Solar Water Heater [i]

Sector	ENERGY
Subsector	Renewable Energy
Technology name	solar water heater
Scale	Small to medium scale
Availability	Short term
Technology to be included in prioritization	This type of technology has been studied and listed in the national mitigation study.
Background/notes	Solar thermal technology can be used to provide hot water for domestic or industrial uses. Recently, 'combi' systems have been introduced which can provide both space and water heating. Advances in the technology have provided so-called *solar assisted air conditioning*. The systems can be tailored to different needs and circumstances, such as industrial applications and domestic use.
Implementation assumptions	The markets in China, Australia, New Zealand and Europe are the fastest growing with a 25% growth rate in China and Taiwan followed by 19% in Australia and New Zealand then 13% in Europe. Swimming pool applications also recorded an increase. With a view to the application of the technology in Russia, where presently no market development is taking place, a meeting was organised by EREC and the Russian Energy Technology Centre in May 2007 on 'Perspectives for solar thermal energy in Southern Russia'.
Impact Statements(how this option impacts the country development priorities)	
Country social development priorities	In terms of economic and social benefits, the technology can contribute to sustainability especially as it is relatively simple and could be delivered by locally trained installers with local supply chains in the main. This would lead to jobs and to a better quality of life, as well as minimize energy bills and dependency on fossil fuel imports with their corresponding vulnerability to price fluctuations. It is a safe technology avoiding fire and other health risks. It is particularly applicable to developing countries for space cooling and hot water.
Country development priorities	Energy efficiency is a priority of the Cambodian government in intention of energy security; reduce dependency of imported energy, reducing poverty in community society.
Country environmental development priorities	In terms of benefits for the environment the technology avoids the use of fossil fuels and their emissions, while being a silent technology.
Other consideration and priorities such as market potential	Applying such technology is also potential for clean development mechanism.
Costs (US$)	

Capital costs over 10 years	Some examples below can be used for reference in term cost requirement consideration. According to Philibert (2005), costs of SWH systems can vary greatly from country to country. In Greece a domestic solar thermal hot water system for a one-family unit (2.4 m2 collector area and 150 litre tank) costs € 700, but in Germany with a 4-6 m2 area and 300 liter tank it costs € 4,500. Conversely, a system for space heating will provide greater savings in the north than the south. In northern France, savings of €730-900 per year are quoted compared to € 120-180 in the southern part of the country. Capital costs of solar air conditioning systems tend to be several times that of conventional systems. However, cost figures per unit of energy improve if a combined heating and cooling system is used. In general, for solar thermal systems, depending on the system, the application, and locality, there is a wide range of cost efficiency from savings schemes to systems where economies of scale are still required for some systems though not the existing standard systems. In the EU, the subsidies currently given to coal-based and nuclear energy amount to more than € 28 billion/year without including external costs. Funding at that level together with the energy savings would enable renewables to replace fossil fuel-based and nuclear energy without additional burdens on the economy (ESTIF, 2006). The EU calls for 100 million m2 of solar thermal surface by 2010 helps to stimulate interest and the market but sub-national programmes are available. For example, the German Solarthermie 2000 plus aims to increase the annual solar contribution to hot water and heat production from individual installations from 10-30% to 60%. Seasonal storage is targeted with grants of up to 50%.
Operational costs over 10 years	n/a
Other costs over 10 years	n/a

[i] **This fact sheet has been extracted from TNA Report – Kingdom of Cambodia - Technology needs assessment and technology action plans for climate change mitigation. You can access the complete report from the TNA project website http://tech-action.org/**