

Annual Review: 2015

Bethel Business and Community Development Centre

PO Box 53, Mt. Moorosi 750, Lesotho

MOET Reg. # 436.003



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Fig. 1: SDGs

Organizational Profile

Mission Statement: To design and manage innovative learning environments for young men and women in Lesotho that elicits general engineering skills, business savvy, manual capabilities, applied sciences, systems thinking, leadership and management abilities that address the needs of career and business development in Lesotho, and general self-reliance. The school also pursues financial self-sustainability through self-reliance, commercial activity and responsible environmental management.

Strategies: To employ Authentic Learning, Permaculture, Sustainable Development, Earth Systems Science and Renewable Energy to achieve rapid economic growth.

Primary Fields of Operation: Education, Self-reliance, Research and Development, Extension and Business Enterprise.

Objective: To provide high quality and unique experiential learning to our students which results in a real economic growth rate of 10% per annum. Indications of this growth will be demonstrated by cash flow, asset growth, innovation, environmental vitality, demand for goods and services and qualitative accomplishments. The immediate objective is wealth and job creation, and the ultimate goal is widespread middle class prosperity, social order and freedom.

Bankers Nedbank: Mophale Hoek Branch
PO Box 25, Mophale Hoek 800, Lesotho
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Acct. # 041000001056 Branch Code: 390361 Swift Code: NEDLLSMX

Auditors: Ntsike and Assoc. Pty Ltd.

Location: Bethel Mission, Lesotho
GPS Coordinates: S30°14.324 E027°51.071

Email: ivan.yaholnitsky@gmail.com,

Facebook: Bethel Business and Community Development Centre, Permaculture Lesotho, Soltrain II Lesotho

School Committee: Julia Mophale: Chairperson; Pitso Tsosi: Chief's Representative; Ivan Yaholnitsky: Secretary and Principal; Sebota Kobo: Staff Representative; Malenise Chaole and David Raseou: Parents' Representatives.

Staff Complement and Specialization in 2014:

Ivan Yaholnitsky: Principal and Managing Director

Mamahase Mahase: Assistant Manager and Commercial Studies Instructor.

Masechaba Nkisi: Business Studies Teacher and IT Instructor.

Mateboho Rankuatsana: Tourism and Hospitality Instructor.

Sehloho Holomo: Solar Energy Instructor and Solar Unit Sales Manager.

Sebota Kobo: Metal Work and Agriculture Instructor.

Elizabeth Setona: Environmental Science Instructor.

Nyakallo Mofelehetsi: Food Science and Culinary Instructor, Commercial Kitchen and Hospitality Manager.

Mookho Mabatla: Wood Working Instructor

Stephen Lelimo: Building Construction Foreman and Solar Installation Specialist.

Managing Director's Review:

2015 was another year of steady achievement at BBCDC. As a year begins, we never quite know what to expect but move out and begin taking advantage of opportunities and responding. I think Lesotho is doing extremely well and here is an example of how far it has come. In January we received inquiries from two businesses in Mt. Moorosi about cool roofs and back-up power systems. What is extraordinary is that there was no dithering. Both clients asked us to move immediately, get the job done and get paid. In both instances we installed backup solar powered electrical systems to operate tills and lights when the mains power goes off; and to install a cool roof solution. The cool roof solution includes white paint for radiative cooling and installation of a solar chimney for attic ventilation. In a typical commercial environment you have fridges, freezers and cooking operations that add an enormous amount of heat inside buildings. As well, unpainted zinc reaches temperatures in the sun over 80°C. Add people and a closed ceiling and conditions become unbearable inside. White roof paint keeps roofs at 30°C in full sun, and then cools off very rapidly after sunset and continues to radiate until dawn. The solar chimney enables stack effects to work, where hot air rises freely from ceilings and attics and is replaced by cooler air from ground level. Our clients paid us a fair charge and received excellent products and services in return. Everyone wins. Later in the year, BBCDC completed two more cool roof jobs.

Also in Jan. BBCDC completed installation of a 1000 litre – 24m² collector area solar water heating systems at St. Joseph's Hospital in Roma. It was a week of gruelling work on a hot roof, but the team rose to the occasion and got the job done. It is a demonstration system provided under the Soltrain II program and relieves electrical expenses at the hospital.

BBCDC operates a commercial solar energy installation and services division with headquarters in Mophale. The operation has long suffered due to a lack support infrastructure. A workshop to store tools and equipment, and some of our solar inventory was badly needed, along with a place to prefabricate. (The solar chimneys built in Jan. were welded and assembled in a porch.) In March the 2nd year construction students agreed to work on an attachment to build a 40m² workshop at the Solarsoft site in Mophale. The budget for the project was extremely tight, and the students got the job done in 28 days. They were split into two groups that rotated every week so that each group would get as broad an exposure to the construction sequence as possible. To understand how well the students responded to a situation like this, I have to tell you that on one of the crew changes, the students sang all the way to Bethel without interruption.

Through April and May, the students had plenty of potatoes to harvest and work continued to construct a vehicle storage building and to finish washrooms for male and female students. 22 students graduated in June, and the District Secretary for Mophale, Alice Mosothoane was in attendance along with Thae Makhele, the Director of TVET. Their support and enthusiasm was much appreciated.

When BBCDC embarked on a major effort in 2012 to construct a 242m² Learning Centre on the BBCDC campus, the ultimate aim was to better serve the students and educational mission and to increase enrolment. The Learning Centre was fully completed in late 2014 and the Aug. 2015 intake of students was a crucial indicator of the goal that we set ourselves. With a concerted recruitment drive we reached our target, and when the new session began in Aug. over 100 students were enrolled and in Nov. during final examinations 108 students were present. BBCDC managed to

attract more students and maintain the roll to year end. On Oct. 24 BBCDC held a Parents' Meeting and Open House and there were 44 registered attendees. A new Parents' representative was elected to the school committee and this was an important step in expanding participation, publicity and accountability.

The last six months of the year were filled with a series of solid accomplishments. The Solon Foundation provided an M56,000.00 grant to BBCDC for upgrading of irrigation and water infrastructure for education and food security. This investment was timely considering the cruel dry weather of the last six months. BBCDC upgraded the ground water dam in a stream beside the campus, installed a 2.5KW solar tracking array for water pumping, new pumps and distribution infrastructure, and also procured new drip irrigation piping. Over the last six months BBCDC was able to get crops going and keep them alive despite a complete rainfall failure.

Sehloho Holomo and his solar technology students renovated the electrical system at the presbytery at Bethel Mission, and installed a large solar PV system which completely replaces diesel powered electricity. Sebota Kobo led students in a difficult volunteer effort to make repairs to the village water supply infrastructure at Bethel. For several months a water shortage meant that only 2 of the ram pumps were operating, and there were frequent water shortages. BBCDC supplied materials and labour and overcame the water shortage.

Additional work included completion of the vehicle store, completion of the toilets and waste water treatment system, and extension of an all-weather road to the south end of the campus. 1st year construction students dismantled an old poultry shed, salvaged the materials and began construction of a new 70m² shop that will be used to house construction and agricultural tools, equipment and activities. Once again, there is pressing need for this space. Through 2015 BBCDC continued to be the lead partner for Soltrain II in Lesotho in cooperation with AEE Intec and the Austrian Government. It is a solar thermal energy technical cooperation program that includes professional education, dissemination, publicity, networking and demonstration systems.

While not directly involved, BBCDC ends the year taking great satisfaction from progress on the Bethel Mission Bridge. We take comfort from anticipating a new era of lower cost and easier access and logistics once the bridge is completed. As the year ends the drought means extremely low water levels in the Senqu River and BBCDC once again repaired the stone crossing used seasonally since 1999. The bridge contractors locked the temporary crossing they built for themselves and we have to help ourselves. This brings me to the conclusion, and I would like to finish this report by discussing Fig. 1: the SDGs.



In late 2015 these 17 goals became official public policy for the entire international community. They replace the MDGs and are a fundamental advance on how the global community envisages its future. Their basic premise is local agency and self-sufficiency. There is a good reason for this.

Experience shows that without strong emphasis and thrust from the periphery, large scale universal projects fail to gain any traction. As well, the SDGs are linked in a complex system framework which requires interdisciplinary capacity and strong networks. BBCDC since its inception takes sustainable development seriously and reflects strong capacity and determination across the SDGs. Globalization and sustainable development are the overarching twin themes of our lives as we proceed into the 21st century. As BBCDC takes stock of what it accomplished in 2015 and looks forward to in 2016, we can say with confidence that BBCDC is already on board at COP21 and delivering the promise of sustainable development. Globalization is delivering the tool kit for success even in a remote location like Bethel Lesotho: ITC, solar panels, computers, materials, equipment, and technology. Failure is not an option, we must succeed.

Ivan Yaholnitsky: Principal and Managing Director



The SDGs and targets will stimulate action over the next 15 years in areas of critical importance: People, Planet, Prosperity, Peace and Partnership.



2015 In Pictures:



Fig. 2: installation of 1000 l pumped SWH system at Roma, Jan.



Fig. 3: Cool roof installed in Mt. Moorosi: white paint and solar chimney, Jan.



Fig. 4: Roma VF tomatoes for sun drying, Jan.



Fig. 5: Sun dried tomatoes, Feb.



Fig. 6: Food science and culinary arts lab and students, Feb.



Fig. 7: Food science and culinary arts lab and students, Feb.



Fig. 8: Renovation of pantry and new shelving, Feb.



Fig. 11: Columns for new workshop, March.



Fig. 9: Construction of new workshop at Solarsoft in Mohales Hoek, March.



Fig. 12: Box beams and rafters being built for new workshop, March.



Fig. 10: Progress on new workshop, March.



Fig. 13: Roof up on new workshop, March.



Fig. 14: Infill walls being built new workshop Mohales Hoek, March.



Fig. 17: Construction of two columns for vehicle parking garage at BBCDC, April.



Fig. 15: solar ovens in steady use at BBCDC, April.



Fig. 18: Driveway and landscaping completed in Mohales Hoek, May.

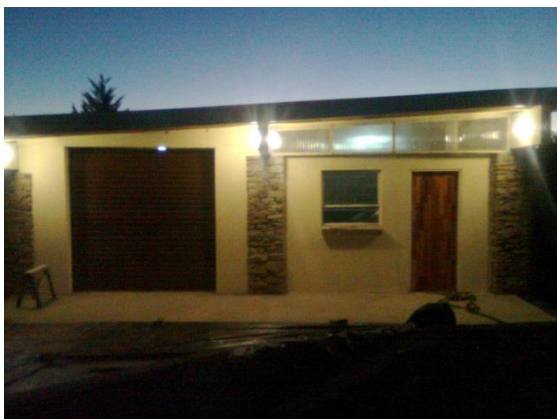


Fig. 16: New workshop with lighting installed and walls finished, April.



Fig. 19: Soltrain II workshop in Mohales Hoek, May.



Fig. 20: Baking in the food science lab, May.



Fig. 23: Graduates, June.



Fig. 21: 2nd Year Construction students with PPE, May.



Fig. 24: Graduation festivities, June.



Fig. 22: Graduation day, June.



Fig. 25: Wheat and lentils on BBCDC campus, June.



Fig. 26: New students over 100, Aug.



Fig. 29: 2.5KW solar array for water pumping being assembled on BBCDC campus, Sept.



Fig. 27: Columns and roof for vehicle park on BBCDC campus, Aug.



Fig. 30: Greenhouse and seedlings, Sept.



Fig. 28: Progress on construction of Bethel Mission Bridge, Aug.



Fig. 31: Construction activities to raise ground water dam wall with stones and mortar, Sept.



Fig. 32: Ground water reservoir filled with coarse sand after heavy rain event, Sept.



Fig. 35: Wheat and lentils on BBCDC campus, Oct.



Fig. 33: Progress on Bethel Mission Bridge, Oct.



Fig. 36: potatoes under drip irrigation just emerging, Oct.



Fig. 34: Students surveying soil and water captured by new swales, Oct.



Fig. 37: Solar ovens performing well in dry hot weather, Oct.



Fig. 38: Bread being pulled from baking tube, Oct.



Fig. 41: Blueberries under trial at BBCDC, Nov.



Fig. 39: Over 100 students from NUL on study tour at BBCDC, Nov.



Fig. 42: 6 columns being built for new workshop on BBCDC campus, Nov.



Fig. 40: Wheat and lentils ready to harvest, Nov.



Fig. 43: releasing stored water behind ground water dam for irrigation, Nov.



Fig. 44: 2.5KW array rotating to capture sun all day and pump water for 12 hours, Nov.



Fig. 47: Tomatoes and green peppers under drip irrigation, Dec.



Fig. 45: Potatoes under drip irrigation, Nov.

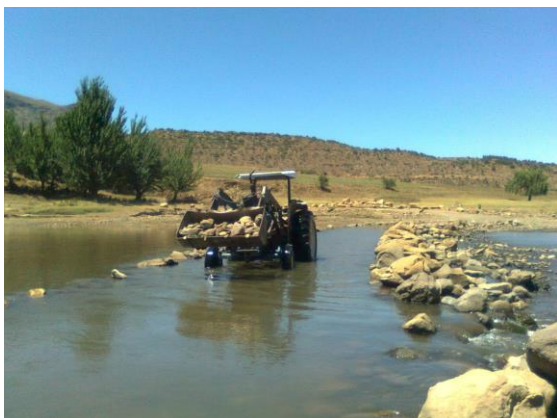


Fig. 46: Repairing stone ford across the Senqu River, Dec.

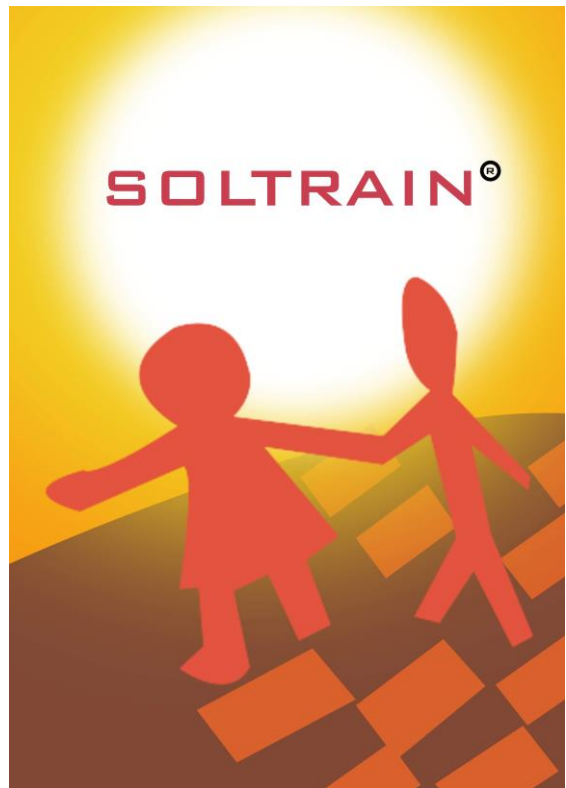


Fig. 48: Soltrain Logo.

*Note: in years' past this annual review included a financial summary. As BBCDC has aligned itself with the tax year April – March for reporting purposes audited statements are now available mid-year.