

Wheelchairs in Zambia

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Development, Design, Dissemination
Case Study Series

This case study examines the DISACARE Wheelchair Center as social investment in addressing the needs of the disabled in Zambia. As a least-developed country (LDC) in southern Africa, Zambia remains highly dependent on the international donor community to support social investment schemes and also contribute broadly to poverty-reduction programs. The case of the DISACARE Wheelchair Center provides an interesting example of how aid effectiveness should be assessed. Given competing donor projects (such as agricultural projects, HIV/AIDS awareness programs etc), it is important that social investment schemes be carefully examined to ensure the highest returns. A comprehensive assessment of such investments must however take into account non-market objectives such as local skills training and capacity building, as well as poverty-reduction among specific under-privileged communities. This case study on the DISACARE Center in Zambia makes a quantitative and qualitative inventory of the financial investments and social benefits, which need to be examined in any social cost-benefit analyses. The study examines the specific case of DISACARE as a donor-led investment project.



Zambia:

Population 10,462,436
Area: 743,390 sq. kilometers
Life Expectancy: 35 years
Average Per Capita Income: US\$800
Pop. below Poverty Line: 86% (1993)

In 1991 Zambia was among the poorest countries in southern Africa. The many people disabled by polio had no wheelchairs or prospects for mobility devices. David Mukwasa, grandson of the then-Zambian president Kenneth Kaunda, and medical student, Felix Sulimba, envisioned DISACARE in the early 1990s. Felix, who is dependent on leg braces due to an early bout of polio, had observed the lack of mobility aids in the local community in Lusaka, Zambia. David also had firsthand experience with the concerns of the disabled— with a medical history of polio, he was dependent on a wheelchair to facilitate his movements.



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The two approached the Finnish International Disabled Development Association (FIDIDA) and FIDIDA's partner organization, Finnish Association of People with Mobility Disabilities (FMD), which would play a large role in the shaping and supporting of DISACARE. They also approached Kenny Mubuyaeta, a polio victim trained in metal fabrication. Kenny left his work in the Copper Belt in northern Zambia and moved to the capital, Lusaka, to join DISACARE and take up the challenge of building local wheelchairs.

DISACARE started in a small rented garage, earning income by repairing shopping carts and wheelchairs. Kenny and David continued working to raise money and get business, many months going without pay. In 1991 Kenneth Kaunda's government gave DISACARE a large plot of land in Libala, on the outskirts of Lusaka. In 1995, money was raised from international NGOs for a workshop and small dormitory-style living quarters. Lucy Kasanga, a civil engineer and DISACARE board member, oversaw the construction. The workshop in Libala officially opened in 1996 and DISACARE resides there today. Since 1991, Kenny and David have worked with many local and international organizations to help build the capacity of DISACARE.

From its modest establishment in 1991, DISACARE has emerged from the two-man team to an organization with 23 employees, many of whom are disabled. They have gained expertise in wheelchair fitting and manufacturing, machining, training, accounting, carpentry, and tailoring. As a local Zambian NGO, DISACARE has proven fiscally responsible, with excellent financial reporting to donors. It offers employment for people with disabilities as well as advocacy and sports programs. DISCARE mobility aid devices (wheelchairs and hand-crank tricycles) have proven durable and well-suited for Zambian conditions. Thus, FMD has heralded DISACARE as a model development project from which others can learn. Even with all these successes, DISACARE still finds itself struggling to find customers and pay its meager salaries. Despite an inventory surplus, they have provided less than a total of a thousand wheelchairs where tens of thousands are needed.



The DISACARE Workshop in Zambia



DISACARE's Philosophy -
Independence through Mobility

Producing durable wheelchairs which are locally-built and repairable using locally-available raw materials and components

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Was DISACARE worth the trouble? Did the donors get a good return on their money? How much did each wheelchair really cost? Were people with disabilities in Zambia helped as much as they could have been? The rest of this case study will try to quantify the benefit DISACARE has provided and the financial and personnel resources that were invested to build the organization. This will provide a basis to appraise its effectiveness as an example of donor-led social investment.

Products and Services Offered

DISACARE currently provides a number of products and services on a commercial basis in Zambia. The core mobility-aid product portfolio is comprised of the Kavuluvulu, which is the standard folding wheelchair; the tricycle wheelchair, which is specially designed for long distance journeys; the cerebral palsy (CP) wheelchair which is designed with additional features, such as cushions and tray tables; and the sports wheelchair, which is specially designed for users participating in outdoor sporting activities such as basketball. In an aim toward self-financing, DISACARE has priced its products to include all costs, including labor, materials, overhead, and capitol depreciation.

Table 1: Price of DISACARE Products

Description	Price
Kavuluvulu (Whirlwind) Wheelchair	US\$ 280
Tricycle	US\$ 220
Cerebral Palsy Wheelchair	US\$ 300
Sports Wheelchair	US\$ 220

Source: Marketing Department, DISACARE (Lusaka, Zambia)

Disability Advocacy

DISACARE currently operates as a trust governed by a Board of Trustees with the mission, “To provide mobility, empowerment and self-sustenance for persons with disabilities”. They are the only domestic fabricator of wheelchairs in Zambia, also offering repair and customized fitting. DISACARE has been a major advocate for



Benchmarks for DISACARE

- 1991 Beginning
- 1993 WC training, started production of Whirlwind II
- 1995 1st WC congress in Harare
- 1996 Moved to Libala
- 1996 DISACARE visits FMD
- 1997 2nd WC congress (Limuru)
- 1997 Introduced Africa 1
- 1998 Built Basketball court
- 1999 Trained UWZ
- 1999 Started gardening
- 2000 Opened W/S extension
- 2001 Established RRTC and trained LOREWO (Zimbabwe) and MAP (Malawi)
- 2001 Introduced BB wheelchair
- 2002 Trained at TATCOT
- 2002 FMD visits DISACARE
- 2003 3rd WC congress
- 2004 DISACARE visits MIT
- 2004 Tricycle production



The DISACARE Sports Wheelchairs

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people with disabilities by providing appropriate mobility aids, as well as training and employment. They have lobbied government officials for increased services and access for people with disabilities. Furthermore, DISACARE has increased the visibility of people with disabilities in the community. Both Kenny and David have polio but drive cars; DISACARE workers have broken the stereotype of disabled people of being unable to work or simply begging in the streets. Twice a week, wheelchair riders gather at DISACARE to play wheelchair basketball.

Wheelchair Sales

DISACARE began repairing wheelchairs in 1991 and gradually started production in 1993. The sales leveled off at about 200 chairs per year and their market has not grown since 2002, due to poor marketing, high overhead costs, and weak purchasing power in the domestic market. DISACARE must sell between 15-20 wheelchairs a month to pay salaries and more to be self-sustaining. A summary of DISACARE's yearly sales is shown in Table 2 at right.

The Competition

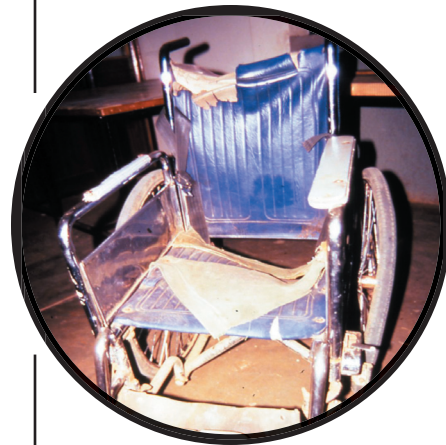
Although DISACARE wheelchairs are locally repairable, and last from 2-5 years if maintained, they face stiff competition from other (used and new) wheelchairs, primarily imported from Asia. Since Zambia is landlocked, DISACARE buys most of its raw materials and components domestically. These factors all lead to the relatively high selling price of \$280 for a basic folding wheelchair (see Table 1). Although \$280 seems inexpensive when compared to a typical folding wheelchair costing from \$500-\$1000 in the US or Europe, many aid organization prefer to donate cheaper Chinese-made wheelchairs which can cost as little as \$75 per chair. Although these inexpensive imports have not proven suitable for the local conditions, are difficult to repair and thus have a short life (6 months-2 years), many donors have opted to buy them for the short term economical advantages.



Table 2: Wheelchair Production Statistics

Year	Wheelchairs Produced	Wheelchairs Repaired
1991	0	15
1992	0	200
1993	5	120
1994	7	100
1995	8	60
1996	12	60
1997	20	80
1998	50	100
1999	70	60
2000	80	50
2001	115	40
2002	190	50
2003	197	40

Source: Marketing Department, DISACARE (Lusaka, Zambia)



One example of a cheaper wheelchair after average use in Zambia

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Providing Employment

Providing employment is an important objective of DISACARE. With the expansion of its operations in the past decade, DISACARE has increased the size of its workforce, generating employment within the local community. DISACARE implements affirmative action when hiring and as a result, over half of the workforce has a physical disability.

Financing of DISACARE

Throughout its short history of operations, DISACARE has relied heavily on external donor support as a source of financing and capitalization. The following table summarizes the major donor investments in DISACARE.

Table 4: Sources of DISACARE Funding

Year	Donor	Monetary Value US\$	Description
1991	FIDIDA	80	tools
1991	Meal a day	3,500	tools, equip
1991	Dutch emb.	3,000	equip, mat'l's
1992	Gov't of Zambia	200	3.5 acre plot
1992-1997	FMD	10,000 (est)	tools, equip, machinery
1993	FMD	15,000	WWI training
1995	Beit Trust	25,000	accommodation blocks
1997	FMD	1,000	Basketball court
1999	Abillis	5,000	office equip, mat'l's
1999	British emb.	7,000	office equip, mat'l's, capacity building
2000	German emb.	9,000	lathe
2001	Irish Aid	11,000	mill machine
2001	Danish emb.	8,000	mat'l's, equip
2001	Beit trust	6,000	workshop extension
2001	FMD	4,500	vehicles
2002	US AID	5,000	office equip, furniture, kitchenware
1998-2002	FMD	60,000 (est.)	wheeling wheels project
2003	FMD	8,000	office upgrade
2003	Barclays bank	400	machine tools
2004	FMD	1,000	vehicles
TOTAL		\$176,100	

Source: DISACARE (Lusaka, Zambia)



Table 3: DISACARE Employment Levels (1991-2004)

Year	Labor Force			Total
		Admin.	Other	
1991	2	1	-	3
1992	2	1	-	3
1993	3	1	-	4
1994	3	2	-	5
1995	3	2	-	5
1996	3	3	-	6
1997	4	3	-	7
1998	5	4	1	10
1999	5	5	1	11
2000	6	5	1	12
2001	7	7	1	15
2002	7	8	3	18
2003	8	9	5	22
2004	10	10	5	25

Source: Marketing Department, DISACARE (Lusaka, Zambia)



Assembling a Wheelchair Frame at DISACARE

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Capacity Building of DISACARE

Donors and volunteers have built the capacity of DISACARE by providing experts to train staff members in the areas of wheelchair and cushion design, accounting, fundraising, administration, and wheelchair riding skills. As a result DISACARE staff is very capable in understanding the needs of people with disabilities as well as running the day-to-day operations. The following table summarizes the major consultants used for capacity building.

Table 5: External Consultancy Support to DISACARE

Year	Consultant	Specialty	Comments
1991-1997	Marku Ripati	Prothetist	Finish volunteer
1993	Ralf Hotchkiss	Wheelchair designer	WWI paid consultant
1997	Laurie Loivitz	Wheelchair Sports	Paid consultant
1997-2001	Jan Sing	Wheelchair designer	WWI paid consultant
1997-present	Kurt Kornbluth	Wheelchair designer	WWI paid consultant
2001, 2004	Matt MacCambridge	Product designer	DEKA Volunteer
1999-2001	Sarah Ingleby	Administration/ Fundraising	Volunteer (VSO)
2002	Anne Bell	Administration/ Fundraising	Volunteer (VSO)
2002	Marc Braithwhite	Accounting	Volunteer (VSO)

Source: DISACARE (Lusaka, Zambia)

Current DISACARE Assets

Much of the donor investment in DISACARE, such as the buildings and the land near Lusaka where they are situated, and remains in the possession of the DISACARE trust and has appreciated in value. The estimated current value of its assets is presented in Table 6 at right.



The DISACARE tricycle in a test trial



Table 6: Estimated Current Assets in US Dollars (as of December 2003)

Land	\$25,000
Buildings	\$80,000
Sports toilets	\$2500
Basket ball court	\$2000
Inventory	\$12,000
Containers	\$4000
Machinery	\$30,000
Office equipment	\$10,000
Cash	\$7,000
Furniture	\$2,000
Vehicles	\$7,500
TOTAL	\$182,000

Source: DISACARE (Lusaka, Zambia)

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Discussion Questions

Was DISACARE a good donor investment?

1. If the objective of DISACARE was to provide mobility aids to people with disabilities in Zambia, make a quantitative economic appraisal of the DISACARE project, taking into account the total investment, current assets and number of people served.
2. If the objective of DISACARE was to promote economic and social development of people with disabilities in Zambia, make a qualitative social appraisal, taking into account the diverse goals of generating revenue from sales, creating employment, and building local capacity in manufacturing.
3. If you were the head of the USAID Mission in Zambia, would you consider further investments in DISACARE, Zambia? Make arguments for and against continuing funding to DISACARE.
4. Would the people with disabilities in Zambia have been better served if the donor money simply had gone to the purchase and distribution of imported wheelchairs?



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