Echoing Green Fellow Deepa Gangwani Elevates Waste Workers – and the Environment – in India

Innovator's Profile

Written by: Marguerite Rigoglioso

In India, desperately poor women pick through trash with their bare hands to support large families on less than a dollar a day. The victims of extreme social discrimination and seclusion, in the process they are also exposed to severe health hazards. In working to aid such women during the tsunami of 2004, Deepa Gangwani (MBA 2004) became determined to create an enterprise that helps the women engage their strengths and create greater economic and social equity. Her desire has culminated and crystallised in Together as One (TaO), a social enterprise that generates income opportunities for marginalised communities in India while providing communities with incentives to sort and segregate waste.

So strong is this entrepreneur's business plan that the social venture fund Echoing Green has awarded Gangwani a two-year fellowship consisting of initial funding and technical support to help her transform her innovative idea into a sustainable social change organisation. One of the only efforts solely focusing on seeding such organisations, Echoing Green has invested more than $28 million in grants to some 471 social entrepreneurs worldwide since 1987. With fellowships granted only to those the enterprise deems to be genuinely visionary leaders, Gangwani's award is a true mark of confidence in her work.

TaO has mobilised to help NGOs and other organisations that work with women trash collectors by connecting these enterprises with technology, expertise, capital, services and partners that will allow them to build facilities to convert biodegradable waste, plastics and other forms of garbage into fuel. The bio energy produced will serve as a high-value product that will help such organisations become financially sustainable.

As part of the plan, waste workers will be organised through self-help group structures and micro credit to sell such fuel directly to households and small businesses. As a result, communities will have access to cheaper and cleaner energy. Meanwhile, the environment will benefit from reduced fossil fuel use, lower methane emissions from landfills, and fewer tonnes of garbage being dumped in open spaces, landfills, and precious bodies of water.

The 'people' factor is also a high priority for Gangwani. 'The process will transform the waste-handling occupation into energy-entrepreneurship, thereby enhancing the community perception of such workers as providers of an essential energy service,' she says. Additionally, it promises to raise the incomes of such entrepreneurs up to nine-fold and provide them with substantial benefits and improved working conditions.

Gangwani, who hails from Pondicherry, left India at a young age to study and work overseas. She earned an MS in chemistry from Stanford in 1998, and then enrolled in Stanford's MBA programme. There, she was part of the Public Management Program, which provides courses and experiential opportunities to inspire students to address the world's toughest issues through corporate social responsibility, social entrepreneurship, non-profit management and philanthropy. For the last six years, Gangwani has been working on sustainable development in India with its focus on health, energy and education. She has assisted several community based trash-reduction initiatives, including the waste management NGO Shuddham.

'Stanford contributed to my passion for turning social services, especially utilities like waste management, into independently viable, sustainable operations that can address social issues through profit-based incentives,' says Gangwani.

Driving her efforts above all has been her deep personal connection with the women waste workers themselves. 'I just fell in love with these people, who seemed to survive only through sheer audacity,' she says. 'Their resilience, despite the injustices they face from the very communities they serve, is a tremendous source of inspiration for me.'

Gangwani's goals include enabling and effectively scaling up waste-to-energy applications for waste management NGOs that are currently operating in 200 midsize Indian cities. Through TaO, she intends to address at least 35 to 45 per cent of this market over the next 5 years, and to launch the model in at least 3 countries with similar needs. She also hopes eventually to expand the entire waste management industry through similar efforts.

'Establishing waste as a green resource is gaining momentum as a movement,' says Gangwani. 'This new venture will leverage this opportune timing to help marginalised workers become change makers within their own communities.'

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Link to the website is csi.gsb.stanford.edu

Gender and innovation

Imagine

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Editorial

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'Women hold up half the sky', says an ancient Chinese proverb. That women are equal partners in all that goes on under the sky is indisputable. What is often questioned and understood is that their share of work, rewards, power and access to better things are all much lower than that of men. This is true in most, if not all parts of the developing world.

Over the past three decades or so, research on women and development has provided indisputable evidence of gender disparities. Science, technology and innovation are considered to be the engines of development and so it is important to harness the capacities of both men and women in equal measures. It is no wonder that international agencies such as UNESCO as well as governments in many developing countries are looking at innovative ways of bridging these gaps. These programs not only aim to increase the number of girls and women in school-level science, scientific research, teaching and leadership positions, but also strive for better social returns in the long run. For example, UNESCO runs a pilot program for adolescent girls in Bangladesh, Nepal, India and Pakistan, helping them with a range of resources so that they not only escape the endemic poverty but also become agents of change within their communities. These are the kind of interventions needed in the long term that not only bring about parity in numbers but also aim at women's empowerment and capacity for effecting change. Development research findings in Asia, Africa and to some extent in Latin America on women and development are equivocal on two issues – first, access to technologies, science education; better social benefits are all necessary but not sufficient conditions for better development outcomes for women. Second, culture and context are paramount and define the manner in which these advantages empower or hamper women.

These are the kind of interventions needed in the long term that not only bring about parity in numbers but also aim at women's empowerment and capacity for effecting change.

In sharp contrast, there is no dearth of women in informal sectors. Nine out of every ten women in the work force in developing countries are employed by the informal sector. None of the problems faced by women in the formal sector seems to apply here. Despite lower wages than men, larger workloads, poor or absent social protection and health burdens from reproductive and family roles, their contribution to social and economic activities is significant on both micro and macro levels.

This brings us back to the Chinese proverb: *Are women really holding up half the sky? If so, are they doing it efficiently enough? Or are they overreaching?*

To find answers to these questions, we need to take a closer look at the ways in which women work, collaborate and learn, irrespective of the sectors. What is it that hinders or helps them? Are they doing things differently than men? Are they able to participate to their fullest potential? In want ways do women benefit or lose from the existing work structures?

Eight research teams across eight different countries – Afghanistan, India, Pakistan, Palestine, Peru, Uganda, Vietnam, and Zambia - addressed these questions. The research is being supported by IDRC as part of the program on 'Innovation for Inclusive Development'. The research teams have selected sectors that are important for women in their countries, where there is room for improving women's livelihoods and those that are socially and culturally compatible for women. Initial findings show that empowering women in skilled economic activities is possible even in conservative societies such as Afghanistan and Pakistan, as long as the economic outcomes are evident. In Uganda, women in traditional and cultural industries fare better when there is strategic support from formal S&T. In Palestine, the project is showing ways of including women in water resource management with better outcomes for community and resource conservation. These findings are likely to lead to meta-level lessons on better integration of women in economic and social activities. This newsletter will feature some of this research in detail in due course.

Inside this Newsletter

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"It is the women who are the leaders in change and without their participation poverty can never be removed.."
Ela Bhat

"Women own 40 percent of the private businesses in the United States, according to the Center for Women's Business Research. But they create only 8 percent of the venture-backed tech start-ups, according to Astia, a nonprofit group that advises female entrepreneurs. That disparity reaches beyond entrepreneurs. Women account for just 6 percent of the chief executives of the top 100 tech companies, and 22 percent of the software engineers at tech companies over all, according to the National Center for Women and Information Technology. And among venture capitalists, the population of financiers who control the purse strings for a majority of tech start-ups, just 14 percent are women."

Source:
http://www.nytimes.com/2010/04/18/technology/18women.html?pagewanted=all

The Invisible, Un-sung:
Grass-roots Women in Innovation

Lead Article

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"Give a man a fish, he will eat for a day. Give a woman micro credit, she, her husband, her children and their extended family will eat for a life time."
BONO

Women in Bolivia making products out of Andean roots

Grass–roots Women in Innovation and Development

If necessity is the mother of invention, for large majority of women especially from grass-roots communities, innovation comes as a second nature, be they are from developing or developed countries, rural or urban areas, as they ought to undergo hardships to meet their basic survival needs. In the wake of the onslaught of global melt down and the ongoing climate change vagaries, the demand for building upon such grass-root's wisdom and innovations in women's empowerment are sought after more than ever before by the development practitioners. 'Grassroots women' are women who live and work in poor and low-income communities, who are economically, socially and politically marginalized and whose survival and everyday lives are directly affected by natural hazards and climate change1.

An insight into traditional knowledge portrays grassroots people, especially the women as the key knowledge holders and most creative 2. In spite of the existence of such a rich social capital, most of the development programmes and policies aimed at transforming social, economic and political processes and reducing grassroots women's vulnerabilities, have often perceived grass roots woman as key stakeholder and as a beneficiary in development processes, rather than as key 'solution designer', 'innovator'.

With the growing knowledge and sensitivity that women and girl child needs special targeted schemes, programs for their well being, various special programs are directed towards those work for women's economic empowerment and livelihoods creation. Due to such top down problem solving approach, women from poor communities are being seen as beneficiaries. Studies have proven that it can have unintended negative effects, as engaging women primarily as 'victims' excludes them from decision-making - thus can further perpetuate their vulnerabilities.

Women Learning to manage enterprises in Girl's Agricultural School, Mbaracayu, Paraguay

Innovations in Development Practices

Recent developments in innovation thinking increasingly emphasize the opportunities that innovations can bring about to address development issues and spur wider social change. These concepts of innovation focus on advancing social and economic progress as well as addressing the needs of the underserved and engaging them directly in innovation processes (3). There is also emerging understanding about the need for smart investments in women as development actors can support the flow of benefits to households, communities and wider development processes.

However, more often, there is still little understanding on the innovations by women as such or by women for women and the society at large. Except for sporadic instances, such information is even scantier in case of grass roots women. Women as home managers and their contribution through resource creation/optimization to the home economy and thereby to the national economy has never been valued or rewarded. And there is very little that has been done by various nations either in recognizing and creatively unleashing their innate potential as innovators for their own betterment.

Training Villagers in Jhansi, India 2009

Chido Govero and the kingdom of mushrooms*

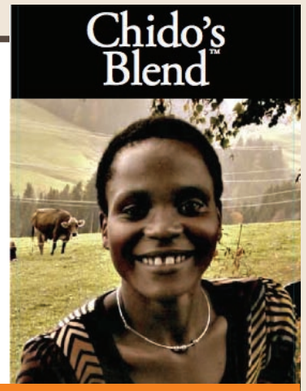
Chido Govero, never knew her father and witnessed her mother die from AIDS. At the age of seven she become the head of a small family nucleus, with her younger brother and blind grandmother. At the age of 12 she learned how to farm mushrooms with a ZERI Foundation scholarship, converting leaves, dead tree branches, water hyacinth, coffee pulp and corncobs into a substrate. Chido is believed to have "green" fingers, farming more mushrooms on less substrate than anyone else. She is on a crusade under the ZERI program "Orphan Teaches Orphans" convinced that the only way girls can escape abuse is when they know how to provide for their own food security. By April 2009 Chido has trained her first dozen assistants and she is determined to reach out and network throughout Africa to create millions of jobs and to stamp hunger out of the continent with what is locally available.

Innovative grass-roots women led development

Quite a number of experiments are happening involving grass-roots women's groups – one such large initiative is women self help groups (SHGs) movement in India. There have been laudable initiatives for collating innovations and for grassroots empowerment, by Honey Bee Network in scouting for the innovations, while UNDP, Rockerfeller, IDRC have supported through extensive research.

C"Equator Coffees" and Chido's Blend**

The women-owned and managed wholesaler "Equator Coffees" listened to the story of Chido at the SCAA Award Ceremony in Atlanta: "How an orphan trains orphans converting pulp to protein". When Chido visited the team in San Rafael, California, the idea emerged to promote coffee from Africa, empowering more girls to learn how to achieve food security while promoting the export of a cash crop. And so "Chido's Blend" was created.



Chido Govero, 2009, 'The Future of Hope', ZERI Foundation

The National Innovation Foundation (NIF), India,

was established on Feb 28th 2000 by the Department of Science and Technology (DST), Govt of India. The main goal of NIF is to provide institutional support in scouting, spawning, sustaining and scaling up grassroots green innovations and help their transition to self supporting activities. National Innovation Foundation (NIF, www.nifindia.org 2000, at the last count, it had pooled more than 160,000 ideas, innovations and traditional knowledge practices –not all unique though- from over 545 districts of India)), Grassroots Innovation Augmentation Network (GIAN, www.gian.org 1997), Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI, www.sristi.org, 1993) and recently techpedia.in, (a portal by SRISTI pooling 104,000 engineering projects by 350k students from over 500 institutions) etc., are some of the initiatives of Honey Bee Network which are transforming inclusive innovation eco-system of India.***

"Women are indeed great, as I learn that they are better fighters against poverty than their men, have more calculative, stable, forward looking strategies to deal with their own environment. Everywhere in the country, we found that women were the most committed proponents of our future."

Ela Bhatt

Following are some national and international examples to show how grass- root innovators gain when they align themselves. The following examples illustrate the effectiveness of grass-roots networking.

Concrete gains made by organized grassroots women in Innovation:

- Changing power dynamics: Women's groups, through the community-based organization KPRM in Indonesia, mobilized a constituency of 70,000 urban poor in the 2008 Makassar election to leverage partnerships with the local government. This action resulted in the Mayor of Makassar signing a political contract at a public meeting to make DRR budgeted funds available to activities and priorities of grassroots women's organization.
- Action networks, advocacy and budget allocation: As a result of advocacy (and support from other groups in GROOTS India network), women's groups in Maharashtra succeeded in getting the District Collector to allocate Rs 7 crore (US$ 1.4 million) from the district budget to repair two bridges and construct a canal water system for irrigation through the Government of India NAREGS program. In Bihar, as a result of sustained advocacy, local government departments changed the location of a bridge that allowed the construction and accompanying roads to serve as a barrier against future floods and waterlogged fields.
- Reducing vulnerabilities and protecting resources: Women in Assam, India through the CDRF community groups, created grain banks to protect food security from recurring floods (24 grain banks in 24 villages). Any grain unused at year-end is sold, and money is put into a revolving loan fund. To date, the communities have raised 10 lakh (approximately $22,450 USD) to invest in health, education and livelihoods in their communities.

Need for Innovation Systems and Diffusion channels

For scaling up innovations it is critical to define the role of grassroots women in creating, adapting and diffusing the innovations besides bringing in the key actors in the innovation system together. Grass roots women innovators being more disadvantaged with lack of money, power, education and influence, the diffusion channels need to be created in a way to filling the gap by providing networks and leadership trainings, besides the institutional and public policy support. Most effective grass-roots diffusion channels being media, care should be taken that the diffusion processes are not incremental but fast tracked through policy connect.

Going Forward…

Several of the above mentioned ongoing efforts with grass roots women enable them to further innovate drawing upon their knowledge and practice. It is time to create avenues for building upon the micro credit systems, food security, safe construction and livelihood strategy etc., besides technology application. Establishing principles of standards of accountability, engaging grass roots women innovators as trainers and advisors and open praise and recognition are the few basic first steps in accelerating and mainstreaming grassroots innovations. The challenge is how we drive our sustainable development policy agendas and institutional and financial forms building upon these gender specific grass-root innovations. Networks, and social activism are much needed in meeting such challenges. While harnessing and mainstreaming women's innate power of innovation, deeper understanding of gender power dynamics is warranted.

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Improving the Menstrual Hygiene and Management Status of Women in India

Article

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The reproductive health status of a woman is greatly affected by the quality of sanitary protection and the standard of hygiene maintained during menstruation. In the lower economic strata, women often practice the use of old cloth rags as menstrual materials which are washed and reused several times. These women often suffer from itching and inflamed genitals or abnormal discharge, which is linked to the use of damp rags and inadequate bathing due to lack of privacy. The used menstrual materials are washed in secret and dried in a concealed place inside the house due to which they often remain damp at the time of reuse (WHO, 2002).

The kind of sanitary protection a woman practices depends upon her economic status, cultural and social taboos as well as awareness levels about the feminine hygiene products. Due to the unavailability of appropriate and ample menstrual aids, coupled with attitudinal and social inhibitions, women from the underprivileged sections perceive menstruation on the same level as an illness. This has led to alarming manifestations to the extent that pregnancy is quite often seen as a way to escape from this misery.

The efforts to address menstrual management in school sanitation education have been poor, where the onset of menstruation is one of the factors contributing to girls' absenteeism and dropout rates. Of the 113 million children currently not enrolled in schools worldwide, 60% are girls. There is conclusive evidence to prove that girls' attendance in schools can be increased through improved sanitation.

In India, research and development efforts in the area of menstrual hygiene management have been limited to commercial ventures that are unable to market products that the women living in squalor and unhygienic conditions can afford. Women's menstrual hygiene needs have been gravely overlooked in development programmes and training modules for health and sanitary workers. There is a glaring need to highlight the issue of what women and adolescent girls require for their menstrual needs in terms of materials, education and facilities for management and disposal.

Though many types of sanitary napkins are available in the local markets, their high cost profile and availability suits only the urban, upper end of the consumer section. Less than 7% of the women belonging to lower income groups and those residing in the rural areas use readymade disposable varieties. To encourage the poor women to use sanitary napkins, it is important to make them easily affordable and accessible for them.

It has been seen that availability of ample and affordable menstrual materials leads to not only better hygienic practices by women and adolescents, but also to a radical change in their concepts of dignity, relationships and aspirations.

Beltless napkin in colored cotton knitwear waste

Priority areas include water supply and sanitation; solid waste management; infection control, including medical waste management and improved hygiene in health facilities.

The purpose of this project is to ensure production of standardised, quality assured, hygienic sanitary napkins for rural adolescents and women for menstrual hygiene and management (MHM), for improved health and quality of life of adolescent girls and women and promotion of bio-degradable sanitary napkins made from materials other than wood pulp.

Back of the napkin marked with different colour lines for size variations

The last decade has seen a widening of the sanitation issue to include crucial environmental health related areas of wastewater and solid waste management, particularly in urban and peri-urban areas. Priority areas include water supply and sanitation; solid waste management; infection control, including medical waste Pic.1 Beltless napkin in colored cotton knitwear waste management and improved hygiene in health facilities. Despite the obvious synergy between many of the specific areas outlined in the list above and menstrual hygiene and management, the absence of MHM in the policy debate, in investments and action, is striking. This points to a glaring need to highlight the issue on what adolescent girls and women require to manage their menstrual needs in terms of materials, education and facilities for proper use and disposal. Social marketing and social franchising have been successfully used in marketing of Oral Rehydration Salts and, more recently, for condoms, but these concepts have yet to be extended to the distribution of affordable sanitary products for menstrual management. Women all over the developing world are constrained by the lack of facilities and unavailability of appropriate products to manage their menstrual needs.

Sanitary napkins are the most commonly used menstrual material the world over. However, due to their high cost, women of lower income group cannot afford these and hence use old cloth/rags during menstruation. Thus, to make sanitary napkins affordable for them, there is a need to develop a low cost technology. The option to reuse indigenously available textile waste materials and agro-residues with properties suitable for making the absorbent web can be utilised.

In a sanitary napkin, the middle layer is the key component which absorbs and retains the fluid determines the efficiency of the napkin. This bulk layer of a napkin is a non woven web, made of hydrophilic cellulosic staple fibers like wood pulp, cotton linters, viscose, etc. Most of the wood pulp being used for the purpose is imported and, therefore, expensive. Cotton is seen as a major fiber poised to replace wood pulp, especially in feminine hygiene products where 'less bulky' is preferred and 'thinner is better'.

The high cost of cotton is the reason why it has not been able to replace pulp. Hence, the possibility of using cotton from the low cost knitwear waste is most appropriate for us to achieve value at less cost. The waste of the knitwear sector is typically from fully fashioned garments or the traditional cut and sew techniques. The cost of this cutting and sewing edge waste varies from Rs 2 to 10 per kg.

A technology for producing low cost sanitary napkins by utilising cotton fiber from cotton knitwear waste has been developed and standardised. The prototype of sanitary napkin prepared was tested at the laboratory level and then field tested with women with respect to performance, comfort and hygiene parameters. On the basis of the need assessment survey, variations in the design of the knitwear waste prototypes have been incorporated to suit the requirements of the user group.

The developed napkins have been evaluated for acceptability over three menstrual cycles in terms of functional utility, ease of use, comfort, absorbency and acceptability of design as well as for ease of disposability. The low cost knitwear waste sanitary napkins both in colored and white fiber were found to be acceptable in performance, aesthetics and cost. The cost of the developed sanitary napkins was less than a rupee and their quality in terms of physical and hygiene parameters were found to be comparable to branded napkins. The quality of the developed product has been compared using specified parameters with major brands of sanitary napkins available in the Indian markets.

"You can tell the condition of a nation by looking at the status of its women."

Jawaharlal Nehru

Gender and Innovation Knowledge and Communication Platform

Article

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Background

History is witness to the fact that the valuable role played by women innovators in inventions as also developing innovative strategies has remained largely unsung. For generations, they have adopted and discovered innovative methods to deliver meaning to innate phenomena, very often relating to everyday life. As traditional knowledge is passed on to women from generation to generation they learn to develop a 'theory of practice' around them. This helps them to minimise their work pressures and cope with life's stresses and needs.

Thus, women are known to be the 'scientists at home'. From experimenting with cooking to trouble-shooting, they have demonstrated expertise in dealing with most issues with utmost strength and courage. They constantly analyse life situations, find alternative strategies and multi-task and emerge as a benchmark with an eye for innovation.

Women innovate at several levels – individual, group and community. However, their efforts are seldom appreciated. Countries across the world, especially some developing nations, are deeply ingrained with patriarchal norms that have conveniently sidelined women's work with minor recognition. Not only have they failed to acknowledge the experimental 'instinct' of women but have also chosen measures to keep it under cover. There are several reasons as to why this instinct has failed to attract people's attention, important among them being: lack of documentation of work by women in comparison to men; innovations by women being patented/registered in the name of their spouses; lack of appreciation and supportive environment; and innovations by women have been mostly simple, need-specific and closer to heart which fail to fit into the norms of a market economy.

Sujatha Byravan has highlighted some key reasons for women's absence in the arena of innovation. She explains that 'It is mainly to do with the way innovation is evaluated; who is asking the question and of whom; whether women innovators are acknowledged… It is a fact that in most places women's knowledge and contributions are not valued or validated. Spatial mobility, choice of business and family support are the three main difficulties for women entrepreneurs during start-up. However, once they enter the growth phase of the business, there arises yet another three-fold challenge for most women — acceptance of their authority, networking and trust building, and credibility with their employees, customers and suppliers.'

Need for Gender and Innovation Knowledge Communication Platform (GIKCP)

The International Development Research Centre (IDRC), under their overarching theme of Impact of Innovation Systems, funded projects to eight countries, namely Afghanistan, Bolivia, India, Pakistan, Palestine, Uganda, Vietnam and Zambia. These projects were largely based on different aspects pertaining to Gender and Innovation, Technology and Society. The projects covered different aspects from agriculture to traditional science and reaching up to wastewater management.

A strong need was felt to collate and showcase the motivating work being done in different corners of the world, perhaps through a media that can facilitate sharing and exchange of information, in the form of ideas, best practices and experiences. It was during the workshop organised by IDRC in January, 2010 at India Habitat Centre, New Delhi that project partners felt a need to create a platform to share knowledge and dialogue on varied experiments, innovations and experiences that eight partners has conceptualised.

Development Alternatives (DA), an action research and innovation organisation, facilitated an interaction around the idea of creating an exclusive web-portal dedicated to gender and innovation with an active collaboration of all partners. IDRC appreciated the idea and provided the opportunity to develop a platform to disseminate knowledge and network with organisations working on innovation and women.

Objectives

- Knowledge sharing and establish dialogue among the project partners
- Provide a tangible knowledge base such as articles, essays, case studies, best practices, news, events and other relevant material
- Interacting constantly through the use of new media and generate awareness on various approaches.
- Mapping the role of women in innovation processes and develop a "**theory of knowledge**", i.e. a theory which everybody accepts and holds good to all situation in the area of concern
- Review the lessons learnt, bring out recommendations and conceptualise beneficial policy changes though knowledge sharing.

The Gender and Innovation Knowledge web-portal will showcase stories of a new idea being put into practice, projects of partners and their key findings, profiles of innovators, case studies and links to the organisations and individuals committed to work in the given field. Thus, the vision of the web-portal is to capture innovations initiated and implemented by women for women or innovations that have impacted women's lives in a positive manner. It is a hub of sharing, discussing, and engaging around issues of gender and innovation.

Conclusion

Women hold a central role in the area of innovation mainly because of two reasons: (a) women form nearly half the population of the world; and (b) tapping women's innovation is relevant as for centuries we have missed out on documenting their significant initiatives.

In this context, the gender and innovation knowledge platform plays an essential role in sharing and disseminating a tangible database to capture and mark women's role in innovation. Along with partners' collaboration, it will provide an immense opportunity to share experiences and best practices from one corner of the world to the other. It will be a bridge to exchange information exploring the possibility of replicating best practices in a given context.

This collaboration also aspires to create awareness and eventually reach out to the grassroots through practitioners where innovations are taking place. In the longer run, the platform is dreamt of becoming an important tool in motivating women to think critically about their situations and surroundings and here after bringing qualitative difference to their lives.

Imagine

It is believed that each woman is an innovator, be it the way she creatively manages her budget, gets her child to sleep, prepares a new dish with left over ingredients, observes and changes a way of working to reduce drudgery or adapts traditional knowledge into her day to day life; actions that are rarely acknowledged. Imagine is an attempt to do so and provide opportunities to share knowledge and learn from women and from their innovations and experiences As Helen Keller has said '…only through experiences of trial and suffering can the soul be strengthened, vision cleared, ambition inspired and success achieved.'

Interactions with the partner countries will provide an alternative view of looking at innovation and challenge the stereotype that Innovation is largely a male domain.

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Tilothu Mahila Mandal – Nirmiti Kendra

Team: Ms. Dhwani Shah, Mr. Sudeep J. Joseph & Ms. Vrinda Chopra

Case-study India

The Tilothu Rural Uplift Club was started around the 1930s, when the women were unable to make decisions in their domestic spheres. When the situation did not change for the better, the need was felt for a change in strategy. In this regard, in 1963, Mrs Leela Singh launched the Tilothu Mahila Mandal (TMM) with the help of her husband Mr Bipin Bihari Singh, the local MLA and the then Chief Justice of India, Honourable V P Sinha. Leela Singh was also the first secretary of the organisation.

Currently, Mr Ranjith Sinha and his wife Ms Ranjana Sinha are currently managing the entire Mandal. Under the initiative of Mr Ranjith Sinha, an electrical engineer with a passion for civil engineering, the construction-based activities of the Tilothu Mahila Mandal (TMM) began. Ranjith Sinha envisioned the concept of a 'roof over one's head' as the central aspect of an individual's/family's dignity. Influenced by both the building centre movement and the eco-construction activities taken up by other organisations such as Development Alternatives, the Sinhas set up their own building centre called the TMM Nimriti Kendra in 1991 with aid from the Housing and Urban Development Corporation Limited (HUDCO) and provided training to the people from the neighbouring villages.

The women of TMM received training in constructing precast elements such as Red Brick Panels, Concrete Jalis, RCC door and window Chowkhats, Micro Concrete Roofing, Ferro cement channels and water tanks, Precast Hollow Concrete Blocks, Pocket Foundations (Precast Foundation blocks) and Precasts for columns. TMM couldn't afford to buy the MCR moulds; so they came up with a fixed form made of concrete which could act as the mould while not compromising on the finishing.

" Every mind is creative, every mind is inquisitive"

A P J Abdul Kalam

Objectives

The Mandal was set up with the broad objectives of empowering the women of Tilothu through three major sectors of work - education, health and livelihoods. The TMM broadly runs a school, a college, hospital and several micro-entrepreneurship initiatives, one of them being the building centre model, the TMM Nimriti Kendra, where both men and women are being trained, leading as well as working on several habitat and construction jobs. Broadly, the objectives of the building centre are:

- To help construct low-cost buildings
- To provide innovative low-cost and environment friendly solutions to construction
- To build the capacity of the local people in the area of low-cost construction
- To provide a healthy working environment to those engaged with the centre
- To provide a steady source of livelihoods to those engaged with the centre
- To empower the women associated with the centre

Currently, the centre has trained over 120 women from Tilothu and its neighbouring villages, while retaining the identity of a small building centre. At the moment, only 8 women work at the centre on a regular basis. Women who have married and moved to other places practice their learning and impart the same to other women on a smaller scale in their new homes. Most of the women working here are of the age group between 35 and 45 years.

The TMM has taken up various large projects in the Jharkhand state in association with the Valmiki Ambedkar Awas Yojana . At Ranchi and Hazaribaug, they have constructed around 2000 homes over a period of 4 years at a low cost of less than Rs.200 per square feet. Several governmental organisations from the states of Bihar and Jharkhand have currently requesting TMM to take on more projects. Mr Ranjith refrains from doing so under the banner of the TMM because, 'I want to put Tilothu on the map, but I am over 60 years old and looking for young people to take this up further and make this dream a reality.'

Inheriting a royal lineage, during the British rule in India Mr and Mrs Sinha, the erstwhile zamindars of Tilothu (a large village in the state of Bihar), decided to set up a school in their own living quarters while themselves moving out to a two-roomed facility nearby with seven of their children. They managed to hire some of the best teachers from across the Bengal Presidency and ran the school on egalitarian principles. During that time, Mr Sinha had decided that no governance decisions would be taken without consultation of the local people. The principles of participatory decision making were informally laid down and adopted in an organisation called the Tilothu Rural Uplift Club. The people would make most of the decisions amongst themselves and would come to the 'leaders' only for final ratification of the same. By 1940, when the rest of India was still under-developed, Tilothu had access to electricity, telephones and a road directly to Sasaram (the District headquarters). Post independence, this movement gathered greater momentum with the abolition of the zamindari system. Although the Sinhas were no longer the Zamindars, they became the revenue officers of the land and the people of the land continued to approach them for major decisions.

The women members of TMM were capable of conducting all the activities involved in the making of precast elements. For instance, they made a dining table and bench from the waste materials generated from their work, proving that the purpose behind the building centre of providing eco-friendly low cost housing has ingrained into their daily work.

In this context, the building centre provides a steady source of income for the people working there.

The manager of the centre is another example of the kind of empowerment that women have achieved after starting work at the TMM. Shobhana has been with the Mandal for more than 15 years and is now the project manager of TMM. 'Her dedication to the centre is remarkable... which is why she is now the manager of the place. I can now rest easy, knowing that she is in control of the building centre. She has risen within this centre and used this as a platform to improve her life. We also appreciate her dedication and efforts.' (Ranjith Sinha).

Source: From the Project Report titled Exploring the Potential of Mutually Reinforcing the Role of Women in Habitat Based Livelihood Services. By Development Alternatives, India

Case-study Zambia

Impact of Low-cost Irrigation Technology on Woman: Mweemba Household

George and Anita Mweemba are both farmers who live in Kafue with their three children and one niece. Having studied up to secondary school, both of them take part in the farming activities of the household. George is working part time job with the Zambia Ministry of Agriculture and Anita is the contact farmer of IDE group in Kabweza area.

IDE introduced this type of technology from the 2001 to 2002 era and it was up scaled through the Rural Prosperity Initiative (RPI) programme which started in 2006 (van Wijk, 2009). This is an ongoing programme whose aim is to alleviate poverty of the rural poor farmers of Zambia and Pic.1 Woman operating Drip Kit irrigation is one of its segments. The low cost drip irrigation kit is the micro irrigation technology which was introduced to the rural farmers of Zambia in order to fulfil their aim. They come in different sizes of areas they cover that is, from 200m2 to 1000m2. The complete drip kit comprises of a tank, main line, laterals, micro tubes and a filter. The drip kits were introduced with the hope of reducing the labour requirements. By providing water direct to the plant, adequate amounts will be applied and weed growth will be reduced. This will eventually lead to producing high quality crops which attract the market. There is also a possibility of growing a variety of crops with the drip which in turn improves the smallholder farmer's nutrition.

According to Anita, using the drip kit in her garden has had an impact on the gender relations within the Mweemba household. Before the adoption of the drip kits, they used to irrigate the land with the treadle pump flooding area, which required more than two people because one person would pump and the other would direct the water with the pipe. When they started using the drip kit, only one person was required to pump the water into the tank, i.e., when using either a treadle pump or a motorised pump. In the Mweemba household, usually George pumps the water into the tank. Before using the drip kits, all the family members had to engage in activities like land preparation, planting, fertiliser application, weeding and harvesting. After adopting the drip kits, Anita primarily engages in weeding, planting and harvesting, the latter two activities constituting her major chores because she says that weeds are reduced when using the drip kit. So, her farming activities have been reduced since she started using the drip kit she has more time to do her housework as well as plan for other activities.

Anita and George Mweemba both have access to drip kit but it is the husband who controls its use. They might discuss together on the crops to grow with the drip kit but it is the decision of the husband which stands. According to Anita, George's role as the decision maker did not change after they adopted the drip kit, the reason being that as per their cultural and religious beliefs, the man is the head of the house and makes most of the decisions. Despite the husband being the decision maker in the household, they both have access to credit facilities and both of them attend the IDE training programmes and meetings. Both have knowledge on the operation and maintenance of the drip kits, which explains their consistent use of the apparatus. The money which accrues from farming is used for the benefit of the entire family, paying for school fees, buying medication and food for the family and a portion of the capital is reinvested in producing other crops.

Errata

1. **Source: Kudzai Magwenzi, "An Analysis of Adoption of Low Cost Drip Irrigation Kits in Zambia: A case Study of IDE's Irrigation Technology Dissemination in Kafue and Kabwe areas" MA. Diss., University of Wageningen University, 2011.**
2. **Photo Credit: Page 3, Pic. 1 Source: International Potato Center (CIP)**
3. **Photo Credit: Page 3, Pic. 2 Source: LEAD Pakistan**
4. **Photo Credit: Page 11, Pic. 1: Source: Canadian Physicians for Aid and Relief (CPAR), Tanzania Link: http://cpar-tanzania.blogspot.com/2010/05/micro-irrigation-at-work.html**

The errors are sincerely regretted.