North Darfur • Sudan

Forging Through Adversity: The Blacksmiths of North Darfur and Practical Action

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Executive Summary

The blacksmiths of El-Fashir are among the most socially excluded castes in Darfur. Only a few generations ago they were still congregating at the outskirts of towns and villages, practicing their trade in an isolated, subsistence manner. In addition to existing on Darfur’s marginalized social periphery, the blacksmiths faced the added vulnerabilities of drought, famine, armed conflict, and displacement. Through their trade – passed down from generation to generation – and a unique, long-standing, and evolving partnership with Practical Action, they have been able to forge through their social, economic and political adversity. Today, the El-Fashir blacksmiths cooperative produces agricultural implements and tools which are widely disseminated across Darfur and nearby states through institutional contracts with international agencies such as the Food and Agriculture Organization of the United Nations (FAO) and through local markets.

The 73 El-Fashir blacksmiths cooperative members own and operate 75 workshops where they, their apprentices, and employees produce agricultural and traditional tools. These workshops are clustered in a metalworking area of one of the El-Fashir markets where they produce, sell and store their work. The cooperative offices and storage areas are also located on site. Members benefit from economies of scale in the purchase of inputs (metal and charcoal), through a system of metal as credit, and through collaborating to complete large contracts.

Practical Action is a key long-standing partner of the blacksmiths and an integral component of their business model and success. This relationship began as a beneficiary-NGO relationship not untypical of the development sector, but through ongoing capacity strengthening it has evolved to see the blacksmiths increasingly take over the core functions of the business. Today, Practical Action assists in managing the external relationships while exploring potential solutions to key challenges of environment, energy, and business sustainability.

The main constraints to the business model include insufficient market information, basic physical infrastructure, necessary knowledge and skills, and insecurity. The solution strategies being explored as mechanisms to overcome these constraints include partnering, the continual adaptation of products and production, education and training, and increased dialogue with the government.

Through their activity and the long-running and capacity strengthening dynamic of their partnership with Practical Action, the El-Fashir blacksmiths cooperative has achieved economic and social benefits that were unthinkable only a few generations ago. Environmental results vary due to the nature of their work; the blacksmiths recycle used metal and contribute to agricultural production and biodiversity, but the use of charcoal contributes to deforestation and poor health. The greatest gains in their lives, livelihoods, and
environmental value will occur through improved workspaces, equipment, and the use of alternative energies. Such will require investment in infrastructure, equipment, education, and training.

Introduction

Communities in the Sudan have a long history of collective work; a cultural tradition often referred to as ‘Nafeer’, meaning ‘collective work’.¹ Formal cooperatives were first established in Sudan in the 1920s during the British colonial administration for reintegrating retired Sudanese forces who participated in slave trade abolition in Sudan and neighbouring Ethiopia. Under the government of Gaafar Nimeiry (1969-1985) a Ministry for cooperatives was established, and cooperatives flourished in Sudan. After Nimeiry was ousted cooperative activity diminished due to civil war, structural adjustment policies, and related restrictive regulations initiated in the 1990s.²

Blacksmithing is a craft like other crafts (i.e. goldsmith, butcher) in Sudan which were practiced and inherited mainly within tribes or families and passed down from generation to generation. Blacksmithing in central Sudan is dominated by the ‘Halab’, which is the Arabic name for Aleppo, Syria. Thus, historically the blacksmiths may have Syrian or gypsy lineage.

Although the blacksmiths refer to themselves as ‘Zaghawa’ – a dominant group in Darfur – the blacksmiths are from a traditionally neglected and marginalized group associated with Darfur’s lower castes. They form a sub-group of the Zaghawa known as ‘Hadaheed’ (plural of ‘Hadadi’, which means ‘blacksmith’, and derived from ‘Hadeed’ which means ‘iron’).³ Within the Hadaheed, men practice traditional forms of iron work and women pottery. They have done so as long as their history recalls, passing their knowledge and skills from generation to generation. Centuries ago, this group is thought to have been thrallled by the Zaghawa, who had entered and settled into their territory. As slaves they were dispersed among Zaghawa families to perform primarily their iron and pottery work, but also to serve in other aspects of life (i.e. playing music at weddings): “Each family had a certain number of blacksmiths work for them, to make agricultural tools, to make axes, ploughs. In return the Zaghawa families fed them, and if there was any famine or if they didn’t have any kind of cereals they would support them

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³ Blacksmiths do exist in other groups in Darfur such as those from the Tama group. The Tama blacksmiths are much more socially integrated into the wider Tama group except when it comes to marriage. The El-Fashir blacksmiths, on whom this case is written, mainly belong to the socially discriminated Hadaheed.
without money. This was the relationship between them, but they were not allowed to eat or even interact socially with them. "4"

By the 1940s they are thought to have begun to escape enslavement in small numbers and began to congregate at the edges of villages in small groups where they continued to practice their trades. As a result of their marginalization, they were subject to discrimination in terms of land allocation and political representation. The dominant Zaghawa as well as other groups mainly communicated with them for the purpose of trade. This trade-based subsistence and social isolation of the blacksmiths remained for generations until international agencies as well as local and national governments began to respond to the numerous droughts and resulting famines in Darfur through bilateral development projects. These organizations include: Oxfam, Practical Action (formerly Intermediate Technology Development Group, ITDG), Red Cross, COOPI (Cooperazione Internazionale), the Government of Sudan, Overseas Development Administration (ODA), the United Nations World Food Programme (WFP), the Food and Agriculture Organization of the United Nations (FAO), the World Bank (WB), and the European Union (EU, formerly EEC).

Many of the early development projects in Western Sudan focused on agriculture development, directly or indirectly impacting the lives and work of the blacksmiths. Currently, the blacksmiths are operating out of one of the El-Fashir markets, where dozens of their workshops and retail outlets are clustered along with an office, storage, metal and charcoal supply areas.

Darfur: A Short Overview

The blacksmiths are located in El-Fashir, North Darfur. ‘Darfur’ literally means ‘land of the Fur’, named after the Fur who were at one time the largest and most dominant group in Darfur. It is the westernmost region of Sudan, bordering the Central African Republic, Chad, and Libya. The area of the three states (North, South and West) of Darfur covers approximately 493,180 km² (196,555 miles²) and is home to an incredibly diverse set of ethnic-cultural groups, the majority of which are also represented in Chad. These include sedentary farmers and herders such as the Fur and Masalit (central-belt), agro-pastoralists such as the Zaghawa (northwest) or the pastoralist Medoub (north). Traditionally, Darfuris are primarily nomadic herders, pastoralists, farmers, or some combination of each. Prior to colonialism, the Kingdom of Darfur was both politically and economically powerful. Colonialism - first under Turco-Egyptian rule (1874 to 1883) and continued by the Anglo-Egyptian Condominium (1899 to 1955) - brought the political and economic marginalization of Darfur compared to the central Nile areas. Under the colonial regimes, education and health levels of the communities of Darfur were intentionally suppressed in favour of the

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4 Interview with Practical Action official in El-Fashir, Darfur; December 2009.
ruling classes and central Sudan. At the time of Sudan’s independence in 1956, Darfur had the poorest medical services in all of Sudan.⁵

Tensions in Darfur have escalated for many years prior to the explosive conflict which started in 2003, resulting in the internal displacement of an estimated 1.8 million Darfuris and 200,000 Darfuri refugees in Chad.⁶ These conflicts are rooted in colonial neglect, agricultural-pastoral land confrontations brought on by environmental and population changes including famine, regional confrontations in Chad and Libya and the resulting access to weapons.⁷ Since 2004, Darfur has become a space of immense international political and humanitarian attention, and is home to the joint United Nations-African Union Mission in Darfur (UNAMID).

In most regions of Darfur, subsistence rain-fed agriculture is the basic livelihood option supplemented with livestock, remittances from seasonal labour migration, and small trading. Main crops include millet, sorghum, okra, peanuts, watermelons, hibiscus, and sesame. Irrigation farming, where available, produces crops such as chickpeas, beans, onions, tomatoes, groundnuts and other vegetables and fruits. Livestock include goats, sheep and cattle as investment, and camels and donkeys as transportation. In rural areas, additional income generation can come from traditional means such as collecting firewood and grasses, or from petty trading and handicraft production. Women are the backbone of Darfur’s rural subsistence agriculture, and are engaged in an estimated 75% of sowing, harvesting and weeding activities.⁸

**Evolution of the Business Model**

The existing cooperative business model evolved over a 20-year period as a result of a complex web of environmental adversity, armed conflict – as well as partnerships with key non-governmental organizations (NGOs).

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CULTIVATING AN APPROPRIATE TECHNOLOGY

Due to numerous famines in Darfur, waves of international agency, local and national Sudanese government initiatives targeted Western Sudan with humanitarian relief and development. Of particular importance in the evolution of the blacksmiths' cooperative enterprise model were the early agricultural interventions by the British NGO Oxfam. A year after the 1984-85 famine in Western Sudan, Oxfam began a seed distribution program in Darfur to enhance agricultural production. During this time, Oxfam became aware that there was a lack of appropriate agricultural tools for small farm holders in North Darfur. The traditional hand hoe was especially seen as a time and energy consuming constraint to expanding agricultural yields. In 1971, two bilateral appropriate technology projects were launched by the Government of Sudan and were funded by the ODA and EEC in Jabal Marra and Western Savannah. Building on the early experiences of these projects, Oxfam explored the feasibility of furthering the development of appropriate animal traction ploughs in Darfur.

First introduced to the greater Darfur area in the 1960s by Egyptian traders, the animal-drawn plough – considered sophisticated in comparison to traditional hand tools used in the area – became a focus of development activity during the 1970s. Animal ploughs were seen as an opportunity to greatly expand...
farmer productivity and improve local agricultural production. According to one cooperative member, “Oxfam was working on two sides. One side is the blacksmiths and the other side is agriculture.”

While many farmers did not use animals directly in farming, in Darfur donkeys are available and are traditionally used in transporting people and goods. In order to accelerate the development of appropriate ploughs, in 1986-87 Oxfam established demonstration farms in Kebkabiya, North Darfur, for the testing and development of improved ploughs. As part of this initiative, a blacksmith from Nyala, South Darfur – who had gained experience in plough production from the early Darfur plough projects sponsored by international agencies and the Government of Sudan – was contracted by Oxfam to train a small number of blacksmiths from Kebkabiya, North Darfur, to make animal-drawn ploughs. This is the first known project which directly engaged the marginalized and isolated blacksmiths in North Darfur. During this time three different designs were experimented with: one which built upon the previous experiments in Darfur, one adapted from Ethiopia, and another from Britain. Distributions of some ploughs were made through the market and sold mainly to more affluent farmers. A local Kebkabiya charity, established as a semiformal committee in 1986 and registered as a charity in 1990, acted as an intermediary between Oxfam and local beneficiaries and distributed some ploughs to less affluent farmers through a subsidized system of sale or return.

ENTER PRACTICAL ACTION – A DECISIVE PARTNERSHIP

From its beginning, the Kebkabiya animal-traction technology project was struggling due to the slow development of appropriate plough designs and the limited experience of local farmers in using such tools in the region. In order to rectify these challenges the UK-based international NGO Practical Action – then known as the Intermediate Technology Development Group (ITDG) – was contracted by Oxfam in 1987 to identify, test, and develop an appropriate animal-drawn plough for Western Darfur. At that time, Practical Action recognized that the Kebkabiya blacksmiths were likely the only option for local manufacture and maintenance of a new plough technology. Thus, a key component of their activities was to work with the Kebkabiya blacksmiths to ensure a transfer of skills necessary to sustain local production of appropriate plough technology. In addition to working with the Kebkabiya blacksmiths, Practical Action worked with blacksmiths in nearby villages to test, promote, and produce animal ploughs. Testing and development continued with regional blacksmiths and farmers until the early 1990s. During this time, more blacksmiths in a small number of North Darfur villages were trained by Practical Action.

Historically, the blacksmiths melted and shaped iron from ore. A member of the El-Fahir blacksmiths cooperative recalls, “A long time ago we never had metal...a long time ago they [the blacksmiths] used to remove the stones...and throw the stones inside and light fire...when they melt they take the iron and they

10 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
work with it. That’s from a long time ago, our grandparents’ time. Before, we didn’t have much iron to work with.”12

This began to change in the early 1990s, when the blacksmiths were introduced to new production techniques and materials as well as management practices: “Practical Action […] brought us the metal and it was them who brought us the measuring tools; we got training and we organized as a cooperative.”13

While Practical Action began providing blacksmiths with the material and the necessary training in metal working to enhance their skills, the Kebkabiya charity provided for the costs of labour and took responsibility for the distribution of the ploughs on credit. Accumulating funds from the sale of ploughs was managed by the Kebkabiya charity society and used as seed capital for a revolving fund. From the mid-to-late 1990s, under the guidance of Practical Action, blacksmiths began to train other blacksmiths in numerous villages across North Darfur and expanded direct sales of ploughs to farmers with noticeably higher profit margins. During the late 1990s, Practical Action assisted blacksmiths in six rural villages in North Darfur, and also one in El-Fashir, with establishing and legally registering their own organization. Due to the socioeconomic status of the blacksmiths, these local societies were formed as charitable cooperative societies rather than registered as private corporations. This is the first known instance in which the blacksmiths formed and registered their own organizations. The legal registration facilitated the ability for the blacksmiths to enter into contracts directly with international NGOs; the first such contract came to the blacksmith society in the village of Azagarfa from the World Food Programme (WFP) in the year 2001, valued at approximately 5100 SDG (or US$2,000 ).1415

After the start of the large scale Darfur armed conflicts in 2003, a great number of blacksmiths were displaced from their rural villages. Fleeing violence, many of the blacksmiths migrated to urban areas and into camps for the internally displaced. With the displacement of blacksmiths from rural villages, the blacksmith society in El-Fashir took the decision to accommodate a number of blacksmiths from multiple societies into their workshops and market area. Due to differing levels of expertise and agricultural needs in the various areas of North Darfur, blacksmiths brought with them different skills, experiences, and

12 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
13 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
15 All currency conversions are approximations based upon international conversion rates at time of publication. During interviews figures were often provided in various currencies, sometimes in United States Dollars (USD), the current Sudanese Pound (SDG), or the now replaced Sudanese Dinar (SDD) or earlier Sudanese Pound (SDP). The currency conversions presented are approximate, with most falling in the range of US$1 = 2.5 to 2.57 SDG. The differences can be accounted by currency fluctuations, different currencies presented by interviewees, and the accuracy of recalled historical figures.
knowledge. With the help of Practical Action, the original and newly arrived blacksmiths combined their resources into a new cooperative to accommodate the El-Fashir blacksmiths into one business model.

In 2004, Practical Action provided a guarantee for the blacksmiths by signing a contract on their behalf with the International Committee of the Red Cross (ICRC), who had hesitated to sign a contract directly with the blacksmiths. This was repeated for two seasons until Practical Action withdrew their guarantee and the ICRC was forced to sign directly with the blacksmiths. In 2004 the blacksmiths also signed the first of many contracts with FAO. During the first working season in 2004, the ICRC and FAO contracts totalled approximately 900,000 SDG (or US$350,000). The blacksmiths registered their new organization in 2006, and between 2007 and 2010 they received a number of contracts annually from FAO for the production of ploughs. Thousands of ploughs have been produced and disseminated as a result of the contracts, at a total approximate value of 1,450,000 SDG (or US$580,000). This success is unprecedented among marginalized groups in Darfur.

The animal-drawn plough

A Model of Long-Term Partnership Success

The blacksmiths have a unique business model, one which is embedded in their long-running partnership with Practical Action, rooted in market activity, and interdependent with the environment, community, and increasingly, in policy.
THE VALUE CHAIN

The El-Fashir blacksmiths cooperative creates numerous forms of value through its operations and direct and indirect relationships with other stakeholders. The cooperative model provides members with a culturally relevant collective structure through which they can gain economies of scale in both inputs and production. It also provides a safe base of operations and social support, as indicated by the absorbing of displaced members into the El-Fashir cooperative. Members are the heart of the cooperative, providing it with skills, knowledge, creativity, capital and labour. Member workshops are the locations of product production and innovation. Due to varying skills and experience, members produce a diversity of products for farmers and households across Darfur. Value is created in the cooperative through production for contracts, the dissemination of innovations in production and design among members, and through apprenticeship and employee relationships. For apprentices and employees, the cooperative is a place for employment, knowledge transfer, and skills development. Their relationship and proximity in the market creates value for the business model as a centralized locale for sales of agricultural tools in El-Fashir for urban and visiting rural customers alike. Larger suppliers and smaller merchants provide access for the main production inputs of metal and charcoal. Merchants also serve to distribute the final products throughout local markets in Darfur. As a key partner of the El-Fashir blacksmiths, Practical Action
provides managerial and technical support, and acts as an intermediary between the blacksmiths and other international agencies and organizations.

**DESCRIPTION OF THE BUSINESS MODEL**

"In our effort we work, only. We work in the cooperative. We work individually. So we can move better. We are improving, we are moving well. Thank God."\(^{16}\)

The El-Fashir blacksmiths cooperative currently has 73 members. These 73 members own and operate 75 workshops. Some members own several workshops. These are all located in a metalworking area of the market where they produce, sell and store their work. This is also the area where the cooperative office is located and collective storage of supplies and finished products can be found. Historically they were the source of production for agricultural tools across North Darfur. As blacksmithing was associated with low-castes and thus an unattractive livelihoods option, they are now the only practitioners of their trade in the market and surrounding area. An executive of the cooperative exclaims: "We have all the market in our hand. The only competition we have is in South Darfur, in Nyala. We have no competition in North Darfur."\(^{17}\)

**Member Workshops**

Each workshop is usually operated by two individuals, usually a combination of members, employees or apprentices. Workshops usually specialize in particular tools, including a diversity of hand-tools, animal-drawn ploughs, and traditional knives and handicrafts.

Inputs such as metal and charcoal are either purchased through the markets with cash or through barter; or – if available – they are purchased from the cooperative supply via cash or on credit. If purchased on credit, the member must settle the credit upon sale of the products. An additional return above the initial credit given is reinvested into the purchase of inputs. To pay for inputs, members can also contribute to the cooperative’s supply of products for sale through large contracts such as the annual order from the Food and Agriculture Organization of the United Nations (FAO).

\(^{16}\) Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.

\(^{17}\) Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.
Agriculture and traditional tools

The production of tools and handicrafts of each workshop is mostly for local consumption. The products are either sold directly the individual workshop or distributed by merchants throughout urban and rural markets in Darfur. Tools and handicrafts, such as traditional knives, are an integral component of life for farmers and Darfuris in general. As a result these products are continually in demand. Some members have designed and built new equipment and tools. Such manufacturing innovations have led to increased product diversity and the development of new products (such as animal traps), and also new production equipment with resulting efficiencies in production.

In addition to the income of the cooperative, member incomes are highly variable depending on the type and quantities of work they produce and availability of UN or NGO contracts. Some members, for example, decide to work only one season annually or enough to cover their annual household costs. For these members, a minimum average annual income is estimated to be between 1,000 and 1,500 SDG, or between US$450 and US$675. The annual income of members who own multiple workshops or specialize in desired ploughs can be much higher; one executive member who runs three highly profitable workshops has earned upwards of 250,000 SDG (or US$100,000) annually. Members who work in their shops might earn upwards of 70 SDG (US$25) per day with non-member workers and apprentices earning a daily wage of between 10-25 SDG (or US$4.5-10). According to an executive member of the cooperatives, individual workshop costs are calculated on a daily basis (inputs in, costs, and output): “We cover our daily expense, [have a] daily income […] and keep the workers going.”

Working as a Cooperative
The cooperative model provides strength to individual members, allowing them to gain economies of scale through jointly sourcing inputs and selling their production. When supplies run low, or when the cooperative receives a large contract, the directors of the cooperative will procure inputs (charcoal, steel from used vehicle parts, and other scrap metals such as used barrels). If a large contract is received, for

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18 Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.
example, the cooperative would use its funds to order upwards of 200 large sacks of charcoal and 20 tons of steel and metals from Omdurman, Khartoum. In some of the large ICRC contracts the blacksmiths subcontracted their work to other craftsmen both inside El-Fashir and to blacksmiths in rural villages (i.e. Azagarfa). Prior to their displacement from their villages, the blacksmiths would lend their members raw materials (metal) during the off-season and would take repayment in kind (in the form of manufactured tools). This had many benefits, including the production of tools in the off-seasons reducing manufacturing burden during the rainy farming seasons. Importantly, it also allowed members to earn income through the sales of tools, allowing them to keep busy and generating income during a traditionally non-work season.

In previous years, the cooperative had ordered the raw material only when a large order for agricultural tools was received. Now, the cooperatives have established very good relations with metal suppliers in Omdurman. Initially, the blacksmiths would travel to Omdurman to purchase metal and ship it to El-Fashir. Today, the blacksmiths only need to call the supplier with the specifications of the type and quantity of metal required. The supplier will then send a truckload of metal (approximately 20-30 tons) and the payment can be sent by bank transfer or carried back with the truck driver. The cultivation of such supplier relationships has had a positive impact on the cooperative value chain.

The blacksmiths attempt to keep a supply of inputs as well as the most popular tools, especially animal-drawn ploughs, in order to more quickly fill orders and also to regulate the work of members. Having an on-hand supply of inputs and finished products allows the cooperative a buffer in terms of supply and sales. One of the cooperative executive members explains: “We first get the materials from Omdurman [paid with funds from the cooperative] and put it in the [storage] room here. We give it [to the members] at the same price that we get it from Omdurman. Some people can’t buy from the [merchant] suppliers because the prices from the [merchant] suppliers are higher - much higher than the price from the cooperative.”19

The cooperative collects the completed tools from its members for large contracts and reimburses members for their work, most often when contracts are fulfilled and funds received. Reimbursement is determined by taking into consideration a fixed price for labour per tool created, with the variable costs of metal, charcoal, and the contract.

In the beginning, the cooperative was assisted by Practical Action in terms of sourcing metal, contract negotiation, and delivering finished products. These practices occur less frequently nowadays, leaving the cooperative members to manage the sourcing of inputs, production and distribution prior to receiving payment on their own. In the past the cooperative would receive 50% of the value of a contract upfront as a means to assist them with the costs of procuring supplies and labour. This practice was facilitated and

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19 Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.
often guaranteed by Practical Action, but has been phased out over time with the increased success of the blacksmiths in the form of increased cash flow, on-hand supplies of metal, and stocks of manufactured tools. One executive member confirms: “Before they used to give us 50%, they changed it to 25%. Why? So you can get stable, so you can stand on your own feet. They were very serious and we were very serious so we can succeed.”

Improving sourcing and production processes, the blacksmiths did not only get more self-contained, but also helped to engage more directly with their stakeholders, including suppliers, contracting organizations, and beneficiary communities – with additional benefits. For example, filling contracts more efficiently improved the relationship to their customers. And direct contact with farmers has allowed the farmers to gain first-hand knowledge on how animal-drawn ploughs are best used; and in turn provided the blacksmiths with new insights on the work of the farmers, resulting in new ideas for developing plough innovations.

**The Financial Model**

Upon registering the new cooperative in 2006, Practical Action assisted the members in opening a bank account. Each member contributes financial capital to the cooperative account in the form of dues, and from contracts prior to disbursement of profit to members. Dues typically amount to 50 SDG, or US$23, annually. This is a standard member fee which is typical of registered cooperatives across Sudan. For subsistence economic activity, such a fee can be steep in comparison to member income. However, even for blacksmiths who choose to work one season per year to cover their basic living and household expenses, such a fee is marginal.

Prior to being awarded large contracts, the cooperative managed insignificant amounts of funds. However, the success of recent years has led to a dramatic growth of their financial assets and levels previously unimaginable for the cooperative. For example, as of December 2009 the cooperative bank account alone – not to mention the value of raw materials and work in process – held approximately 24,000 SDG, or US$11,000, accumulated through member fees and contract commissions.

The accumulated capital is used primarily for the purchase of bulk raw materials. The cost of supplies and transportation can fluctuate widely. An average landed price per ton when sourcing large quantities of steel parts is approximately 2,000 SDG, or US$900. Once the supplies are received, they are distributed among the members at the landed cost so that the workshops can begin to work. The calculation of landed costs and member pricing can be crude at times, as explained by an executive member: “Now we are working by pieces. The first thing we do is bring the material from Omdurman. We take out the charcoal.

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20 Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.
and labour and then see how much the costs of the pieces [metal] are and we establish the value. This is simple, once we establish this value; we release it [the materials to the members].”\(^{21}\)

Annual inventories are conducted as a means to record the status of the cooperative and measure changes in the size of the business, mainly through stocks of input materials and finished products. Due to the conditions and nature of the blacksmiths work, it is extremely difficult for them to keep accurate records of profit and stocks. A member of the cooperative explains: “For example we record how much steel we have...From the month we can’t record, by the day we can’t record, only by year...This way you establish your yearly profit, but in a day or month, you cannot do it.”\(^{22}\)

Measuring this profit is an important annual routine in order for the blacksmiths to contribute to ‘Zakāt’, an obligatory Islamic practice of charitable giving and one of the Five Pillars of Islam, usually paid as a percentage of surplus wealth. An executive member clarifies: “We don’t have a book but we keep an inventory per year...after Ramadan we do our Ramadan inventory. We make this inventory to see how much money and materials we have. We do it once a year.”\(^{23}\)

**Constraints and solutions strategies**

**CONSTRAINTS**

Establishing their business model, the El-Fashir blacksmiths face numerous constraints, inhibiting planning, efficiency and growth. Key constraints include insufficient market information, basic physical infrastructure, and necessary knowledge and skills.

**Insufficient Market Information**

Insufficient market information is a key constraint for the blacksmiths. Climate change and political instability – both influential and difficult to predict – contribute greatly to fluctuations in annual demand for the agricultural tools produced by the blacksmiths. Changes in annual contracts from the international agencies are also difficult to predict, impact a large proportion of the income of the El-Fashir blacksmiths, and are almost entirely disconnected from market demands. As a result, the blacksmiths operate in an environment where planning for or predicting market demand is extremely difficult. This difficulty is exaggerated in part due to the dissemination of free tools to beneficiary communities in Darfur by UN agencies and international NGOs. The free tools often find their way back into the market, often being sold at below-production prices. This might indicate that the size of tool dissemination programmes are too large, thus the supply of tools outstrips the immediate demand of farmers. It might also indicate that

\(^{21}\) Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.

\(^{22}\) Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.

\(^{23}\) Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.
tools are not being distributed to the appropriate beneficiary communities. This practice is a double-edged sword in the longer-term: while the blacksmiths receive large contracts from NGOs, the increase in the availability of tools in the market reduces the ability of the blacksmiths to cultivate increased market linkages through non-institutional sales. The effect is development-induced market distortion which serves the immediate needs of both the blacksmiths (through contracts) and beneficiaries (who use or sell tools) but reduces the longer-term capacity of these actors to enter into sustainable local market exchanges. In addition, there exist services and bursaries from the National Bank of Sudan available to entrepreneurs. The blacksmiths are simply unaware of these, or are unable to access them.

**Basic Physical Infrastructure**

The basic physical infrastructure of the workshops and immediate area are a major constraint hindering business growth and development, and also overall quality of life for the blacksmiths. Because the workshops are exposed to the elements, during the rainy season work is extremely difficult to undertake. While the cooperative has a semi-secure area for storage of supplies and finished products, the workshops area is open and insecure, a risk for members who might have valuable equipment, supplies and tools. The open area is also potentially dangerous for workers and large numbers of youth and children present, as is the exposure to charcoal fumes. Currently, the blacksmiths operate with few safety precautions, some not even wearing adequate clothing and shoes. There are no first aid kits. The inadequate disposal of scrap metal and the lack of appropriate workspaces and safety measures leave workers at risk of injury and tetanus poisoning. Furthermore, most of the workshops have limited or no access to electricity and insufficient access to water, limiting the type of equipment, and hence the range and refinement of products the blacksmiths are able to produce. Without an upgrade of the working environment infrastructure, the blacksmiths will be restricted to burning fossil fuels in open air for energy which is not only inefficient but creates negative repercussions for health and the environment.

**Necessary Knowledge and Skills**

The blacksmiths require necessary knowledge and skills in order to increase efficiency of operations and business growth. If the blacksmiths are able to overcome the constraints of market information they will require new skills in business planning, forecasting, accounting, and measurement of key business indicators. In order to overcome the physical infrastructure limitations of the current workshop area and move into modern workshops, sophisticated knowledge of machinery, electricity, and vocational appropriate mathematics (such as geometry and trigonometry) may be required. Awareness is a key challenge for obtaining necessary knowledge and skills. In many cases the blacksmiths are not aware of their ability for producing more diversified tools and products. They are also not aware of the availability of tools for improving efficiencies in production (i.e. puncturing, shaping, and zigzag equipment and techniques or methods for hardening and working with various metals).
**Insecurity**

With recent contracts the blacksmiths are asked to increasingly take responsibility for all aspects of the business, including the delivery of finished products. Instability outside the security of El-Fashir poses risks and challenges due to conflict and banditry: “You will be afraid because you want to deliver along the same road – [but] the situation has changed from before until now.”

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24 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.

25 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.

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Although some forms of market activity in Darfur are increasing in response to the large numbers of UN and AU staff and peacekeepers, many local merchants are unwilling to take travel-related safety risks and thus are reluctant to trade between towns and villages. This further constrains the ability of blacksmiths to disseminate their products, as explained by a cooperative member: “They [the merchants] used to come from east, west, and south – now they are afraid.”

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**SOLUTIONS STRATEGIES**

The solutions strategies adopted by the El-Fashir blacksmiths to overcome key constraints include partnering, continual adaptation of products and production, and increased dialogue with the government.

**Partnering**

Partnering is a strategy which allows the blacksmiths to overcome market and knowledge constraints. The blacksmiths are able to combine resources and capabilities with Practical Action through their long-term partnership. As a result, Practical Action’s strengths in technical and managerial knowledge, community development, and managing stakeholder relationships compensate for those which the blacksmiths are slowly developing or have yet to develop. A core feature of this partnership strategy is the incubating and evolution of the blacksmiths skills and business model – and Practical Action’s ability to react to their development and adapt to their needs The multiple and deep connections of the blacksmiths-Practical
Action relationship allows for flexibility and shifts over time depending on the requirements of each partner, environment and political conditions - and the market demand. The importance and depth of this partnership should not be underestimated: “From the start Practical Action supported us. Thank God until now they haven’t failed us, and we are still standing with them also.”

Continual Adaptation of Products and Production
Although the blacksmiths are limited because of basic physical infrastructure of their working environment, adaptation of the tools and handicrafts they create innovates “around” these challenges, improves marketability and creates demand for their work. In the past few years alone a noticeable aesthetic refinement can be found in the handicrafts they produce. Furthermore, with innovations in production equipment they are able to realize efficiencies in time and charcoal consumption, not to mention increasing safety in the workspace. Perhaps the most beneficial adaptations in product development are currently being developed; in conjunction with farmers some blacksmiths are testing two-blade plough designs. Such innovations may have the potential to greatly increase crop production in Darfur.

Education and Training
In order to overcome the constraint of knowledge and skills, the El-Fashir blacksmith cooperative members are upgrading their education and the education of their children. Management, production, and work related training often takes place with the assistance of Practical Action. Local schools, and increasingly colleges and universities are being attended by some blacksmiths and their family members. The blacksmiths also offer apprenticeships. In the past, traditional metalworking skills would be passed from generation to generation often from grandfather to grandson. Nowadays the blacksmiths offer apprenticeships more formally, even to members outside their cultural and ethnic group. Consequently, the knowledge and skills of the blacksmiths do not only stay within one family, but can be accessed by a wider group of people from the community, contributing to their preservation and further development.

Increased Dialogue with Government
In order to overcome the constraint of their physical working environment, the blacksmiths cooperative has begun to engage in a dialogue with the local government. This has been aided in part through their partnership with Practical Action, but also through the recent election of one of their members to local government. As a result of these engagements, the government has approved and allocated land for constructing improved workshops for the blacksmiths. It is the hope that these new workshops would be concrete structures, and accommodate a generator for using electrical tools. When built, the new workspaces are intended to greatly improve the working environment for the blacksmiths in terms of production, efficiency, safety, and environmental impacts. However, a great challenge for the new workspaces is that the proposed design for the new building does not appear to be suitable for the work of
the blacksmiths. The design includes standard square kiosks suitable for petty traders or service-based vendors. An ideal space would include hangers with high ceilings and metal walls designed in a manner that would allow for drafts for the dispersal of fumes and smoke and also for the cooling of workshops. The blacksmiths themselves have attempted to engage the design and are responsible for raising some of the funds required for building the workspaces. While a funding proposal has been drafted with the help of Practical Action, the blacksmiths cooperative has yet to find a donor to help with the construction costs. If this is not done in an appropriate and well-thought manner, there might be little benefit realized by the blacksmiths.

In addition to the physical infrastructure, engaging the government has the benefit of influencing development policy. It is the hope of the blacksmiths and Practical Action that the use of animal-traction tools is increasingly accepted and promoted as an agricultural and development policy in Darfur.

The Business and its Relationships

Key stakeholders integral to the business model include Practical Action, customers and community, international agencies and NGOs, and farmers and households in Darfur.

**Practical Action**

Practical Action began work in Sudan in 1974 with a project in Juba, Southern Sudan. Their first project in Darfur began in 1987 on the invitation of Oxfam to give technical input to the Kebkabiya smallholders programme in North Darfur. Practical Action works with vulnerable and war-affected communities to tackle problems of immense poverty. They are currently focusing their activities across three regions in Sudan (Eastern, Western and the Blue Nile), where they also maintain local offices, each working to strengthen the abilities of communities to organize, develop management and production skills, and engage in development decision-making. Practical Action is undoubtedly a core partner and an integral component of the blacksmiths business model, currently working with a large number across Northern Darfur. A Practical Action official working in Darfur with the blacksmiths confirms: "Maybe 80% of them [the blacksmiths] have been targeted by the organization, Practical Action, and have been organized and provided support technically and managerially."

For almost 20 years Practical Action has added tremendous value to the El-Fashir cooperative value chain by providing technical and managerial training as well as financial, legal and moral support. One of the cooperative members describes this relationship: "They provided us with many things: the first thing is

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27 History, Practical Action Sudan, [http://practicalaction.org/sudan/region_sudan_history](http://practicalaction.org/sudan/region_sudan_history)

28 Programmes, Practical Action Sudan, [http://practicalaction.org/sudan/region_sudan_programmes](http://practicalaction.org/sudan/region_sudan_programmes)

29 Interview with Practical Action official in El-Fashir, Darfur; December 2009.
they trained the people, they provided us with financial support, they provided us with transportation equipment...they provide us with lots of work.”

Practical Action provides regulatory and legal support in terms of registration and renewal of their business license and when opening bank accounts - intimidating tasks for marginalized groups. The initial large contracts from international agencies came through the direct efforts of Practical Action: “We convinced FAO to produce local tools in Darfur instead of importing Chinese products, and even with WFP we talked about some pick-axes and some shovels and said we should produce them locally.” Practical Action continues to help represent and manage relationships between the blacksmiths and other NGOs and international agencies: “Practical Action is the middle man between us and any organization.”

Practical Action’s relationship and motivation to work with the blacksmiths has changed over time. In the beginning, they engaged as part of an invited project (by Oxfam in 1987). From 1988 to the mid-1990s, Practical Action trained approximately 200 blacksmiths in different villages of North Darfur, mostly in Kebkabiya and Dar es Salaam areas. Initially, the blacksmiths were not targeted as primary beneficiaries but as intermediary beneficiaries for manufacturing tools at the village level. In order to sustain the production of ploughs, the capacities and skills of the blacksmiths were strengthened with training and material support. Over time, the purpose of their engagement evolved and increasingly focused onto the blacksmiths themselves. Being among the most marginalized and discriminated communities of Darfur, the blacksmiths are now seen as beneficiary-partners in need of the services which Practical Action can offer. The success of the partnership between the blacksmiths and Practical Action further serves as an interesting case for testing approaches for implementation with other communities in Sudan and beyond. The unique experience of working with the blacksmiths is described by a Practical Action official: “I think worldwide for Practical Action this is a first to target a group like this, a caste group.”

Practical Action facilitates and manages most relationships between the blacksmiths and international agencies, while slowly encouraging the blacksmiths to do so themselves. As the blacksmiths cooperatives grow and change, Practical Action initially takes on the burden of ambiguities and responsibilities associated with new operating dynamics but then eventually strengthens the capacity of the blacksmiths to do so themselves. The approach to the relationship remains the same but the particulars and nature of the engagement changes. As a result of this dynamic, Practical Action functions as an integral component of the business model.

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30 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
31 Interview with Practical Action official in El-Fashir, Darfur; December 2009.
32 Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.
33 Interview with Practical Action official in El-Fashir, Darfur; December 2009.
Inevitably, such a relationship creates dependencies and frustrations. It is evident that the blacksmiths have the utmost respect and appreciation for Practical Action. In fact, some blacksmiths do not feel that Practical Action benefits from their relationship, indicating that at least some blacksmiths view themselves as beneficiaries within the long-standing partnership. As a result, many members of the cooperative are reluctant when the nature of the relationship changes such that Practical Action withdraws a particular form of support. This is part of a staged process of empowerment with resulting (and somewhat expected) organizational inertia. Practical Action realizes that they are integral to the blacksmiths ability to slowly enhance their operations and engage future steps. Still, Practical Action does not explicitly see itself as essentially part of the blacksmiths business model. When viewed as such, the perspective and nature of dependency itself can be seen as a mechanism of shifting responsibilities over the long-term within the business model itself. Practical Action sees itself as a community-focused NGO with deep and intimate knowledge of the communities and dedicated to the partnerships they form in the long-term. They work in close partnership with the blacksmiths with a long-term goal of helping the blacksmiths achieve economic success and independence, and social integration; “to be recognized and to improve their status among Darfur’s communities.”

International agencies and NGOs

International agencies (such as FAO) create value for the El-Fashir blacksmiths through a number of mechanisms. Importantly, they create increased annual demand for their products, which has allowed the blacksmiths to create economic value. These agencies also act as intermediaries to disseminate agricultural tools and implements produced by the blacksmiths to beneficiary communities. It is highly likely that many beneficiaries of these tools and implements would be unable to afford or access the tools produced by the blacksmiths. At the same time, the free dissemination of tools also serves to erode the capability of the blacksmiths to sell directly to the market. Often, the tools of the blacksmiths can be found being sold in local markets at lower-than-production costs. Finally, the international agencies, by interacting directly with the El-Fashir blacksmiths, have helped in raising the status of the blacksmiths through direct engagement with the cooperative, and the resulting economic and political benefits of doing so. Early engagement between international agencies (such as Oxfam and Practical Action) served to help organize and structure the blacksmiths business model and initial engagement with their communities (i.e. through the Kebkabiya charity society). At this time, the blacksmiths were truly beneficiaries of international NGOs. With Practical Action serving as a promoter and manager of relationships between the El-Fashir blacksmiths cooperative and international agencies and NGOs, the blacksmiths are introduced to international agencies as a cooperative business and beneficiary.

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34 Although not indicated by the El-Fashir blacksmiths nor by Practical Action officials, the author believes that Practical Action is indeed an integral component of the business model.
35 Interview with Practical Action official in El-Fashir, Darfur; December 2009.
Though renewed contracts international agencies are engaging directly with the blacksmiths, on a client-customer basis. These shifting dynamics have empowered the blacksmiths and changed the way in which they view their role in relation to international agencies and NGOs; where in the past they might have sought assistance they now seek contracts.

**Farmers and households in Darfur**

Similar to beneficiaries of international agency programs, farmers and households who purchase the products produced by the blacksmiths create value for the business – and benefit from it. The purchase and dissemination of agricultural tools and implements to farmers and households throughout Darfur create a relationship between the blacksmiths and other members of the Darfur community. Innovations in the types of tools produced contribute to improved crop yields and biodiversity, which indirectly reinforces positive impressions of the blacksmiths, their business, and the organizations they work with. One executive member describes this relationship: “And the farmers themselves, our brothers, say 'by God this plough is really helping us a lot because we plant with animals; in one day the man and animal work very quickly, about one and a half times faster [than a man alone].”

From the beginning of the organization, farmers have been an integral partner for the testing of new technologies, especially the animal-traction plough. However, their engagement was mainly driven by Oxfam and Practical Action. In recent years, the blacksmiths themselves have engaged more directly with farmers to develop and test product innovations (such as the two-blade plough). This is in part due to their increased engagement in their value chain, ownership over the development of new tool designs, and also likely due to their increased comfort working outside their previous social boundaries. As a result farmers are playing an increasingly direct role in sharing information for product innovations with mutual benefit: “Because when I produce something for you as a farmer, I want to make sure it is something that is going to make it much easier for you.”

Because farming in Darfur – as in many regions of Sudan and Africa – is an activity in which all household members and especially women engage in, the tools and implements produced by the blacksmiths impact all members of a households and often entire villages. The blacksmith’s success and increased community acceptance also increased the linkages between their families and other groups in Darfur.

**Results Created by the Business**

Through its operations, the El-Fashir blacksmiths cooperative has created economic, social and environmental impacts. The creation of economic and social value through their operations is apparent; environmentally their operations result in both beneficial and harmful outcomes.

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36 Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.
37 Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.
ECONOMIC RESULTS

“From a long time ago all the men would say ‘you don’t have money, your father doesn’t have anything, you blacksmiths don’t have anything’. We, from a long time ago, have been trying to change. Thank God. Now the man knows us. He knows you from your work. Now they know you work, that you have money in your pocket, and you can go to any place and nobody will say no to you.”

The business model has created an economically attractive option for blacksmiths to practice their trade through individual workshops and retail spaces and collective contracts. Members can earn a wide range in terms of annual income depending on the products they produce, how many seasons they decide to work, and whether or not they actively engage with collective contracts. The economic benefit of the institutional contracts for the blacksmiths cannot be underestimated. In 2004, when the blacksmiths received the final instalment of their first contract with ICRC, each member received a large disbursement of the profit. The significance was demonstrated by the many vehicles delivering new furniture to the blacksmiths, and the number of weddings for those who decided to use the funds to pay for weddings.

Because of the diversity of products produced, the blacksmiths will often specialize in particular products or specific components of a product. This allows the development and refinement of skills and manufacturing techniques, the opportunity for members and apprentices to specialize, and for more efficient production. With their income the blacksmiths have the opportunity to invest in land, improved housing and education. In addition, the cooperative model allows members the ability to purchase supplies with economies of scale and also access to supplies on credit. Members are also branching into new businesses such as concrete and building materials.

The combination of rural blacksmiths into the El-Fashir blacksmiths cooperative business model brings together a diverse knowledge of agriculture and agricultural tool production from across Northern Darfur into one location. This body of knowledge, experience, man-power, and market capitalization allows the blacksmiths the ability to negotiate large contracts and influence the types of tools which are produced. Access to large-scale humanitarian aid expenditures in Darfur through contracts to produce agricultural implements for international NGOs creates strong economic benefit to the cooperative and members. Through the resulting economic success, the cooperative is able to access commercial financial services including having an account, and also accessing finance for it and its members. One member explains: “If someone needs materials for 20,000 or 100,000 [SDG, approximately 8,000 or US$40,000] now any bank will provide it.”

38 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
39 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
Through a combination of intimate knowledge of local farming conditions and requirements and the dissemination of thousands of agricultural tools and implements to communities across Darfur, the blacksmiths contribute to the economic betterment of farmers in Darfur. By convincing NGOs to procure regionally appropriate tools and a seasonal timeframe for production and delivery, the blacksmiths contribute to livelihoods security and the development of local markets. The diversity of tools – especially ploughs – produced by the cooperative and sold through local markets or distributed by NGOs contributes to the ability of farmers to harvest a wider variety of crops. This can contribute to income stability for farmers and aid in the development of produce-diverse local markets.

The El-Fashir blacksmiths cooperative has also created positive economic results for the wider Darfur community. Economic benefits are injected into the local economy through investment, spending, incomes, shops as a result of product sales, and local suppliers of metal and charcoal. Products distributed by members or merchants throughout local markets in Darfur contribute to incomes of those retailers. This aids in the stimulation of local markets and especially agricultural-related economic development.

**SOCIAL RESULTS**

“They were completely isolated from the community…even they were not joined in social gatherings or occasions, and even people would not eat with them and not marry from them…now the situation has changed.”  

Through their activity and partnerships the blacksmiths have realized tremendous social improvements. From suffering extreme marginalization, they are increasingly becoming accepted by the society at large due to their economic success, visible interactions with international agencies, and the attribution and recognition that they are a key driver of agricultural improvements in Darfur through their work. Some of the current generation of blacksmiths is among the first who are able to afford to send their children to secondary schools and universities. According to one Practical Action official, this is a huge accomplishment for a marginalized group in Darfur: “Now they have more than twenty students in the university, and some of them have graduated.”

Increased economic and social interactions with farmers, merchants, development organizations, banks, employees and apprentices, and the wider North Darfur community are slowly breaking down barriers of social discrimination. Perhaps the greatest indicator of this is the recent appointment of one of their executive members to the local state government, an indicator of increased social and political importance of the group. Blacksmithing is more than just a trade in Darfur; it is associated with the culture and livelihoods of men from the lower-caste. In their recent history, other groups would not dare to interact with them outside of market exchanges, but now the blacksmiths are increasingly approached to take on

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40 Interview with Practical Action official in El-Fashir, Darfur; December 2009.  
41 Interview with Practical Action official in El-Fashir, Darfur; December 2009.
apprentices from other ethnic groups. This is a strong indication that for the blacksmiths, social structures are rebalancing towards a more equitable arrangement. As explained by one of the blacksmiths: “When you went to shake his hand he would refuse, and now he himself is working with us.”

An interesting development which will increase the social status of the blacksmiths is the building of their own mosque. In the past, many Darfuris considered the blacksmiths heathens. Islam is extremely important for Darfur’s communities, permeating all aspects of social, personal and political life. Thus, the mosque will symbolize and communicate to other communities in Darfur that the blacksmiths are strongly committed to their faith.

Their increased economic and social status also directly benefits the women pottery-makers of the same group who benefit by creating pottery used for storing foodstuffs and water. These products are sold through local markets. As a result of these socio-economic changes, the quality of life for the blacksmiths and their families are improving in a way which simultaneously enhances and maintains cultural and gender dynamics.

The wider El-Fashir community has benefited due to their continued production of agricultural tools and traditional handicrafts, and also the hiring and training of a number of employees and apprentices. Employees and apprentices have the opportunity to earn income (approximately 10 SDG or US$4.50 per day) while gaining valuable and transferrable skills in metalworking, tool production and repair, and also retail for those who sell in the market.

There is a worry, however, that desires to educate the next generation will cause the blacksmiths’ craft to suffer. A Practical Action official explains: “Traditionally, skills are gained via apprenticeship for members of the same group or family. When boys get educated as per fathers strong desire, they can hardly go to practice (backward skills) as they perceive it. For the craft to develop, it is necessary to attract educated people into it, especially members of the group or family.”

**ENVIRONMENTAL RESULTS**

“This steel doesn’t work without charcoal...because of cutting the trees we are creating more deserts and that is not good. This is the negative effect on the environment of this work. And now the positive effects...if we stopped working the agriculture will become less, the people can’t farm.”

A member of the cooperative summarizes.

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42 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
43 Email correspondence with Practical Action official in Khartoum; April 2007.
44 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
The environmental results of the El-Fashir blacksmiths cooperative business are difficult to measure and quantify. Activities both damage and benefit the environment. Positive environmental results include the recycling and reusing of salvaged steel. Through its supplier relationship, the cooperative recycles large amounts of used car parts, steel barrels, and other metals - and turns these into productive uses. This metal is salvaged and transformed into tools primarily used for improving agricultural production and yields, or maintaining cultural tools (i.e. traditional knives). While difficult to quantify, the work of the blacksmiths contributes directly to food security through crop diversity and increased yields; animal-traction ploughs allow for a greater variety of crops to be produced and greater amount of land to be cultivated per farmer in comparison with traditional hand tools.

The harmful wider effects include deforestation resulting from the unsustainable harvesting of wood for charcoal, the negative health and environmental impacts of burning charcoal, and the environmental costs of transporting truckloads of metal and charcoal to El-Fashir. Practical Action is aware of the serious challenges posed by the success of the blacksmiths: "If they are going to increase their business definitely they are going to use more charcoal; definitely they are going to cut down more trees."45

Awareness of the seriousness of deforestation is not new to Darfur, but is heightened by the depletion of vegetation around Darfur’s cities due to the mass warehousing of internally displaced communities in urban camps. Unfortunately, currently there are no sustainable energy options immediately available to the blacksmiths. Still, manufacturing innovations such as the creation of new manufacturing techniques and equipment such as the wheel blower contribute to the efficient production of tools and also traditional handicrafts.

The amount of recycled steel salvaged and charcoal used in production are two aspects of production which could be immediately adopted as environmental indicators. These can be measured in terms of quantity transported, used, wastage, and finished product. The main obstacle to creating such indicators is the measurement and record-keeping capacity of the blacksmiths.

**Growth Strategy and Future Outlook**

In order to promote their continued growth and development, the blacksmiths and Practical Action seek increased dissemination of their products, look to their next generation, and seek new energy sources. These growth strategies are not without challenges which will require time and dedication to overcome.

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45 Interview with Practical Action official in El-Fashir, Darfur; December 2009.
INCREASED DISSEMINATION

El-Fashir blacksmiths cooperative leaders and members seek increased dissemination of their products as a key growth strategy. This would be accomplished primarily through continued relationships with international agencies (such as FAO) and NGOs (such as Practical Action). As mentioned previously, the continued free handout of tools by the UN and NGOs will likely negatively impact the ability of the blacksmiths to sustainably expand through local markets. Possible expansion could come from engagement with local and national government initiatives, or the production of agricultural implements for communities beyond their current geographic area of dissemination (Western Sudan). Increased dissemination will also come via increased demand for their products, aided by product innovations (such as the two-blade plough) and increased contact with farmers. They hope for increased business as their reputation for innovative and quality work grows. Scaling-up their existing model through member growth would be difficult – Practical Action already targets the majority of blacksmiths in North Darfur through multiple cooperative initiatives. Furthermore, the cooperative had consisted of a greater number of workshops but these were collapsed into the existing 73 workshops. In addition, a cooperative enterprise expansion in members could unnecessarily complicate the business model. It appears that the existing size currently works for the blacksmiths, and instead of growing through increased workshops and members they prefer improving production capacity through new manufacturing techniques and equipment, and market share through contracts and new product development. A critical partner for supporting wider dissemination would be the local government through policy and support.

ENERGY

“We need electricity.”

The El-Fashir blacksmiths recognize that they require the use of alternative energy sources in order to realize efficiencies in production, the reduction of input costs, and improvements in working conditions. Practical Action would like to explore on-grid or generator-driven electricity but such an arrangement requires an upgraded workshop facility: “If they improve their shelter they can have access to electricity, and if they have access to electricity they can use some other equipment...which can increase their production.”

Although one is in the works with support from the local government, the blacksmiths have yet to find adequate support for realizing this goal. The blacksmiths suggest coal might replace charcoal as an energy source. Although the burning of coal is still harmful to the health of the blacksmiths and the environment, deforestation would be reduced. Small generators might also be used for hand tools such as drills and welding equipment to complement the existing charcoal-driven work and small number of gas torches currently used. According to one of the cooperative members, alternative energy is a challenge which is

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46 Interview with El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009.
47 Interview with Practical Action official in El-Fashir, Darfur; December 2009.
difficult to overcome. “We always think of these things [the negative environmental impacts of using charcoal] but we don’t have the ability or knowledge to replace it. They [Practical Action] talk about solar [energy].”

Current forms of solar and off-grid renewable energy alternatives might work for some small-scale manufacturing processes, although both the blacksmiths and Practical Action are doubtful that such options will suffice. If the blacksmiths are able to secure an upgraded workshop facility they will require consistently larger amounts of energy to meet their vision for expansion. The blacksmiths are clear in their intent with regards to manufacturing capacity: “After ten years it will be heavier equipment.”

Growth plans dependent upon heavier equipment and more sophisticated manufacturing techniques might provide opportunities to quell the environmental and health damage caused by using charcoal. However, the use of heavier equipment is clearly dependent upon adequate infrastructure, appropriate training, and of course, sourcing large and consistent quantities of energy.

MOVING FORWARD STEP-BY-STEP

The experiences of the blacksmiths cooperative and Practical Action highlight a number of important themes for strengthening enterprise capacity at social, economic, and political margins. The first is a clear generational commitment to development, as demonstrated by the long-term engagement of Practical Action with the blacksmiths under various difficult conditions and in different geographies. Second, flexible and dynamic partnerships which change and evolve based on capacity strengthening needs and objectives as well as political, social and environmental contexts are required. Third, the local cultivation of culturally and environmentally-appropriate technologies deeply embedded within existing stakeholder value frameworks is extremely important. Fourth, this case demonstrates a clear step-by-step approach to development, where the beneficiary-partner slowly takes ownership and control over key business functions when prepared to do so. Finally, the co-creation of broad development objectives, beyond economic indicators, with partners is crucial. For these objectives to be meaningful, they must be created by those of have a deep cultural and social understanding and commitment to the beneficiary-partner and wider communities in which they live and work. The blacksmiths of El-Fashir have demonstrated incredible strength and capacity to grow and change. Meeting the challenges of growth expectations and the desires of the future generations will continue to be both difficult and rewarding for the blacksmiths. The succession of the unique (inter)dependency relationship with Practical Action will be just as challenging as the blacksmiths continue to expand beyond their current activities and socio-political status.

48 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
49 Interview with El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009.
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References

INTERVIEWS
– El-Fashir blacksmiths cooperative member in El-Fashir, Darfur; December 2009 (multiple).
– El-Fashir blacksmiths cooperative executive member in El-Fashir, Darfur; December 2009 (multiple).
– Practical Action officials in El-Fashir, Darfur; December 2009 (multiple).

PUBLICATIONS

WEBSITES
The case was completed in June 2010 and released in 2011.

The information presented in this case study has been reviewed 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.

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