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The Impact of Migration on Household Wealth in Kanchanaburi Province, Thailand

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Abstract

The objective of this study was to examine the impact of migration and remittances on household wealth using data from a longitudinal study conducted in the Kanchanaburi province of Thailand. We estimated models of the effects of number of migrants and remittances on four types of household assets in 2004, controlling for assets in 2000, household and village characteristics. In general, the migration and remittance variables did not have strong effects on household assets in 2004. The strongest predictors of household assets in 2004 were household assets in 2000. Household characteristics such as education of members and members in non agricultural activities also contributed to household assets. Village characteristics made only minor contributions. The rice farming and cash crop areas of Kanchanaburi showed negative effects of the loss of migrants on measures of household wealth.

Introduction

The objective of this study is to examine the impact of migration and remittances on household wealth in the Kanchanaburi province of Thailand. An earlier study in the Nang Rong district, Buriram province of Thailand, primarily a rice farming area, found that households losing members to migration were relatively worse off, but this deficit could be made up if these migrants sent money back to the household (Entwisle and Tong, 2005). This study evaluates the impact of migration and remittances in a more economically heterogeneous area of Thailand**.**

Two theoretical approaches dominate the literature on remittances from migrants (VanWey, 2004). Migrants may behave altruistically and send remittances to increase the welfare of family members or they may have a contractual arrangement whereby they send remittances as repayment for educational expenses or for the future bequest of land or other assets (Lillard and Willis, 1997; Lucas and Stark, 1985; Poirine, 1997; Hoddinott, 1994). In a study of Nang Rong, Thailand, VanWey (2004) found that migrants behave both contractually and altruistically. Women and migrants from poorer households behave more altruistically while men and migrants from richer households behave more contractually. While these theories are not tested in this paper, they provide a rationale for households to receive remittances from migrants.

Remittances may be used in a variety of ways, although most studies find that remittances are used for basic consumption needs (Russell and Teitelbaum, 1992). However, studies in Mexico (Durand et al., 1996) showed positive effects of remittances on production and investment at the village level.

Although many studies have examined the impact of sending remittances across international borders, only a smaller body of research is available on remittances and internal

migration. Entwistle and Tong (2005) conducted an analysis of the Nang Rong area of Thailand that examined whether households with migrants in 1994 who received remittances in 1993/94, were materially different in 2000 than households that did not have migrants in 1994, or did not receive remittances from them. In a series of linear regressions, they compared the number of migrants and the number of remitters on the subsequent ownership of all assets, productive assets, consumer goods, and mixed items, controlling for assets at the beginning of the interval and other household and village characteristics. As discussed above, this study found that households losing members to migration were relatively worse off, but this deficit could be made up if these migrants sent money back to the household.

Data from a longitudinal study of the Kanchanaburi province provide an opportunity to expand on previous research in Nang Rong by examining the impact of migration on household wealth in several different types of communities. The Nang Rong region includes mainly rice farming areas. The Kanchanaburi area includes a number of diverse communities and wider levels of socioeconomic status.

The Kanchanaburi province has a varied economy that allows us to examine these relationships over time in five different types of communities. These communities include urban or semi-urban, rice growing, plantation, uplands, and mixed areas.

We hypothesize that the effect of migration may be greater in the rice and the cash crop areas because the loss of labor due to migration will have an impact on the household production of goods. We also expect that the types of assets that are affected by migration will vary by the type of community. In particular, productive assets and mixed assets (transportation) will be less important in urban areas.

Methods

Data

The Kanchanaburi DSS is operated by the Institute for Population and Social Research (IPSR), Mahidol University, in the Kanchanaburi province of Thailand. The study was funded by the Welcome Trust. Data have been collected from households, individuals and communities each year from 2000 to 2004. In each round, about 42,000 individuals were interviewed in about 12,000 households. Further information on study design, sampling, and study results is available from IPSR (IPSR, 2003), and the Kanchanaburi DSS's website (http://www.ipsr.mahidol.ac.th/content/Research/Kanchanaburi/Kanchanaburi.htm).

Kanchanaburi is the third largest province located in the Western part of Thailand. The province shares a long border with Myanmar and contains a variety of ethnic groups and migrants, both documented and undocumented, from Myanmar. The province is about two hours from Bangkok and contains many industries. (See Figure 1) In addition, the province is an important producer of plantation crops and is one of the major tourist destinations in Thailand. The selection of 100 field site communities was structured to represent this diversity in social, economic and ecological conditions found in the province. This data set will enable us to look at the effects of migration and remittances on five types of socioeconomic communities: urban or semi-urban, rice growing, plantation, uplands, and mixed areas.

Although not as well known as areas in the northeast region in terms of being a source of migrants, migration in Kanchanaburi is not uncommon. According to the project report (IPSR, 2004), about 20% of the study population are migrants, of this out migrants share 13%. About two-fifths of out-migrants in Kanchanaburi DSS are within the province, while another 36% moved to Bangkok and other provinces in central region.

At each round, structured interviews were conducted for each village, household, and individual. Each questionnaire contained some core items and some new items each round. The household questionnaire obtained information on demographics of the household, land use

and agricultural products, assistance from household residents, migration and mortality. This questionnaire was administered to household heads. Individual questionnaires were administered to those age 15 or more. The individual questionnaires included questions on work, health, migration and other factors. Data on village characteristics were also obtained from village heads as well as village key informants.

Measurement of Migrants and Remittances

Household remittances in 2000. In the first round of the study, data on remittances were collected in the household questionnaire. Respondents were asked "In the last year, did your household receive any assistance in cash or in kind from household members living elsewhere?" The amount of money in baht was recorded for each household as well as the number of persons sending remittances. Because of the skewed distribution of the money variable, the log of the sum of the money was used in the analyses.

Number of migrants. In each round of the study, individuals age 15 or more were asked if they had been away from home during the last year for a month or more. The number of migrants age 15-60 was summed for each household. This variable was created for all households that were interviewed in 2000.

It should be noted that number of migrants and migrants who sent remittances are not the same persons. While those who sent remittances are household members living elsewhere at the 2000 survey (which unfortunately, the survey did not include number of persons), the number of migrants counted current household members at the 2000 survey who had ever been away from home during last year for a month or more.

Household Characteristics - 2000

Number of household members in agriculture. The number of members reporting agriculture as their main occupation

Any household members doing non-agricultural work. Any member reporting work in a non agriculture area.

Any household member with greater than a primary school education.

Number of dependent age members. Number of members less than 15 years or over 60 years.

Village Characteristics- 2000

Proportion of migrants. Proportion of persons interviewed in village who had been away for at least one month in the last year.

Proportion in agriculture. Proportion of persons interviewed in village who had worked in agriculture in the last year.

Distance to district. Distance to from village to nearest urban district was more than 20 meter.

Bus to district center. Availability of a bus to the district center .

Having a primary school. A primary school was located in the district.

Having a secondary school. A secondary school was located in the district.

Household Assets

Socioeconomic indices. Several socioeconomic indices were created using the methodology of Filmer and Pritchett (2001). This index is a proxy of household wealth that is created by constructing a linear index from asset ownership indicators, using a principal components index to derive weights. Following the work of Entwisle and Tong (2005), principal components models and corresponding indices were derived for four groups of assets using data for 2000 and 2004.

1) *All* assets included color TV, VCR_VCD, satellite, stereo, cell phone, land phone, computer, air conditioning, sewing machine, washing machine, microwave, refrigerator, bicycle, motorcycle, itan (farming machine), car, pickup and truck.

2) *Productive* assets included an itan and a sewing machine

3) *Mixed* assets included motorcycle, car, pick-up, and truck

4) *Consumer* assets included color TV, cell phone, hand phone, VCR_VCD, stereo, satellite, air conditioner, computer, microwave, washing machine, and refrigerator.

Land. The amount of land used for farming was obtained from households in 2000. The The log of land (in wah squared) is used in analyses due to its skewed distribution.

Strata. Areas surveyed in the Kanchanaburi province included five economic strata: rice farming, urban, plantation or cash crop, uplands and mixed economies.

Statistical Methods

Regression analysis was used to assess the influence of the independent variables on household wealth. The Huber-White sandwich method was used to adjust the standard errors for clustering within villages with the STATA 9 statistical package (Williams, 2000; Woolridge, 2002).

Results

Table 1 shows the means and range of variables included in the models. Table 2 shows the first models of the impact of the number of migrants and remitters on the household socioeconomic indices. The variables that indicate the number of migrants and remittances had very limited association with household indices. Of twelve coefficients estimated in four models, only one was significant. The number of migrants who sent money had a small, but significant negative effect on mixed assets. The measures of household assets in 2000, had a strong, significant effect on all four types of household assets in 2004 ($p<.01$).

Land used for agriculture in 2000 did not have a significant effect on the asset indices, except for productive assets. This may be due to its association with the 2000 asset indices. When the 2000 asset indices were dropped from the model, land in 2000 was significantly associated with the 2004 indices (reduced models not shown).

Some of the other household characteristics were also associated with the asset indices in 2004. The number of members in agriculture was positively associated with productive and mixed assets but negatively associated with consumer assets. Having a member working in a non agricultural occupation and having a member with greater than a primary school education were also positively associated with consumer and mixed assets.

Most of the village characteristics did not have significant associations with household assets. An exception to this was the proportion of the population in agriculture that had a positive effect on mixed assets.

The second set of models (Table 3) shows the effects of the number of migrants and the amount of money sent on household assets. In general, the migration variables did not have a significant association with household assets. The log of money remitted had a small negative effect on mixed assets.

As with the previous set of models, the measures of assets in 2000 had a strong, significant effect on the household asset indices in 2004. All four measures of assets in 2000 were significantly associated with assets in 2004. Household and village characteristics had similar relationships with assets in 2004 to the set of models in Table 2.

Additional models were estimated adding controls for the strata. The additional of these variables did not change the sign or significance of the coefficients of the migration variables in any of the models. The models were then tested for interactions between the migration variables and type of strata (data not shown). There were several significant interactions with the migration variables and the rice, urban, and cash crop strata. Because of these results, we stratified the analysis by strata and ran separate models for each strata.

Table 4 shows the regression coefficients for the models that included the number of migrants and the amount of money remitted. The first group of coefficients for the rice farming area had the largest, most consistent number of significant coefficients from these two

variables. In the rice farming stratum, the households with larger numbers of migrants had reduced consumer, mixed, and all assets, regardless of remittances the household received.

Significant effects of migration and remittances were also noted in the urban and cash crop areas. In the urban area, the amount of money remitted had a positive effect on consumer assets, while in the cash crop strata the number of migrants had a negative effect on productive assets. None of the regression coefficients related to migration were significant in models for the upland and mixed economy strata.

Because the impact of remittances may vary by household socioeconomic status, the models were run stratifying by quartiles of the asset index. These models showed only very limited effects of any of the migration and remittance variables. (data not shown).

Discussion

This paper has estimated models of the effects of number of migrants and remittances on four types of household assets in 2004, controlling for assets in 2000, household and village characteristics. In general, the migration and remittances variables did not have strong effects on household assets in 2004. The strongest predictors of household assets in 2004 were household assets in 2000. Household characteristics such as education of members and members in non agricultural activities also contributed to household assets. Village characteristics made only minor contributions.

An earlier study of Entwisle and Tong (2005) showed stronger effects of the number of migrants and the amount remitted on household assets in a study of the Nang Rong area. The results here may differ for several reasons. The most important reason is likely to be that the level of migration is much lower in Kanchanaburi province, compared to Nang Rong. The average number of migrants per household was 1.85 in Nang Rong, compared to 0.19 in Kanchanaburi. Hence, there are fewer migrants per household who can contribute to household assets.

Data from the National Migration Survey (NMS) (Chamratrithirong et al., 1995)) and findings from other surveys and the Thai census show or census) show that the migration rate from the Central is higher than the Northeast if you calculate the rate at the origin, but the rate is higher in the Northeast than in the Central if the rate is calculated at the destination. This is because migrants from the Northeast are greater in number, due to the larger size of the base population in the Northeast. However, we do not have migration rates by province. In Kanchanaburi in particular, the migration rate from Kanchanaburi may be low because of the higher wage rate.

The measures of the number of migrants also differed between the two studies. The Kanchanaburi data included only information on short term migrants (1-12 months). The Nang Rong data migrants were those who moved between 1994-2000 and may not have been back by 2000.

The time period of observation between the two survey rounds was shorter in Kanchanaburi. The Nang Rong evaluation was over six years while the Kanchanaburi evaluation was over four years. We also used an asset index to measure household wealth, instead of computing cash values for assets.

As hypothesized, the loss of labor through migration was more important in the cash crop and rice farming areas. The model for migration in the rice farming area showed the most influence of the migration variables. This area is more similar to Nang Rong, a rice farming area, than other regions of Kanchanaburi province. Short term migration may fit better in a rice farming region because household members can leave to work elsewhere when the workload is low in the rice fields and return to help with plowing and harvest. However, in Kanchanaburi, the remittances did not make up for the loss of labor and made the households poorer. It is possible that labor in Kanchanaburi is more expensive than in Nang Rong, where cheaper labor can replace labor lost through migration from the household. In addition, this study does not include more long term migrants from Kanchanaburi.

Other studies of migrant remission have shown that they are often used for consumer assets. This study found a positive effect on consumer assets only in the urban areas. This may be because household in urban areas are not in need of other types of assets, particularly productive assets. Mixed assets, the transportation assets, may also be less important in the urban areas.

The study has some limitations. The data on remittances include rely on reports from a household member and there may be errors in reporting due to memory and other factors. The number of longer term migrants is also missing from the Kanchanaburi data. This may be why the regression coefficients for number of migrants sending money was negative. This coefficient may partially reflect the number of migrants.

In summary, the analysis has shown that short term migration of household members did not have a strong effect on household assets in Kanchanaburi province. The effects of migration were strongest in the rice farming and cash crop areas, where the loss of migrant labor reduced household assets.

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Table 1 Descriptive statistics of variables included the analysis

Variables	Mean	S.D.	Min	Max
Household asset index, 2004				
Productive	0.075	1.119	-0.397	5.872
Consumer	0.205	1.879	-2.820	5.911
Mixed	0.101	1.180	-1.326	5.686
All	0.238	2.062	-3.185	7.785
Migration and remittances, 2000				
Number of migrants*	0.189	0.520	0	5
Number of migrants sent money previous year	0.254	0.459	0	3
Number of migrants sent goods previous year	0.027	0.167	0	2
Amount of money remitted	4487	44794	0	4,000,000
Household asset index, 2000				
Productive	0.058	1.084	-0.435	5.448
Consumer	0.056	1.840	-1.954	8.174
Mixed	0.081	1.164	-1.177	5.694
All	0.090	2.011	-2.323	9.788
Land owned in squared Wah	5885.206	14133.49	0	521,945
Other household characteristics, 2000				
Number of members in agriculture	1.337	1.237	0	8
Any member in non-agriculture (y/n)	0.432	0.495	0	1
Any member with>primary (y/n)	0.480	0.500	0	1
Number of dependent age members	1.517	1.222	0	9
Village characteristics, 2000				
Proportion migrants	0.060	0.032	0.010	0.236
Proportion male migrants	0.030	0.017	0.003	0.108
Proportion female migrants	0.030	0.017	0.003	0.127
Proportion of population in agriculture	0.342	0.166	0.000	0.608
Distance from district (20km+) (y/n)	0.389	0.488	0.000	1.000
Bus service to district (y/n)	0.578	0.494	0.000	1.000
Primary school (y/n)	0.554	0.497	0.000	1.000
Secondary school (y/n)	0.240	0.427	0.000	1.000
N			9,065	

* Number of household member who ever moved to somewhere else at least 1 month during the previous year. Persons who were currently present in 2000.

Table 2. Linear regression on household assets in 2004 of number of migrants and number of migrants sending money or goods, household and village characteristics.

Independent variables	Productive assets			Consumer assets			Mixed assets			All assets		
	Beta	Robust S.E.		Beta	Robust S.E.		Beta	Robust S.E.		Beta	Robust S.E.	
Constant	-0.126	0.057		0.148	0.099		-0.301	0.041	***	-0.051	0.093	
Migrant Remittances in 2000												
Number of migrants	-0.023	0.018		-0.016	0.029		-0.294	0.020		-0.032	0.030	
Number of migrants sent money previous year	0.000	0.031		0.016	0.029		-0.072	0.019	**	-0.031	0.031	
Number of migrants sent goods previous year	-0.083	0.068		0.008	0.064		0.006	0.044		-0.022	0.064	
Household asset index in 2000												
Productive	0.492	0.022	***	0.045	0.012	***	0.040	0.011	**			
Consumer	0.031	0.010	**	0.638	0.016	***	0.122	0.009	***			
Mixed	0.079	0.014	***	0.183	0.021	***	0.584	0.018	***			
All										0.762	0.018	***
Log land owned (sq wah)	0.012	0.003	***	0.005	0.006		0.004	0.003		0.011	0.006	
Other household characteristics in 2000												
Number of members in agriculture	0.043	0.012	***	-0.029	0.013	*	0.020	0.009	*	0.001	0.013	
Any member in non-agriculture (y/n)	0.010	0.023		0.192	0.031	***	0.066	0.025	*	0.213	0.032	***
Any member with>primary (y/n)	0.032	0.027		0.372	0.035	***	0.114	0.022	***	0.398	0.034	***
Number of dependent age members	-0.011	0.008		-0.008	0.012		0.010	0.008		-0.005	0.013	
Village characteristics in 2000												
Proportion of migrants	-0.021	0.016		-0.021	0.034		-0.020	0.012		-0.035	0.034	
Proportion of population in agriculture	-0.224	0.127		-0.448	0.231		-0.632	0.083	***	-0.042	0.217	
Distance from district (20km+) (y/n)	-0.018	0.039		-0.109	0.087		-0.003	0.033		-0.095	0.090	
Bus service to district (y/n)	-0.049	0.036		-0.016	0.083		-0.029	0.034		-0.009	0.088	
Primary school (y/n)	-0.032	0.035		-0.072	0.076		-0.013	0.031		-0.088	0.081	
Secondary school (y/n)	-0.054	0.050		-0.065	0.063		-0.006	0.031		-0.053	0.067	
R2	0.289			0.647			0.518			0.680		
N	9,065			9,065			9,065			9,065		

Note: *** P<0.001, ** P<0.01, * P<0.05. Standard errors are corrected in clustering data

Table 3: Linear regression of household asset index in 2004 on number of migrants and amount of money remitted, other household and village characteristics in 2000

Independent variables	Productive assets			Consumer assets			Mixed assets			All assets		
	Beta	Robust S.E.		Beta	Robust S.E.		Beta	Robust S.E.		Beta	Robust S.E.	
Constant	-0.130	0.056		0.140	0.099		-0.300	0.041	***	-0.059	0.093	
Migrant Remittances in 2000												
Number of migrants	-0.024	0.018		-0.017	0.029		-0.029	0.020		-0.033	0.030	
Log amount of money remitted	0.001	0.004		0.004	0.003		-0.008	0.002	**	-0.001	0.004	
Household asset index in 2000												
Productive	0.493	0.023	***	0.045	0.012	***	0.040	0.011	**			
Consumer	0.031	0.010	**	0.637	0.016	***	0.122	0.009	***			
Mixed	0.080	0.014	***	0.184	0.021	***	0.584	0.018	***			
All										0.762	0.018	***
Log land	0.011	0.003	***	0.005	0.006		0.004	0.003		0.011	0.006	
Other household characteristics in 2000												
Number of members in agriculture	0.044	0.011	***	-0.028	0.013	*	0.020	0.009	*	0.002	0.013	
Any member in non-agriculture (y/n)	0.011	0.023		0.195	0.031	***	0.065	0.025	*	0.216	0.032	***
Any member with>primary (y/n)	0.033	0.027		0.373	0.035	***	0.115	0.022	***	0.398	0.034	***
Number of dependent age members	-0.011	0.008		-0.009	0.012		0.010	0.008		-0.005	0.013	
Village characteristics in 2000												
Proportion of migrants	-0.021	0.016		-0.020	0.034		-0.020	0.012		-0.035	0.034	
Proportion of population in agriculture	0.218	0.126		-0.445	0.231		0.632	0.083	***	-0.042	0.217	
Distance from district (20km+) (y/n)	0.020	0.039		-0.110	0.087		0.003	0.033		-0.095	0.090	
Bus service to district (y/n)	-0.049	0.036		-0.015	0.082		0.028	0.034		-0.009	0.087	
Primary school (y/n)	-0.031	0.036		-0.071	0.075		-0.014	0.031		-0.087	0.081	
Secondary school (y/n)	0.054	0.050		0.065	0.063		-0.007	0.031		0.053	0.067	
R2	0.288			0.647			0.518			0.680		
N	9,065			9,065			9,065			9,065		

*Note: *** P<0.001, ** P<0.01, * P<0.05. Standard errors are corrected in clustering data*

Table 4. Linear regression of household asset index in 2004 on number of migrants and amount of money remitted, other household and village characteristics in 2000 by strata

		Rice			Urban			Cash Crop			Upland			Mixed	
		Beta	s.e.		Beta	s.e.		Beta	s.e.		Beta	s.e.		Beta	s.e
Productive assets															
	Number of migrants	-0.042	0.039		-0.058	0.046		-0.092	0.039	*	0.007	0.029		0.025	0.028
	Log money	-0.019	0.012		0.005	0.007		0.013	0.007		0.001	0.005		-0.001	0.004
Consumer assets															
	Number of migrants	-0.131	0.051	*	0.044	0.064		0.052	0.042		0.050	0.059		-0.115	0.064
	Log money	-0.009	0.006		0.011	0.005	*	-0.007	0.006		0.013	0.009		-0.004	0.006
Mixed assets															
	Number of migrants	-0.135	0.050	*	-0.015	0.027		-0.001	0.053		0.001	0.021		0.014	0.033
	Log money	-0.007	0.006		-0.010	0.006		-0.015	0.007		-0.006	0.004		-0.009	0.004
All Assets															
	Number of migrants	-0.166	0.059	*	0.026	0.067		0.028	0.046		0.040	0.008		-0.121	0.066
	Log money	-0.018	0.008		0.007	0.007		-0.011	0.006		0.008	0.009		-0.009	0.006
Mean # of migrants in household		0.221			0.177			0.241			0.17			0.156	
Range		0-4			0-5			0-4			0-5			0-4	
N		1,696			1,791			1,477			2,163			1,938	

*p<.05

Note: Models for each type of assets also inlcude the household and village characteristics shown in Tables 2 and 3.

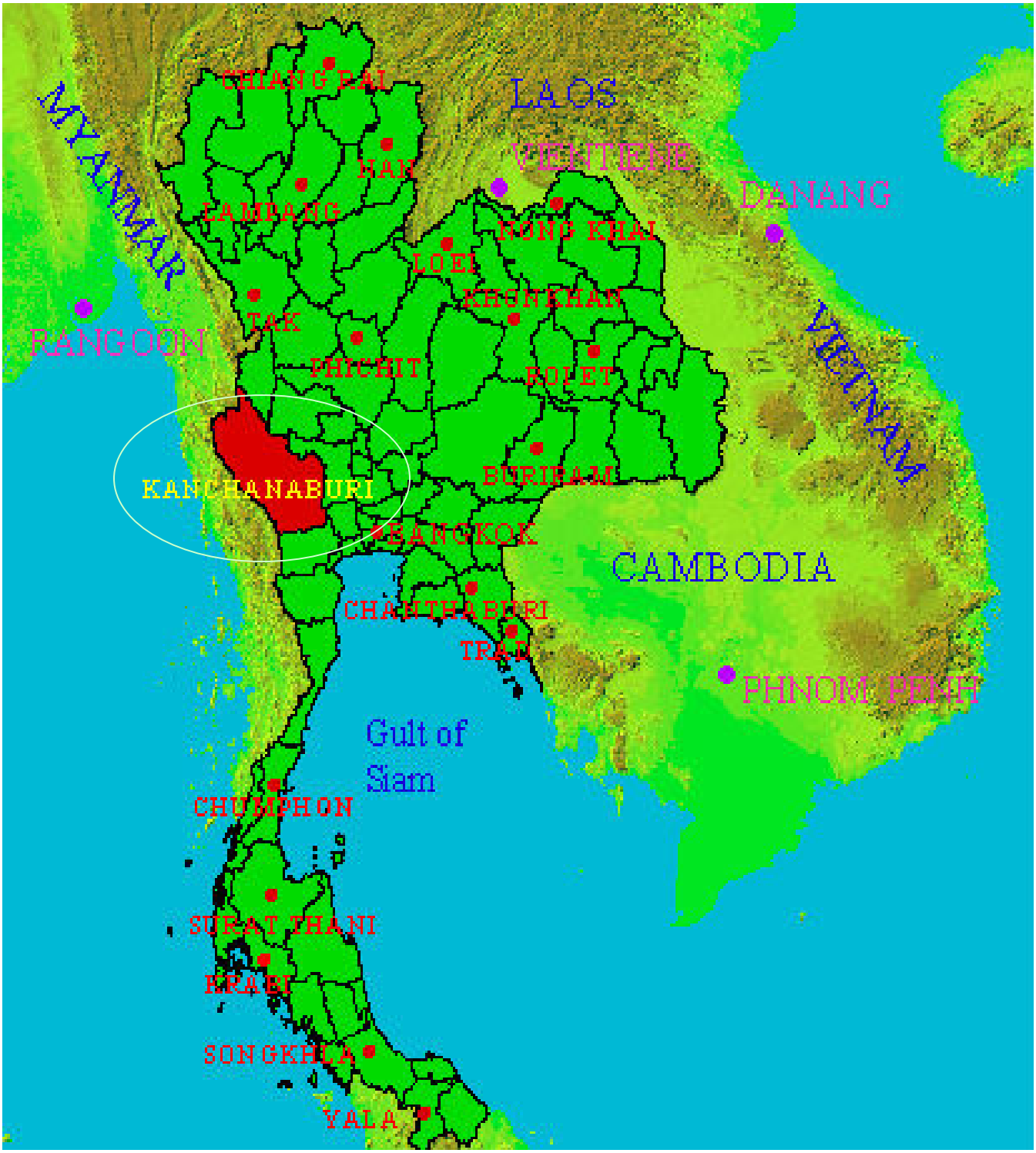

Figure 1.

Map of Thailand Showing Kanchanaburi Province