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

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NANOVACCINES: A NOVEL LOW-COST THERAPEUTIC ALTERNATIVE FOR THE TREATMENT OF IMMUNE DISORDERS

Dr. C.A. Claude Bernard

Deputy Director, Monash Immunology and Stem-Cell Laboratories, Monash University

Diseases of immune origin are a mounting public health concern around the world and will continue to be in the foreseeable future. Given the staggering socio-economic burden of such disorders, novel therapeutics approaches are urgently needed, particularly in the form of low cost and accessible drugs. This will result in the reduction of expenditures associated with the care and dependence of chronically sick patients to the community at large. The benefits of nanotechnology to modern medicine are numerous, in that nanoparticles can be employed for effective and low cost vaccination as well as therapeutic agents to deliver large amounts of drugs with anti-inflammatory, anti-cancer and regenerative properties. Over the years, researchers from Monash University, Australia have been collaborating with Amrita University, India and the National University of Singapore, to develop novel and effective nanovaccines aimed at treating patients with immune disorders in order to significantly improve their quality of life. The provision of novel targeted nano-therapeutic options for diseases of immune origin addresses both fundamental and general issues pertaining to the regulation and stimulation of the immune system in order to maintain and/or stimulate good health. Our ability to use nanoparticles as a novel way to treat diseases of immune origin, further illustrates the possibility of using similar strategies to help damaged tissues to regenerate in complex pathological conditions such as trauma, stroke as well as other immune and neurodegenerative diseases.



We believe that our international collaborative effort, will ultimately lead to the development of therapies that not only will eliminate the rogue immune cells that attack various organs in our body, but will also help in the design of cheaper and more accessible vaccines, aimed at eradicating infectious diseases such as Malaria and Hepatitis B. The true immediate need is for the world to become aware of the vastness of this issue. Indeed, the overall health and financial burden of human diseases need to be understood as a means to motivate the UN members and Governments, in helping us address effective solutions.

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

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STRATEGIES TO ERASE THE NANOTECHNOLOGY DIVIDE

Dr. Seeram Ramakrishnan

Director, Centre for Nanofibres and Nanotechnology, National University of Singapore

21st Century is witnessing emergence of nanotechnology as a key enabler of novel solutions to the societal challenges such as clean water, clean energy, eco smart homes, and healthcare. High income families are harnessing the benefits of nanotechnology while it is far from the reach of low income families around the world. This is evolving into nanotechnology divide. Institutions of tertiary learning are championing the nanotechnology progress. Hence there is a need to align them with the Millennium Development Goals of United Nations. This session is aimed at addressing questions such as How to align nanotechnology researchers and businesses in realizing the sustainable development mandate of UN? How to apply nanotechnology advances to the greater good of all and to reduce the nanotechnology divide? How to enable all to be comfortable with nanotechnology innovations? Over the years researchers from the Amrita University, India, Monash University, Australia, and the National University of Singapore have been collaboratively developing novel nanotech solutions for water purification, electricity generation and storage, and vaccines for autoimmune diseases.

With the overarching goal of erasing the nanotechnology divide, inferences are drawn from their experiences. Specific strategies include a) an UN initiated Nanotech IP Exchange for creating a pipeline of useful nanotech solutions, b) design of sustainable products based on life cycle assessment and safety assessment, c) establishment of a global nanotech research fund to benefit all from the nanotech advances, and d) nanotech consortiums with expertise from around the world for effective translation. It is timely for the UN to promote shared mission approach so as to encourage and involve all to support and benefit from the nanotechnology.

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

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Conference Series

TECHNOLOGIES FOR SKILL DEVELOPMENT

Prof. Rao R. Bhavani

Director of AMMACHI Labs, Amrita University

The United Nations has shown there are clear linkages between education, poverty reduction and sustainability. Sustainable development, risk reduction and building resilience are key concepts that have become the center of debate and academic exploration associated with poverty eradication, climate change, sustainable and inclusive economic growth, social equity and disaster management.

When considered carefully, these buzzwords share a common denominator: a lack of education that focuses on sustainable livelihood skills. The enormous challenge that remains is: how can we scale skill development to such diverse and dispersed populations?

While advances in technology, especially robotics and automation, have been begun to make many human-skills obsolete, it is critical to reengage these same technologies towards the development of new skills and the re-adaptation of traditional ones. The goal is not to replace human talents, but to enhance and augment them and allow other struggling populations to earn a decent living under humane conditions.

AMMACHI Labs has dedicated itself to researching a wide range of technology enhanced strategies in the domain of skill development for rural and neo literate/semi literate populations. In collaboration with leading universities, such as Stanford and EPFL (École Polytechnique Fédérale de Lausanne), our research areas include MOOCS for VET, Haptics, Robotics, Computer Human Interaction, Automation, UI/UX design.



Our research goals move away from theoretical premises isolated in a lab; we bring new technologies crafted on human centric design directly to those who would most benefit. Since 2011, AMMACHI Labs has been working in a multi disciplinary domain that brings in talent from social sciences to virtual reality, robotics and haptics and creating adaptive learning technologies and strategies.

We are pleased to share with you a small part of our work, and hope this begins a larger, collaborative conversation.

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

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SIMULATION-BASED TRAINING OF VOCATIONAL SKILLS

Prof. Kenneth Salisbury

Department of Computer Science and Surgery, Stanford University

The technology that permits simulation-based training has been under development for many years. Multi-million dollar flight simulators are used to train pilots to fly increasingly complex planes in increasingly difficult situations. Currently at my lab at Stanford University we are developing surgical simulation tools that allows doctors to rehearse surgery using actual patient data.

Capitalizing on consumer-driven advances in computation, graphics, and haptics simulation technology is reaching the point where it is becoming possible to cost-effectively train vocational skills.

To explore the opportunities for developing computer-based skills training for third world populations, I visited Ammachi Labs at Amrita University where I led cross-disciplinary projects to prototype low-cost haptic interfaces required for trainees to experience the physical interaction with tasks. Not only did my visits help accelerate the development of effective user interfaces, it also helped clarify for me how low-cost simulation technology could be applied to a wider and more cost-sensitive population than pilots and surgeons.

Our collaboration continued when I hosted one of the Ammachi team members at my lab. This interaction continued the cross-pollination between our two communities - Amma's vocational training program and my BioRobotics Lab at Stanford.

To successfully create and deploy the training technology that we envision requires that we first identify the skills for which simulation-based training will be most cost effective.

With computation and graphics rapidly advancing on their own, we will focus on the design of low-cost, training-relevant user interfaces. We expect to create a series of modular physical (haptic) interfaces that can easily be adapted for a wide variety of teaching scenarios. An important research challenge will be to determine the minimum levels of complexity and fidelity needed to achieve successful training transfer. While this is not a simple question, it is a key question that must be answered in order to minimize the cost of deployment and maintenance.

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

UNAI-START
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DEVELOPMENT ENGINEERING

Dr. Silvia Hostettler

UNESCO Chair in Technologies for Development, EPFL University

Technological innovation is vital for finding solutions to key challenges the world is facing. Climate change, pollution, disease, rising inequalities and chronic poverty all need to be addressed. We need renewable energy sources, efficient transport networks, functioning public health systems, well-designed infrastructure, improved agricultural systems, and access to quality education for everyone. Appropriate technologies are technologies that are socially, culturally, environmentally and economically accepted by the stakeholders. Therefore, appropriate technologies need to be developed in partnership with researchers, government agencies, industry and most importantly in a process of co-creation with the beneficiaries. It is equally important not only to focus on developing robust and affordable technologies but also on the appropriate strategy to develop, implement and maintain them. During the presentation we will discuss the challenges of solving complex social and environmental problems with technology. While encouraging technology interventions are presented, the limits of technology are also discussed. Promoting technological innovation also means addressing the challenges of tailoring solutions to unique socioeconomic contexts and creating local ownership while aiming for massive up-scaling. The need to make some trade-offs remains a key challenge. Live-in-Labs are a growing trend that will support and accelerate the development of effective technologies.

Furthermore, a new interdisciplinary field - Development Engineering - is taking root integrating engineering with economics and business, energy and natural resource development and social sciences. Being aware of the fundamental challenges the world faces today, training future engineers in multidisciplinary problem-solving in the field in collaboration with research centers such as Ammachi Labs will be decisive for addressing the world's most pressing problems. This means focusing not only on the technological challenge but also taking into account the larger socio-economic, environmental and cultural context.

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

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DISASTER MANAGEMENT USING WIRELESS TECHNOLOGY

Dr. Maneesha Ramesh

Director of the Amrita Centre for Wireless Networks & Applications, Amrita University

Dr. Maarten van Steen

Scientific Director of CTIT, University of Twente

Data leads to information. Information leads to knowledge. Knowledge allows us to understand and, perhaps, prevent the unwanted. Disaster management is the creation of efforts through which communities reduce vulnerability to hazards and cope with disasters.

To be specific, disaster management includes offering early warning of disasters, methods of preventing emergencies, preparedness when prevention is not an option, and management in post-disaster scenarios that offer quick response and recovery.

In the case of landslides, disaster management is about being able to issue timely warnings so that proper evacuation can take place. In the case of crowds, almost all efforts are targeted at regulating massive streams of people in such a way that only anticipated events occur. Other examples easily come to mind. Preventing disasters requires data-driven models.

Wireless technology plays a crucial role in obtaining context-aware data for disaster management as it can be relatively easily deployed, even in very harsh environments. Secondly, in combination with the latest sensor technology, wireless networks have proven to be instrumental in further developing our knowledge of nature and society. Thirdly, wireless devices itself, and notably smartphones, are current revolutionizing our

ways of knowledge development.

We focus on three distinct areas of wireless technology: using wireless sensor networks for data acquisition in natural environments, using wireless devices (including smartphones) for crowd management, and using wireless devices for effective disaster relief operations. These three distinct areas allow us to sketch a broad spectrum of applications related to disaster management.

Our goal is to develop a roadmap for research and development of wireless technology for disaster management that includes wireless sensor networks, sensing by people, data-driven models that offer robustness and reliability, energy harvesting and savings, etc.

HARNESSING NATURAL RESOURCES FOR A BETTER TOMORROW

Dr. Bipin Nair

Professor and Dean of Biotechnology, Amrita University

Dr. Tai-Ping Fan

Head, Angiogenesis & Chinese Medicine Laboratory, Cambridge University

Some of the most formidable and daunting challenges facing large sections of the global population today, from the overall perspective of healthcare and well-being, include lack of affordable access to low-cost biomedical devices and diagnostic aids, adequate availability of safe water and proper sanitation, as well as effective therapeutics with enhanced potency and reduced toxicity but at affordable cost. Today, with soaring healthcare costs and widespread austerity, the affordability as well as efficacy of Traditional and Complementary medicine makes it an attractive option. It is therefore imperative that we re-visit the art and science behind the ancient practice of holistic healing and also focus on the good practices of quality control, pharmacology and toxicology testing. In this regard, our strategy to elucidate the molecular basis of action of well-established traditional remedies through conventional and systems approaches, may also enhance the capability to identify potential therapeutics against significant targets in disease states.

It is now also widely recognized that almost 900 million people worldwide, do not have access to safe water and some 2.6 billion people, or almost half of the population of the developing world, do not have the privilege of proper sanitation. We have focused on addressing the safe water, sanitation and wastewater challenge by investigating



the potential use of bacteriophages (bacterial viruses) to specifically target host pathogens and also use non-viral lytic agents to bring about effective treatment of waste water. These efforts could facilitate boosting of public health while securing sustainability of natural resources and trigger more effective solutions for waste water management. Additionally, our current efforts have also been directed towards the engineering and development of low-cost biomedical devices and diagnostics. This can also promote greater capabilities for patient compliance along with the use of support systems that provide enhanced patient monitoring with smart solutions and networked connectivity, as important steps in the right direction for advanced patient friendly surveillance and care.

It is important to note that these solutions which are developed and evolve over time, must meet the requirements of socio-cultural sustainability, technological and institutional feasibility, economical affordability and environmental acceptability. A collective effort in this direction to achieve these objectives is the need of the hour and of paramount importance for a sustainable future.

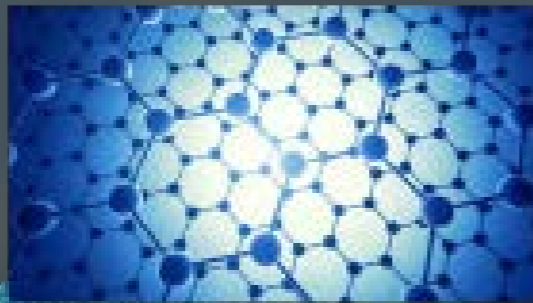
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TECHNOLOGY
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RESEARCH
DELIVERABLES

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT



RESEARCH DELIVERABLES

DR. SHANTI NAIR & THE NANO GROUP

We (Amrita University, National University of Singapore and Monash University) will develop and set up a Nanotechnology Exchange Platform which can be used to access products, IP and knowledge in the areas of: nanotechnology, nanomaterials and nanobiotechnology. This will be a global platform that will be accessible to all for educational, research, charitable and product development purposes. This will be set up with a timeline of one year.

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RESEARCH DELIVERABLES

DR. BIPIN & THE BIOTECH GROUP

We will develop a three-way collaboration between Amrita University, Cambridge University and Northwest University (Xi'an, China) to evaluate the efficacy and safety of plant-derived botanical drugs (or plant-inspired pharmaceuticals) for the prevention and treatment of cardiovascular disease, with a three-year timeline.

Over the next three years, we will develop a Waste Water Management Strategy that uses biological control agents (bacterial viruses, enzymes, small molecules). This system would be scalable, sustainable, economical and easily deployable on a large scale. It would also reduce the use of chemical disinfectants. The societal impact of the strategy would be:

Improved Sanitation

Safe Recycling of Disinfected Water

**Significant economic benefit through more effective
Control of enteric food and water-borne infections**

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RESEARCH DELIVERABLES

DR. MANEESHA & THE WIRELESS GROUP

By 2017 we will commission the first landslide early warning and monitoring system in the heights of the Himalayas.

We will develop highly affordable sensors for large-scale deployment anywhere in the world.

We will enhance the disaster monitoring system with crowd sourcing techniques.

TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT



RESEARCH DELIVERABLES

PROF. BHAVANI & THE EMPOWERMENT GROUP

With Prof. Kenneth Salisbury, Stanford University

To create a low-cost, HMD, and tablet based training simulation course that enables anyone, especially women, to acquire Crane operation skills. Trainees will be qualified to operate Cranes in a variety of industries, including, construction, shipping, gas and oil. We will also evaluate the cost, effectiveness, and quality of training using the same proven methods of deployment in our current courses.

Proposed collaboration with EPFL

AMMACHI Labs proposes to continue collaboration with Dr. Silvia Hostettler, EPFL with our work in the villages of India as a part of Live-in-Labs. We also have an active collaboration with Prof. Pierre Dillenbourgh, Chili Labs, EPFL, with whom we will continue to work on tangible interfaces for vocational skill training for the manufacturing sector.

CLOSING REMARKS BY VIJAY NAMBIAR

Vijay Nambiar

Special Adviser to the Secretary-General on Myanmar

I am honoured to be here addressing you today. Let me begin with an observation. Since the dawn of history if human beings have learned to live side by side with each other, that has been because they have recognized the need for boundaries. But we do not know when these boundaries became barriers. What is the difference between boundaries and barriers? Boundaries are built on respect. Barriers are built on fear, ignorance or prejudice. Today we erect barriers between religions and between nations, between the affluent and those in despair, between technology and those to whom it is denied. As we celebrate the United Nations' 70th anniversary, those of us with long personal involvements with the Organization recognise that the UN has brought the world's governments together respecting boundaries between nations. But it has yet to bring down the barriers between the people those governments represent. Over the years, the UN is contributing to bringing down the walls between the peoples of the world, within nations, among nations. Your conference today is a significant moment in that process.

This conference has been a partnership between UNAI---the United Nations Academic Impact---and Amrita University. UNAI was established just a few years ago as an initiative of the Secretary-General to make connections between higher education and the United Nations.

Thus UNAI itself was born of the process of removing barriers. Breaking the walls that separate "academe" from the rest of society has long been a mission of progressive teaching. Students learn better and enjoy their learning more when they can connect what they learn to some purpose beyond the walls of the academy.

This does not mean that all research must have immediate applications, but it does mean that research should not be oblivious to its larger purpose. The connections that such research encourages prevent us from engaging in the kind of narrow, parochial work that is the bane of good science, and good thinking. So linking the academy to the rest of society is a virtuous goal.

This brings me back to all of you, to Amrita University, and to Amma's work. You all know this is true, Today, you are engaged in the removal of other important barriers as well. I commend all of you for rising to the ideals of Amrita University by believing that science and technology are not just for the elite.

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CLOSING REMARKS BY VIJAY NAMBIAR

Technology can and must serve the needs of the poorest of the poor. It takes courage and imagination to do what Amrita researchers are doing:

Bringing technology to villages that may not even have electricity. In the process, we surmount walls not only between people but between concepts as well. We are prone to separating cognition from emotion, reason from passion, science from religion.

But it need not be this way. As Amma and Amrita have so clearly demonstrated, there is no necessary antagonism between faith and reason. Spirituality, founded on that most basic principle of compassion for others, compels us to use our own skills to help improve the lives of others.

The Internet has assisted the world to use its intelligence in the service of society. The Web brings science and scientific conversation to those previously cut off from academic dialogues and academic research, connecting peoples wherever they are, with the potential to inspire them, to empower them. The connections we make—between scholarship and society, between technology and the troubled, between science and citizenry—are all in the best spirit of the United Nations and its mission to bring people together in harmony and peace, in a spirit of compassion and service. And do this using our inherent skills together with the immense bounty of Technology, so that the transformations we seek become both rapid and accelerated. That is the mission of START--- Skills and Technology Accelerating Rapid Transformation. When launching UN Academic Impact, Secretary-General Ban Ki-moon said and I quote:

“By joining the United Nations Academic Impact, you pledge to make these connections. By doing that, you get more than the immense personal satisfaction of teaching, learning or individual research... you get the even greater pride of seeing your scholarship help people cope with their day-to-day struggles.”

Thank you for your distinguished presence at this conference today.



TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

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TAKE ACTION TODAY

UNAI PORTAL

Join the portal that Amrita University designed at the request of the United Nations Department of Public Information and the United Nations Academic Impact to foster further discussion and collaboration among researchers worldwide on technology for global sustainable development.

www.amrita.edu/unai-start

Please visit the portal and create an account. Once you have registered your profile and signed in, you will be able to see the:

UNITED NATIONS' 17 PROPOSED SUSTAINABLE DEVELOPMENT GOALS

“ It is our hope that, working together, the global academic community and the United Nations, can fuse these concepts into a single dynamic source of passion and creative energy. ”

*-Ramu Damudaran, Chief of the
Academic Impact at the United Nations*



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