The Power of Date Palm Leaves
If you look at the progress in health care sector that Oman has achieved in less than 40 years, you will be surprised. Under-five mortality in Oman dropped by a stunning 95 per cent, marking the fastest decline in young-child deaths ever recorded anywhere in the world. Life expectancy in Oman has increased by more than 25 years. In less than 35 years, life expectancy increased by more than 25 years. This means almost a generation of life added, within a generation.

The country banished many infectious diseases, and controlled most of the rest. All of this was, of course, noticed, with more than a touch of awe. Oman’s well-developed National Health Statistics and Information System supports this kind of planning, as does the country’s experience in devising evidence-based policies.

In a world beset by one global crisis after another, social cohesion and stability are prized assets. Health systems are highly context-specific. They have their unique historical roots, and they operate in distinctive cultural and social environments. There is no single blueprint that can guide health system reform.

Oman’s vision 2050 is being designed as a long-term response to emerging challenges. There are many complex challenges. They call for a fundamental rethinking of the way health systems deliver services. As SQU researchers recently noted, Oman’s health sector face certain challenges too. In a world of increased interdependence, health nearly everywhere is being shaped by the same powerful forces, like demographic ageing, rapid urbanisation, and globalisation of unhealthy lifestyles. These trends are expressed most explicitly, as a rise in chronic non-communicable diseases.

Chronic non-communicable diseases, especially diabetes, memory loss and dementia, are surprisingly becoming common in the Sultanate. Unfortunately, such new diseases do not spare younger people; many of them will need the sort of care usually reserved for the elderly. This situation calls for a paradigm shift; a healthcare system that goes beyond a traditional cure-orientation to provide care services for the chronically sick of all ages.
The 12th meeting of the National Committee of Bioethics was held recently under the patronage of HE Dr. Ali bin Saud Al Bimani, Vice Chancellor of Sultan Qaboos University and Chairman of the Committee. The meeting approved the minutes of the 11th meeting of the committee held in October 2012.

The committee decided to hold a national workshop on bioethics on December 12, 2012. It also approved the decision to hold an International Conference on Bioethics in November 2013. This conference will discuss various issues related to bioethics and will see the participation of noted scientists from different parts of the world specialised in this area.

The meeting agreed on constituting three subcommittees under the National Committee of Bioethics. One subcommittee will be responsible for ethical review of researches on animals and plants; the second one will deal with medical ethical issues and legislation in this regard. The third subcommittee will review ethical issues related to researches on humans. The Council also formed a secretariat for the National Committee.

The committee also issued guidelines pertaining to in vitro fertilization, abortion and DNA screening of foetuses, to be implemented in the Sultanate. The committee has issued guidelines prohibiting all experiments involving human cloning and mixing of human genes with animal genes in the Sultanate. This decision was taken in its previous meeting. All decisions taken by the National Committee for Bioethics are endorsed by the Council of Ministers.

Under the directives of His Majesty Sultan Qaboos, a contract was signed at the Sultan Qaboos University recently to set up a national centre for the treatment of hereditary blood diseases and bone marrow transplant. This was announced at a press conference by HE Dr. Ali bin Saud al Bimani, Vice Chancellor of the university.

Al Bimani pointed out that the centre, which will cost RO 15 million, will be set up in two years. The five-storey building will occupy an area of 25,000 square metres and accommodate 173 beds. The project assumes significance due to the high rate of hereditary blood diseases in the Sultanate, said Al Bimani.

SQU opened in 1995 a unit for marrow transplant at SQU Hospital and the unit has so far made 230 transplants despite its limited capacities, but it played an important role in the treatment of many types of acute blood cancer, sickle cell anaemia, thalassemia and diseases caused by low immunity, said Al Bimani, adding that the setting up of a comprehensive, more specialised centre has become an urgent necessity.

Dr. Salam bin Salim al Kindi, Head of the Department of Haematology, said that many types of hereditary blood diseases have become quite common and that patients forming 10 per cent of the Sultanate’s population suffer from different types of blood diseases. The existence of such a specialised centre will be a great advantage for the citizens, he said.

SQU to Set up Centre for Blood Diseases

The 7th International Conference on Science, Mathematics and Technology Education, organised by the College of Education at Sultan Qaboos University, in association with the Science & Mathematics Education Centre at Curtin University, Perth, Australia, was held under the patronage of HE Dr. Rawya bint Saud Al Busaidiyah, Minister of Higher Education.

The theme of the four-day conference was “Transformation through Science, Mathematics and Technology Education: Towards and Innovative and Sustainable Society”. The conference featured over 150 paper presentations and workshops covering many research topics related to the theme of the event. Addressing the gathering, Dr. Thuwayba Ahmed Al Barwani, conference convenor, said that this conference was the result of the true partnership between the College of Education at SQU and Curtin University. Around 500 participants from 25 countries across the globe including 11 Arab nations attended the international forum. Dr. Bill Atwe from Curtin University said that this was the very first conference on Science, Mathematics and Technology Education held in a Middle East country. “The conference is unique in many respects as it features the largest number of presentations and participants. For the first time of the history of the International Conference on Science, Mathematics and Technology Education, which commenced in 1997, the presentations are given in two languages, English and Arabic”, Dr. Atwe said. He added that the conference stands for democratization of knowledge and it moves around the world since the first conference held in Vietnam.

Prof. Theo Wubbels from Utrecht University, the Netherlands, delivered the first keynote address during the opening ceremony of the conference. Prof. Wubbels said that productive, healthy and enjoyable learning environments in science classrooms heavily depend on the relationships of the teacher with his or her students.
Chemists at SQU claim that date palm leaves can be of help in purifying hospital wastewater.

Don’t write off date palm leaves as a waste material. According to chemists at Sultan Qaboos University, date palm leaves in Oman can now be of help in removing chemicals such as pharmaceuticals and dyes from hospital waste water before it is discharged into the municipal sewerage. The analytical and environmental research group in the Department of Chemistry at the College of Science at SQU has started doing research with a long-term objective of establishing a physico-chemical unit for the treatment of hospital waste water before being released into the sewerage system.

Dr. El-Said El-Shafey, Principal Investigator of this research project said that they could extract novel dehydrated and activated carbons from date palm leaflets, which is a cheap and sustainable resource in the country. According to estimates around 180000 tons of date palm leaves are produced annually in Oman. The scientists tested different carbons for removal of certain pharmaceuticals including ciprofloxacin, paracetamol, fexofenadine, lisinopril, diphenhydramine and chloropheneramine maleate from aquatic solutions. They also examined the removal of heavy metals and some dyes.

The results showed that the cheap dehydrated carbon from date palm leaflets proves to be as efficient as activated carbon for removing pharmaceuticals and dyes. However, dehydrated carbons showed extraordinary findings for the removal of heavy metals as cation exchanger and these can be reused many times. Dr. El-Said El Shafey revealed that the findings of the research would be soon utilized in hospital waste water treatment in a pilot scale with an objective of establishing a physicochemical unit of hospital waste water treatment prior to its mixing with municipal wastewater. The project involves several undergraduate research students and three master students with three publications in international journals and another four on their way for publication.

According to the researchers, hospitals consume a significant amount of water in a day, ranging from 400 to 1200 L /day/bed and generate significant amounts of wastewater usually loaded with microorganisms, heavy metals, hormones, radioactive isotopes, pharmaceuticals, disinfectants, active substances, pigments, dyes, chloro-organics and drug components as they are widely used in hospitals. Many antibiotics, anticancer drugs, pain killers and endocrine chemicals were detected in waste water discharged from hospitals.

Pharmaceuticals are designed to cure diseases, fight infections, or reduce symptoms. Thousands of such compounds are currently used in medicine such as pain-killers, antibiotics, contraceptives, beta-blockers, lipid regulators, tranquilizers and anticancer drugs. Dr. El Said El Shafey said that the main challenge of pharmaceuticals is that many of these active substances are not easily degradable as they bypass the biological wastewater treatments and become ubiquitous in the environment. “For example, levels of ciprofloxacin antibiotic were detected in sludge and soil and accumulated in vegetables such as lettuce, cucumber and barley in a recent study. Pharmaceuticals have adverse effect in the aquatic ecosystem being reported to cause feminization of male fish and inhibiting photosynthesis in algae. Antibiotic resisting bacteria can also develop as a result of the release of antibiotic into the aquatic system causing disturbance in the ecological balance and affecting biodiversity. The regular use of disinfectants in hospitals, particularly chlorinating agents, leads to the production of chloro-organic compounds. Such compounds are persistent in the environment and known to cause cancer and malformation”, he said.

Heavy metals and radionuclides in hospitals, even in a trace level, have known adverse effects on public health. Endocrine substances such as steroids, nonylphenol and bisphenol A, released through waste water from hospitals, can cause disturbance in hormonal balance, which would eventually lead to dysfunction of the various organs or internal systems. “Direct discharge waste water into the aquatic system without treatment causes immense pollution to the surface water, ground water and soils”, Dr. El Said El Shafey said. Dr. Haider Al Lawati and Dr. Fakhr El Din Soliman, academics in the Department of Chemistry are the other members in this research project.
Monitoring of Environmental Processes using Satellites

By: Dr. Georgios Ch. Miliareis

Environmental problems are increasingly complex and interconnected. The good news is that there is now a huge volume of environmental data and information available, and it is growing continuously. Now images from satellites are enabling anyone in the world with an internet connection to combine and analyze information on their environment. The author, a remote sensing expert at Open University, Cyprus, elaborates on the use of satellite data for monitoring environmental processes and natural resources.

When it comes to satellites, the primary source of biophysical data on a day and night basis is MODIS (Moderate Resolution Imaging Spectroradiometer) sensor. The MODIS instrument is operating on both the Terra and Aqua spacecraft. It has a viewing swath width of 2,330 km (the image width) and views the entire surface of the Earth four time per day (acquired on morning, noon, evening and night since 2002). Its detectors measure 36 spectral bands and it acquires data at three spatial resolutions: 250-m (bands 1-2), 500-m (bands 3-7), and 1,000-m (bands 8-36).

The many multi-temporal biophysical data products (Surface Reflectance, Vegetation Indices, Land Surface Temperature & Emissivity, Sea Surface Temperature, Leaf Area Index, Albedo, Landcover Type, etc.) derived from MODIS observations describe features of the land, oceans and the atmosphere that can be used for studies of processes and trends on local to global scales.

The increased spatial and spectral resolution of MODIS allowed the most accurate crop condition and yield assessment at global scale. On the other hand, the increased temporal resolution (frequency of imagery acquisition) allowed vegetation mapping (with MODIS NDVI time series product), urban heat island mapping with MODIS Land Surface Temperature time series product and drought monitoring with the MODIS-based Temperature-Vegetation Dryness Index (TVDI). Fire management and fire hot spots recognition (global early warning fire monitoring and management systems) are performed on a routine daily basis with MODIS imagery (http://modis-fire.umd.edu/index.html) and a new product, MCD45A1: Global Burned Area is now available on a daily basis.

Nevertheless, biophysical data are related to various physical and biological processes. For example day and night land surface temperature can be used for calculating the thermal inertia of rocks (enabling lithologic mapping) while the availability of multi-temporal data allows the monitoring of thermal inertia variation throughout the year that it is associated to variations in water table depth, the mapping of oil and gas resources, etc.

Quite recently an new satellite eye, SMOS (soil moisture and ocean salinity) provide every three days global measurements of soil moisture and ocean salinity, two key variables in the water cycle. In addition, the mission is expected to provide useful data for cryosphere studies (ice/snow cover monitoring).

Soil Moisture

This information, along with numerical modelling techniques, will result in a better estimation of the water content in soil down to a depth of 1-2 m, which is referred to as the ‘root zone’. Estimation of soil moisture in the root zone is important for improving short- and medium-term meteorological forecasting, hydrological modelling, monitoring photosynthesis and plant growth, and estimating the terrestrial carbon cycle. Since evaporation, infiltration and recharge of the groundwater usually occur through the unsaturated vadose zone which is the hydrological connection between the surface water and the groundwater. The root zone of the vegetation, the zone where vegetation takes-up water, is within the vadose zone and is therefore the interface between the vegetation and the hydrological system. The amount of water available in the vegetation controls plant transpiration and photosynthesis and as such carbon dioxide sequestration. It is also directly linked to the ability of the soil to produce drainage after rainfall. The soil-vegetation-atmosphere transfer (SVAT) schemes used in meteorology and hydrology are designed to describe the basic evaporation processes at the surface, together with the water partitioning between vegetation transpiration, drainage, surface runoff and soil moisture variations. Timely estimates of soil moisture are also important for contributing to the forecasting and monitoring of hazardous events such as floods, droughts and heat waves.

Ocean Salinity

Knowledge of the distribution of salt in the global ocean and its annual and inter-annual variability are crucial in understanding the role of the ocean in the climate system. Ocean circulation is mainly driven by the water and heat flux through the atmosphere-ocean interface, but salinity is also fundamental in determining ocean density and hence thermohaline circulation. Ocean salinity is also linked to the oceanic carbon cycle, as it plays a part in establishing the chemical equilibrium, which in turn regulates the CO2 uptake and release. Therefore the assimilation of sea surface salinity measurements into global ocean bio-geo-chemical models could improve estimates of the absorption of CO2 by the oceans.

Cryosphere

Observations of ice caps provide a prediction tool for the greenhouse effect since the sea ice extent responds early to altered climatic conditions. Accurate predictions of sea level rise require improved knowledge of the processes controlling the accumulation upon the ice sheets. The scarcity of accumulation rate observations, both spatially and temporally, has hindered the furthering of this understanding. Snow covers about 40 million km² of land in the Northern hemisphere during the winter season. The accumulation and depletion of snow is dynamically coupled with global hydrological and climatological processes. It is also a sensible indicator for climate change as the position of the southern boundary snow cover in the Northern hemisphere is likely to move northwards as a result of a sustained climate warming.
SQU hosted the 3rd Pan Arab Rhinology Conference in association with the Pan-Arab Rhinology Society, Oman ORL Society and GCC ORL Society. The opening ceremony was held under the patronage of Dr. Ali bin Talib Al Hinai, Undersecretary for Planning Affairs at the Ministry of Health.

With the scientific sessions, keynote speeches, instructional cadaver dissection, the conference offered umpteen opportunities for ENT specialists, rhinologists and related health care professionals who attended the event to enrich their understanding in rhinology. An exhibition, which displayed the latest technologies and pharmaceutical developments in Rhinology, was also held on the sidelines of the conference. Well known experts in Rhinology delivered lectures and cadaveric demonstrations in the conference.

Sultan Qaboos University Council held its first meeting for the academic year 2012/2013 under the chairmanship of HE Dr. Rawiya bint Saud Al Busaidiyah, Higher Education Minister and Chairperson of SQU Council. The meeting approved minutes of the Council’s fourth meeting in the academic year 2010-2011 and reviewed the following up report on the execution of the previous decisions.

The meeting approved the lists of graduates of summer and spring seasons for the academic year 2010-2011 and reviewed the following up report on the execution of the previous decisions.

The College of Agricultural & Marine Sciences at Sultan Qaboos University has won for the second consecutive year, Asian Leadership Award for the best educational institution in agriculture for the year 2012. The award was presented at a fabulous ceremony organized in Tag hotel - Dubi, UAE, recently. The award was received by Dr. Ahmed Al-Alawi, Assistant Dean for Undergraduate Studies at the College of Agricultural and Marine Sciences. Receiving this award for the second consecutive year is a valuable recognition of the College’s efforts in providing the best knowledge to students with high quality and at the same time carries out research projects serve primarily the Omani society and have a global impact.

The Asian Leadership Award distributes awards annually to public and private institutions (and individuals) who make exceptional contribution and strong impact on the evolution of the domain in which they operate and the surrounding community while maintaining high degree of responsibility. The Asian Leadership Award covers forty one countries in Asia and has 20 categories covering all areas of business.
Depression is a complex illness, with a complex set of symptoms. There are many check-ficulty handling stress, low self-esteem or extreme pessimism. Other personality patterns may be contributing factors of causing depression such as differences, such as the loss of a parent in childhood, the death of a loved one, termination of employment, or a chronic illness can increase someone’s chances of getting depression. Other personality patterns may be contributing factors of causing depression such as difficulty handling stress, low self-esteem or extreme pessimism.

Depression is a complex illness, with a complex set of symptoms. There are many check-lists and self tests available worldwide to help diagnose depression, which are usually based upon diagnostic criteria for the disorder. Some of the symptoms are persistent sad, anxious or “empty” mood, feelings of hopelessness, pessimism, feelings of guilt, worthlessness, helplessness, and loss of interest or pleasure in hobbies or activities that were once enjoyed.

The most common treatments are antidepressant medication, psychotherapy, or a combination of the two. Many different kinds of medications used to treat depression are often called antidepressants. The other way of treatment is psychotherapy, also known as talk therapy or counseling, can take many forms. Many of which can be very helpful and therapeutic for someone with depression, it can be done on an individual level, or with a group. The two types of therapy that have proven to be especially effective in treating depression are; Cognitive behavioral therapy (CBT), and Interpersonal therapy (IPT).

Attempts to raise awareness in Oman
On the occasion of the World Mental Health Day, psychiatrists and psychologists from the colleges of Nursing and Medicine & Health Sciences at SQU, shed light on depression in Oman and the role of health institutions to increase public awareness and educate them about psychological diseases in general and depression in particular. Mohammed Abu Elaila from Community and Mental Health Department at the College of Nursing said that like people from other countries in the Middle East, Omani tend to hide the fact of someone having a mental disease or any psychological disorder. “Just like other Arabs, Omani tend to hide any mental disease within the family, until it becomes unmanageable at home, then they might consult a doctor. However, when we ask people to meet psychiatrists they seem ready”. He added that the awareness of Omani people about mental health, in general, is limited, yet there are many people who seek the help of sorcerers, who charge lots of money without being able to heal them.

Dr. Amal Ambusaidi of Al Hayat Association said that what complicates the problem is that when people see anyone suffering from depression they put the blame on the person himself by saying he’s away from God, which makes the other person even worse by thinking about himself negatively. “However, depression, just like many other diseases isn’t hard to cure in case the patient receives an adequate support from community, as well as treatments”, she said. According to Mohammed, the best way of treatment is to advocate a psychological therapy, which is most common in European community and is called mental behavioral therapy. However, even in the most advanced societies, drugs continued to be the dominant way of treatment”, Mohammed concluded.

The importance in mental health diseases always lies in the spread of awareness and the ability to absorb such ailments. As communities start to understand these psychological disorders, they will be able to help individuals who suffer from them in a positive way that in turn, would give patients the right support to heal and become more constructive in society.
Horizon: The bilateral ties between Oman and Tanzania is more important due to the historical relations in the past. Could you elaborate?

Ali Ahmed Saleh: The Sultanate of Oman and The United Republic of Tanzania enjoy a very special and unique relations given the long historical relations anchored on people to people basis and at grass root levels for many years. This speciality is not borne out of rhetoric but on the facts. For instance, Swahili language which is the Tanzania’s national language and lingua franca of the East Africa is only spoken extensively as a second and or more so as a first language in many households across Oman and this is the only country outside Africa to with this distinction.

Horizon: Could you explain the uniqueness of Oman-Tanzania relations?

Ali Ahmed Saleh: The most striking aspect with respect to the links between Tanzania and Oman is that the peoples of the two countries have a strong blood relations resulting from many years of interaction and inter marriag-es. So from this these its a fact that our relations assume a very special dimension. Our challenge now is to consolidate and translate further this relationship into some concrete and sustainable cultural and economic ventures and enti-ties for the mutual benefit of our two peoples and countries. This is imperative in sustaining a longer partnership between the two nations. It has to be supported by such means and not just be satisfied with history and family ties. This is what my Mission will exactly endeavour to do.

Horizon: During your visit to SQU of late, you said that the Embassy of Tanzania is willing to pay an active role in facilitating the “International Symposium on the Omani Role in East Africa” to be organised by SQU by end of this year. Why do your Excellency think that the Tanzanian diplomatic mission should play an active role in this event?

Ali Ahmed Saleh: Supporting the symposium is important and vital for Tanzania because when you talk about Oman and East Africa you necessarily talk about Tanzania and indeed Zanzibar. So you find we are an important party and stake holder to such an event which we need to get in-volved so as to enrich the discussion from the inputs from both sides, Oman and Tanzania. We intend to support the same through proposal to bring to the event some resource persons to discuss the agenda and indeed some cultural performances and cuisines in order to demonstrate then more concretely the ties that we discussed before.

Horizon: In your view, what are the major areas in which the mutual collaboration between Tanzania and SQU should be promoted in future?

Ali Ahmed Saleh: There are quite many things that SQU do to foster our relations. The research at SQU should be more active in engaging parties from both sides so that these research are useful to the two countries and peoples. We are also looking to encourage much more stronger ties between SQU and similar higher educational institutions in Tanzania so that active exchanges of students and academi-cians can take place between SQU and Tanzanian institutions like the State University of Zanzibar (SUZA).

Horizon: Could you elaborate on the outcome of your visit to SQU and meetings with its top officials?

Ali Ahmed Saleh: Following my visit to SQU I must say I was impressed by the campus itself and indeed by the warm welcome and the fruitful discussion I had with HH Sayyidah Dr. Mona bint Fahd Al Said, its Assistant Vice Chancellor for External Cooperation. We have agreed to continue our partnership in future on sustainable basis.