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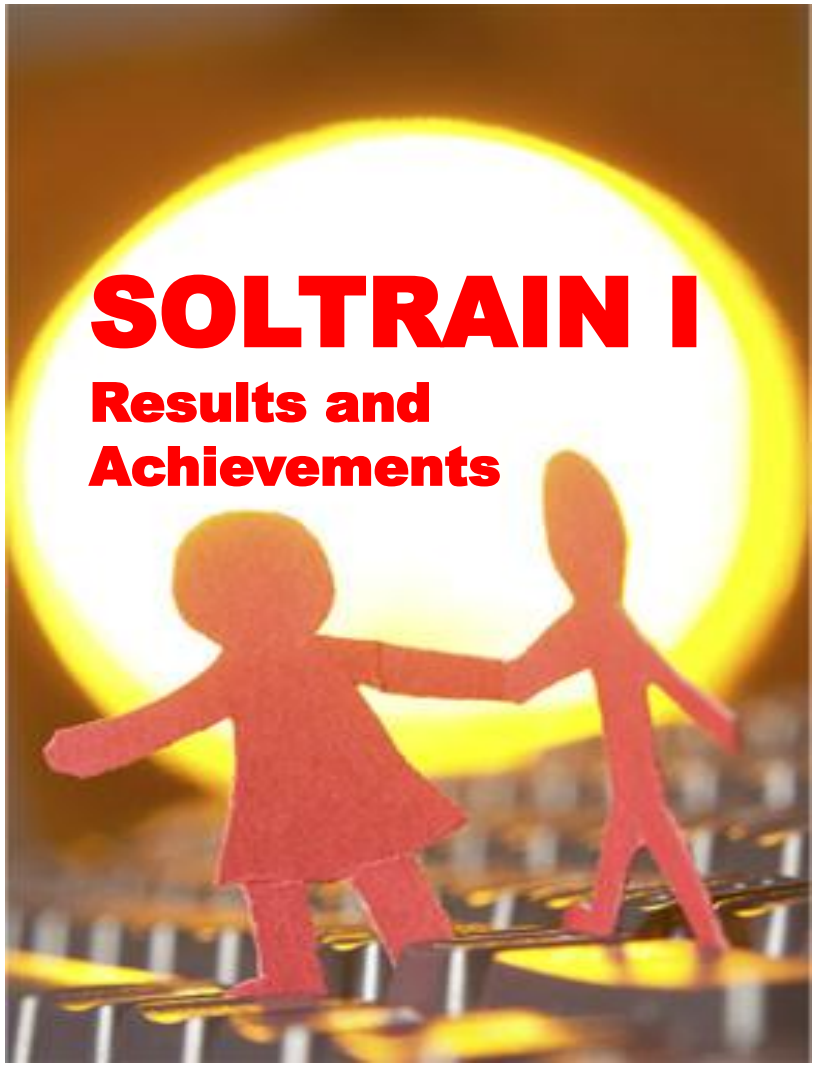

Partners and Target Groups

The project was carried out in Mozambique, Namibia, South Africa and Zimbabwe in cooperation with educational institutions as well as institutions and companies working in the field of renewable energies.

Target Groups

- Training institutions like universities and other training centres
- Small and medium enterprises
- Social institutions
- Policy and administration

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Coordinator: **AEE – Institute for Sustainable Technologies**
AEE INTEC
Feldgasse 19
A-8200 Gleisdorf, Austria
www.aee-intec.at

Project Partner **Sustainable Energy Society of Southern Africa (SESSA)**
P.O.Box 58 Hartbeespoort 0216
South Africa

Project Partner **Centre for Renewable and Sustainable Energy Studies (CRSES)**
Stellenbosch University
South Africa

Project Partner **Renewable Energy & Energy Efficiency Institute (REEEI)**
Polyetchnic of Namibia,P. Bag 13388
Windhoek
Namibia

Project Partner **N&M Logotech Lda. (LOGO)**
Josina Machel Ave. 915, 1st Floor, Flat 3
Maputo
Mozambique

Project Partner **Eduardo Mondlane University (UEM)**
Faculty of Engineering
Av. Moçambique, Km 1.5
Maputo
Mozambique

Project Partner **Domestic Solar Heating Pvt. Ltd. (DSH)**
11 Kingsbridge Avenue, Northwood
Mt Pleasant, Harare
Zimbabwe

Why Solar Thermal Systems?

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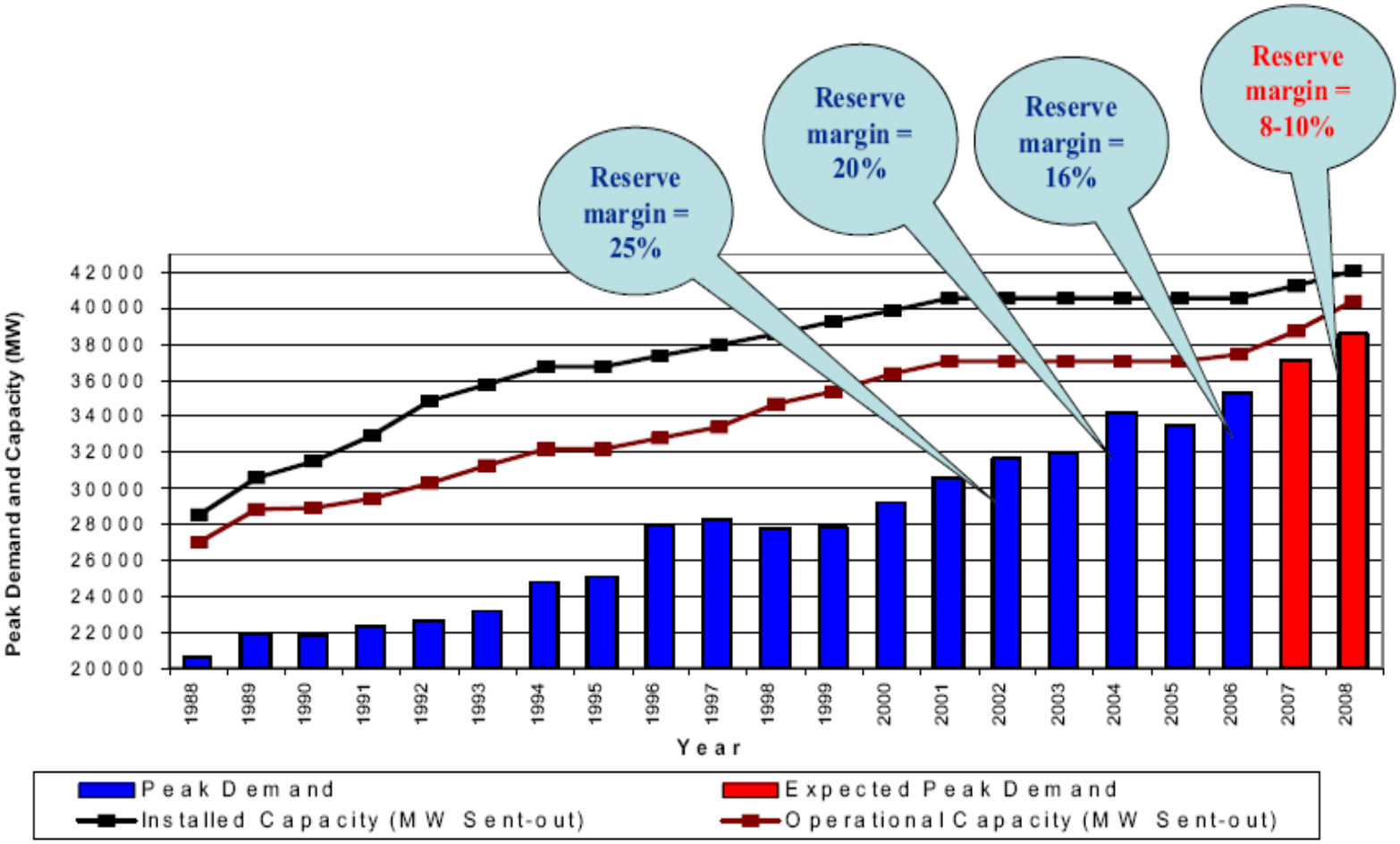
Reserve Margin – Electricity Production



Source: *www.info.gov.za*

What about Using the Solar Resource?

Monitoring of 7 existing systems

Seven already existing systems were selected and equipped with monitoring devices.
To have a good distribution of different system concepts and designs 4 South African systems, 2 Namibian systems and one Mozambican system were chosen for monitoring.

As foreseen **all seven systems have been monitored for a period of 12 months**.

Monitoring of 7 existing systems

System 1 at a **commercial laundry**, Cape Town

System 2 at a residential house, Stellenbosch

System 3 at the Lilium Student Residence, University of Pretoria

System 4 at ABI Miller, North Riding

Monitoring of 7 existing systems

System 5 at the Polytechnic student hostels, Windhoek, Namibia

System 6 Katutura State Hospital, Windhoek

System 7 at the Lousada Family Home in Maputo, Mozambique

Key figures of monitored systems

System	System design	collector area [m²]	storage volume [liter]	storage volume/m² collector area [liter]	average mass flow in collector circle [liter/hour system]	specific average mass flow in collector circle [liter/hour m²]	maximum mass flow in collector circle [liter/hour system]	maximum specific mass flow in collector circle [liter/hour m²]	average temperature difference = t solar flow - t solar return flow [°K]	maximum temperature difference = t solar flow - t solar return flow [°K]	average daily hot water consumption [liter/day]	average daily hot water consumption/ installed m² collector area [liter/m²day]	yearly collector yield [kWh/a]	specific yearly collector yield [kWh/m²a]
System 1	indirect thermosypon system	4	300	75	27	**6,8**	57	14,3	**21,3**	47,3	513	**128**	3.198	**800**
System 2	direct thermosypon system	3	200	67	32	**10,7**	64	21,2	**14,0**	30,6	140	**47**	2.169	**723**
System 3	pumped system (energy meter is installed in secondary circle)	160	30.000	188	1.246	**7,8**	1.916	12,0	**22,4**	43,1	15.748	**98**	72.133	**451**
System 4	pumped system (energy meter is installed in secondary circle)	72	6.400	89	1.426	**19,8**	2.309	32,1	**9,9**	36,8	7.648	**106**	55.363	**769**
System 5	indirect thermosypon system	4	300	75	31	**7,9**	59	14,8	**16,3**	40,5	523	**131**	3.050	**763**
System 6	pumped system (energy meter is installed in secondary circle)	99	8.000	81	695	**7,0**	1.125	11,4	**18,2**	34,8	6.191	**63**	29.868	**302**
System 7	direct thermosypon system with evacuated tubes	8	400	50	*	*	*	*	*	*	110	**14**	2.901	**363**

* this values can't be monitored because of the special design of a direct thermosyphon system with evacuated tubes

48 Training Courses – 1317 Participants

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Nine "train the trainer courses" for professionals were carried out in the partner countries. A total of **400 persons participated** the nine courses.

30 dissemination courses with a total of 701 participants were organized by the project partners. 17 of these courses took place in South Africa, three in Windhoek (Namibia), three in Maputo (Mozambique) and 7 courses took place in Harare (Zimbabwe).

Nine workshops for political decision makers and administration with a total of **216 participants** were carried out.

Training Courses

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Assistance to Producers

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Locally manufactured tanks and locally assembled collectors in Zimbabwe

Test Facility at Stellenbosch University

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Installation of Demonstration Systems at Social Institutions

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A total of 60 solar thermal systems with a total collector area of 668 m² were installed and handed over to the social institutions.

60 Demonstration Systems

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Pumped system at Meerhof School, South Africa

Baphumelele Childrens Home, South Africa

60 Demonstration Systems

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Kestell Orphanage, South Africa

Nuwerus Home for the aged – Worcester, South Africa

60 Demonstration Systems

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Pumped system - home of retired sisters, Zimbabwe

Direct thermosyphon system at Makumbi visitation high school Zimbabwe

60 Demonstration Systems

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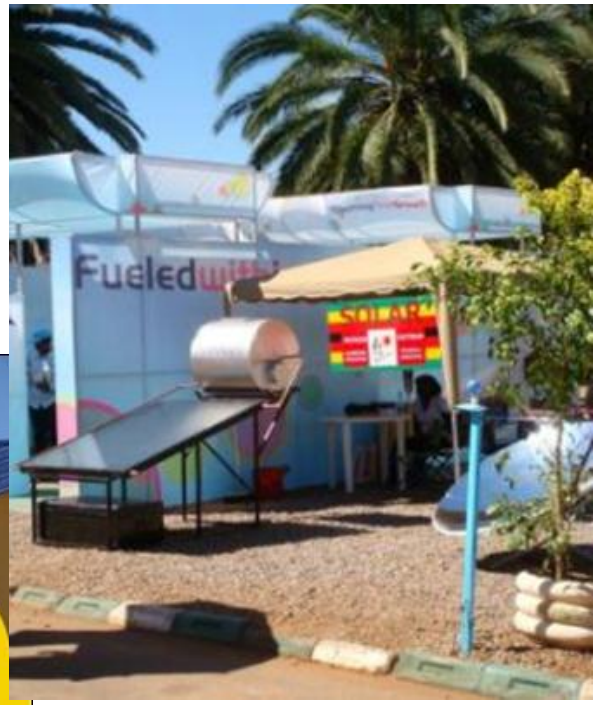
Anglican Medical Services, St Mary's Health Centre, Namibia

Ndlavela Hospital, Maputo, Mozambique

Awareness Activities



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Applicant:	**AEE – Institute for Sustainable Technologies**

Project Partner	**Sustainable Energy Society of Southern Africa (SESSA)**
Project Partner	**Centre for Renewable and Sustainable Energy Studies (CRSES)**
Project Partner	**Renewable Energy & Energy Efficiency Institute (REEEI)**
Project Partner	**Eduardo Mondlane University (UEM)** Faculty of Engineering
Project Partner	**Domestic Solar Heating** Pvt. Ltd. (DSH)

SOLTRAIN II

Austrian Development Cooperation

November 2012 - February 2016

SOLTRAIN II includes four major activities

1. Focused awareness campaigns
2. Centres of Competence
3. Solar Thermal Technology Platforms
4. Solar thermal Demonstration Systems

Awareness Campaigns

1. Focused awareness campaigns on solar thermal systems to inform all relevant stakeholders and the interested population about the different applications of solar thermal energy and the related impact on security of energy supply, poverty, employment and on the environment.

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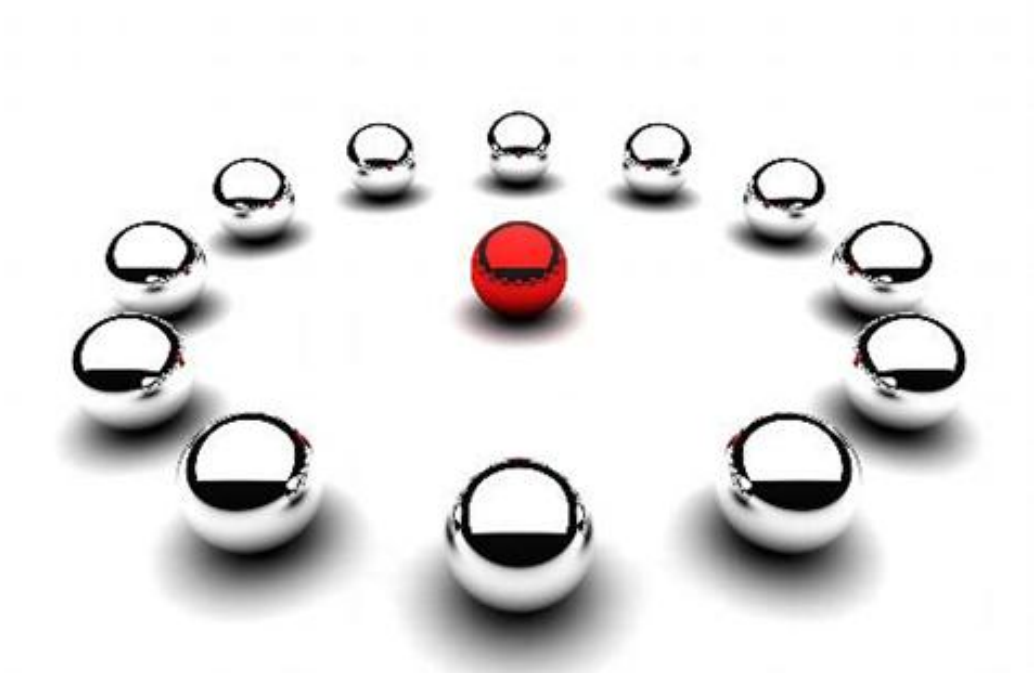
Centres of Competence

The 2nd activity is to implement a sustainable institutional structure and focal points for solar thermal information, training, support for industry and policy as well as for applied research.

These **Centres of Competence** will be **implemented in institutions of higher education in each country**.



CRSES, UEM, REEEI and SESSA

Centres of Competence

The Centers of Competence (CoC) are going to carry out a **comprehensive training programme** ranging from **practical** hands-on training to **University level courses**.

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Centres of Competence (1)

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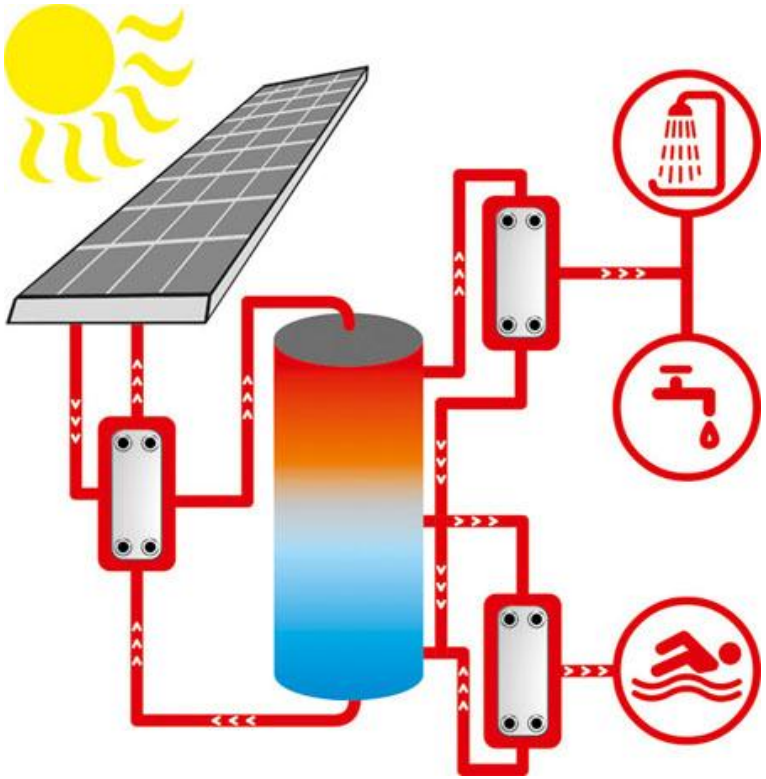
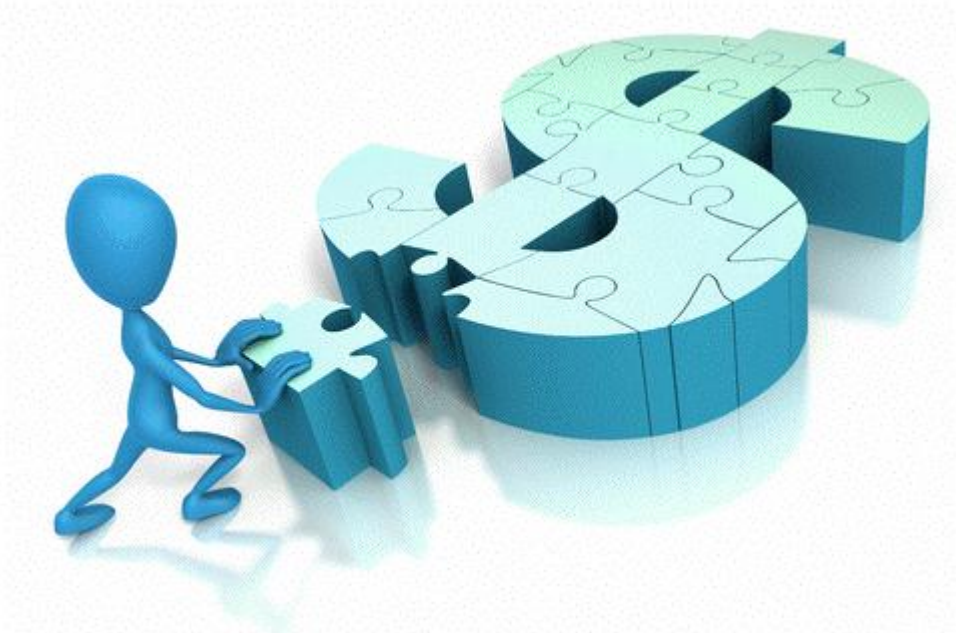
At these CoC's **demonstration systems**, equipped with basic monitoring equipment for training purposes will be installed and also courses for students and diploma and master theses will be part of the work of the CoC's.



Centres of Competence (2)

The CoC's in South Africa (CRSES) and Namibia (REEEI) are also going to carry out **workshops with banks/finance institutions** in order to find out the interest and possibilities to finance solar thermal systems (e.g. micro financing schemes and revolving funds).



Solar Thermal Technology Platforms

The 3rd major activity is the establishment and implementation of **"Solar Thermal Technology Platforms"** (STTP) into all **Centres of Competence** in Namibia, Mozambique.

These platforms will be cross linked to a **Southern African Solar Thermal Technology Platform** in order to enhance the information exchange and the cooperation between the platforms.

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Solar Thermal Technology Platforms

The **national STTP's include all stakeholders** (companies, higher education as well as administration and policy) who make a positive input in improving growth of solar thermal applications in all relevant sectors. The STTPs are going to prepare **a national Solar Thermal Roadmap** and implementation plan for each participating country and should act as the relevant entity for decision makers when it comes to support measures in terms of technical solutions, subsidy schemes or research and dissemination activities for solar thermal systems.

Demonstration systems

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In order to apply the knowledge gained during the training courses, and to increase the public awareness,

40 - 50 solar thermal demonstration systems

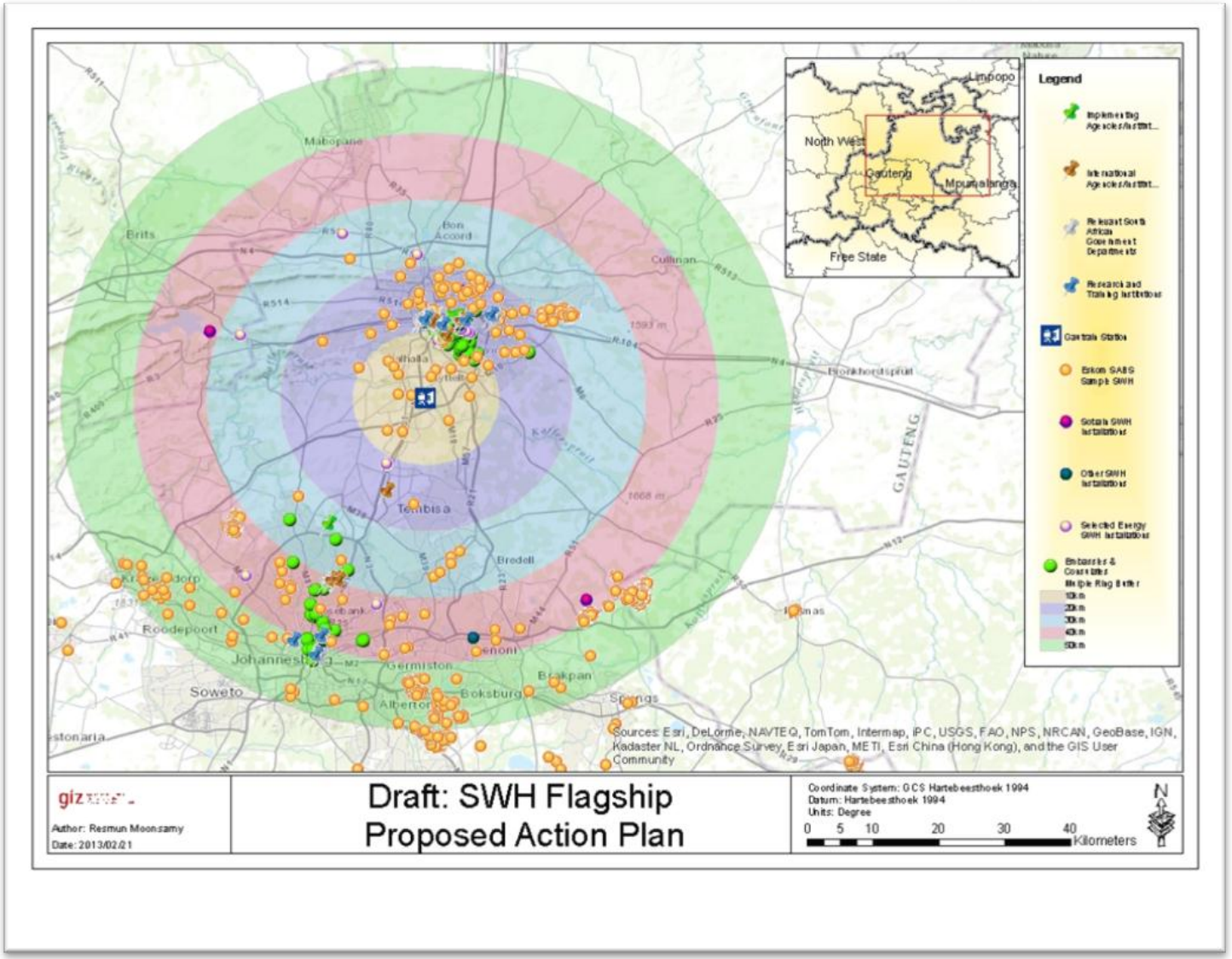
of different sizes and applications will be installed at social institutions and small and medium enterprises.

Demonstration systems

To show and demonstrate the different solar thermal applications "**flag ship sites or districts**" will be established after consultation with policy, local authorities or NGO's.

The idea of "flag ship sites or districts" is to have several systems for different applications at different eligible institutions installed relatively close together (**one village, town or small region**).

Demonstration systems



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