

**SOCIAL
INNOVATION
IN HEALTH
INITIATIVE**



SUSTAINABLE INTEGRATED RURAL HEALTHCARE MODEL

CONTINENT

Africa

COUNTRY

Malawi

HEALTH FOCUS

Access and Quality of Healthcare,
Maternal and Child Health

AREAS OF INTEREST

Renewable Energy, Sustainable
Agriculture, Community Engagement

HEALTH SYSTEM FOCUS

Service Delivery, Infrastructure and
Medical Equipment, Health Workforce



SUSTAINABLE INTEGRATED RURAL HEALTHCARE MODEL, MALAWI

Child Legacy International is pioneering an integrated sustainable development model that leverages renewable energy, clean water, vocational training and sustainable agriculture to provide high quality health services in a rural setting.

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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CLI	Child Legacy International
CEO	Chief Executive Officer
CTG	Cardiotocograph
COO	Chief Operations Officer
DALYS	Disability Adjusted Life Years
FMC	Financial Means Category
GoM	Government of Malawi
HIV	Human Immunodeficiency Virus
HRH	Human Resource for Health
MNCH	Maternal Neonatal and Child Health
NCDs	Non Communicable Diseases
NSO	National Statistical Office
OPD	Out Patient Department
SPDM	Sustainable Programme Development Model
SLA	Service Level Agreement
TA	Traditional Authority
USA	United States of America
UNICEF	United Nations International Children's Fund
U I	Umwini Innovation
WHO	World Health Organization

CASE INTRODUCTION

In Malawi, a landlocked country in south-eastern Africa, about 84% of its estimated 17.5 million people live in rural areas. Communicable diseases remain a leading cause of morbidity and mortality, although non-communicable diseases are on the increase as well. The situation is complicated by a health system which is challenged to respond adequately to the health needs of the population. Key challenges include inadequate human resources and infrastructure, and shortages of medical products and technologies, due to inadequate funding.

The country is also affected by shortages of electricity which affect the functioning of hospitals and health centres, especially in rural areas. An overview of the energy sector indicates that electricity is often unreliable and insufficient. Only 2% have access to electricity, while about 83% of the rural population relies on fuel wood for energy, leading to environmental degradation. Poverty and inequality remain high in rural areas. According to 2016-2017 survey data, 50.7% of the population lives below USD 1.25 and 70% below USD 1.90 per day (Integrated Household Survey, 2016-2017).

Child Legacy International (CLI), a faith-based non-governmental organisation, works to build sustainable communities and break generational cycles of poverty by providing opportunities. To fight rural poverty, CLI designed and pioneered an integrated rural healthcare facility prototype in rural Lilongwe, powered by renewable energy from wind and solar. The goal is to provide sustainable high quality health care, and to improve the livelihoods of community members through transferrable skills in integrated agriculture and environmental management in order to reduce

rural poverty. Through a unique blended financing model, CLI is able to sustain 100% of its operations and deliver services at under USD 2.8 per visit. Revenue streams include sales of agricultural produce, government support, donations, out of pocket payments, and research and academic collaborations.

With a foundation of wind and solar energy, the prototype health facility has adequate and reliable power which is off the national electricity and water grid, and has ensured access to quality of life- and life-saving procedures including laser eye surgery and obstetric surgery. To underscore the high standards set at CLI, no single maternal death has been reported at its hospital or catchment area since the maternity and obstetrics and gynaecology surgical services were opened in 2016. The Medical Council of Malawi recognised the hospital as a Centre for Continuous Professional Development (CPD) in 2017. The Ministry of Health in 2017 and 2018 awarded CLI an Antiretroviral Certificate of Excellence, in acknowledgement of the excellent services the hospital is offering in this Lilongwe rural area. For six consecutive years, CLI has been rated 4 star by Charity Navigator.

So, it's very clear. This one you don't have to go round to know you are impacting the people. It's straightforward. That's what excites me. You have people coming and saying, I have been told to go to South Africa or go to India for this kind of procedure, but I am told you have it here. It's literally interesting to know that you are able to impact people's life as a result of the innovation that you have (Director, Health Programme).

1. INNOVATION AT A GLANCE

Organisation Details

Organisation name	Child Legacy International Inc.
Founding year	1987
Founder's name	Jeff Rodgers
Current head of organisation	Jeff Rodgers
Organisational structure	Non-governmental organisation
Size	167 employees in total (91 for the health facility prototype)

Innovation Value

Value proposition	A rural based integrated programme that uses sustainable energy (wind and solar power) to end poverty among the most disadvantaged rural communities through empowering them with access to high-quality healthcare, integrated agricultural services, and skills transfer.
Beneficiaries	Men, women and children with a special focus on maternal and child health.
Innovative elements	<ul style="list-style-type: none"> • Use of renewable energy as a foundation of all operations of Child Legacy International (CLI). • Integrated agriculture system including growing crops and vegetables, fish farming, poultry and animal rearing, to raise operational funds for CLI and to provide employment and income to surrounding communities and community outreach services. • Community engagement and buy in through the "Umwini Innovation" which encourages community participation and ownership.

Operational Details

Main income streams	Private donors - 47% Government support - 17% Community contributions - 13% Revenue from agriculture - 18% Research and academic collaborations - 5%
Annual expenditure	Total for 2018 in Malawi: USD 1,545,100.00
Cost per person served	Spontaneous Vaginal Deliveries - USD 300.00; C-Sections - USD450.00; Out Patient Department: adults - \$7-10; under five children- \$3. Factored in the estimates are full time employee salaries, drugs and consumables.
Number of beneficiaries	About 79,000 consultations annually

Scale and Transferability

Scope of operations	Malawi
Local engagement	<ul style="list-style-type: none"> • Memoranda of Understanding with Malawi Government through the Ministry of Health. • Partnership with local community which contributed land for project, moulded bricks and pay a “filling fee” to enhance ownership. • Partnership with government to pay salaries for some of the staff at the hospital, provide some drugs for essential health package, and provide a waiver on tax for some drugs and equipment imported into the country. • Transferring knowledge and technical capacity to adapt key model components to other rural areas of Malawi.
Scalability	<p>This model will be effective under the following conditions:</p> <ul style="list-style-type: none"> • Financial investments in renewable energy, infrastructure, equipment and medical consumables, integrated agriculture and human resource. • Strategic partnerships: with government, academic institutions and technological companies. • Community buy-in and ownership.
Sustainability	<p>Through revenue generation from agricultural revenue, government support, out of pocket payments and research and academic collaborations, CLI is able to sustain 53% of its operations and deliver services at under USD 2.8 per consultation.</p>
Health systems lessons	<p>The key health systems lessons learnt from the project are:</p> <ul style="list-style-type: none"> • Renewable energy (wind and solar) can be leveraged to stimulate sustainable integrated development, and to increase access to and ensure quality rural healthcare services including life-saving surgeries by underserved population in low and middle income countries. • Blended financing (private donors, community contribution, government – medical commodities & healthcare workers’ salaries, agriculture activities and academic collaborations) and a business approach are foundational and key for innovative investment interventions to expand care and reduces inequalities in health. • To address rural poverty, under-development and low wellbeing in health, a holistic approach centred on community and intersectoral systems engagement is required.

2. CHALLENGES

Malawi is a landlocked country in southeast Africa with an estimated population of 17.5 million in 2018 (NSO, 2018). The majority (84%) live rurally.

Communicable diseases such as HIV and AIDS, Lower Respiratory Infection (LRI), malaria, and diarrhoea remain the leading causes of morbidity and mortality, although non-communicable diseases are on the increase (Global Burden of Disease Report, 2013; NCD Steps Survey, 2009; GoM, 2017; MDHS, 2016). Health outcomes are relatively poor, because the health system is challenged to respond adequately to the health needs of the population. There are persistent gaps in human resource capacity across all cadres (HRH Assessment Report, 2016); inadequate health infrastructure (buildings and amenities, transport, communication, electricity) leading to clients travelling more than the required 8 kms to a facility (NSO, 2017; Malawi Service Provision Assessment Survey, 2014); regular shortages of medical products and technologies due to inadequate funding, high disease burden, high purchasing prices, weak supply chain management, unreliable information systems, and irrational use of drugs, leakage and pilferage (MoH, 2016; Muller et al, 2011; GoM, 2017). There is also inadequate investment by the government in the health sector.

Malawi is also affected by shortages in and disruptions to the supply of electricity, which affects the functioning of hospitals and especially health centres in rural areas. An overview of the energy sector indicates that electricity is often unreliable and insufficient. About 83% of the rural population rely on fuel wood, leading to environmental degradation (Gamula et al, 2014; Taulo et al, 2015). It is estimated that the overall electrification rate in Malawi is 10%: 37% of the urban and 2% of the rural population has access to electricity (NSO,

2009; Taulo et al, 2015, World Bank, 2018). Inadequate energy supply limits social, economic and industrial development (Taulo et al., 2015).

Despite self-reported literacy (reading and writing in any language) at 81% for males and 66% for females (15+ years of age), poverty and inequality are high. One in two people in rural areas are poor (World Bank, 2018). According to 2016-2017 survey data, 50.7% of the population lives below USD 1.25 and 70% below USD 1.90 per day (Integrated Household Survey, 2016-2017). Poverty is largely driven by poor performance of the agriculture sector, volatile economic growth, population growth, and limited opportunities for non-farm activities (World Bank, 2018).

The founder of Child Legacy International (CLI), Jeff Rogers, in consultation with Lilongwe Local Government, set up the initiative in Msundwe, a rural area 42 kms from Lilongwe city in response to a number of challenges impacting people's health. These include high levels of poverty and low literacy levels, poor access to healthcare services due to long distance to the closest facility, high rates of men going to neighbouring South Africa to look for jobs, leaving women and children alone, and a high mortality rate due to HIV and AIDS. The integrated rural healthcare facility prototype designed and implemented by CLI aims to provide access to sustainable high quality health care and to improve the livelihoods of community members through transferrable skills in integrated agriculture and environmental management.

I think the main challenge that we are trying to address as an organisation is 1, access to healthcare and again 2, quality healthcare. So, these are the main things that we are trying to ensure [there is] optimal healthcare in rural settings and at the same time these

interventions that we are bringing, are they sustainable? So, if you look at our overarching goal for this organisation in the healthcare programme is to ensure that we improve the

quality of lives for people around this catchment area. That's the main thing (Director, Health Programme)

3. INNOVATION IN INTERVENTION

Poverty, ill-health and lack of development coexist in a vicious circle. Recognising this, in 2007 CLI set up an integrated healthcare prototype in rural Lilongwe using a Sustainable Programme Development Model (SPDM). The model revolves around the use of renewable energy to provide integrated development, aimed at empowering vulnerable and underserved communities through the provision of high-quality healthcare, integrated agricultural services, and marketable skills development to ensure sustainability and transformative impact.

What we are trying to do in this catchment area is kind of saying, hey, we can develop a sustainable agriculture programme that will help provide food, it will help to provide some revenue through sale of vegetables, fish, dairy, poultry... Now, when we get all this revenue, we plough it back and we teach the community how to sustain themselves. But the revenue is essentially directed to healthcare. So, we use that money to pay for staff and medicine. And then, when it comes to water. We also repair wells across the country. At the same time the water that we have in the property is what we use for irrigation and all that kind of thing. So, it's integrated in the sense that it teaches you a marketable skill, it gives you food and you have healthcare. And so that's how the programme is integrated (Director, Health Programme)

The key elements of the sustainable integrated rural healthcare prototype are:

3.1 OFF THE GRID ELECTRICITY AND WATER SUPPLY

Renewable energy is at the core of both the business and project model of CLI. From the outset, CLI invested in renewable energy sources to allow operations to be off the national electricity and water grid. CLI installed state-of-art wind turbines and solar panels, and thus solar and wind energy drive operations in the hospital and agriculture components.

3.2 A FULLY FUNCTIONAL COMMUNITY HOSPITAL INCLUDING SPECIALIST SERVICES

To ensure that the prototype was guided by realities in the catchment area, a community research component was established to inform all health services design and delivery. Early on, the health care prototype focused on providing quality Maternal, Neonatal and Child Health (MNCH). Due to high demand, an Outpatient Department (OPD) was opened in 2012 with increased renewable energy capacity, catering for all services focusing on the provision of Essential Health Package interventions. From antenatal OPD services, the health care prototype progressively moved to invest in and offer high quality health services such as safe deliveries, C-Sections, 3-D scanning machines and digital imaging, CTGs, neonatal resuscitation, state of the art maternity suites and operating theatres, obstetrics and gynaecology surgeries which requires blood and skilled providers. CLI also

pioneered laser eye surgery in Malawi to treat near or far eye sightedness. The hospital serves as a learning centre for MoH and health practitioners.

Currently, CLI runs a fully functional community hospital including specialist services with a robust referral system.

So, if you come here to get your prenatal care you are very certain that you will be scanned. We have a 3-D Scanning Machine. And we have a couple of mobile scanning machines..... Now, if you come for delivery, we are using CTGs. We have this and we wrap it on the mother. You can monitor clearly. We have seen since we brought it in, the foetal distress cases that could have been missed, we can clearly pick it. So, that's a technology that I think at least every district should have a couple of them. Because you will note the foetal distress and everything even before things really go bad (Director, Health Programme)

3.3 INTERGRATED AGRICULTURE MODEL INCLUDING SKILLS TRAINING

CLI operates an integrated agriculture model which aims at financing operations of the hospital, provides employment, enhances nutrition status and transfers marketable skills to local communities.

Fish farming: Currently, eight large fish ponds have an estimated 1.5 million tilapia. The fish are a popular food item, and are sold to communities and people from Lilongwe city, approximately 42 kms away.

Vegetables: Fresh organically grown vegetables are grown year round in green houses on the farm. These include green leafy vegetables, onions and tomatoes. The produce is sold within local communities. Deliveries are also made to some restaurants and households in Lilongwe city.

Poultry: Over 5000 chickens are raised on the farm. The eggs produced are sold at the farm shop to people in the community and in Lilongwe city.

Animal husbandry: The dairy herd on the farm provides fresh milk for sale to the local community and in Lilongwe city.

Crop farming: Different rain fed and irrigation crops are grown on the farm. A lot of acreage is devoted to growing corn, but also cassava and sweet potatoes.

Afforestation: Every woman delivering a baby at CLI is given a tree to plant at home under the "Baby Mitengo" initiative. A corresponding tree is also planted on the farm. Bamboo is planted around all boreholes. These efforts are aimed at promoting afforestation, which in the long run will improve underground water harvesting and will arrest land degradation. CLI has planted over 15000 hybrid bamboo trees which mature within 3 to 4 years. This will revolutionize the maiden bamboo industry in CLI's catchment area. In addition, fruit trees are planted with the aim of improving the nutrition of families.

...Yes, from our nursery, so every mother that gives birth goes home with a tree because the importance of nutrition and putting back into the ground is so important here, uh, so we are constantly feeding trees, uh, mangoes, citrus and all that. Even bamboo, I don't know if people realise the importance of bamboo in Malawi, but, we use the local bamboo, am talking about the bamboo that is going to change our industry of charcoal... (Jeff Rodgers, Founder)

Skills training and transfer: One key objective of the integrated agriculture model is to transfer different agricultural skills and technologies to surrounding communities. This is done through demonstrations in primary schools, the "baby Mitengo" initiative, farm demonstrations and hands-on training to approximately one hundred farm employees recruited from surrounding communities. As

people learn and develop skills, they use these skills to provide for themselves, thereby

reducing their poverty levels through income generation.

4. INNOVATION IN IMPLEMENTATION

4.1 COMMUNITY PARTICIPATION AND OWNERSHIP

CLI sought to achieve community ownership from the onset by involving the local government and communities as key stakeholders in dialogue. As early as 2007, CLI engaged government through Lilongwe local government to identify a geographical area with an underserved population. The Government identified Msundwe in rural Lilongwe. The communities in Traditional Authority (TA) Masumbankhunda and TA Kalolo were also involved through donating land for the project, moulding bricks, designing and planning the site, construction of the site, and employment of the local community in the various facets of the project.

.....and again this whole area, we worked hand in hand with the Ministry of Health. So you know, we didn't throw a dart at the map and decide this is what we are going to build, we sat down with the ministry of health, and worked on this and said this is an area that needs primary health care, so we started.... (Jeff Rogers, Founder)

Land was donated by TA Kalolo in 2007 and ground-breaking was done in 2008. The first, I think, was 37 acres. They tilled the land to build the healthcare facility. So, if you look at our OPD, all the bricks that were used to build our OPD, they were moulded here. The committee moulded the bricks in their communities and we brought them here (Director, Health Programme)

CLI sought to actively enhance community ownership through the introduction of the "Umwini Innovation." Umwini innovation (technically a filing fee) is a health financing approach whereby beneficiaries pay a flat fee of K2000 (USD 2.8) each time they present with a new health condition to access health services. The aim of the Umwini Innovation is to maintain a strong sense of ownership of the project among community members after the initial phases, when building the facility had ended.

The health services beneficiaries' access per visit in monetary terms surpass the filing fee. Essentially, access to health care is still free. The employment of unskilled manual labour at the hospital and the integrated agriculture programme also promote ownership and provide economic empowerment and skills transfer at community level.

....there is a filing fee but that does not mean that you are paying at the hospital or you have been charged. It means that you as the patient needs to take what, ownership. The amount that is paid as filing fee is not necessarily a charge but a necessary charge to ensure that other things are being done around the hospital. In short, this is not a paying hospital..... Even for the fee to get to that level, we discussed with the Chiefs and agreed that we need to raise the amount. Coming up with the amount is done through discussion and not that the hospital does it on its own (Secretary, Health Advisory Committee).

4.2 COLLABORATION WITH ACADEMIC AND GOVERNMENT PARTNERS

The model relies on collaboration with partners like Ministry of Health (MoH) and other research partners like Rice and Oklahoma State Universities (USA), Baylor College of Medicine in Malawi and the University of Malawi, College of Medicine. While academic institutions play a major role in advancing knowledge and identifying cost effective practices, MoH provides some hospital staff and essential drugs.

Through collaboration with health technology manufacturers, CLI has acquired cutting edge technology at reasonable prices from source. For example, the eye department has state of the art equipment which enables the institution to conduct laser surgery, the first of its kind in Malawi. Maternity suites have state of the art equipment. Health eVillages, a not-for-profit organisation in the USA which provides mobile health technology including medical reference and clinical decision support, provided CLI with iPads which act like a medical library for reference for its health care professionals. The agriculture department uses new technologies in fisheries, aquaculture, and poultry sectors.

...the Ministry of Health is probably our number one [collaborator], we work hand in hand. And then the community and I don't know what level that might be, but we work with community, chiefs, ministry of health, then we try then to go into the level of outside other governments ... other nongovernmental organisations (Jeff Rodgers, Founder).

4.3 RESEARCH AND TRAINING

At CLI, research is core to implementation. For example, evidence informed the design of the integrated healthcare prototype. Evidence also

informs all operations at CLI, from the choice of technologies to be adopted, farming methods and technologies used, and disease surveillance in communities. Investments in human resource are also at the centre of CLI.

Scholarships for staff retention: To build skills as well as retain health personnel, a scarce resource in Malawi, CLI initiated a Jeff and Carrie Scholarship Fund. Currently, CLI is supporting upgrading of nurses to degree level, training a health systems management specialist, and providing continuing education for clinicians. Trained staff are retained through a bonding system whereby they are required to work at CLI for a specified period before moving on

We have a scholarship fund. It's not technology but it's an innovation because staff retention is a big problem. So, we have what we call a Jeff and Karen Scholarship Fund and again in honour of Jeff. But the most important thing is the fact that it so difficult to retain staff in Malawi. And so if you finish 2 years here, your performance management score is good, then you have secured a training (Director, Health Programme).

Telemedicine: CLI is setting up a centre for research, education and innovation called REDIN (Research Education and Innovation). The aim is to transfer skills without transporting health personnel abroad. Through existing partnerships with Ohio University in the USA, clinicians and other allied health professionals will be trained via satellite communication systems on state of the art approaches to health care. Health professionals will also be connected to the internet, thus enabling them conduct their research with ease. The resource will be made available to members of the public at a fee.

5. OUTPUTS AND OUTCOMES

5.1 BUSINESS MODEL

CLI leverages a blended financing model to sustain its programmes through private donors (47%), government (17%), community contributions (13%), sustainable agricultural activities (18%) and research and academic collaborations (5%). Government pays for some hospital staff, provides some essential drugs and provides a waiver on taxes for imported drugs and medical equipment. In 2017-2018, the estimated total annual running cost was USD 1,545,100.00. The investment in solar and wind energy means CLI has cut recurrent costs for power and water supply to zero.

Moving forward, the vision is to expand: integrated agricultural operations; the service level agreement (SLA) whereby more health professional staff and drugs will be provided and paid for by MoH; and revenue from Financial Means Category. This will entail increased revenues, so reducing the need for donations and further improving sustainability.

The following are estimated costs to CLI to deliver the health services: vaginal deliveries - USD300.00; C-sections - USD450.00; outpatient department: adults - USD7-10; under-five children- USD3 and about USD300 for each referral. These estimates include full time employee salaries, drugs and consumables.

Community members access services for free. However, under “Umwini innovation,” members pay MK2000.00 (USD 2.8). This fee is referred to as “filing fees” and patients contribute this amount to demonstrate a sense of ownership hence the term “Umwini” which means ownership in the local language. Clients accessing antenatal and maternal services do not pay the filing fee. Clients outside the rural communities who are able to pay full cost recovery fees under “Financial Means

Category” are able to access specialised health care.

5.2 ORGANISATION AND PEOPLE

Jeff Rogers, an American, co-founded Child Legacy International (formerly known as Life Sowing Ministries) in 1987 to provide hope and humanitarian aid to the most disadvantaged rural populations in Africa. With expertise in rural development, he has spent over 30 years developing successful sustainable initiatives in the fields of rural healthcare, water well repair, vocational training, orphan care, and food and agricultural programmes in Zimbabwe and Malawi. In addition to these endeavours, he has developed a state-of-the-art renewable energy system utilised in both Zimbabwe and Malawi.

The founders recognised the importance of meeting peoples’ immediate needs through long lasting changes and not aid relief, hence the birth of replicable humanitarian work through the use of sustainable energy sources within the Sustainable Programme Development Model. CLI seeks to invest in African people themselves in an effort to achieve self-sustainability. CLI’s mission is to build sustainable communities in Africa, where hope thrives and legacies of opportunity are created, so breaking generational cycles of poverty. The vision is a community with improved health status of all people in CLI’s catchment area, by reducing burden of disease and preventing premature deaths.

CLI is led by a Chief Executive Officer entrusted with overall leadership and vision sharing. Currently, the CEO is the founder, Jeff Rodgers. He is seconded by the Chief Operations Officer (COO) who is based in the US and who mostly focuses on fundraising. Below the COO are programme directors, namely: Director of Health Programmes, Director of Agriculture and Sustainable

Development, Director of Research and Innovation, Director of Administration and Finance, and Director of Communication. Below the directors are key persons for each programme who are responsible for the implementation of programme activities. The organisation has a board which is headed by a president, seconded by a vice president and a board chair. Below the board chair are 9 independent board members. Except for the CEO, COO and one director, all positions are filled by Malawians. In total, CLI employs about 167 people, the majority of whom are employed at the hospital or in the agriculture department. In addition, 100 people are employed as seasonal casual labourers.

As a Faith Based Organisation (FBO), CLI is guided by a Christian ethos. Compassion and love of humanity, integrity and trust are core values which guide work at CLI.

5.3 ORGANISATIONAL MILESTONES

To underscore the high standards set at CLI, the Medical Council of Malawi recognised the hospital as a Centre for Continuous Professional Development (CPD) in 2017. The Ministry of Health in 2017 and 2018 awarded CLI an Antiretroviral Certificate of Excellence, recognising the excellent services the hospital is offering. CLI is also the first to provide laser eye surgery in Malawi and to provide the level of high quality and specialist care off grid. CLI serves as a platform for learning and demonstration for renewable energy and the delivery of quality healthcare services in Malawi.

So, it's very clear. This one you don't have to go round to know you are impacting the people. It's straightforward. That's what excites me. You have people coming and say I have been told to go to South Africa or go to India. For this kind of procedure, but I am told you have it here. It's literally interesting to know that you are able to impact people's life as a result of the

innovation that you have (Director, Health Programme)

5.4 IMPACT ON HEALTHCARE DELIVERY

Maternal and child health is a key focus of CLI. An evaluation conducted in 2016 after one year of implementing MNCH services showed that the number of home deliveries and maternal and neonatal deaths had significantly reduced. In 2017/2018, the health facility did not experience any maternal death.

Since the health facility opened in 2012, the number of people accessing care has steadily increased. The prescribed catchment population for the facility is 22,002. However, in 2018, 79,000 people utilised outpatient services alone, compared to 12,986 people in 2012. There has also been marked increase in the utilisation of other services: 7,253 accessed under five immunizations compared to 1,580 in 2012; 5,544 women accessed pre-natal care compared to 1,321 in 2012; 2,246 deliveries (1,826 vaginal and 420 c-sections) in 2018 compared to 272 vaginal deliveries in 2015 and 77 c-sections in 2017. In 2018, 78 eye laser surgeries were performed, compared to only five in 2016.

The sustainable development model employed by CLI treats well-being as both an outcome and a causal determinant of other things. Beneficiaries' well-being achieved through access to quality healthcare leads to productive and happy lives and a sense of security; access to health care is no longer an issue.

CLI provides employment to over 167 people on a permanent basis and over 200 on a temporary basis depending on the season of the year. Marginal utility income and relative income all have an effect on individuals' happiness and hence indirectly affects CLI's catchment population well-being.

Infrastructure and other support services such as nursery school for children, and road and bridge improvements, all have positively impacted on community members.

CLI provides a market for community produce such as soy beans and corn for poultry and cattle feeds.

5.5 COMMUNITY PERCEPTIONS

5.5.1 PERCEPTIONS BY TRADITIONAL LEADERS AND BENEFICIARIES

Both traditional leaders and members of communities perceive the work of CLI as important and enriching to their lives. Some traditional leaders and beneficiaries expressed gratitude that CLI has helped them by bringing quality health care closer to home:

Before Child Legacy came to Masumbankhunda ...people had a lot of problems here in terms of hospitals. We would wonder that where are we going to go to? We would go to [mentions name of hospital]. But from here to [name of hospital], we can estimate that it's over 40 kilometres for us to arrive. So the way malaria manifests, when we leave home, people would die before they arrive. Even for us to go to Central Hospital, it was too far eh....Even [name of hospital] is very far. But when Child Legacy came, it looks like, ah, in this area, it has helped health problems. I can say we are being helped in terms of health issues depending on how one is." (In-depth Interview, Chief 1)

One patient at the hospital expressed gratitude that the hospital provides quality care:

There is medication available for literally every disease because the most important thing at a hospital is that medications should be available when someone goes to access treatment." (In-depth Interview, Male Patient 1)

Traditional leaders and beneficiaries expressed the view that CLI treats them with respect, which they see as a community value:

We should say the people are served well at this place. I can have to say it that this hospital which you are currently visiting is a good place, right? They receive patients well. In the other hospitals which I have visited you get harsh comments however for this place they are just... they have the same heart of giving." (In-depth Interview, Chief 2)

Beneficiaries expressed gratitude that the quality and quantity of services that they receive is not dependent on the contribution that they make for services:

When we go to the hospital, irrespective of the service, you may receive anywhere within the hospital, the ticket that you are given is very small; you never pay above K2000.00 for treatment and all sorts of things. (In-depth Interview, Patient 2)

6. SUSTAINABILITY

Currently, through revenue generation from agriculture, government support, out of pocket

payments and research and academic collaborations, Child Legacy International is

able to sustain 53% of its operations and deliver services at under USD 2.6 per person per visit. In the long run, to reduce dependency on donor funding, CLI plans to increase revenue streams from its agricultural unit and increase full cost recovery specialist health services. Discussions are under way with the

government to absorb hospital staff onto its pay roll. Reliance on off-the-grid renewable energy and water resources reduces running costs with no interruption in service delivery.

7. SCALABILITY

Components of this model have been replicated in two MoH rural health facilities in Malawi. Transferring knowledge and skills in installing and maintaining the renewable energy for the model occurs in partnership with the Malawi Government - Malawi Energy Regulatory Authority. CLI is working with the Ministry of Health to strengthening ophthalmology care and obstetric surgery.

With financial investment in renewable energy, this model can effectively be replicated across rural Malawi and Africa to provide quality and accessible care off the grid through strategic partnerships with government, academic institutions and the private sector while ensuring community buy-in and ownership.

8. KEY LESSONS

Child Legacy International provides a clear lesson that an integrated high quality and specialised health care can be delivered successfully, with positive impact in a rural, off grid location. However, a unique factor contributing to the success of the programme is engagement, buy-in and leverage through strategic collaborations with different stakeholders including government, community members, academic institutions and technology companies.

Another key lesson is the centrality of energy in addressing rural poverty and development. The CLI integrated health prototype is off-grid, running solely on renewable energy. In other

contexts in Malawi where access to electricity in rural areas is a challenge, CLI offers a critical lesson that investment in renewable energy can change people's lives.

The integrated nature of activities by CLI shows that to address rural poverty and under-development, a holistic not a single bullet approach is required. The agricultural unit does not only contribute significantly to running costs of the hospital; it is also a centre of skills transfer of agricultural technologies to address nutrition, economic empowerment and environmental degradation in surrounding communities.

The case of CLI also demonstrates the importance of “learning” for an organisation to grow. From the outset, CLI has relied on

evidence from research to inform its strategic decisions and operations.

CASE INSIGHTS

The key health systems lessons learnt from the CLI are:

- Renewable energy (wind and solar) can be leveraged to stimulate sustainable integrated development and to increase the delivery of quality rural healthcare services.
- Blended financing, involving private donors, community contribution, government (medical commodities & healthcare workers' salaries),

agriculture activities and academic collaborations, and a business approach are key for innovative and investment interventions to expand care and reduce inequalities in health status and outcomes.

- To address rural poverty, under-development and low wellbeing in health, a holistic approach centred on community and systems engagement is required.

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