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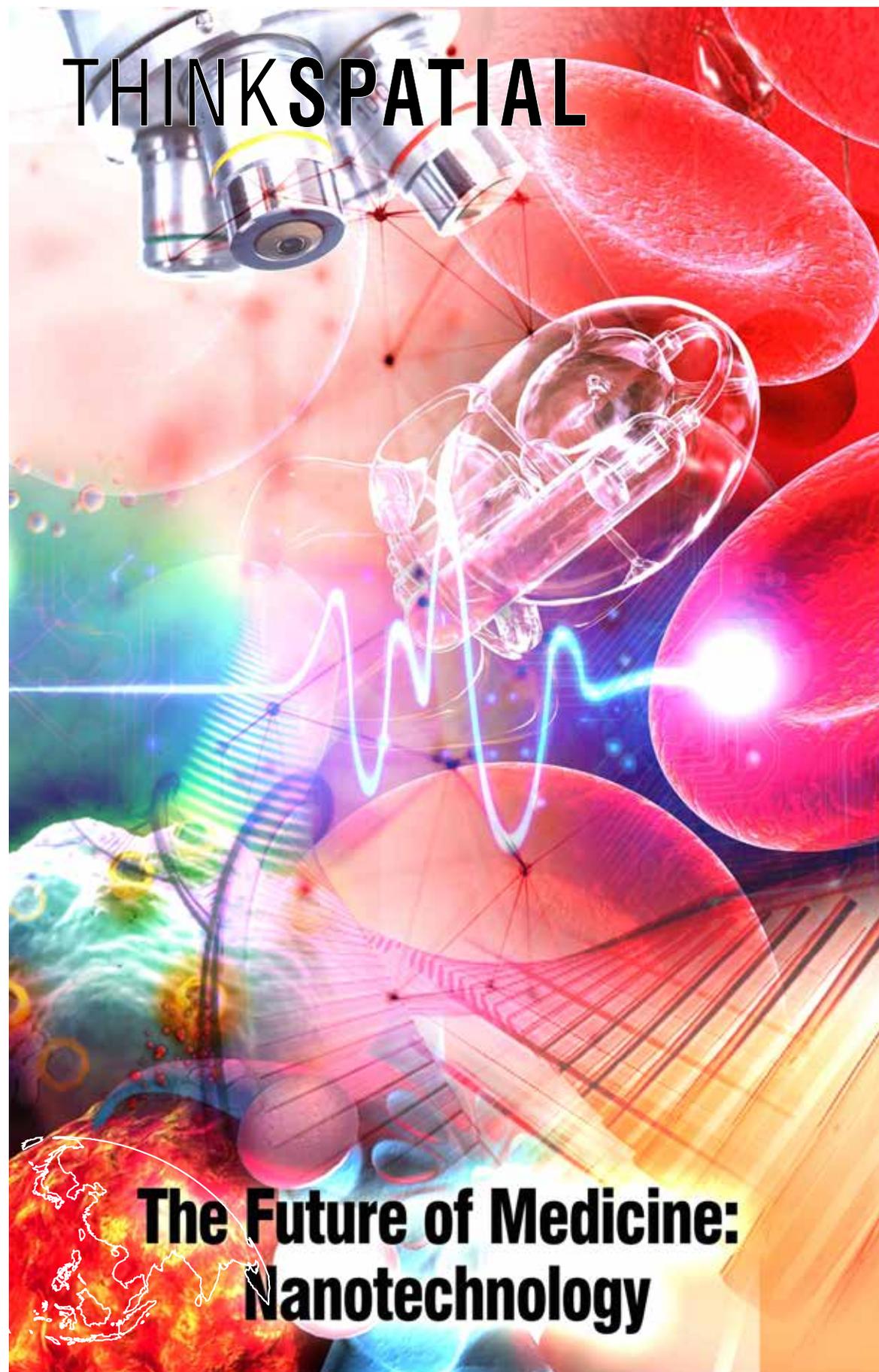
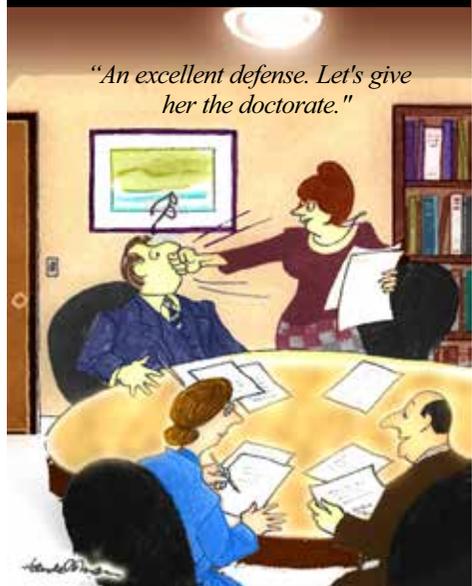
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# Spatial Knowledge & Information Management for **Health Care**



**S**patial Knowledge & Information Management [SKIM] focuses on acquiring, analyzing, using, and sharing specific and useful information that enable its users to integrate a huge wealth of data for enhanced decision making, both at the corporate and policy level. Many fields contribute to the SKIM framework including: Information and Communication Technology, Geographic Information System, Governance, Education, Health, Public & Environmental Safety, Agriculture & Natural Resources, and Energy. The monthly SKIM magazine covers the most pressing issues from its contributing themes and provides the latest information to enhance quality of discussion on the issues.

In the cover story, we take a look at the use of Nanomedicine, which serves as the basis for more effective and greatly beneficial drugs. Muhammad Bazil describes that, in the GCC region, recent developments in medical technology have facilitated key discoveries in Nanomedicine. He also highlights the benefits and risks of the Nanomedicine and Nanotech partnership between China and the GCC.

In this issue, a comprehensive article on Elections and Democracy, by Nadeem Ahmad, provides a holistic picture of Local Government Systems of Pakistan. 'Dubai Goes green', by Michael Calabrese presents the picture

of desalinization and electricity projects in Dubai. He talks about the fresh water projects and provides comparison of fossil fuel and solar energy for water processing.

In her article 'A Stride towards Improved Crises Management,' Maria Bibi explains natural disasters and their impacts on general public. She suggests GIS and mapping technologies to cope with these natural catastrophes.

A comprehensive article, 'BeiDou Navigation Technology in Pakistan' by Danish Muneer, describes the BeiDou Navigation technology which is co-developed by China Great Wall Industry Corporation and Beijing UniStrong Science and Technology Company Limited. He explains the benefits, which other countries are receiving from this technology and how this technology can benefit Pakistan.

Madeeha Khan in her article 'Technological Intervention and Environmental Safety' talks about the current challenges of environmental safety in Pakistan. She highlights air pollution, water scarcity, unpredictable rains and deforestation as the hovering threats to environmental safety. She suggests the use of GIS technology, to overcome these challenges.

The Business Psychology section of the magazine brings to you a very thought provoking

article by John Weaver, 'Your Organization is Alive'. On a lighter note, 'Joel McPherson' provides tips about holistic living in his article "Breathe some life into your life". Lastly, a case study is presented by 'Sultan Z Al-Shaqsi' on 'Emergency Management in the Arabian Peninsula: A case study from the Sultanate of Oman'.

This SKIM Magazine presents latest news on various geospatial technologies and ICT technological developments from the countries of the region including; GCC countries, Iran, Iraq, Yemen Afghanistan and Pakistan, to help our readers relate better to the different events in our neighborhood.

*It will give me immense pleasure to hear from those who would like to contribute to this pioneering effort.*

**Mehdi Bokhari**  
Executive Editor  
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# September

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# The Missing Link in the Governance Structure of Pakistan

**By: Nadeem Ahmad**

Democracy, as enshrined in the 1973 constitution of Pakistan, has to be established at three levels – the federal, the provincial and the local. Among all, the local government system is necessary for people-centered development and service-oriented government. The local governments need political, administrative and financial decentralization to deliver services at the grass root level. However, elected governments do not priorities establishment of local bodies due to the fear of losing their political power brokerage, administrative control and financial independence for development work at the constituency level.

The entire political structure in Pakistan anchors upon constituency level politics and development rather than broader political ideology or national vision. This apathy towards local bodies has its origins in historical local government experiments, tendency of federal governments to centralize powers as well as lack of democratic culture within the existing political parties in Pakistan.

After Independence in 1947, there was little emphasis on setting up local government within the broader governance structure due to three main reasons. First, pre partition local governments played little role in the independence movement. There was considerable antagonism towards

local institutions as pre independence local governments had strong ties to the British and much of the independence movement was driven by political party mobilizations at the provincial and higher levels. Second, during 1950s Pakistan faced political instability leading to a strong central government that was run by the civil and military bureaucracy. Third, unlike the Congress Party in India, the Muslim League in Pakistan failed to organize as a political party and to utilize local bodies for developing its political base, thus had to rely on bureaucracy to manage the local affair of the state. Despite being critical to pre-partition role of local governments, the modus operandi did not change much after the creation of Pakistan as the bureaucracy, like British era, was still used to control local bodies. Moreover, the local bodies were successively denied legitimacy by not holding elections and wherever such elections were held, mostly in Punjab, were plagued by elite capture and massive malpractices.

Following the imposition of the first Martial Law in 1958, national and provincial assemblies were disbanded and General Ayub Khan, Martial Law Administrator, introduced Basic Democracy (BD) in 1959. Unlike elected governments of the past, who denied legitimacy to local governments, the Ayub's military government used BDs to legitimize his essentially unitary new Presidential Constitution (1962), which explicitly linked the office of the President to the newly created local bodies by declaring the 80,000 Basic Democrats as the Electoral College for the election of the President and national and provincial assemblies. The BD local governments comprised of a hierarchical system of four linked tiers. The lowest tier (the union councils) was elected directly on a non-party basis and officials at all the higher tiers were either indirectly elected by elected officials at the lower level or appointed by the central government.

The system of Basic Democracies mirrored British era tactics to control political leadership through bureaucratic controlled local governments. The BD system failed to provide essential political mobilization, and democratic legitimacy for local level of governance.

Ironically, there was no system of local governance during Prime Minister Zulfikar Ali Bhutto's democratic government from 1971-77. Bhutto's government failed to implement local government legislations

in 1972 and 1975. Above all, he failed to fulfill constitutional requirement of ensuring local government institutions that he himself advocated in the 1973 constitution. During the entire period, the administrators continued to govern local institutions.

The next local governments were once again introduced by a military ruler to legitimize his rule in the country. General Zia introduced Local Government Ordinance (LGO) in 1979 and local bodies were elected in all four provinces during 1979 and 1980 on non-party basis. This was again an attempt to reduce the influence of popular political parties like his military predecessor.

The LGO 1979 failed to ensure both administrative and financial decentralization. Like BD, the District Commissioner continued to hold three important local level functions: coordination, magistracy and revenue collection. Rather than elected District Councils, the DC exercised control over government line departments through respective line department District Officers (DO). Additionally, the magistracy allowed the DC to hold court and exercise control over district Police. Similarly, district revenue collection remained under the DC's administrative control allowing District Council to approve taxation but play a minimal role in implementation of revenue collection framework. Additionally, as in the Local Bodies Act of 1959, the DC had the authority to disallow, stop or amend any decision of the District Council.

While there are many similarities between LGO of 1979 and BDO of 1959, enhancement in the roles and responsibilities of local government bodies did happen. Union Councils (the lowest tier) were now made responsible for provision and maintenance of roads and streets, public buildings, schools, health facilities, lighting of public ways, water supply, and maintenance of parks and plantation of trees. This was a substantial increase in empowerment of local communities.

It is interesting to note that under both Zia and Ayub, local governments lacked constitutional protection and their existence was left at the whim of unelected provincial governments who retained the power to suspend them.

The local government during Zia era worked directly under the federal government until 1985 when the provincial governments were elected on non-party

basis. With the return of democracy after almost a decade, members of the provincial assemblies were nominated as managers of development activities. Both provincial MPs and local governments assumed similar roles which led to tension between local tiers of government and MPs. This tension concerning expenditure at the local tiers and political parties seeking to undertake development activities in the respective constituencies of provincial and national legislators further increased after the return of full democracy in 1988. The same tension is still the source of conflict between three

*The State shall encourage Local Government institutions composed of elected representatives of the areas concerned and in such institutions special representation will be given to peasants, workers and women.*

#### **1973 CONSTITUTION - ARTICLE 32**

tiers of the governance as the role of national and provincial MPs has not much changed.

After Zia, the elected governments of Benizer Bhutto and Nawaz Sharif continued to assert direct control of federal government through bureaucracy. However, unlike military rulers, who used local bodies to gain legitimacy, the democratic governments used administrative officials as tool for political leverage for their party advancement in new areas or official patronage ahead of the next elections.

History repeated itself yet again, as the local governments were yet again set up by another military ruler. Gen. Pervez Musharraf introduced the Local Government Ordinance of 2001, with significant administrative and financial devolution of powers to the lowest administrative divisions of the country. For the first time in Pakistan, an entirely elected, although non-party, system of local bodies was devised with wide ranging control over almost all government functions at the district level and below.

Unlike DC, the elected District Nazim headed the local administration and supervised and appraised the DCO and DPO and exercised complete autonomy over district administration. With the suspension of the divisional cadre (i.e. the commissionarate) the divisional powers were also devolved to districts. This administrative and financial devolution

under LGO 2001 transformed Pakistani politics at the local level.

The new system was a three tiered local government. The lowest tier, namely Union Council had an elected council made of 21 members. Union Council was headed by Nazim and Naib Nazim who were directly elected and they supervised Union Council secretaries. Tehsil/Taluka Councils and District Councils were composed of Union Council Naib Nazims and Nazims respectively as general members. However, Tehsil/ Taluka and District Nazims were elected through indirect election with all members of Union Councils in respective electoral wards forming the Electoral College. At the district level, the Nazim supervised district administration through DC office and respective EDOs of line departments.

There was also considerable political participation in the affairs of the local government through creation of community based organizations for development purposes such as Citizen's Community Boards (CCBs) and Village and Neighborhoods Councils (VNCs) which could access the development budgets of Union Councils and undertake independent development schemes in their respective areas. Moreover, Musaliha- i-Anjumans were also set up for speedy alternative justice at the community level.

The constitutional protection to LGO 2001 ended in December, 2009. The 18th Amendment of 2011 has reinstated the Article 140/A of the 1973 Constitution and asked provincial governments to ensure decentralization, devolution of powers and establishment of working local government system.

Despite the 18th constitutional amendment which provides much needed constitutional protection, local governments have remained in limbo since 2009 as provincial governments have failed to materialize new legal framework. By 2010-2011, all the four provinces had set up interim mechanisms for restoring the functionality of local governments, but did not held elections during the entire PPP tenure. Since none of the political parties have ever established democratic party structure at the local level, neither they have any experience of undertaking thorough exercise to develop a local government system which is grounded on local realities, they are now unable to come up with

### Local Governments System in Pakistan

1947	Local Authority Service Act passed in Sindh. Provincialized the key posts in local Governments.
1947-59	Continued operation of 1911 Punjab Municipal Act. Period of inactivity.
1959	Basic Democracies Ordinance enacted by General Ayub Khan. Abolished in 1972.
1972-79	Enactment of People's Local Government Ordinance 1972 by the PPP government. Promulgated but not implemented.
1979	Local Government Ordinance enacted by General Zia-ul-Haq
2001	Local Government Ordinance enacted by General Pervez Musharraf. Expired in 2009
May 2010	The Balochistan Local Government Act, 2010
March 2011	The Punjab Land Revenue (Amendment) Act 2011, Re-established divisions in Punjab and Restored administrative powers of DC
May 2012	Khyber Pakhtunkhwa Local Government Act 2012
August 2013	Punjab Local Government Act 2013
August 2013	Sindh Local Government Act 2013
August 2013	Khyber Pakhtunkhwa Local Government Bill 2012 (Draft)

legislation.

Since mid-2012, the Supreme Court has been pushing provincial governments to hold local body elections. The SC demand has become more vocal after establishment of the newly elected PML (N) government and is asking the provinces to fulfill a Constitutional requirement as enshrined in the 18th Constitutional Amendment and immediately announce schedules for these elections. The provincial governments are in the process of legislating their respective local government acts.

Given limited legislative capacity of the provincial governments, lack of political will to devolve political administrative and financial authority, usage of local government system as leverage to political gain, and chronic conflicting service delivery and development role of local leadership and MPs, the provincial governments are struggling to establish a legal framework for local bodies. Each province is trying to come up with ad-hoc version of local government laws through trial and error. Sindh has planned to restore the LGO of 1979, KPK is amending the LGO of 2001, and Punjab has passed a new provincial LGO with mixture of these two while Balochistan has yet to make a start. Though diverse in many aspects, all new provincial legislations has not making serious effort to ensure fully empowered and democratic local governments.

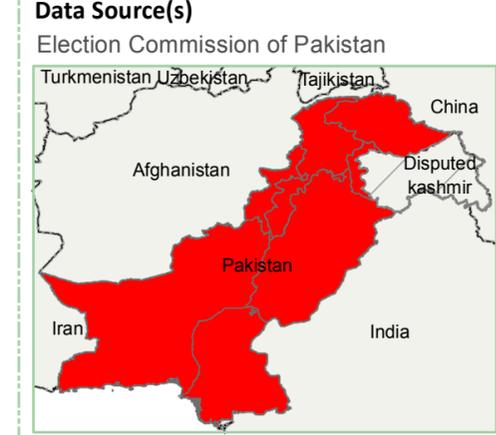
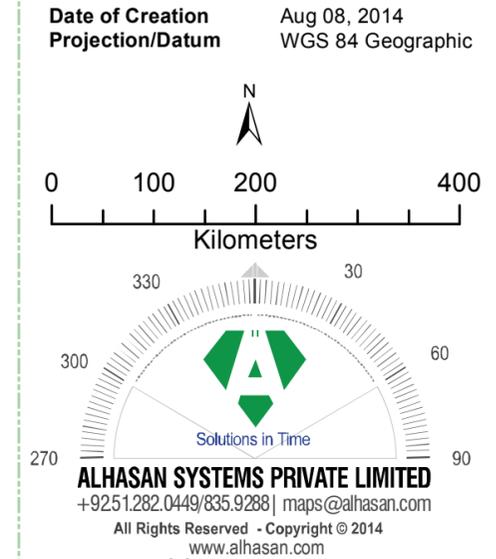
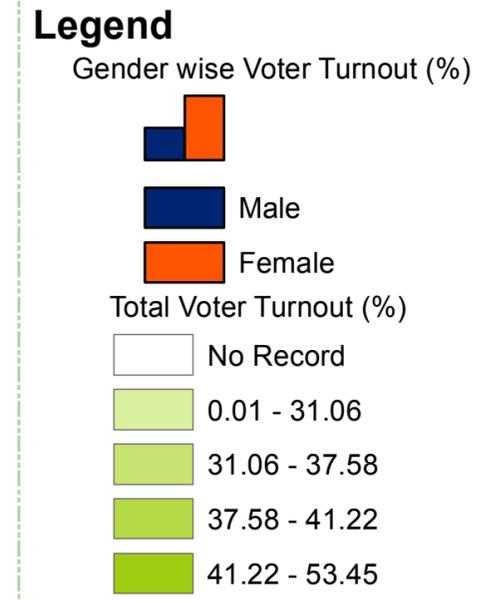
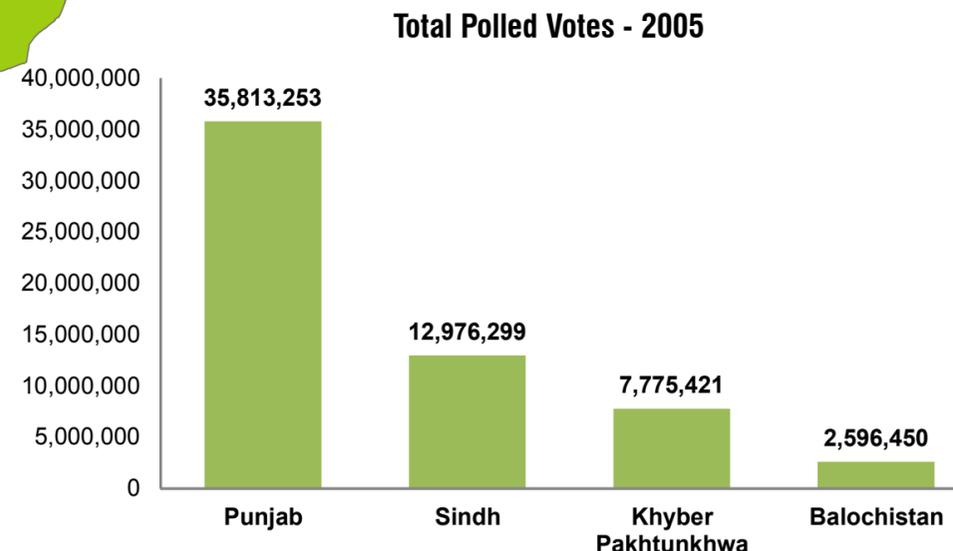
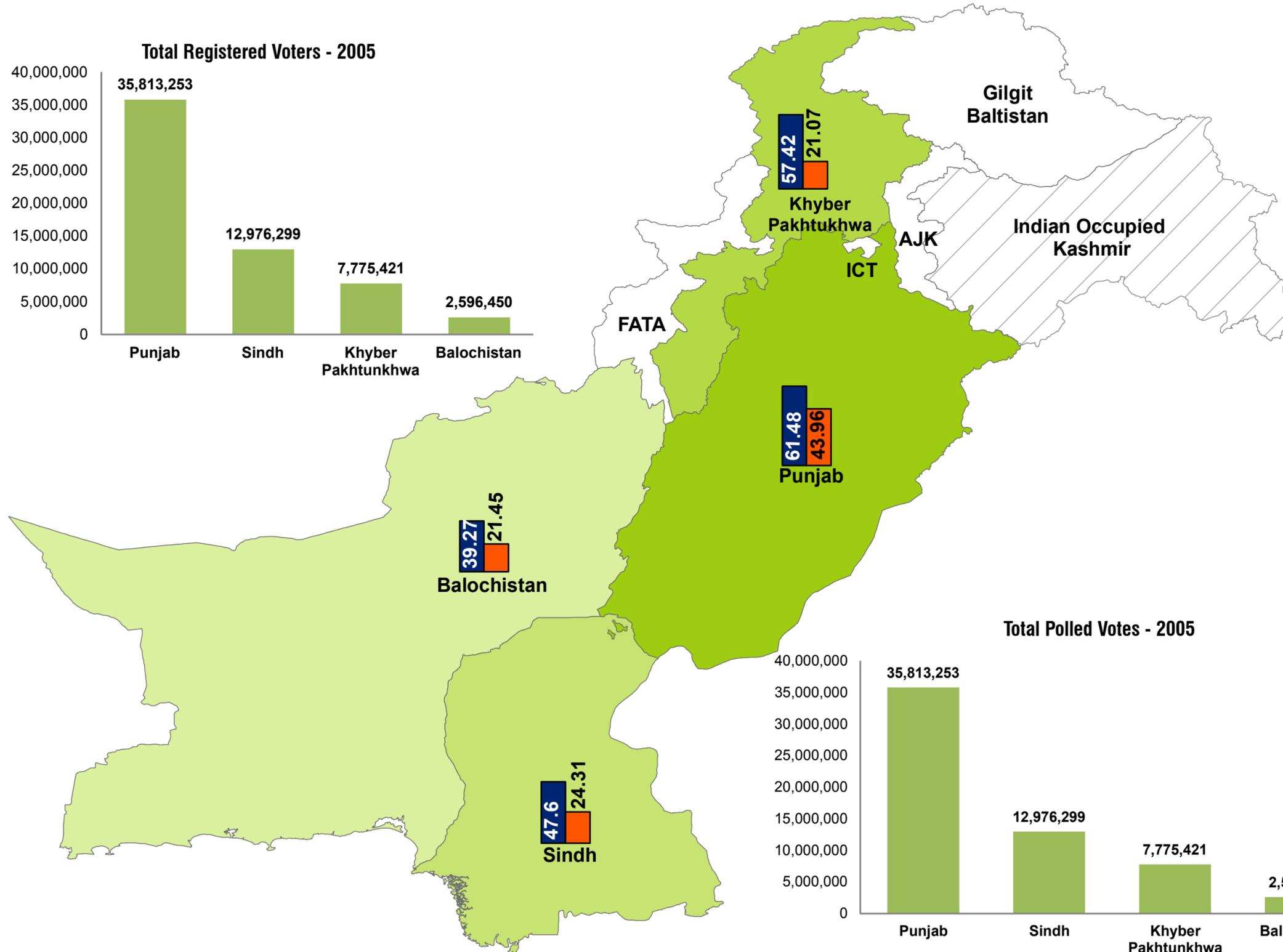
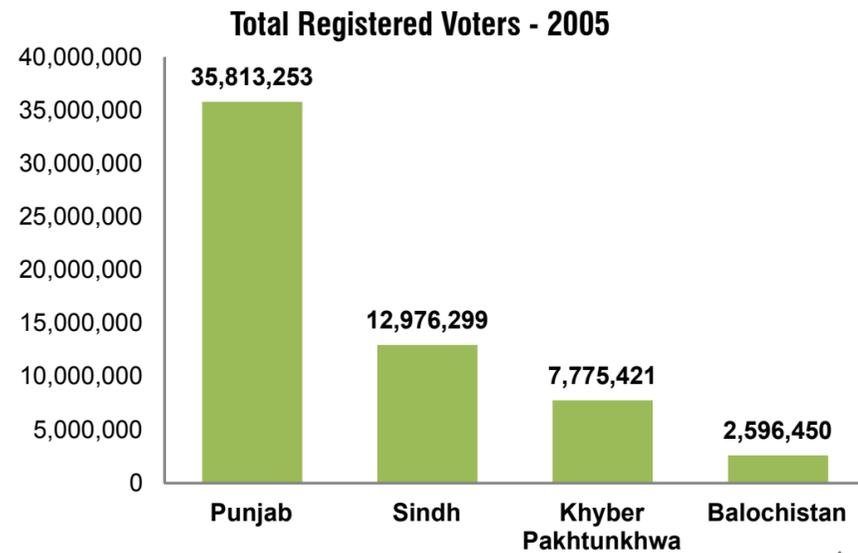
Despite these traditional bottlenecks, it is expected that with 18th Constitution amendment in place which has successfully transferred the powers from the center to the provinces, a watchful Supreme Court and vocal media we have begun our journey towards a truly devolved local bodies. With

successive democratic governments the political parties are expected to have better democratic structures for their own survival. The persistence of democratic tradition and matured political parties will indeed set the foundation for autonomous, inclusive and efficient local government systems as enshrined in our constitution. For sustainable local government systems, the provinces must ensure devolution of all the three key elements of governance i.e. political, administrative and financial. Any skewed and unbalance system would yield same results as it has been in the past.

Functioning local governments with essential political devolution will facilitate greater popular participation in governance. Such devolution will bring government closer to the people and reduce their alienation from the political process in Pakistan. Administrative devolution in true spirit will curb excessive concentration of power at the top, allow better maintenance of law and order, enable local people to articulate their interests and needs, and will ensure bottom up development process. Fiscal decentralization will allow retention of resources at local level which result into stimulation of local economies, employment opportunities local level and further mobilization of local resources for development process.

It can be clearly seen from the above debate that once truly empowered local bond are set up and start asserting themselves only then the basic tenets of good governance, e.g. openness, transparency, fairness and probity can be assured. Without vibrant, participatory, and autonomous local government, the much need goal of good governance will remain a distant dream in Pakistan. ■

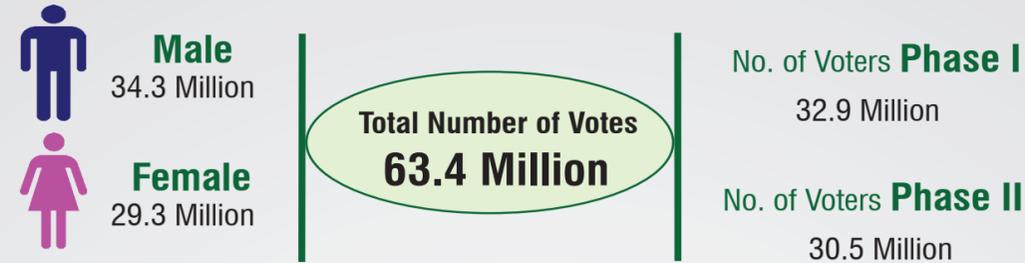
# LOCAL GOVERNMENT ELECTIONS 2005 - PROVINCE WISE TURNOUT



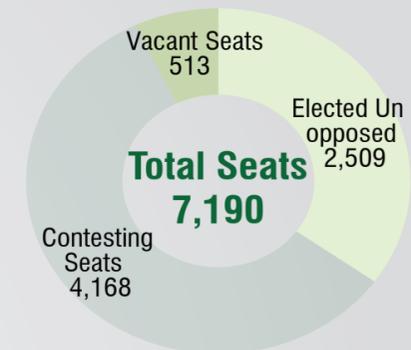


## PAKISTAN - LOCAL GOVERNMENT ELECTIONS 2005 & 2013

### VOTERS TREND - 2005



### TOTAL NUMBER OF SEATS - BALOCHISTAN - 2013



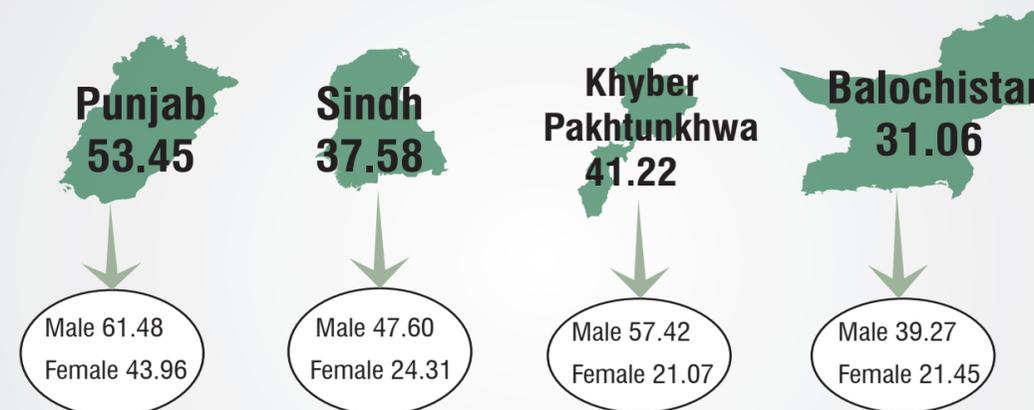
### NO. OF UNION COUNCILS

Total no. of Union Councils: 6,132  
 Union Councils in Phase-I: 3,074  
 Union Councils in Phase-II: 3,054

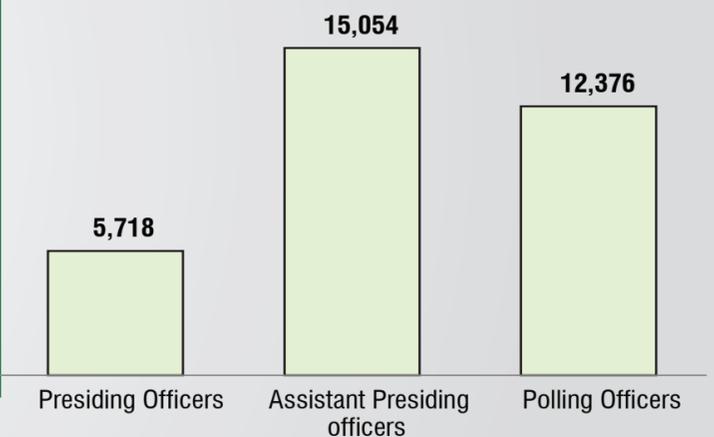
### TOTAL NOMINATIONS FILED

Total No of Nominations Filed: 2,66,427  
 Contesting Candidates Phase-I: 1,14,154

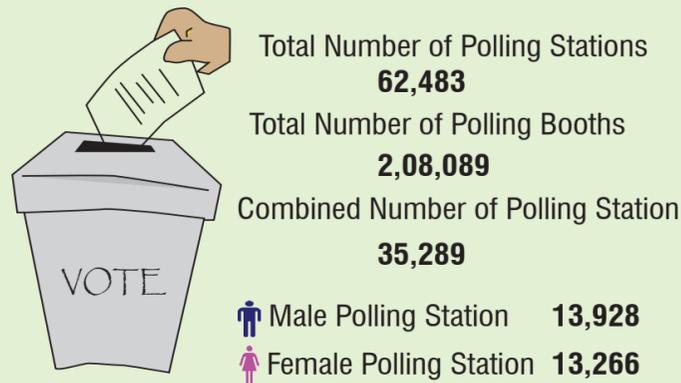
### PROVINCE WISE TURNOUT (%) LG ELECTIONS 2005 (PHASE I & II)



### BALOCHISTAN POLLING PERSONNEL - 2013



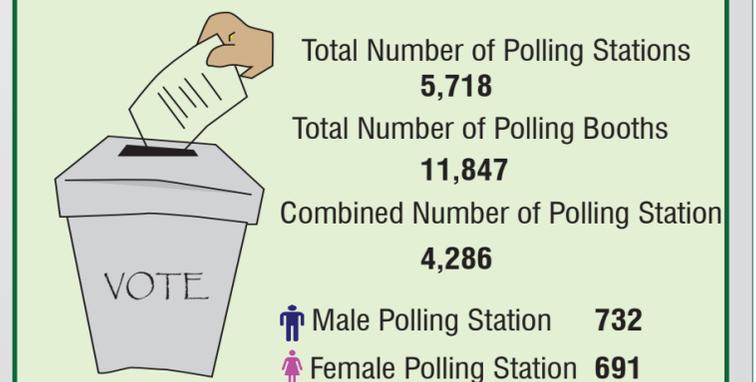
### POLLING STATIONS - 2005



### ZILLA, CITY, DISTRICT COUNCILS 2005 AT A GLANCE

Provinces	City Districts	Districts	Unions	Tehsils	Towns
Punjab	05	30	3,464	106	38
Sindh	01	22	1,108	103	17
KPK	01	23	986	50	04
Balochistan	01	27	567	75	02
<b>Total</b>	<b>08</b>	<b>102</b>	<b>6,125</b>	<b>334</b>	<b>62</b>

### BALOCHISTAN POLLING STATIONS - 2013



Source: Election Commission of Pakistan



## Iraq Prime Minister Nouri al-Maliki Steps down

Islamabad (Monitoring Desk) Iraq's PM Nouri al-Maliki "relinquished the post of prime minister," on August 14, according to Iraqi State TV. The announcement came four days after Iraqi President Fuad Masum nominated Haider al-Abadi to be Iraq's new prime minister. Maliki said he was stepping down in favor of a more unified and stable Iraq and offered his support to Abadi, according to Iraqi state TV. His decision to resign, he said, was to avoid any Iraqi bloodshed.

The Iraqi National Alliance, a coalition of Shia parties in Iraq, nominated Abadi for the job on Monday and he has since held meetings to form a governing majority inclusive of both Sunnis and Shiites to help minimize sectarian violence in the country.

Earlier in the week Maliki protested his replacement, saying he would pursue a legal case against the president, a case he has since decided to drop. In the April elections, Maliki's party, the Dawa Party, won the biggest political block and as their leader he said he was rightfully entitled to the prime minister position. However, many in the country have blamed Maliki for Iraq's deepening and deadly sectarian divide.

Abadi's task to form a unified government will not be easy. Iraq's political deadlock has long isolated the Iraqi Sunni population and some experts believe this allowed for the rise of insurgents like the Islamic State.

The Islamic State's success is partially because they were up "against a house of cards, a state structure weakened by accumulated Sunni grievances," the International Crisis Group has said.

U.S. Secretary of State John Kerry said on Tuesday that the U.S. would "fully support a new and inclusive Iraqi government."

## 63pc Pakistanis marks 2013 election fair

ISLAMABAD: A substantial 67% of the country's population believes that democratically elected governments constitute the best system for Pakistan. Crucially, the popular appetite for another Army rule in the country remains low as only 19% Pakistanis see another military rule as the best system for the country, reveals a PILDAT public opinion poll.

The PILDAT's nationwide poll was conducted during July 16, 2014 to August 6, 2014 with a large sample size of 3,065 citizens throughout Pakistan. The study reveals that on top of the pyramid is Punjab's Chief Minister Shahbaz Sharif with 57% positive ratings.

He is followed by Prime Minister Nawaz Sharif who received 53% positive ratings. At 52% positive ratings nationwide, chairman of the PTI Imran Khan is viewed nationwide as a good or very good leader.

While 63% of all Pakistanis believe that the General Election held in May 2013 was somewhat to completely transparent and fair, 37% respondents see the May 2013 Election as somewhat rigged to completely rigged.

It further states that an overwhelming majority of Pakistanis, 85% believe that it is critical that the Election Commission of Pakistan's functions need to be reformed and reconfigured. In comparison, 67% people felt the need for electoral reforms in a poll upon the conclusion of 100 days of National and Provincial Governments in September 2013.

## Iranian parliament sacks minister, a setback for President

(Reuters) - Iran's parliament sacked the science, research and technology minister on August 20, a victory for the conservative critics of moderate President Hassan Rouhani.

In their impeachment motion - the first time parliament has sacked a minister since Rouhani's election last year.

The unrest was sparked by the re-election of Rouhani's predecessor, Mahmoud Ahmadinejad, which reformist-minded Iranians believed had been rigged. State forces stamped out the protests and the two figureheads of the reformist "green movement" were placed under house arrest, where they remain.

In a defiant reaction to the impeachment vote, Rouhani quickly named another moderate as acting science minister, Mohammed Ali Najafi, who was blocked by parliament

from becoming education minister after the president nominated him last year.

Rouhani has repeatedly clashed with conservatives in parliament and other state institutions who disagree with his liberal rhetoric and his decision to hold negotiations with the Western powers that Tehran has long considered enemies.

His election had raised hopes among liberals for an easing of political and social restrictions, but Rouhani has yet to make significant policy changes in those areas.

Supreme Leader Ayatollah Ali Khamenei, has given cautious support to Rouhani's strategy to seek a negotiated solution to Iran's nuclear standoff with the West, and has stepped in to defend his foreign ministry pick, Javad Zarif.

But parliament's success in sacking the science minister shows Rouhani still faces big opposition to domestic reforms.

In Wednesday's vote, 145 parliamentarians voted to oust Faraji-Dana, 110 voted to retain him and 15 abstained, the official state news agency IRNA reported.

## Pakistan PM calls for probe into election rigging

Islamabad: Pakistan's Prime Minister Nawaz Sharif on August 12, announced a probe into alleged rigging in last year's elections, a move rejected by main opposition leader Imran Khan.

The announcement was made two days ahead of the country's Independence Day celebrations, when followers of Khan and populist cleric Tahir-ul-Qadri plan to march on the capital to demand that Sharif's government step down ahead of a fresh vote.

Addressing the nation on TV broadcast, Sharif said: "The government has decided that for independent and transparent investigations into the allegations of rigging, a three-member commission of Supreme Court judges should be formed.

Khan, a former cricket star who heads the country's third largest political party, said he would accept a corruption commission only under a caretaker government. "Nawaz Sharif must first step down," he said.

The government for its part has rejected the allegations and accuses the opposition groups of attempting to obtain by force what they could not achieve through democratic means.



## Dubai Goes Green

As the persistent drought continues throughout North Africa and from Turkey through the Persian Gulf and South Asia, water has become the strategic material of the 21st Century. People can crave oil or chase after gold, but fresh water means life. Nothing replaces fresh water.

On July 16, 2014 Sheikh Mohammed bin Rashid Al Maktoum, the UAE's Vice-President and Prime Minister and Dubai's Ruler launched the UAE Water Aid Foundation. It's part of Sheikh Mohammed's larger and continuing efforts to bring water security to a thirsty world. The UAE has had great success in drilling water wells in what is becoming a true world-wide effort to provide water to people in need. The UAE has been drilling wells in East and West Africa,

Afghanistan, India, Pakistan and the growing deserts of Northern Syria and Iraq – including a well provided by the Sheikh at the Syrian refugee camp in Erbil in northern Iraq.

As part of the launch, Sheikh Mohammed announced a \$1 million prize for the development of sustainable, cheap solutions to the world's water shortage. It won't be easy, Sheikh Mohammed wants a sustainable solution that uses solar power to produce clean, fresh water for millions of people.

Desalinization isn't a new idea. Saudi Arabia is currently the world's largest producer of processed seawater with 60% of the global market. In April 2014 the solar-powered Ras al-Khair facility started into production. When the first phase is completed the sprawling site will produce 264 million gallons of fresh water daily

By: Michael Calabrese



and 2,600 megawatts of electricity. 98.8% of Dubai's water already comes from desalination and the balance (1.2%) comes from scarce ground water. Removing salt and other impurities from seawater has been used in the Persian Gulf for years, but the extraordinary costs have been forbidding.

For plants running on conventional fossil fuels, power alone can make up 50% of operating costs. Most facilities use natural gas for power and rely on diesel for back-up. With the population growth in nations along the Gulf's southern coast, most of the region's oil production would be consumed to meet their needs for water by 2050. Projections in Kuwait show that they will use 100% of their energy resources to generate water by 2035. Switching to sustainable solar energy to generate potable water is the only option and Sheikh Mohammad has good reason to look forward and offer the prize.

Joining in the effort, GE Ecoimagination and Saudi Aramco have opened a \$200,000 competition to spur

development. Small facilities using heat/evaporation techniques could support smaller communities, but larger facilities, processing millions of cubic meters of water daily are needed to support cities and industry. The true issue is efficiency at scale.

### Current Solar/Water Research

The problem of scale has two solutions: The mega facility (like the new Saudi facility) can produce massive amounts of potable water, but it is limited in terms of application. Saudi Arabia is the largest economy of the Gulf. They've committed \$7.2 billion to their solar/water project.

A second approach is modeled on multiple smaller-scale plants that can feed multiple supply systems within a region. Abu Dhabi has opened scored of these plants with over 25 in operation now with 30 smaller solar-driven plants coming on-line by 2015.

Switching from fossil fuel to Solar energy solves one of the greatest cost

hurdles in water processing, but the method of salt extraction also has great impact on cost and efficiency.

Thermal desalination uses both electricity and heat for evaporation and cooling/condensation for retrieval of fresh water. Most facilities use waste heat from power plants, to supplement natural gas, but such fuels are always used; sometimes in extraordinary amounts. Multi-stage "Flash" technology is very costly using 80.6 KWh in heat and about 3.0KWh in electricity per cubic meter of fresh water. Its advantage lies in lower start-up costs as a simpler system is being employed.

In contrast, Reverse Osmosis (RO) and multiple layer process that employs chemical pre-filtering to remove chemical pollutants, and organics while separating less salty water prior to processing and forces that water through a series of filters (some using charcoal) and multiple membranes for the final cleansing. It cost more in technology and set-up, but greatly reduces power consumption. RO uses 3.5 -5 KWh of electricity per cubic meter of water and



no heat. By 2012, RO accounted for 60% of global desalination production.

The greatest immediate increase in efficiency will probably come not from developments in energy technology but in the development of new membrane materials for filtration. The nations of the Persian Gulf have pressed for new filtration membranes for years. New polymer materials protect the membrane from chlorine (used to pre-treat the water) and prevent the filter system from clogging from oil and marine life.

Global desalination capacity has increased 57% over the last 5 years. Most of the increase is due to the drop in solar technology cost. The drop in costs has prompted planning for a larger scale implementation in Yemen. A 1250 MW “parabolic trough” is being considered to desalinate water from the Red Sea and pump it 250 km to Sana, the capital. That project might cost some \$6 billion, but it is becoming a possibility as costs drop.

GIS technology will play a critical role in the location and sizing of any desalination facility. The analysis requires the most complex assessments of divergent factors from geological surveys and soil quality assessment (truly “ground truthing” in every aspect) to accounting for changing coastlines. Other factors include population growth, projections on energy costs, water quality analysis (salt levels, pollutants, organic matter), weather patterns, and a

compilation of social & political dynamics. There is no other means to gather the data, assure that we plan to meet our true needs and meet the demands of the future. Geospatial technologies will run the gambit from enhanced satellite image of the land, advanced water monitoring, plot the courses of multiple delivery systems and project growth. Satellite mapping using Lidar technology will even determine the placement of solar panels for maximum power generation.

Among these, the toughest elements will be projections defining the future of the Persian Gulf and the impact of climate change on not so long-term planning. Here is why.

- The average saline content of the world’s oceans is 35 parts per thousand (shown as 35ppt).
- The Persian Gulf is a shallow sea with warm water and a higher evaporation rate. By 2009, saline content measurements of 50ppt were becoming common.
- With the continuing drought, less fresh water flows from the Tigris and Euphrates rivers into the Shaat Al-Arab; and from there into the Gulf. This is virtually the only fresh water source entering the Gulf, increasing the salt content further.
- Industrial and urban development has really only started along the southern coasts

of the Gulf. Mega oil and cargo terminals, new cities, new growth will increase the petroleum and organic pollutants entering the water.

- Desalination plants discharge the brine removed from the water back into the Persian Gulf. There is no total figure available for the entire Gulf, but the plants along the west coast of the Persian Gulf discharge 3.4 million cubic meters of brine-water daily with a saline level of 74ppt, over twice the natural ocean average.

All this means that a race is on. Water desalination plants get built to meet the needs of the people and the economy, solar energy lessens to cost allowing greater access to fresh, clean water, until the day that the Persian Gulf can no longer support life – or the extraction of fresh water.

GIS will also be important because the changing geography of the Gulf due to climate change. Along the southern coast, the rising sea levels could mean that poor site location can lead to flooded processing plants. In the northeast along the Iraqi coast, the drought continues, but the water flowing down the Shaat Al-Arab still carries its silt load to the Gulf. The delta thickens and channels clog and the shoreline grows ever further from the cities and the towns of the coast. Water lines can be lengthened and there will be a solution in the north. In the south, planners will assure that plants are sited on safe ground.

The shift from fossil fuels to solar power and other renewable sources is a natural transition. The Middle East and North Africa (MENA) and Gulf States are prime territory for solar power generation. As solar production increases and greater application are found across the Gulf States, Europe and the Americas and Asia the costs can only decrease. It is also natural that solar technology be applied in the quest for water.

According to the United Nations, 1.8 billion humans will suffer from acute water shortages, many of them will live in MENA and the Persian Gulf. Demand for desalination in the Gulf can only grow along with the population and increasing development. The need for desalination will grow by 9% through 2016 in MENA alone. MENA will need 110 million cu/m per day by 2030 according to the International Energy Agency. ■

## Qatar tops the EIU ranking for Business Environment in GCC

According to the World Bank and Economist Intelligence Unit (EIU) 2014 reports, the GCC countries presented a robust business environment in the last few years and will continue to maintain high positions for the period of 2014 to 2018. This can mainly be attributed to the wide fiscal surplus as GCC countries remains the global supplier of oil products and due to high energy product prices their surplus continues to grow.

The key driver in the coming years will be the large infrastructure investments planned after Dubai and Qatar won their bids to host the World Expo in 2020 and the World Cup in 2022, respectively. For instance, the World Expo event is expected to attract 25 million people from abroad, and bring around \$23 billion of investments in Dubai. However, some of the GCC countries such as Bahrain and Saudi Arabia did not fare well due to their internal political instability. The Economist Intelligence Unit (EIU) recently published its annual “Business Environment Ranking” for 2014. The report is currently ranking Qatar in the 21st place out of 82 countries, among the top 25 percent of the world and the highest within GCC countries.

Qatar is forecasted to remain in the same position for the period 2014-2018. United Arab Emirates comes in the 29th place, and the country is predicted to fall slightly to the 30th place in the next four years. Bahrain is in the 33rd place, and is estimated to lose a couple of spots to reach the 35th place. The Kuwaiti economy is at the bottom of the GCC in the 39th global position, although still in the top 50 percent, and is expected to witness a notable fall to the 45th position. The ranking is led by Asian economies: Hong Kong and Singapore are the first and third top economies and Taiwan and Malaysia lead among emerging economies.

## GCC equity markets experienced a strong correction in Q2

According to a recent report by National Bank of Kuwait (NBK), GCC equity markets shed \$21b in Q2 as a result of the current deteriorating situation in Iraq.

GCC markets’ capitalization was at \$1.06 trillion as of the end of June, 2014 and the S&P GCC index gains fell by eight percent from the beginning of the year.

GCC markets had seen strong rallies in the first five months of 2014, led especially by gains in UAE and Qatar. The decision by MSCI to upgrade the UAE and Qatar to “emerging market” status from “frontier markets”, which took effect in June, gave a strong boost to regional markets. In addition to that, the outlook for the GCC economies remained favorable especially when compared to emerging markets that continued to show signs of weakness.

Solid fiscal positions supported by high oil prices also promised a solid base for continued strong development spending. Strong corporate profitability, which picked up and is expected to continue to improve, also fed into the regional rally.

Among regional markets, the Dubai Financial Market (DFM) saw the biggest correction in 2Q14, declining 11.4 percent. Even with this decline, DFM remained the best performing market in the region ytd. By contrast, Bahrain Stock Exchange (BSE) was the best performing market in 2Q14, gaining 5.2 percent, followed by Oman’s stock market with a 2.2 percent gain.

The Saudi market was flat on the quarter while all remaining GCC markets were off.

## Slipping further away from stronger GCC ties

Saudi Arabia, Bahrain, and UAE withdrew their ambassadors from Doha after the inability of Gulf governments to form a unified political stance on events in Egypt, Syria, Iraq and Palestine. According to some analysts, this is a strong indicator that Gulf authorities disagree on key issues and this is bound to have an impact on economic cooperation within the member states.

Oman is already lukewarm to the idea of developing closer ties and with a whole host of regional issues flaring up, the concept of a

stronger GCC 2.0 seems like a distant dream, at least for now.

## 16 MENA IPOs raise \$2.4 in H1

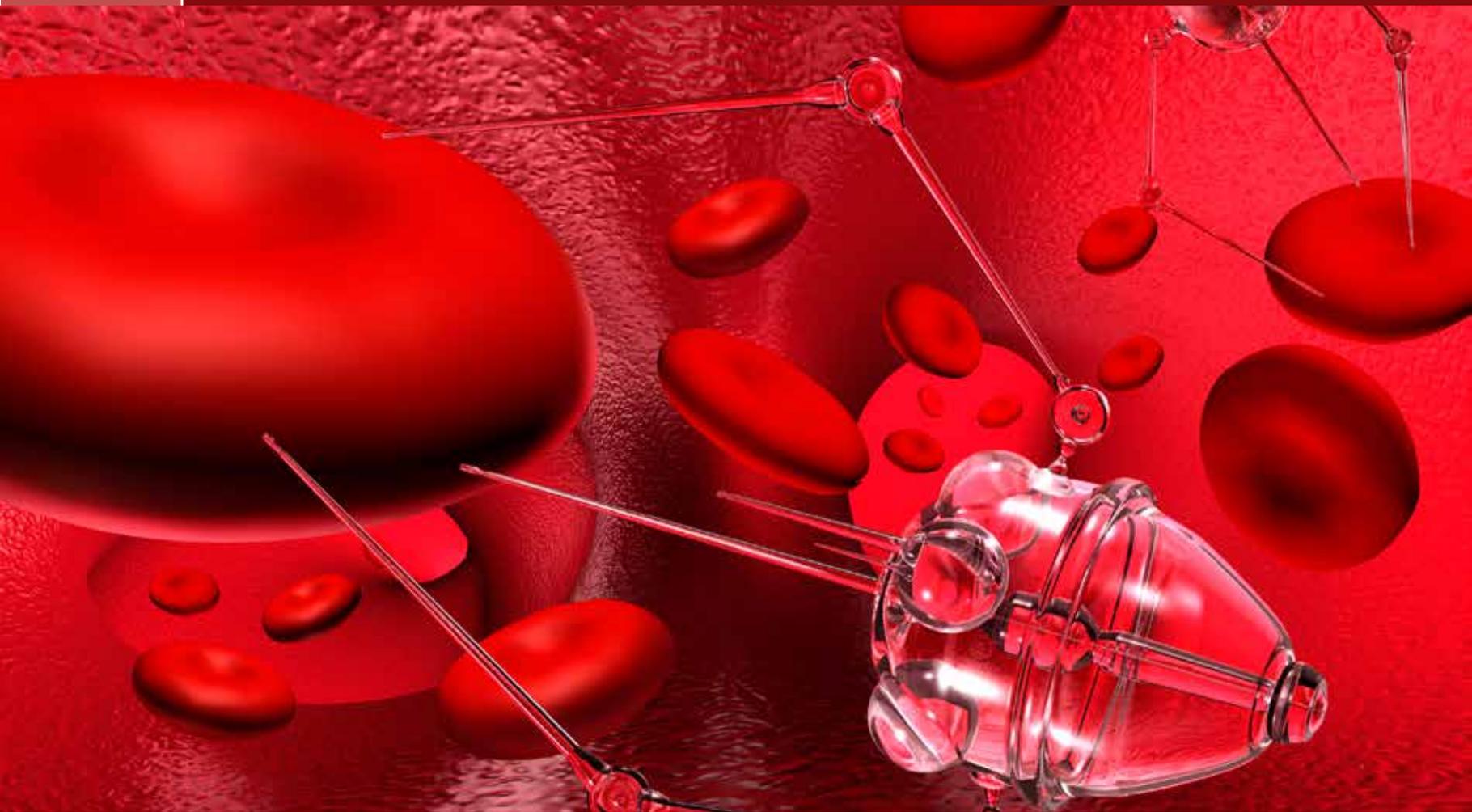
The recent IPO (initial public offering) market in MENA raised \$2.4 billion from 16 IPOs in H1, 2014. This has been the market’s strongest performance since the economic meltdown of 2008. At that time, the MENA market raised \$9.4 billion from 36 issues in H1, 2008.

### IPO listings

Despite sustained public spending by GCC economies to offset the fallout from the global economic slowdown, business and investor sentiment suffered due to lack of liquidity in equity markets. A decline in trading volumes and negative investor sentiment strained stock markets, causing many local companies to cancel or postpone IPOs. The Tadawul All Share Index contracted 55.2 percent in 2008. The Dubai Financial Market General Index lost 73 percent, falling from 6003.3 at the beginning of 2008 to 1636.29 by the end of the year. From 2008–13, 15 IPOs were cancelled and the number of listings declined from 52 in 2008 to 18 in 2009.

The IPO volumes and capital raised remained low after 2008. Liquidity in the market dried up further, as banks in a few GCC countries like Saudi Arabia ceased lending for stock purchases due to high probability of defaults and, consequently, hefty provisions for impaired stock loans. Local companies chose other fundraising routes like sukuk over IPOs. Sukuk worth around \$19.5 billion was issued in MENA in 2011, an increase of 183 percent over that in the previous year. In the same year, IPO listings were the lowest, with less than \$1 billion raised, down 67.9 percent from the previous year.

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# The Future of Medicine: Nanotechnology

**N**anotechnology is the science of studying and controlling individual atoms and molecules at the nanoscale, which is about 1 to 100 nanometers and can be applied in a broad spectrum of scientific areas such as physics, engineering, material science, biology and chemistry. It is practically impossible to realize how small nanotechnology is but, considering that there are 25.4 million nanometers in an inch or that a newspaper sheet is 100,000 nanometers thick, one can realize how useful nanoscience can be.

**By: Muhammad Bazil**

Nanoscale materials were used in cosmetics, sunscreens, electronics

equipment, but also in cigarette smoke and diesel exhaust. Yet, the developing field of nanotechnology includes newly produced, highly-engineered nanoparticles, with an expanded surface area compared to their diameter, which makes them innovative and easy to handle. In fact, based on “quantum effects“, properties of nanomaterials are size-dependent in this scale range, and therefore, properties such as melting point, fluorescence, electrical conductivity, magnetic penetrability, and chemical reactivity change as a function of the size of the particle. Nanotechnology enables scientists to utilize the sophisticated electrical, chemical, mechanical, and optical properties of nanomaterials that naturally occur at the nanoscale as the basis for

### Nanotechnology Applications in the GCC countries

	Petrochemicals & Chemicals	Water	Materials	Energy & Environment	ICT	Life Sciences
<b>Nanoparticles</b>	+++	++	+++	+++	+++	+++
Nanoporous Materials	+++	++	++	+++	+	+
<b>Carbon Nanotubes</b>	++	+	++	++	++	+
Thin Films	+++		++	+++	+++	++
<b>MEMS Sensors</b>	+++	++	++	++	++	+++
MEMS microstructures	++	++	+++	+++	+++	+++
<b>Biocatalysis</b>	++	+	+	++	+	+++
Biosensors	+	++	+	+++	+	+++
<b>Biopolymers</b>	+	++	++	++	+	+++
Nanotechnology	++	+	++	+++	+	+++
<b>Pharmaceuticals</b>		+		+		+++
Health Care Technology					+++	+++

Table 1: Adapted from "Knowledge-based industries in the GCC region - Prospects and Challenges", Gulf Organization for Industrial Consulting and SRI International.

advanced nanotechnology applications in multiple fields.

Nanomedicine is a major field of nanotechnology, which serves as the basis for more effective and greatly beneficial drugs. In the GCC region, recent developments in medical technology have facilitated key discoveries in nanomedicine. Qatar is devoting increasing resources to Nanomedicine and Stem Cell-Based approaches for the prevention and treatment of obesity and metabolic diseases. The Government of Pakistan, acknowledging the socioeconomic benefits of nanotechnology, has created a National Commission on NanoScience and Technology (NCNST) with the aim of promoting R&D. Several projects have been launched in the period 2003-2008 by universities and R&D centers dealing with nanoscience and have motivated more institutions to engage in R&D in nanoscience and nanotechnology in Pakistan.

### Benefits and Risks of Nanomedicine

Nanomedicine applies principles of nanotechnology towards the improvement of human health. There are quite a few benefits and risks associated with a number of potential applications for medical nanotechnology, which can be summarized as follows:

#### Benefits of nanomedicine

##### Cell repairing

Nanomedicine is applied in the manufacture of molecular machines and nanobots with the ability to enter the human

body and perform variable operations, including cell repairing. The nanodevices distinguish different types of molecules of one type of body cell from another and repair the body cells. In heart-related treatments, nanomedicine is used to unclog cholesterol-filled plaque inside the heart. In the process of bone healing, the use of polymer scaffolds containing stem cells accelerates the recovery of bone injuries through cell repairing.



##### Effective drug release

Unlike conventional drug release methods, nanomedicine contributes to the creation of smart drugs, which expedite the healing process. With the use of nanovehicles that adjust the drug delivery system to the needs of each patient, nanomedicine treats life threatening diseases like cancer or diabetes, or contributes to tissue regeneration and immunity. Usually, nanovehicles are microchips or microneedle-based transdermal patches, which release the medicine into the blood in a timely and controlled manner.

#### Abnormal genes repair/replacement

In the context of regenerative nanomedicine, nonfunctional genes can be repaired or replaced with the application of innovative technology, which monitors the gene transfer status and identifies the immune system response. Gene therapy widely includes the development of novel gene delivery, including the development of effective strategies for the delivery and integration of therapeutic genes to body organs and tissues.

### Risks of nanomedicine

The major risk associated with nanotechnology is the toxicity of the nanoparticles. Testing in laboratory animals has shown that the release of toxic carbon nanotubes may cause adverse effects on the organism, including pulmonary inflammation and fibrosis. The large surface area of the nanoparticles relative to their tiny size causes inhaled nanomaterials to penetrate the cells, enter into the circulatory system, and move to the lungs. Other tests suggest that some nanoparticles may enter the skin. Although the collected information from animal testing is insufficient to firmly conclude that nanoparticles may pose a risk to the human health, the release of toxicity is a factor that requires further testing and evaluation to fully understand the health and ecological effects of nanoparticle exposures.

### Shifting towards the East - The "New Silk Road"

In the last two decades, the global economic power has shifted to the East. China's rapid economic expansion and the exploitation of the country's natural resources have transformed China into a significant economic power globally as well as a viable export market. It is estimated that by 2030 the emerging economies will represent 66 percent of the global economy, while by 2016 the emerging economies (EMEs) will account for 72 percent of the global economy (Chart 1).

The "New Silk Road" is a US initiative that aims to strengthen the ties with China on a political and economic context and ensure a growing security in the area. The GCC countries have the potential to elaborate on existing trade and investment relations with China, given that the Gulf is a natural border between Asia and Africa. In particular, the United Arab Emirates, located at the mouth of the Gulf, serve as



advantage and a great potential to invest in nanotechnology and become major producers and exporters of nanomaterials, a sector that will also create new job opportunities.

The area of nanotechnology has become increasingly important. Nanoparticles have gained significant scientific interest and can effectively serve to the building of atomic or molecular structures. The properties of nanoparticles are size-dependent, and their extended surface area is responsible for their unique electrical, chemical, mechanical, and optical properties, which serve as the foundation for advanced nanotechnology applications in multiple fields.

The financial and economic development of the GCC countries has altered the global economic environment. In particular, the trade and economic relations between China and the GCC are widely regarded as a key factor in the economic relationship of the Middle East with the leading trading nation in the world. In this context, the “New Silk Road” initiative aims at capitalizing on the trade and economic potential in Central Asia and empower the relationships of China with the MENA region on the basis of a trade-oriented approach.

The nanotech partnership between China and the GCC countries indicates the need for the creation of an energy cooperation with the potential to capitalize on China’s leading position in clean energy. Given that energy is the major pillar of the GCC region, this bilateral economic cooperation is expected to be beneficial for trade and investment as well as for the construction sector. Finally, the increasing imports of China’s products from the GCC allows China to maintain a comparative advantage in East Asia.

China’s logistics hub. Nearly 70 percent of China’s exports is promoted in the MENA region, other Asian countries and the North Africa via the UAE. Additionally, the investment inflows between China and the GCC countries have significantly increased as a result of the removal of restrictions on foreign investment, which creates new opportunities and contributes to the diversification of the local economies as well as to the economic integration of the region. In fact, the “New Silk Road” indicates the need for global demand and supply to emerge from China and grow in Asia, the Middle East, Africa and Latin America.

billion, with China-GCC trade accounting for the majority share, McKinsey forecasts.

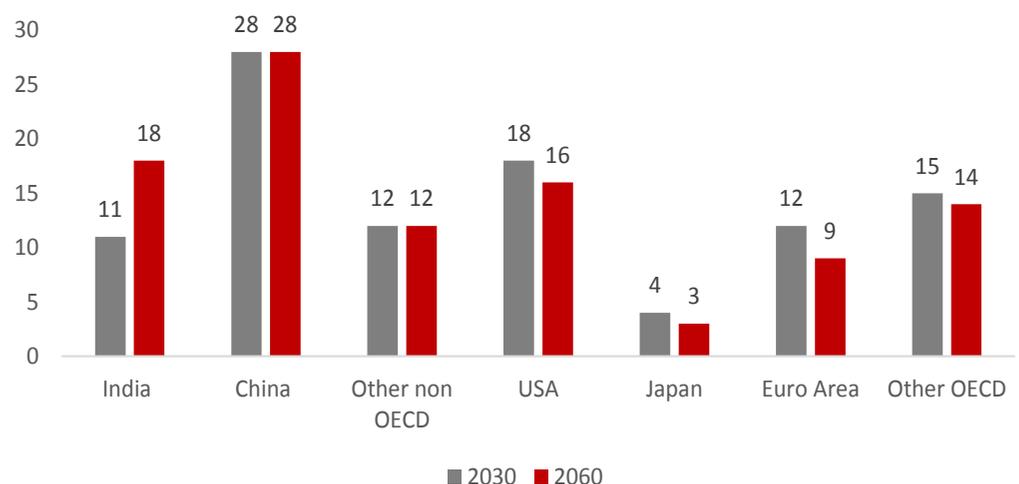
### Nanotech partnership between China and the GCC

In the context of the GCC-China Strategic Dialogue, which was initiated in 2010, the GCC countries are seeking for a nanotech partnership with China to capitalize on China’s powerful presence as a global leader in clean energy. Given the long-standing ties between China and the MENA region, but also the fact that the GCC countries have significant solar and wind resources, the construction of solar power energy and technologies is highly encouraged in the region. The partnership is expected to provide the tools and resources for undertaking R&D in renewable energy, water management, solar power and energy capacity. Due to their geographic location and climate, the GCC countries have a comparative

### Statistics about the China-GCC trade

The shift of the global economy to the East has altered the global production patterns and has forced investment and capital markets to absorb the effect of economic integration in the EMEs. In 2013, China was the leading trading nation in the world with \$4.16 trillion in cumulative imports and exports. China’s trade with the GCC countries accounts for 3 percent of this amount and 70 percent of the total Sino-Arab trade. China’s share of global trade skyrocketed to 10 percent, an increase of 233 percent since 2000 when the country joined the World Trade Organization (WTO). The EMEs are likely to continue overtaking the global markets, especially as long as the financial crisis continues in Europe and the US. China’s exports to the GCC are \$60 billion annually, whereas GCC’s exports to China in 2012 reached \$101 billion. By 2020, China’s trade with the Middle East is expected to reach \$350-500

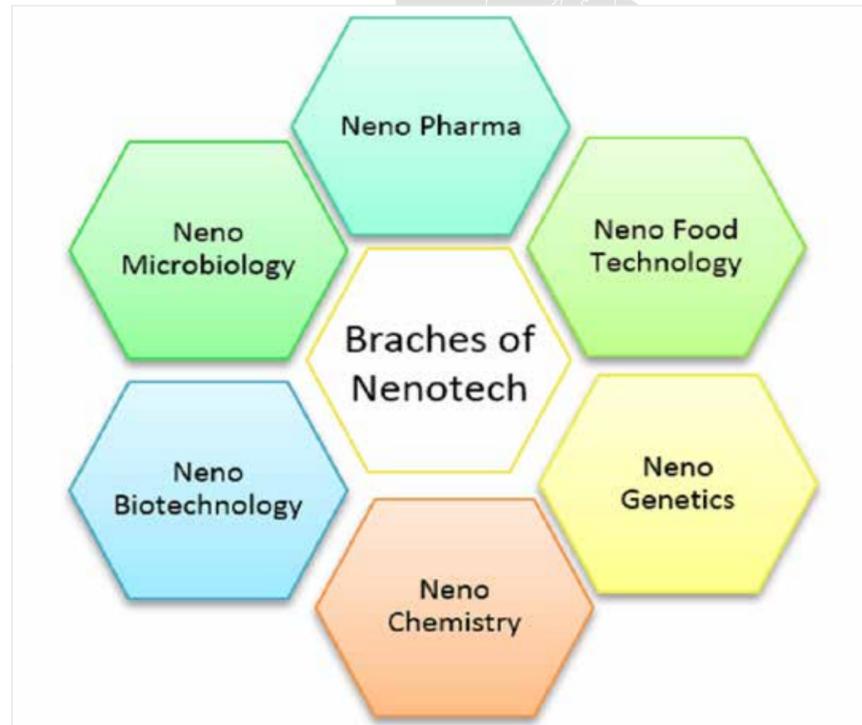
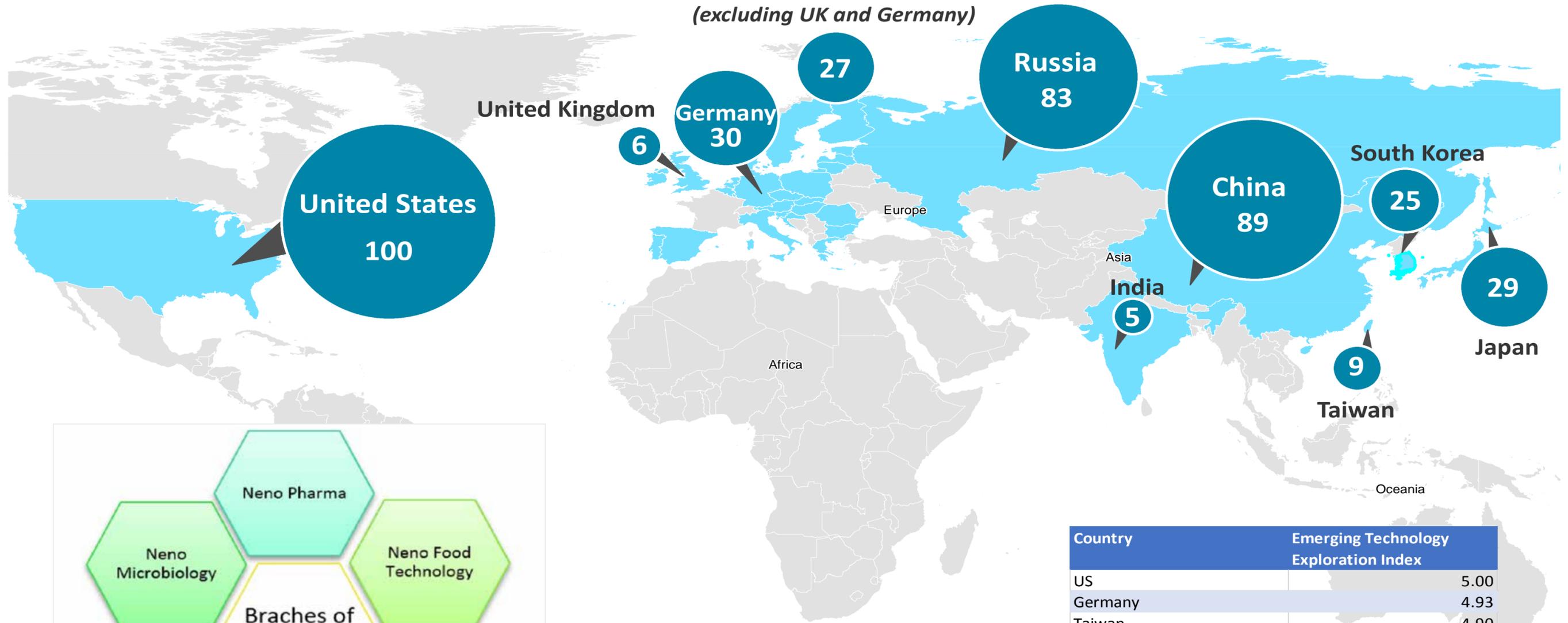
The Growth of the EMEs



# NENOTECHNOLOGY FUNDING - IMPACT FACTOR 2013

European Union

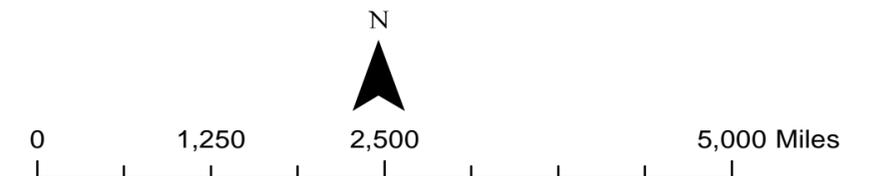
(excluding UK and Germany)



## Legend

- Countries Researching in Nenotech
- Impact Factor (How much research is contributing in industry and R&D funds available)

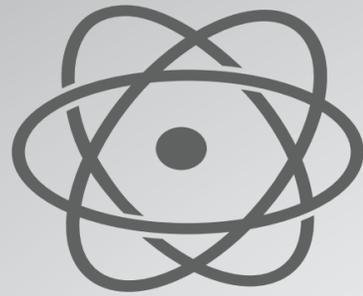
Country	Emerging Technology Exploration Index
US	5.00
Germany	4.93
Taiwan	4.90
Japan	4.88
South Korea	4.60
United Kingdom	4.55
China	4.30
European Union (excluding UK and Germany)	4.23
India	3.95
Russia	3.57



Creation Date:  
Projection/Datum:  
Paper Size:

Aug 1, 2014  
WGS84 Geographic  
A3

Dataset Source:  
Cientifica  
www.cientifica.com



# THE SCIENCE OF THE SUPER TINY NANOMEDICINE



## HOW SMALL IS SMALL?

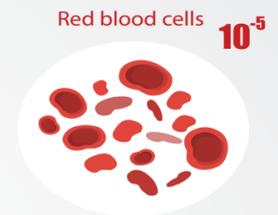
### Human hair

100,000 nanometres  
One 10th of a millimetre



### Red blood cells

10,000 nanometres  
One 100th of a millimetre



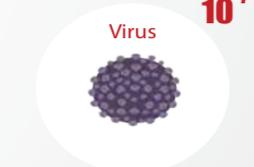
### Bacteria

1,000 nanometres  
One 1,000th of a millimetre



### Virus

100 nanometres  
One 10,000th of a millimetre



### DNA

10 nanometres  
One 100,000th of a millimetre



### Diameter of a carbon nanotube

1 nanometres  
One 1,000,000th of a millimetre



## WHAT IS NANOTECHNOLOGY?

Nanoscience and nanotechnology are the study and application of extremely small things and can be used across all the other science fields, such as chemistry, biology, and physics. Nanoscience and nanotechnology involve the ability to see and to control individual atoms and molecules.

## FUTURE OF NANOTECHNOLOGIES

The returns on R&D investments in nanotechnology in terms of future market size have been estimated somewhere in the range of

US \$150 billion in 2010  
to as much as



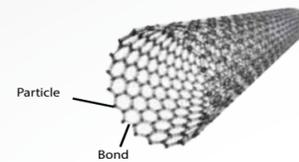
US \$3.1 trillion in 2015

## GLOBAL NANOMEDICINE MARKET (\$ billions)



## ANATOMY OF A NANOTUBE

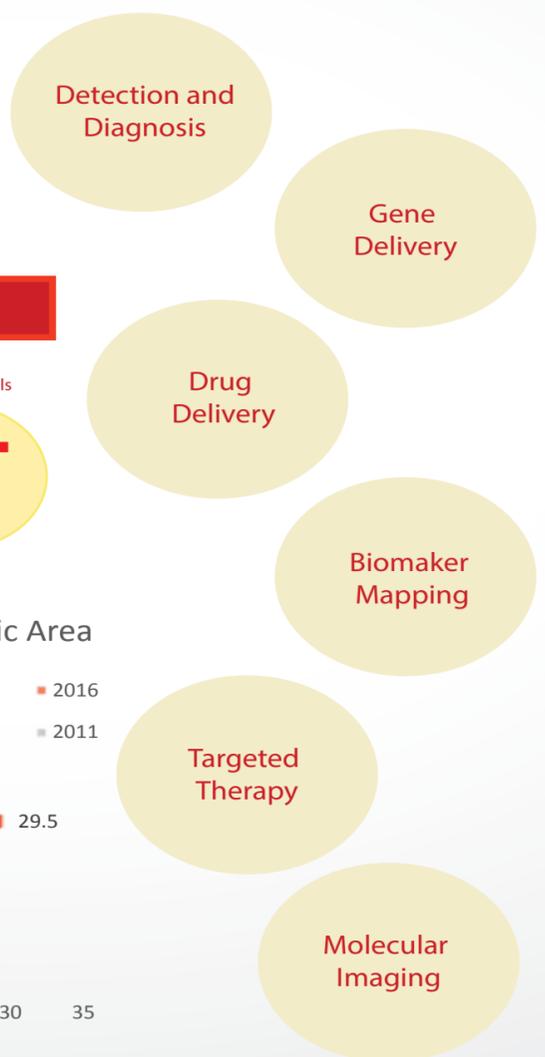
The basic cylindrical building block of many nano structures. It's a hexagonal network of carbon atoms rolled up to make a seamless cylinder.



## WHAT IS NANOMEDICINE?

Nanomedicine, refers to highly specific medical intervention at the molecular level for curing disease or repairing damaged tissues.

## APPLICATIONS OF NANOMEDICINE



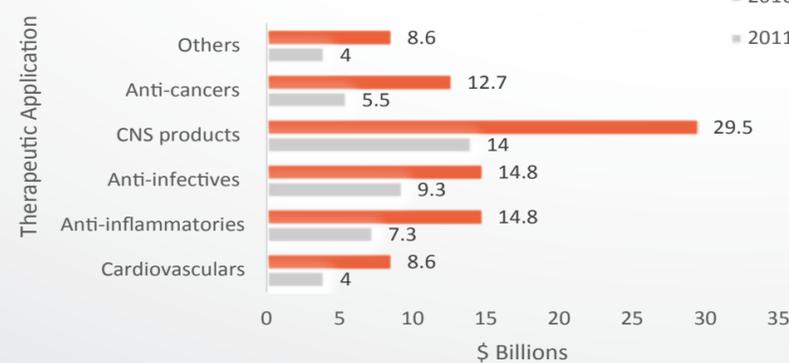
## HOW NANOMEDICINE WORKS?

Nanomedicine works by injecting nanoparticles into the body

### CAN BE USED TO



## Nanomaterial Global Sales by Therapeutic Area (\$ billions)



Source: <https://m1.behance.net>

<http://www.giiresearch.com/>

<http://static.guim.co.uk/sys-images/Guardian/Pix/commercial/2013/4/25/1366888502720/history-of-nano-food-001.jpg>

<http://www.associates-degree-in-nursing.org/nanomedicine/>

<http://www.oecd.org/sti/inno/43179651.pdf>

<http://www.hindawi.com/journals/jnm/2010/894303/fig4/>

## GCC states team up to fight the Ebola outbreak

The GCC Health Ministries Council met in Saudi Arabia to discuss the Ebola outbreak situation in the GCC states and around the world. The aim of this meeting is to develop strategies for prevention, treatment and dealing with individuals that are already infected with this killer virus.

Health care professionals from the GCC states spoke about the current situation at an international and domestic level, assessed the current situation, exchanged expertise on precautionary measures, readiness, monitoring and emergency response.

### Creating awareness

The GCC meeting will decide on producing pamphlets to create awareness. The pamphlet is likely to touch upon the nature of Ebola as a highly infectious disease, history of the current outbreak, symptoms, and transmission modes. It will have advice on personal safety and hygiene and ways to prevent exposure to the virus.

### Global status

The officials reviewed the global status, countries affected by the virus and the recommendations of specialised international organisations, such as the World Health Organisation (WHO) and US Centre for Disease Control and Prevention.

The participants at the meeting agreed on the measures for handling suspected cases, notifying them, the lab tests to be conducted, and preventive measures.

The Ministry of Health assured that no suspected case of Ebola virus has been reported so far in Oman. It called upon everyone to follow sound health practices, ensure hygiene particularly when it comes to keeping hands clean, and avoid travelling to affected countries, namely Guinea, Liberia and Sierra Leone.

## DHA hires 500 overseas nurses to support healthcare projects in emirates

The Dubai Health Authority (DHA) has hired over 500 overseas nurses to support the new healthcare projects in Dubai. 531 nurses were hired from different countries including India, Philippines and Jordan.

In a recent statement, DHA said that the expansion of the neonatal unit at Latifa Hospital is in its last stages of completion and the expansion of the trauma Centre is underway.

Abdulla Balhouma, head of planning and recruitment section at the DHA, said: "The move is in line with the growth of the health sector in Dubai. Few of the DHA's projects will be completed shortly, therefore we began the recruitment drive.

"The recruitment has been based on a detailed work-force plan which takes into consideration various factors such as specialty of manpower needed, number of nurses per hospital bed."

Balhouma said many of the nurses are highly specialised such as critical care nurses, intensive care unit nurses, obstetrics and gynecology nurses and surgical nurses. In addition to this, the DHA said it has been working with various medical colleges in the UAE to recruit Emirati nurses.

## New GCC medical facilities contracts rise by 25%

In its drive to become a center for medical excellence in the region, Dubai Health Authority (DHA) plans to invest \$9.53 billion by the end of 2014 in new medical facilities contracts. This is an increase of 25% from 2013.

Dubai is hoping to generate a new stream of visitor revenue by attracting 500,000 patients for treatment by 2020. Over the next few years, the DHA plans to invest in 18 private and four public hospitals to accommodate these new visitors.

The UAE has doubled its health care budget since 2007 and currently ranks among the top 20 destinations for medical tourism. The country spends 3.3 percent of its GDP on health care, the third highest in the GCC. According to Alpen Capital Investment Banking, the UAE's medical tourism sector drew revenue of \$1.69 billion in 2013.

Visa rules in the UAE were changed to help encourage medical tourism, simplifying the process for patients to access the country. Dubai Tourism and Marketing believes this market could be worth as much as \$30 million a year.

According to the Emirati state news agency WAM, Saudi Arabia is expected to triple its healthcare expenditure. KSA is investing \$23 billion to improve medical facilities and upgrade hospitals across the region.

Frost & Sullivan's most recent study reported that King Abdullah Medical City in Makkah is one of the most high profile projects which will cost around \$1.7 billion. King Abdullah Medical City will include 1,500 beds, of which 500 will be allotted for specialist referrals.

In April, it was reported that the GCC healthcare market is projected to grow at an annual rate of 12 percent to \$69.4 billion by 2018 from an estimated \$39.4 billion last year.

According to a report by Alpen Capital, outpatient and inpatient markets are expected to account for 79 percent and 21 percent respectively of the overall market size.

Alpen said Saudi Arabia will continue to be the largest market, accounting for 58.2 percent of the total in 2018, followed by the UAE (18.1 percent). In addition, Qatar and the UAE are expected to be the fastest growing markets in GCC over 2013-18, the report said.

## Drug prices expected to fall by upto 40% in GCC after October 1

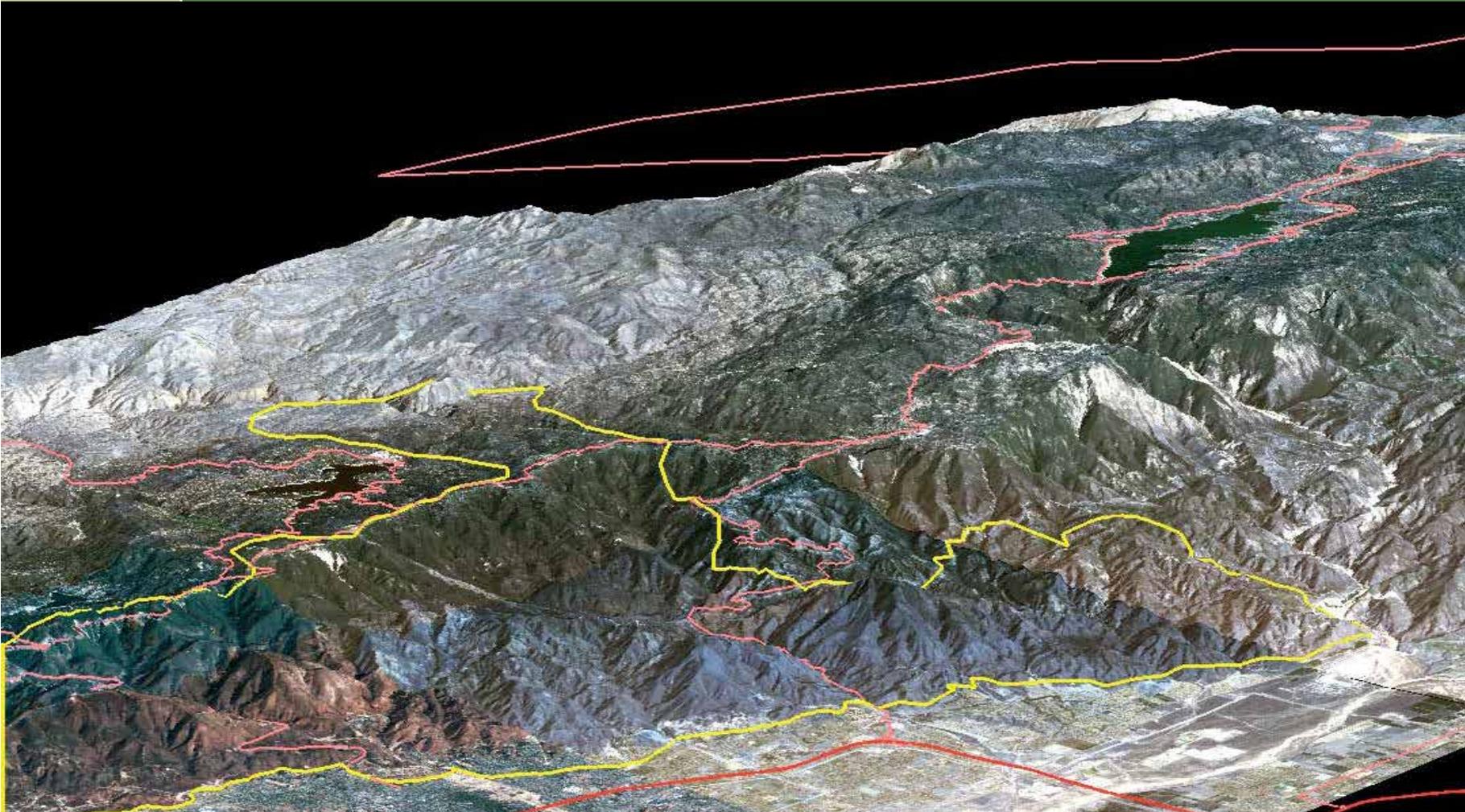
Effective October 1, 2014, the Ministry of Health has released a revised list of medicines to be sold, as part of the uniform drug policy, in an effort to standardise prices of medicines.

The ministry officials said that the revised list aims to reduce and maintain uniform prices of medicines and profit margins.

The planned move is in accordance with a GCC plan to bring uniformity in prices of medicines in the member countries, which is expected to reduce prices.

There has been growing concern about the high prices of medicines and pharmaceutical products in Oman.

Experts say the profit margin of sellers was up to 55 per cent in the GCC countries while it was 40 per cent in other countries.



# A Stride towards Improved Crises Management

**By: Maria Bibi**

The discovery of tectonic plate theory deals with the large-scale motion of Earth's lithosphere, inspires human being to know the structure of land beneath their feet. Man must be interested in the conditions of the land on which he lives because his life is seriously subject to the reaction brought by the actions of tectonic plates movements. Pakistan is blessed with the strategic geographical location based on its resources and political capacity. Unfortunately, when emergency and crises emerge in Pakistan

then it is find standing on the bridge over hell. Pakistan overlaps the two tectonic plates (Eurasian and Indian) and these tectonic movement often causes for serious emergencies and crises on the land of Pakistan.

Nature has set a rule for earth and for the inhabitants on it that articulates where there is a plus, a detriment is right beside it. The dark side is not very catastrophic at the time, but may turn into one by the global climatic vicissitudes with the passage of time. The people of Pakistan enjoy the five seasons here, of which Monsoon is



and inspire the concerned people to put their feedback. This awareness and alertness can be termed the best possible outcome of the GIS and mapping technology at its grass root level.

Millions of people are directly affected severely and moderately by these emergencies in Pakistan. The GIS maps and statistics are used to devise evacuation planes. Immediate rescue operations are also planned accordingly by the use of this technology. Further, establishment of relief centers and finally rehabilitation of the people is carried out more effectively utilizing the years' efforts of collection and presentation of geological and general data of the areas.

### **Floods**

The Monsoon is a blessing and simultaneously proves a curse for the people of this region. Bangladesh, India and Pakistan share a common history regarding the catastrophes being brought by the monsoon. Pakistan not only shares climate and season with India, but also it shares some of its rivers. Due to the rift in friendly ties between both the neighbors over decades, a joint and effective contrivance for flood warning and control system could not be yet developed. Pakistan being downstream annually receives millions of cubic feet of superfluous water in rainy season. Standing crops, cattle and human lives are affected badly. Hundreds of people have lost their lives and valuable property.

The government can struggle hard to overcome the emergencies and crises by using GIS technology effectively. It is essential that the Law enforcement and emergency departments responsible to handle such emergency situations must use the general census and population density charts and interlink them with the terrain



notorious for catastrophic effects on people and economy of the state.

Moreover, a major tectonic plate boundary marks the major fault line that stretches across the country. The capital of Pakistan, Islamabad lies on fault line. The history of major earthquakes make it more important for the government to devise a master plan for emergency and crises management. And this can only be possible with the use of the advanced technologies of GIS and other remote sensing mapping technologies. Being an agricultural country Pakistan is more vulnerable to face crop emergencies and that needs to be managed in-time by using the advance GIS management systems.

Pakistan is exposed to numerous type of natural disasters that causes national emergencies time and again.

## **Natural Disasters**

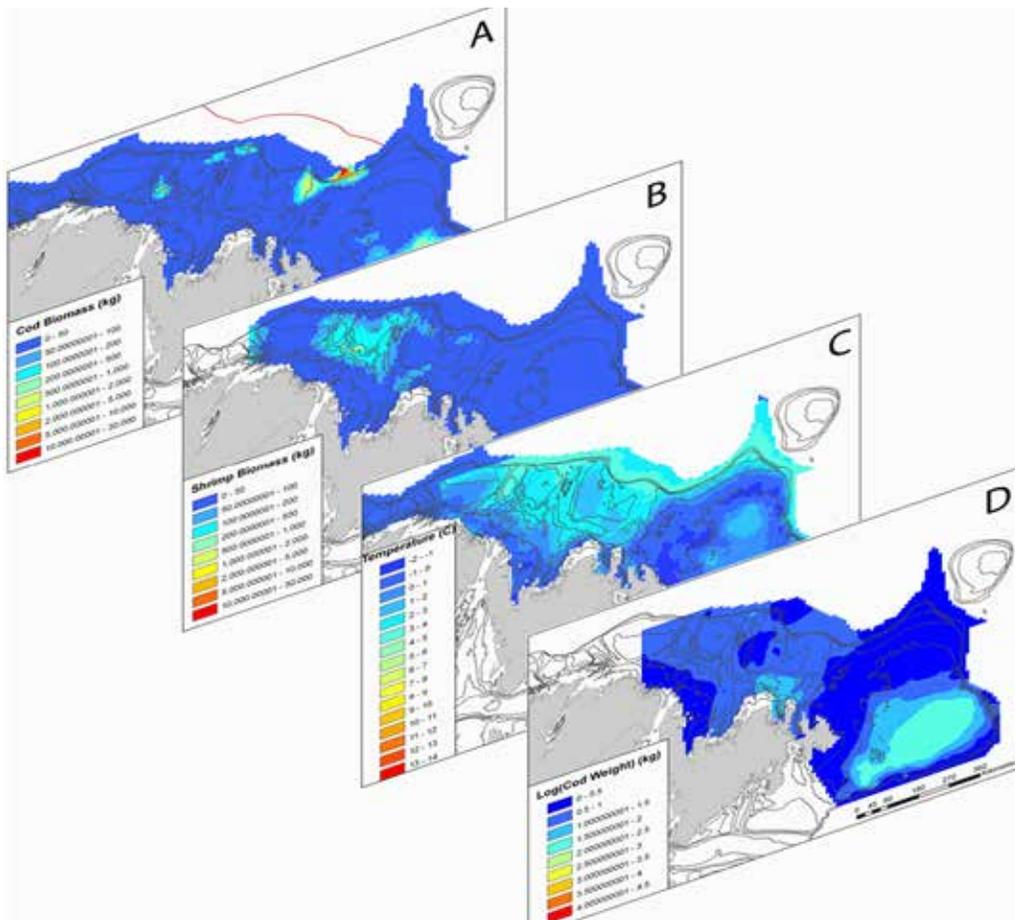
### **Earthquake**

Earthquakes have proven fatal for hundreds of thousands of people in the region. India, Iran, Pakistan, and Afghanistan, all neighbors share a pretty high death toll in past, caused by

earthquakes.

Presently, the government has taken certain measures as to educate people by using the GIS and mapping technologies in areas expected to be struck by immense quakes. Certain legislation has been promulgated in this regard too. People are restricted to build physical structure according to the standards specified. The building materials, design and location are essential to be approved by the relevant authorities before execution of the planning. Concrete blocks are made mandatory instead of raw rock for the structures. Proper evacuation passages in schools, hospitals and other public buildings are declared necessary to be constructed. Light weight rooftops in mountainous areas are appreciated. The earthquake struck areas are re-planned and organized, using the GIS & mapping high tech database.

The smart phones are being used as earthquake detectors and reporting devices. There are many applications available at online stores that make smart phones an earthquake detecting and reporting device. Every jolt on the globe is reported to the user in the form of alerts. American Geological Survey and its detection mechanism across the globe provide earthquake information



and river flowing charts. This process will make them able to understand the magnitude of required operations to carry out in any emergency situation.

### Health Epidemics

One of the most useful applications of the GIS and mapping data and information is to overcome the issues in health sector. The medical authorities can analyze and calculate the medical requirements of the areas in time of normal routine and in any catastrophe by using the GIS data available for the areas. The types of diseases, their effects or any mass medical emergency can be well accounted with better utilization of tools on hand. An example case is POLIO vaccination movement conducted by authorities time and again can only be conducted after having proper information of the locality. In this way, the GIS and mapping technologies and databases are contributing to the health sector.

The GIS information that classifies various regions in terms of weather can be used to predict long term climate of the region. This will influence the development of infrastructure of the region. The live weather updates and forecasts on digital media can be termed as advance GIS information which is playing an effective

role in day to day life on the globe. Aviation industry around the globe is fully utilizing the weather information to carry out daily flight schedules.

Even general public plan their outdoor activities after checking on the weather forecast which shows clearly the importance of GIS and mapping technology in today's modern technological era.

Knowing the population density and the infrastructure maps, the GIS data and maps can effectively be utilized in planning the expansion and development of infrastructure. Proper specification of public service buildings as schools, hospitals, universities and markets on mapping can facilitate the commuters to approach the better facilities in time.

Similarly, law enforcement infrastructure using GIS data effectively to a larger extent can keep the law and order situation under control. This will promote peaceful neighborhoods and healthy environment.

The effective utilization of GIS and mapping data demands an appropriate infrastructure and a national level department in government sector to carry out synchronized operations throughout the

country.

The GIS and mapping information does not demand a huge manpower, it is effective and beneficial even with experts, and it can reduce the government spending and also can potentially make the process more cost effective. As to carry out large scale operation with limited resources, then better planning with GIS and mapping technologies may be more effective and brisk.

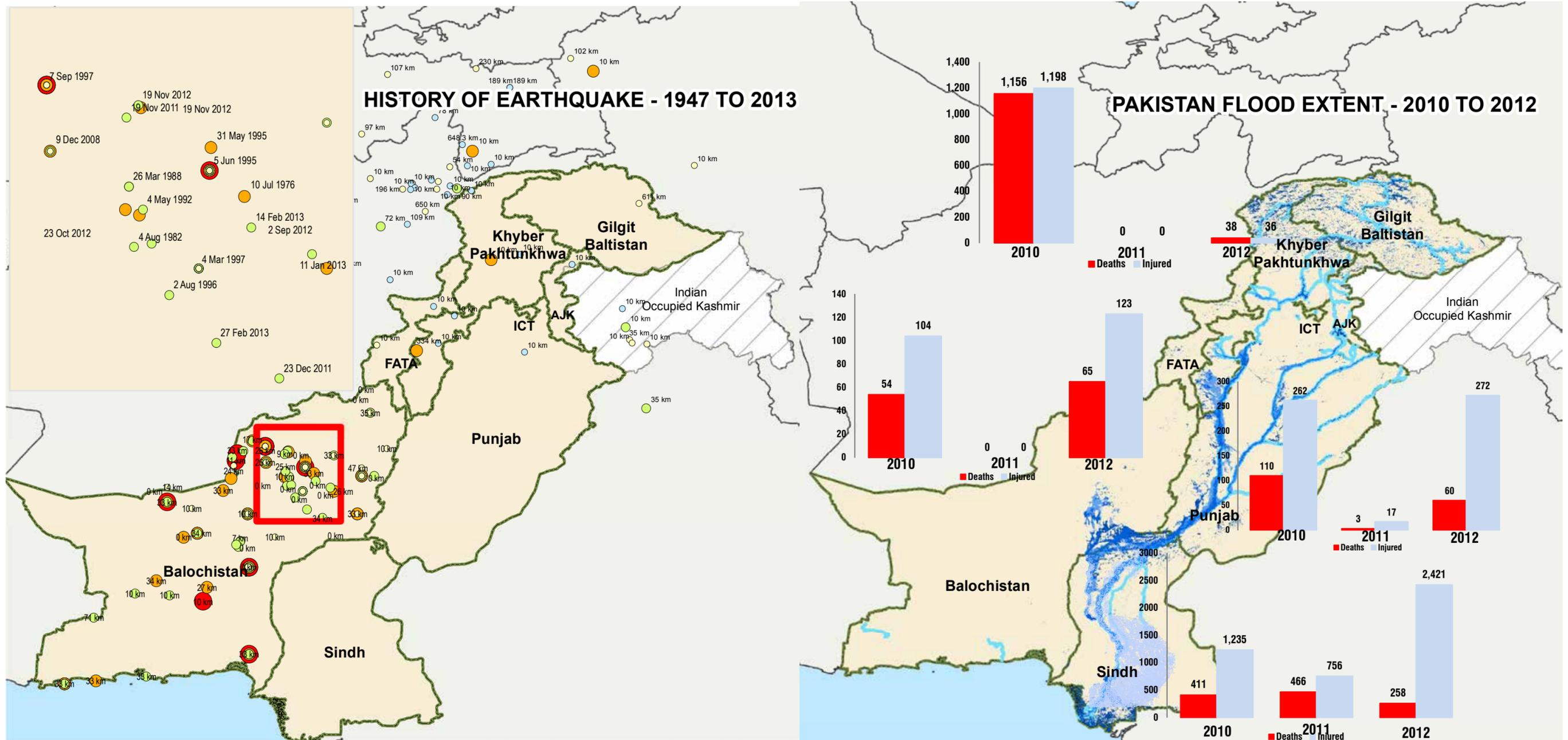
### Conclusion

Still there is a long way to go proceed with GIS technologies. The limited resources and weak economy always hamper the planning to strengthen state institutions, but the utilization of GIS in planning can capacitate institution for effective operation during emergency situation.

It is hoped that one day we will be able to plan our every city and district according to the safety and development vectors set by the GIS data without the constraints of funds availability and manpower needed. GIS system has benefited the developed countries to a greater extent as their economy gives their government free hand to play around for the betterment of their masses. Mapping, surveys and such data has not only made it possible for the authorities to function effectively but has also impacted the general public directly in multiple domains for healthier, easier and time saving life. This nation must move with moving technological era and make best use of technology in lives of the people.

# Advertise Your Business

# NATURAL DISASTER TRENDS IN PAKISTAN



**Legend**

**Pakistan Earthquake**

**Magnitude**

- 2.1 - 3.0
- 3.0 - 4.0
- 4.4 - 5.2
- 5.2 - 6.2
- 6.2 - 7.7

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 www.alhasan.com

**Date of Creation** Aug 08, 2014  
**Projection/Datum** WGS 84 Geographic

**Data Source(s):**  
 PCO: Admin Boundary  
 UN OCHA: Flood Extent  
 SPO: Death and injured  
 PMDC: Earthquakes data

**Legend**

- River
- Flood Extent 2010
- Flood Extent 2011
- Flood Extent 2012
- Provincial Boundary

## Kuwait to participate at IWISE 2014 in Canada

KUWAIT, Aug 21 (KUNA) -- Kuwait is to take part in the International Conference on Water, Informatics, Sustainability and Environment (iWISE 2014) which will be held between 26 to 28 August, at the Canadian Museum of Civilization in Gatineau-Ottawa, Canada.

Kuwait Municipality will participate in the two-day international event through a working draft entitled "growth amid urban development," said Saad Al-Mehailbi, Director of the Structural Plan Department at the Municipality.

The Kuwaiti draft will address defining natural resources, as well as available opportunities and various obstacles facing future urban development under the framework of the State's general goals, including environment and natural resources protection, Al-Mehailbi, who is to head the Kuwaiti delegation to the conference, stated to KUNA.

The draft also presents a full definition of urban sustainability with its three economic, social, and environmental factors, he noted, adding that accomplishing these goals in any society is done through the completion of developmental sources such residency, facilities, services, and job opportunities.

iWISE 2014 provides opportunities for scientists, practitioners, and leaders from around the world to share their knowledge, skills, and expertise, said Al-Mehailbi.

He added that key topics such as climate change, sustainable land use and eco-cities, integrated resources management, green economy, cleaner production, disaster management, environmental education, and water research will be discussed during the event.

## Oman sets up center to deal with Ebola epidemic

Muscat: A Crisis Management and Emergency Centre has been constituted by the Ministry of Health to deal with the Ebola epidemic.

However, the Ministry of Health has clarified that no suspected case of Ebola has been reported in the Sultanate of Oman.

The clarification was made at an extraordinary meeting held by the Medical Response and Public Health Sector on Sunday to discuss the Ebola virus and its epidemic status around the world.

The meeting was chaired by Dr Mohammed bin Saif Al Hosani, undersecretary of the Ministry of Health for Health Affairs.

The ministry has advised people against travelling to countries like Guinea, Liberia and Sierra Leone. They also urged people to "get information only from the Ministry of Health" and "ignore rumours".

MoH officials held a meeting recently where they agreed on the measures for handling suspected cases, notifying them and carrying out tests for their detection.

They also discussed means of enhancing the abilities of the health institutions to deal with the disease. They agreed to print awareness handouts and distribute them at the Sultanate's entry ports. The Ministry of Health assured everyone that till date no suspected case of Ebola virus has been reported. It called on everyone to follow healthy practices and maintain cleanliness of hands.

## Earthquake injures 250 people in Iran

Islamabad (Monitoring Desk): A powerful earthquake struck on August 18, in western Iran, injuring at least 250 people in a region near the border with Iraq.

Local authorities said they fear the quake may have caused widespread destruction in rural areas.

The 6.2-magnitude earthquake hit at a depth of around 10 kilometers (6 miles) in an area 36 kilometers southeast of the Iranian city of Abadan, the U.S. Geological Survey said. It was followed by a series of aftershocks.

The quake injured at least 250 people in the province of Ilam, Iran's official news agency IRNA reported, citing local disaster management authorities. The tremors cut off water, electricity and phone lines in Abadan. Ilam Governor Majid Asghari told IRNA that

authorities expected to find severe destruction in rural areas close to the epicenter, which was roughly 40 kilometers from the Iraqi border and not far from Iranian oil exploration and production facilities.

IRNA reported that eight villages were particularly hard hit, with around half the homes in them destroyed.

Two weaker earthquakes, of magnitudes 4.8 and 5.0, had hit Ilam on Sunday, the USGS said.

## UN stresses on regional cooperation for Mideast cruces

ISLAMABAD: United Nations has described crises in the Middle East as "unprecedented" and "unravelling", stressing more regional cooperation for relief role in Syria with the help of Iran, says a UN mediate note on August 18.

Speaking to the press in Tehran, Valerie Amos, Under-Secretary-General for Humanitarian Affairs, says Iran has "a very important role to play in helping us gain better access for humanitarian organizations in Syria and elsewhere."

"I have had an important opportunity to discuss with Government partners ways in which we can strengthen our partnership to improve regional cooperation on humanitarian assistance and also to discuss the major humanitarian crises in the region."

Ms. Amos said she had already met with the President of Iran's National Disaster Management Organization to discuss ways to collaborate on information management, enhancing operational effectiveness, knowledge sharing and capacity building.

In Syria, almost 11 million people are in need, up from 1 million just three years ago, Ms. Amos said calling it an "unprecedented" crisis. Out of those, 4.7 million people live in areas that are hard to reach while 241,000 live in besieged communities.

In Iraq, people are facing an "unravelling" crisis, which has already caused one of the largest internal population displacements in the world.

"Attacks, systematic persecution and grave human rights abuses against civilians by the so-called Islamic State and other armed groups are outrageous," the media note quotes her.



# BeiDou Navigation Technology in Pakistan

**By: Danish Muneer**

The history of navigation systems goes back to 4000 years ago when the first western civilization developed the rules governing this wonderful skill. The Phoenicians were the first people that developed a system for navigation at sea. After some time people started looking at stars for navigation. When we take a look at the modern navigation history, we will see that in the year 1714 the British Commissioners invented the longitudes to help navigate ships at sea. The group is credited to solve all the navigational problems and their devised methods are practiced

even today. Soon after the longitude, the latitude system was also invented. Later in 1899, wireless communication was used to request assistance at sea. In 1904, signals were sent to ships so that they could navigate using their chronometers. On July 14, 1974 the first satellite known as the NavStar GPS satellite was sent into orbit. The satellite's internal clocks failed shortly after its launch. A new satellite was designed and cesium clocks were installed in it. The satellite was called Navigational Technology Satellite 2 and it went into orbit in 1977. These satellites were launched by America. The satellite system of which BeiDou is an integral part is owned by China and the program was

## List of satellites that were launched by BeiDou

Date	Launcher	Satellite	Orbit	Usable	System
10/31/2000	LM-3A	BeiDou-1A	GEO 59°E	No	BeiDou-1
12/21/2000	LM-3A	BeiDou-1B	GEO 80°E	No	
5/25/2003	LM-3A	BeiDou-1C	GEO 110.5°E	No	
2/3/2007	LM-3A	BeiDou-1D	Super sync orbit	No	
4/14/2007	LM-3A	Compass-M1	MEO ~21,500 km	Testing only	BeiDou-2 (Compass)
4/15/2009	LM-3C	Compass-G2	?	No	
1/17/2010	LM-3C	Compass-G1	GEO 144.5°E	Yes	
6/2/2010	LM-3C	Compass-G3	GEO 84°E	Yes	
8/1/2010	LM-3A	Compass-IGSO1	114°E incl 55°	Yes	
11/1/2010	LM-3C	Compass-G4	GEO 160°E	Yes	
12/8/2010	LM-3A	Compass-IGSO2	118°E incl 55°	Yes	
04/10/2011	LM-3A	Compass-IGSO3	118°E incl 55°	Yes	
7/26/2011	LM-3A	Compass-IGSO4	95°E incl 55°	Yes	
12/2/2011	LM-3A	Compass-IGSO5	95°E incl 55°	Yes	
2/24/2012	LM-3C	Compass-G5	59°E	Yes	
4/29/2012	LM-3B	Compass-M3	MEO incl 55°	Yes	
4/29/2012	LM-3B	Compass-M4	MEO incl 55°	Yes	
9/18/2012	LM-3B	Compass-M5	MEO incl 55°	Yes	
9/18/2012	LM-3B	Compass-M6	MEO incl 55°	Yes	
10/25/2012	LM-3C	Compass-G6	80°E	Yes	

Note: In this table we can see the satellites that were launched for the BeiDou-1 and the BeiDou-2 projects. We can also see which satellites are in use and how many of them can't be used. The BeiDou-1 launches were early in 2000, whereas the BeiDou-2 launches date from 2007 till 2012.

started in 2000.

## BeiDou GPS Network

The BeiDou Navigation Satellite System is a satellite navigation system owned and operated by a Chinese corporation. This technology is co-developed by China Great Wall Industry Corporation and Beijing UniStrong Science and Technology Company Limited. The first batch of BeiDou satellites were sent into space in 2000 are most of them are still operational for various purposes. Labelled as BeiDou-1 system, it is the first GPS navigation system that is being successfully run by an Asian country and many neighboring countries are also benefiting from this particular service. Shen Jun who is a chief scientist at UniStrong, remarked that the technology is at-par with the US Global Positioning System.

The company was always looking to expand and wanted to add to its space fleet so that they provide services all around the world. The second batch of BeiDou satellites which are jointly called the BeiDou-2 Satellite Navigation System, consists of 35 independent satellites. This system currently provides services to customers that are present in the Asia-Pacific region. BeiDou Navigation Satellite System is looking to

offer services to the entire world in the year 2020.

BeiDou-2. Pakistan will receive the BeiDou-2 technology. The BeiDou-2 technology is far superior to the BeiDou-1 technology. The BeiDou-2 technology constitutes of 35 satellites, of which 5 are geostationary and 30 are non-geostationary satellites. The 30 non-geostationary satellites are going to offer a global coverage as out of these 30 satellites, 27 are in medium earth orbit and 3 are in inclined geosynchronous orbits.

There are two types of licenses to this technology. One is for the civilians and the other one is for the Chinese government and military. The free civilian service is said to provide an accuracy of up to 10 meters, whereas the one that will be available to the military can provide an accuracy of up to 10 centimeters with the capacity of further improvement. Till now this technology is only being provided to the Chinese military and the Military of Pakistan.

BeiDou-2 Technology in Pakistan. It can be happily and proudly declared that Pakistan has become the first nuclear power state to use the Chinese navigation technology. This will be Pakistan's first

ever government backed, multi-functional navigation system. The SUPARCO chairman, in an official interview, said that an agreement has been signed between Pakistan and BeiDou. This technology has already been adopted by several other countries and the pilot projects were a huge success. So, after Brunei, Thailand and Laos, Pakistan will become the fourth Asian country where this technology will be utilized extensively.

In the first deployment phase, the GPS technology will cover the entire Karachi region. Initially, five base stations and one processing center will start their operation in the metropolitan and the city will become part of the whole BeiDou network. In the second stage of network expansion, the company targets to cover the entire Pakistan through its satellite GPS system. For China, this is going to be the first national high precision BeiDou navigation network abroad. Huang Lei is an international business director of BDStar Navigation and regards the BeiDou GPS system very highly. In 2013, he said that BeiDou is looking to build a network of stations in Pakistan which will benefit both the country and the company. BeiDou is ready to invest around tens of millions of USD to expand its network by



Figure1. This is the coverage polygon of BeiDou-2 in 2012.

covering all of Pakistan.

How Will BeiDou Technology Benefit Pakistan? This navigation system is going to offer better location accuracy to the local Pakistani population. This BeiDou technology is rendered as a much safer technology when compared to the American GPS. For the Pakistani civilians, this navigation system is going to provide location accuracy of up to 10 meters. Following benefits will also indirectly benefit the local population:

- This technology will help government bodies to perform robust urban planning. The construction companies will make use of this technology for surveying and estimation purposes.
- This technology will also be very useful in traffic monitoring, assistance in environmental mapping and in disaster relief efforts.
- The GPS system will help in mineral exploration in remote mountainous areas and oil exploration in open sea inside Pakistan coastline.
- There is no doubt that applications based upon satellite technology are becoming useful day by day. They are acting as a catalyst in socio-economic development. Such applications have become a part of daily lives and they are being commonly used in shipping, airlines, medicines, agriculture, dam constructions and road alignments.
- Pakistan is also going to launch its own Remote Sensing Satellite by 2017. SUPARCO is taking initiatives to create awareness among the people of

Pakistan so that all will benefit from this technology.

There is no doubt that the BeiDou-2 technology is going to be mostly used by the Pakistani Armed Forces. Pakistan is in a state of war and the government and armed forces want to put every available resource to their advantage, this BeiDou-2 technology is going to offer them with a cutting edge over the terrorist organizations who take shelter in remote areas. The BeiDou-2 technology can provide an accuracy of up to 10 centimeters for military purposes (which can be further increased). Hence it will be very beneficial to scout terrorist hide-outs and keep an eye on the movements across borders.

The technology is going to be deployed in Karachi first because Karachi has remained a very sensitive area. The crime rate in Karachi has been on the rise since the last couple of years and all attempts to stop such activities have hit a bummer. The police even has a hard time entering some areas. Local gangs have complete control over certain areas in Lyari and recently, the Pakistani government was forced to send the Army and Rangers contingents in that region. There are also some areas that are under influence of banned terrorist organizations and security organizations are unable to infiltrate the areas to capture the terrorists and break their network. The BeiDou-2 is going to help Pakistan to enhance its defense capabilities and will also help the security agencies to take effective action against the miscreants present anywhere in the country. After the second deployment phase of the BeiDou-2 technology will be complete, the government will make sure that there

are no security mishaps and that there are no hostile groups present in the country.

## Navigation Technologies and the Benefits Other Countries Are Receiving

Bahrain has been using the navigation technologies to take care of its internal problems for quite some time. The main reason why Bahrain can be a role-model to Pakistan is because Bahrain is currently playing a major role in international shipping. Out of all the Arab countries, Bahrain was the first one to use the global ship-tracking system based upon GPS technology. Bahrain wants to get more coastal security because of their international shipping and the GPS technology has taken good care of it. Maritime rescue operations also need some technological support and the GPS technology currently in use there is providing adequate assistance. Bahrain is also able to track its growing fleet of vessels moving around the world. It is a member of the International Maritime Organization and the organization states that every member of the organization should implement Long Range Identification and Tracking in every ship's navigation system. This is another major field where Bahrain makes use of the Global Positioning System.

The US Coast Guard appreciate Bahrain's navigational system and have remarked that the L.R.I.T. was designed in a manner to collect and disseminate vessel position information which was received from ships of International Maritime Organization member countries according to the International Convention for the Safety of Life at Sea. Along with security measures, Bahrain is also making use of the technology for traffic monitoring. General public in Bahrain commute by road comfortably and save on fuel by taking short routes and by avoiding traffic jams. There are different kinds of GPS technologies that are available in Bahrain including in-vehicle navigation systems, automatic vehicle location, real-time mapping, hand-held navigation systems and automated data collection and reporting systems.

Pakistan can also use the BeiDou GPS navigation system to boost trading through its ports. Hopefully, with the help of China, the technology will be economical enough for the general masses to utilize the GPS services. The general public will be relieved as the accurate and fool-proof navigation and tracking system will help curb many problems including security threats. ■

## Technology leading the way in eHealth in Middle East

Considering the latest information and communication technology (ICT) tools that are available in today's market, healthcare providers are focusing on finding ways to enable remote management of diseases, improving collaboration and data exchange across healthcare agencies, increasing workforce efficiency, providing adequate healthcare to a wider population.

Healthcare providers are considering technologies of mobility, cloud and big data and the benefits they can bring.

We are already seeing this in the digitisation of patient information (including medical records and diagnostic images), the deployment of picture archiving and communication systems (PACS), the implementation of healthcare information systems (HIS), and the emergence of telemedicine initiatives aimed at mitigating disparities in healthcare access, which is proving particularly relevant for large countries and those with strict workforce constraints.

But with more and more importance being given to the management of chronic diseases, mobility is becoming an increasingly valuable add-on to telemedicine services, although the lines between telemedicine and mobile health are rapidly disappearing. Indeed, IDC expects mobile health solutions to gain traction both within and beyond telemedicine, with telemedicine services based on mobile platforms becoming increasingly common. There will also be an increase in demand for telemonitoring services, which may combine mHealth and telemedicine systems to enable mobile monitoring of patients with various chronic diseases.

## GCC equity markets experienced a strong correction in Q2

According to a recent report by International Data Corporation (IDC), tablets sales have surpassed the PC market in UAE as the PC sales suffered a 20% decrease while tablet sales grew by 24%. Tablet sales surpassed PC market by more than 6,700 units and consumers continued a shift toward mobile devices in the second quarter.

PC sales in UAE declined by 20% to 412,741 units from 515,430 during the same period last year.

In the tablet space, the market grew by 24 per cent to 419,505 units compared to 338,190 units in the same period last year, fuelled by growth in consumer segment and Android operating system.

“People are spending more time on smartphones and tablets than PCs and are shifting their spending accordingly as well. Also, a much smaller portion of the UAE PC market now accounts for re-exports, compared to the same quarter last year,” Fouad R. Charakla, research manager for personal computing, systems, and infrastructure solutions at International Data Corporation, told Gulf News in an exclusive interview.

Among the Gulf countries, Bahrain witnessed the steepest fall of around 21 per cent year on year, followed by the UAE, while Qatar and Oman fell by around three per cent.

Saudi Arabia witnessed a growth of around seven per cent and Kuwait grew by two per cent.

Mini-notebooks or netbooks have reached their end-of-life in the entire Middle East and Africa (MEA) region after being active in the computing industry for almost seven years.

“Consumer segment got impacted due to re-exports which happens to the Iraq market. On the commercial segment, we are doing good business,” said Rajat Rallan, senior brand merchandising manager for Dell Middle East, Turkey and Africa.

He said there will be growth in the tablet space but not as big as registered in certain markets over the last couple of years. Entry-level tablets have registered “big growth

compared to premium tablets.”

Dell will be launching new tablets at Gitex running on Android.

Windows contribute around three per cent to Dell's total sales.

“There are quite a few projects for Windows tablets on the table from the commercial sector within the next month. Our strategy is to offer mid-range tablets with better specs and for value for money, much more than our competitors,” Rallan said.

## Two potentially hazardous chemicals banned by Apple

As part of Apple Inc's commitment to protect the factory workers who build iPhones and iPads, Apple has decided to ban use of two potentially hazardous chemicals used in assembly.

The ban for use of benzene and n-hexane comes five months after the activist groups China Labour Watch and Green America launched a petition drive to ban the use of these chemicals.

Benzene is a carcinogen that can cause leukemia if not handled properly and n-hexane has been linked to nerve damage. The substances are often found in solvents used to clean machinery and electronics.

A four-month investigation at 22 factories found no evidence that benzene and n-hexane endangered the roughly 500,000 people who work at the plants, according to Apple. No traces of the chemicals were detected at 18 of the factories and the amounts found at the other four factories fell within acceptable safety levels, the Cupertino, California, company said.

Nevertheless, Apple decided to order its suppliers to stop using benzene and n-hexane during the final assembly of iPhones, iPads, iPods, Mac computers and various accessories. What's more, Apple is requiring all its factories to test all substances to ensure that they don't contain benzene or n-hexane, even if the chemicals aren't listed in the ingredients.

Apple is still allowing use of the two chemicals during the early production phases of its products — activities that primarily take place at hundreds of other factories besides the ones responsible for the final assembly of the devices.



# Technological Intervention and Environmental Safety

By: **Madeeha Khan**

**T**he dawn of 18th century introduced industrial revolution in Europe, which later on shaped major alterations on the map of the world. Though it brought ease in human life yet it also caused some serious problems to the human living as well. One of the main problems caused by this revolution is climate change .

Climate change is not a myth, but a reality which has to be taken seriously by every human being. For several years, the climate change has been a long debated subject either it is a myth or reality. The devastating floods, ever increasing overall temperature on the surface of the earth,

eruptions of volcanos, typhoons and tsunamis have put an end to these debates by confirming that climate change is not just near, but here! Moreover, several climate concerned organizations have been set up to look into this matter, which shows the importance of the subject. Now The United Nations Secretary-General has put climate change at the top of the United Nations agenda for a collective international response.

## **Current Challenges of Environmental Safety in Pakistan**

Pakistan, the crossroads of South Asia, is a naturally bestowed country for its superb geographical location. Having



world's rapidly emerging economies in its neighbor, Pakistan is exploiting the economic opportunity well to the fullest. However, every plus has somewhere at some point a minus too. For Pakistan, this minus is extracts in the context of Carbon dioxide (CO<sub>2</sub>) emission caused by these neighboring emerging economies.

According to the World Bank Report (2010) China ranks first, and India ranks 3rd in emitting CO<sub>2</sub> which is one of the major causes expected to induce the climate change. As there are no environmental boundaries and barriers, Pakistan has to face some serious challenges because of the adverse effects caused by the CO<sub>2</sub> emissions by her neighboring countries.

### **Air Pollution and the Most Affected Geographical Locations**

Every human on earth has right to breathe in clean air. But, unfortunately, this right has been compromised in the wake of ever increasing industrial production to meet human needs. Pakistan is one of those countries which have to face this grave challenge.

The air quality of different geographic locations is assessed using GIS and mapping technologies. Locations where

pollution is found in the air sample, is marked as most affected areas. And ultimately, different effective strategies can be applied to decrease this pollution to attain an improved quality of life.

Satellite observations and monitoring tools are used to assess the quality of air and its contamination, basically is a technology delivering wall-to-wall coverage in the most cost-effective package. The aerosol optical depth data is obtained from the NASA instruments of Multi-angle Imaging Spectroradiometer (MISR), and the Moderate Resolution Imaging Spectroradiometer (MODIS).

Using Satellite Data to Develop Environmental Indicators, an Application of NASA Data Products to support high level decisions for National and International Environmental Protection," this data concludes the premature deaths, cardiovascular diseases outbreak and lungs disorders, on exposure to high levels of PM 2.5 (Microscopic particles less than 2.5 microns in diameter).

### **Water Scarcity and the Most Threatened Areas**

GIS technology is playing an important role to mark the alterations occurring in the hydrosphere. Be it the water pollution

or the water scarcity, the best way in order to indicate and measure such alterations is through the GIS and mapping technologies.

Light Detection and Ranging (LiDAR) technology is one of the potential geospatial tools, which is serving the world by efficient management of water, as it is able to measure more accurately. This technology uses the elimination of vegetative and artificial cover of the earth to access more bare earth measurements and upgraded digital elevation models. The technology can be used in Pakistan to meet the demands of water, by pointing out the solutions to the problem, and proper management of the irrigation system by the help of satellite mapping. It can bring an ease into the human life, and can protect from famine and dearth of food. Agriculture friendly sites are easily identifiable by these technologies, which can change the land of Pakistan into a heaven in near future by the implementation of the following methods:

- Artificial recharge for storage of water.
- Exploration of groundwater by integrated modeling using remote sensing and geographical information.
- Hydrological stability and the ability of catchment sources improvement by the use of GIS temporal, hydrological and special modelling.

### **Unpredictable Frequencies of Rain**

GIS is an important tool used in the prediction of rain and subsequent effects caused by it. The unpredictability of rain is the outcome of the disturbed weather patterns which is directly linked to the high level of GHG emissions by the industrial countries of the world.

For the purpose of highlighting the agricultural production, the stand-alone GIS system is helpful to assess the rainfall statistics by dynamically mapping, facing, overlaying and storing the images obtained, and then analyzing them into the final upshots.

### **Deforestation and their Location Detection**

Deforestation is carried out excessively all over the world, and especially, in Pakistan, as the population is increasing drastically, demanding more land to live on.

The deforestation can be tracked, analyzed, assessed, and steps towards management can be taken by the use of remote sensing and mapping technologies in Pakistan and its neighborhood. Land cover and change detection and analysis are the most important steps towards planning, management, and inventory mapping, which includes the biodiversity, ecosystems, forest productivity, soil conservation, nutrient recycling, water resources, reforestation, and forest health.

Moreover, satellite images and remote sensing techniques are very much useful in emergency situations for detecting the elements in forests, fire and landslides.

### Altering Landscapes of Pakistan

The recent floods and earthquakes have caused great damages to the land of Pakistan. One of them is the altering landscapes. The fertile land has become barren due to floods. GIS and mapping technologies can locate these areas and help the authorities to take measures to make the land suitable for crops again.

### Climate Change and Pakistan's Environs

Being next to the most CO<sub>2</sub> producing economies such as China and India, Pakistan has to suffer a lot not only in the arena of environment but also other domains such as health, agriculture and economy. The CO<sub>2</sub> emitted by China and India is thus like a 3-headed dragon for Pakistan. Due to increasing industrial production by China and India, the ecological environment of Pakistan being intoxicated and resulting health hazards. According to the research conducted by the World Bank, 22,600 deaths in 2005 occurred due to the polluted air in which the citizens of Pakistan breathe.

Moreover, the CO<sub>2</sub> emitted by the industries is responsible not only for the expected increase in overall temperatures, but for the melting glaciers located in the north of Pakistan. The increasing rate of glaciers melting has resulted into the unpredictable rains and floods which is ultimately affecting Pakistan's agricultural sector.

Similarly, the economic sector of Pakistan is endangered too, by such emissions, as Pakistan is an agricultural economy and 21.4% of Pakistan GDP is raised from this sector. So, conclusively that the 3-headed dragon is eating up Pakistan's



resources from three different angles.

### Impacts on the general public

General public is most severely targeted by the climate change. People are losing their capitals and means of living due to the higher frequencies of floods. Moreover, their crops are being ruined by the erratic rains. Ultimately, the per capita income is decreasing and eventually all these problems are adding up to unfavorable affects in the living standards of population.

Economy is also a victim of the climate change as the fertile land of Pakistanis is affected rigorously by the record braking floods. Fertility of lands means a lot to the economy of Pakistan as the agriculture is the backbone of it.

Since 1978, output from the sun has been measured by satellites and GIS technology, and scientists have affirmed that since then, there is no increase in the solar radiations received by the earth. Furthermore, according to the 2013's report of Intergovernmental Panel on Climate Change (IPCC), since mid-20th century, the increase in the overall mean temperatures of the atmosphere and the oceans, the changes in the water cycle, melting of ice sheets and glaciers are caused by human activities. Moreover, the CO<sub>2</sub> emission is marked as the major driver towards global warming by the IPCC in the same report.

### An Escape Pathway

We can find an escape pathway from the clinch of the 3-headed dragon by the

collective efforts of the government and the individuals. If success is aimed in this domain, both the individuals and the government have to come together on the same platform in order to make Pakistan clean and green.

The problem of environmental safety can be made successful reducing the amount of CO<sub>2</sub> emissions. This goal can be achieved if industries avoid the production techniques that result in the greater amount of GHG emissions. Moreover, if we avoid deforestation, luxurious lifestyle, and wastage of resources, we can eventually add to the cause of environmental safety.

Environmental friendly techniques of production and consumption should be adopted by the industries and the consumers. Every individual should consider the environmental safety its own issue and should try to resolve it. Government should involve the general public by organizing area cleaning programs, heavy fines should be imposed on people who do not take care of the cleanliness of the public land. This program can be effectively carried out easily using the latest GIS and mapping technologies by locating its potential sites.

The recent years have proven to be a deadlock for the environment, and if it is not tackled efficiently on time, the climate change would be causing serious than ever harms to human life in future. We have to preserve the environment for our future generations and to make the earth a heavenly place for them instead of making it a warm hell.

■

## IPCC report rings alarm over climate change

ISLAMABAD - The Intergovernmental Panel on Climate Change's (IPCC) fifth assessment report titled "IPCC AR5 - What it means for a stronger and more inclusive Pakistan" released on August 11, held that in South Asia some low-carbon development options may be less costly in the long run in terms of climate change with integrated climate adaptation, mitigation and development approaches.

Besides, the report emphasized on international cooperation as vital to avert dangerous climate change and enabling South Asian governments to promote ambitious global action.

Ali Tauqeer Sheikh, CEO, LEAD Pakistan, said that it was the most comprehensive assessment of climate change ever with input of 830 expert authors from 85 countries.

He said: "The report reviews the scientific evidence on the trends and causes of climate change, the risks to human and natural systems, and options for adaptation and mitigation."

According to the report there was a 95 per cent probability that human influence was the dominant cause of the observed global warming since the mid-20th century. Globally, sea levels have risen faster than at any time during the previous two millennia and the effects were felt in South Asia. Depending on the global emissions levels, sea levels could further rise from 26cm to 98cm by the end of the 21st century.

Dr Mohsin Iqbal said that climate change had both negative and positive impacts. Positive occur mostly on higher altitudes while negative on lower altitudes. He said that in northern areas of Pakistan crop yield would increase by 50 per cent whereas it would decrease in Punjab by 18-32 per cent by 2080.

## Iran facing acute water shortage

Islamabad (monitoring Desk): The Iranian regime's Supreme Leader Ali Khamenei has ordered officials to find a solution to the regime's acute water shortage before the crisis triggers street protests across the country.

Khamenei's military advisor Rahim Safavi said plans were underway to exchange water and oil with Tajikistan, adding: "The crisis of water and energy is closely related to national security and defense."

Regime's energy Minister said in parliament: "We are in the stage of water crisis and our acute situation will become more acute."

An energy ministry official added: "Currently out of some 1,200 cities in Iran, only 500 can provide enough for normal consumption, and with a drought and the summer heat special attention is needed."

Five of the six existing dams in North Khorasan Province have now totally dried up and there is the possibility of water cuts in several cities in the province.

The situation of Khuzestan, Sistan and Baluchestan Provinces is reportedly even more acute.

The average rainfall in Tehran is approximately 149mm a year, but 90 percent of it is lost due to mismanagement.

Other factors such as the excessive damming of rivers, bad irrigation practices, drought and climate change have all contributed to Iran's water crisis which is now considered to be a national security issue.

## Dubai children get a glimpse of the world in 2050

Dubai: An exhibition launched at Children's City Dubai in April to build environmental awareness among children ends this month.

The 'Your Planet Needs You' exhibition gives children a glimpse into what the world will look like in 2050. It looks at strategies to ensure the survival of communities and lifestyles worldwide in the face of climate change and depleting resources.

During the exhibition, children are accompanied by four virtual guides — Dug, Tek, Eco and Buzz — and presented with challenges like finding water in unusual places, designing a super-food, and creating a neighbourhood they would want to live in. The four guides provide children with advice on different ways to tackle the challenges ahead and how to live more sustainably.

The exhibition also offers a first-hand opportunity to see new inventions designed to make the best use of the planet's resources. It teaches children how to make positive choices to ensure a better future.

Children's City Dubai, a Dubai Municipality initiative, is located at Creek Park. It is the first educational city in the UAE devoted to children in the 2-15 year age group.

Its features include a planetarium and a toddlers area. Children's City presents daily educational workshops throughout the year.

## Ford Motor Company to help environmental projects in ME

Islamabad (Monitoring Desk): Ford Motor Company will award a total of USD 100,000 in Conservation and Environmental Grants to help fund existing environmental projects in the Middle East region. For the first time, the program extends to environmental projects in Yemen, in addition to the GCC, Lebanon, Jordan and Iraq. The deadline to send applications is on September 14, 2014.

"As we look back on the program's heritage in the region, we are increasingly aware of the impact the Ford Grants could have had on the local communities where we serve our customers, supporting environmental groups and helping educate the public on important issues," said Kalyana Sivagnanam, director of Ford Middle East & North Africa. "We are proud of the Ford Grants initiative in this region and of all the projects it has helped go further."

From the UAE, four projects received grants last year sharing a total of \$21,500. Biosphere Expeditions received a USD 5,000 grant for its project involving local people and the community in desert species conservation in the UAE. Together with scientists of the Dubai Desert Conservation Reserve (DDCR), Biosphere Expedition has established a volunteer project that helps DDCR executives manage desert flagship species such as Arabian Oryx, Gordon's Wildcat and Macqueen's Bustard in the reserve.

Individuals, community and non-profit groups that have projects currently running in the areas of preservation of the natural environment, environmental education or conservation engineering can apply via the online form (<http://fordmegrants.com/en>) until September 14, 2014, for a chance to share the total grants of USD 100,000. Eligible countries include: Saudi Arabia, United Arab Emirates, Qatar, Kuwait, Oman, Bahrain, Lebanon, Jordan, Iraq and Yemen.



# Your Organization is Alive

## Acknowledgement

*The SKIM Magazine gratefully acknowledges John Weaver for his kind permission to reprint article, entitled "Your Organization is Alive", originally published at <http://psychologyforbusiness.com>*

**By: John Weaver**

Suppose you meet someone at a local business networking event. In the course of the conversation, she asks you "how do you describe the operations of your business?" In your response you employ the image of a machine. You explain to her that your business runs like a "well-oiled machine" most of the time, but right now you have some "parts" missing.

Do you realize you may be limiting your business success without even being aware that you are doing it?

It's in the words. The words we use to describe what we are doing can sometimes

constrict our understanding as much or more than they help us to explain what we mean.

## Metaphor of the Machine

In this example, the workings of the organization are compared to the workings of a machine. The machine metaphor is easy to comprehend (especially for males for whom interest in machines is a cultural expectation). It is also convenient because this image is frequently used.

Our current fascination with machines has its origin in the Industrial Revolution. The human economy was transformed during this period as businesses emerged that were based on new technologies that

drew people off the farms and into the cities. Machines could do heavy, repetitive work faster and more precisely than humans. As the technology progressed, machines were designed that could also mimic and sometimes even surpass the handiwork of artisans. We wondered, “Is there a limit to what machines can do?”

Machines had some attractive qualities. In addition to the volume of work that could be accomplished, machines seemed predictable. We could control the operations and even learn to predict under what conditions they would operate most effectively and under what conditions they might break down.

It seemed natural to wonder if organizations could be managed in the same way. By applying scientific rigor, we believed, we could increase the effectiveness of the workplace in much the same way as we improved on the machine. We looked for the conditions that would increase productivity and tried to identify what would cause the worker to break down. If we could understand and control these factors we would have the most efficient workplace. The entire organization was conceptualized as a machine and the employees were the parts.

Both management theory and psychological investigations in the workplace (as well as much of the scientific application of psychology) used the machine metaphor to guide our understanding of how to create an effective organization.

Sometimes the words we use to describe events and processes are so effective that we forget that they are only metaphors. In a quote (paraphrased) attributed to Henry Ford, “Why is it that every time I need a pair of hands, I have to get a whole man?” this tendency is revealed.

## Alternative Business

Herein lays the danger. Any metaphor not only illuminates but also obfuscates. Is there an alternative way to do business?

Organizations are not machines, they are living systems.

The difference between mechanical and living is more than a difference in complexity, as is often assumed. It is a qualitative difference. Machines are subject to control and direction by the operator.

You cannot direct a living system, you can only disturb it (according to Frijtof Capra, in his most recent book, *Hidden Connections*).

By that I mean that humans and other living organisms are not controlled only by external forces. There are independent internal events (like hunger or emotion) which also influence the outcome. And there is choice!

To illustrate, imagine saying hello to the receptionist at a busy office. She might smile pleasantly and return your greeting (the hoped – for response). She could also continue what she is doing and ignore your interruption. She might even respond in an angry or defensive tone of voice. The response of the machine is predictable and programmable; the reaction of the human is not.

There are important implications for every organization in this realization. Command and control strategies have a limited usefulness when dealing with the workforce. Sometimes a direct command or an effort to establish control will have the results that are expected, while at other times the response will be resistance.

For example, when top management agrees to implement a change for the company, the failure rates for making the change effectively and in a timely manner are astronomical. Or it may succeed initially, only to have unforeseen consequences at a later time. Humans are responding to the demands made by management, to demands in other areas of their lives, and to their internal perceptions about how they are being treated or about how important the change initiative is to their life. And then they make a choice about how to respond.

This is beyond the capacity of even the most complex machine. But it is the domain of every employee, even the least educated or least sophisticated. Command and control strategies are ideal for handling machines. They are not effective with people. Period. It is not a matter of needing better command and control. Living systems will not be controlled.

## Where to Begin

To be truly effective with the human resources of your organization, we must change the approach to working with living beings. A workforce can be guided but



it cannot be effectively controlled. It can be encouraged to learn, but it cannot be subjugated.

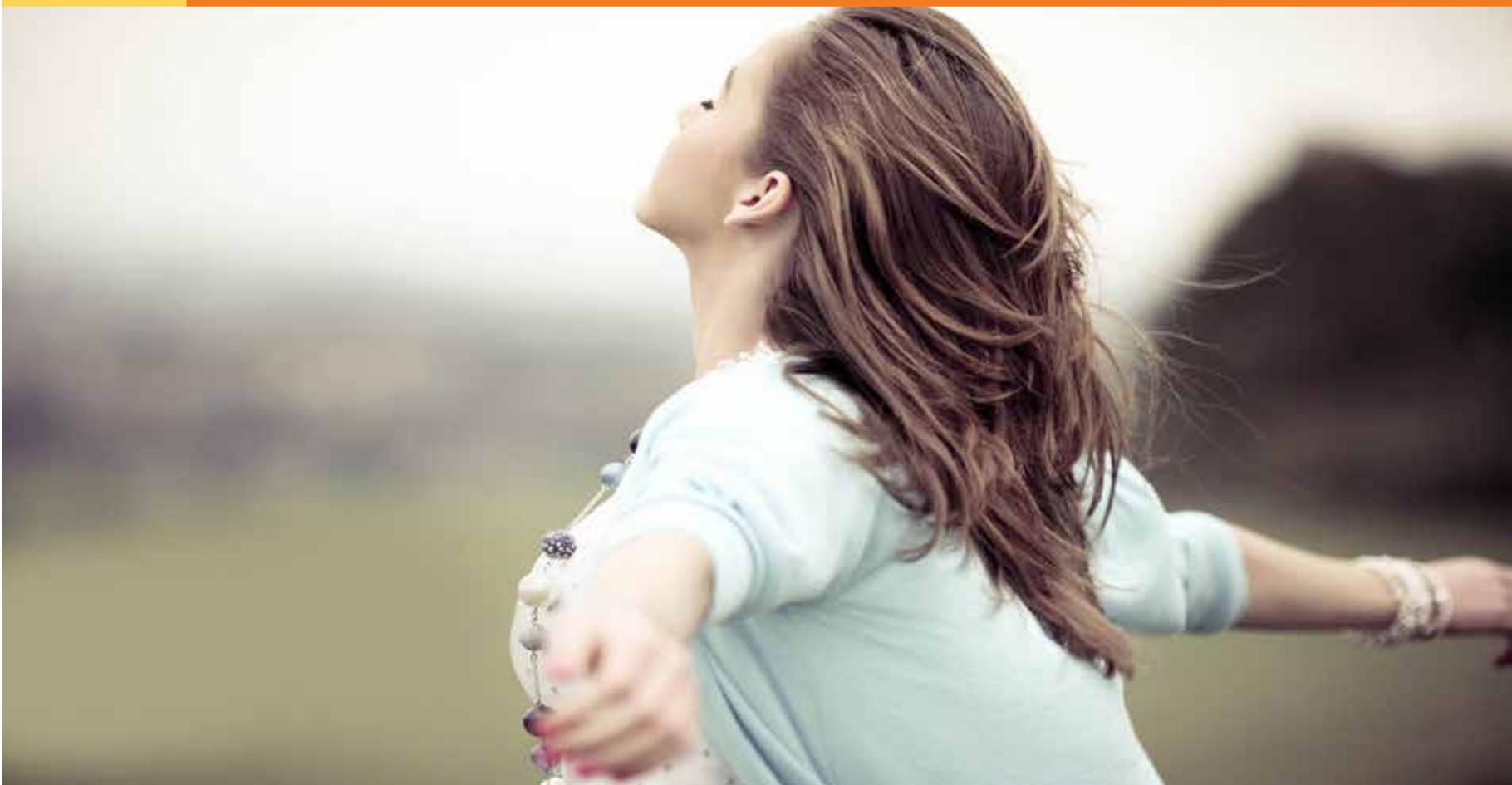
This is why the Gallup studies regarding effective managers reveal that the best results come from those who draw out the strengths of their workforce and provide each person with what they need to do a good job.

It is why the Hay Group, in research conducted by Daniel Goleman, Richard Boyatzis, and Annie McKee, found that among the six key qualities of leadership, the commanding style was the least effective and often hurt the bottom line, while other styles of visionary, coaching, affiliative, and democratic leadership were associated with improved results.

It is why “learning organizations,” those organizations which foster continued growth and development of the workforce and establish the environment for creativity at all levels, are among the most profitable year in and year out.

It is why those companies that have survived and are thriving after 100 years have fostered both a strong sense of community and a collective identity based on common values. This is balanced by a tolerance for new individuals and new ideas and the ability to adapt to the ever changing landscape of modern business.

In other words, business that honors the uniqueness of life among its human resources have consistently better results and are more profitable. This should not be surprising. When we recognize things as they really are, and respond to them appropriately, we get better results. ■



# Breathe Some Life into your Life

## Acknowledgement

*The SKIM Magazine gratefully acknowledges Mr. Joel McPherson for his kind permission to reprint article, entitled "Breathe some life into your life", originally published at <http://ahha.org/>*

**By: Joel McPherson**

## Health Benefits Abundant If You Remember To Breathe

Would you be interested in a free method for increased energy, improved blood circulation, reduced swelling, and even an improved complexion? Better yet, you already own the required equipment - your lungs. Studies show that simply learning how to breathe correctly can have remarkable effects throughout your body.

Breathing correctly can be as powerful as it is simple. The typical person only uses around twenty percent of their lung capacity, but with practice, they can learn how to tap into their lung's full potential. Sending better

oxygen content to all the cells of the body can bring dramatic changes in general health and mood.

Famous health guru, Dr. Andrew Weil, says that if he could only give one tip for better health, it would be to breathe properly. Proper breathing technique is central to the ancient practices of Yoga, Qi Gong, Ayurveda and other meditation disciplines. A clinical study of thousands of participants over a 30-year period presents convincing evidence that the most significant factor in peak health and long life is how well you breathe.

Breathing correctly is critical in maintaining the level of oxygen for energy, keeping the correct pH levels in the body, and enough carbon dioxide for bodily functions. Healthy people make 93 per cent of their energy aerobically

("in the presence of oxygen") but poor breathing habits can reduce the amount of energy made aerobically to 84 per cent. A full seventy percent of the elimination of wastes from the body is through breathing. The good news is that poor breathing habits can be reversed. Among infants, correct breathing comes naturally. Observe a baby as it breathes to see its belly rise and fall with each breath. As we grow older, we are taught to "suck in that gut" and "puff out that chest" as we try to achieve as slim a waist as possible. Such resistance to the natural breathing posture restricts oxygen intake, which can lead to numerous physical as well as emotional problems.

### "Bad" breathing

Shallow "chest breathing" invites problems by delivering less air per breath into the lungs. Less air per breath leads to a higher number of breaths, putting in motion a series of physiological changes that constrict blood vessels. Less oxygen reaches the brain, the heart and the rest of the body as a result. Less productive exhale causes an imbalance between the oxygen and carbon dioxide levels in the lungs and a buildup of toxins that should have been eliminated through breathing.

Too much oxygen, and not enough carbon dioxide, can create an agitated state. As you learn to exhale slowly, you conserve carbon dioxide and rebalance the system.

However, too much carbon dioxide, and not enough oxygen, can create feelings of fatigue and depression. Learning to inhale slowly re-balances your system by taking in more oxygen. In extreme cases, a restricted supply of oxygen can contribute to anxiety, panic attacks, and even phobias.

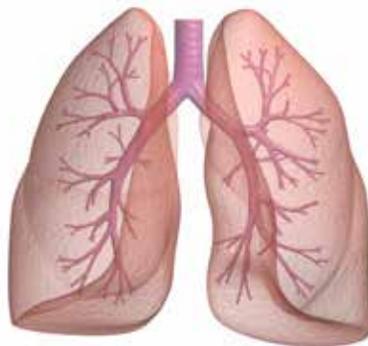
### Self-Test

1. To see how you currently breathe, find a comfortable position and make sure to breathe as you normally do.
2. Place one hand on your stomach and one on your chest.
3. Breathe as you normally would and notice whether your "stomach" hand rises or your "chest" hand rises.
4. To breathe properly, your stomach area must rise more than your chest as your diaphragm expands.

### How to breathe "right"

- Begin by slowly breathing in through your nose through the count of 4. Breathe into your belly so your diaphragm expands.
- Hold the breath for a count of 7.
- Slowly exhale through your mouth for a count of 8. When you exhale, try to make a soft "whoosh" sound by holding the tip of your tongue against the roof of your mouth as you exhale slowly. (Called 4-7-8 breathing)
- Repeat this process for three more times (for a total of four breaths). Do not do more than four breaths at first - with practice, you can work your way up to eight breaths. Do this twice each day.
- If the process causes you to begin panicking or if you become dizzy, only do it for as long as you are able.
- Increase the number of breaths each day until you can do the exercise four times per hour (every 15 minutes).

With practice, you can be breathing this way naturally throughout the day.



### Bad advice

"Take a deep breath" can be very bad advice to someone who is feeling anxious or is agitated. If such a person begins taking deep breaths, they are likely to experience an even more aroused state.

Such advice can lead to hyperventilation (breathing too fast.) The amount of carbon dioxide in blood generally regulates breathing. If carbon dioxide is released too rapidly, the arteries and blood vessels constrict and an insufficient supply of oxygen to the cells results. This includes the blood (and oxygen) supply to the brain. Restricting oxygen supply to the brain can

stimulate the sympathetic nervous system (our "fight or flight" response) and cause tension, anxiety, mood swings, and depression.

### Remembering to Breathe

Learning the proper breathing technique is important - remembering to practice that technique can become even more important. In the typical day, it is easy to become focused on a task (such as the computer or driving) and forget to breathe properly. The tendency is to revert into shallow "chest breathing." Regularly practicing diaphragmatic breathing, with measured inhale and exhale, will result in proper breathing becoming the only breathing you will do. But, like anything else, proper breathing is a learned skill and practice is critical.

Getting "lost" at a computer keyboard or within the pages of a good book happens to everyone. You will need a timer or similar alarm to remind you on a regular basis throughout the day to practice this skill. Kitchen timers work well as does a wristwatch alarm or cell phone alarm. As these require resetting and the audible alarm can be embarrassing in some settings, there is a "personal breathing coach" device on the market with a discreet, silent alarm at [www.breathminder.com](http://www.breathminder.com).

### Internet

Articles regarding diaphragmatic breathing abound on the Internet. In addition to the many health benefits achieved through proper breathing technique, there are numerous web sites devoted to breathwork for sports, public speaking, singing, and musical instruments. Many sites incorporate breathwork into practice of meditation as well as natural healing and holistic medicine modalities. Search breathwork, diaphragmatic breathing, or simply healthy breathing to find an extensive array of materials.

Unfortunately, this information is not widespread in today's medical community. Topics of illness and pathology are the priority of most healthcare training, not wellness. In addition, things that are free and can't be patented (like breathing) do not attract funding for research, so little finds its way into popular medical journals.

Breathing correctly can be as powerful as it is simple. Use the equipment you were given at birth (your lungs) to find remarkable health effects throughout your body. ■



# Emergency Management in the Arabian Peninsula: A case study from the Sultanate of Oman

By: Sultan Z Al-Shaqsi

## Acknowledgement

*The SKIM Magazine gratefully acknowledges Sultan Z Al-Shaqsi for his kind permission to reprint a material from case study namely, "Emergency Management in the Arabian Peninsula: A case study from the Sultanate of Oman" by Sultan Z Al-Shaqsi, published at "www.training.fema.gov/EMIWeb/edu/CompEmMgmtBookProject.asp".*

## Introduction

The Sultanate of Oman is an example of a rapidly growing country with a relatively new emergency management system. The concept of emergency management in Oman existed for years but actual emergency management measures are relatively recent. These measures are a result of recent natural disasters that devastated the country and awakened policymakers to the importance of integrating emergency management into

community development.

## The Sultanate of Oman

The Sultanate of Oman is located in the south eastern corner of the Arabian Peninsula. Its coastal line extends 3,165 kilometers from the Strait of Hormuz in the North to the borders of the Republic of Yemen in the South. It overlooks three major bodies of water: the Arabian Gulf (Persian Gulf), the Gulf of Oman and the Arabian Sea (Economy 2008). Oman borders Kingdom of Saudi Arabia and United Arab Emirates in the West, the Republic of Yemen in the South, the Strait

of Hormuz in the North and the Arabian Sea in the East.

The total area of the Sultanate of Oman is approximately 309.5 thousand square kilometers. The Sultanate is composed of varying topographic areas consisting of plains, dry river beds and mountains. The most important area is the plain overlooking the Gulf of Oman and the Arabian Sea with an area of about 3% of the total area. This area is the most densely populated area in the country with rapid growth and industrialization that creates a challenge for emergency management. The mountain ranges occupy almost 15% of the total land of Oman. The remaining area is mainly dry river beds and desert (about 82% of the total area) (Economy 2008).

## Hazards in the Sultanate of Oman

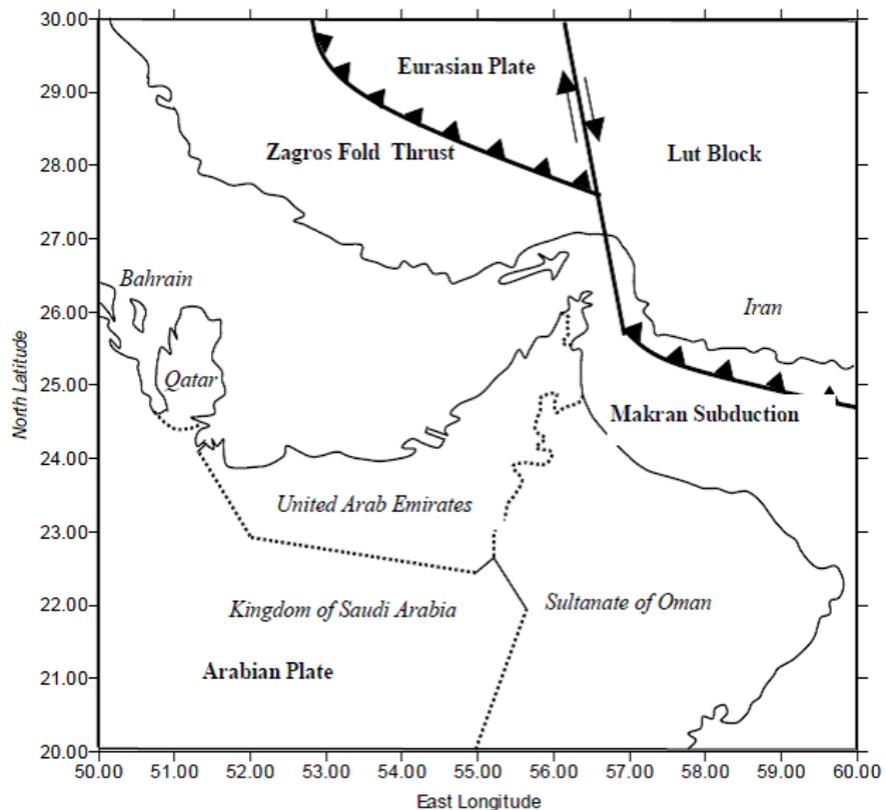
For planning purposes, hazards are divided according to their source into two broad categories: human-made hazards and natural hazards (Sundnes and Birnbaum 2003). Human-made hazards are hazards created by humans themselves unintentionally as a by-product of civilization activities (e.g., building a chemical factory next to a residential area) or intentionally (e.g., declaring a war against a neighboring country). Natural hazards are hazards imposed by the force of nature on humans such as the hazards from the geographical location of the country. The distinction between the two categories is arbitrary and, in reality, hazards overlap and have elements from both sources.

### Natural hazards in Oman

The geographical location of the Sultanate of Oman in the eastern most side of the Arabian Peninsula exposes the country to multiple natural hazards. The two main important natural hazards are earthquakes and tropical cyclones leading to flash floods.

#### Earthquakes:

Tectonically, Oman sits on the South-Eastern part of the Arabian plate. The Arabian plate is one of the youngest plates that make up the surface of the earth. The plate comprises a crystalline basement of Precambrian continental crust about 40-50 km thick (Warren and Miller 2007). The crust itself overlays a basement of sequence of younger Phanerozoic sedimentary rocks that range in thickness from zero to 10



km. This crust sits on top of the basalt and oceanic basin (Bowring, Grotzinger et al. 2007). The separation and splitting of the Arabian Plate from the African Plate along the Red Sea and the Gulf of Aden axes followed by drift of the Arabian Plate to the north and northeast, lead ultimately to a collision with the Eurasian plate that resulted in the formation of the Zagros fold belt (Petit, Fournier et al. 2007). The Zagros fold belt is the major source of earthquakes in the eastern border of the Arabian plate and Oman. These fault systems affect only the North of Oman with the south being spared from any appreciable tectonic activity (Abdulla and Azm 2004). The figure below depicted the major tectonic systems and their vicinity to the Sultanate of Oman.

#### Tropical cyclones:

Tropical cyclones in Oman are frequent events during the monsoon season from May to August every year. The cyclones themselves are considered low-risk events but they cause torrential rains that frequently lead to flash floods. The human distribution in Oman tends to concentrate around water banks and this increases the exposure of the population to the impact of flash floods (Ministry of Regional Municipalities and Water Resources 2009). Adding to the problem is the poorly managed drainage system in many cities in Oman so any small increase in rainfall will cause major flooding

(Ministry of Regional Municipalities and Water Resources 2009). For instance, in 2007, tropical cyclone Gonu caused a 24-hour torrential rain which was estimated to be 27 times more than the annual rainfall of the country (Al-Shaqsi 2010).

### Disasters in Oman

The record of disasters in Oman is sketchy and poor. A recent systematic review of the International Disaster Database by the Centre for Research on the Epidemiology of Disasters (CRED), School of Public Health of the Université Catholique de Louvain (UCL) in Brussels, Belgium, found that the country has a history of tropical cyclones almost once every three years. Some of the most known natural disasters include:

- A major country wide flood in 1977. This flood is the first recorded natural disaster in Oman's modern history. It caused major destruction in wide areas of the north of Oman. This flood killed 105 people and directly injured over 5,000 others. It is still regarded as the "worst disaster" in the history of Oman.
- Salah Floods in 2003 caused major disruption of life and services in the south of Oman. Unprecedented torrential rains during the monsoon season lasted for two weeks. This was coupled by poor drainage and flood

control system in the city lead to flash floods which claimed the lives of 30 people.

- Cyclone Gonu in 2007, was the stimulus for modern emergency management structure in Oman. It brought the country to a standstill for a week. This disaster will be discussed in details later in the paper.

- Cyclone Phet in June 2010 which caused damaging flash floods and claimed the lives of 24 people and affected 10,000

organizational arrangement may also be a reflection of the wide range of services provided by Police in Oman. Another striking observation is that there is no representative from Non-Governmental Organizations (NGOs) in the overall structure of NCCD. This is somewhat ironic since NGOs, such as Oman Charitable Organization (OCO), have had a long history of disaster relief and response to many incidents in the country and abroad. Besides this omission, there is no representative

emphasis on the articles that directly outline emergency management operations in Oman.

### Lessons from Emergency Management in Oman

There are many lessons that can be learned from the Omani experience. These lessons are by no means new to the field of emergency management, but it is critical to learn from previous experiences and not to “reinvent the wheel.” The lessons from the Oman can be summarized in the following points:

- The change in global hazards has slowly been appreciated in Oman and the region. The region is well known for human-made disasters but natural disasters are used to be sporadic and that led to a period of complacency. However, this is changing and natural disasters are becoming more frequent and more damaging. It is costly that policymakers in the region wait for such devastating events to decide to act and enhance emergency management measures. This situation is not exclusive to Oman, but the same issue has happened in the Kingdom of Saudi Arabia after the Jeddah Floods in 2009. It is critical for nations to be proactive about disaster management rather than learning the hard way after a disaster.

- The concept of emergency management has to be integrated into the developmental process of the nation. Oman as a country is developing too fast and emergency management is lagging behind because it is still – in many ways – not appreciated as an integral part of development process. This could lead to ineffective reactive approach to hazards. Many industrial cities in the country are booming with huge factories and their potential risks and hazards have not been adequately addressed. In simple terms, emergency management measures have to be integrated into the development of infrastructures to be effective and for the development process to be safe for people. Unless emergency management is regarded as a core developmental process by policymakers then complacency will prevail. Emergency management as a reactive strategy to disaster is never effective and is a recipe for failure.

- The current structure of National Committee of Civil Defense does not include any representatives from private sectors in the country nor does from non-governmental organizations. The role of private sector in

**Table 1: National Disasters in the Sultanate of Oman from 1960 to 2010**

NA= Not Available \* yet to be included in the CRED database.

Type of Disaster	Date	No of Killed	No of Affected	Cost in US \$
Tropical Cyclone	May 1977	105	5,048	NA
Tropical Cyclone	June 1977	2	1,548	NA
Tropical Cyclone	May 1981	26	NA	NA
Tropical Cyclone	May 2002	7	83	50,000
Tropical Cyclone	April 2003	30	NA	1,000
Tropical Cyclone	June 2007	76	20,000	3,900,000
Tropical Cyclone*	June 2010	24	10,000	NA

others.

### Structure of the NCCD

The current National Committee for Civil Defence (NCCD) consists of 16 members from different governmental departments. It has a Chairman who is the Inspector General of the Royal Oman Police as well as a deputy-chairman who is the assistant Inspector General of the Royal Oman Police. The daily operations of the NCCD are coordinated by the Executive Director who is a senior rank police officer. The graph below shows the current members of NCCD in Oman.

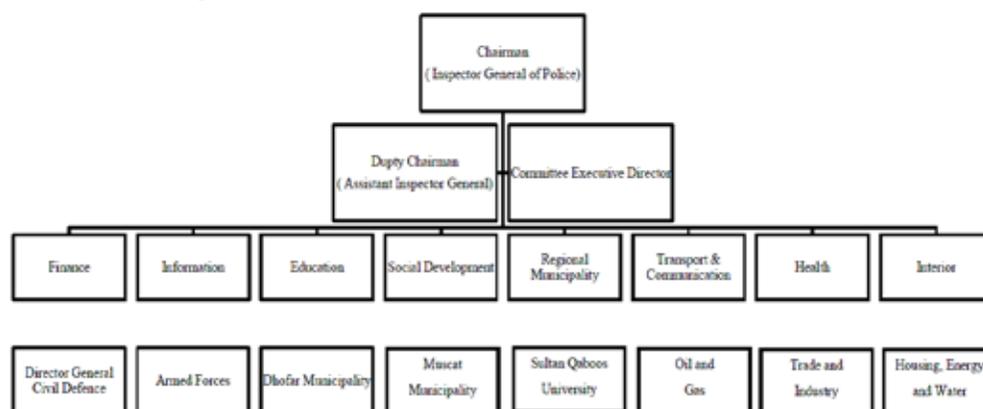
There are a few observations to note regarding the current structure of NCCD in Oman. Firstly, the NCCD is still largely attached to Police operations, largely because the original inception of emergency management in Oman in 1988 was championed by the Police. This

of private services in Oman. The current emergency management regulations in Oman demands that the government ministries have senior level representation in the NCCD. This is usually the minister or the under-secretary of the respective ministry. This creates a logistical challenge as it is difficult to arrange meetings with all very senior official of government ministers are present. Therefore, the meetings of NCCD have been sporadic and few.

### Emergency Management Legislation in the Sultanate of Oman

There are two laws that regulate emergency management in the Sultanate of Oman. The first is the Civil Defense Law that was instituted by the Royal Decree 76 in 1991. The second is the State of Emergency Law, which was outlined by the Royal Decree 75 in 2008. Here is a translated description of these two laws with a specific

**Figure 1: The structure of National Committee for Civil Defense**





emergency management has been neglected in Oman for a long time. For instance, some would argue that the response of Petroleum Development Oman to Cyclone Gonu was by far more prompt and adequate than the governmental response (2010). This is because the company regards emergency preparedness as a core value in its mission. Therefore, integrating such local private expertise and resources into the national emergency management will be valuable.

- Successful emergency management systems have mixed centralized and localized approach to resources. It is essential to have a centralized command structure, but it is equally critical to have well-resourced localized depots. One of the main lessons learnt from recent floods in Oman is that centralized storage and stockpiling of resources is limited and dependent on adequate roads and transportation. It is crucial to have redundancy in resource outlets around the country rather than having one huge store that can be damaged or flooded and then render dysfunctional.

- Disasters are destructive events that endanger the basic needs of humans. It is important that nations such as Oman do not get the illusion that emergency management systems are about expensive high technology measures. Rather, successful emergency management systems are based on ensuring the “basics of life” such as food, water,

shelter, and electricity. During Cyclone Gonu, many hospitals in Oman sat up Intensive Care Units to provide technology-dependent high-cost medical care and unintentionally neglected the basics. However, the victims were all seeking basic needs such as food, clean water, and shelter. It is a lesson for all countries to focus on the basics, as successful disaster management relays on ensuring human basic needs are met adequately.

- The emergency management legislation in Oman existed for years now but the implementation of some sections is still lagging behind. Things such as including civil defense skills in school curriculum are clearly embraced by the law but nonexistent in reality. As the law itself is important so is the enforcement of the law. There is a need to have an independent body of the government to assess and evaluate the extent to which all government agencies engage in emergency preparedness activities.

- There are still questions of who should run the emergency management system. The Police are in charge in Oman and this has its own advantages such as a clear line of authority and command. However, issues such as the appropriateness of the Royal Oman Police in assessing health care preparedness, for example, is debatable (as police do not usually have the technical expertise to assess health care needs and preparedness to disasters). The bottom line is

that each nation should decide on what best suits the local context.

## Conclusion

This case study of emergency management in Oman highlights the urgency to integrate emergency management measures in core community development projects. Modernization and development of communities has to be accompanied by robust emergency management structure to ensure that natural and human-made hazards are assessed and managed adequately. It is time to move away from reactive operations of emergency and disaster management to more active and anticipatory activities. It is critical to appreciate that emergency management does not happen on the day of the emergency rather, it should be a well-planned process ahead of the disaster.

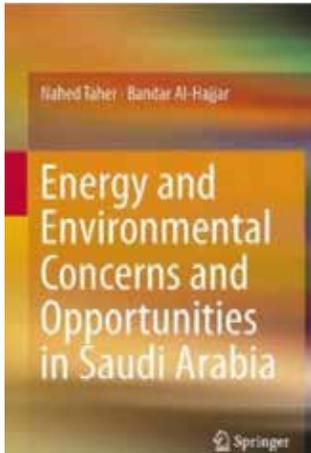
Emergency management is never an easy task. It has been and will always be a complex process involving multiple players that have to act as one team aiming to achieve one goal during a disaster. Coordination and cooperation are central to successful emergency management. The coordination has to be inclusive of all community services and agencies, governmental and private.

Emergency management in Oman is moving in a right direction with a good pace. The challenge is to keep improving continuously because if the process slows down it means development in the community has decelerated and complacency will prevail. ■

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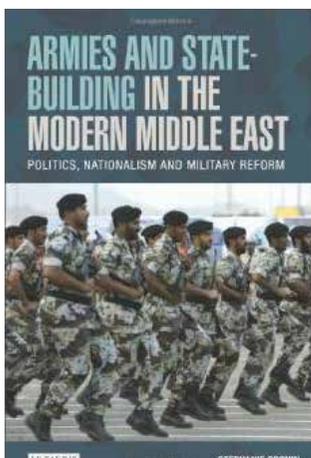
## BOOKS CORNER



### Energy and Environment in Saudi Arabia: Concerns & Opportunities

By: Nahed Taher & Bandar Al-Hajjar, Price: \$112.79, Hardcover: 203 pages, Publisher: Springer International Publishing; 1 edition (December 16, 2013)

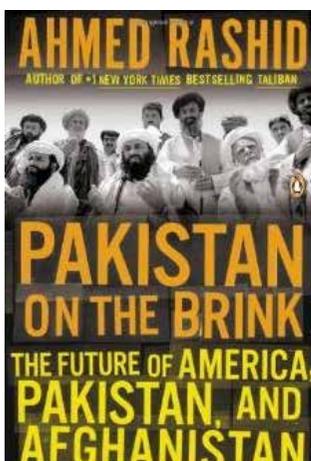
The vast oil resources in Saudi Arabia have for decades encouraged a generous system of oil subsidies, making the Kingdom one of the leading countries in the world with the cheapest domestic price of oil. Such subsidies have, however, encouraged inefficient utilization of oil, which is largely consumed in the power, water and transportation sectors, contributing substantially to CO2 emission in the country. These problems are exacerbated by demographic dynamics, urbanization, changes in income and consumption patterns, and industrialization. On current trends of domestic consumption patterns, Saudi Arabia will consume the whole of the oil it will produce by 2030, which will reflect negatively on the financial capacity of the government to execute its development programs. It is this revenue constraining concern, rather than ecological challenges, that has started to attract policy attention in Saudi Arabia. This book gives a unique perspective on these challenges by looking at them as investment opportunities, not financial constraints on the government budget. It sets out to examine the nature and extent of the energy and environmental challenges facing Saudi Arabia, and to explore various options for turning these challenges into profitable investment opportunities that could create jobs, boost income, develop capability in clean energy technology and promote environmental sustainability.



### Armies and State-building in the Modern Middle East: Politics, Nationalism and Military Reform

By: Stephanie Cronin, Price: \$24.00, Paperback: 320 pages, Publisher: I. B. Tauris (February 27, 2014)

The uprisings of 2011, which erupted so unexpectedly and spread across the Middle East, once again propelled the armies of the region to the centre of the political stage. Throughout the region, the experience of the first decade of the twenty-first century provides ample reason to re-examine Middle Eastern armies and the historical context which produced them. By adding an historical understanding to a contemporary political analysis, Stephanie Cronin examines the structures and activities of Middle Eastern armies and their role in state- and empire-building. Focusing on Iran, Afghanistan and Saudi Arabia, *Armies, Tribes and States in the Middle East* presents a clear and concise analysis of the nature of armies and the differing guises military reform has taken throughout the region. Covering the region from the birth of modern armies there in the late-nineteenth and early-twentieth centuries, to the military revolutions of the 1950s and 60s and on to the twenty-first century army-building exercises seen in Iraq and Afghanistan, Cronin provides a unique and vital presentation of the role of the military in the modern Middle East.



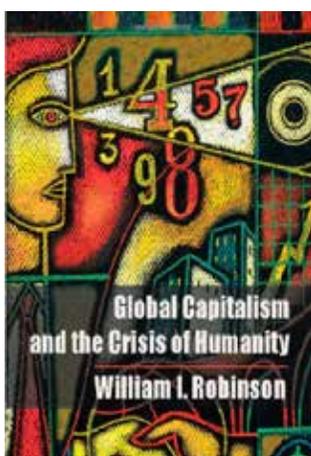
### Pakistan on the Brink: The Future of America, Pakistan, and Afghanistan

By: Ahmed Rashid, Price: \$12.57, Paperback: 256 pages, Publisher: Penguin Books; Reprint edition (February 26, 2013)

Ahmed Rashid is a journalist who has been covering Afghanistan, Pakistan, and Central Asia for more than twenty years. He is a correspondent for the Wall Street Journal, Far Eastern Economic Review, Daily Telegraph, and The Nation, a leading newspaper in Pakistan. His #1 New York Times bestseller *Taliban* has been translated into more than twenty languages

An urgent, on-the-ground report from Pakistan—from the bestselling author of *Descent into Chaos* and *Taliban*.

Ahmed Rashid, one of the world's leading experts on the social and political situations in Pakistan and Afghanistan, offers a highly anticipated update on the possibilities—and hazards—facing the United States after the death of Osama bin Laden and as Operation Enduring Freedom winds down. With the characteristic professionalism that has made him the preeminent independent journalist in Pakistan for three decades, Rashid asks the important questions and delivers informed insights about the future of U.S. relations with the troubled region. His most urgent book to date, *Pakistan on the Brink* is the third volume in a comprehensive series that is a call to action to our nation's leaders and an exposition of this conflict's impact on the security of the world.



### Global Capitalism and the Crisis of Humanity

By: William I. Robinson, Price: \$26.99, Paperback: 280 pages, Publisher: Cambridge University Press (July 28, 2014)

This book discusses the nature of the new global capitalism, the rise of a globalized production and financial system, a transnational capitalist class, and a transnational state and warns of the rise of a global police state to contain the explosive contradictions of a global capitalist system that is crisis-ridden and out of control.

This exciting new study provides an original and provocative exposé of the crisis of global capitalism in its multiple dimensions - economic, political, social, ecological, military, and cultural. Building on his earlier works on globalization, William I. Robinson discusses the nature of the new global capitalism, the rise of a globalized production and financial system, a transnational capitalist class, and a transnational state and warns of the rise of a global police state to contain the explosive contradictions of a global capitalist system that is crisis-ridden and out of control. Robinson concludes with an exploration of how diverse social and political forces are responding to the crisis and alternative scenarios for the future.

# Events

## MENA Water 2014



MEED MENA Water Forum will provide the platform to discuss the challenges and share practical strategies in this vital market to ensure long term water security and sustainability. More than 150 attendees across the water value chain including government representatives, developers, operators, contractors, technology providers and financiers will discuss upcoming projects, infrastructure developments as well as resource, technology and procurement strategies.

### What's new for 2014

- Content to cover the full water spectrum
- Plenary and streamed sessions discussing water and wastewater infrastructure network developments
- Technical roundtable to discuss topics in detail
- Interactive exhibition area

**When: 28 -30 Sep. 2014**

**Where: Le Royal Meridien Abu Dhabi**

## Smart Cities 2014

As the GCC ramps up its smart city ambitions, sustainable IT plans are needed to store and secure sensitive data and inevitably translate this data into actionable knowledge. Investment in Smart Cities is predicted to reach \$400bn by 2020. Get in-depth details that will help you unlock real opportunities across the region particularly in Abu Dhabi, Dubai, Doha and cities within Saudi Arabia.

Speakers Presenting International and Regional Case Studies Include:

- Andrew Collinge, Assistant Director - Intelligence and Analysis, Greater London Authority - ICity London
- Manel Sanroma, Chief Information Officer, Barcelona City Council
- Frans Anton Vermast, Senior Strategy Advisor, City of Amsterdam, Netherlands

**When: 8 - 10 September 2014**

**Where: The Sofitel Hotel, Palm Jumeirah, Dubai**

## Data and Information Management in Oil and Gas

Recently, oil and gas companies have been making huge stride to improve the way they manage their data and information. Enterprise data management, well logging data analysis, data monitoring of surveillance systems and many more functions are effectively managed by a central data management centre ensuring improved data governance, quality and security. Despite this, companies still face challenges with interpretation and visualisation of the collected data.

This conference will provide a platform for industry leaders to share knowledge, experiences and exchange ideas on how to efficiently collect data, integrate systems for better interpretation, and communicate information to improve operations.

**When:**  
Sep 24 to Sep 27, 2014

**Where:**  
Westin Hotel, Abu Dhabi, UAE

## The Arab Women in Leadership and Business Summit

The Arab Women in Leadership and Business Summit aims at inspiring women to seek their highest level of professional development by providing them with information, strategies, insights and perspectives on Leadership.

In today's time a business not only needs to invest capital but also needs human capital to ensure returns on the investments. With talent shortages projected to become more severe in both developed and the developing world. It is important for businesses to have access to local female talent.

In the region we have a significant number of women who possess a great resource of talent, encouraging these women to join the work force and assisting them to set a career path will not only help boosting the regional economy but also will be beneficial to communities, companies and Organizations.

**When: Sep 22 - 23, 2014**

**Where: Radisson Royal Hotel, Dubai**

# Tenders

## USAID Punjab Enabling Environment Project (PEEP)

### USAID PEEP Private Sector Investment Promotion Initiative

USAID's Punjab enabling environment Project (PEEP) is five year effort to support the Government of Punjab in improving business environment for livestock, dairy and horticulture sub-sectors. The project is working to build a strong business enabling and policy environment to help boost private sector investment in the three sub-sectors.

USAID PEEP's Investment Promotion Initiative aims to support new investments for growth and development in Punjab's livestock, dairy and horticulture sub-sectors. Under this initiative, the project's assistance for potential investors include:

1. Feasibility analysis of new business opportunities arising from policy or regulatory reforms adopted by the Government of Punjab or strategic investments contributing to enhanced competitiveness of individual businesses or the overall product chains.

2. Provision of Transaction Advisory Services (TAS) to enable investments under Public-Private Partnership (PPP) models as well as through professional TAS providers.

Expression of interest are, therefore, invited from individuals or firms (producers, processors, commercial exporters, marketing companies and lead retailers), who are interested to benefit from the project's assistance as explained above in (1) and (2).

The interested individuals or firms should submit their EOIs along with brief business profiles

**No later than 1700 hours, September 15, 2014 at [EOI@usaidpeep.com.pk](mailto:EOI@usaidpeep.com.pk)**

Any questions related to this expression of interest should be submitted by email ONLY at the email given above.



پاکستان سول ایوی ایشن اتھارٹی

## UPGRADATION OF MULTAN INTERNATIONAL AIRPORT

Construction of New Passenger Terminal Building and Allied Facilities (Phase-II) Package-8 : Supply of Furniture

### PRE-QUALIFICATION OF FURNITURE MANUFACTURERS/SUPPLIERS

1. The Civil Aviation Authority (CAA) of Pakistan intends to pre-qualify firms/contractors for Package-8 "Supply of Furniture" related to Construction of New Passenger Terminal Building and Allied Facilities at Multan International Airport, under Phase-II. The scope of work covers the following:
  - Check-in/Immigration/Gate – Counters and Airport Lounge Seating (Imported)
  - Customs Counters, Planters, Trash Bins and Baggage Trolleys.
  - CIP Lounge Furniture (Sofa sets and centre tables).
  - Office Furniture and Carpet
2. The pre-qualification is open to local firms working as authorized agents/associates of world-renowned foreign airport furniture manufacturers having in-house capability (outsourcing not allowed) of manufacturing high quality airport furniture (including counters/lounge seats) meeting the international standards under authority/certified arrangements, with necessary experience in supply of furniture to at least 05 No. top-class International Airports worldwide. The local firms/associates should also have experience in manufacturing furniture costing Rs. 50 million and above.
3. Interested firms may request for the purchase of Pre-qualification Documents from the office of Director Planning and Development CAA, at the address given below. Pre-qualification Documents can be collected against non-refundable fee of Rs. 5,000/- (Pak Rupees Five Thousand only) in the shape of pay order in favour of Civil Aviation Authority Karachi. Firms requesting delivery of Pre-qualification Documents to their office should include the requisite additional amount of Rs. 500/- (Pak Rupees Five Hundred only) for courier charges.
4. Applications for pre-qualification must be clearly marked "Application for Pre-qualification against Package No. 8 (Supply of Furniture)". Application should be delivered in a sealed envelope by hand or through registered mail/courier at the address given hereunder by 8th September 2014.
5. Only firms pre-qualified under this process will be subsequently invited to bid for the work.
6. This supersedes our press notice dated 30th October 2013.
7. PCAA reserves the right to accept or reject any or all applications by assigning sufficient and cogent reasons thereof, if required.

#### Director Planning and Development

Civil Aviation Authority, B-6, KDA Scheme No. 1, Shahrah-e-Faisal,  
Karachi-75350, Pakistan. Phone: (9221) 3431-3826 Fax: (9221) 03431-3827  
[www.caapakistan.com.pk](http://www.caapakistan.com.pk)  
PID (K)416/14

# Personal Development

## Developing and Implementing a Social Media Strategy

This course combines theory, practice and lots of relevant examples, to quickly and effectively improve your presentation skills. There will be a powerful combination of key learning techniques including critical observation, practical exercises and videotaped practice sessions. The course is focused on both theory and practical experience to quickly and effectively improve participants' presentation skills.

This course is designed for anyone involved in marketing or responsible for the online strategy for their business. It is particularly relevant to entrepreneurs and small business owners who want to build their brand and online presence.

**Duration & Timing:** 3 Days - 8am to 2:30pm

**Fee:** AED 13,205

**Location:** Dubai

## Monitoring and Evaluation

Improving the quality of humanitarian practice and ensuring the effectiveness of responses to complex emergencies is a key aim shared by humanitarian agencies. Thus, monitoring and evaluation are essential activities for any project or programme. Careful monitoring of progress against targets allows timely changes to be made to maximise impact. Evaluation ensures accountability to all parties concerned, and allows learning to be carried through to future interventions.

### Course Overview

- Monitoring programme activities
- Planning required interventions
- Evaluating programme impact
- Using appropriate tools and methods
- Designing M&E plans

**Registration Deadline:** 23 Nov 2014  
**Training Date:** 24 Nov 2014 to 25 Nov 2014

### For further information

Please contact our training team on [pakistan@redr.org.uk](mailto:pakistan@redr.org.uk)

## Crisis and Security Management

Given the insecure and often rapidly changing environments in which aid agencies work, safety and security management is not an optional extra - it needs to be at the heart of humanitarian programmes. This five-day course will enable participants to identify the key requirements for managing security in an organisational framework, and practice essential techniques in risk management and crisis response.

### What Does the Course Cover:

- Environmental scanning (local contexts and programmes)
- Threat, vulnerability and risk assessment
- Application of risk standards and models
- Incident response, analysis, reporting and information management
- Security strategies, policy and planning
- Legal liability
- Crisis management
- Operational continuity
- Team management through security programming
- Psycho-social support

**When:** 17 Nov 2014 to 21 Nov 2014

**Where:** Islamabad, Pakistan

**Registration Deadline:** 16 Nov 2014

### For further information:

Please contact our training team on [pakistan@redr.org.uk](mailto:pakistan@redr.org.uk)

## Practical Financial Management for NGOs: Getting the Basics Right (FM1)

*This course is aimed at staff in small to medium-sized NGOs who are involved in programme implementation and the management and control of financial resources. You do not need previous financial management experience to come on this course. It is designed specifically for:*

- Non-financial officers and managers who want to improve practice in financial planning, control and reporting
- Finance officers interested in developing their financial management skills and knowledge to improve finance systems and support for programme staff.

*Early booking and group booking discounts available.*

**Training Date:** 24 Nov 2014 to 28 Nov 2014

**Registration Deadline:** 20 Oct 2014

**Group booking and discounts are available**

### For Further Information:

If you have any questions or need help booking, please email [training@mango.org.uk](mailto:training@mango.org.uk)

## USAID Middle East Water Security Initiative

**Deadline: 1 October 2014**

The United States Agency for International Development (USAID) Middle East Water Security Initiative in Egypt, Jordan, Lebanon, West Bank/Gaza, and Yemen is seeking projects that aim to identify and scale up technologies for improved water supply and use. Special focus is on approaches that empower women and youth. The goal of the MWSI is to improve sustainable, long-term access to water for up to 20 million people living in the Middle East.

USAID may allocate up to \$500,000 over the course of FY 2014 to fund one or two partnerships, with funding for individual partnerships estimated in the range of \$250,000 to \$500,000.

The MWSI will engage both international and local actors from the private sector, civil society, public sector, and other organizations to support dynamic young entrepreneurs, researchers, and consumers with opportunities to develop, test, scale-up and market 'water-smart' technologies; and increase awareness of and local ability to address water security challenges in the Middle East through behavior change and advocacy campaigns.

### Eligibility Criteria

Applicants can be private institutions of higher education; native American tribal organizations; nonprofits that do not have a 501(c) (3) status with the IRS, other than institutions of higher education, for profit organizations other than small businesses; public and state controlled institutions of higher education; small business; nonprofits having a 501(c) (3) status with the IRS, other than institutions of higher education; or public housing authorities/Indian housing authorities.

For more information, please visit [grants.gov](http://grants.gov) and search for funding opportunity number APS-OAA-14-000005. Please do not forget to click Full Announcement and download relevant files to get idea on application and others.

## OPEN EDUCATIONAL RESOURCES FOR DEVELOPMENT (ROER4D)

### Apply for Grants to Conduct Studies on Impact of Open Educational Resources (OER) adoption

The Research on Open Educational Resources for Development (ROER4D) is inviting grant proposals from researchers around the globe to conduct studies on the impact of Open Educational Resources (OER) adoption (whether positive or negative) on aspects such as costs, teaching and educational practices, student performance, quality of materials and policy following the use of OER in developing countries.

The study can be formal education, informal or non-formal learning, at all levels – primary, secondary, tertiary, including life-long learning, especially in sustainable development, agriculture and health.

### Major objectives of the grant program are to

1. Expand the global empirical knowledge base on impacts of OER in a range of aspects with data and outcomes from the Global South
2. Contribute to establishing credible methodologies for researching the impact of OER
3. Communicate outcomes of the OER impact studies in the Global South to inform education policy and practice
4. Build a network of scholars in the Global South who are knowledgeable and experienced in OER impact studies

Research can be conducted for up to 18 months. Projects must start by 1 January 2015.

### Eligibility Criteria

- Researchers from around the world are eligible to apply. The research must be about impact of OER in developing countries.
- The study can cover formal education, informal or non-formal learning, at all levels – primary, secondary, tertiary, including life-long learning, especially in sustainable development, agriculture and health.
- The research must be conducted in any of the emerging economies of Asia and Sub-Saharan Africa that are eligible for Official Development Assistance (ODA).

For more information, please visit: <http://www.oer-impact.net/>

## Chief of Party - Pakistan

**Closing Date: 15 Sep 2014**

**Responsibilities and Duties:**

Engility Corporation, building on IRG's legacy in international development, is currently seeking experienced COP candidates for an upcoming USAID funded project in Pakistan. Successful candidates will be responsible for a range of management tasks (including but not limited to the coordination of local and international personnel), and must possess technical and administrative expertise and experience in order to provide programmatic guidance to the project.

**Responsibilities Include:**

- Responsible for making key decisions and solving problems in short time frames while ensuring operational and program integrity, in consultation with USAID.
- Responsible for management, oversight, and reporting of Contractor progress and quality of performance in meeting the activity undertakings in this program
- In close consultation with USAID, responsible for providing oversight of grant activities, including supervision of the program staff, ensuring appropriate grant design, ensuring that procedures are established and complied with for grant development, grant worthiness, grant implementation, management, monitoring, evaluation, and grant closing
- Under the guidance of USAID, responsible for contributing to the design and implementation of the M&E system and for ensuring that all activities are monitored and evaluated

**Minimum Tangible Qualifications:**

- Bachelor's degree in international affairs, international relations, international development, or related field;
  - Minimum 10 years' experience on large, donor-funded projects in development, democracy, and governance;
  - Minimum 5 years' experience in post-conflict and conflict affected countries;
  - Have strong management and leadership skills, including the ability to mentor staff
  - Have demonstrated past representational experience with host governments, other donors, and civil society and demonstrated success with inter-agency coordination and joint programming ideally
  - Familiarity with USAID policies and procedures;
  - Familiarity with relevant USAID, federal, and international policies;
  - Previous experience in community participation projects focused on conflict and political transition;
  - Previous experience with grant management, particularly grants under contract, in-kind, and small grants.
- This is a contingent position based on funding from the customer.

**How to Apply:**

Please visit the link: <https://careers-engility.icims.com/jobs/9225/chief-of-party/job>

The International Rescue Committee (IRC) responds to the world's worst humanitarian crises and helps people to survive and rebuild their lives. Founded in 1933 at the request of Albert Einstein, the IRC offers lifesaving care and life-changing assistance to refugees forced to flee from war or disaster. At work today in over 40 countries and 22 U.S. cities, we restore safety, dignity and hope to millions who are uprooted and struggling to endure. The IRC leads the way from harm to home.

## Country Director

**Scope**

The Country Director will provide the strategic vision and leadership for the country program. S/he is responsible for ensuring the design and delivery of quality programs, donor and government relations, fundraising and budget management, security and operations management, and developing a motivated and professional team. Reporting to the Regional Director, the Country Director will work closely with, and receive support from regional and headquarters program technical units, safety and security services, regional finance and operations staff.

**Responsibilities**

- Strategic Planning and Management
- Working closely with the Regional Director, and regional team, finalize and oversee the delivery of a strategic plan for the country program
- Ensure that structures and systems are in compliance with IRC standards, and that they support program delivery and promote management coordination and efficiency throughout the country program
- Lead a cohesive and effective senior management team, promoting collegiality and professionalism among peers.

**Program Quality & Development**

- Develop program strategies in accordance with IRC's mission and program framework (with particular emphasis on integrated sector strategies in health and protection)
- Ensure the consistent use of well managed assessment, design and proposal development processes
- Promote a team approach and positive learning environment utilizing headquarters, country program and operations staff and partners to consistently enhance the quality of design and implementation

**Job Requirements/Experience Required:**

- Graduate degree in relevant field desirable
- At least five years of international work experience covering both emergency and post-conflict development programming
- Extensive program development and fund raising experience
- Prior experience with European, US and international donors
- Strong human resource management skills
- Previous budget and fiscal oversight responsibilities
- Extensive knowledge and experience in the region
- A keen understanding of political complexities in the region, as they relate to post conflict recovery
- Experience of remote management of programs in insecure environments useful
- Fluency in written and spoken English required; Fluency in Arabic is a plus

Please follow this link for more details: <http://reliefweb.int/job/676214/country-director>

# Classifieds



## FEMALE SECRETARY REQUIRED IN DUBAI

Required experienced Indian, Sri Lankan, Pakistani female secretary in Dubai for a real estate company. Must be fluent in English & excellent knowledge of computer. **Email: [alfadheldxb@yahoo.com](mailto:alfadheldxb@yahoo.com)**



## URGENTLY REQUIRED

Following staff is required for a reputed company in Bahrain, specialized in Interior Design.  
1- Indoor Sales Executive (Male & Female)  
2- Secretary  
3- Driver  
Please email your CV at: **[euroblindsbh@gmail.com](mailto:euroblindsbh@gmail.com)**



## REQUIRED A FEMALE RECEPTIONIST

A female receptionist is required for an electromechanical company in Ajman. Must be experienced for 2-3 years in the same field. Expert in computer (MS Office, Internet, email), EPABX system. Bold & punctual. **Email: [careers@bgmgrouppuae.com](mailto:careers@bgmgrouppuae.com)**



## VILLA FOR RENT

Location: Dubai, UAE  
3000 Sq Ft, 3 Bedroom, 2.5 Bathroom villa available for rent in in Mirdif, Good Quality, Semi-independent. Rent AED 135,000. For viewing please call **050 353 8352** or **email: [dubaimarket@gmail.com](mailto:dubaimarket@gmail.com)**



## VILLA WITH S. POOL FOR RENT

Lovely villa in West Mishref, Kuwait – 4 bedrooms (3 masters), 5 bathrooms, living room, open plan kitchen, family room, office room, maid's room, w/shower and laundry. Private yard and outdoor swimming pool. Rent KD 3000/month. Please call Mr. Tomas on **66663091**



## MERCEDES-BENZ S-350 FOR SALE

Model: 2003 S-Class,  
Location: Riyadh (Saudi Arabia), **Tel: 0501275443**  
49,000 SAR  
Transmission Type: Automatic  
Kilometers: 139K, Fuel Type: Gasoline, 6 cylinder  
Seller Type: Owner



## BUSINESS PARTNER REQUIRED

AED 15,000  
In Dubai a partner is required in running management consultancy f.z.e business. **Call: 0566262320**



## STAFF REQUIRED

Receptionist/ Front office staff, Waitress, Waiter, Housekeeping staff, cook all-rounder (Bahrainis preferred) for a hotel with minimum 3 years' experience. Visa available / excellent salary/ benefits. Please send CV along with recent photos to P. O. Box: 2604, Manama. **Email: [imcwl12008@yahoo.com](mailto:imcwl12008@yahoo.com)**



## OFFICE SPACE FOR RENT

Location: Near King Fahd Road  
**Tel: 0551373328**  
Description:  
15 Floors, 2 levels of private parking, 9 Floors of Office Space and 3 Floors of Executive Suites (Full Service).



## BUSINESS DEVELOPMENT MANAGER

Location: Dubai, UAE  
Position Type: Full time  
A fast growing Interior Designing and Fit Out company in Dubai requires a Business Development Executives/Managers. Candidates who had worked in Real estates sector also can apply. Please email your CV to **[careers@fitoutbureau.com](mailto:careers@fitoutbureau.com)**



## PROFESSIONAL CLEANING SERVICES

Location: Dubai, UAE. Position Type: Part time  
We clean villas, flats, shops, apartmens, houses, hotels, office towers, and much more. For more details please call Rahman at 055-866 9468, 050-2081612, or **email: [a\\_mbcs@yahoo.com](mailto:a_mbcs@yahoo.com)**



## PLOT IN DUBAI INDUSTRIAL CITY

Location: Dubai, UAE  
Plot availbale in Dubai Industrial City for different activities.AED 320,000. For more details, please call +971 50 353 8352



## IT TECHNICIAN REQUIRED

Location: Al Gharafa,  
We are a company, seeking for an IT technician who:  
1-Has a good experience in IT field.  
2-Has worked more than a year in Qatar.  
3-Has NOC & ability to transfer sponsorship.  
Doha residents please send your CV to:  
**[humanfly1982@yahoo.com](mailto:humanfly1982@yahoo.com), Tel: 33710345**



## 1 BEDROOM FOR RENT

Location: Dubai, UAE  
Fully Furnished 1 B/R in DOWNTOWN – BOULEVARD CENTRAL T1, 1BR, 710 sq.ft, 6th Floor, Fully Furnished & Equipped, Lake & Community view, Clean & Well Maintained.  
Rent: AED 120,000/- per annum 2 or 3 chqs.  
**Call 0557826483**  
**Email: [giselle@readyhousedubai.com](mailto:giselle@readyhousedubai.com)**



## BABYSITTING AVAILABLE

Location: Dubai, UAE, Position Type: Part time  
Baby Sitting available for Infants, Toddlers and School Going Children. I got 17 yrs of experience. Baby Sitting Available For Hourly Basis, Daily Basis, Weekly Basis And Monthly Basis. Please email **[maribello1289@hotmail.com](mailto:maribello1289@hotmail.com)** or call at 056-7811570



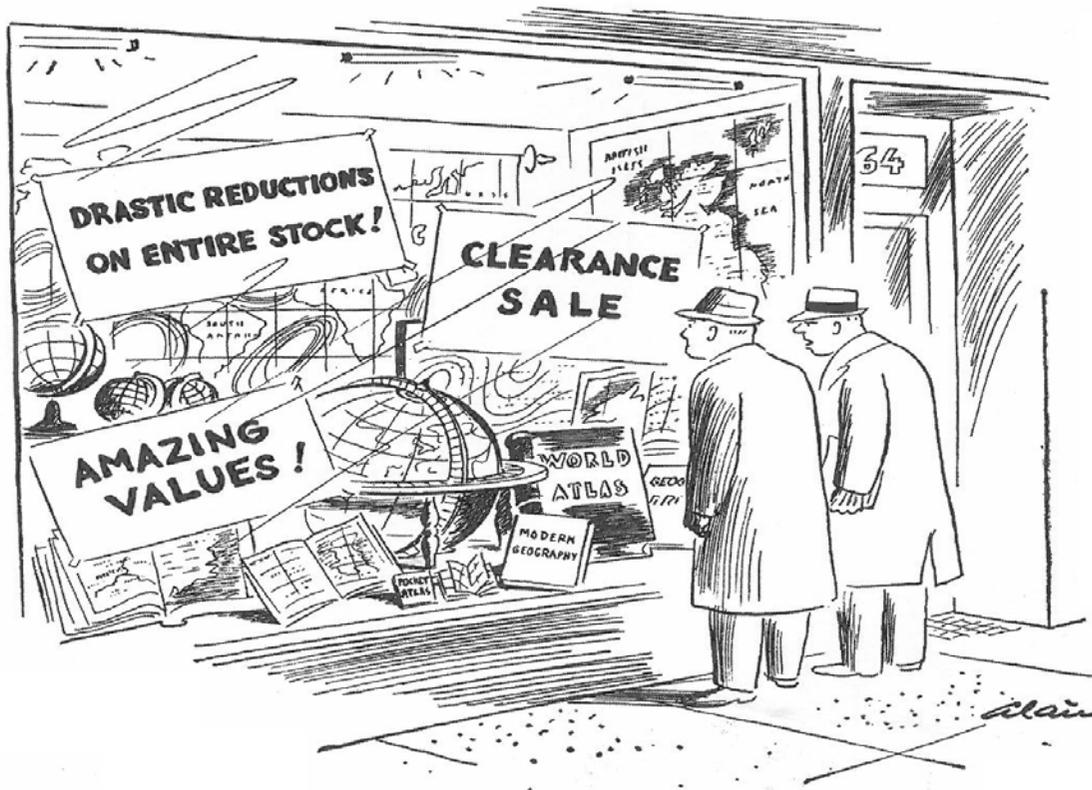
## WANTED PHARMACIST, ASSISTANT

Location: Ajman, UAE, Position Type: Full time  
Wanted Pharmacist, Assistant Pharmacist and trainee pharmacists with 1-2 years experience, with or without MOH. Please send your CV to **[mohamedshehnas@yahoo.com](mailto:mohamedshehnas@yahoo.com)** or call 055 5665 537



## Circulation Head

Location: Muscat (Oman), Position Type: Permanent  
Urgently required experienced Sales and Marketing executive for a leading Arabic newspaper of Oman for their Salalah region. Candidate must have valid driving license. Send CV to:  
**[performalways2@gmail.com](mailto:performalways2@gmail.com)**



*"Do you suppose they know something that we don't know"*



*"In this particular part of the world, we don't have any friends, but this is a friend of a friend, and over here is a friend of a friend of a friend"*