



Will Cambodia Meet the Millennium Development Goal #2 by 2015?

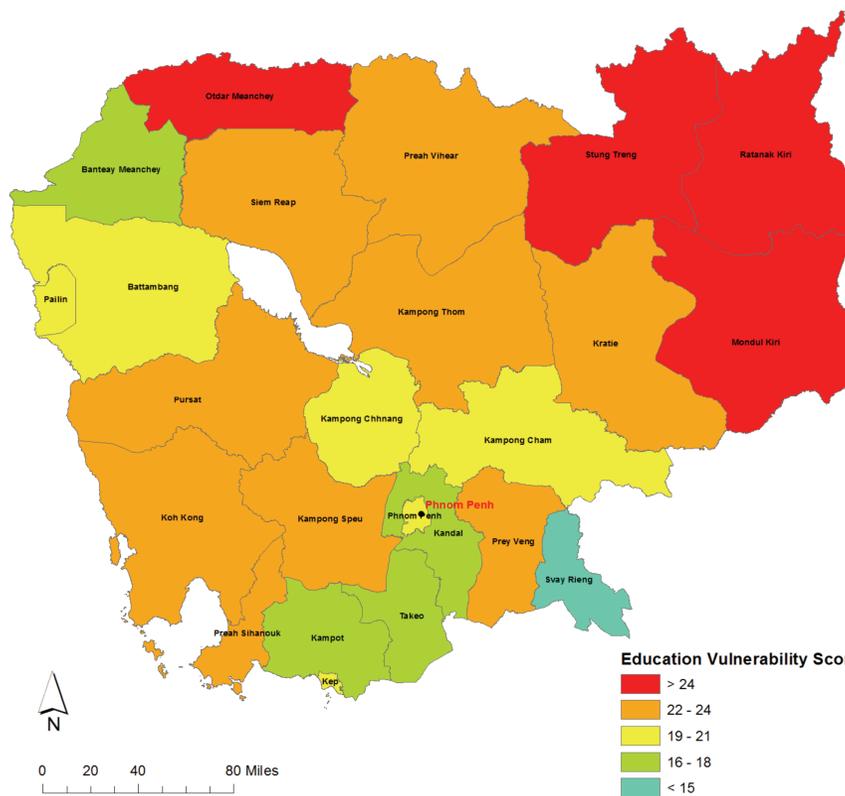


Cambodia's Target:
Ensure all children complete primary schooling by 2015 and if possible expand to nine-year basic training

Project Overview

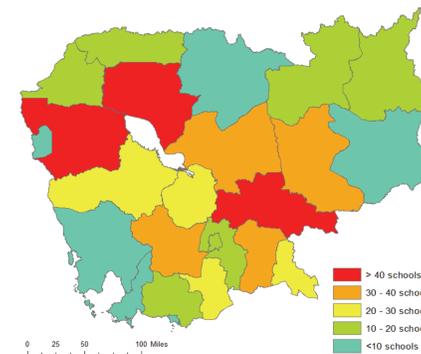
The 2010 Cambodia Millennium Development Goals (MDG) Report states that Cambodia is on track to meeting the second MDG goal of achieving universal primary education. Cambodia's target is to ensure all children complete primary schooling by 2015 and if possible expand to nine-year basic schooling, which is an education up to lower primary school. Since we are drawing close to 2015, the series of maps created in this project identifies which province is most in need for educational investment to assist Cambodia to better achieve its target. Moreover, a map showing which provinces has most schools supported by government or foreign aid helps to identify whether or not these aids are being allocated to the regions with greater needs. This project ultimately aims to inform the policy makers to prioritize the provinces for education intervention.

Areas With Most Education Need



After creating the map of education vulnerability score, eight individual maps were created to represent eight educational indicators selected. For each map, the class ranges were reclassified and symbolized according to the table. Also, another map showing how many schools are supported by government/foreign assistance was created using the similar process.

Areas With Most Support



Result

The final result of this project is the ranking of provinces that needs more investment in education. Moreover, the comparison of this ranking with the map and the ranking of provinces receiving the most government/foreign support enables policymakers to assess whether the support is going to where there is most need. These results are summarized in tables below:

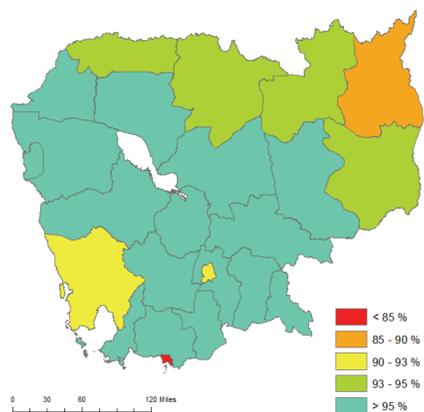
<Provinces With Most Education Need>

| Rank | Province | score |
|------|------------------|-------|
| 1 | Rantak Kiri | 31 |
| 2 | Otdar Meanchey | 27 |
| 3 | Modul Kiri | 26 |
| 6 | Stung Treng | 25 |
| 7 | Kampong Thom | 24 |
| 7 | Kratie | 24 |
| 7 | Prey Veng | 24 |
| 7 | Prusut | 24 |
| 10 | Siem Reap | 22 |
| 10 | Koh Kong | 22 |
| 10 | Preah Vihear | 22 |
| 10 | Preah Sihanouk | 22 |
| 12 | Battambang | 21 |
| 12 | Kampong Cham | 21 |
| 17 | Keap | 20 |
| 21 | Kampong Chhnang | 20 |
| 21 | Phnom Penh | 19 |
| 22 | Kampot | 18 |
| 22 | Takeo | 18 |
| 22 | Bentley Meanchey | 18 |
| 23 | Kandal | 16 |
| 24 | Svay Rieng | 14 |

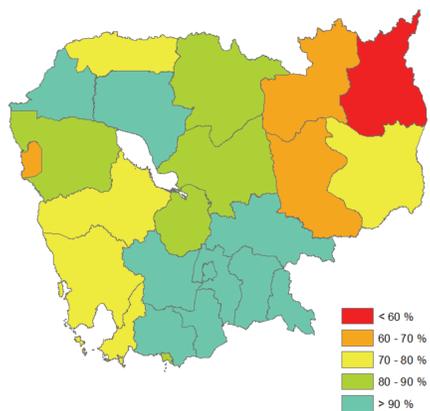
<Provinces Receiving Most Support>

| Province | # schools supported |
|------------------|---------------------|
| Kampong Cham | 53 |
| Siem Reap | 72 |
| Battambang | 54 |
| Kratie | 35 |
| Kampong Thom | 32 |
| Prey Veng | 29 |
| Kampong Speu | 28 |
| Takeo | 22 |
| Kampong Chhnang | 17 |
| Svay Rieng | 17 |
| Pursat | 16 |
| Banteay Meanchey | 10 |
| Phnom Penh | 10 |
| Kampot | 9 |
| Ratanak Kiri | 9 |
| Otdar Meanchey | 9 |
| Kandal | 7 |
| Stung Treng | 6 |
| Koh Kong | 5 |
| Pailin | 4 |
| Preah Vihear | 2 |
| Preah Sihanouk | 2 |
| Mondul Kiri | 1 |
| Keap | 0 |

Net Enrollment Rate— Primary



Completion Rate—Primary



Methodology

The main data preparation for this project was transferring the information in a table in a pdf format to excel, and then joining the information to provincial level shape file. After the data needed to create eight individual maps based on different education indicators were joined to the shape file, eight new fields were created on the attribute table. These new fields were used to create rankings within each of the eight selected variables.

In the new field, I used SELECT BY ATTRIBUTE to select out each class in turn. Then, I used field calculator to fill with the rank of 1 to 5. I repeated the same step for all of the eight variables.

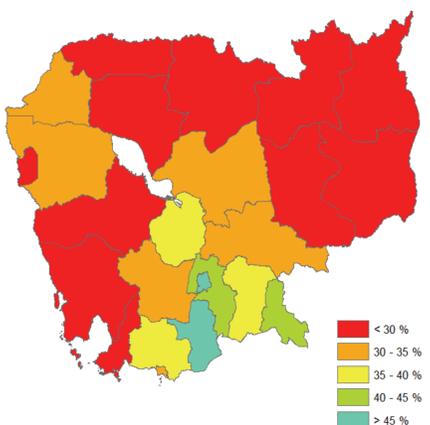
Prior to selecting out each class, I had to determine what the class ranges are going to be for each of the rankings for the eight variables, which is summarized in the table below.

| Rank | NER Primary (%) | Primary Completion (%) | NER Lower Secondary (%) | Lower Secondary Completion (%) | Out of School Children | Student Teacher Ratio | Trained Teachers (%) | Teachers with only Primary Education (%) |
|------|-----------------|------------------------|-------------------------|--------------------------------|------------------------|-----------------------|----------------------|--|
| 1 | >95 | >90 | >45 | >45 | <10,000 | <25 | >1 | 0 |
| 2 | 93-95 | 80-90 | 40-45 | 40-45 | 10,000-20,000 | 25-30 | 0.75-1.00 | 1-5 |
| 3 | 90-93 | 70-80 | 35-40 | 35-40 | 20,000-30,000 | 30-35 | 0.50-0.75 | 5-10 |
| 4 | 85-90 | 60-70 | 30-35 | 30-35 | 30,000-40,000 | 35-40 | 0.25-0.50 | 10-15 |
| 5 | <85 | <60 | <30 | <30 | >40,000 | >40 | <0.25 | >15 |

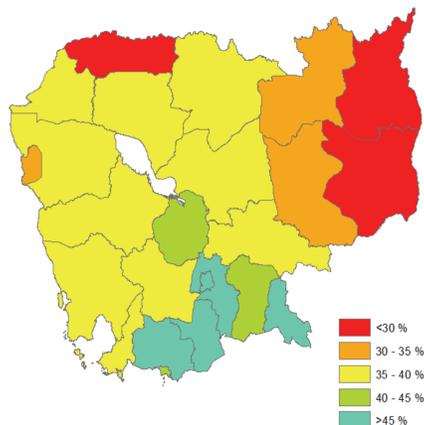
After ranking 1 to 5 for all eight variables, another new field was created.

This time I used field calculator to add the ranked value across the eight variables to come up with an education vulnerability score, which compiles the score from the eight variables. For individual variable ranking, 5 represents lower education outcomes/ lesser quality education whereas 1 represents better education outcomes/ better quality education. Therefore, for the compiled education vulnerability map, the possible score ranges ranged from 8 to 40. Lower number represents better education.

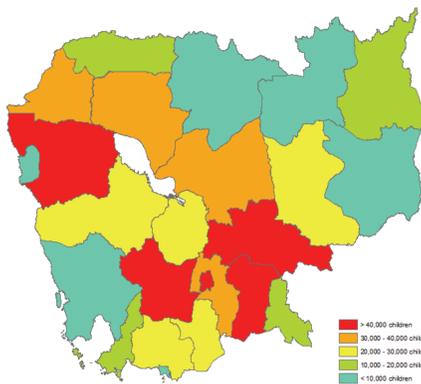
Net Enrollment Rate— Lower Secondary



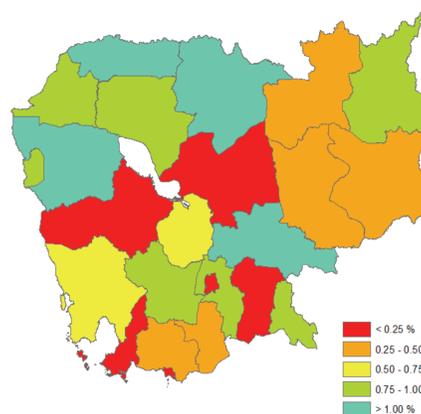
Completion Rate—Lower Secondary



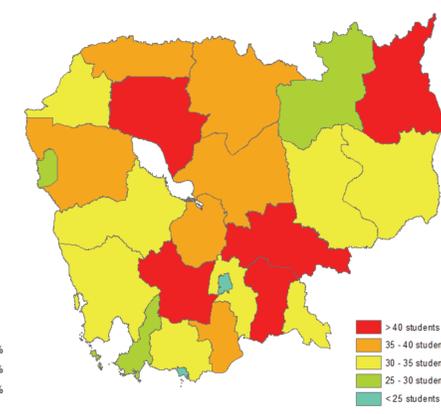
Out of School Children



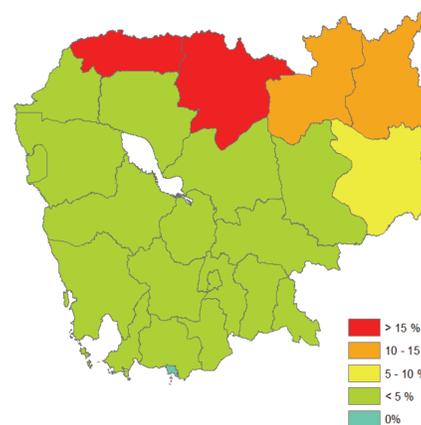
Teachers with Pedagogical Training



Teacher Student Ratio



Teachers with only Primary Education



In this map, the red areas are the areas receiving the most government and foreign support for schools.

Conclusion

The series of maps used in this project is a useful tool to visualize the areas with greater education needs. The rankings of different variables and compiling the results on to one map can communicate vast amount of information in a simple yet very effective way. These maps lead to a better understanding where government should prioritize in order to meet the second MDG goal by 2015 more efficiently.

Data Sources: Cambodia 2008 Census (Tufts M. drive), Cambodia Educations Statistics & Indicators; available at <http://www.moes.gov.kh/en/emis/350-2013-02-05-10-52-57.html>
Citations: Ministry of Planning, "Achieving Cambodia's MDG Goals" 2010; available at <http://www.un.org.kh/indp/media/files/CMDG%20Report%202010.pdf>
Ministry of Education, Youth and Sports, Royal Government of Cambodia and United Nations World Food Program, "Mapping Education Needs in Cambodia." WFP (March 2003).

DHP207: GIS for Int'l Application
Poster Produced: 07 May 2013
Cartographer: SuhYoon Kang

Projection information
Name: WGS_1984_UTM_Zone_48N
Projection: Transverse_Mercator