PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS



A Practical Guideline to Successful Bottom up Development: Resettling the Indus

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ABSTRACT

This case study examines the bottom-up development management process of Resettling the Indus by highlighting the key aspects for successful relief and rehabilitation in certain flood and war affected regions of Pakistan. The study focuses on areas affected by the flood of 2010 in Southern Punjab, a region of Sindh hit by torrential rains of 2011 and areas of South Waziristan where war and insecurity have permanently damaged lifestyles and infrastructure. This research explains how in the long run, the villagers' farm surplus can be connected with the urban markets. Resettling the Indus grass root development process explains how these activities brings villagers' economic life cycles back on track, raise the income levels of villagers on a sustainable basis and strengthens the entire scaling-up process.

Keywords: Resettling the Indus, Top-down Approach, Bottom-up Approach, Contractor-Driven Reconstruction, Owner-driven Reconstruction, Material Procurement Price Issues, Scaling Up, Social Business, Relief, Rehabilitation, and Economic Advancement Projects

1. INTRODUCTION

Pakistan being of an agrarian origin, the country relies on the numerous rivers that run through its plains. Given its unique topography, the region has historically seen its share of cataclysms in the shape of flood and natural disaster. The floods that hit Pakistan causing the River Indus to overflow in July 2010 were the worst of their kind in over a hundred years [Mogwanja Carty and Kunugi (2010)]. The impact of the floods affected over twenty million people, damaged over 1.8 million houses, and killed and injured roughly two and three thousand people, respectively. [National Disaster Management Authority (2010)]. These floods caused losses worth Rs 855 billion, of which Rs 429 billion was endured by the agricultural sector alone. The heavy monsoon showers of 2011 greatly affected Lower Sindh and Eastern Baluchistan, affecting over 9.5 million people and causing Pakistan a loss of approximately Rs 240 Billion [National Disaster Management Authority (2011)].

These figures do not come close to measuring the actual damage to human lives due to the resultant epidemics that the country had to deal with post floods. In areas like Khyber Pakhtunkhwa, Gilgit-Baltistan, Baluchistan and Punjab, there was also the high risk of hypothermia due to extreme weather and lack of adequate shelter. [Khan (2011)]. Floods and rains and their resultant loss of infrastructure are not the only disasters that plague Pakistani territories. Apart from the floods, the ongoing war on terrorism since 2001 has spread like a contagion into settled areas of Pakistan that has so far, cost the country more than 35,000 citizens, 3,500 security personnel, destruction of schools, hospitals, houses and infrastructure as well as the internal

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migration of millions of people from parts of Northwestern Pakistan. In the ongoing war on terror, the Pakistani economy has faced a loss worth \$67.93 billion between 2001 till 2010 [*Pakistan Economic Survey* (2010)].

In order to improve standards of living on a sustainable basis for the people, the mobilisation of the community is needed to be exercised at all development stages. This Bottom-up Development concept refers to community participation, along with a team of external facilitators to rebuild their communities through mutual consensus and the participation of all, benefitting multiple socio-economic strata's concurrently. [Sirivardana (2004)]. According to Haque, participation can be perceived as a process where one tries to gain access and control over resources which can help rural communities improve their standards of living (2004).

Resettling the Indus

The core ethos of Resettling the Indus (RT Indus)¹ is: "you give a man a brick; you make his day; you teach a man how to make bricks, you make his life." The entire resettling process carried out for disaster-affected people by RT Indus revolves around community development and utilising the resources already available to indigenous populations. According to Hussain, resources along the Indus can be found in sizeable quantities, more than enough to sustain those who need them. It is the adequate circulation of resources where one finds shortcomings and needs to be addressed (1991).

RT Indus's focus not to create a nation of beggars, but a land of self-sufficient independent individuals by training them to build back their homes, their careers and their self-esteem. It was largely driven not just by the money of donors, but by the enthusiasm of the youth of urban and rural communities who came together to reclaim and rebuild what had been lost, putting the needs of others before their own.

In that spirit, the floods which hit Pakistan prompted a group of volunteers to go into the field to help with acute disaster relief in the pilot phase of the project in September 2010. Both authors were part of these missions where surveys were conducted and relief, rehabilitation and cottage industry efforts were implemented. The participant researchers [Wignaraja (1991)] have the advantage of generating and testing hypotheses in the field to help in the generation of a theory [Wignaraja (2009)]; and conducting further research on the basis of that theory to benefit both their academic fields as well as the communities they work in. The RT Indus project is an example of a development intervention in local communities. RT Indus approach involves

¹RtIndus is not just a name, but an ideology which is nothing without the people who have been actively involved since its inception, and a part of the reason the project has achieved so much to date. They include Hydr MI, Hala BM, Bilal K, Salman T, Imran A, Abdul RH, Nayyer AD, AJ, Wajid, Yaar M and over five hundred masons, brick labourers and construction workers without whom there may have been no reason to document this idea.

a process that requires engaging the local community in all aspects of the rehabilitation process by creating backward and forward linkages, such as producing their own brick to use in the construction process, utilising locally available materials and labour and facilitating the development of indigenous social enterprises by linking produced organic goods and handicrafts to the urban market. [Howse and Salter (1991); Sobhan (2010)]. Apart from shelter, this technique provides local communities with employment opportunities, which result in income generation as well as economic advancement opportunities while reconstructing their own houses [Negron (2010)].

After the South-East Asian tsunami of 2004, Da Silva and Batchelor observed that in order to rebuild the economy and infrastructure, an effective method involved dual participation of a beneficiary as well as benefactor in all stages, from beneficiary identification to the actual reconstruction of houses, school and drainage systems with the consent of the community and interveners alike (2010). The development model that was implemented in Muzaffargarh, Punjab, Pakistan as the pilot project started with in-depth surveys by RT Indus volunteers. This gave way to community meetings between local residents and external facilitators, and led to extensive discussions and the rebuilding of entire communities in a process that was of mutual consent and optimal benefit to all parties involved as well as cost efficient. Built into the project itself was a dynamic of growth for scaling-up. The impact and efficiency of such an intervention process was found to be very high; given that the work was carried out by the villagers in their village, with the expertise provided by external facilitators, as also seen in El Salvador after the 2001 Earthquake [Calvo, Herreros, and Mata (2010); Schilderman (2010)]. This kind of rebuilding also helps as it works towards community cohesiveness and self-sufficiency along with helping others less able or privileged, resulting in a faster psychological healing process [Khan (2011)].

Along with providing adequate housing facilities, the organisation runs on a holistic schema, also focusing on education and health while simultaneously providing employment locally for the residents of the area, which makes it easier for them to earn a living and save more. The free education supplied by RT Indus schools has also helped in generating employment opportunities for teachers in their villages instead of seeking jobs in urban schools. In addition to creating awareness of important issues including population control, more access to education has given local populations the opportunity to identify and train future internal facilitators for further expansion opportunities. Furthermore, Availability of medicines at a lower price than the market has improved the health of local communities resulting in increased marginal productivity per labourer and lowering the medical expenditures for the villagers. RT Indus has further expanded the social mobilisation process by assisting the flood and war affected personnel in starting small economic advancement projects.

The paper is divided in six sections. Section 2 briefly gives an overview about development theories, Section 3 Discusses scaling-up a small NGO, Section 4 explains RT Indus methodology, Section 5 shows discussion and Section 6 ends with concluding remarks.

2. DEVELOPMENTAL APPROACHES

Top-down Approach

The top-down approach is a developmental theory which focuses on resources being controlled at the hands of authorities who are responsible for all major decisions and allocation of aforementioned resources. It consists of three major components. The first of these is central planning, which encompasses the control and coordination of the economy as a top-down process, meaning from the power centres outwards, filtering towards the proposed projects. The second component is Industrialisation and expansion of the modern sector through the establishment of factories and enterprises, with a focus on specialised education and infrastructure development. This serves as a means of rapid economic growth and takes off, such as development of the IT industry. A third aspect of the top-down approach is assistance from developed countries to bridge the savings of foreign exchange and to transfer international technology to developing economies through developmental projects, special trainings of governmental agencies and the sharing of information and resources for optimal utilisation of available assets. This approach however is not practical to be implemented in all contexts. As 63 percent of the Pakistani population is rural [World Bank (2012)], such a design does not cater to the needs of the rural classes. This model allocates power to a small, privileged class who in turn are responsible to meet the needs of the general population. The filtering down process of resources holds many leakages and often the money expected does not make it to the hands of those it was intended for [Hussain (2004)]. Therefore, in countries such as Pakistan, this approach has failed to be beneficial for the masses. [Zaman (2002)].

Bottom-up Approach

The bottom-up approach is more socialist in its conceptualisation, establishing the importance of the social dimension of development. It focuses on sustainable development, with particular attention to socio-economic issues like poverty reduction, socioeconomic growth, gender equality, emancipation of the weaker sections of society and environmental conservation [Zaman (2002)]. This approach targets those sections of rural and urban areas where attention is required towards the socio-economic and infrastructure development. This ideology involves the participation of the community in the improvement process.

Some practitioners in the field of successful implementation of this ideology in Pakistan are the Agha Khan Rural Support Program (AKRSP) and the KASHAF Foundation, focusing on rural and urban development respectively. Dr Akmal Hussain is a developmental economist and an action researcher who has successfully implemented and documented participatory development, an off shoot of Bottom-up Development in South Asia.

According to Dr Hussain:

"Participatory development is a process which involves the participation of the poor at the village/Mohalla level to build their human, natural and economic resource base for breaking out of the poverty nexus" [Hussain (2006)].

The researcher also says that the participatory development process aims at developing a group identity, training and developing skills and generating local resources to achieve a localised accumulated capital process for developing areas.

Being involved in a wide range of rehabilitation activities on ground in different regions of Pakistan, the authors conclude-based on their experiences—that Bottom-up Development is a systematic learning process which develops through establishing a mutual understanding between the community and professionals through dialogue to accommodate the needs of those on ground and focuses developmental efforts according to specific requirements. This process then starts controlling future rehabilitation by paving the way for further work and Facilitates expansion on the basis of relationships established at the ground level. Once dialogue has been established, to ensure a holistic approach, the establishment of cottage industries is important as it helps facilitate the further growth of the community through a solution-based approach to their socio-economic problems as well as aids such populations in becoming financially autonomous.

2.1. Contractor-driven Reconstruction (CDR) and Owner-driven Reconstruction (ODR)

The bottom-up development research technique by RT Indus is an alternative to bonded contractors. CDR is where an organisation procures a contractor for reconstruction purposes in rehabilitation. RT Indus hires all the labour from the villages and trains them in all aspects of raw material production and construction. Previous attempts at such interventions have found construction to be more timely, efficient and of higher quality, as locals are building back their own homes, in the same place they were destroyed and with the same individual differences or personalisation they prefer, which CDR cannot cater to [Alam, ND; Lizarralde (2010); Ratnayake and Rameezden (2008). Another advantage of ODR is that every region has its own culture

and norms which reflect in their housing and living practices and differ according to their topography. Contractor-driven reconstruction builds in mass quantities and does not give emphasis to local or individual culture [Barenstein and Iyengar (2010)]. By eliminating the contractor or middleman and reconstructing on the basis of local labour, one also eliminates the costs incurred by profits and administration expenses and ensures the high quality of production as everyone working has an ulterior motive of reconstructing their own houses [Negron (2010)].

CDR allows the organisation to focus their efforts on fund raising and other activities and externally sources the actual rebuilding to contractors. Each approach has its pros and cons. Some researchers believe that ODR sometimes fails to deliver effective results to those who are most vulnerable, such as the poorest of the poor and households where women and children are heads of family as they do not have access to external economic and physical resources. Even the elderly, disabled and minority populations sometimes suffer [Hidellage and Usoof (2010)]. If an NGO hires a contractor who further hires subcontractors who are responsible for acquiring masons, carpenters, raw materials and all other assets, each sub-contractor gets a share of the profits, and this top-down approach trickles money away from the actual ground work. Even materials are more expensive when these communities are aware contractors are hired to rebuild. The sub-hiring required in this approach also makes the contractor many times removed from the actual ground realities. Furthermore, no real checks can be kept on the market value of materials which may be over priced at any part of this chain of authority for personal gain [Fateh (2004)]. A shortage of external facilitators can, therefore, affect the quality of construction as no one is available to provide on-ground training, site supervision and quality control [Silva and Batchelor (2010)].

Despite this critique, Silva and Batchelor also stated that Owner-driven reconstruction has its own flaws, as it is slow to start and slower during reconstruction. The mobilisation of communities and their consensus in house design and village planning tends to take time, as experienced by Resettling the Indus as well. Sometimes, the pressure from donors is such that unable to withstand time constraints, many agencies resort to CDR rather than wasting further time in research and development in the villages. They believe CDR is more time effective, given the houses are built by experienced personnel. The residents can also focus on other aspects of rehabilitation, such as the recovery of their livelihoods. Silva and Batchelor, however, found that the best possible intervention involved community participation (2010).

Hassan (2010) believes that building relationships with the community is an important aspect to ensure better housing quality in ODR programmes. The availability in such areas of professionals to guide and train is scarce as most conventional architects opt to not work in low income areas. Therefore, in

order to maintain the quality of construction, community members can be trained to provide residents with technical advice regarding reconstruction. Resettling the Indus managed to adopt an owner driven reconstruction program based on first establishing a dialogue with the community and training them in construction techniques with the help of experienced architects. Though in the onset, the project took time to take off in few regions, this approach proved more feasible and effective in the long run, resulting in community cohesion. Construction started with those populations unable to work for themselves, such as widows, elderly and orphans and according to socioeconomic status, moved upwards from there. Fifty percent of the construction costs were recirculated as labour wages for the house owners and other labourers from the community. Quality of housing remained constant and home builders added details to each house, making them unique according to their preferences, another aspect which would have been over looked in the CDR process.

2.2. Material Procurement Price Issue

When disaster occurs, the demand for local materials shoots up which affects the cost of local construction materials and labour. Local industries are adversely affected with supply shortages, given the high demand for construction materials as well as labour; the higher demand results in the procurement of materials at inflated rates [Barenstein and Iyengar (2010); Hidellage and Usoof (2010)]. This is why production of raw materials and training of local labour proves to be cost-effective to optimise the construction process.

The owner-driven approach is largely dependent on availability of materials in the local market in order to boost the local economy. Cash grants can help beneficiaries procure their own materials but may also increase prices [Aubrey (2010)]. Keeping that in mind, the authors found that if an internal facilitator buys materials for all beneficiaries, it proves cost-effective due to bulk buying, and ensures a confirmed supply for all beneficiaries. Dealing with a small group of internal facilitators, instead of individual buyers for procurement, may prove mutually beneficial, allowing buyers to extend credit, build trust and exchange materials cutting the net amount required per house [Calvo, Herreros, and Mata (2010)].

All the materials for the construction of schools, houses, dispensaries and other structures are purchased from the local districts. RT Indus manufactures its own bricks which is the major portion of the total cost of construction. This backward vertical integration helps in lowering the construction cost and is not subject to supply-demand economics, if purchased from outside sources [Howse and Salter (1991)].

The core principle of ODR is to focus on the economic advancement of a region during and after the reconstruction process, to ensure financial autonomy of the community. However, Lyons argues that when one works on a model that integrates construction with income generating techniques simultaneously, it may cause issues because the facilitators may be involved in overseeing multiple projects at a time and might spread themselves thin. He argues that this is a hidden disadvantage of a system which otherwise gives local communities' autonomy but may hinder the process while waiting for release of funds or access to technical skills and training (2010). Therefore in order to prevent such confusion and delays, one must ensure that chosen facilitators know their role from the onset of a project so that the burden does not overwhelm them or hinder rehabilitation in any way. Maximum responsibility needs to be given to the community to help the community grow and manage all project initiatives including civic buildings in the short and long run to ensure effective community growth and eventual self-sufficiency [Sobhan (2010)].

3. SCALING-UP

The existence of non-governmental organisations (NGOs) promotes a comparative advantage for the population as a whole. NGOs, with their focused intervention methods have the advantage of being present on ground and able to cater to individual requirements based on house-to-house surveys and other such small scale interventions which become harder to implement by governmental agencies [Robinson (1991)].

One important factor which is critical to the scaling-up of a small NGO is quality leadership. The authors believe that effective leadership is an integral factor to the effective running of an organisation. In order to maximise their potential, the leader should be a trained professional in a profession pertinent to the organisation's goals. When an organisation is run under effective leadership, the leader eventually trains their second-in-command to function just as effectively in the running of the organisation; as well as trains qualified village activists who take over the running of on-ground responsibilities, leaving the leadership tier free to scale up and expand their organisation to different regions [Hussain (1999) and Robinson (1991)]. Another important factor is to ensure the organisation has a set of written rules which cater to the expansion process to ensure policy adherence. It is important that the essence of the organisation is not lost in the process as it helps promote trust with local populations as well as reduce conflict and increase solidarity amongst workers [Crowley, et al. (2007)].

Most organisations found that in order to scale up a project to higher output, building in clusters of ten to twenty was the most efficient method while expanding the area of intervention. While this method is efficient and may also result in cost effectiveness, it generally does not take into consideration the amount of time project completion requires, and generally larger projects lose on time efficiency due to the short comings in management on the part of internal facilitators [Da Silva and Batchelor (2010)]. Resettling the Indus agrees with

the model as their initial work plan was of a similar nature. They also found that in order to optimise scaling up, adequate training of internal facilitators was important. Therefore, training of internal facilitators is imperative and the ratio of external to internal facilitators should always be balanced, meaning responsibilities once executed by external facilitators should be handed over to internal facilitators to allow the former to focus more on the expansion process [Sirivardana (2009)]. Scaling up generates employment opportunities and the Authors believe that in order for scaling-up to be most efficient and beneficial to a community, it is vital that our rural areas scale up with labour-intensive social production until all local labour supply is completely absorbed [Wignaraja (2009)].

Given the developmental nature of Pakistan and the multiple disasters—man-made and natural— that have been more frequent in recent years, funding is dependent on trends and may run dry with the cessation of media hype. Therefore, in order to ensure the continuation of work, an organisation needs to focus on self-sufficiency from the commencement of a project. Not only does this ensure continuity in the long run, over the period of a few years, if funds do keep coming in, a certain percentage of self-sufficiency helps ensure those funds can be utilised for the scaling-up of the project, instead of being solely dependent on external funding for productivity. One should also not be solely dependent on just one external philanthropist to fulfil all their needs as limited resources will also limit scaling-up opportunities.

Setting up cottage industries by RT Indus in the intervention regions helped in providing further employment opportunities for the affected populations. Monitoring of social business in the long-run is very important because if the profits generated from the economic advancement projects are not utilised by the local rural population towards the primary goal of the organisation-rehabilitation, as in the case of Resettling the Indus then the intention behind the social business becomes redundant and the scaling up process deviates from its initial goals.

4. METHODOLOGY

Resettling the Indus is an organisation which came into existence following the floods of 2010. It started its interventions in the Punjab region and is currently functioning in Punjab, Sindh, Waziristan and a short-term training intervention in Baluchistan

Initiation of all projects is done by a detailed survey on the basis of which individual households' landholdings, cultivable land, earning members and asset ownership such as livestock and transportation facilities-are determined. The surveys are then analysed by the associate and the field-based site engineers, architects, economists among others. On the basis of these findings,

construction starts from the neediest strata's of the community to maximise the impact of the resettling process [Howse and Salter (1991)].

While RT Indus is not affiliated with any political or religious group, the importance of collaboration with local governmental bodies is imperative to help accelerate the process of infrastructure development [Crowley, *et al.* (2007); Bersnyan, *et al.* (2007)].

In order to simplify understanding, the project can be broken down into three stages, namely Relief, Rehabilitation: Community development and Cottage Industry and Infrastructure development.

4.1. Punjab

Village Qurai is located two kilometres away from small town Shah Jamal in Muzaffargarh district. A flood wave damaged everything in the village: 33 houses were destroyed, a poultry farm and a small carpet-making business also perished. The infrastructure and electricity broke down. Qurai's livestock and humans were left dealing with the adversity of destruction and water borne diseases.

On average each household has 2,000 square yards of cultivable land on which all seasonal crops can be produced. They also have the capacity to store food for six months. Every family, on average, possesses two buffaloes. Women work in the farms while men used to work in carpet factory and on daily wages near Shah Jamal. The RT Indus intervention in these villages began right after the floods in August 2010 by starting the relief program.

The flood of 2010 destroyed 22 houses in Village Bhattiwala. Here, every family has about 20,000 square yards of land and the whole land was devastated and rice and cotton crops effected. RT Indus has worked in more than 50 villages, and has found this village to be the most economically stable in terms of land ownership, land fertility and livestock as each family on average has 6 to 7 buffaloes. The villagers sell surplus milk to the markets and have crop storage facilities which are sufficient for a year. The village owns their own poultry farm and vegetation facility, saving them money over the course of the year.

Village Rindh is 4 km away from village Qurai, the field headquarters of RT Indus, Punjab. Thirteen houses had fallen during the flood. Each family has about 1,500 square yards of land. Most of the land is affected by salinity and is non-cultivable. A very small portion of the land is fertile where fodder is grown. On average, each family possesses one buffalo and one goat. All the families have to purchase food items from the surrounding villages, which consumes the major part of their wages. Villagers seek employment on a daily basis, and have no permanent jobs. The RT Indus intervention started in September 2012. The villagers spent the time from July 2010 to September 2012 in the open air, unable to afford rebuilding what they lost in the floods; where they lived with barely rudimentary necessities.

Relief

The Relief mission started with providing food and rations, winter clothes, blankets. A medical camp was also organised and free medicines were provided to Qurai and neighbouring villages. Since the relief mission Qurai has been the field headquarters for the team of external and internal facilitators in Punjab. The pilot project was started in November 2010, as before this time period, the soil was not strong enough to bear the load of a constructed structure.

The initial funding to support the relief work came through the fundraising efforts of students and teachers of Beaconhouse National University (BNU), Lahore, Pakistan and later sustained itself on the basis of donations from various sources. Donations were also generated from social businesses by selling the organic products of the villages in the urban markets. The work policy was executed on a purely voluntary basis for the team of external facilitators. All leisure time were redirected towards office work of RT Indus and the weekends were utilised for field work, in order to allow occupational obligations to exist alongside those owed to the community. This has been the mode of operation of RT Indus since 2010.

The resettling process included a multidisciplinary intervention, involving volunteers from all walks of life, including architects, psychologists, software engineers, economists, accountants, journalists, students, the army and many others. Socio-economic surveys were conducted by economists so that RT Indus could know the basic socio-economic problems that locals faced. Psychologists were simultaneously conducting individual counselling and focus groups and were helping the villagers to cope with the trauma of disaster through being productive and focusing on their immediate priorities, eventually rebuilding their own lives in the process. The architects used Google-Maps for assessing pre and post-flood maps and understanding the damage to the area and then they conducted technical surveys to understand the structural reasons behind the cause of houses damaged and destroyed.

All decisions and assessments of personal well-being were taken first by conducting focus groups, then detailed surveys focusing on damage as well as ownership of assets to assess the socio-economic level of villagers and develop policies accordingly were conducted. Later, this information was further enhanced and reinforced by forming a more sophisticated method of village meetings by area where the input of the villagers and interveners were discussed until mutual consent on progress plans were reached.

On the basis of surveys conducted in about twenty villages and a thousand houses, relief packages and hygiene kits were distributed as well as four medical camps conducted to start the project off.

Rehabilitation: Community Development

Understanding the political economy of a village was one of the major concerns, the understanding of which was vital in order to make village level communication successful. The initial approach was to make a model village so that people who wanted to focus on welfare and reconstruction of the damaged villages could follow the example. The initial plan included the building of a civic structure to reach an optimal method of construction and cost-effective acquisition of resources through mutual consensus of the villagers and architects.

After taking a consensus based decision with the villagers of Ourai, Muzaffargarh district, RT Indus decided to build a dispensary on land donated by a local villager as well as a house for a local widow in the neighbouring village of Sandheela. These two buildings were part of the pilot project. In Qurai a public building was constructed at first, which was a dispensary. This building was utilised to mobilise the entire community. The architects trained the local village labour, and taught them the technical skills of brick making and construction. They constructed a building for community for which they were paid in the form of wages and salaries, twenty percent above the market rate. While paying daily wages above the market rate was an opportunity cost in the long run as more houses could have been built with donation money it ensured employee loyalty and dedication towards community rebuilding. It also allowed the labourers to rebuild their economic base, which had been destroyed in the wake of disaster. The market rate of labour was also believed, by the economists, to be exploitative and insufficient to cover the basic daily expenses of families in the village, which is why it was increased.

Building a public building first under the umbrella of owner driven construction helps in pacing up the social mobilisation process. The entire village community learnt technical architectural skills at one place. The maturity in skills helps villagers in building crafts that they can later apply to their own dwellings [Fateh (2004)]. The owner driven construction of public building injects a sense of ownership. The villagers take more responsibility of the maintenance and running of the building. The entire village community interaction with the team of external facilitators helps in teaching the external facilitators more about the village culture and about the villagers who are more committed, who can be part of the bigger picture of the long term development management process. This way villager driven construction becomes a two way learning process [Fateh (2004)]. The experience of RT Indus shows that honest, competent and devoted internal change agents from the villages are critical when it comes to scaling up and multiplying the development process.

On the basis of mutual consensus, the method of owner driven reconstruction by using the sun dried mud bricks rather than fire baked bricks was proposed [Faateh (2004)]. Structural adaptations included the construction

of houses that have heavier foundations and lighter roofs through the use of bamboo and straw. It was decided to construct a large brick manufacturing yard and to run it. It was also decided that structures would be built back exactly where they fell, as the cost and relocation of the villagers to a model village at a distance from their lands and livelihood seemed impractical [Barenstein and Iyengar (2010)]. Most houses were rebuilt at the exact same coordinates with a few exceptions which were reorganised during cluster planning to ensure structural reinforcement and well as rebuilding on higher ground. An interesting factor was all trees and foliage existing on ground was factored into the blueprint of the house instead of being destroyed, making the building process as environmentally feasible as possible.

It took two months to complete the pilot project as an exhaustive location assessment was to be done at each level of development. The pilot project was an employment opportunity at the doorstep of the villagers; which minimised the costs of living away from home, allowed on-the-job training and proved lucrative for the community, especially as the methods implemented were more labour intensive than most construction initiatives.

The construction was divided into eight processes, and eight levels of training; checking the soil condition of the village, brick making, the laying of foundations and their water proofing, the building of walls, the laying of the roofing structure, the roof laying process, wall reinforcement and finishing in three stages and final finishing of doors and windows. By bringing together teams from the cities with teams of affected village populations, the intervention process was affected in many unique ways. The surveys ensured those most needy were provided with homes first [Robinson (1991)]. By identifying relatives and extended families, building in clusters became easier and was an efficient method of cost deduction. The surveys also helped plan short and long term goals as well as improve construction methods based on damages incurred. By building in collaboration with the villagers, the architects learned new indigenous methods of efficient construction and the villagers learned skills such as stronger bricks, laying foundations, keeping a decentralised accounting system [Hussain (2006)] and the importance of paperwork.

The advantage of participatory researchers and community workers on ground was that each region RT Indus participated in had a modified intervention structure based on the individual requirements of the region and residents. For example, while in village Mochiwalla, a complete rehabilitation map was drawn, with focus on housing, underground sewage, boundary walls latrines, a nearby school in Rindh and a community mosque, in village Qurai, the focus was on housing and community development through the dispensary, women's vocational training centre, school and a small mosque for field workers. In village Qurai, the focus was also on personal growth and the development of cottage industry through apprenticeships, rebuilding the carpet factory, setting up a gurr mill for molasses, harvesting wild honey and other such interventions.

Cottage Industry and Infrastructure Development

A part of RT Indus' initial methodology involved focusing on social enterprise development to eradicate poverty and ensure a steady source of income for the villagers. This endeavour was started off with building a small mud-brick manufacturing yard on donated land. RT Indus also introduced a mud-brick compression machine, to introduce a method of making stabilised soil bricks which was called Bhatta Jr. This capital intensive mode of production was capable of compressing six bricks at a time. After numerous experiments, RT Indus reverted back to labour intensive methods of brick production in order to ensure the absorption of maximum labour into the construction model in order to generate employment opportunities, which is important as Negron believes that the most important impact of long-term participation should be on employment generation and increasing the family income [Negron (2010)]. Today, RT Indus has fifteen brick manufacturing yards located at various locations in the Muzaffargarh area. The idea of distributing this mobile business to different areas helps cut down on transportation costs, which greatly lowers the cost of material acquisition and transport needs can be met by cheaper transportation methods such as donkey and buffalo carts, eight of which are employed in use by the organisation in Punjab alone.

The dispensary built on a donated land as the first civic building was not just a model building used for training workers but is a fully functional dispensary as of February 2011. It caters to the basic medical needs of more than ten villages in the surrounding areas and dispenses medication at rates lower than the retail rates available in the local market. The dispensary is running on a self-sustainable model and has greatly improved the general health as well as controlled the outbreak of epidemics in the region.

RT Indus engaged the local community by building a school in village Qurai also on land donated by the locals, which caters to over 200 students of and employs four teachers and a principal. Today, RT Indus has two functioning schools in Punjab with locally employed teachers, catering to students from over fifteen villages. They have scholarship programs to train their students in local skills as well as fulfilling their educational needs. The brick-making enterprise, schools and dispensary all work to further enhance inter-community participation.

The villagers in the region proposed that once their economic life cycle was back on track and if shelter, free education and medicines were to be given, it would solve most of their problems. Cottage industry was the next priority on the list. Such social businesses [Yunus (2010)] would focus more on solving the social problem of shelter after calamities, education and adequate living facilities from profits generated in the shape of donations by selling their organic products like honey, wheat, eggs, etc.

Given this proposal-which had also been discussed by the RT Indus team, a poultry farm, molasses making set-up, and the sale of corn flour, organic vegetables, spices and honey were proposed and worked upon. Everything from labour to packaging and output was procured from the villagers and the finished product sold in the cities. The profit on sales after the deduction of labour wages and other expenses was reinvested into the community as an alternative to donations. This made the entire development process not only self-built and self-managed but partly also self-financed. The social business process [Yunus (2010)] did not just benefit the locals in the form of daily wages for labour and employment opportunities in the manufacturing and packaging process, it helped generate revenue as well. The demands of the villagers were never to improve their own financial conditions by claiming a profit share, in fact the revenue generated was allowed to flow back into the social structure in the form of raw materials and labour wages to help the rebuilding of other regions, manifesting a practical working example of the sharing and caring of resources [Ali (2004)].

Given the structure of the organisation and its youth, donations were at times few and far between. At times like these, local industries helped supplement the required cost of development, sustain on-ground initiatives and market the idea of the organisation in cities to potential donors, serving multiple purposes, allowing the villagers to gain confidence [Sirivardana (2009)] in the workers and serving as an example of practical and sustainable cottage industry initiatives.

4.2. Sindh

The village of Kot Ghulam Mohammed is located in district Mir PurKhas, a five hours' drive from Karachi, the capital of Sindh, Pakistan. The village was under five feet of water owing to the torrential or monsoon rains of 2011. This destroyed almost everything, from the electric system to infrastructure, roads, crops and more than 57 houses. The entire farm surplus is possessed by the village landlord as he owns the entire 350 acres of land. The landlord supplies land, seed, fertiliser, and pesticides and assures the availability of water for fields for the farmers who work on the lands on a crop sharing basis. The labour of the villagers brings them a fraction of the total Gross Village Product (GVP). Most of the houses in the village were destroyed, which is not surprising given their construction, as they were built of rammed earth and twigs without any foundation support, and on low land. Each region has a different language of architecture and that was taken into account when construction started.

Relief

In Sindh, RT Indus did not focus exhaustively on the relief component as in Punjab as health preventive measures were taken by the local landlords, vaccinating their villagers against epidemics such as Malaria and providing basic

ration supplies for their food as well as clothing and plastic sheets for shelter. The villagers were also self-sufficient and relocated to higher ground, building temporary shelters of entwined twigs to shelter their families and livestock. Photographic surveys and psychological interventions took place, to gauge the level of trauma faced by those who lost their homes. Detailed architectural surveys were taken of five villages but reconstruction had to wait as the water table and salinity was high, and the water had to recede before interventions commenced.

Rehabilitation

The architectural language was more indigenous to Sindh but the basic principles of RT Indus still held; to build sustainable structures through community involvement. The soil was not ideal for brick-making so neighbouring villagers donated land to transport soil off to take to the brick manufacturing site. In this region, initially the brick makers were women. Construction commenced with a civic building which was a school. The building took five weeks to complete, with sloping roofs instead of flat, and more rounded structures. Currently, more than 150 students are enrolled and have access to a free education.

The culture in Sindh is more diverse, with multi ethnic and multireligious populations living in the same village. RT Indus arranged a village meeting for community mobilisation. The community meetings were a platform where the villagers and their internal facilitator identified the 12 neediest families in the village which belonged to different castes and religions. After selecting the first twelve houses to build, RT Indus established a brick manufacturing yard on donated land. Construction materials were purchased from the surrounding areas. This helped in resettling 12 families in their houses. Each house has a shallow trench around it for draining rain water away from the structures, ensuring their stability in following rains.

Cottage Industry and Infrastructure Development

While the Punjab project is one of the more mature projects of Resettling the Indus, the Sindh project is still in its teething stages. Alternate sources of income have been introduced to improve the standards of living of the villagers though the production of bricks as well as training in construction. A cook was employed to run the kitchen for labourers which was another employment opportunity for a widow. The school has hired two teachers from the local village; the site engineer has been trained to supervise all internal dealings on ground. A carpenter makes doors and windows to order here, the local market being not as well stocked as those near Punjab. All other materials are bought from the local market, boosting local economic growth.

Currently, research is being done to set-up distribution of organic vegetables, spices and honey, along with embroidery and other handicrafts to the cities for generation of income for the further growth of the project in this region.

4.3. Waziristan

As with each region, the operations in Waziristan are slightly different given the local circumstances. Limitations in this region included unavailability of raw materials and the inability of frequent travel on site by the team. The project's site engineer was initially a fully qualified architect from Peshawar, living on site and operating with the assistance of the Army as well as locals.

The village KaluRaghzai is located in South Waziristan. It has a total population of a thousand people, and a hundred houses, of which sixteen were destroyed not once but three times since terrorist attacks after 2001. The Pakistan army evacuated the population of this village from their houses in 2003. Terrorists took over their homes and they were forced to hide in caves near the village. The army then bombed the area to kill and wipe out terrorists from the village. The inhabitants of the village migrated to other parts of the country. Upon their return, they met total destruction and debris. They had to reconstruct the ruins with their own savings. The villagers finally settled in when the army again evacuated the place in 2006, razing the village once more. The people once again built back their houses in 2008 with their own savings, now running thin. This story of destruction and reconstruction did not end there. In 2009, the army evacuated the place yet again, and in 2012; RT Indus was contacted to rebuild the houses.

On average, each household has 3,500 square yards of fertile land. They get free seeds and grains from the Army, from which they produce wheat, rice and vegetables. They have fruit gardens and they sell their farm surplus in cities. On average, each family has three buffaloes and two cows. They have no direct water supply, so they meet their needs by storing their water in vessels and make-shift tanks, which they fill from the canal passing by the village. This village has two shops, from which day-to-day basic necessities are purchased; it also has a connecting school where the village children go to study. The village has limited access to transport as only four wagons leave in the morning and return after 4 p.m. Out of the total construction cost, 50 percent was consumed in paying labour wages.

The village of Kazakas has a total population of 100. As the previous village, some houses here were also destroyed thrice during air strikes. The villagers fall in the lower socio-economic strata, as they do not have any fertile flat land to cultivate in this mountainous region. Every household has a small shop, set- up by the Army, selling similar products. Therefore, where demands for their products are very less, they are unable to generate a sufficient income. This village is isolated due to its location. All food items and purchases come

from Taank, which is a small town 120 kilometres from this village. The route to the village is dangerous as there is no proper road, therefore only camels and donkeys can be used to transport goods. On average, each family has one buffalo and one cow. The village is surrounded by a thousand square feet of land; water for daily use is carried up 700 feet to the village. RT Indus reconstructed 7 houses consisting of 21 rooms. RT Indus also added kitchens, washrooms and verandas to their reconstructed houses. On average two persons participated in reconstruction of each of the houses.

Relief

As earlier discussed, most of the relief efforts were handled by the Army, as were initial surveys and distribution of basic necessities. When the RT Indus team arrived after exhaustive security measures the team of external facilitators showed the villagers the history created by RT Indus in South Punjab and Interior Sindh through images and videos of the work to introduce them to the concept of participation and rebuilding their own lives and community. This step was necessary to earn the trust of the locals, as given their past experiences; trust was not something they were very forthcoming with.

Rehabilitation

The external facilitators observed that trust was something that could not be established till the locals saw results in the promises made to them. The best way to accelerate the trust process was to start with construction as soon as possible. In order to ensure speedy rehabilitation, an architect was brought in to live on site with the locals, he spoke the local language, Pashtu, and interacted with the community not just at construction level but also by setting up a night school for those heads of families who had to take up responsibilities and leave their education in their childhoods to provide for their younger siblings. These night schools help boost the self-esteem of the locals, which helps them learn and grow, allowing a holistic rehabilitation of structure and the community as a whole.

Cottage Industry and Infrastructure Development

With the establishment of two night schools for day time workers, a vocational training centre is planned to train locals in their crafts and skills and engage them in positive activities and away from the negativity of thoughts of war, destruction and extremism.

Where in other regions, focus has been on mud-bricks, in Waziristan the establishment of a stone-shaping enterprise was fostered, as stone is available abundantly and builds structurally reinforced houses that will endure the potential of avalanches and mud-slides from the surrounding mountains.

Aside from that, wild honey, which is a natural resource available to be tapped in this area is being supplied to the cities, creating an income for the local market as well as generating revenue to substitute donations for construction.

5. DISCUSSION

Over the last three years, Resettling the Indus has built over eight hundred houses in three main regions, has had over five hundred people in their employ, has established three schools, two vocational training centres-focusing on skill development a village with complete underground sewage system, one fully functional dispensary, one religious studies centre (*Madrassah*), and three mosques. All this, and the organisation is still in its infancy. There are a lot of short- and long-term goals the organisation has set for itself which it plans to achieve over the next few years. As can be seen, it has already succeeded with some of them.

One of the greatest advantages of the initial project being started with the involvement of students and academics was the emergence of the participatory researcher, which has proved useful on ground and in developmental process. By documenting every step as it happened, the model can now be exhaustively researched and duplicated by others as well.

As can be seen, what started off as a small relief mission in South Punjab scaled-up to the multidimensional project it has grown to today. This scaling-up process was not an overnight endeavour but a step-by-step process, with the external facilitator being the initial planner, and through training and dialogue, learning and growing along with internal facilitators. Eventually, the amount of both internal and external facilitators needs to grow for the successful expansion of the idea. A good example of that can also be found in the running of RT Indus. While the Punjab project successfully grew given the access to manpower in the villages and cities and access to primary facilitators, those trained and sent out to expand to other regions such as Sindh and Waziristan faced challenges with scaling-up. This greatly limited scaling-up as one external facilitator could only focus of the training of one internal facilitator in the village at a time. Due to lack of resources, other resources such as funding also suffered due to lack of awareness of the project, acting as a barrier to growth.

In Waziristan, due to the inability to travel freely to and from the region, it has been impossible to get donors on-ground access to the region. Due to this, and the larger proportions of houses in the region, costs are higher, especially due to all raw materials being brought in from long distances, vastly increasing the cost of transport and finished houses, and limiting scaling-up opportunities due to lack of adequate fund generation. The error made by many organisations, which needs to be addressed here and ensured not to be repeated is that many try to achieve too much too soon [Robinson (1991)], spreading resources thin and being unable to deliver as planned or keep quality

of output the same. One issue that needs to be addressed is that there needs to be a clear differentiation between short- and long-term goals, and achievable targets need to be decided on a quarterly and annual basis to ensure targets are being met [Lyons (2010)]. Long term goals cannot be achieved in the short run.

Donations post-disaster are also few and far between and hard to come by. Corporate social-responsibility programs and grants can be accessed for funding but for a region as sketchy as Waziristan, gaining access to funding is not easy. Therefore, scaling-up becomes dependent on other factors. When sufficient funding is not available, one must improvise through sharing their resources to optimise their benefits [Fateh (2004)]. These can be utilised through the bartering of goods such as shaped stones for transport, and raw materials for labour. Sharing ensures that work continues despite inadequate monetary funding of the project. It also enhances community participation and development and boosts the morale of the labour involved by highlighting community cohesion.

When one focuses on the setting-up of social businesses, the organisation's responsibility does not end with training individuals and providing capital, but on linking the local produce to pertinent markets as well [Hussain (2003)]. Being an external facilitator, one has the advantage of contacts in urban areas and can easily help find buyers for goods produced in the villages, making the villagers financially autonomous. The researchers found that profits generated from the sale of local produce could be utilised in two ways. Firstly, to increase the incomes of some families involved in the production of goods, and secondly to be re-circulated in the local region and directed towards improvement of local infrastructure, making the resettling process dependent partially on community generated funding instead of completely on external donations. Therefore, upon mutual consensus, after costs and salaries of local producers, all profits generated from the sales of local businesses are re-circulated into communities to continue rebuilding autonomously. Not just that but community cohesion in intervention regions was seen to extend to the point that profits generated in Punjab were redirected towards house building in Waziristan, highlighting the enthusiasm towards sharing and caring throughout the nation as a whole.

Resettling the Indus has managed to build schools, brick manufacturing yards, mosques, community centres and other such structures on land donated by locals in their region. In most areas, the locals have not even demanded rent or compensation for their land sharing, putting the benefits of the community above their own needs. This shows a highly evolved thinking process, as sharing and caring is a concept that evolves after one has fulfilled their own needs and has evolved to a stage where the benefit of the community or nation can be put before their own gains. It nullifies conventional outlooks towards social work, which generally follow a pattern of degenerating the social network for the financial benefit of individuals rather than a society as a whole [Ali (2004)]. After three years of work on rehabilitation and infrastructure development, RT

Indus managed to build only eight hundred of the 1.8 million homes that were destroyed in the initial floods of 2010. That is 0.00044 percent of the total destruction, a dismissive amount. However, now the idea is in place and has been put into practice. Given sufficient funds, it can be scaled up for larger population benefit. Not just that, but through proper documentation, the idea can be replicated by other institutions to achieve similar results and grow exponentially. This idea has brought the message of hope and prosperity to thousands, and improved the life of many more, teaching them that hope and basic skills are all that one needs to rebuild their lives.

6. CONCLUSION

Through this paper, the authors have explored many important factors of community based development. They believe that the idea proposed here is one that can be easily duplicated in different regions to yield similar results. Conventional non-profits tend to require high amounts of funding to take into consideration salaries and urban and rural set-ups along with frequent travel between villages for site inspections. They also tend to use funds as the solution to all their problems. RT Indus had the advantage of turning their teething problems regarding funding into one of their strengths; of not being dependent solely on donations but evolving over time into a tool to facilitate and mobilise local populations rather than trap them into becoming dependent on external facilitators and resources for development.

While development is not completely independent of external donations, the organization can at least ensure that work on ground does not stop while waiting for the next capital injection. This helps boost the morale of villagers, ensures steady employment and a feeling of self-sufficiency amongst the populations. Being only three years into practice, the Resettling the Indus model has time to mature through trial and error to perfect and accomplish all long term goals. In the meantime, its current progress is reason enough to discuss and share this idea in the hope of being implemented in similar circumstances.

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