YOUNG INDIA
IYPN Monthly Newsletter
August & September 2007 edition

THE ESSENCE OF ACHIEVEMENT

"The credit belongs to those people who are actually in the arena…who know the great enthusiasms, the great devotions to a worthy cause; who at best, know the triumph of high achievement; and who, at worst, fail while daring greatly…so that their place shall never be with those cold and timid souls who know neither victory nor defeat."- Theodore Roosevelt

THE POWER OF BELIEF

"Believe in yourself. You gain strength, courage, and confidence by every experience in which you stop to look fear in the face… You must do that which you think you cannot do."

Young India, an IYPN monthly newsletter is a structure to highlight the work and celebrate the commitment of Indian Young Professionals – one of the goals of IYPN - who are making a difference in the frontiers of socio-economic, environmental, scientific, technological and international cooperation addressing millennium goals in one way or the other. These Young Professionals are successful, under the age of 40, and on the front line within different international, academic, not-for-profit, bilateral organizations or entrepreneurs.

What is the IYPN?

The Indian Young Professionals Network Inc. (IYPN) is a not-for-profit organization **(tax ID number 86-1155418)** committed in assisting India achieve its Millennium Goals by 2015, wherein the work of different Indian young professionals would be streamlined in the field of socio economic environmental entrepreneurship through partnership and stewardship.

Who are we highlighting in August 2007 newsletter?
In this edition of Young India we have an editorial article by Dr. Vincent Kitio, Energy Advisor, UN-Habitat.

The two extraordinary young professionals we are highlighting this month are 1) Dr. Sumathi Gopal, Ortiva Wireless Inc., San Diego 2) Sohini Bhattacharya, Ashoka Innovators for the Public

End of Famine in Africa

Dr. Vincent Kitio
Energy Advisor
UN-Habitat
Nairobi, Kenya

Recent images shown on Kenyan television could not fail to move even the stone hearted among us to tears. It was heart wrenching to see women hopelessly cuddling the lifeless bodies of their children, victims of merciless famine that swept across the country. Many appeals were made both by government, churches and even the corporate world to help mitigate against the disaster. Across the continent and to my home country of Cameroon, a similar event recurs almost every two years and appeals are usually made by those in authority seeking food to help the victims. As an African professional, these are some the issues that leave me pondering on how my fellow learned Africans and I can contribute to alleviate the suffering which our people have been undergoing.

The problem of recurring famine goes deeper than the often touted reason of lack of water to help grow food or for animal use. The water levels available in Kenya are enough to sustain a hunger-free nation. In some parts of Cameroon, people suffer famine despite that country having the distinction of being home to the wettest climate on earth.

Examples abound of how others have managed to overcome. Despite the scarcity of water in semi-desert and arid lands of North Africa, the Arab World, the Mediterranean countries and part of the South East Asia, farmers there enjoy better food security, compare to Sub Saharan Africa. This is not because their economies are better off to enable them to easily pump water for irrigation. Long before the discovery of fossil fuel, most of these countries already enjoyed food security. In fact, in order to cope with the harsh climatic conditions with little rains, inhabitant of these dry lands developed traditional knowledge of water lifting techniques to exploit streams, rivers and underground water for irrigation to increase food production. As a result, farmers are

able to harness available water to grow crops and harvest up to three times a year. In this process, all available forms of energy are put into use, such as human power, animal power, water power and wind power, to lift water for irrigation.

These ancient water lifting knowledge that have been in used in Europe, Arab World and part of Asia for centuries are still ignored in Sub-Saharan Africa. Farming in Africa depends heavily on rainfall and human labour and therefore, agriculture is vulnerable to the weather. As part of a long lasting solution to the recurrent drought and famine, there is a pressing need to document, adapt and transfer these technologies to areas suitable for their application.

Famine in Africa has reached unprecedented and disproportion levels. Images of malnourished children, weak adults and carcasses of livestock's are portrayed in the mass media every day. All Sub-Saharan Africa countries are affected by this drought, which many people argue that it could have been prevented or minimized.

Many attribute the origin of this preventable situation to poor governance, corruption, over population, climate change, dependency syndrome on food aid from foreign assistance and so on. The main root causes of famine remains the dependency of African agriculture on the weather, particularly the rain. This heavy dependence, not only reduces the number of harvest per year, but also gives little freedom to the farmer for proper planning. Several years ago, rain fed agriculture was not an issue in Africa, since entire community could migrate from drought areas to greener pastures. This is no longer the case as no free land is available any more.
Globalisation is also contributing to the burden of famine: cheap crops import dominate some local markets to the detriment of local crops. This situation is worsened by the fact that agriculture in Sub-Saharan Africa depends heavily on human labour as opposed to mechanisation. As a result, farmers need to provide more and more effort for little output. The application of irrigation methods in African agriculture remains very limited due to the water drudgery associated to it. The percentage of land irrigated in Africa is the lowest of the world.

It is therefore time to seriously explore other alternatives and affordable ways of improving traditional farming systems. Africa is endowed with permanent rivers that flow undisturbed to

the sea, passing through hectares of idle lands suitable for agriculture. Using some of these rivers and streams to irrigate lands will be very beneficial to present and future food security in Africa. The high operational cost of motor pumps to increase productivity through irrigation is simply not affordable to the majority of African farmers, leave alone the high cost of the pump itself that is prohibitive. Drilling borehole is another solution but again very expensive and costly. It is common knowledge that people living in arid land have developed irrigation techniques that have ensured them food security for centuries. This is the case of Egypt, Syria, Iraq, Jordan and many other Arab States, India, China, Israel, just to mention a few. Fortunately, despite the advance of modern technology, some of this traditional or indigenous knowledge are still in use today after thousands years of operation.

In the city of Medinet El Faiyum, also known as the Garden of Eden, situated 100 km south of Cairo, over 40 waterwheels known as *Noria* are used to lift water from the river Nile for irrigation. In this ancient city known as a garden in the middle of the desert, farmers are able to harvest three times a year despite the fact that the region receives only three days of rain a year. In addition to that, El Faiyum Governorate is considered as the main granary of Cairo. Ef Faiyum waterwheels were introduced several centuries ago by Ptolemic engineers. They are still working today side by side with electric water pumps to grow olives, vegetables, fruits, nuts, sugar cane, rice, wheat etc.

The Noria, is a simple wooden waterwheel with buckets which use the flow of the river to lift water to an irrigation aqueduct above the river: water by gravity is directed to several farms.

The noria works round the clock, 7 days, all year round, provided that there is a flow of water. This time tested technology, invented more than two thousand years ago, must probably by the Romans, has survived up to today because of their efficiency and effectiveness on food security. Thousands of them are still in operation in Spain, Portugal, Syria, Iraq, Mexico, China (in China, they are made out of bamboo tree) etc. The city of Hama in Syria is very famous for its different norias, built along the Orontes River, some of which are still used to irrigate urban agriculture while others, national heritages, attract thousands of tourists every year.

The Romans relied on irrigation systems to ensure food security in the empire. Roman architects and engineers developed different techniques as described by Vitruvius in 1 BC in his "Ten

Books on Architecture" to support their agriculture. Some of these irrigation systems have survived up today. In 1913, Webster's Revised Unabridged Dictionary gave this definition: *"Noria- a large water wheel, turned by the action of a stream against its floats, and carrying at its circumference buckets, by which water is raised and discharged into a trough; used in Arabia, China, and elsewhere for irrigating land".*

The Norias found in Spain were introduced during the Islamic domination and have double sets of buckets on each side of their rims, other have two wheels on the same shaft. This allowed the system to increase the amount of water lifted. Spanish priests introduced Norias in Mexico during the colonial period. Some of them are still in operation in farms located in the northern part of the county. Their buckets are made of plastic material as oppose to clay pots or wooden buckets.

Another living testimony of this magnificent time tested technology is the largest noria (over 20 meters) known as Al-Mohammediyyah in Hama, Syria. It was the subject in one of the famous American television programme called Ripley's Believe it or Not! With the following title, "*A water wheel on the Ornotes River in Syria is still working, although it was built in the year 1000.*"

Some farmers in Hama use Noria in urban agriculture, and occasionally when the water flow is not enough to turn the waterwheel, up to 5 motor pumps are needed to lift water to the aqueduct.This age-old technology is very much appropriate to the African rural lifestyle, especially with the fuel price increase that is already impacting negatively on the economic growth.

PERSIAN WHEEL

The Persian wheel, also known as *Saqiya*, is a water-lifting device made of two gear wheels and an endless chain of pots or buckets, capable of lifting water from both shallow and deep well. The system is powered by one or two animals (donkey, horse, camel, bullock, buffalo etc.). Person wheels have been used since time immoral to supply water for irrigation in Egypt, the Mediterranean's countries, India, China, etc.

Animal revolves around the first wheel and generates horizontal rotations, which are transferred into vertical rotations through gears and, bring up the chain of pots (buckets)that carry water from the well and empty into a conduct. Since animals don't like the boring revolution walk, they are blindfold. This technology has been in use for over 2,000 years. An American geographer, who visited Egypt in 1727, estimated that there were over 200,000 Persian wheels in operation driven by oxen for agriculture purposes.

In the region between India and Pakistan, Persian wheels, known as Rahat in Urdu, are traditional tools used for irrigation. Before their introduction in the region, irrigation was a very tedious and inefficient activity, as it is today in rural African countries, where people have to walk long distances to fetch water. The introduction of this technology improved agricultural productivity substantially in medieval India. As a result of a successful rural electrification programme across India, electric pumps are gradually replacing this time tested device. Despite the availability of modern energy, Persian wheels remain popular in the Indian region of Rajasthan. It is estimated that one Persian wheel can irrigate up to one hectare of land.

SAKIA

Another water raising device that is worth to mention here is the *Sakia*. *Sakia* is an ancient water-lifting technology that has been in used intensively in Egypt,where it originated,from time immemorial. The device is efficient and effective widely used in the Nile Valley and Delta. Sakia is made of a large hollow wheel with scoops around its periphery, and water discharges at itscentre. The diameters of the Sakia range from 2m to 5m; and they lift water from 0.8m to 1.8m respectively.

Sakias originally made of wood, are now made from galvanized sheet steel with gears system that convert the horizontal rotation into vertical rotation. There are mainly powered by animal, but recently some are using electric or gasoline motors. According to the Egyptian Hydraulic Research and Experimental Station, more than 300,000 Sakias are in use in the Nile Valley and Delta mostly driven by animals. A Sakia of 5 m diameter will lift around 36 m^3/h of water, while a 2 m diameter model will lift 114 m^3/h.

WIND PUMP

Simple wind pumps as opposed to the sophisticated and costly one that are occasionally seen in some African rural areas are another appropriate solution for the irrigation. In the mountain plateau of Lassithi in Crete, Greece, simple wind pumps have being used for over 400 years to irrigate land that produces crops mainly vegetables, fruits and wheat. These wind pumps, manufactured locally by village craftsmen, were originally made of wood and cloth. Wood was later on replaced by metal steel in order to extend the lifespan. A decade ago, over 10 000 windmills could be found in the plateau, each farmer owning at least one of them to supply water for irrigation. Today less than 2000 are in operation, as a result of European Union's agricultural subsidy policies to purchase farmer's implements. Traditional windmills are gradually replaced with electric pumps. Model windmills are sold to tourists as souvenir.

When there is wind, each windmill pumps water from a well to a tank, and the water is later used by the farmer to irrigate their gardens by gravity.

African coastal areas and hilly regions with permanent winds are ideal place for the application of this technology.

CONCLUSION

This clean and affordable technology for water lifting remains unknown to Sub-Sahara African farmers.

If thousands of them are introduced in the continent along its many rivers and streams to irrigate idle lands, food will be soon in abundance on the local markets, in just three months: the average time to grow and harvest vegetables badly needed to stop the spread of malnutrition.

Food aid should not be seen as a long-term solution, people should be empowered with affordable technologies that can help them to overcome present and future period of food shortages.

All the above-mentioned traditional knowledge of water lifting techniques can be domestically manufactured with local material: no imported part is required, no fossil fuel is needed, and humanpower is saved.

This technology may seem very old but its efficiency surpasses those of the imported motor pumps. It is regrettable to note that despite the 21th century's high-tech society, one person in six has no access to clean water. Therefore any affordable solution that can bring water closer to people should be considered as an innovation rather than an attempt to bring development back. To make famine history in Africa we need to introduce these affordable, tangible, proven, and traditional knowledge from the arid world to African farmers. The creativity of African informal sector will innovate and adapt the technology to different local social and economic conditions, aiming at ensuring long lasting food security.

While exploring modern technology to address the famine situation in Africa, it will be wise to consider this know how which is in the public domain and does not required any copyright to be negotiated.

Since the technologies described here are in operation, as we speak, in Egypt and Syria, it would be highly appreciated if stakeholders in the fight against hunger in Africa visit Medina El Faiyum in Egypt and Hama in Syria to witness how these simple traditional technologies can turn arid land into forest. This will be the beginning of the end of famine in Africa.

About UN-Habitat: The United Nations Human Settlements Programme, UN-HABITAT, is the United Nations agency for human settlements. It is mandated by the **UN General Assembly** to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all.

"Efficient Internet Access over Wireless Networks"

Sumathi Gopal, PhD

Ortiva Wireless Inc., San Diego, CA

This article presents new research that significantly reduces the delays experienced in data transport over a general class of wireless networks. This work is essential for the efficient use of the emerging class of high-speed wireless networks, which can enable Internet access in areas where the cost of laying high speed cables is too steep to attract serious investment.

Wireless networks have made a tremendous impact in the world. Particularly in India, wireless cellular networks have enabled widespread voice connectivity. As recently as 10 years ago, one had to wait for at least a month for a home phone connection, even in large cities like Bangalore. Today mobile phones are affordable and in widespread use even by street vendors in remote corners of the country.

 This communication feat of cellular networks is only the tip of an iceberg. It provides an inkling of the immense benefits when Internet access itself becomes easily available to the common man in India. In this Information age, Internet has become more of a necessity than a luxury. However, several parts of India still lack broadband access, because of difficult-to-reach regions where laying high-speed cables is not cost effective and the return on investment is deemed low. Wireless networks hold a key solution to this problem. New wireless technologies have emerged in the last few years that can support data at speeds of several mega bits per second over large distances. Primary among these technologies are WiMAX (IEEE 802.16 standards) and mesh networks (IEEE 802.11 standards) that support broadband data rates in the range of a couple of mega bits per second per user.

WiMAX belongs to the class of cellular networks with wide area coverage. They are centrally operated in licensed frequency bands. Mesh networks on the other hand are decentralized in

operation, and individual entities may install their own mesh network without requiring any licensing to obtain the spectrum. Their band of operation is similar to WiFi networks (IEEE 802.11 standard) and cordless phones, but the technology differs significantly because of the use of multiple wireless links. The cost of installing and operating mesh networks is a fraction of that of WiMAX (cellular) networks and is hence quite lucrative to many businesses. For example in the United States, several towns (for example, Amherst, MA) are considering multi-hop wireless mesh networks as a low-cost alternative for municipal access, such as to connect local police stations and fire stations.

Operating a network however is a relatively minor problem compared to various other challenges encountered in the deployment of these networks. The most significant hurdle faced is that of data transport efficiency. Much of the traffic on the Internet – over 80% of it require that all the bytes reach the destination with 100% reliability – that is, every single byte in a file is transferred reliably and in-order. These applications predominantly use the Transmission Control Protocol (TCP) that in the last 30 years has been highly optimized to perform this task of reliable file transfer. In fact much of the success of the Internet is due to the robust performance of TCP in handling end-to-end losses.

However when it comes to wireless networks, TCP is found to perform very poorly. In WiFi networks for example where there is a single wireless link close to the user, TCP simply shuts down when the wireless losses exceed 5%. Even in ideal wireless scenarios where there are negligible losses, TCP throughput peaks at about 80% of the available bandwidth. This poor TCP performance in wireless environments has been a "hot" topic of research in the last 15 years. However, various efforts to fix it have not been successful because a TCP fix for one situation (such as web access from a cell phone in a park) has little effect in another environment (such as web access from your laptop in an Airport hotspot/hotel room). It also poorly adapts to rapid bandwidth fluctuations that common occur in wireless networks due to Doppler effects, interference, complex cross-layer interactions etc.

Various new protocols have been proposed to substitute TCP, but like the various TCP enhancements, they also cater to specific wireless network scenarios and simply shut down in

mesh networks, where losses can often exceed 20%. Thus it is evident that the emerging class of high-speed wireless networks have far different characteristics than their wired counterparts. The primary difference is that wireless links have time-varying bandwidth and error characteristics and are far less reliable than wire-line links such as Ethernet. The various protocols available today for Internet access are designed to deal with problems that occur in wire-line networks, where the losses are due to the queue overflows in nodes rather than losses in the links. Wireless network challenges on the other hand are dominated by wireless link losses and rapid bandwidth and error fluctuations.

In our research, we addressed this challenging problem of how to efficiently transport data over wireless networks, and hence minimize the delays encountered for file transfer. We adopted a top-down approach for a fresh perspective. To nail down the exact reasons for poor TCP performance, we conducted extensive experiments to capture various real world scenarios that were problematic and recreated them in a simulator. Detailed analysis of the simulations showed that the problem occurred because of several TCP design aspects that were mismatched to fundamental wireless characteristics. For example, while wireless link losses are transient and often unrelated to the available bandwidth, TCP assumes losses can only be due to congested routers (a wired network characteristic) and scales down the sending rate, wasting precious bandwidth. Second, while TCP design assumes constant link bandwidth, the bandwidth in wireless links fluctuates significantly due to environmental conditions such as mobility, rain etc. These and other TCP mismatches due to wireless delay fluctuations and interference caused TCP to perform inefficiently over wireless networks. It was evident from these findings, that data transport efficiency required catering to the core wireless characteristics of time-varying bandwidth and losses, and interference.

We developed a new transport protocol called CLAP (Cross-Layer Aware transport Protocol) that extracts supplemental information from the wireless interface to adapt quickly to bandwidth fluctuations and with a novel feedback mechanism improved error resilience and recovery. We compared its performance to state-of-the-art TCP (TCP-SACK) in rigorous WiFi (single wireless link) and mesh network environments (multiple wireless links). While TCP simply shut down operation when losses exceeded 5%, CLAP sustained file transfer even when losses exceeded

40%. At the same time, it utilized over 85% of the available bandwidth, compared to less than 2% by TCP. When the bandwidth changed rapidly, TCP had several durations of unutilized bandwidth, while CLAP opportunistically made use of them.

In summary, our research marks a new approach to reliable file transfer over wireless networks, and its efficacy is demonstrated by the large gains of CLAP over TCP in challenging scenarios that are a common characteristic of emerging wireless networks. The CLAP protocol is also far simpler to implement compared to TCP because of its use of supplemental information. The biggest obstacle facing CLAP adoption is the inertia to substitute TCP, which is understandably an outcome of the success of TCP in enabling the Internet of today. Implementing CLAP is in fact quite feasible because plug-in software methods available today and the relative ease and frequency of operating systems upgrades.

Profile:

Sumathi Gopal recently graduated with a PhD in "wireless networking" from WINLAB, Rutgers University located in North Brunswick, NJ. Research outlined here was the topic of her PhD thesis titled "Cross-layer aware transport protocol for wireless networks", done in collaboration with her advisors Prof. Dipankar Raychaudhuri and Dr. Sanjoy Paul, and funded by Corporate Research, Thomson Inc. Before beginning her PhD, she worked for 2 years as a research associate in NEC Labs in Princeton, NJ. She currently works for Ortiva Wireless Inc., a startup company in San Diego, CA that specializes in video delivery to mobile devices.

Apart from her professional activities, Sumathi has been an active volunteer and chapter coordinator of the Princeton chapter of "Asha for Education" - a 100% volunteer-based organization that strives to bring education to underprivileged children in India. Along with other Asha volunteers, she has raised over $60,000 for various projects in 4 years, and been closely involved with SUPPORT – a non-profit in Mumbai that rescues and rehabilitates drug-abused street children. She has also volunteered with "RFB&D" recording K-12 tapes for blind and dyslexic children across the United States. At Rutgers University, she served as the Graduate Student Representative for 3 years in the Electrical and Computer Engineering department and was awarded the prestigious "ECE Award for Service Excellence" in April 2007.

Sumathi hails from Bangalore, India and came to the United States in 1998 soon after completing her Bachelors in B.M.S. College of Engineering. She's married and her better half Vinay Iyengar who works in IBM as a management consultant. They have a beautiful son Rahul who is in his "terrific twos" at 27 months.

Social Entrepreneurs on Common Ground

Sohini Bhattacharya,
Director,
South Asia Partnerships,
Ashoka Innovators for the Public

It is suddenly raining "Social Entrepreneurship"! For years Ashoka has trodden the lonely path and now we have been surprised and delighted at how many people know, talk and practice social entrepreneurship. The current debate on Social Entrepreneurship is amazing – there are at least 50 definitions and 100 ways of interpreting them in a way that advances research, practice, and efforts to build and strengthen the field.

Let's take a look at some of those definitions. CASE Faculty Director Greg Dees and Managing Director Beth Anderson argue that the study of social entrepreneurship should focus on "innovations that blend methods from the worlds of business and philanthropy, creating sustainable social value with the potential for large-scale impact." In a complementary piece, *Social Entrepreneurs on Common Ground*, The Institute for Social Entrepreneurs' Jerr Boschee embraces that framing as an important step forward that will help "create a framework for the next generation of practitioners." At the same time, University of Toronto's Roger Martin and the Skoll Foundation's Sally Osberg collaborated across academia and practice in *Stanford Social Innovation Review*'s *Social Entrepreneurship: The Case for Definition*, where they promote a rigorous definition of social entrepreneurship to strengthen the development of the field. By their definition, Social Entrepreneurship is a more rigorous and precise way to grow the field. They focus on entrepreneur's ability to transform unsatisfactory and unpleasant equilibrium into a new stable equilibrium that is more efficient, effective or just.

Ashoka Fellows who are social entrepreneurs are people who have figured out how to make a system change, and that knowledge is huge for humanity. They are the inventors of cures, the developers of mechanisms to make people move, act, live, think, buy, parent, care in a different

way; they have created systems to encourage people to make change, organize for power, lift themselves out of poverty, hold corporations accountable, improve their workplaces and fight corruption at every level. And when they have figured out a sustainable business model to fuel this process, they have been able to scale more quickly and have more freedom to pursue their goals.

Take the example of Ashoka Fellow Brij Kothari from India, who discovered that even after years of running literacy programs in India, the number of non-literates in our country remains at an overwhelming 444 million. Some key factors are at play here. The low level of literacy, both in terms of rate and quality, is to a great degree maintained by frequent relapse into illiteracy or stagnation of semi and neo literates' skills following short stints in school and adult literacy programmes. The scope and opportunity of reading outside the classroom is infrequent - sometimes due to lack of opportunity and/or individual motivation but more significantly due to the absence of a reading environment. In the everyday context, the national strategy has depended on the creation of libraries and making available wallpapers, magazines and other reading material designed for neo-literates. Generally, in these situations, the contact with participants tends to be short term and costly, serving only a small percentage of the partially literate population. Moreover, these strategies require the learner to be highly self-motivated for lifelong literacy.

Having diagnosed this problem, Brij set out to marry the two most popular things in Indian society – hindi film songs and television to come to the aid of non and neo-literates. Brij leveraged a billion-strong nation's voracious appetite for film song lyrics to create a reading environment far beyond what textbooks or classroom or night schools can provide. His Same Language Subtitling (SLS) program subtitles film song programs, in the same language as the audio. Thus, Hindi programs are subtitled in Hindi and likewise with all the regional language programs in the country. The basic idea is, what you see (text) is what you hear (audio). The audio track is reproduced verbatim in a synchronized manner.

As per government reports, about half of India has access to television and there are 27 million more rural viewers than urban viewers. There is an annual increase of 10% in the number of houses with TV. Today, besides television, Internet and Computers and DVD players are making rapid inroads into rural and urban homes. While media has been a major conduit for the

government to spread literacy awareness, Brij has injected new meaning in the approach by using a major source of entertainment to introduce literacy in a non-intrusive manner. The power of SLS lies in the fact that it is covertly educational. On the surface it enhances the entertainment value of popular song programs and simultaneously makes reading practice an incidental, automatic and subconscious process at a ridiculously low per person cost. It is simply hitched on to the regular programming by the state-owned television channel, Doordarshan. As the lyrics change colour in perfect timing with the latest Bollywood hits, hearing and reading reinforce each other for all age-groups

Who are the most likely partners for Brij to spread this message – the national television company ? Yes in terms of reach and spread into every remote rural area in the country. Google ? Yes, in terms of scaling up and out into other countries, other languages. Star TV ? Yes, India's most popular private television channel to popularize this among urban neo-literates. Brij is exploring every one of them to find a sustainable model for his idea and to scale up considerably. Here you have an Ashoka Fellow in its purest form.

Ashoka Fellows are such subtle players working on a range of ideas, from low cost farming methods to health insurance for the poorest of the poor, aiming at lasting social change. Definitions notwithstanding, systemic change remains their and our biggest objective in everything we do and building a structure so that everyone can be a part of it is what we strive at. For 25 years since its creation in 1981, **Ashoka Innovators for the Public** has created, nurtured and evolved the field of social entrepreneurship and has stayed on the cutting edge, spotting new global trends and defining the growing field.

Since 1981, Ashoka has elected over 1,800 leading social entrepreneurs, men and women with system changing solutions for the world's most urgent social problems, as Ashoka Fellows, providing them with living stipends, professional support, and access to a global network of peers in more than 60 countries. Ashoka India came into being in 1981. Since then it has grown into a rich fellowship of 300 Fellows who are working in diverse fields in six cluster areas: Civic Participation, Economic Development, Education, Environment, Health and Human Rights. Ashoka India has a vibrant fellowship across 24 states around the country, out of which

almost 50% are involved in various initiatives of Ashoka, as facilitators, co-developers and leaders.

Ashoka's rapid growth has been made possible by our strength in developing relationships with individuals, family foundations and business entrepreneurs ready to invest in new programs. We are working towards models that are long-term, will boost the Fellowship in every region and would serve as a model for similar partnerships for other leading business entrepreneurs. One can join Ashoka's movement of social change engaging with Ashoka in a customized way such as the Ashoka-Deshpande Sandbox Project , as a group such as the YPO, or as an individual.

Ashoka has crafted and has just launched a new partnership in India with Gururaj "Desh" Deshpande, an extremely successful Indian-born hi-tech entrepreneur based in Massachusetts. With the recently established Deshpande Foundation, that aims to bring social change to the Hubli-Dharwad area in North Karnataka where Desh grew up, Ashoka is creating what "Desh" Deshpande calls a 'sandbox' in North Karnataka : an arena where Ashoka Fellows (and later other local social entrepreneurs) will be able to try out their ideas, collaborate with each other (plus local government bodies, academia and business) and benefit from synergistic support by Ashoka and Deshpande.

Ashoka is also working to connect Ashoka Fellows worldwide with the Young Presidents Organization (YPO), a worldwide network of leading CEOs under the age of 45 and an incredible source of potential funding, mentoring, contacts, and information. In India, we are working on creating an opportunity for YPO members to interact with Ashoka Fellows in a structured program which will also include site-visits early next year and create a space where business leaders from India will also have a chance to share their experience of working with the citizen sector with members of YPO.

These illustrate also a core approach – that of invention of the processes that defy borders between sectors, and demands creative thinking about how best to make these borders porous for ideas that flow across them. This is also the beginning of creating an environment where everyone has the opportunity and freedom to make change. I leave you here with some words

from Bill Drayton, Founder of Ashoka and Social entrepreneur extraordinaire : "I believe that the transformation of the citizen half of the world (the non- commerce half) into an entrepreneurial social sector, competitive and allied with business, will close the productivity gap, deeply strengthen democracy and create a world that is radically different from the world we have today where two or three percent of the people run everything."

Profile:

Sohini has worked in the field of economic development with special focus on women for 10 years prior to joining Ashoka in 2000. She started out working with Child In Need Institute (CINI), a premier Mother and Child Health organization in India and later on helped in the launch of a new program within the organization working on income generation and micro-credit for rural women. As a program officer with Dastkar, a society for traditional craftspeople working on identifying the needs of craftspeople in India and brining them closer to the market, she worked with craftsgroups all over the country, understanding markets, issues in production and the struggle of the craftspeople. During 1996-1998, Sohini worked on setting up reporting and accounting systems for micro-credit and training women's groups across the country on gender rights and micro-credit working with an Ashoka Fellow. In 1996 she also helped another Ashoka Fellow set up Sanhita, a Gender Rights Centre, in Calcutta and worked as the Trustee and the main program coordinator for the crucial first two years of the launch.

Sohini joined Ashoka in March 2000 to help expand the Venture program in West India. As the western India Regional Representative she brought together a diverse group of Fellows, strengthened the number of women in the fellowship and truly exemplified the entrepreneurial quality of the region. Later as a Director, Venture for India, she ramped up the program, built systems and created awareness and resources for Ashoka India.

Sohini holds a post-graduate degree in English Literature from Jadhavpur University, Calcutta and loves traveling, theatre and photography. She also sits on the board of CREA, an organization working on enhancing women's leadership and focusing on sexuality, reproductive health, violence against women and social justice.