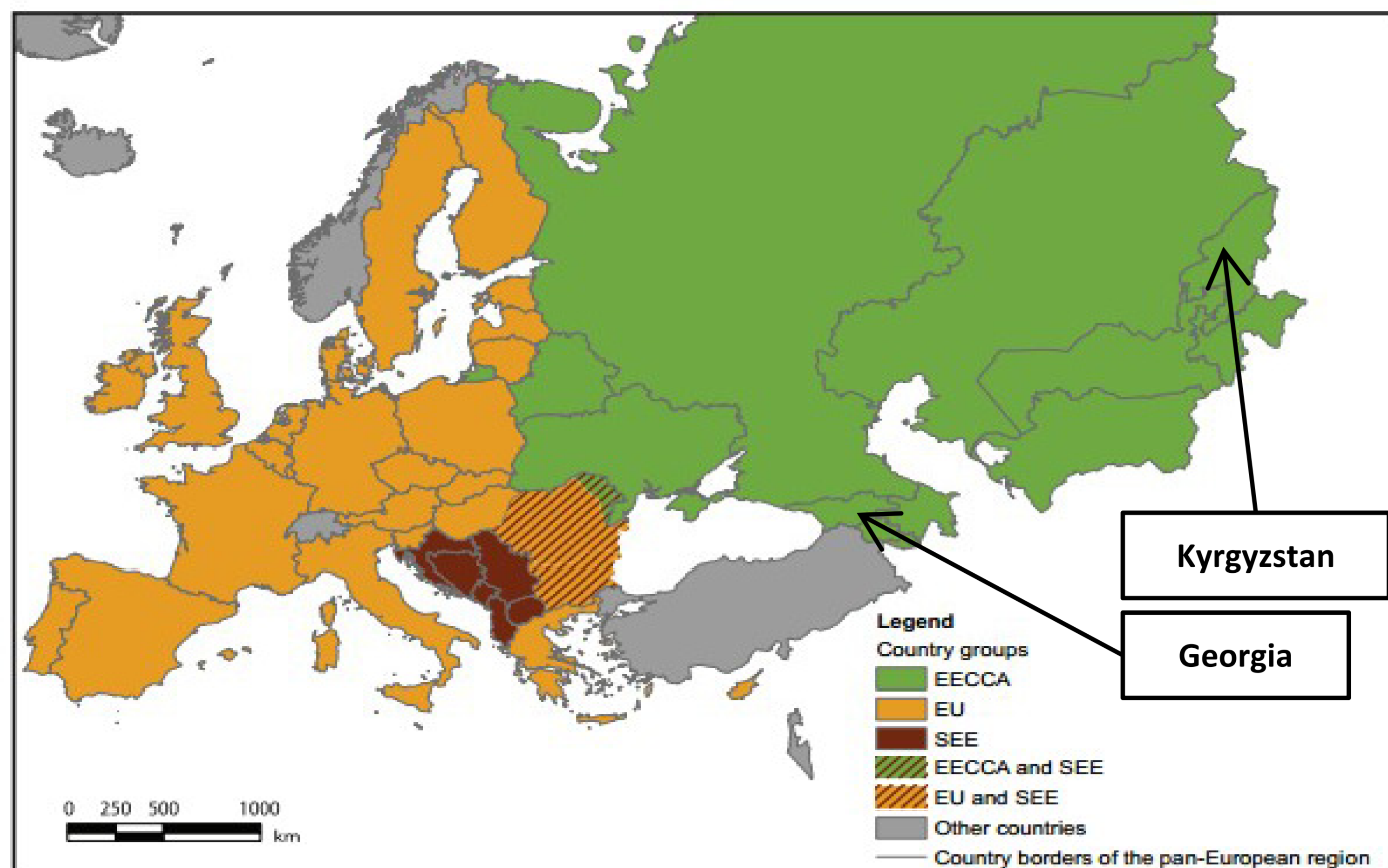


Linking Water & Sanitation to Agriculture and Energy – Two Case Studies from Georgia and Kyrgyzstan

Introduction



Georgia and Kyrgyzstan are two post-Soviet countries where the infrastructure, especially water supply, adequate sanitation and wastewater management have been deteriorating increasingly during the last 20 years. The situation in rural areas is dramatic and the people are left alone with insufficient support from the local authorities to ensure their infrastructure. Households in rural and peri-urban communities largely suffer from energy poverty. They rarely have enough energy to produce heating and warm water in their homes. The lack of fuel has caused localized environmental problems such as deforestation for fuel, cutting of windbreaks, burning dung instead of using it for fertilizer, resulting in soil degradation. Their food security and income are based on subsistence farming. There is a high rate of unemployment and people lack of ideas for business and marketing, and alternatives solutions for sustaining livelihoods. WECF, RCDA and KAWS have been working together for 5 years to improve the living conditions of the population and to bridge the gap between urban and rural areas.

Are Rural Communities Able to Address their Lack of Infrastructure and Manage its Provision Themselves? – The Community Based Approach

The holistic approach to link water, sanitation, energy and farming through a community based set up is innovative for the region.

In the Georgian case study, there are **NGO based resource centers** which provide advisory services on construction, operation & maintenance for the infrastructure technologies (please see explanations on the right side). For urine diverting dry toilets (UDDT), people have the choice of different designs, a concrete or ceramic UDDT toilet seat, UDDT devices made of metal and slabs made of tiles can be purchased. In the villages Khamiskuri and Kheta in Western Georgia, the toilet design has been increasingly improved and adapted to make the UDDT more affordable for even the poorest people. The centers also support the construction of solar collectors for the households built with local material or deliver and install the solar collector. The same for the solar fruit dryers.

In this Kyrgyz case study, the **community based drinking water user unions (CDWUU)** provide the same service for the villagers. The installed resource centers provide the technical background for the technologies where the service is provided and the technologies further developed.

Demonstration centers: In both countries, demonstration centers were set up so that the villagers can see hands on how the technologies are working. This is a crucial aspect as most people are

firstly sceptical about new technologies. The demonstration centers are usually at public places, such as CDWUU offices, post office, village health care center and schools and they are fully funded by donors. Villagers can there have a look and test the new technologies and decide if they want to purchase and install it in their homes.

Initial community mobilisation and trainings: To introduce the community based approach and technologies, initial community mobilisation and adapted trainings about the technologies are needed. The initial community mobilisation is a process by the local NGOs, best on street level. For awareness raising and capacity building, the communities and service centers are trained.



Community mobilisation

The Gender Aspect

In Georgia and Kyrgyzstan, the rural societies are very much male dominated. The women in rural areas have usually a higher work load compared to urban areas. They have to ensure the daily life in terms of basic needs, water, hygiene, taking care of children and disabled people and additionally they fulfill a number of tasks related to farming. **Technologies which make the life conditions better and daily life easier, safer and more hygienic, like these presented here, are of most benefit for the women.** To improve the sanitation conditions through installing a UDDT is usually much more appreciated by the women and girls.

Compared to traditional fruit drying, the solar driers are much more efficient, reduce the work load of women and give them the

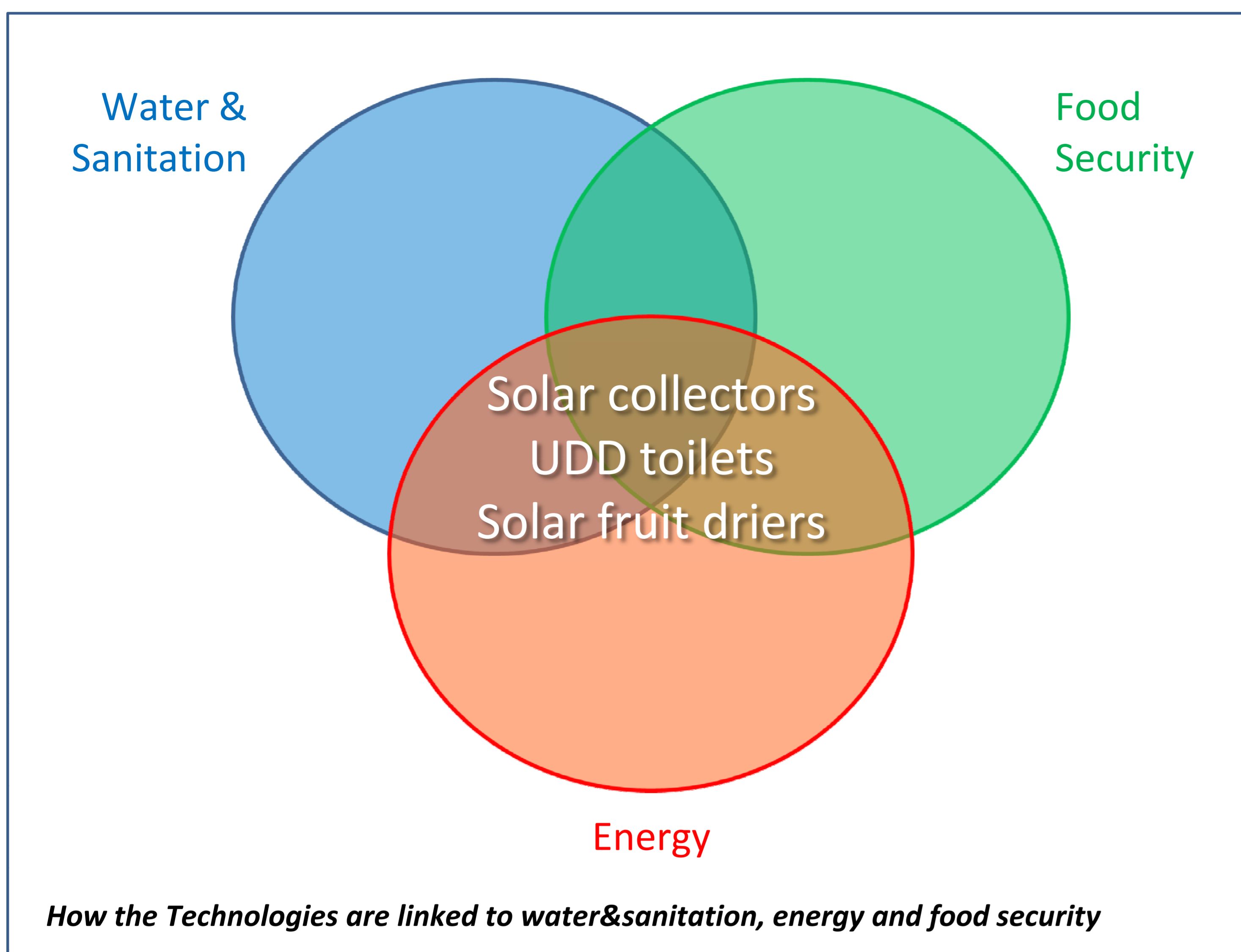
possibility to start selling dried fruits and herbs.

Within a participatory approach, women are included equally at all stages to ensure a long term sustainability of the approach and the technologies.

Financial Sustainability

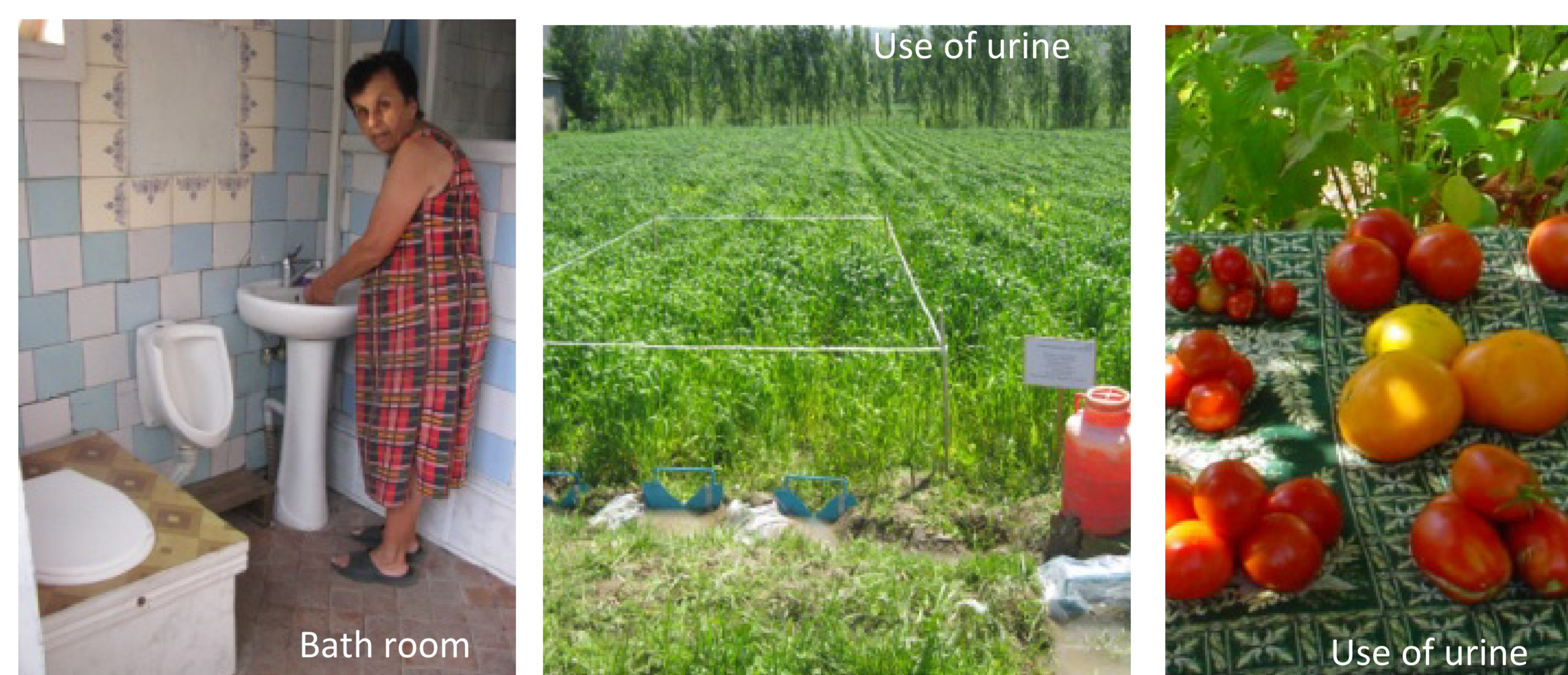
The rural population often lack money to install the technologies at once, especially for the investment of the solar collectors which cost appr. 250 Euro for one family ready made in Kyrgyzstan. Therefore, **it is needed to ensure that the population has access to the financial market** such as leasing or micro credit schemes at low (social) interest rate. The leasing scheme is now in development in Georgia, a special micro credit access with a social interest rate in Kyrgyzstan.

The Technologies Adapted to Rural Areas Bridging the Divide to Urban Areas



Sanitation and Food Security - Urine diverting dry toilet (UDDT)

The UDDT is a sustainable and productive sanitation system which saves water and energy and contributes to food security through decentralized and cost-efficient provision of fertiliser (urine) and soil conditioner (faecal compost). The toilet is equipped with a special seat which keeps urine and faecal matter separate. Different types of toilets were developed for UDDT, made of ceramic, concrete or plastic. Both fractions, sanitized urine and faecal matter, are used according to WHO guidelines, mostly for subsistence agriculture. Food security is being increased with a fertiliser that is readily available for all, regardless of infrastructure and economic resources. **There is a good acceptance for UDDT** in the rural areas and the people appreciate this alternative to the traditional pit latrines. In the last years, more than 300 UDDT have been constructed in Georgia and more than 100 in Kyrgyzstan. When asking the people why they are running a UDDT, they mention as first priorities **the increased comfort and the access to organic fertiliser**. In some villages, most households are already equipped with a UDDT or are willing to construct one.



Food security, energy and sanitation - solar fruit drier

A solar fruit drier uses the heat of the sun to dry fruits. It produces hygienically clean fruits and makes it possible to dry faster greater quantities in comparison to traditional open air drying. The solar fruit driers are relatively easy to construct with locally available materials. As the harvest is often good but short and other food processing technologies are lacking, the introduction of solar drier contributes to an increased food security.

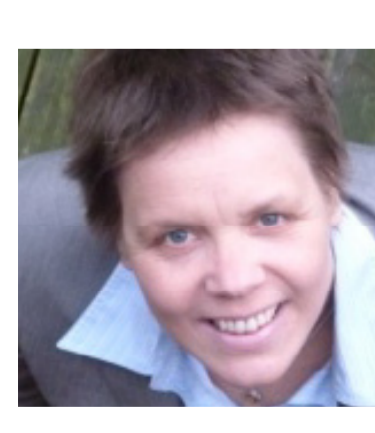


Energy - Solar collector

A solar collector (or solar water heater) uses the sun's energy to heat water to be used for showering and dish washing. The solar collectors are designed to resist freezing, allowing year-round use even during cold winters. They are constructed locally, do not need electricity and are easy to maintain. The tank contains 150 or 200 liters of water which is heated up and used for showering and dish washing. **People appreciate very much to have a full bathroom including a UDDT and a shower with warm water from solar hot water collector as it is the same standard as in the cities.** This simple technology improves the living standard in rural areas with benefits for the health and economic situation of the people.



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WECF has NGO consultative status with United Nations Economic & Social Council (ECOSOC) and is accredited with the United Nations Environment Programme (UNEP)

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