Middle East • Egypt

Appropriate Development, Architecture and Planning Technologies (ADAPT)

Prepared by • Pascale Nader
Reviewed by • Shuan SadreGhazi
Sector • Housing and Construction
Enterprise Class • MSME
Executive Summary

This case study looks at the urban planning strategies used by a local architecture consultancy firm called ADAPT (Appropriate Development, Architecture and Planning Technologies). It examines how they meet the opportunities of building, upgrading and renewing urban real estate in Egypt’s informal economy. The company uses innovative applications of planning technology to turn inadequate low-income housing into good quality, affordable homes.

The scarcity of habitable land in Egypt calls for the rational use of resources at a national level. As a result of neglecting construction codes in informal areas, more than half of Egypt’s housing stock has been built without monitoring or assistance. Unplanned housing and public spaces have left a mark on the city’s architecture, infrastructure and environmental sustainability. This creates a demand for urban planners that look at environmental factors as well as affordability in building real estate for a growing mass-market.

ADAPT offers technology and planning consultation that balances two important tasks for urban developers in the region today: (1) providing affordable housing, and (2) building or renewal that is adapted to the local environment. Today, ADAPT has more than three decades of experience in this construction approach in rural, urban and desert locations throughout the Middle East and North Africa (MENA).

The company uses local building ingredients (e.g. clay and stone) along with treated waste products like rice straw and cement dust to produce environmentally friendly building materials that are of high quality (certified by the Egyptian Government) and low cost (30% below standard alternatives). ADAPT has developed a sizable range of ecological material mixes that can be used by builders and urban developers in the industry. In restoring an organic cycle between human and earth, building material used by millions of informal builders and residents would be environmentally sustainable and also affordable.

ADAPT collaborates with entrepreneurial master builders found in the informal sector which has led to innovations in building designs and new production processes. This is done by combining builders’ knowledge of local architectural heritage with new technical discoveries. To complete the cycle, training is offered to young people to build ecological and inexpensive homes in their own communities. ADAPT enhances the building process with appropriate technology and leverages the value of locally-available material, knowledge and human resources, to provide a solution for affordable urban housing and renewal.
Introduction

“90% of residents of Egypt have built their own homes, what we name the informal sector, using very dynamic solutions, mechanisms and their own finance...the adventure of piloting, testing, building knowledge together lead to appropriate models for today and for the future. So our perception towards the informal sector is very important, with the movement of history, which is very dynamic and the political state, which is very static.”

Hany El Miniawy, Social Entrepreneur and Founder of ADAPT Egypt

“On many occasions, especially since the Industrial Revolution people suddenly realized that there existed a large working class functioning invisibly and which is very productive. The sooner we are able to incorporate them into society and recognize their role – by paying statistical attention to them, by telling ourselves they are an important part of society and that the formal sector is actually the true marginal sector – the sooner we will create a bigger and better society.”

Hernando de Soto, Economist and Founder of the Institute of Justice and Democracy

A study by Mr. Hernando de Soto’s organization, invited by Egyptian authorities in 1997, showed that in Egyptian real estate, “92% of dwellings in the urban sector and 87% of holdings in the rural sector [were] informal. The combined real estate was equivalent to US$240 billion of dead capital.” This value for example was “55 times greater than the value of foreign direct investment in Egypt until 1996.” Their report specifically showed how gathering statistics and information about the informal market’s capabilities and needs, can lead to opportunities for value creation that are rooted in assets already within close reach in local markets. This rationalizing approach is central to the business model used by ADAPT in delivering affordable housing solutions to the Egyptian market.

Today, the formal business sector (large construction companies) identified opportunities in producing middle and low-income housing, an estimated demand of 5.3 million units over the next ten years. However, finding a profitable model to supply low-cost housing is a challenging bottleneck for both public and private developers in Egypt.

Where the formal market does not meet needs, informal solutions arise, but with their own set of consequences, of which environmental sustainability is an issue. While 90% of residents build their own homes, they do so without technical assistance, planning or consultation regarding cost or resistance-tests on materials utilized. Technical inefficiencies means that construction materials such as cement, which pollute air and soil resources, or expensive

---

2 De Soto, 1997, p. 48
3 Ibid, p. 6
4 Najjar, Suha, 2008.
imported materials, are overused in an inappropriate building cycle, due to the lack of updated knowledge or technology that informal masons could benefit from.\textsuperscript{5}

As part of its business model, ADAPT partners with master builders and masons in the informal sector to create value by configuring local resources and building knowledge into new business models. The company includes greater participation of communities and uses technology-intensive and low-cost methods. Resulted solutions are relevant for the poor, and also for any market seeking ecological and energy efficient techniques in the green construction industry.

**Market and Location Context**

**SPACE, RESOURCES AND A GROWING POPULATION**

Egypt is in essence a large desert; 98% of its population of 80 million people lives in a mere 5% strip of its total land area called the lush Nile Valley. With one of the highest population density in the world, people manage to live and work around the scarcity of space that is perceived as a natural, historic aspect of their environment. Over recent decades, approximately 500 hectares of prime agricultural land is lost every year to urban encroachment. Residential densities have increased from 685 persons per hectare in 1993 to densities as high as 800 persons in some areas today.

The unregistered marginal status of the majority 10 million households in Cairo\textsuperscript{6} means they lack the legal security as incentive to invest in improvements, renovation or upgrading of their homes.\textsuperscript{7} Excluded and unplanned informal areas deteriorate the quality of life, natural resources and pollute the urban environment.

<table>
<thead>
<tr>
<th>Table 1-Characteristics of Informal Urban Living</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High residential densities</td>
</tr>
<tr>
<td>• Lack of open public spaces</td>
</tr>
<tr>
<td>• Multi-unit dwellings</td>
</tr>
<tr>
<td>• Decaying House Stock</td>
</tr>
<tr>
<td>• Inadequate infrastructure and services</td>
</tr>
<tr>
<td>• No sewage connection</td>
</tr>
<tr>
<td>• Decaying urban fabric (traffic congestion)</td>
</tr>
<tr>
<td>• Noise and air pollution</td>
</tr>
<tr>
<td>• No formal waste collection</td>
</tr>
</tbody>
</table>

Source: Attia (2009); El-Batran (1998); Dominque (2009)

\textsuperscript{5} Tobah, Sanaa. Interview, September 24, 2009.
\textsuperscript{6} Informal population settlements represent 52 million residents in Egypt and more than 12 million in Greater Cairo alone, though experts contest different data sets. (Sabry, Sarah, 2009, 16)
\textsuperscript{7} Egypt's house owner occupancy ratio is relatively at 32% showing inequalities in access to property impacting economic productivity and income levels.
THE NEED FOR TECHNOLOGY AND PLANNING IN URBAN DEVELOPMENT

National governance and political strategies historically play a role in urban development. Currently, urban analysts pinpoint the need for grounded technical assistance and local solutions to solve the housing and urban crisis in Egypt. As one analyst concludes, “what Cairo needs are more engineers, master plans, technical reports, surveys, statistics, managers, computers, technology, and so on.” The Minister of Housing, Utilities and Urban Development, Mr. Ahmed El Maghraby, illustrates the hopes of the public sector hand-over “there was a very serious monopoly in Egypt, a government monopoly on low-cost housing, as if [low-cost housing] required the technology only governments can master! The reality of the matter is that the private sector is quite capable...” His comments are a progression from remarks made in his previous year’s address to the AMCHAM, about rationalizing the state’s approach to urbanization “If our planning had been ahead of building, the cost to society for the infrastructure would have probably been no more than 30% of what it is costing society today to provide necessary infrastructure in those unplanned areas.”

With this need for a scientific approach and paying attention to local resources and assets found in the informal sector, ADAPT finds its business proposition well-positioned to tackle private sector provision of technical analysis and planning services for urban upgrading and development in Egypt and the MENA region.

Mr. Hany El-Miniawy, a social entrepreneur and founder of ADAPT is an architect driven by a passion for applying construction solutions that are adaptive to local environments. He began testing this idea at the start of his career in 1977 while working with a team of Egyptian architects on two urban settlements, located in the 50˚Celsius heat of the Algerian desert. They found that the building material brought to remote sites from markets as far as 500 km away was a burden to the cost of the project as well as to the surrounding environment. Such experiences in Algeria led El-Miniawy to establish ADAPT in Egypt in 1983, when he also welcomed a new partner to the team, Mr. Sanaa

---

8 Ibid, p. 29.
10 Singerman, 2009, p.27.
Tobah, a city planner. After their first meeting at a national urban planning competition the two have since joined forces to deliver adaptive solutions to urban development.

**The business model: Appropriate Development, Architecture and Planning Technologies**

**LOCAL BUILDING MATERIAL: PILOT TESTING AND INNOVATING MATERIAL MIXES**

ADAPT develops low-cost housing that is environmentally sustainable by leveraging technology to produce appropriate building material. The company cuts the cost of housing by 30% through two main strategies: (1) sourcing materials that are locally abundant (such as clay and stone) – saving on expensive importation and transportation – and, (2) reconfiguring available materials using technology (lab-testing) – producing inexpensive and environmentally friendly (or ‘green’) construction material mixes. ADAPT utilizes a scientific process of technology and planning to make rational decisions in building and renovation projects with environmental sustainability at its core.

<table>
<thead>
<tr>
<th>Business Segment</th>
<th>Description</th>
<th>Examples: Project Data</th>
</tr>
</thead>
</table>
| Urban Planning and Upgrading            | Town and city extensions, residential district master plans; mixed-use residential and urban commercial areas; or preservation of historic urban fabric. | • **El Obour New Town**, Greater Cairo, Egypt, 1988. Urban planning and design of housing models for residential area no.12; Consultants to the New Settlements Organization, Ministry of Development.  
• **El Doho Rehabilitation Project**, Riyadh, Saudi Arabia, 2007. Rehabilitation of a heritage district using local building material; Consultant to Shankland Cox Asis Ltd. For the Riyadh Development Authority. |
| Including: Participatory Urban Renewal  | Urban planning and upgrading using community and municipality capacity building, engagement of local government and external stakeholders. Community participation is the main mechanism of this business segment. Environment-friendly construction materials developed in the community, training of local construction workers in production and construction systems. | • Private initiative in model construction with participation by the German Agency for Technical Cooperation (GTZ), Ministry of Culture and NGO ADEW (For Women’s Empowerment); Applications in Edfu, (Luxor); Imbaba (Giza), Manshiet Nasser (Cairo) and St. Catherine, (Sinai), 2005-2007.  
• Urban Needs Assessment, Urban Development Plan, Design & management of the pilot area in cooperation with the Faculty of Urban Planning, Cairo University; Consultants for the GTZ. Boulak Dakrour, Giza, Egypt 2000-2004. |
| Housing                                 | High-end and low-cost housing projects in urban, rural or desert locations. | • Architectural design and supervision of construction of a housing area including 650 collective dwelling units (using natural stone and Saharan architectural elements such as wind capture); Consultants to the Governorate of Biskra. Cost: US$2.8 million. |
| Rural Development Planning              | Town and settlement extensions, residential master plans.                   | • **Lake Nasser Development Plan**, Aswan, Egypt, 1997; Development Plan for indigenous housing settlements south of the High Dam; consultant to... |

12 The competition was for a desert urban settlement plan for (today’s) El Obour in Nasr City, which El-Miniawy’s design won.
Hydraulic machines for brick-making of up to 50,000 bricks per month (Photo credit: ADAPT)

Table 3- Characteristics of Informal Sector Technology

<table>
<thead>
<tr>
<th>Utilization of adopted technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple tools and low skills</td>
</tr>
<tr>
<td>Production is labor intensive</td>
</tr>
<tr>
<td>Learning by doing</td>
</tr>
<tr>
<td>Local inputs</td>
</tr>
</tbody>
</table>

Source: Attia (2009, p.12)

By using technology that is inexpensive, based on local inputs and simple to learn, a more compatible and therefore lasting solution was sought that could create value and lower costs over time. Lab-testing material is the technology used in the early stages of the business model’s value chain. It helps identify and innovate building material. At the production stage, simple tools like

“What we have learned, and continue to learn about, is the cycle of human (who are the means and the objective), earth and technology. The question is what type of technology? A technology that is suitable, either by our own invention or that is appropriate to our needs and capabilities.”

Looking at the characteristics of technology capabilities currently available in the informal economy indicate what type of appropriate scientific knowledge would transfer sustainably to people and consequently the environment.
wood moulds or hydraulic machines used to make bricks are developed as well.

With scientific planning, the types and quantities of building material used in urban development are certifiably ecological and already abundant. The pilot testing process takes on average three to six weeks, depending on the environment of the site.

**Table 4- Methods for Configuring and Planning Building Material**

<table>
<thead>
<tr>
<th>Description</th>
<th>Materials (Examples)</th>
<th>Objective</th>
</tr>
</thead>
</table>
| Identifying available material on or surrounding a specific site | - Sand  
- Stones  
- Clay  
- Mud  
- Granite  
- Cement dust | A statistical survey is conducted by tallying and taking inventory of resources on-site. The information goes through further mapping and modeling techniques lead to an understanding of the capacity and correlations between available resources. |
| Lab test samples of local soil on the building site. | | A small laboratory unit (government-run) is placed at building site locations to perform testing on sand, soil, stones, brick etc. to find appropriate building material, testing for resistance and durability and composition of materials. |
| Treat and Process pollutant materials | - Rice straw  
- Cement dust  
- Iron-fabric | As part of the technological process they break down the components of available building material to be configured into new site-specific building material options. By processing pollutant agents a degree of cleaning or renewal of natural resources happens. |
| Create new material mixes | - Earth + Cement bricks  
- Clay + iron-oxide + sand bricks | The result is the production of site-specific and environment-friendly formulas (new mixes) for making durable bricks, which can be mass-produced. ADAPT obtains government certification of new material mixes before producing large quantities. |

While material is identified and produced, ADAPT also plans the design and building phase of the construction project. Another aspect of ‘appropriate technologies’ is the actual architectural techniques and building knowledge used at each site location. Identifying both appropriate building material and knowledge are a source of cost-cutting solutions for ADAPT.

**BUILDING KNOWLEDGE: ENHANCING AND LEVERAGING LOCAL HUMAN RESOURCES**

“Due to our recent history, what has occurred is a significant polarization or gap among people. If you are successful at closing this gap many doors will open. You can’t imagine the immense potential that is being neglected.”
**Local Master Builders**

ADAPT considers their team of about 600 master constructors across Egypt, their most important company asset. “Critical to the business are master builders on our team, at the end of the day they are the ones who complete the production process, and without them we really cannot do much.” ADAPT has a relatively flat employee structure, which includes 15 full-time staff (engineers, designers and administrative support), and a network of more than 600 talented individuals on a long-term consultative basis (including master builders, specialized mechanics, technical craftsmen, interns and students).

By gathering information from community leaders, ADAPT is able to identify and select talented builders found across villages and cities in Egypt. The company stipulates in contractual agreements with clients that only local builders from the surrounding site area will be hired. This company policy is strategic, by including local builders, ADAPT accesses a source of building knowledge that adds value to the company and resident end-users. It reduces costs by increasing efficiencies and creates profitable building models from a heritage of architecture best suited to the environment.

ADAPT rapidly adopts and improves on the architecture and building techniques that work most optimally. For example, in the midst of the Sahara desert, instead of uninterrupted straight, tall building structures, ADAPT uses a staggered design, allowing balconies to create shade for the ground areas below, so that in turn they can be used as shaded communal spaces. This gives low-income residents better quality lifestyle options. Within desert areas, different climates will call for architectural variants of domed roof structures to make efficient use of rare wind that cools the interior of buildings. With local building knowledge taken into the model, the company produces affordable, efficient and ecological or ‘green’ construction that is high-quality and low-cost.

By combining capabilities and resources with talented constructors in the community, ADAPT is a fertile ground for informal entrepreneurs to increase their equity in the market. The company employs master builders, trains them to be trainers in ADAPT’s building approach and increases their exposure to formal market channels. ADAPT proudly sees some of their builders develop their own small contracting businesses. Within the scope of low-cost housing, it would be of interest to develop

---

14 Tobah, 2009, interview.

15 It is estimated that the informal economy holds at least 1.4 million ‘extra-legal’ entrepreneurs in Egypt vs. 0.3 million legal entrepreneurs in the formal sector (Attia, 2009, p.16).
the growth of small and medium contractors in the market. As a social entrepreneur, El Miniawy takes his business strategy cues by connecting cross-sections of society. He says, "With an accumulation of energy of different people in the end we come out with an integrated vision. And while there is a globalization of the economy there must be a globalization of solutions and alternatives as well."

The model finally insists on a mechanism of training between skilled builders and youth in the community to sustainably transfer knowledge. The company informally gathers youth in the area to get involved in the building initiative through an apprenticeship with master builders. They learn how to use local material and techniques to build economically. In this way, the company builds awareness and demand for ADAPT’s business concept in the construction market.

**Training the Youth**

Lack of prospects for youth employment in Egypt is a source of socio-political concern. ADAPT involves the youth in the renewal of buildings, knowledge and construction. Going into an ‘on-the-job training’ process or apprenticeship with master builders gives the youth employment, new skills and a personal role of participation and empowerment. El-Miniawy mentioned that he prefers to include marginalized young people, such as troubled youth or school dropouts. Results show how quickly and determined young people are to learn and implement new skills. In an apprenticeship the young student observes the master builder and learns important masonry skills ‘by doing’. In 2004, ADAPT trained and transferred on-the-job skills to 1,500 youth in different informal areas in Egypt. Even though the trainees do not receive formal certification, capturing the involvement of the youth plays an important role in renewing the cycle of building material, technique and architecture.

**University Students and Academic Networks**

As a business model that leverages social value, universities are a channel that ADAPT leverages to grow their future market base. Students and teachers of architecture and engineering learn about new urban planning approaches that are suited to the local market. They also gain on-the-ground experience working in teams on community projects. ADAPT’s head-office is a busy hive of young graduates who run their plans and ideas by the head partners El-Miniawy and Tobah. This post by a student on the Ashoka Citizen Base Initiative website illustrates this: “I’m a student of Architecture in Egypt, I read a book about housing projects where I came by some of Miniawy’s projects in Algeria and I was impressed…they are very much needed in Egypt and so I guess in the whole world where

---

16 Rising unemployment is highest among the youth, specifically educated first-time job seekers between the ages of 15 to 29 years.

17 An engineer visiting ADAPT’s office explained how construction is a relatively easy job to train in Egypt because the craft is ‘instinctual’. During the 1970s construction boom in the Gulf, much of the local base of skilled builders migrated to the region and the best of the master builders of the country were attracted by economic benefits. A generation of young builders lost their mentors in the process and the building industry in terms of skills fell apart.

18 Ashoka: Innovators for the Public, is a non-profit organization based in Arlington, Virginia that works with a network of social entrepreneurs worldwide to empower the poor.
poor communities and marginalized populations exist in worse conditions that can be improved... You design because you care. I’m trying to imitate your [method] in my graduation project which is about housing for the poor in old Egypt new Manyal, Giza. I hope to succeed.”

FINANCIAL MODEL AND BENEFITS
ADAPT receives financing through the consultation services it provides (drafting the development plan, sourcing and lab-testing material, sourcing, hiring and training builders, and supervising building production). Until recently, ADAPT is mainly commissioned through municipalities, government and international donor agencies in the field of appropriate building technology. There is also a growing trend towards consultancy sales to private developers, private companies, collective communities and individuals who seek ADAPT’s services. This financing covers expenses of technology and research (lab testing), travel and salaries. Contractors or master builders are hired and paid by ADAPT. The company claims about half their payroll goes to builders and specialized craftsmen. They estimate that total costs are 80% of total revenue.

The company manages to build more cheaply while addressing housing needs of larger consumer segments. Appropriate design technology also benefits the end-resident who accesses affordable, adapted housing that in the long run will save them utilities costs (to cool or heat their homes). Society also benefits by having energy-efficient, ecological and sustainable livable homes available for all.

Constraints and Solutions

LACK OF KNOWLEDGE AND SKILLS
To further increase the scale of ADAPT’s model, people needed to be aware and learn how to implement ADAPT’s approach in their daily lives. In assessing the model, Ashoka analysts for example point out that a scaling up of the idea “is not a physical scaling up, but the spread of know-how and changing people’s and communities’ perceptions of how to use housing material and techniques.”

ADAPT’s approach towards participatory urban renewal took an enriching turn as it engaged with informal housing communities across Egypt. Their client base, financing the lab-testing technology, was usually government municipalities, national authorities and international organizations with budgets and political agendas. In order to redistribute value to a wider client base, ADAPT had to directly teach and train communities in the informal economy.

20 Tobah, 2009, interview.
To raise awareness and skill levels, ADAPT works with specialized networks (like The Association for the Development and Enhancement of Women or ADEW) that reach their target group and engage them in transferring new skills. The company also promotes training the youth in communities, so that work relationships are what actually build awareness and adoption of new building methods over time.

Certification and Training

ADAPT is also concerned with education systems and techniques to raise awareness or transfer technical assistance to the informal economy. ADAPT’s managing executive Sanaa Tobah describes the constraints that come with poor practical skills and certification of graduates in the building industry. ADAPT recommends more basic skills training mechanisms such as apprenticeships and government-certification from workmen guilds as more in-line with industry needs. Tobah describes how “in the construction and building sector we know that watching work being done is what is required.” El Miniawy worked on a national skills training certification association for construction workers called the Mubarak/Kole vocational training program in 2005. He aimed to disseminate the idea of appropriate architecture and community participation into formal curriculum and manuals. While the initiative was successful, training 40 construction workers per year, donor funding was not a sustainable investment source.

A strategy paper by Ashoka Arab World shows how from ADAPT’s experience the master builders have the capacity to rapidly transfer updated local building knowledge effectively. In a given sample of master builders at least 20% show ability to train others (about 50 trainees a year) and lead building teams on projects throughout the country.

LACK OF MARKET INFORMATION

In Egypt, current construction models used by large public or private developers have a high cost structure when catering to low-income housing projects. They rely on a labour pool and use expensive material such as cement or steel, or material that need to be transported or imported from distant markets. Standardized planning (of resources and designs) for mass production is used to capture volumetric margins. What is often missing in models of large private contractors is investment in information about new markets of informal residents; to put focus on what products the mass-market needs and what their potential to purchase housing products is. Looking to local informal human capital, innovation or entrepreneurs is yet the direction for most. In certain cases, companies opt to directly implement low-cost housing models and their financing systems from other international markets to the Egyptian context.²²

²² An example is Orascom Housing Community (OHC), a large private contractor, whose strategy is to partner with international developers to leverage their knowledge of affordable housing design and delivery in Mexico. To tackle financing constraints of their low-income customers, OHC partners with its sister company in the mortgage industry. To overcome affordability barriers in the low-income housing market, OHC is seeking larger national government role in financing. (OHC presentation to AMCHAM Egypt, Nov 23 2008). See the 2008 GIM Case Study on Orascom Housing Community for more details.
With a standardized production process of housing units, very little or no input is needed from architects or residents in the design or materials used, and the end product is cost-effective on a financial level in terms of its absolute market price. ADAPT’s business model, on the other hand, tries to leverage social value to bring cost efficiencies and accountability in line.23 “From understanding the target group, you can understand cost, quality, needs, designs and how to train people who live in the community, so they remain responsible and accountable. When the person who built your home is your neighbour it is a different mechanism.” A builder tends to do a better construction job when, beyond a legal obligation, a more personal ‘in-your-face’ social obligation is also involved. So including the community and local labour in low-cost housing projects seem to contribute to raising efficiencies in cost and quality.

Adapting Processes: Participatory Urban Upgrading
The participatory urban upgrading strategy relies on extensive information gathering about community needs, priorities and also capabilities and available resources. The process looks not only at material or financial capabilities; it also takes into account the social fabric and historical context surrounding the community. Speaking with different members of the community unlocks a wealth of knowledge that translates into exponential business value for ADAPT. ADAPT’s end-customers are associations of community or neighborhood members and individuals (such as talented builders) who are currently marginalized from formal access to building technology, infrastructure and credit.24 The company aims to take their cost-cutting, green building model to segments of the population where large-scale construction was happening, mainly in the informal housing sector.

REGULATORY ENVIRONMENT
Regulatory authorities and local municipalities became distanced from activities and people living in informal urban areas. The lack of relationship and communication between residents and the government brings negative consequences to both sides. Funding for civil housing and infrastructural needs are neglected and local governments lack valuable knowledge about their constituents.

Using Demonstration Effects
The owner of ADAPT, El Miniawy, puts effort into bridging the chasm between regulators and residents in informal areas. He talks to and invites relevant decision makers and opinion leaders to view demonstrations of ‘Participatory Urban Upgrading’ projects conducted by the company with community members. Often impressed by the results they see, regulators are motivated to slowly fund more informal upgrading initiatives. As an example, Ezbet El Bekheet, where ADAPT’s participatory model was being used, is one of the first informal areas in Cairo formalized by authorities in 2009.

23 “All this requires cooperation: without the participation of the architect, the building will be ugly, inappropriate and/or expensive. Without the cooperation of the people, the project will be sterile, unloved, and untended. Ironically, most public housing in the world today is done without the cooperation of either the architect or the people. It is a bureaucratic decision built by contractors and whether horizontal or vertical, it almost immediately becomes a slum”. (Fathy, 1976, p. xiii in Foreword by Polk, William R)

24 Informal enterprises constitute nearly 82% of total economic units in Egypt.
Actors

Leveraging the collective strengths of communities’ resources, networks and individuals, ADAPT manages to meet the demand for construction in low-income communities. Community residents, government municipalities, associations and the business sector are brought together into the venture.

Diagram 1- ADAPT’s Participatory Urban Upgrading Business Model: Overview of Interrelationships

GOVERNMENT MUNICIPALITY
A large aspect of the model is testing building material on-site, through government-endorsed lab-testing units. Materials are government-certified before producing them in large quantities. As urban planners, ADAPT channels appropriate resources (funding and discounted building material) from the municipality and other governmental interest groups in the community’s building initiative. Through dialogue with governors and ministers the company influences urban policies to be more affordable and environmentally sustainable; two benefits increasingly appreciated, by both authorities and residents. Indirectly, ADAPT’s urban upgrading of informal housing (improvements for safety and other urban standards) is helping residents apply for formal property registration, in certain informal areas designated by the government.
COMMUNITY PARTICIPATION

By taking the time to identify material and knowledge that is locally available, the ADAPT model tries to capture the sort of simple adopted innovation that “is hidden in plain sight.” El Miniawy describes their principle approach to the business value of urban upgrading: “We don’t have any pre-judgments, we look at what the needs are, the capacity, what is available in terms of man power, building material, heritage and vocabulary and then we start working. All this is based on a bottom-up approach.” Informal communities form ‘the bond’ (el-rabtah), a community association or council where issues are raised and resolved. Understanding this relationship in the community’s social fabric, ADAPT leverages associations to rapidly gather rich input for their urban planning process.

Informal Communities as Customers

Engaging communities to share their needs and networks, takes time and patient investment and the pay-off is impressive. ADAPT sees opportunities to deliver customized, efficient and valued buildings and public spaces. For example, by taking into account the types of jobs or talents that exist in a certain community ADAPT has planned and executed the Manshiet Nasser community theatre, a dramatic stage with a backdrop of the Mokattam hills, built in one of the poorest informal areas in Cairo.

Or by valuing the importance of communal spaces for women of the neighbourhood to gather in private has led ADAPT to include the inner court-yard (or hoach) design element into their low-cost housing plans. This was perhaps thought of as a luxurious consideration by traditional approaches to mass housing production. As El Miniawy describes “it is a process that is seeking adaptability to a person’s lifestyle, their art, craft, history and location.” The company delivers value to the low-income mass market with affordable and customized housing and lifestyle solutions. For example, in 1994 ADAPT was consulted by the World Food Program to build houses for a fisherman community on Lake Nasser. The ecology of the area caused high tides during floods so that fishermen had to live 40 km away from their means of livelihood. El Miniawy’s solution was to use local know-how and material to build mobile homes, schools and hospitals that could easily be moved according to the tides. This allowed the community continued access to housing, health and education facilities by better adapting to their environment.

---

27 Ashoka Arab World, 2004
MASTER BUILDERS AND YOUTH
Crucial market input is the identification and recruitment of master builders and groups of youth to participate in training and building with ADAPT. The model leverages builders’ knowledge to target their two-fold objective: building inexpensively and sustainably with the environment. An income-generating mechanism of the model is the employment of local builders and apprenticeship for youth which motivates their participation and creates sustainable relationship with ADAPT.

PUBLIC AND PRIVATE BUSINESS SECTOR
Public and private suppliers of building material such as sand, cement and steel increasingly look to formalizing trade channels with informal residents as communities or individuals. Companies would benefit from direct sales channels to the informal real estate sector. ADAPT aggregates community purchasing power to access quality material sometimes at lowered prices.

SPECIALIZED ASSOCIATIONS AND NETWORKS
Partnering with group associations is an aspect of ADAPT’s model that is also a process of community mobilization. For example, increasing the scale of a traditional in-kind payment mechanism, is where ADAPT’s planning capacity delivers value. The company identifies and organizes skilled individuals, or groups of people (such as students, housewives, etc.), in a community as contributors and decision makers in the company’s urban planning solution.

Women groups and informal communities
Increasingly marginalized, only 11% of women in Egypt can find secure employment in the formal sector. Women account for 46% of non-agricultural informal employment.\footnote{ILO, 2002, p.19} ADAPT is leveraging the existing network of an NGO involved named ADEW - Association for the Development & Enhancement of Women in Cairo Egypt. The organization mediates between women in communities and institutions or businesses such as ADAPT. ADEW tries to highlight “women's voice to the national consciousness.”\footnote{ADEW website, \url{http://members.fortunecity.com/ellepatel/} Accessed September 29 2009.}

The company views women head of households as key to their business with informal communities as recipients of microloans who invest in upgrading their homes and community. Housing in the informal sector in Egypt is self-financed by the community or

---

\footnote{28}{ILO, 2002, p.19}
\footnote{29}{ADEW website, \url{http://members.fortunecity.com/ellepatel/} Accessed September 29 2009.}
individuals. They use informal credit mechanisms such as group pooling (gam’iyah) networks or service-in-kind exchanges among neighbours, co-workers, family and friends. Leveraging the collective purchasing power of the poor can make them viable customers for construction products and services. Part of ADAPT’s operations and services encourages the use of affordable micro-credit loans provided by existing financial networks of microfinance institutions. Using micro-loans for housing improvements (to purchase building material) is a sustainable solution from the perspective of the company, giving their customers independence and commitment towards investing in renovating their individual and shared real estate assets.

ASHOKA ARAB WORLD GLOBAL NETWORK

The value that ADAPT contributes to the construction industry is in innovating the production process. Investing in ‘innovators for the public’, Ashoka’s Middle East office, Ashoka Arab World has been involved with ADAPT since 2004 when El Miniawy was nominated as an Ashoka Fellow. As a social venture capitalist, Ashoka sees the value that El Miniawy’s idea could contribute to Egypt’s informal economy. One of the Ashoka Fellowship and Capacity Building Officers working closely with ADAPT is Mr/ Ahmed Fouad, an engineer by profession. He described how El Miniawy’s “...many simple innovations are what are most valuable because this is what helps people easily replicate the benefits anywhere in the world.” 30 Ashoka supports El Miniawy by raising awareness about his model and accomplishments through their global network of social entrepreneurs, business developers and leaders.

Results

ECONOMIC IMPACT

ADAPT measures its success by the number of units built by communities who imitated their model. They view this measure as an indicator that the community adopts the buildings as affordable and appropriate. In Algeria for example, results indicate an expansion of housing settlements that were built there from the late 1980s to 2004. The sample shows that from an original 1,280 units built, more than 20,000 units have been constructed by communities in Algeria using ADAPT’s model.

<table>
<thead>
<tr>
<th>Name of Location (Year of ADAPT project)</th>
<th>ADAPT Built (units)</th>
<th>Community Continued (Built units as of 2004)</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Wad (1988-1990)</td>
<td>400</td>
<td>8,500</td>
</tr>
<tr>
<td>Oulad Djallal (1988-1993)</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>Sidi Khaled</td>
<td>200</td>
<td>1,600</td>
</tr>
</tbody>
</table>

30 Fouad, 2009, interview.
Maadar (Misila)  
Felache (Biskra)  
(1977-1985) – Two rural villages

| Sample Total | 1,280 | 24,100 |

Source: Ashoka Citizen Base website (2006); El-Miniawy (2009)

In Egypt, the company has built over 10,000 affordable housing units to date, in the poorest areas of Cairo including El-Mounib, Imbaba and Manshiet Nasser. About 70% of their operations today are in projects with the informal economy and they expect it to grow as a source of business moving forward. In Egypt, where most of ADAPT’s work is of a more public nature (public spaces and community facilities), over 100,000 people have been trained and aided.\(^{31}\) Out of a total 21 projects conducted in Egypt starting in 1983, ADAPT reported a gross revenue result of US$20 million in 2004.

**SOCIAL IMPACT**

The majority of ADAPT’s client base is defined as poor or socio-economically marginalized populations. A 2007 representative consumer housing survey of 9,000 households in the Greater Cairo area concluded that 61% of households earned an income of under US$180 per year.\(^{32}\) In general, beneficiaries of the company’s services refer to the positive influence they feel that the participation has on younger people (especially girls) who observe women taking on different roles as citizens in society. An empowered community means that urban development does not stop after ADAPT leaves. For instance, through mobilizing university students and youth, the Children’s Literary Centre in Mounira, Imbaba was built in a short space of time with the help of residents in 2005. The dedicated Manager of the Mounira Children’s Centre, Mr. Fathi Mohamed, lives and also runs a micro-business (a sandwich shop) in the community. He is in contact with ADAPT again today for a formal extension to the centre: “The centre is a start, but the surrounding area is still empty, it attracts garbage. The solution is to develop it as public space. We contracted Mr. El Miniawy and he has done the plan and it has been approved. We sent it to the municipality about a year ago and are waiting for a reply. We would like to build a children’s garden.”\(^{33}\)

**ENVIRONMENTAL IMPACT**

ADAPT’s consulting rests largely on an environmental platform. More scientific planning when sourcing building material causes less use of pollutant construction materials like cement and more use of locally available resources in a sustainable way. Taking environmental factors into building design, also contributes to affordable green housing solutions that conserve energy efficiently.

\(^{31}\) Ashoka Citizen Base Initiative, 2006.  
\(^{32}\) USAID, 2007, p.4.  
\(^{33}\) Mohamed, 2009, interview.
Growth Strategy and Future Outlook

NATIONAL REPLICATION: EGYPT’S HOUSING FOR ALL INITIATIVE EL-DAWAR

As an Ashoka fellow since 2004, El Miniawy’s business model is being taken forward and replicated at a national level with the Ashoka Arab World Housing For All (HFA) initiative starting in 2009. Ashoka’s HFA initiative aims to bring affordable housing solutions to low-income communities. Their goal is to upgrade over 18 million housing units by 2011.

In order to achieve greater financial sustainability, the model is also looking at the microfinance industry to get involved. The HFA centres are planned community outlets providing microloans for housing improvement. Taking the HFA’s technical assistance is a stipulation for taking the loan, to ensure that improved building methods are used. Loans would be given at an average interest rate of 13%. A financial innovation is the establishment of a community fund financed by an extra 1% interest on micro-loans that goes to cover costs of the HFA centre.34 Part of the loan agreement with borrowers is a non-negotiable use of technical assistance in their building or renovation project.

FUTURE OUTLOOK

As customers, skilled producers or employees, including lower-income communities as strategic partners creates value, innovation and new markets. Key partners at ADAPT refer to the team of master builders who have played a strategic and enriching role in their business model and intellectual lives. ADAPT is therefore at the crest of innovation in the urban renewal business instead of being reactive to changing market needs. With climate change on the agenda of public and private enterprises, ADAPT is well-positioned in both global and local markets to deliver competitive and innovative housing solutions for tomorrow’s world.35

El-Miniawy concludes with an example: “Partnering with the informal sector on their housing needs require very different solutions. Using local materials decrease building costs by 30% and bring benefits of affordability and positive environmental impact; but the unexpected benefits that arise are tremendous, for example, a certified design we have for desert buildings, four stories high so far, that require no-air conditioning. These ideas will have their day... When? I don’t know...”

Admittedly, he mentions that learning to focus on business strategies and opportunities is an area of improvement for his organization. “Today, I am really looking at more efficiency in the processes that we use. As I get older I find more efficient ways to get things done without

34 Ashoka Arab World, 2009.
35 El Miniawy was awarded the Tech Museum Award in promoting Equality in 2008. “The Tech Awards is an international awards program that honors innovators from around the world who are applying technology to benefit humanity. The Tech Awards program inspires global engagement in applying technology to humanity’s most pressing problems by recognizing the best of those who are utilizing innovative technology solutions to address the most urgent critical issues facing our planet.” From http://www.techawards.org/about/, accessed on November 24, 2009.
waste of time and resources. We also want to focus on one idea in-depth as it creates more value.”

Conclusion

ADAPT’s core proposition is to provide technology and planning consultation to test and construct with locally available resources. In response to the particular circumstances of mass housing demand in the Egyptian market, the company has the experience today to provide affordable housing (or renewal) that is adapted to the local environment. Identifying and including local talent as assets to their business, ADAPT collaborates with over 600 master builders across Egypt. This allows the company to innovate designs by combining this technical analysis with local architectural heritage. National replication of ADAPT’s youth training mechanism is a resultant testament to the model’s economic and social benefits.

As a profit-making company, it has found a sustainable strategy to allow low-income communities to quickly and independently upgrade their homes and public spaces. By rationalizing the use of resources in building, ADAPT’s model promises to hold significant business value in delivering solutions to the industry of green technology. ADAPT continues to foster key relationships with stakeholders such as their team of master builders, Ashoka Arab World and community associations to sustain their model of participatory urban upgrading in the region.
References

INTERVIEWS

PUBLICATIONS

WEBSITES
http://www.amcham.org.eg/operation/events/Conferences08/realestate/Speakers.asp
- Ashoka Changemakers. Ashoka Fellow Hany El Miniawy Profile.
http://www.ashoka.org/node/2990
http://www.citizenbase.org/node/3011
- Tech Awards website.
January 2010

The information presented in this case study has been reviewed and signed-off by the company to ensure its accuracy. The views expressed in the case study are the ones of the author and do not necessarily reflect those of the UN, UNDP or their Member States.

Copyright © 2010
United Nations Development Programme

All rights reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted, in any form by any means, electronic, mechanical, photocopying or otherwise, without prior permission of UNDP.

Design: Suazion, Inc. (NJ, USA)

For more information on Growing Inclusive Markets:
www.growinginclusivemarkets.org or gim@undp.org

United Nations Development Programme
Private Sector Division, Partnerships Bureau
One United Nations Plaza, 23rd floor
New York, NY 10017, USA