

## Challenges and prospects for malaria elimination in the Greater Mekong Subregion

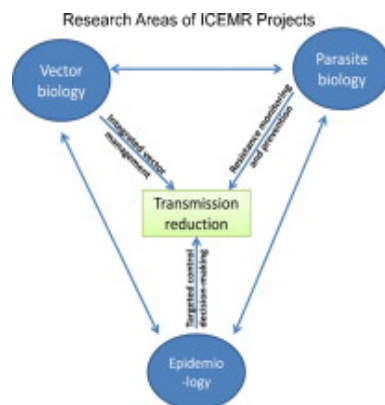
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### Abstract

Despite significant improvement in the malaria situation of the Greater Mekong Subregion (GMS), malaria control for the region continues to face a multitude of challenges. The extremely patchy malaria distribution, especially along international borders, makes disease surveillance and targeted control difficult. The vector systems are also diverse with dramatic differences in habitat ecology, biting behavior, and vectorial capacity, and there is a lack of effective transmission surveillance and control tools. Finally, in an era of heavy deployment of artemisinin-based combination therapies, the region acts as an epicenter of drug resistance, with the emergence of artemisinin resistant *Plasmodium falciparum* posing a threat to both regional and global malaria elimination campaigns. This problem is further exacerbated by the circulation of counterfeit and substandard artemisinin drugs. Accordingly, this Southeast Asian Malaria Research Center, consisting of a consortium of US and regional research institutions, has proposed four interlinked projects to address these most urgent problems in malaria control. The aims of these projects will help to substantially improve our understanding of malaria epidemiology, vector systems and their roles in malaria transmission, as well as the mechanisms of drug resistance in parasites. Through the training of next-generation scientists in malaria research, this program will help build up and strengthen regional research infrastructure and capacities, which are essential for sustained malaria control in this region.

### Graphical abstract

Malaria control and elimination in the Greater Mekong Subregion requires better understanding of the epidemiology, vector biology and parasite biology.



### Highlights

- ▶ The Greater Mekong Subregion faces great challenges in malaria elimination.
- ▶ Important research areas are identified in all components of malaria transmission.

- ▶ Research activity needs to be linked with control practice.
- ▶ Building local research capacity is needed for sustained malaria control.

**Keywords**

- Malaria;
- The Greater Mekong Subregion;
- Epidemiology;
- Vector systems;
- Drug resistance;
- Counterfeit drugs

**Figures and tables from this article:**

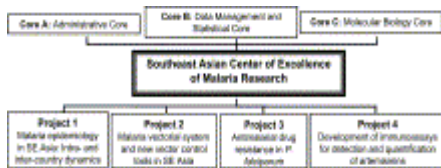


Fig.1. Projects and supporting cores of the Southeast Asian ICEMR.

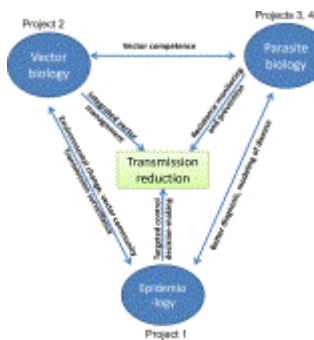


Fig.2. The interrelated projects of the ICEMR address the three essential components of malaria transmission with the goal of ultimate transmission reduction.

