



Current situation and development of solar hot water in Southern African Development Community (SADC) region



Rudolf Moschik, AEE-Institute for Sustainable Technologies (AEE-INTEC)

SOLTRAIN – Southern Africa Solar Thermal Training and Demonstration Initiative

Soltrain+:
January 2023 – December 2026



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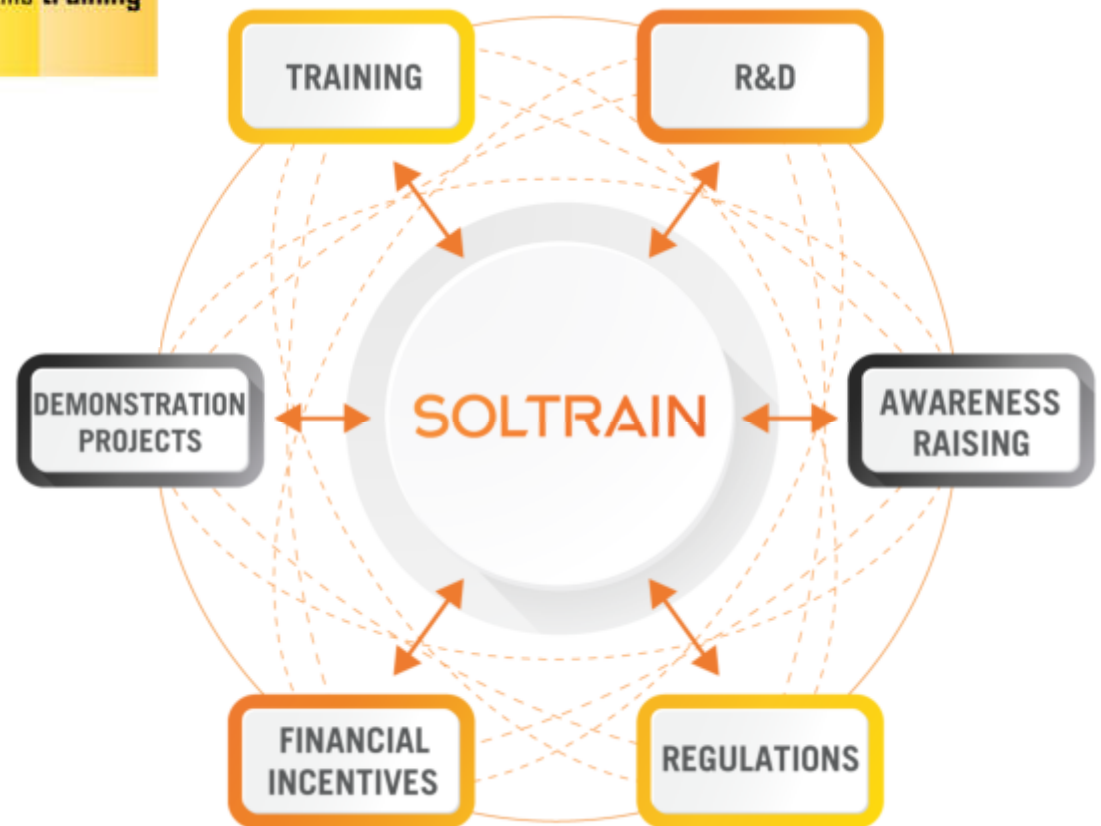
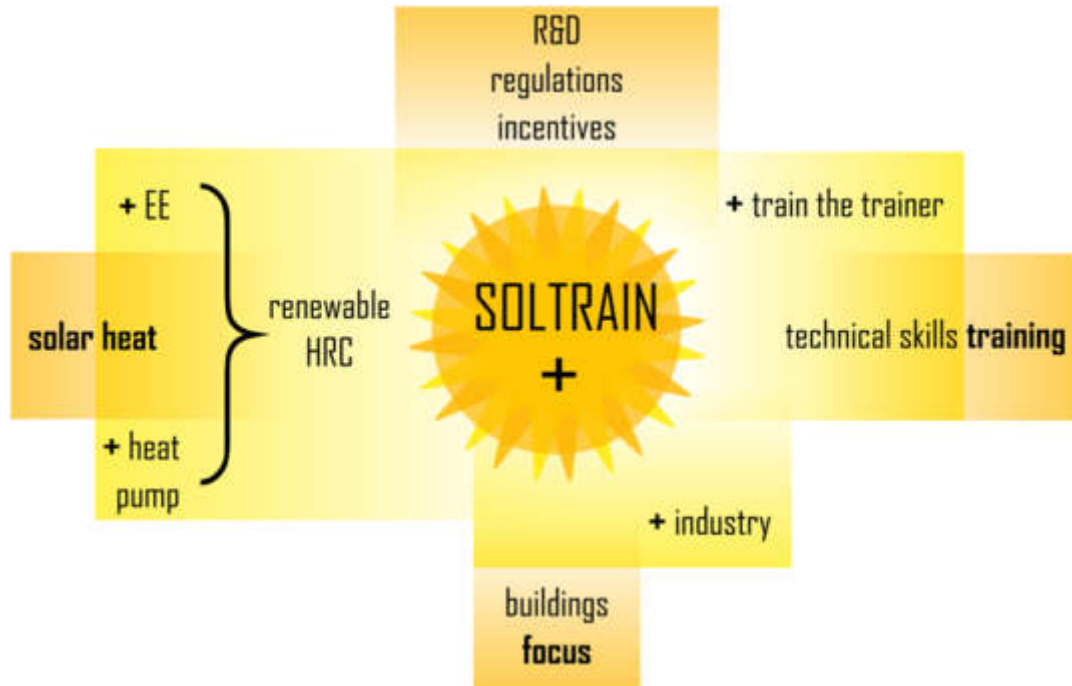


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SOLTRAIN Strategy and Concept



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Content of presentation

- Current situation of installations
- Roadmaps and evaluated potential
- Challenges and requirements
- Best practice and cost
- Conclusion

Demonstration Systems current situation



Appartment buildings Johannesburg , South Africa



Don Bosco, Mozambique



Tholo Heights Student residence, South Africa



Camphill School, Botswana

New Trend: PV 2 Heat

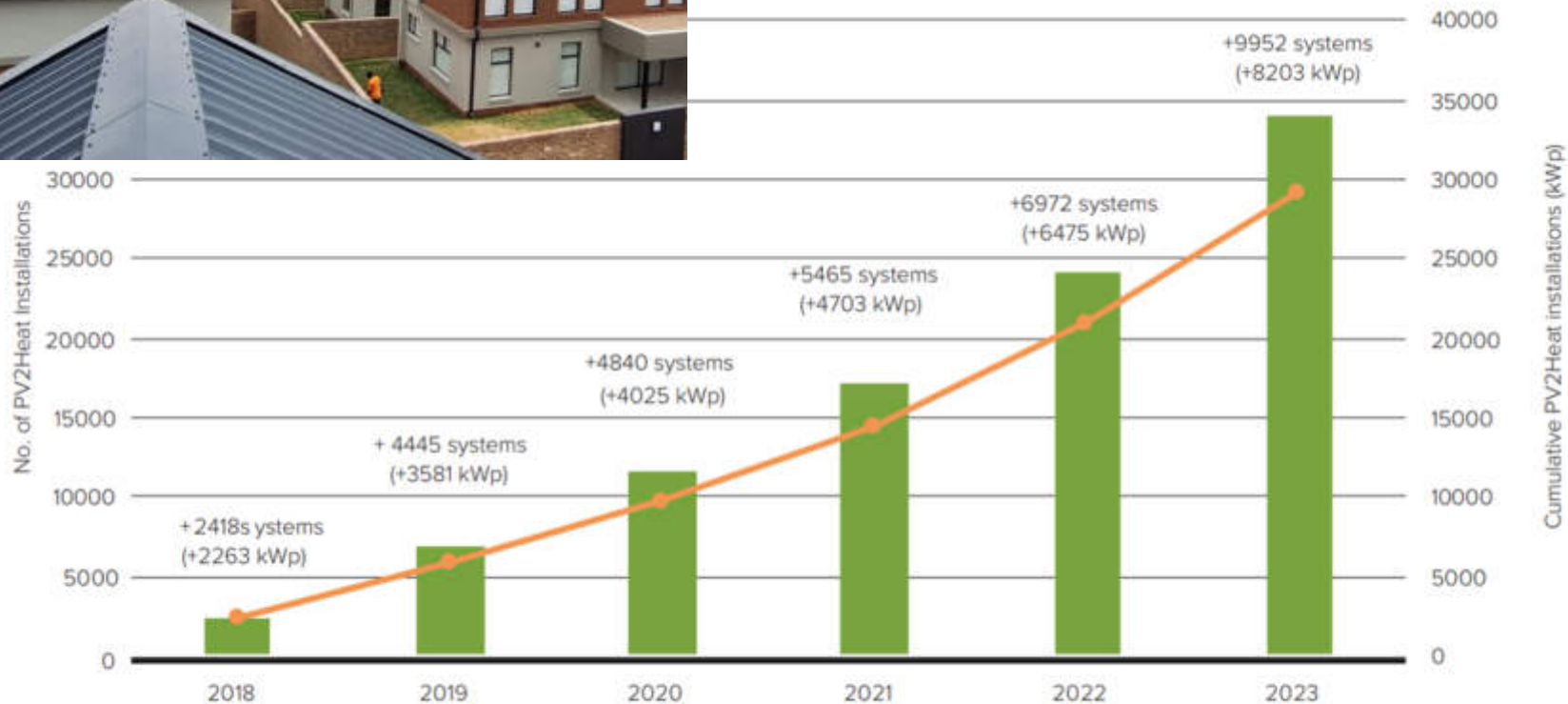


Figure 18: PV2Heat Market development in South Africa between 2018 and 2023

Source: Lavhe Maluleke, Stellenbosch University, South Africa

■ Cumulative PV2Heat installations
◆ Cumulative PV Capacity Installed kWp

Available Marketdata, Solar Heat World Wide

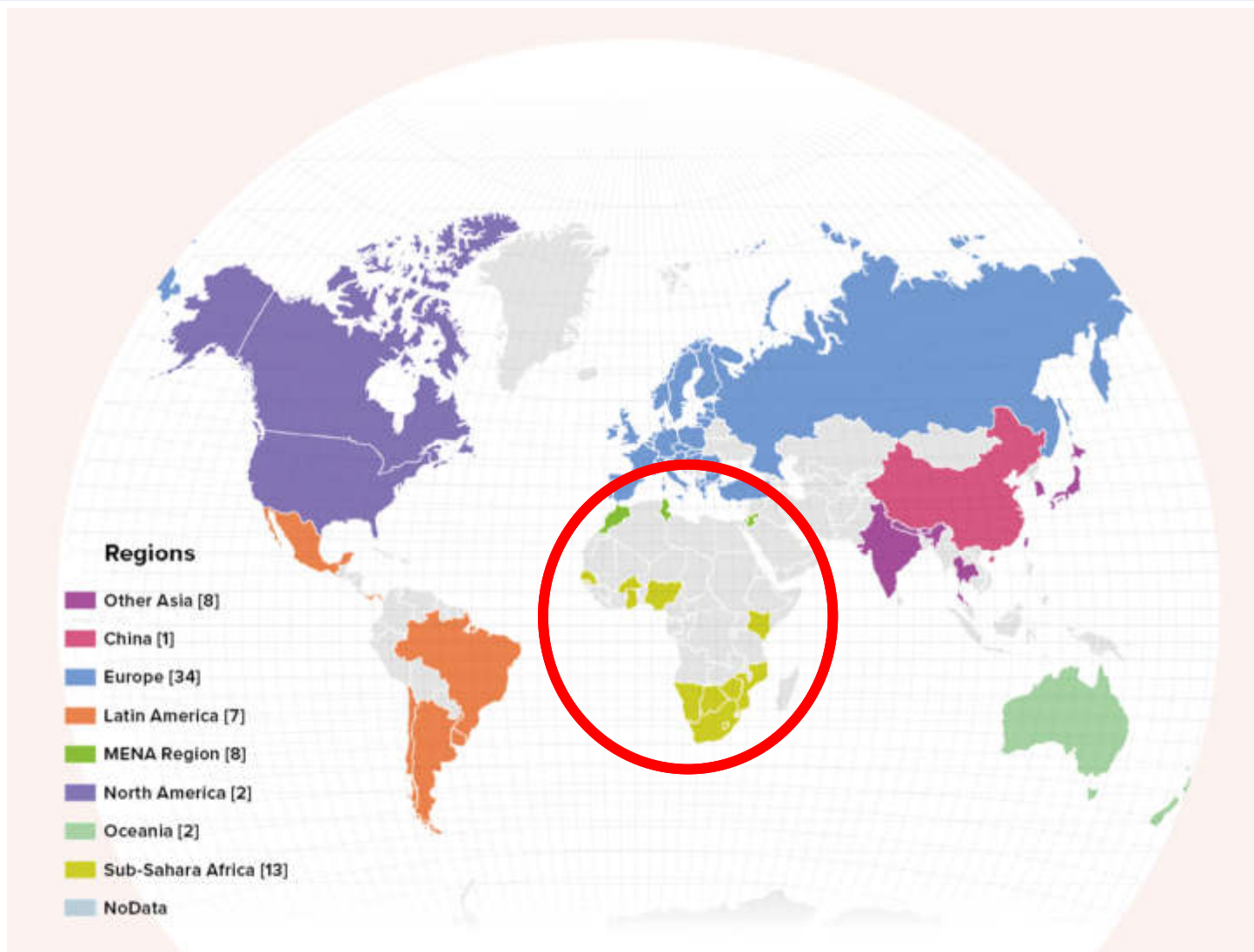


Figure 1: Countries shown in color have detailed market data. Countries shown in grey have estimated market data.
 Source: Natural Earth v.4.1.0, 2020/ AEE INTEC

Source: Solar Heat Worldwide

Distribution of installed capacity by end of 2022

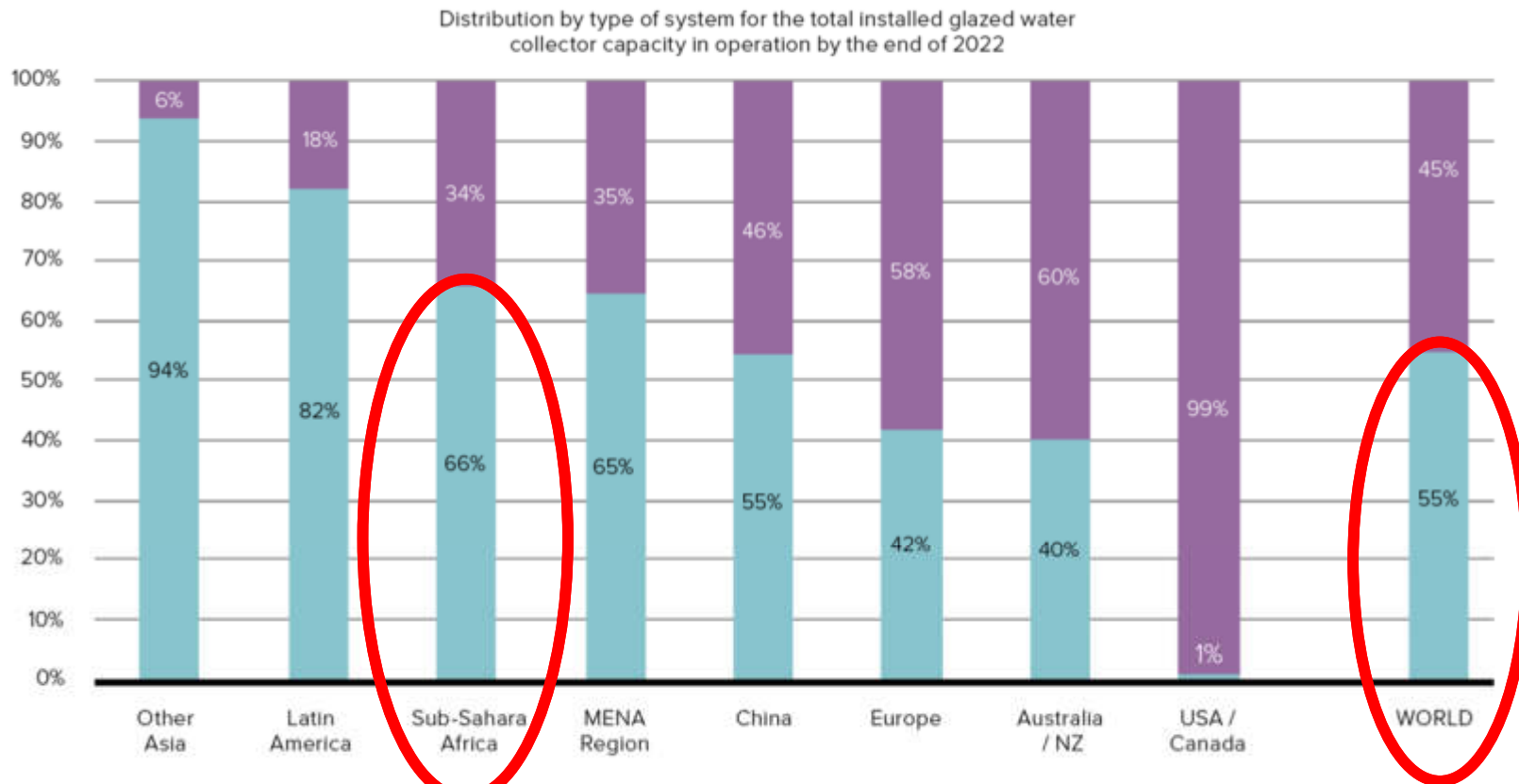


Figure 50: Distribution by type of system for the total installed glazed water collector capacity in operation by the end of 2022

■ Pumped solar heating systems
■ Thermosiphon solar heating systems

Sub-Sahara Africa: Botswana, Burkina Faso, Ghana, Kenya, Lesotho, Mauritius, Mozambique, Namibia, Nigeria, Senegal, South Africa, Zimbabwe

Other Asia: Bhutan, India, Japan, South Korea, Chinese Taipei Thailand

Latin America and the Caribbean: Argentina, Barbados, Brazil, Chile, Mexico, Panama, Uruguay

Europe: EU 27, Albania, North Macedonia, Norway, Russia, Switzerland, Turkey, United Kingdom

MENA countries: Israel, Jordan, Lebanon, Morocco, Palestinian Territories, Tunisia

Source: Solar Heat Worldwide

Distribution of installed capacity in 2022

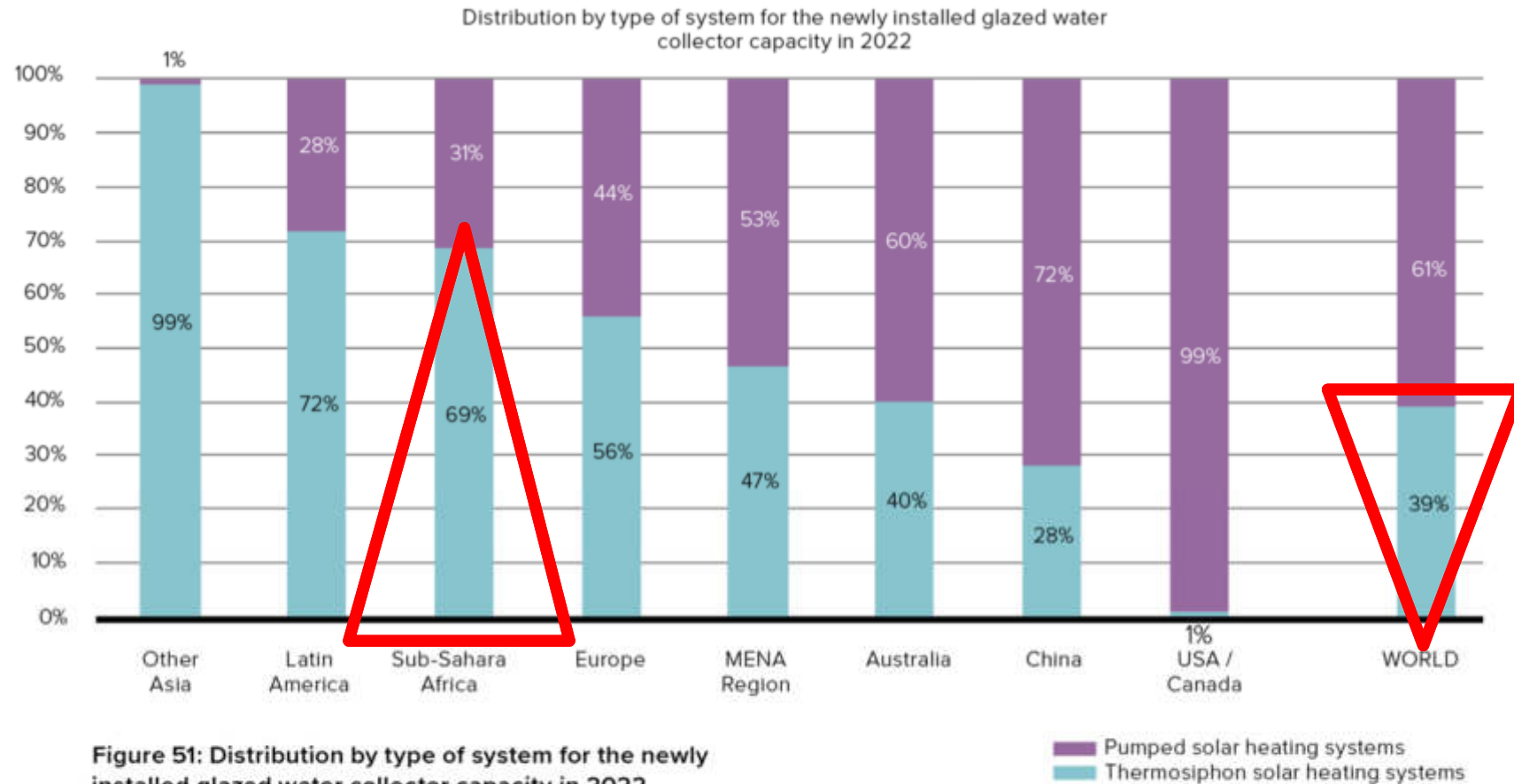


Figure 51: Distribution by type of system for the newly installed glazed water collector capacity in 2022

Sub-Sahara Africa: Botswana, Burkina Faso, Ghana, Kenya, Lesotho, Mauritius, Mozambique, Namibia, Senegal, South Africa, Zimbabwe

Other Asia: Bhutan, India, Japan, South Korea, Chinese Taipei, Thailand

Latin America and the Caribbean: Argentina, Barbados, Brazil, Chile, Mexico, Panama, Uruguay

Europe: EU 27, Albania, North Macedonia, Norway, Russia, Switzerland, Turkey, United Kingdom

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Source: Solar Heat Worldwide

Solar Thermal Technology Roadmaps



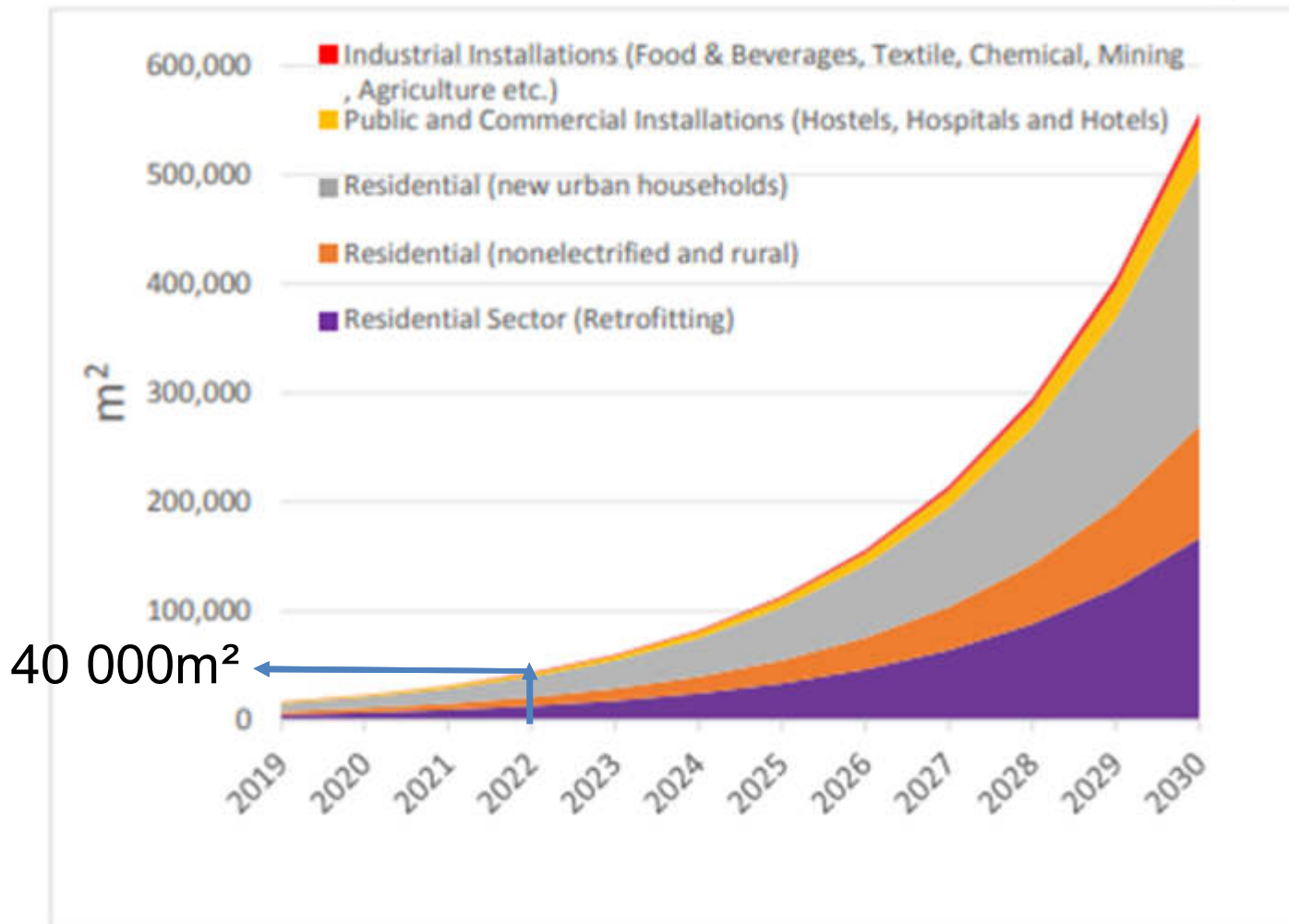
6 Solar Thermal Technology Roadmaps



www.soltrain.org

Solar Thermal Technology Roadmap Zimbabwe yearly installations

Annual targets to reach 0,1 m²/inhabitant by 2030
This will result in 2 000 000 m² in total by 2030



Countries included in the world market report

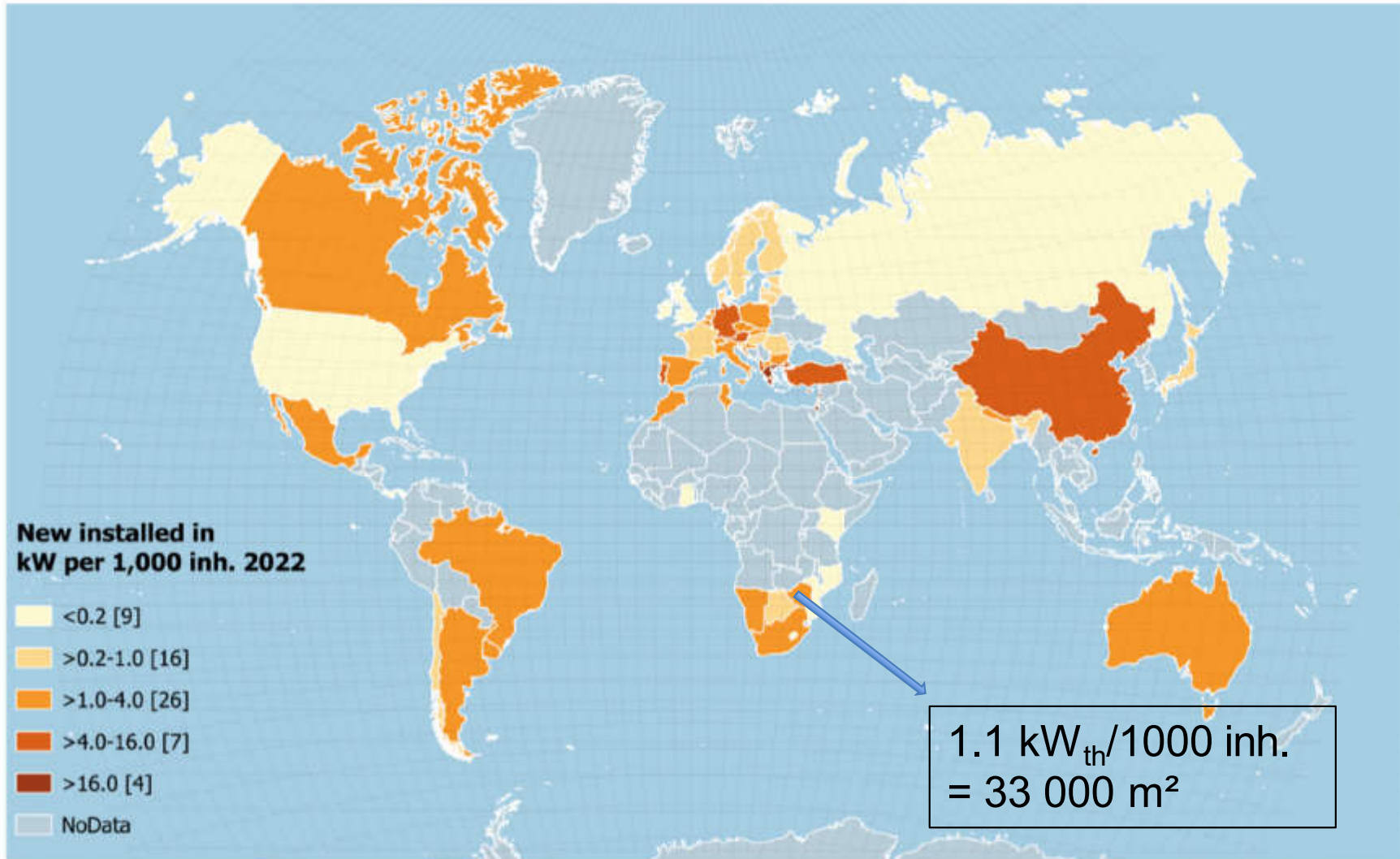


Figure 40: Newly installed capacity in 2022 in kW_{th} per 1,000 inhabitants – WORLD
Source: Natural Earth v.4.1.0, 2020/ AEE INTEC)

Source: Solar Heat Worldwide

Installed capacity and potential

$$490 \text{ kW}_{\text{th}}/1000 = 0.7 \text{ m}^2/\text{inhabitant}$$

Cumulated capacity of glazed water collectors in 2022 per 1,000 inhabitants

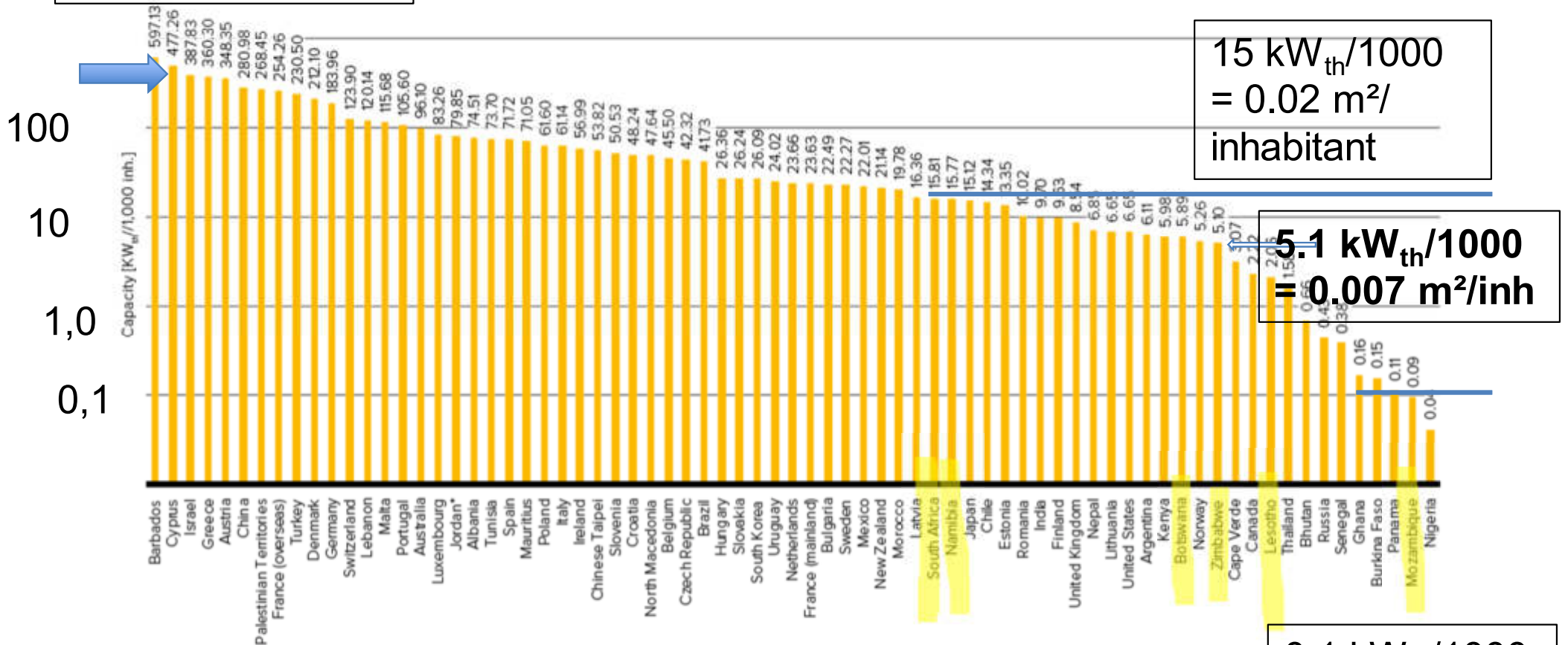


Figure 26: Total Capacity of glazed water collectors in operation in kW_{th} per 1,000 inhabitants in 2022

Source: Solar Heat Worldwide

$$0.1 \text{ kW}_{\text{th}}/1000 = 0.00014 \text{ m}^2/\text{inhabitant}$$

Challenges and requirements

- Missing standards, quality management, quality of installation

In some Southern African countries no standards regarding solar thermal components and installations are in place.

Some countries take the SANS Standards as a reference.

Knowledge of installers and producers regarding use of standards is limited.

- Lack of maintenance

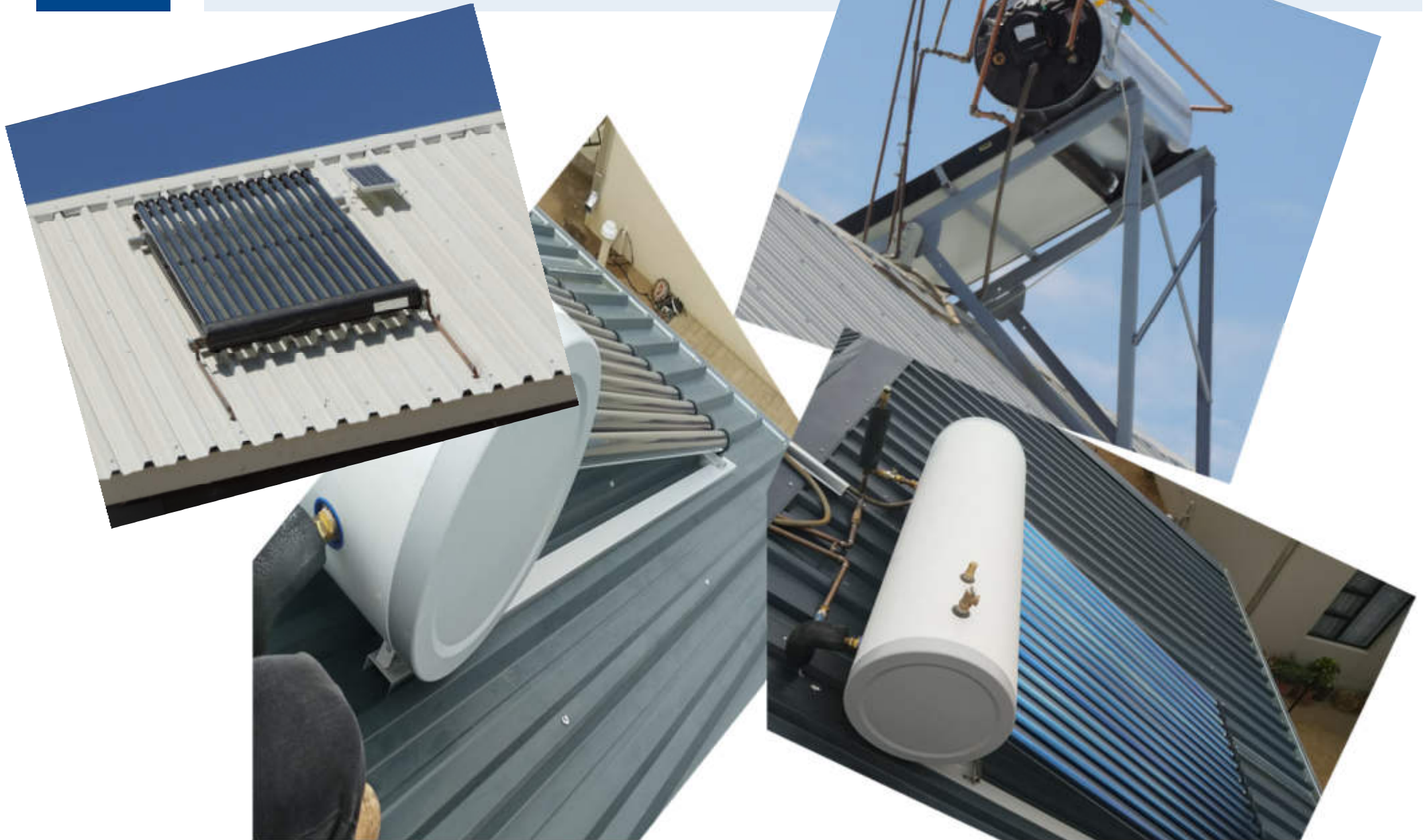
- Initial investment

Local energy is cheap and subsidized

No general funding schemes

Loans and bankable proposals are not in place

Findings



Quality installation work and maintenance



Bestpractice and cost

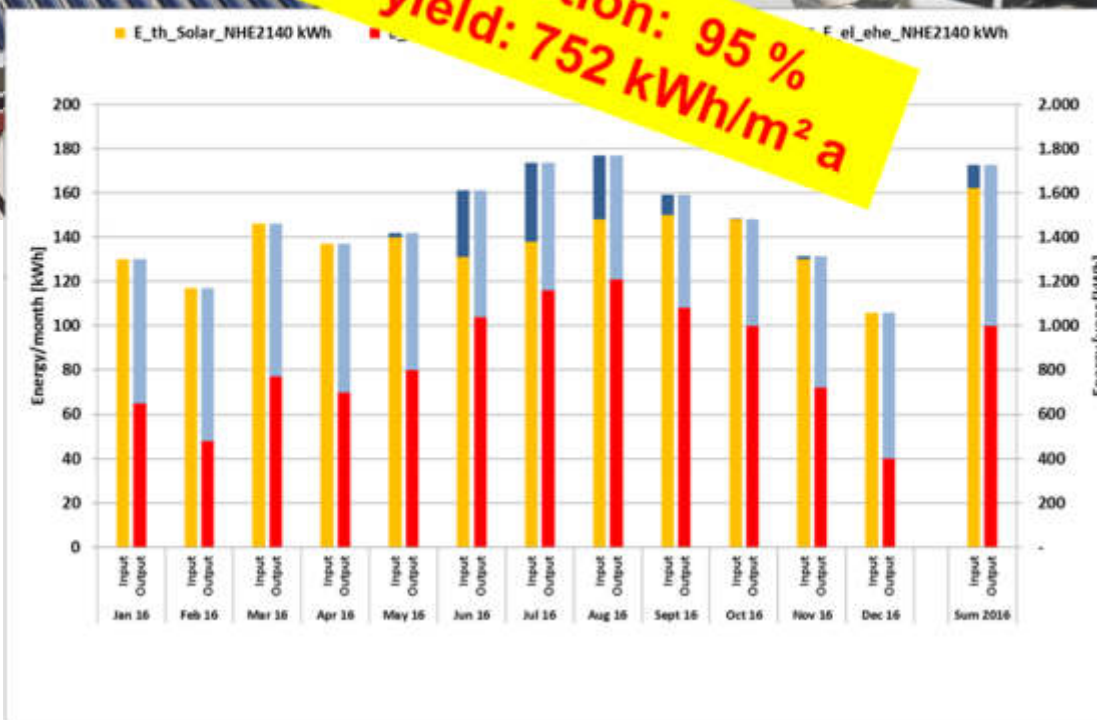


High School,

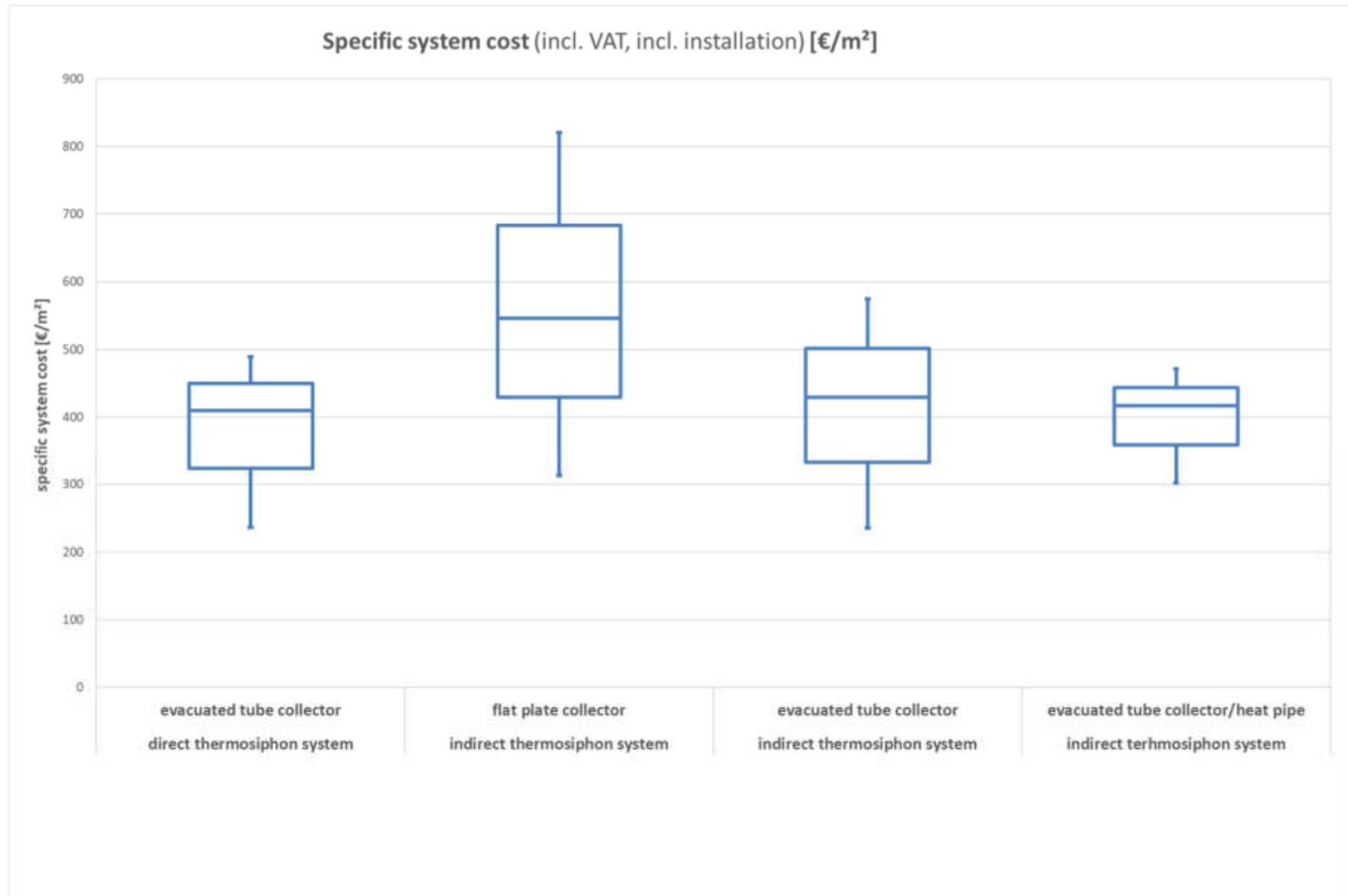


Namibia

Solar fraction: 95 %
Solar yield: 752 kWh/m² a



Evaluation of specific system cost



STANDARDS – TRAINING – INSPECTION



... TRAINING ACTIVITIES
in different sectors...



... getting EXPERIENCE
by doing...



... and QUALITY
CONTROL ...



An aerial photograph of a modern building complex. The most prominent feature is a large, curved facade covered in blue solar panels. The building has a mix of grey and yellow walls. In the foreground, there's a paved area and a small green lawn. The sky is clear blue with a few clouds. A yellow banner is overlaid on the top left, and a white box with blue text is overlaid on the middle left.

AEE INTEC

IDEA TO ACTION

**Thank you
for your Attention**