The development of the Actuarial Profession in nascent economies

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Synopsis

The Actuarial profession is developing at a rapid rate in many of the countries of the world that could be described as having a new, or "nascent" insurance market. This paper will consider how the profession establishes itself, assess the key drivers of the profession in a selection of countries, examine what value actuaries can add in key developing markets and what can be done within and outside of the profession to drive its market penetration and awareness of the value of the Actuarial skill set.

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1. Setting the scene – the Profession

The role of the Actuary and that of the profession as a collective group is continually evolving. Not only within the confines of a specific national border, but increasingly as the need for actuarial techniques has become more relevant in the newly developing markets of the world, so the work itself has had to adapt to fit a wide variety of cultures and nation states to reflect the diversity of economic, political and societal structures that exist.

A "profession" can be defined as:

"….a disciplined group of individuals who adhere to high ethical standards and uphold themselves to, and are accepted by, the public as possessing special knowledge and skills in a widely recognised, organised body of learning derived from education and training at a high level, and who are prepared to exercise this knowledge and these skills in the interests of others."[1]

As Slattery[2] states: *"Being a member of a profession carries with it certain privileges as well as certain responsibilities"*.

What of the word "Actuary"? Ogborn[3] notes that "Actuary" was a 'curious' word to describe the profession as there really is no obvious connection between the meaning of the word (from the Latin "actuarius" meaning variously a shorthand writer and one who writes out accounts) and the professional duties it describes. However, it seems to have been attached to the profession during the early nineteenth century by the efforts of William Morgan who has been regarded as the father of the profession.

This discussion of the role of and definition of a "Profession" in the context of Actuarial work is important particularly when considering the applicability of an Actuary's skill set in the developing market. Outside of any regulatory function for which Actuarial sign off is a legal requirement, other financial professionals could possibly carry out some aspects of Actuarial work, and it is in developing markets where fully credentialed Actuaries are hard to find that organisations could find themselves tempted to recruit someone who is "good at maths" instead.

However, the differentiating factor that the Actuarial profession possesses as distinct from other backgrounds, in addition to the extensive and well respected examination process, is its effective code of conduct and standards of practice that are backed up with an effective disciplinary process[4]. It is this implicit "guarantee" that ensures users of information that applicable standards and best practice are followed. The self-regulatory system is open to interpretation of failure however if a 'scandal' erupts, and some fault is found by Government or investigative body.[5]

There are some inherent problems however - the small numbers, perceived narrow scope of work, lack of contact with the public and tenuous relationships with Universities are restricting growth of the profession. The creation of whole new jobs around risk pricing and risk management are opening up traditional sections to "non-Actuaries" and the question remains of how to maintain the brand "Actuary", but at the same time expand the profession.[6] And if

expansion of the profession is the aim, what are the driving forces? Is "expansion" viable and realistic, and indeed necessary?

Firstly, we will consider how the profession currently develops in different parts of the world before moving to a brief discussion on the correlation between macro-economic growth and an insurance market, which results in the different structure and career opportunities in different actuarial markets.

How does the profession develop?

There are three distinct patterns of actuarial professional development as described by Burrage[7], briefly reproduced here *(from Clare Bellis' paper referenced below*):

- In Britain, and in countries such as Australia which derive their institutions from Britain, the actuarial occupation is well organised, with a large extent of self-regulation, and with the education and examination of students firmly under the control of the profession itself. In these countries, the governments have historically delegated considerable authority to the actuarial organisations and to individual actuaries.
- In Continental Europe, Actuaries are regulated more by the state than by their own organisations, and education and examination are also under the control of the state-run universities.
- The United States represents somewhat of an intermediate position. The state governments have historically retained more control and [historically[8]] the actuarial bodies have not been strongly organised nationally. However, the model has grown closer to the British model in recent years.

A potential key influencing factor on the development of the Actuarial profession in any "new" market is likely to be the country of origin of the individuals who participate in the development of the regulatory and professional structure of that country as well as the Actuaries working for the consulting practices who advise early market entrants and the local regulators. The supply of Actuaries who meet the demand in new markets is sourced almost entirely from the established English speaking markets of US, UK, Canada and Australia. This is driven both by supply and demand. The former by companies relocating key executives into new offices to establish known procedures and the latter because once there, these "ex-pats" prefer to recruit Actuaries who possess an "internationally recognised" qualification, rather than one that has been gained by experience, or from a less familiar body.

The two key different approaches to professional development mentioned above (if we view the US version as an amalgamation), have also influenced the development of two primary approaches to actuarial education and accreditation, i.e. the "*specialised education plus professional accreditation and reinforcement route followed largely by the English speaking world, and the academic plus regulatory oversight route followed by most Continental countries*".[9]

When an insurance market is establishing its regulatory structure it inevitably looks towards developed markets to borrow from. As the established markets themselves move towards a more

"collectivism" era of greater regulation so these approaches are adopted globally either by competitive pressure, head office insistence or governmental enforcement, particularly after some issue is given air in the media. Whilst these events can bring about 'criticism' of the actuarial profession (Morris etc), more often than not, it increases public awareness of the value of risk management, and thereby the Actuarial profession should be able to take advantage and market its services more completely.

To provide an illustration of a market development model, in paper by Noriega and Rodriquez[10], the development of the profession in Mexico is summarised as follows:

"*...one can distinguish three major stages in its development. The first one, from the 40s to the mid-sixties, was a foundational period where the profession was defined and became useful to a society whose economy was rapidly changing from a rural to an industrialised economy. The second, that lasted until the early eighties, a period of rapid expansion and diversification. Finally, a period where the profession consolidated its institutions and its role in society.*

During these years, the profession has been shaped by its academic imprint and its diversified practice. However, we are entering a new phase, a period of internationalization of the profession.

Mexico has seen dramatic changes in the past three years: productive activities were privatized and deregulated, bureaucracy shrunk, markets liberalized and opened to competition from abroad. Alliances and joint ventures are being forged, especially with North American but also European firms."

2. Setting the scene – the Market

There has been a considerable amount of research carried out which -

"... suggests that robust and efficient Insurance markets improve an economy's ability to organise and allocate its resources. The research shows that Insurance adds financial sector depth and efficiency, leveraging its strong role as an institutional investor and offering important services for which it has a comparative advantage, such as managing and pooling risks not diversifiable through capital markets, providing information and price signals to the market regarding such risks, and generating long term funds for investment in infrastructure and other capital improvement projects".[11]

The type of Actuarial work and the stage of development of the profession in which the Actuary operates are determined, to a large extent, by the stage and maturity of the insurance market in which he/she operates. The rate at which insurance markets get larger relative to the economy happens more slowly in very low- and high income countries, and faster in low- to middle income countries. The rate of growth of an insurance market varies according to the state of the enabling environment, i.e. economics, legal frameworks, institutional infrastructure, technical resources and capacity.

The following table[12] identifies many of the environmental factors and internal building blocks that influence each of the four stages of insurance market development. Clearly not all countries fit neatly into any one category and could be in-between at any particular moment in time.

TABLE 4.1: DECISIVE FACTORS PER STAGE OF INSURANCE DEVELOPMENT

Insurance Stage	Type of State	Influential Factors of Insurance Market Development	
		External Economic/Legal/Political Preconditions	*Industry-specific Insurance Building Blocks*
Dormant (Afghanistan, Iraq)	**Fragile**	• Political stability • Property rights • Freedom of enterprise • Voice & accountability • Legal framework • Contract enforcement	• Insurance law • Initial regulatory / Supervisory framework • Basic data collection • Risk management at government level (natural disaster planning)
Early (Bolivia, Egypt, Mongolia)	**Stable / Low Income**	• Income • Scale • Economic stability • Market restrictions	• IAIS Core Principles (regulation/supervision) • Consumer awareness of risks • Actuarial capacity • Data collection • Professional education • Market restrictions • Industry market conduct • Consumer protection/ support • Private/public sector collaboration • Ethical and transparent behavior
Sustained Growth (Peru, India[12], El Salvador)	**Stable / Lower Middle Income**	• Income • Scale • Savings rate • Financial sector • Enforcement, judicial efficiency/transparency	
Mature (North America, Western Europe, etc.)	**Stable / Upper Income**	• Tax incentives	• Alternative risk management and finance • Financial market risk securitization

Given that 2008/2009 hasn't been a "text book" year for economic performance, with many countries on a backward rather than forward growth trajectory, it is wise now to consider the actual performance of insurance markets during 2009 and the outlook for 2010 before moving on to discuss the role of the Actuary in some of these markets specifically.

The Swiss Re "Insights"[13] review of 2009 provided the following regional perspective:

Table 7
Regional perspective

Emerging regions		Performance 2009	Outlook 2010
Asia	Life	▪ Growth moderated across the board in early 2009, but some early signs of recovery were emerging towards year-end. ▪ Sales of investment-linked business remained depressed in early 2009. ▪ Profitability is expected to have been dampened by low interest rates.	▪ A strong rebound could materialise once interest in investment-linked insurance products recovers. ▪ Bancassurance sales are expected to improve in 2010, after having taken a heavy toll in 2008/09 on reduced sales of annuities and investment-type products.
	Non-life	▪ Growth remained strong in China and India, partly due to government-sponsored infrastructure projects. ▪ Trade-related insurance demand was hit hard in most markets. Motor insurance was down, but improved towards year-end on recovering car sales. ▪ Profitability was supported by the lack of major insurance losses, though several typhoons have resulted in significant economic losses.	▪ Recovery in non-life demand will continue into 2010. ▪ Trade-related insurance and motor insurance are expected to recover. ▪ The current strong pipeline of infrastructure construction projects will continue to support the property and engineering business in 2010.
Latin America	Life	▪ The slowdown in life insurance business since 2008 continued into early 2009. Business, however, is stabilising alongside improvements in the real economies.	▪ The recovery will be in line with the improving economic outlook. ▪ Demand for pension-related insurance will remain strong and will support premium growth in 2010 and onwards.
	Non-life	▪ Non-life business remained weak in Chile but otherwise was fairly resilient in other regional markets. ▪ Business in Mexico has been supported by a multi-year, multi-line programme of the state-owned oil company. ▪ Motor insurance business contracted across the region, with the exception of Brazil, reflecting the lower rate of car sales.	▪ Growth is expected to accelerate, reflecting the recovery of the regional economies. ▪ The expected recovery in new car sales will be a major driver of non-life premium growth, given the dominance of motor in total non-life business. ▪ Business lines, including engineering and surety, will start to benefit from investments in infrastructure.
Eastern Europe	Life	▪ Growth remained depressed in early 2009, but showed signs of improvement in the second half. ▪ In Russia, compulsory medical business continues to grow. Otherwise, businesses are sustaining further declines. ▪ In Poland, the life business contracted from a high base in 2008 (when tax exemption was offered to life saving products).	▪ Business is expected to recover but only slowly. Market consolidation is expected in Russia. ▪ In Poland, economic resilience will support a recovery in insurance demand. ▪ The absence of insurance growth in Hungary is due to lingering economic problems.
	Non-life	▪ Business is expected to have contracted in most Eastern European markets but probably most heavily in Russia. ▪ Motor hull performance remains weak while MTPL is growing slowly at best.	▪ A slow recovery is expected in 2010 but growth could remain elusive in some markets still plagued by economic problems. ▪ In Poland, economic resilience will support a recovery in insurance demand.
Middle East	Life	▪ The life business in the Middle East is generally underdeveloped with a very small business volume. ▪ Growth slowed in 2009.	▪ Growth will accelerate modestly in 2010 due to the improving economic outlook.
	Non-life	▪ Stable to lower growth continued to be driven by compulsory lines. ▪ The pipeline of government-sponsored construction projects is supporting engineering and property lines.	▪ Compulsory health and motor insurance will continue to drive growth.

So far, we have considered the cause/effect relationship between an insurance market and economic growth; that the pace of their development are influenced by a variety of factors; - and that this past year has produced different growth results in different insurance markets as demonstrated above. So, **is** the Actuary or **could** the Actuary be the driver of macro-economic growth effects, or do the effects drive the work of the Actuary?

How does the domain of the Actuary vary in reality between different countries? Does the Actuarial profession, as a collective, as a body, influence the macroeconomic indicators of a country? Is the Actuarial profession too small and too inwards focused to be able to do so, should it wish to?

3. The Domain of the Actuary

Most people who interact globally within the profession are aware how vastly different the role of "Actuary" is in different locations. Milliman[14] carried out a global survey of Actuaries which produced some interesting comments (some of which are reproduced below) which reflect some of these differences. Equally as interesting are comments on the different approaches taken to solve the issue of the lack of understanding of the Actuaries position by those outside of the profession.

"In some markets Actuaries have been leading professionals for decades. In others, the Actuary is a relatively new professional. In these emerging markets, Actuaries face a particularly large struggle to define their roles, communicate their value and be fully appreciated."

"European Actuaries tend to have more narrowly defined responsibilities, whereas Australians have a wider scope, although in Europe over the past five years there has been a significant increase in the range and understanding of what Actuaries do."

"In Singapore, the scope of the Actuary is specifically dictated by law. A respondent in Singapore said the work is very difficult because of all the other things put on his plate."

"In Brazil, where lack of clarity may be the greatest, actuaries can have diminished roles; responsibilities normally associated with actuaries are handed off to accountants, economists or statisticians."

"In Mexico, Actuaries are well respected professionals and have a wide range of responsibilities including some that are stated by the regulatory framework, such as development of premium rates, reserve methodologies, and solvency or dynamic capital adequacy tests. Because of their background, actuaries are found in most areas within an insurance company, from underwriters to general directors and including IT and sales managers."

A discussion on how others attempt to take on actuarial roles:

"North America: 'other areas are unaware of the expertise and value Actuaries can bring in a variety of areas due to their lack of understanding of the complexity of insurance products.'

And *'certain people believe they can interpret data without the use of actuarial, e.g. paid claims versus incurred claims for long-term disability coverage.'"*

"Europe: 'Actuaries are mainly seen as experts in the life insurance field only.'

Some Actuaries look outside to define the domain:

"Asia: the scope of the Actuary is not clear. Underwriting claims processing and other operational areas are passed onto the Actuary to decide sometimes. Sometimes the Actuary has to make decisions without necessary information or control of the situation. Management

doesn't make it very clear whose responsibility it is to make some of these decisions and there is a lack of accountability to the decision made."

"In Singapore, the domain for the Actuary is well defined. There are regulations on the role of the appointed Actuary and the roles of the Actuary on actuarial functions and risk management disciplines are quite clear"

"There are not many actuaries in Malaysia and thus work is confined to traditional roles such as valuations and pricing."

Other constraints limit the Actuary's role:

"Europe – when actuarial skills are used in the health insurance field, they are asked to limit their role to premium and reserve calculations."

"There are new international developments which are sometimes difficult to implement because of the national situation."

There seemed to be two opposing ways of dealing with the domain definition question, either by seeking to show that Actuaries are able to demonstrate applicability to a broader role (US & Europe), or are more structured in their approach, preferring to limit the domain (Asia):

North America: "We foster discussion, communication, education-leadership within the company."

Europe: "I provide lots of explanations and try to make the Actuary a real person"

Asia: "Try to limit your tasks to the ones that are closest to "actuarial" (e.g. premium calculation, valuation, etc). Provide suggestions and advice on other 'non-actuarial' issues. People will appreciate suggestions and advice from an Actuary. Prioritize work. Define scope of actuarial work in the company."

Asia: "During the course of the project, whenever there is confusion about roles, the proposal becomes our reference. What is critical though, is that protocols with respect to roles and activities are followed throughout the engagement."

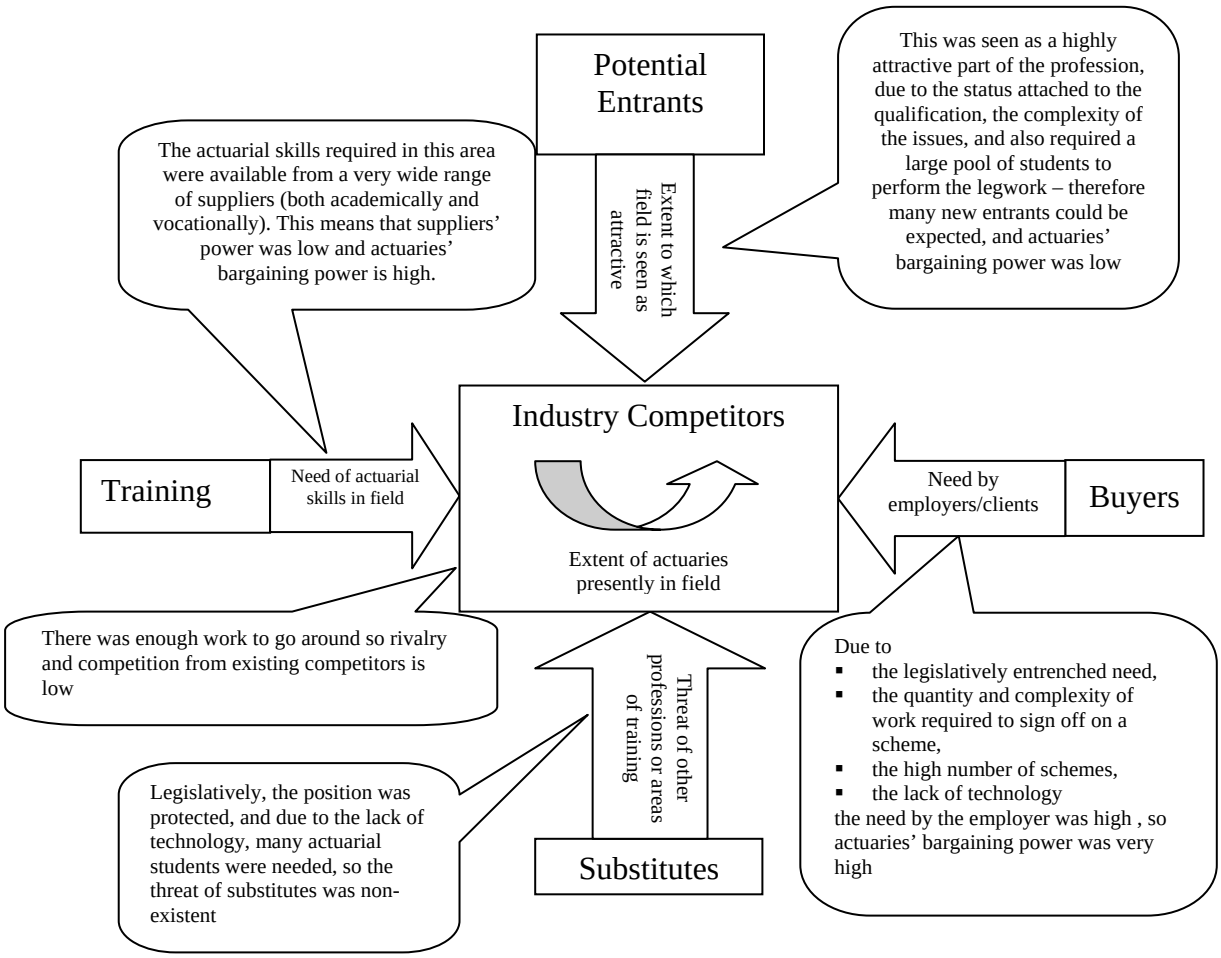
This particular report concluded that *"the growth of the actuarial profession in emerging markets is critical, and is based on stronger competency, education within the company, and continued enhancement of the role and value of the Actuary. Another challenge the actuarial profession faces is to increase the number of countries with formal actuarial training. There are still many countries in the world that do not offer such formal education programs for Actuaries in general, and even less for healthcare Actuaries."*

4. The diversity of the Role

As has been established above, the growth of the actuarial profession in a country is driven by a number of inter-related factors. We should now consider what drives the establishment and evolution of an Actuarial profession in any particular location. At one end of the spectrum the Actuary is seeking to move away from "traditional" work into roles where the actuarial training gives the person competitive advantage in broader, strategic and holistic roles (often risk related), and at the other where regulation and compliance dictate the Actuaries' place.

The Dutch Actuarial Association[15] defined the domain of the Actuary in detail, and also continued to include competencies, quality assurance and accountability. One key evolution in the work of the Actuary, which has already been evident in recent years, is the increasing shift from that of a technical specialist within a discipline to an advisor, assessor and partner in important decisions. Communication and advisory skills are crucial. This is a fundamental point that is being reflected more highly in the priority list of skills demanded by employers and will also serve to encourage students from a more diverse personality type range to consider Actuarial science as a career option.

In considering the fundamental issue of where the Actuary should and can be positioned was eloquently explained by the South African Actuarial Frontiers committee who extended Porter's 5 forces model (of which most people are familiar) in their consideration of the question of Actuaries (in this case from a DB environment) moving into "Wider Fields". It does, however, have equal validity (with some adaptation) in the domain of the "early market Actuary" as well.



It is not just that there are different aspects of actuarial work going on to a greater or lesser extent in different markets, the challenge really lies in truly interpreting what "Reporting" in country A might mean in comparison to "Reporting" in Country B. For an interesting paper on different interpretations of standard actuarial descriptors, see the Report of the Clearer communication working party of the Institute of Actuaries of the UK[16]

Taking supervision and regulation as an example of how these different interpretations and enactments are played out in the markets is encapsulated in a recent world insurance regulation report[17]:

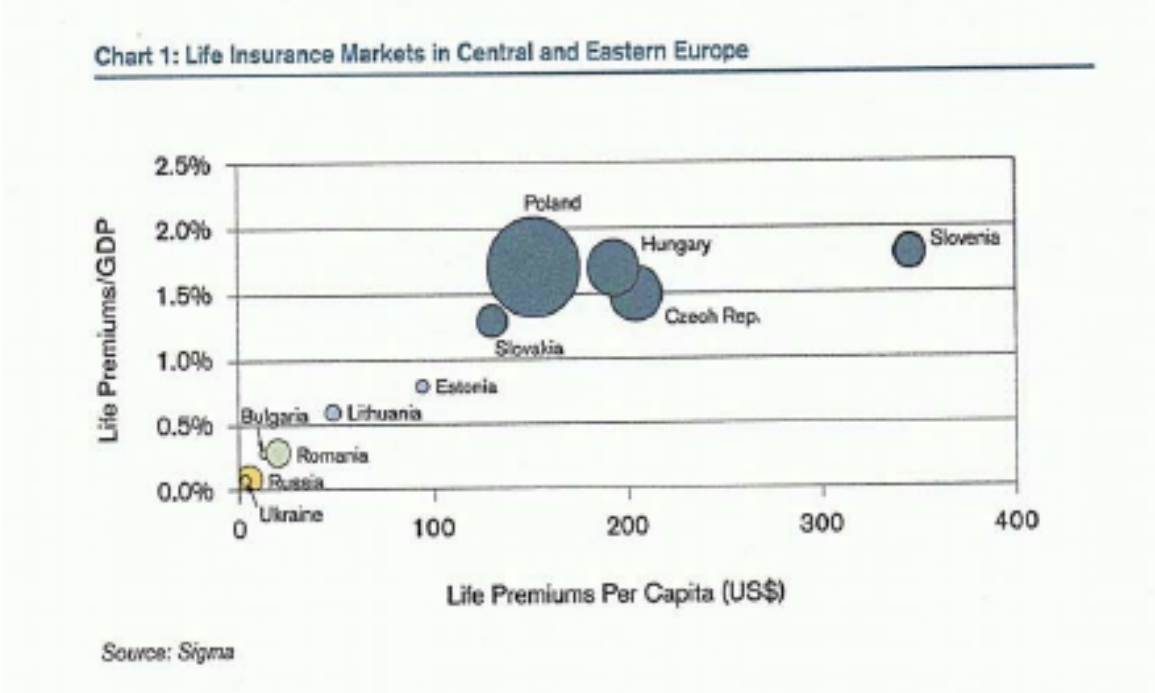
"Different approaches to supervision have emerged. Partly reflecting economic development, most are prudential while others remain more protective with further divisions between principles-based and rules-based approaches. Given the convergence between different financial services subsectors, growing numbers of countries (starting with Singapore 1984) have adopted forms of integrated systems with a single regulatory agency. These include the two biggest insurance markets outside the US (UK [1997] and Japan [1998]). Others, including India and China, retain functional regulatory regimes with forms of structured consultation to foster regulatory coherence. Still others, notably Australia, follow a so-called twin-peaks model of having one regulatory agency responsible for prudential matters and another responsible for consumer protection and market conduct functions.

…. The EU ….combines a high degree of harmonization of prudential supervisory standards with a national regulator in each of the 27 member states. The harmonized approach enshrined in EU law means that all member states must follow similar standards for insurance supervision, developed under the EU's Financial Services Action Plan, based on mutual recognition. An insurer established and supervised in one member state has the legal right to establish/provide its services in any member state without further prudential requirements. This approach is being developed under the FSAP to cover all of the main areas of financial services and provide a high degree of coherence in prudential regulation (while market-conduct regulation remains at the member-state level)."

5. A snapshot of some specific locations

a. Central and Eastern Europe

Firstly, the structure of the CEE market[18]:



The region is divided into groups based on geographic and economic criteria:

- Central Europe (CE): Poland, Slovakia, Hungary, Czech Republic and Slovenia
- Baltic States: Estonia, Latvia, Lithuania
- South Eastern Europe: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYR Macedonia, Romania and Serbia
- Countries in the former Soviet Union, consisting of three subgroups in Eastern Europe (Russia, Ukraine, Belarus and Moldavia), Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan) and the Caucasus region (Armenia, Azerbaijan and Georgia).

There is a wide diversity both among these groups and within the same group. Each country is different in terms of economic strength, population size, and insurance market penetration and potential.

The most developed insurance markets tend to be those in the CE countries, followed by the Baltic States. The life insurance markets in these countries started to grow strongly in the 1990s, thanks to the improving economic conditions and regulatory reforms, which were introduced in anticipation of EU membership which was realised in 2004.

More recently, Romania and Bulgaria also became EU member states but the insurance markets in most south-eastern European countries are at a much earlier stage of development compared to the CE countries.

Russia is by far the dominant country in the fourth group in terms of economic strength and the size of its population, followed by Ukraine. Similarly the Russian insurance market is by far the largest in this group. However, particularly in life insurance, official statistics need to be treated with caution; until recently they included significant volumes of short term “tax optimisation”

business. Generally the insurance markets in these countries are still at an embryonic stage of development, offering strong growth potential, but probably subject to greater fluctuations in short term results.

As an example, the sheer size of Russia's population and economic dominance of the region makes it an interesting subject for further analysis. A brief history of the actuarial profession[19] shows the first association, the Society of Actuaries of Russia came into existence between 1994 and 2001 and in 2002 the Guild of Actuaries was formed. Thereafter the Actuarial profession began to be promoted. The Guild now participates in international events, contributes towards market development e.g. draft rules for life insurance reserving, rules for actuarial certification and reporting, claims experience investigation, etc.

The Education system is developing, including the translation of textbooks and preparing syllabus. The IAA note that there are 200 students[20] from Russia currently studying under professional examination systems, with a projection of between 1,000 and 2,000 in Central and Eastern Europe under a future International Association Education Programme.

Russia is currently an Associate member of the IAA. It has 152 members (2009) of which 71% are in the insurance industry, 8% in consulting, 11% in Universities, and 7% in pensions.

As an Actuary working in any new territory, there are constant reminders that any "received wisdom" that might have been developed, needs to quickly be challenged. There was an interesting article written in the UK Actuary magazine[21] discussing the sharply different trends in Russian mortality figures, a decline compared to an improvement in most other countries. In 1981 the life expectancy for males was 61.5, increasing to 65 in 1987 only to fall dramatically to below 58 in 1994, before recovering to 61 in 1997. A link was observed to alcohol. In 1981 to 1983 the price of alcohol was raised significantly which showed a small improvement in life expectancy. In 1985 Gorbachev embarked on an anti-alcohol campaign involving the wholesale closure of vodka factories. However, after the change to a market economy in 1991, the supply situation rapidly recovered, leading to a reversal of the life expectancy to the previous trend.

Living in a developing country can be full of interesting challenges. Although this example[22] was described a few years ago, many similar experiences are still repeated across the new markets every day. *"…I arrived at the airport at the due time, only to find no aircraft. Further investigation found that there was unlikely to be another plane that day to anywhere. I went to the airport the next day to catch the 'daily' flight. It turned out that the daily flight only actually flew when the plane was full. On the third day, there were enough passengers so we took off…..at 4 am!"*

b. Middle East

The product mix of the insurance market in the MENA (Middle East North Africa) region is different from most others. Here greater levels of premium income come from non-life insurance, rather than life.

The Middle East is currently almost uncharted territory for the Actuary, but even in the past 12 months, there have been many new opportunities opening up, with existing companies now recruiting their first Actuary, to new companies starting off with an Actuary in a combined CA/CFO position. Developing markets recognise that in order to comply and compete globally, robust risk management which is demonstrated to shareholders by virtue of having an experienced Actuary in place, helps provide confidence to budding policyholders.

One of the most interesting developments to happen in the past few years has been the growth of Takaful or sharpish (Muslim law) compliant insurance. Although not exclusively a Middle Eastern phenomenon of course (given the large Muslim populations of many other countries of the world), it is a key feature of the landscape and particularly one that will concern Actuaries who work there. Insurance penetration in the Middle East was 1.3% of GDP in 2007 compared with 2.8% in emerging markets, and one key reason for this is the incompatibility of traditional insurance structures with the Islamic faith.

Takaful has the following features: a separation between policyholder funds (i.e. takaful funds) and shareholder funds, a shariah-compliant investment strategy (by avoiding the payment of interest and firms engaged in forbidden activities) and an internal supervision board of shariah scholars. In 2007, Muslim countries accounted for 23% of the emerging markets GDP. About 11% of insurance premiums were written in these countries, and of this amount approximately 4% were written under takaful schemes. Between 2004 and 2007, the average annual growth rate for takaful was estimated at 25%, versus 10.2% in the conventional market. The Swiss Re Sigma report (No.5/2008) projects that the global takaful market could reach USD7 bn by 2015. Given the buying public's current disillusionment with the complex, high risk products of recent years it is not difficult to imagine that products based on mutuality and a strong ethical code could well be in demand from Muslim and non-Muslim alike.

The key drivers of growth of the insurance markets of the Middle East are similar to other developing areas – increasingly stringent solvency regulation, micro-insurance, and bancassurance. However regulatory constraints on the latter are a problem in some Middle East countries. For example in Saudi Arabia the distribution of investment linked products are only allowed by banks, but in Egypt banks are not allowed to actively sell life insurance nor receive a commission on sales.

Within the "Middle East" there are many different markets exhibiting different stages of growth and different driving forces. I will briefly compare two – the UAE and Bahrain.

The UAE is a federation of seven independent states. Abu Dhabi is the largest of the emirates and the federation's main oil producer, while Dubai is the most well known. Economic growth had been strong until 2008, although has suffered more recently. The UAE has a dual law system, and insurance regulations are currently being reformed and decided. Within the UAE is the Dubai International Financial Service Centre (DIFC) created in 2007 as an offshore financial centre with a distinct supervisor and regulator.

With premiums of USD$3,974m (2007), the insurance market in the UAE is the largest and most advanced in the Middle East. Premiums grew by 28% in 2007. Life insurance penetration is low, with insurers tending to focus on commercial business.

Bahrain has the smallest economy in the Persian Gulf and is least dependent on oil revenues, although it uses revenues from oil and gas to diversify into other areas. The economy expanded solidly from 2004-07, with the booming financial sector accounting for 27% of economic output. With the fierce competition between Bahrain, Qatar and Dubai to become the leading financial services hub in the Middle East, Bahrain is focusing on leadership within takaful and Islamic finance. It has created a level playing field between takaful and non-takaful product providers, and instilled strong risk management and regulatory framework.

c. East Asia

If you consider the premium volumes of the top ten emerging markets, then it is quite interesting to see how different the "league table" is when considering life or non-life insurance, albeit China holds the dominant place in both. As we know by experience, East Asia dominates as far as Life Insurance is concerned, closely followed by India. However, when considering non-life insurance premiums most of East Asia has left the top ten, to be replaced by South America and Eastern Europe. Even India has dropped to 7th slot.

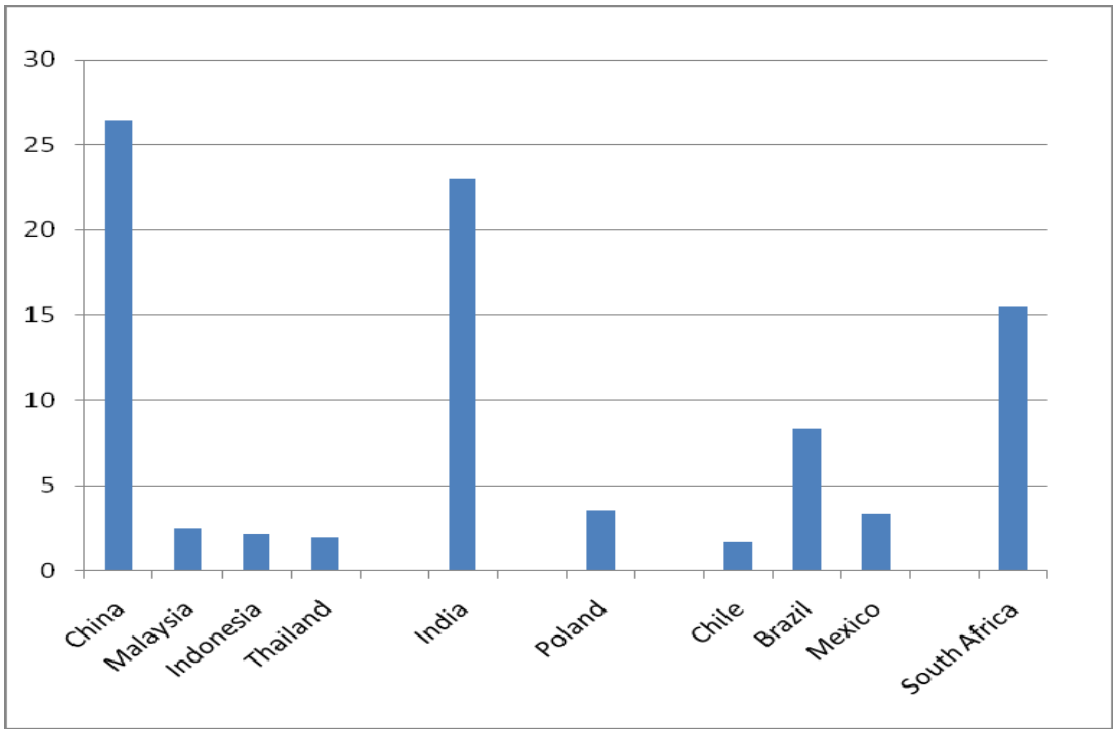


Figure One: Graph showing percentage share of emerging markets Life Assurance Premium volume by USD of top ten emerging market countries 2007[23]

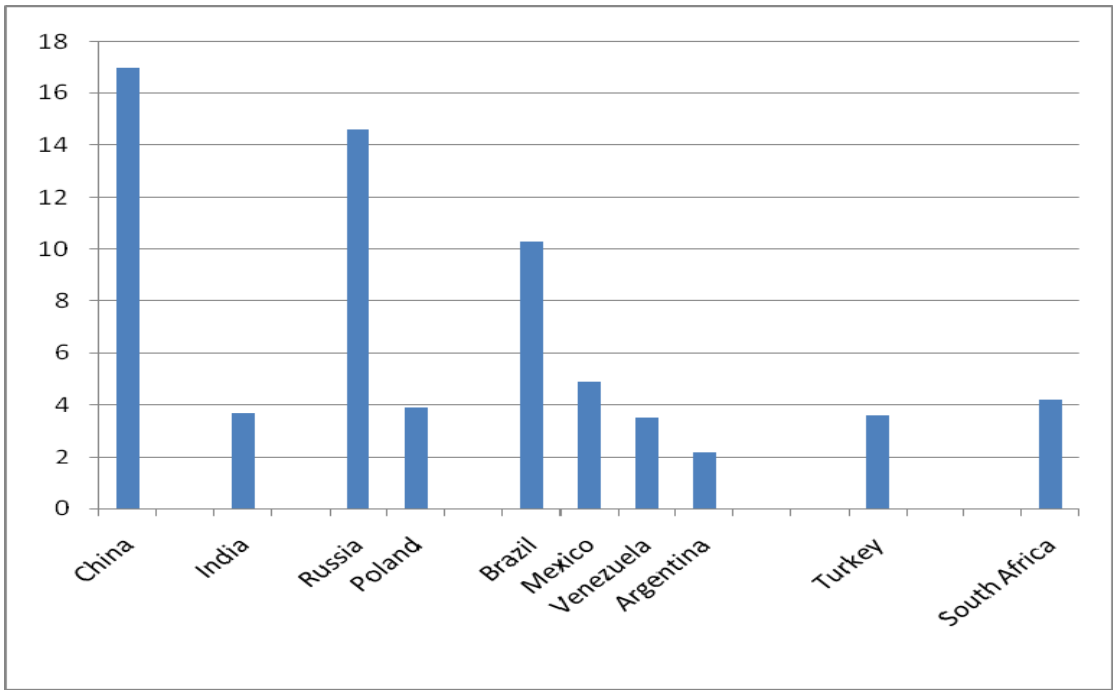


Figure Two: Graph showing Percentage share of emerging markets Non-life Insurance premium volume by USD of Top ten emerging market countries 2007

Naturally these differences are indicators of the type of Actuarial skill sets in demand, in East Asia predominantly life, in the Middle East and Eastern Europe, non-life.

Let's consider the day to day reality of being an Actuary in a developing economy. In China for example, the market is dominated by local players and the top three, China Life, Ping An and CPIC account for 75% market share. Foreign Joint Ventures have to have a rep office before they are able to apply for a licence and then it is granted by Province, not for the country as a whole. The consulting firms tend to concentrate their teams in a Hong Kong Regional head office, and have smaller offices in Shanghai and Beijing. Mainly life and pensions work, with some General Insurance now being carried out.

The insurance market in China is still at its early development stage and so the tools and techniques being used are less sophisticated than Australia, New Zealand or North America. Many local actuaries learn the common actuarial techniques (ALM, stochastic modelling, performance measurement and management) through text books without much practical experience. Overseas actuaries can therefore add value. However, the actuarial teams are often small and carry out very wide ranging work. This can lead to very high workloads and excessive hours in some companies. Consultants and re-insurers often have high travel schedules but they do gain very valuable experience in client service and project management.

Salary levels vary enormously, in dollar amounts local actuaries in China are paid less than their peers in Aus/NZ, UK or North America. If an aspiring overseas Actuary can achieve a comparable salary to the one at home, that is a good start. Once in the role and doing a good job,

so the pay rises are quite quick and eventual compensation can exceed that which they would have got at home. Ex-pat packages are pretty much a thing of the past, and generally given to internal candidates for short term assignments.

As an example of a much smaller market, in Vietnam there are currently less than 10 Fellows in the whole country with less than 50 undergoing training. The main work carried out is financial reporting business planning and financial projections, with companies often choosing to outsource pricing work. From a regulatory standpoint, the regulators in Vietnam wield a lot of power, but are happy to listen and learn. However, all the legislation is written in Vietnamese, so there is an acute need for a technically savvy Vietnamese Actuary in each company.

There is a limited talent pool throughout the insurance industry; there are not enough experienced people to build a structured management team. The attitude to careers is very short term and many are not willing to put in the years of work to become an Actuary. If they do, then their motivation is to move overseas. There is no continuous pool of actuarial students, or associates. There is no one to take from another company. Therefore many companies take on very bright graduates at US$500 per month and train them up. However, the pass rates are low.

The key distribution channel for most insurers in Vietnam is the direct sales force, with a small percentage via bank or direct marketing. This Agency sales force is often part time and 99% of what is sold is With Profits business, traditional endowment type. However, during the past couple of years the product range has become more diversified. There is however a short term attitude which meant that companies that were selling 5 year savings policies 5 years ago are and now having to contend with disappointed customers! The market is still very “raw” with a lot of insurance education required.

The main challenge in Vietnam is around market volatility, insurance is difficult to price, with a lack of data and lack of resources. The compensations personally though are huge, the ability to make an impact, to gain a sense of fulfilment, and to impart and train people with enthusiasm and open minds.

As for working conditions and living costs there, electricity frequently goes off for minutes or hours at a time, for no apparent reason. Generally speaking it is a less intense business culture than, say, in Hong Kong. Great emphasis is placed on family life and therefore work life balance is important. People are enthusiastic and keen to please, and eager to see their country does well.

Most people, particularly outside of the big cities, will have a siesta around lunchtime and then work into the evening, due to the heat and humidity. However, the western companies tend to work on more traditional 9 to 5 with senior level working longer as per most countries of the world.

6. The challenges of developing an Actuarial profession

One of the features of a nascent insurance market is that the industry develops faster than the actuarial profession can keep up. For example, the demographics in India show that there are approximately 200 Fellows of the Society (75 over retirement age, and 52 outside the country)

and around 8.700 students. Many of these students (62% in a previous 2004 survey by the author) are not currently in an actuarial job, but are desperately trying to pass exams with no support or on the job training. There has been no significant year on year increase in the number of Fellows since the first records in 2002, 204 then, rising to 217 in 2007, to drop back to 203 at March 09.

How will the demand for actuaries in these new regions be satisfied? It is clear, and this has been demonstrated historically in other countries, that in the first instance experienced international actuaries come to a region to provide technical knowledge, training and mentoring. Many of the large international new entrants will transfer a senior Actuary to establish and run a team and then hand over to the up and coming local Actuary. But, given the evidence as seen in India, there is a serious danger of a time lag between the need for the establishment of an actuarial team and the availability of suitably qualified and experienced individuals. There are also the not inconsiderable hurdles of cultural differences in management style and business practices to be overcome. One of the knock-on effects of this is that ambitious recently qualified Actuaries are able to secure roles that are more senior than the equivalent level of experience would achieve in other markets. It is not unknown for an Actuary in China or India to become a CFO or Chief Actuary within 5 years of attaining their Fellowship. In India the role of Appointed Actuary is not one that is coveted, it is often seen as a political position, and that the person is in the "pocket of the regulator" and therefore not necessarily able to fully participate in strategic decisions. In China pricing roles are heavily regulated and therefore less desirable, and with onerous personal responsibility liability, often only done for a few years as a means to achieving a higher position.

Foreign insurers in India are (currently) not allowed to own more than 26% of an entity, and therefore have joint ventures with different large Indian companies such as Tata (AIG), Max (New York Life) Birla (Sun Life). Most of the 20 or so companies currently operating will have a combination of distribution channels, tied agency (salaried or commission or both), bancassurance, brokerage. Growth rates that continue to be projected in India (and achieved, even in 2009) dwarf much of the rest of the world.

It is generally perceived from outside that the products sold in "new markets" are fairly basic, unsophisticated and therefore, from an actuarial perspective, one is not able to really be stretched on the product development side. This is quite far from the truth in the case of India. The rapid maturity and growth of the India market has provided for the development of quite sophisticated products utilising leading edge techniques, often surpassing those found in more "developed" markets like Hong Kong and Singapore. This does, however, also necessitate the need for Actuaries to be deeply involved in all facets of the business from strategy and marketing to explaining the nuances of the new product to the direct sales force – even if your audience of "top tier" direct sales people number 6,000!

One of the challenges that face many Actuaries in the newer developing markets is that there is a lack of a critical mass of peers to form the "collective" that is necessary for a "profession" to exist. Actuaries have a strong sense of identity as members of the actuarial community, and this starts right from student times, with the sharing of the "initiation ceremony" of exam taking. Many Actuaries in nascent markets find themselves somewhat isolated, with only a small handful of other Actuaries to share ideas with, who may be competitors or working in a very

different environment. This lack of numbers is likely to influence not only individual Actuaries working in those environments but the development track of the profession itself. *(See Appendix A for the numbers of Actuaries in different countries worldwide)*

So, the profession as an entity needs more Actuaries to develop itself, and the market needs more to meet the growing demands of developing countries[24].

7. What can be done in developing countries to strengthen the profession?

There is no doubt of the importance of the Actuary from both macro and micro-economic perspectives. Many emerging markets have minimal input from actuaries, and they have reduced efficiency, effectiveness and product flexibility to show for it. Without the technical skill to evaluate risks and adapt products to local conditions, markets cannot innovate. Many emerging insurance markets do not have actuaries within the supervisory agency, which weakens the supervisor's ability to monitor reserves, pricing adequacy and solvency. Some emerging markets have no actuaries at all, which causes inappropriate reserving and non-enforced solvency requirements, further reducing market efficiency.

Each Actuarial body at country level needs to develop its own unique system and process of developing an Actuarial profession, clearly with the able assistance of the International Actuarial Association[25] of whom we are all guests here today.

Over the past few years in Australia I have been involved in the Communications taskforce for the Institute of Actuaries, and although Australia has a very sophisticated and leading edge education and professional development programme, we were concerned that the profession was not attracting sufficient, or the right kind, of students into the system in the first place.

I would suggest, therefore, that as a global profession we work together to solve this fundamental problem. The world of the Actuary is a mysterious and dark place to the outsider, one where it is perceived that few ascribe and even fewer succeed. It is almost a secret society!

The profession needs to grow, but the challenge of being a small profession is that on a country level it doesn't have the resources to gain sufficient momentum by itself.

The most cost effective approach to improving actuarial capacity combines local University resources with foreign or local-trained actuaries and involves tailoring one of the many existing actuarial training curricula to a local market, to establish a local training curriculum and certification programme.

Once that is in place, then work to communicate and develop interest and enthusiasm from high achieving school leavers. Encourage them to consider being an Actuary alongside more well known and (dare I say) socially acceptable occupations of "Doctor" or "lawyer". In the Appendix to this paper I have attached a copy of the brochure the Institute of Actuaries of Australia assembled to give to 16-17 year olds in conjunction with presentations at careers evenings to encourage consideration of an Actuarial career.

But why do we restrict our "raw material supply" to school leavers? What about career changers? Those mathematicians and physicists, or statisticians who get disillusioned with the theoretical focus of their work could well be encouraged to make a career change to Actuarial, but currently they are at a huge disadvantage when it comes to finding employment due to the perception by the employer that they will get better value from a 21 year old.

In conjunction with work at the "supply" level, it is also important to work on the demand side. We all know how important and valuable the work of the Actuary is at strategic levels, but does the CEO? A regular challenge in developing markets is to demonstrate to the joint venture CEO the true benefit that the highly trained Actuary will have on the bottom line of his business, and in the same breath asking to pay double the salary the CEO is receiving himself.

Then there is the sandwich in the middle. Career development, peer support, a feeling of belonging referred to earlier as important to many. It is difficult to create that when the membership of the entire Actuarial profession of a country is 7 or 9! This is where events like these, held in diverse locations are of such value.

There is of course a lot of effort being put into this already, in Africa by the IAA in conjunction with local societies and also by independent organisations such as the 3E foundation. I received this update email in December 09 from Chairman, Olawale Opayinka:

> *"We have continued to support the education of students in sub-Saharan universities - we recently donated 130 textbooks to a Nigerian University which has just started offering a degree in Actuarial Science.*
>
> *We also offer financial prizes to be best undergrad students in two universities in Nigeria and Ghana as part of our work to stimulate the student's performance and attract good students to the University courses.*

Lastly, with limited resources we plan an active role in the promotion of the profession through the local actuarial bodies and an international music concert - Awesome Praise which was last held in South Africa and was recently planned for Ghana.

Personally, I am representing the Foundation on the Task Force set up to look at how to improve the education of and promotion of the profession in sub-Saharan Africa, Lack of financial resources as hampered the work of this body."

We need to work harder on the Actuary brand. This is fundamental to every facet of achieving success in the development of the profession. It influences everything from start to finish of the actuarial profession supply/demand curve. This is particularly true if we jump ahead and look at what long term career options we might be able to promise our aspiring student Actuary. Some of the other influencing factors were explored in Wilma Terblanche's paper[26]. In 2005, the Society of Actuaries (US) found that the "*current Actuary 'brand' is a key barrier to greater opportunity."* One could argue that in developing or nascent economies the public is less familiar with the term "Actuary" so there is chance to create a new brand from scratch! See the attached article in the Appendix noting that school leavers in Kenya were well aware of Actuarial Science as an option.

Summary

This paper has provided a brief look at the work of the Actuary in some nascent markets. It has provided an insight into how a profession develops, and offered a few suggestions as to what can be done to aid this development. It is clear that similar efforts are being carried out in many parts of the world, intellectual capital is plentiful and with global co-operation success can be achieved.

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TESTIMONIALS

GAVIN PEARCE

What is an actuary? What do they do? Just as scientists work in a variety of areas - physics, chemistry, biology - so too actuaries work in a number of different disciplines. During the last 17 years I have worked in funds management, life insurance, actuarial consulting and workers' compensation.

Whilst the basis of actuarial work is numbers and finance, the ability to apply those skills across different areas of an organisation has meant I've been involved in some pretty diverse pieces of work, including corporate strategy (i.e. designing the future direction of a company), resource planning and pricing electricity. The work I've done has allowed me to work with some interesting people, including those from large organisations, government departments and representative groups (e.g. industry groups, unions). I have also had the opportunity to travel with work. One highlight was going to Scandinavia on a fact finding mission when reviewing New Zealand's patient insurance scheme..

KIRSTEN ARMSTRONG

When I decided to become an actuary, I saw it as an opportunity to use my maths skills in business, and a chance to move on from my hometown of Toowoomba in Queensland. Little did I know that my actuarial skills would give me the opportunity to work around the world. After several years working in superannuation for AMP, I moved abroad, advising governments in Russia, eastern Europe, the middle east and the Caribbean on major pension system reforms, financed by organisations like the World Bank. Since returning to Australia, I've maintained an interest in development work, helping a micro-finance charity in India to develop low cost health insurance for India's poor, and helping younger actuaries find opportunities to volunteer abroad in micro-finance. I'm now a Partner at PricewaterhouseCoopers Australia, specialising in the health sector. I advise clients, particularly governments, on long-term, sustainable solutions for the health system - health financing, resource allocation to meet health needs, future health demand, and the right workforce to meet future health needs. A recent highlight was working with the National Health and Hospital Reform Commission on the proposed 'Denticare' scheme - a Medicare-style scheme to provide free access to dental care for all Australians.

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www.morethanmaths.org

WHY BECOME AN ACTUARY?

TRAVEL - WELL PAID – GROWING PROFESSION - CHALLENGE - EQUAL OPPORTUNITY

WHAT IS AN ACTUARY?

Actuaries are people who evaluate risk and opportunity. They are mathematical problem solvers and strategists.

WHO WOULD I WORK FOR?

You can work for organisations large and small or for yourself as a consultant.

Actuaries are found in Investments, Health Insurance, Education, Government, Superannuation, Banking and Manufacturing.

IS THERE A CHANCE TO TRAVEL?

Definitely. Every major developed and developing country needs actuaries.

You can use your skills almost everywhere:

UK, USA, China, Japan Hong Kong, Singapore, Malaysia, India, Thailand, Indonesia, South Africa, New Zealand, Holland, Switzerland, Brazil, Bermuda, Bahrain, Dubai, Kuwait and Jordan.

WHAT SKILLS DO I NEED?

- Good conceptual maths skills.
- Flexible and creative thinker.
- Analytical and problem solving skills.
- Strong communicator.
- Advanced computer skills.

More Than Maths

IS IT INTERESTING?

Actuarial work is challenging, varied and rewarding.

It's mainly about analysing money and risk, and you will be working with a wide range of people.

WHAT CAN I DO AT SCHOOL TO HELP ME BECOME AN ACTUARY?

- Study maths and other subjects you enjoy.
- Develop disciplined study habits.
- Practice your communication skills.
- Work with others.

WHAT SORT OF PERSON DO I NEED TO BE?

There is no such thing as a "typical actuary" but these qualities are valued:

Self motivation	Initiative
Honesty and integrity	Flexibility
Teamwork	Leadership
Desire to learn	Ability to handle pressure and deadlines

HOW DO I BECOME AN ACTUARY?

A. Enrol in a Bachelor of Actuarial Studies or Bachelor of Commerce majoring in Actuarial Studies at one of the accredited universities:

Australian National University

Curtin University

Macquarie University

Monash University

The University of Melbourne

The University of New South Wales.

AND

B. Complete your professional qualification throught the Institute of Actuaries of Australia.

NEWS

Actuarial science and medicine top choices

By BILLY MUIRURIPosted Friday, March 13 2009 at 21:49

Medicine and actuarial science are the most popular courses among the brightest Kenyan secondary school leavers, an analysis of university admissions has shown.

A list released by the Joint Admissions Board recently shows that the two courses share the popularity stakes among the 2007 KCSE top 10.

It also emerged the top brains preferred the University of Nairobi, with the top 20 students enrolling there.

The overall best student, Morris Muchiri Maganjo of Starehe Boys and the best girl, Abdulrazak Muzna Hanif of Mombasa's Aga Khan High School, opted for medicine. They scored a mean of 86.97 and 86.79 points, respectively.

Actuarial science, taught at the University of Nairobi's School of Mathematics, attracted six of the top 10 boys while medicine was favoured by the top 10 girls.

The six top boys who chose to study actuarial science are Brian Mwiti (Mang'u High), Timothy Mwangi (Starehe Boys), Daniel Machio (Starehe), Lionel Nereste (Mang'u), John Munge (Starehe) and Joseph Omondi of Starehe.

Joining Maganjo at the School of Medicine will be Hussein Adan (Alliance), Mangu's Kiruki Mutugi and Rift Valley's top boy, Misian Musa of St Joseph.

This trend is reversed among the girls as most of the top 10 will study medicine. Limuru Girls had three — Yvette Kisaka, Dulphin Moraa and Erica Mwania. Loreto Limuru had Mercy Kamene and Peggy Mativo.

Eight years

Other would-be doctors are Bunyore Girls' Mary Mukusa, the second best girl nationally, Kereri Girls' Jollyne Mokaya, best girl in Nyanza, and Renee Muyoka, Nairobi's best girl.

The best girls in Central and Eastern, Judy Mawoiya (Limuru Girls) and Charity Gakuru (Materi Girls), broke ranks and chose actuarial science. The School of Mathematics takes a maximum of 30 actuarial science students per year.

Apart from the bachelors degree, "extra courses can take up to eight years, meaning a student can take up to 12 years to get a job as an actuary," says Dr Patrick Weke, the head of Actuarial Science and Financial Mathematics at the University of Nairobi.