

TECHNICAL ASSISTANCE COMPLETION REPORT

Division: Energy (SEEN)

TA No., Country and Name			Amount Approved: \$1,000,000	
TA 7679-REG: Promoting Renewable Energy, Clean Fuels, and Energy Efficiency in the Greater Mekong Subregion			Revised Amount: N.A.	
Executing Agency Asian Development Bank (ADB)		Source of Funding Clean Energy Financing Partnership Facility (CEFPF)	Amount Undisbursed: \$ 226,271	Amount Utilized: \$ 773,729
TA Approval Date: 18 Nov 2010	TA Signing Date: ¹ N/A	Fielding of First Consultant: 18 July 2011	TA Completion Date Original: 31 Jan 2013 Actual: 31 Dec 2014 Account Closing Date Original: 31 Jan 2013 Actual: 31 Mar 2015	
<p>Description: To improve energy security and mitigate climate change impacts, the Greater Mekong Subregion (GMS) countries² agreed to expand cooperation beyond the electric power sector and created the Subregional Energy Forum (SEF) in 2004. Through the SEF, the GMS countries prepared the Road Map for Expanded Energy Cooperation, which was endorsed at the 15th GMS Ministerial Meeting in June 2009.³ To implement the road map and in response to the GMS countries' request, the Asian Development Bank (ADB) approved RETA 7679 to promote Renewable Energy (RE), Clean Fuels (CF), and Energy Efficiency (EE) in the GMS in 2010 in the amount of \$1,000,000 on a grant basis financed by the ADB-administered Clean Energy Financing Partnership Facility.</p> <p>Expected Impact, Outcome and Outputs: The impact of the TA was enhanced supply of energy in a resource-efficient and environment-friendly manner for economic growth and poverty reduction in the GMS. The expected outcome was effective transfer of low carbon practices and technologies within the GMS. To achieve this outcome the TA targeted five outputs: (i) the SEF strengthened as a forum for information exchange and knowledge sharing on RE, CF, and EE and for networking and technical exchanges between planners/policy makers and the private sector; (ii) a regional database of best practices and technologies on RE, CF, and EE developed; (iii) subregional performance targets developed for use of RE and CF, and EE savings; (iv) RE and CF resources, potential maps produced for all GMS countries, with a technology-based and cost-based ranking of various options; and (v) business models identified for deployment of selected RE and CF and EE measures based on the local conditions of each GMS member country. Out of the five outputs, the first and fourth were fully achieved, while the remaining three outputs were partially achieved. The TA completion date was extended cumulatively by 23 months due to difficulties in aligning project schedule with target agencies' availability for all GMS countries, which subsequently affected the timeframe of consultant's preparation and submission of deliverables. Such delays, however, did not affect the overall TA cost, expected benefits, and efficiency.</p> <p>Delivery of Inputs and Conduct of Activities: The TA provided a total of 49.5 person months (pm) of inputs (26.25 pm international; and 23.25 pm national) and engaged an international consulting firm from July 2011 to April 2014 for a total contract amount of \$558,425. TA activities included regional SEF meetings, national training workshops and country consultations, and desk studies on RE, CF and EE experiences. During the TA period, three SEF meetings were organized and supported: (i) SEF-5 in Ho Chi Minh City on 9-11 November 2011 (TA inception workshop); (ii) SEF-6 in Chiang Mai on 8-10 August 2012; and (iii) SEF-7 in Vientiane on 9-10 October 2013 (TA final workshop). Based on country consultations and training needs assessment results, country training programs</p>				

¹ TA agreement letter is not required for RETA. Instead each GMS country signed a confirmation letter that they have no objection to be included under the activities of this RETA: Cambodia-January 2011, Lao People's Democratic Republic (PDR)-March 2011, People's Republic of China (PRC)-signed but undated, Myanmar-February 2011, Thailand-January 2011, and Viet Nam-April 2011.

² Cambodia, Yunnan Province and Guangxi Zhuang Autonomous Region of the PRC, Lao PDR, Myanmar, Thailand, and Viet Nam.

³ The road map identifies four main strategic objectives up to 2022: (i) enhance access to energy for all sectors and communities, particularly the poor in the GMS, through promotion of best energy practices in the subregion; (ii) develop and utilize more efficiently indigenous, low carbon, and renewable resources, while reducing the subregion's dependence on imported fossil fuels; (iii) improve energy supply security through cross-border trade while optimizing use of subregional energy resources; and (iv) promote public-private partnerships and private sector participation, particularly through small and medium-sized enterprises for subregional energy development.

were conducted as follows except the People's Republic of China (PRC): (i) Cambodia: grid-connected solar photovoltaic power project; (ii) Lao PDR: biofuel standards; (iii) Myanmar: RE investment opportunities; (iv) Thailand: results-based monitoring and evaluation of RE, CF, and EE projects; and (v) Viet Nam: energy audit in the steel industry.⁴ Those national trainings were participated by 70-80 representatives from the government, private sector, and development partners. The formulation of inputs under the TA was considered appropriate but those inputs were not fully used because country activities in PRC could not be conducted due to its sheer size. Further, study activities related to country pilot project development were incomplete because of the lack of country participations. These resulted in less utilization of TA budget. Despite such constraints, the performance of the consultants is assessed satisfactory having completed their assignments in a timely manner and provided quality outputs. As an executing agency, ADB conducted review missions three times through regional workshops and provided adequate guidance to the consultants, and therefore its performance is assessed satisfactory.

Evaluation of Outputs and Achievement of Outcome: The TA outputs were not all achieved and outcome was partially achieved. The SEF regional meetings were organized three times each year from 2011 to 2013 and served their purpose as a regional platform for information exchange and knowledge sharing on RE, CF, and EE stimulating cooperation among the GMS countries. The best practices on RE, CF, and EE as well as relevant performance indicators and/or national targets such as rural electrification, RE targets, EE targets, biofuel targets, and greenhouse gas emissions, were captured from each GMS country except PRC due to difficulties in obtaining data. Resource assessment studies were undertaken for biomass resources (from agricultural waste), biogas resources (from livestock waste), wind resources, and solar resources. In addition, national and regional RE and clean energy resource maps were developed. However, national pilot project pipelines in RE, CF, and EE, which were supposed to be identified for possible ADB financing under the TA, could not be fully prepared and only Lao PDR (smart buildings) and Thailand (biomass gasifier) identified their priority projects. In addition, the TA intended to compile subregional business models experiences within the GMS, either successful or unsuccessful, to draw lessons learned and make recommendations. However, the GMS countries were not able to provide examples of their countries' RE and EE projects, leaving this TA output largely unfulfilled. Instead, international best practices were used. Based on TA studies, knowledge products (KPs) were prepared as follows: (i) Renewable Energy Developments and Potential in the Greater Mekong Subregion; (ii) Energy Efficiency Developments and Potential Energy Savings in the Greater Mekong Subregion; and (iii) Business Models to Realize the Potential of Renewable Energy and Energy Efficiency in the Greater Mekong Subregion. However, those KPs were not printed within the TA implementation period due to the meticulous steps and lengthy timeline involved in the publication process. Further, the SEF website was developed at <http://www.gms-sef.org> and hosted by the GMS Environment Operations Center in Bangkok, Thailand, but rarely used. Some of project related information such as event details and presentation materials are available but most of the knowledge works were not uploaded and not maintained until TA completion.

Overall Assessment and Rating: Overall the TA is assessed as less than successful. While the TA was able to significantly advance the understanding on the progress and challenges of the GMS countries in the areas of RE, CF and EE, the intended TA outputs and outcome were not fully achieved due to underutilized TA inputs and lack of country participations.

Major Lessons: Compared to the power sector cooperation under the GMS, the expanded energy cooperation through SEF faced constraints and difficulties due to (i) lack of understanding of the opportunities for common efforts at the policy level and non-existence of underlying regional interconnection concept for RE, CF, and EE; (ii) relatively limited capacity and diverse roles of ministries and agencies responsible for RE, CF, and EE; and (iii) relatively weak institutional setup of SEF in GMS energy cooperation.

Recommendations and Follow-Up Actions: Based on lessons learned, it is recommended to revisit the necessity of SEF through country consultations and have its continuity decided by GMS member countries. If GMS member countries support the continuation of SEF, country ownership and commitment in SEF operation must be ensured. If SEF will be discontinued, more specific country-focused assistance in RE and EE may need to be identified as the GMS countries need to enhance the use of clean energy, improve their energy security, and mitigate climate change.

Prepared by: Hyunjung Lee

Designation: Energy Economist, SEEN

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

⁴ Details of national training workshops can be found at http://www.gms-sef.org/national_workshops.html