



# Human Trafficking in Cambodia:

Using Spatial Statistics to Analyze Population  
Vulnerability in Victim Source Locations

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# Overview

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- **Project Purpose**
- **What is “Trafficking”?**
- **Background: The Problem in Cambodia**
- **Where do the Victims Originate From?**
- **Methodology**
- **Results of the Study**
- **Future Research Recommendations**
- **Questions**

# Project Purpose

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To apply a systematic, holistic, empirical and *geographic* approach toward analyzing vulnerability of trafficking victims in Cambodia

- Empirical research examining vulnerability indicators is minimal and analysis from a spatial context across the country is lacking
- Knowledge gaps exist on patterns, trends and complex nature of trafficking

## Overall research approach...

- Research historical and current context of trafficking for the sex trade in Cambodia
- Where are victims coming from? Identify source locations based on a review of literature published by Non-Governmental Organizations (NGOs)
- Who is most vulnerable to human trafficking and why – What are the vulnerability indicators and can these be mapped out?
- Conduct Exploratory Spatial Data Analysis (ESDA) techniques to analyze where vulnerability indicators are most prevalent throughout the country
- Compare analysis of vulnerability indicators to source provinces - Are certain indicators more prevalent in some provinces versus others? Where do different combinations exist?

# “Trafficking in Persons” Defined...

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According to the United Nations Office on Drugs and Crime (2004, pp. 42-43)<sup>1</sup>, “Trafficking in persons” is defined as:

- *“The **recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person **having control over another person, for the purpose of exploitation...**”***
- *“...**Consent** of a victim is deemed **irrelevant** where any of the above means have been used...”*
- *“...Recruitment, transportation, transfer, harboring or receipt of a **child** for the purpose of exploitation shall be considered ‘trafficking in persons’ **regardless of whether it involves any of the means described above**”.*

# Background: The Problem in Cambodia

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## Tier-2 status as categorized by the U.S. Department of State (2011)<sup>2, 3</sup>

- Origin, transit and destination country
- Significant internal and external activity

## Perceived increase in trafficking since the 1990's due to several "push" and "pull" factors:<sup>3, 4, 5, 6, 7, 8, 9</sup>

- *Economic situation\**
- *Limited education\**
- Corruption
- Violence (domestic abuse, rape)
- *Gender attitudes and social marginalization\* (Chbab Srey)*
- Natural disasters
- Breakdown of societal *and family structures\**
- Youth bulge from genocide in the late 1970's
- Increased migration of youth
- Shift to capitalist enterprise
- Intensified demand for the sex trade

## The *interaction and combination* of variables contributes to vulnerability<sup>5, 6</sup>

*\*Indicates most commonly cited "at-risk" factors<sup>4</sup>*

# Where Do the Victims Originate From?

**Victims originate from nearly all provinces**<sup>4, 10, 11, 12</sup>

- Densely populated rural areas near urban centers
- Cambodian border region near Thailand, Laos and Vietnam
- Sending communities identified in Banteay Meanchey, Koh Kong, Siem Reap and Svay Rieng

**Most common victim profile: Unmarried females (16-25) with limited education**<sup>10</sup>

**Obtaining accurate, reliable data is problematic**<sup>2, 5, 10, 13, 14</sup>

- Difficult to measure full extent
- Patterns, trends and complex nature not well understood
- Limited independent research
- Inconsistent and limited data collection on geography, groups, topics, causes, context, nuances
- Assumption-based conclusions



*The feature class for "Reported Source Provinces of Human Trafficking Victims" was developed based on various research articles published by NGOs<sup>4, 10, 11, 12</sup>*

# Places of Origin for Trafficking Victims

## Reported Source Provinces of Trafficking Victims (For the Purpose of Sexual Exploitation) as Indicated By NGO Research Publications

<b>Banteay Meanchey</b> <sup>10, 11</sup>	<b>Ratanakiri</b> <sup>10</sup>
<b>Battambang</b> <sup>4, 11, 12</sup>	<b>Preah Vihear</b> <sup>10, 11</sup>
<b>Siem Reap</b> <sup>10, 11</sup>	<b>Pursat</b> <sup>4, 11</sup>
<b>Phnom Penh</b> <sup>4, 10, 11, 12</sup>	<b>Koh Kong</b> <sup>11</sup>
<b>Kampong Cham</b> <sup>4, 10, 11, 12</sup>	<b>Kampong Thom</b> <sup>4, 11</sup>
<b>Kampot</b> <sup>4, 10, 11</sup>	<b>Kampong Chhnang</b> <sup>4, 11</sup>
<b>Kandal</b> <sup>4, 10, 11, 12</sup>	<b>Kampong Speu</b> <sup>11</sup>
<b>Svay Rieng</b> <sup>10, 11</sup>	<b>Sihanoukville</b> <sup>11</sup>
<b>Prey Veng</b> <sup>4, 11, 12</sup>	<b>Kratie</b> <sup>11</sup>
<b>Takeo</b> <sup>4, 11, 12</sup>	

# Methodology: Analytical Approach

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**Study area - Twenty-three provinces and the municipality of Phnom Penh with a focus on reported source provinces of human trafficking victims**

**Data collected and processed to spatially represent vulnerability indicators**

- Eleven categories representing eight overall themes were developed based on factors cited by trafficking research as indicators of vulnerability<sup>3, 4, 5, 6, 7, 8, 9</sup>
- Seventy individual variables in these categories were explored
- Scale of analysis – Province / municipality level

*\* Note: Data was not available for all vulnerability indicators cited in trafficking research*

**Descriptive and inferential spatial statistics applied to examine where vulnerability indicators were most prevalent and which, if any, source provinces had higher values**

- Results examined individually and collectively for unique combinations of indicators and compared to the nineteen source provinces identified by NGOs as source provinces of trafficking<sup>4, 10, 11, 12</sup>



# Categories / Themes Representing Vulnerability

Variable Theme	Variable Category	Data Variable Source(s)
Demographics	Population - Youth Bulge	Cambodia General Population Census <sup>15</sup>
Demographics	Language & Religion (Cultural)	Cambodia General Population Census <sup>15</sup> ; Joshua Project All People Groups Database <sup>16</sup>
Social	Family Structure	Cambodia General Population Census, 2008 <sup>15</sup> ; Cambodia Demographic & Health Survey (CDHS), 2005 <sup>17</sup>
Social	Gender Attitudes - Extreme	CDHS Survey, 2005 <sup>17</sup>
Education	Education	Cambodia General Population Census <sup>15</sup>
Education	Female Students (Ages 16-25), Most Common Victim Profile	Cambodia General Population Census <sup>15</sup>
Health	Health	Cambodia General Population Census, 2008 <sup>15</sup> ; CDHS Survey, 2010 <sup>18</sup>
Infrastructure/ Services	Housing Characteristics / Access to Basic Services	Cambodia General Population Census, 2008 <sup>15</sup>
Economic	Landlessness	NGO Forum on Cambodia, 2011 <sup>19</sup>
Economic	Unemployment	Cambodia General Population Census, 2008 <sup>15</sup>
Migration Trends	Vulnerable Migrants	Cambodia General Population Census, 2008 <sup>15</sup> ; Cambodia Inter-Censal Population Survey (CIPS), 2004 <sup>20</sup>
Natural Disasters	Floods	Global Risk Data Platform <sup>21</sup>

# Methodology: Data Processing & Analysis

*\* All data processing, analysis and visualization conducted using ArcInfo 10*

## Tabular Data Reformatting

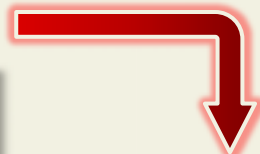
(Census, CDHS, CIPS, Land Disputes)



GADM Administrative Level 1 Boundaries



Calculate Zonal Statistics to Aggregate Flood Layers



File.gdb

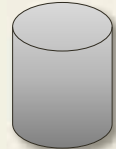
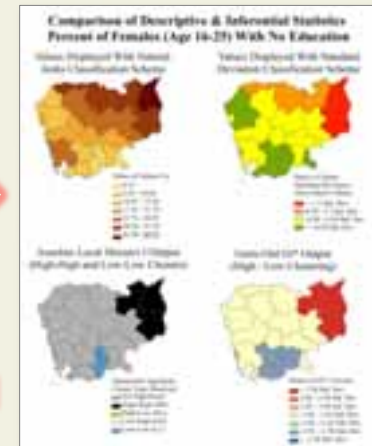


Table Join  
(Create New Feature Class for Each Variable, N=70)



Descriptive Statistics & ESDA Techniques



Compare Analysis of Variables (Individually & By Theme) to Source Provinces



Combine Themes  
(Local Statistics)



Perform Overall Trend Analysis



# Data Source: 2008 Population Census

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## Population

- Overall population (total count)
- Percent of the population under the age of 25 (overall)
- Percent of the population under the age of 25 who are female
- Percent of the population under the age of 25 who are male

## Education

- Percent of females who never attended school
- Percent of males who never attended school
- Percent of 10-25 year olds females who never attended school
- Percent of 10-25 year olds males who never attended school
- Percent of 16-25 year olds females with no education
- Percent of 16-25 year olds males with no education
- Percent of 16-25 year olds females with primary education not completed
- Percent of 16-25 year olds males with primary education not completed
- Percent of 16-25 year old females who are students
- Percent of 16-25 year old males who are students

## Family Structure

- Percent of the population where head of household male or female
- Percent of female head of households without partner
- Percent of female head of households with no education
- Percent of female head of households with primary school not completed

# Data Source: 2008 Population Census

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## **Economic**

- Overall unemployment rate
- Percent of 16-25 year old females who are unemployed
- Percent of 16-25 year old males who are unemployed

## **Health**

- Percent of population whose cause of death was due to illness (i.e., malaria, dengue fever, HIV/AIDS, heart disease, fever, diarrhea, tuberculosis, tetanus, other illness)

## **Housing Characteristics / Access to Basic Services**

- Percent of the population whose type of household is homeless, boat or transient (i.e., not normal or institutional)
- Percent of the population without access to either city power or a generator (i.e., kerosene, candle, battery, other)
- Percent of the population not connected to sewerage or a septic tank (i.e., pit latrine, not available or other)
- Percent of the population without access to water infrastructure (i.e., unprotected dug well, rain water, spring water, bought water, or other as opposed to piped water, tubed pipe well, protected dug well)

## **Language and Religion (Cultural)**

- Percent of the population who primary mother tongue is Khmer
- Percent of the population who primary religion is Buddhism

# Data Sources: 2008 Population Census & 2004 CIPS

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## 2008 Census - Migration Trends

- *Percent of Population Whose Reason For Migration Was:*
  - Education
  - Family moved
  - Insecurity
  - **\*Lost land or house**
  - **\*Marriage**
  - **\*Orphaned**
  - **\*Repatriation**
  - **\*Search for employment**
  - Transfer of workplace
  - Natural calamity
  - Visiting
  - Other

## 2004 Cambodia Inter-Censal Population Survey (CIPS) - Migration Trends

- Number of emigrants, by province (total counts)

*\*These select reasons for migration were classified as criteria for potentially vulnerable migrant populations to trafficking based on following research or assumptions: 1) loss of land / house indicates economic vulnerability, 2) reports exist of women and children in the Mekong region who have been trafficked through marriage<sup>2, 4</sup>, 3) orphans may be at an increased risk since they are more likely to have a vulnerable family structure or no family structure in place at all, 4) while not all Cambodians who have been repatriated were victims of trafficking, those who were may be at an increased for re-trafficking, and 5) women and children migrating to find jobs have historically been highly vulnerable to traffickers, either during transit or after arrival<sup>4, 6, 11</sup>.*

# Data Sources: Cambodia Demographic & Health Surveys

## Nineteen sampling domains defined as part of the CDHS design<sup>17, 18</sup>

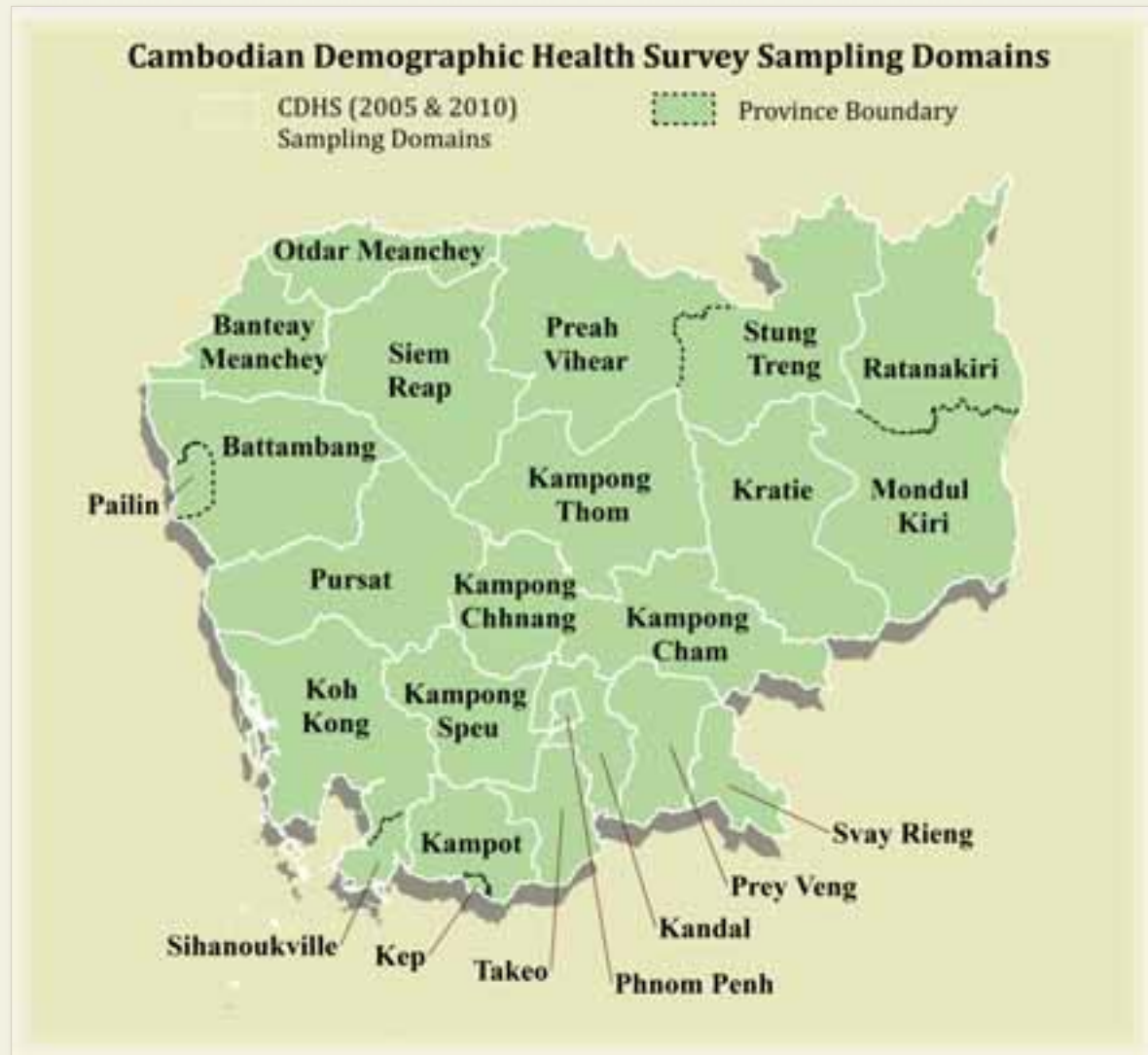
- To attain balance between the ability to deliver estimates for all provinces and limit sample size
- 14 individual provinces and 5 groups of provinces

## 2005 CDHS<sup>17</sup>

- Gender related attitudes
- Vulnerable family structures

## 2010 CDHS<sup>18</sup>

- Healthcare
- Vaccination Coverage
- Infant Mortality



*The "CDHS (2005 & 2010) Sampling Domains" feature class was developed based on provinces and province groupings listed as sampling domains in CDHS documentation<sup>17, 18</sup>*

# Data Sources: Disaster, Landlessness and Cultural Groups

## Natural Disasters: Floods

- Two types of flooding: Flash and central area floods<sup>22, 23, 24</sup>
- Global Risk Data Platform<sup>21</sup>
  - **Flood Risk:** Estimated Global Risk Induced by Flood Hazard
  - **Physical Exposition to Flood:** Expected Average Annual Population Exposed
  - **Estimated Flood Frequency:** Average # of Events per 100 yrs

## Landlessness

- Land disputes are pervasive<sup>19, 25, 26</sup>
- Statistical Analysis on Land Disputes in Cambodia, 2010<sup>19</sup>
  - Number of Households Affected
  - Residential & Agricultural

## Cultural Groups

- Joshua Project All People Groups Database<sup>16</sup> (to augment Census)



The data source for "Inland Water" Areas, "Land Subject to Inundation" and "Rivers" was the Digital Chart of the World and downloaded from DIVA GIS

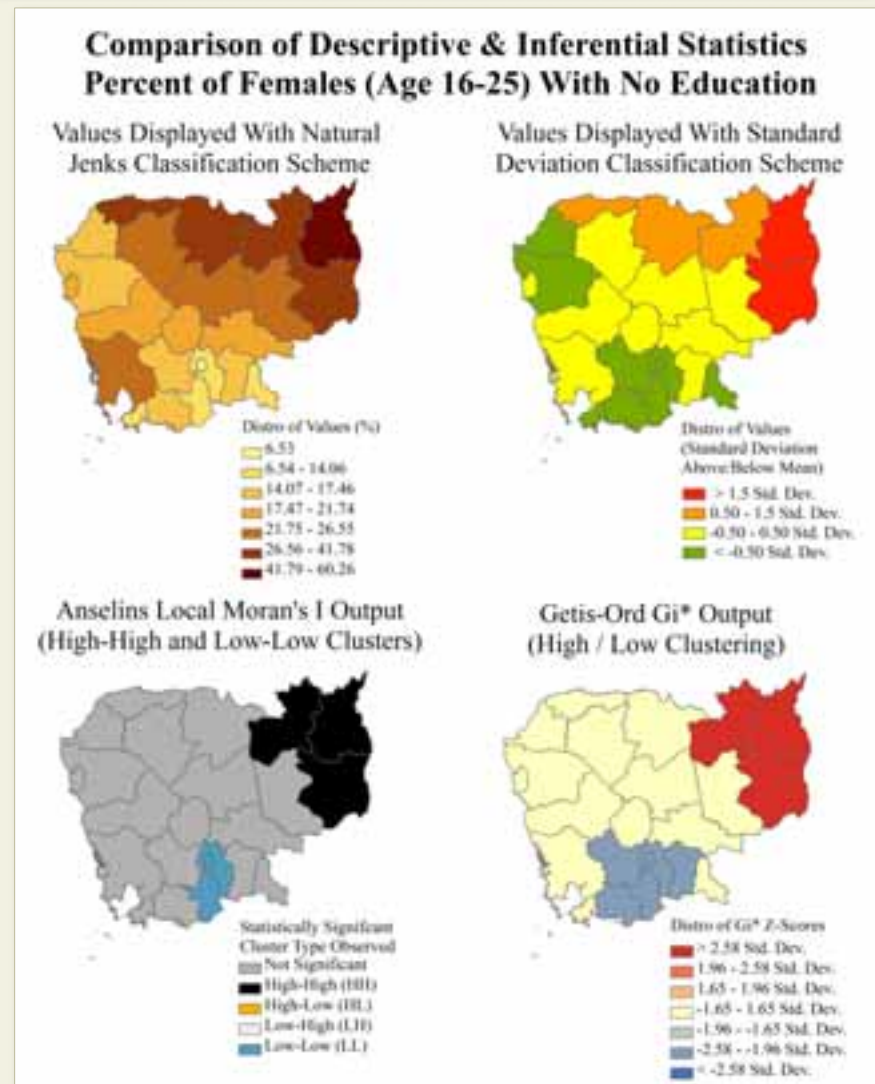
# Descriptive & Inferential Statistics Analysis Using ArcGIS

## Descriptive Statistics<sup>27</sup>

- Geographic distribution of range in values
- Classification Schemes: *Natural Jenks* and *Standard Deviation*
- Mean, median, standard deviation and where values exist above/below mean (per province)

## Inferential Statistics<sup>27, 28, 29</sup>

- ***Spatial Weights Matrix:***  
Quantifies spatial relationship between features; Provides data structure
- ***Moran's I (Global):***  
Measures degree of feature similarity (Random, dispersed or clustered)
- ***Getis-Ord General G (Global):***  
Measures degree of clustering for high or low values
- ***Anselin's Local Moran's I (Local):***  
Identifies where spatially similar clusters and outliers exist
- ***Getis-Ord Gi\* Statistic (Local):***  
Indicates where clustering of high or low values exist



The feature class used in this analysis (Percentage of Females Ages 16-25, With No Education) was developed based on data obtained from the 2008 Census and joined to the GADM Level 1 Administrative Boundaries<sup>15</sup>



# Spatial Weights Matrix

## Spatial statistics are unique<sup>27</sup>

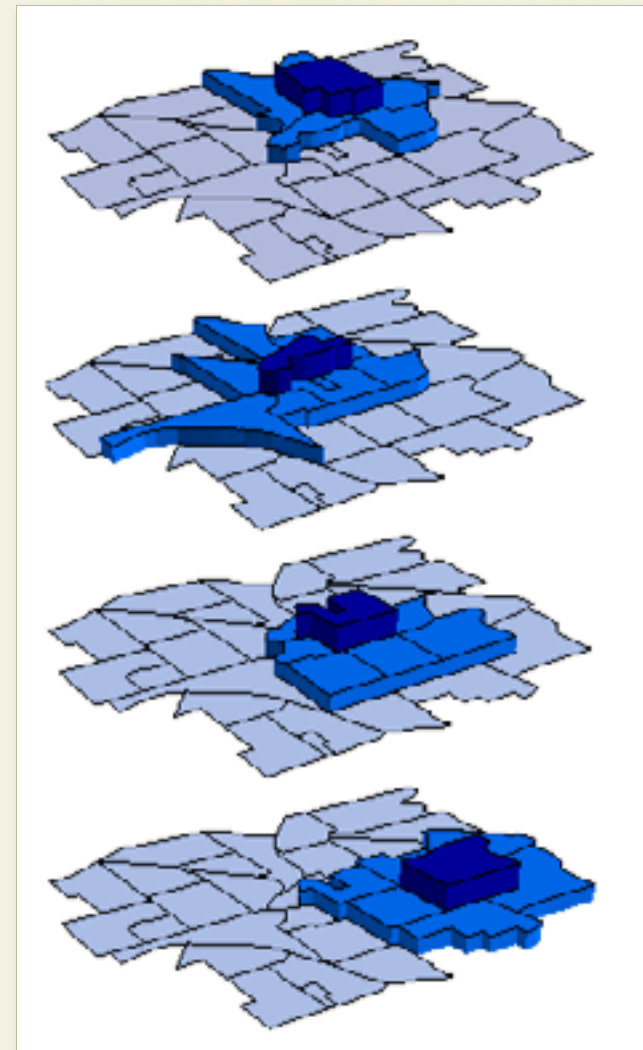
- Integrates space and spatial relationships into mathematical calculations
- Spatial weights matrix often used quantify the spatial relationships between features in a dataset

## Spatial weights matrix<sup>27</sup>

- N x N table with “N” being the amount of features (represents spatial structure of data)
- Each cell value represented by a weight which quantifies spatial relationships between features
- User decides how those spatial relationships are conceptualized based on what is being measured
- Binary file of weights created in Spatial Matrix that defines relationships between features

## Cambodian Provinces: Fixed Distance Band

- Selected due to large variation in polygon size<sup>27</sup>
- Each province analyzed within the context of neighboring provinces
- Multiple distance bands explored<sup>27</sup>



Map Source:  
ESRI, ArcGIS 10 ArcToolbox Documentation  
(Generate Spatial Weights Matrix)<sup>30</sup>

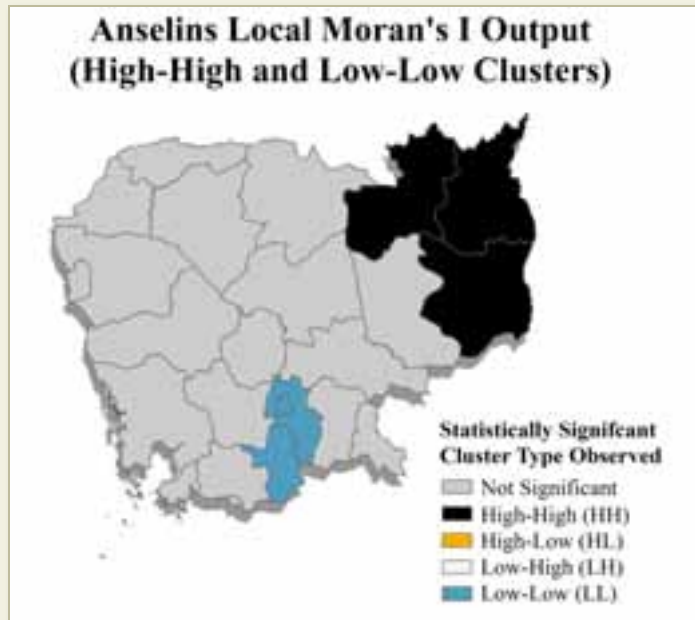
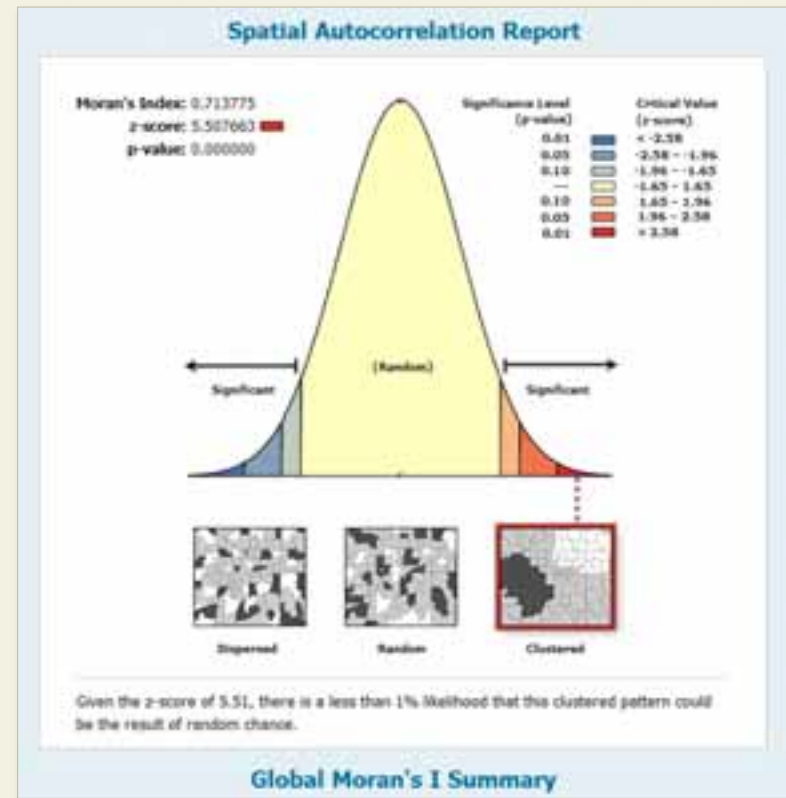
# Spatial Autocorrelation

## Moran's I<sup>27, 28, 29</sup>

- Generates report indicating if statistically significant clustering / dispersion of values exists based on p-values and Z-scores
- Results do not display an output feature class indicating where clustering occurs

## Anselin's Local Moran's I<sup>27, 28, 29</sup>

- Output feature class indicates *where* spatially similar clusters & outliers exist



*\*Both the Spatial Autocorrelation Report and Local Moran's I output feature class displayed in these graphics were based on analysis of the Percentage of Females (Age 16-25), With No Education (Per Province).<sup>15</sup>*

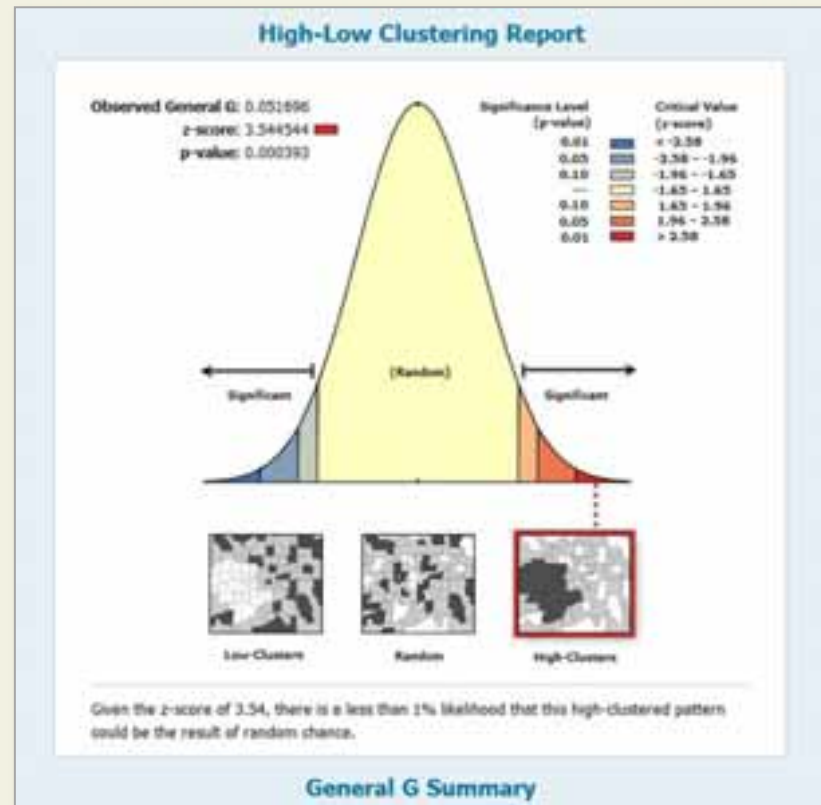
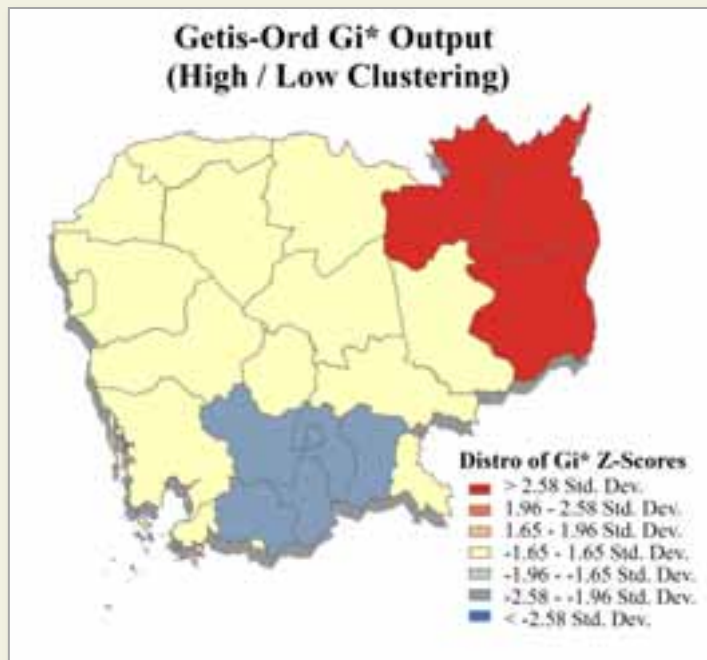
# Hot-Spot Analysis

## Getis-Ord General G<sup>27, 28, 29</sup>

- Report generated indicating if statistically significant high or low clustering of values exists based on p-values and Z-scores

## Getis-Ord Gi\* Statistic<sup>27, 28, 29</sup>

- Output feature class generated indicates *where* high and low clustering occurs



*\*Both the High-Low Clustering Report and Getis-Ord Gi\* (Hot Spot Analysis) output feature class displayed in these graphics were based on analysis of Percentage of Females (Age 16-25), With No Education (Per Province)<sup>15</sup>*

# Results: Key Take-Aways

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**Landlessness, social vulnerability (i.e., family structure, gender attitudes) and vulnerable migrant profiles were the most pervasive themes across the country**

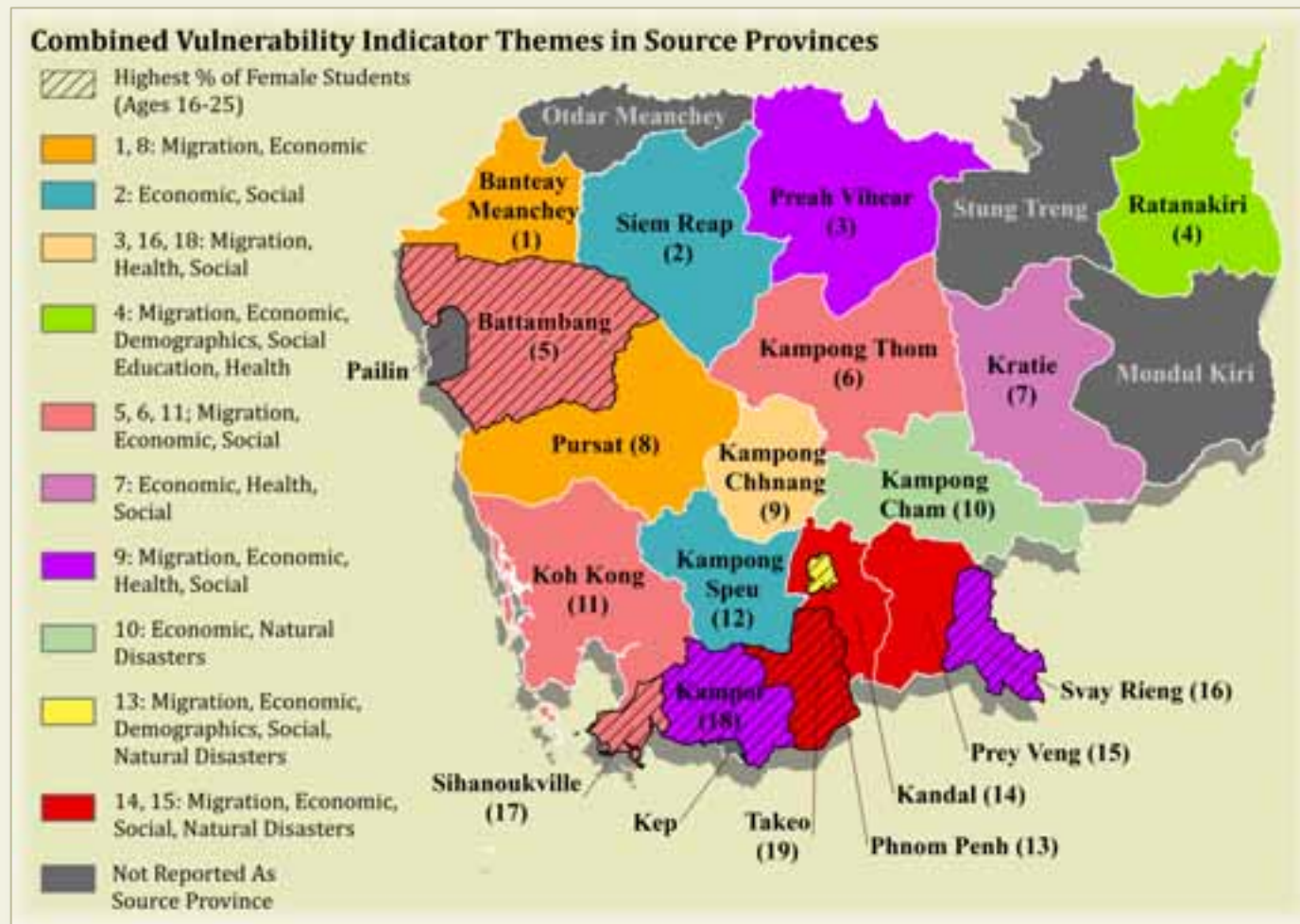
**The absence of education may not be the most reliable vulnerability indicator, confirming what is reported in previous trafficking research<sup>4, 5</sup>**

**Unemployment was most pronounced around urban centers, tourist hubs and near the Thai border – this could be the result of an oversaturated job market with increased rural-urban migration trends<sup>20</sup>**

**Prevalence of the most common profile for trafficking victims (females, ages 16-25 with minimal education)<sup>10</sup> is highest in southern Cambodia and in Battambang**

- Common themes found were related to a vulnerable migrant profile, landlessness (economic) and social vulnerability (family structure, gender attitudes) mirroring overall trends
- These provinces had a higher concentration of Cambodians who migrated there for the purpose of marriage, search of employment or because of lost land or house
- Some of the higher numbers of emigrants in 2004 were observed in border provinces in southern and western Cambodia adjacent to the Thai border
- Greater prevalence of common victims profile characteristics, migration to the area for economic reasons and larger numbers of emigrants indicate these provinces as possible key transiting areas for cross-border trafficking and help to explain why this may be the case

# Most Prevalent Vulnerability Indicators Observed in Source Provinces of Trafficking Victims (Combined View)



While trafficking victims reportedly originate from nearly all provinces, certain areas such as *Battambang, Sihanoukville, Kampot, Takeo, Phnom Penh and Svay Rieng* may be at an increased risk due to the greater prevalence of social, migration, and economic vulnerabilities combined with a higher percentage of the population meeting common victim profile characteristics

# Results: List of Provinces With Highest Prevalence

Variable Theme	Category	Source Province(s) With Highest Prevalence
Demographics	Population - Youth Bulge	Phnom Penh (Females), Ratanakiri (Overall)
Demographics	Language & Religion (Cultural)	Ratanakiri
Social	Family Structure	Battambang, Siem Reap, Phnom Penh, Kampot, Kandal, Svay Rieng, Prey Veng, Takeo, Ratanakiri, Preah Vihear, Koh Kong, Kampong Thom, Kampong Chhnang, Kampong Speu, Kratie
Social	Gender Attitudes – Extreme	Kandal, Svay Rieng, Takeo, Ratanakiri, Koh Kong, Kampong Chhnang, Kampong Speu, Sihanoukville
Education	Education	Ratanakiri
Education	Female Students (Ages 16-25), Most Common Victim Profile	Phnom Penh, Kampot, Svay Rieng, Takeo, Sihanoukville, Battambang
Health	Health	Kampong Speu, Svay Rieng, Ratanakiri, Preah Vihear, Kampong Chhnang, Kratie
Infrastructure/ Services	Housing Characteristics / Access to Basic Services	All Provinces
Economic	Landlessness	Banteay Meanchy, Battambang, Phnom Penh, Kampong Cham, Kandal, Prey Veng, Ratanakiri, Kampong Thom, Kratie, Pursat, Koh Kong, Kampong Speu, Takeo, Svay Rieng, Preah Vihear, Siem Reap, Sihanoukville
Economic	Unemployment	Siem Reap, Phnom Penh, Kandal, Pursat, Koh Kong, Sihanoukville
Migration Trends	Vulnerable Migrants	Banteay Meanchey, Battambang, Phnom Penh, Kampong Speu, Kandal, Svay Rieng, Prey Veng, Takeo, Ratanakiri, Preah Vihear, Pursat, Koh Kong, Kampong Thom, Kampong Chhnang, Sihanoukville
Natural Disasters	Floods	Phnom Penh, Kampong Cham, Kandal, Prey Veng, Takeo

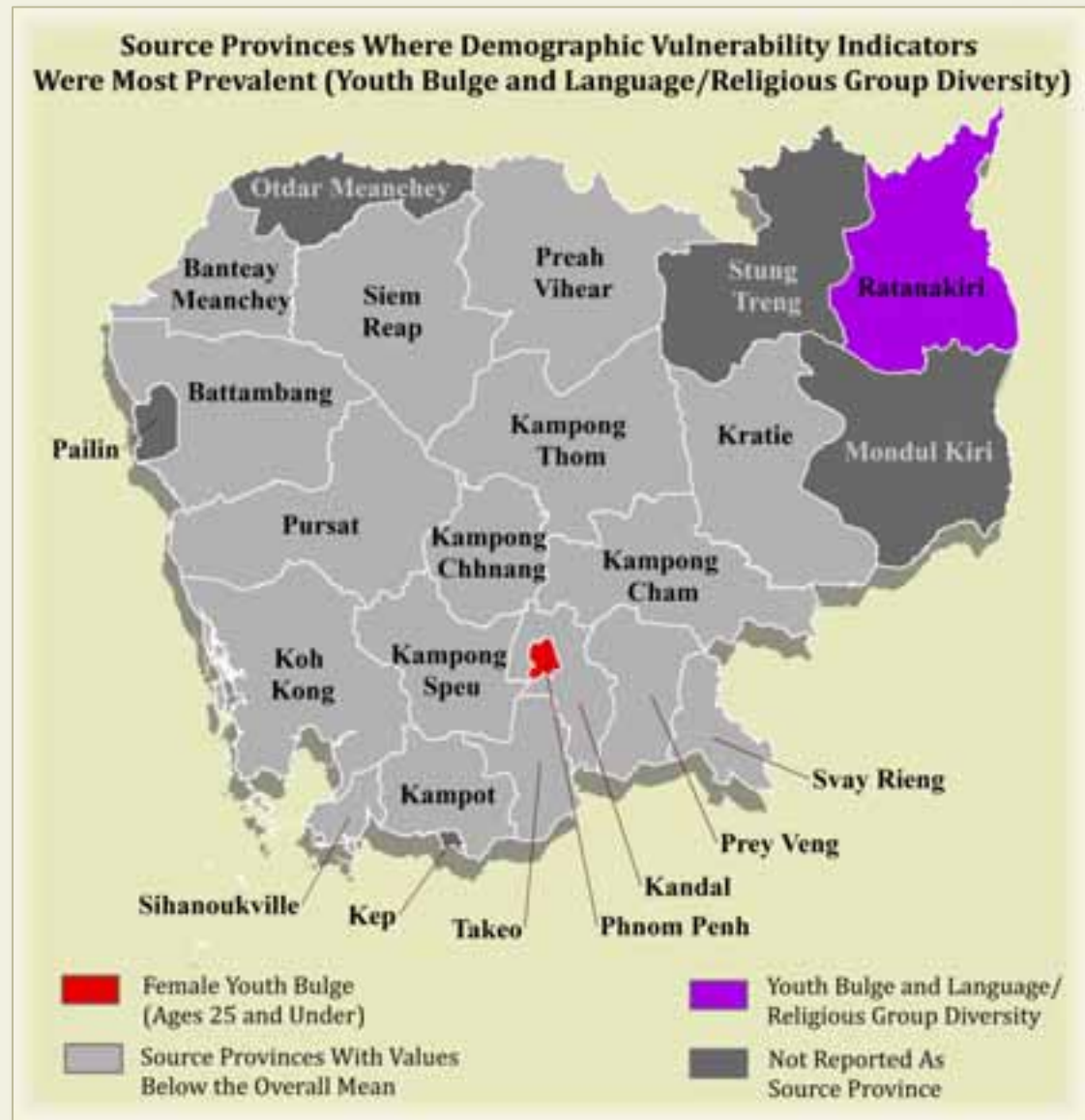
# Results: Demographics in Source Provinces

## Youth Bulge

- Majority of the population is young across *entire* country = Very large demand for jobs
- Ratanakiri – Largest % of population 25 and under, but lowest population count
- Phnom Penh – Largest % of females 25 and under – could reflect migration trends<sup>20</sup>

## Language and Religious Groups

- Most Cambodians are Khmer and practice Buddhism
- Most trafficking victims are Khmer, but research indicates ethnic Vietnamese face an increased risk of trafficking<sup>4</sup>
- While Ratanakiri was the most diverse, these groups did not appear to be Vietnamese



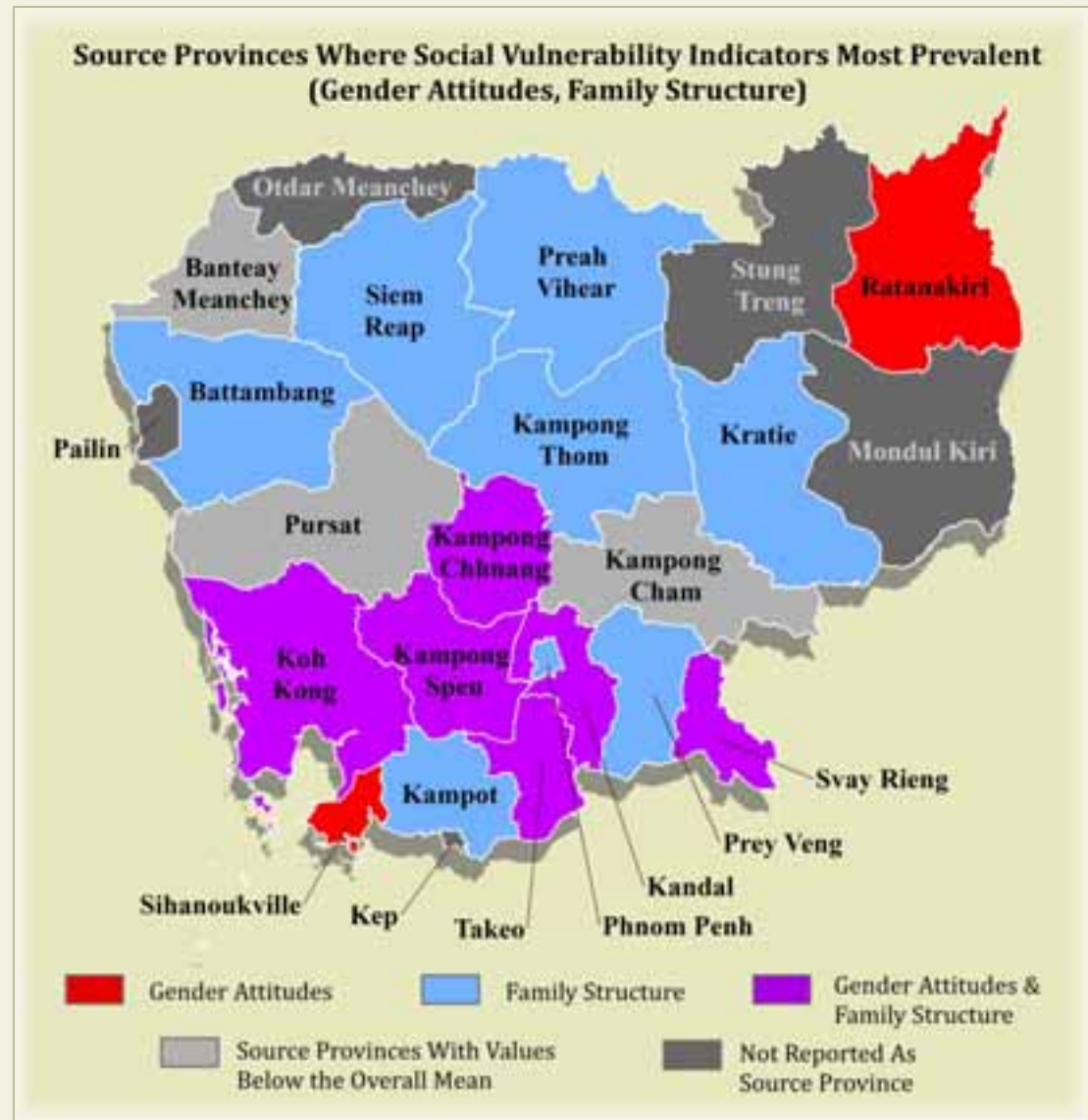
# Results: Social Vulnerability in Source Provinces

## Gender Attitudes

- Overall least favorable in northeast / southern provinces
  - Mostly in Ratanakiri, Sihanoukville and Koh Kong
- Most severe negative sentiment observed in same areas, but also in Kampong Speu and Svay Rieng
- Majority of respondents in most provinces felt women had no right to an opinion

## Family Structure

- Historically a very important factor indicating vulnerability<sup>4,6</sup>
- Highest % of female head of households were in southern and central Cambodia
- Highest % of children living with the father (only) in the southern provinces
- Highest % of orphans in the northwest





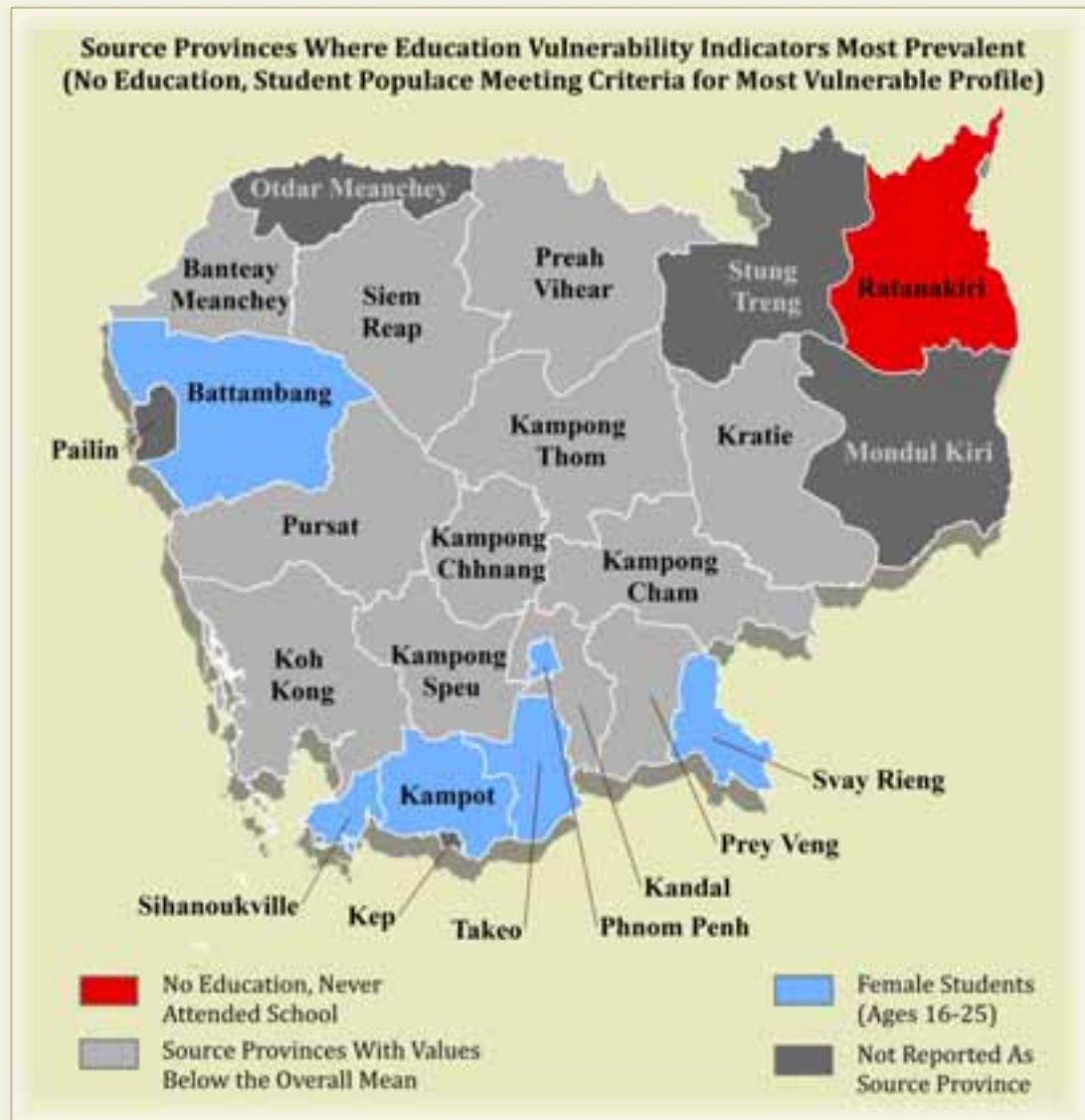
# Results: Education Vulnerability in Source Provinces

## Results Compared to National Averages

- 2010 CDHS indicates only 3% of females have more than a secondary education<sup>18</sup>
- Most Cambodians have some primary education<sup>18</sup>
- Highest education levels are in urban areas (Phnom Penh)
- Lowest education level are in the northwest (Ratanakiri)

## Most Common Victim Profile: Female Students (16-25)

- Highest % in the capitol area, southern region and Battambang
- Trafficking victims have low education but not much lower than national averages<sup>4,5</sup>
- Some communities trafficked the most educated females<sup>5</sup>
- Women migrate after leaving school in search of jobs<sup>20</sup>



# Results: Health Vulnerability in Source Provinces

## Northern and Northeast Provinces Most Vulnerable

- Provinces with a greater % of health vulnerability indicators are scattered across the country
- Highest % was in Preah Vihear, followed by Ratanakiri and Kratie
- Spatial proximity to major roads / urban centers may limit access to healthcare in worst affected areas
- Highest % of deaths from illness was in Preah Vihear and Kratie
- Lowest % of children receiving basic vaccinations was in Ratanakiri, Kampot, Preah Vihear
- Highest # of infant deaths per 1000 live births was in Preah Vihear, Ratanakiri, Kratie, Svay Rieng, Kampong Chhnang



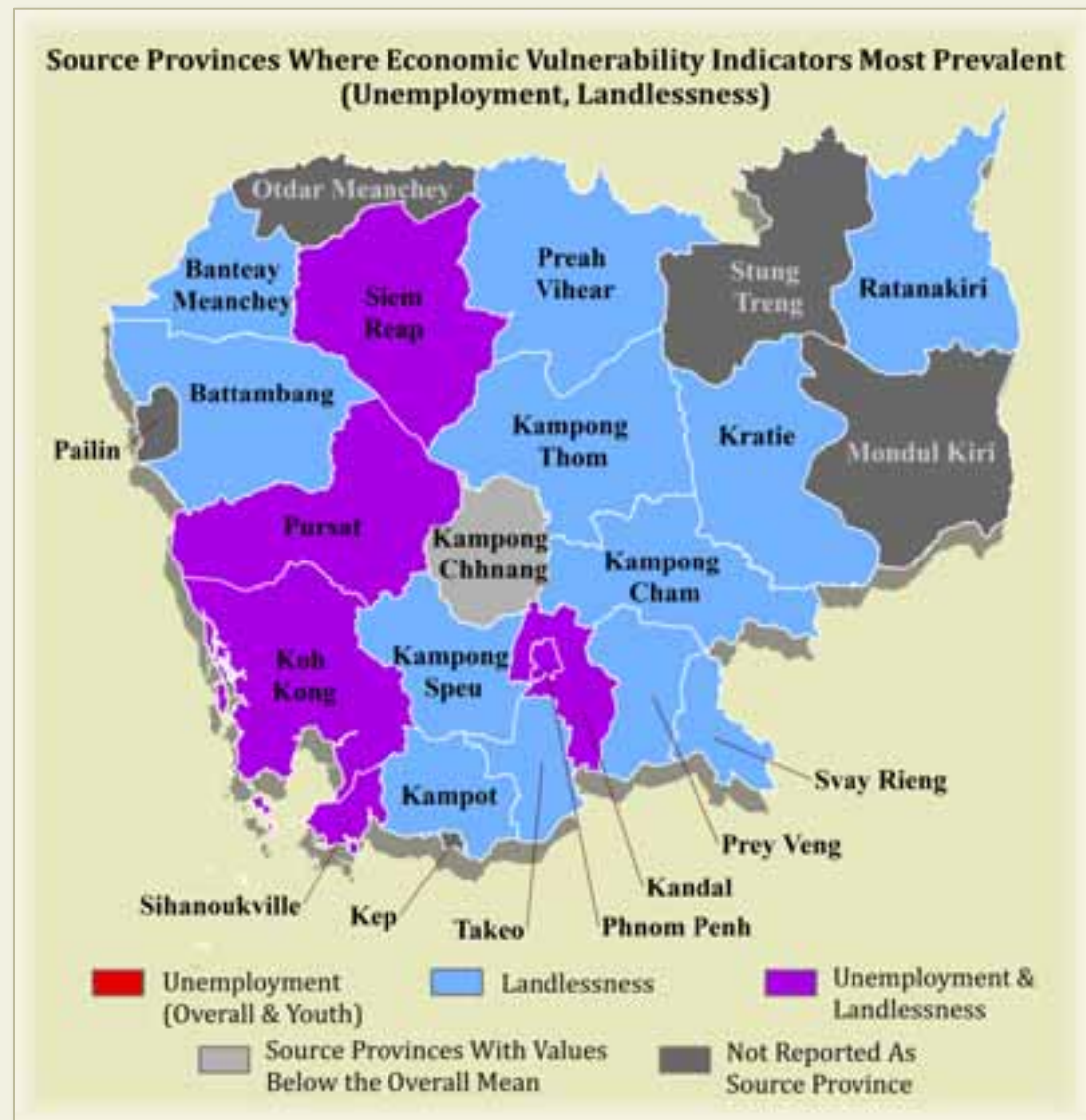
# Results: Economic Vulnerability in Source Provinces

## Unemployment

- More prevalent near the border, urban areas and tourist hubs
- Overall unemployment rate highest in Phnom Penh, Koh Kong, Pursat, and Sihanoukville
- Highest % of unemployed *youth* (ages 16-25) observed in same areas
  - Higher values also present in Siem Reap and Kandal

## Landlessness: Agricultural & Residential Land Disputes

- Land disputes are pervasive
- Can serve as a catalyst for migration leading to increased vulnerability of women and children
- Most cases are for agricultural land
- While Sihanoukville was not among the most prevalent in terms largest # of households affected, 50% of agricultural land there is disputed<sup>19</sup>
- Most residential cases were in the southeast and Banteay Meanchey



# Results: Vulnerable Migrants in Source Provinces

## Job Search

- Many young migrants leave school to find jobs in urban areas/tourist hubs<sup>20</sup>
- Higher % values in Koh Kong, Phnom Penh, Sihanoukville, Ratanakiri, Banteay Meanchey confirm this to some degree

## Marriage

- Highest % who migrated for this reason was primarily observed in southeastern provinces, but also in Kampong Thom

## Repatriation

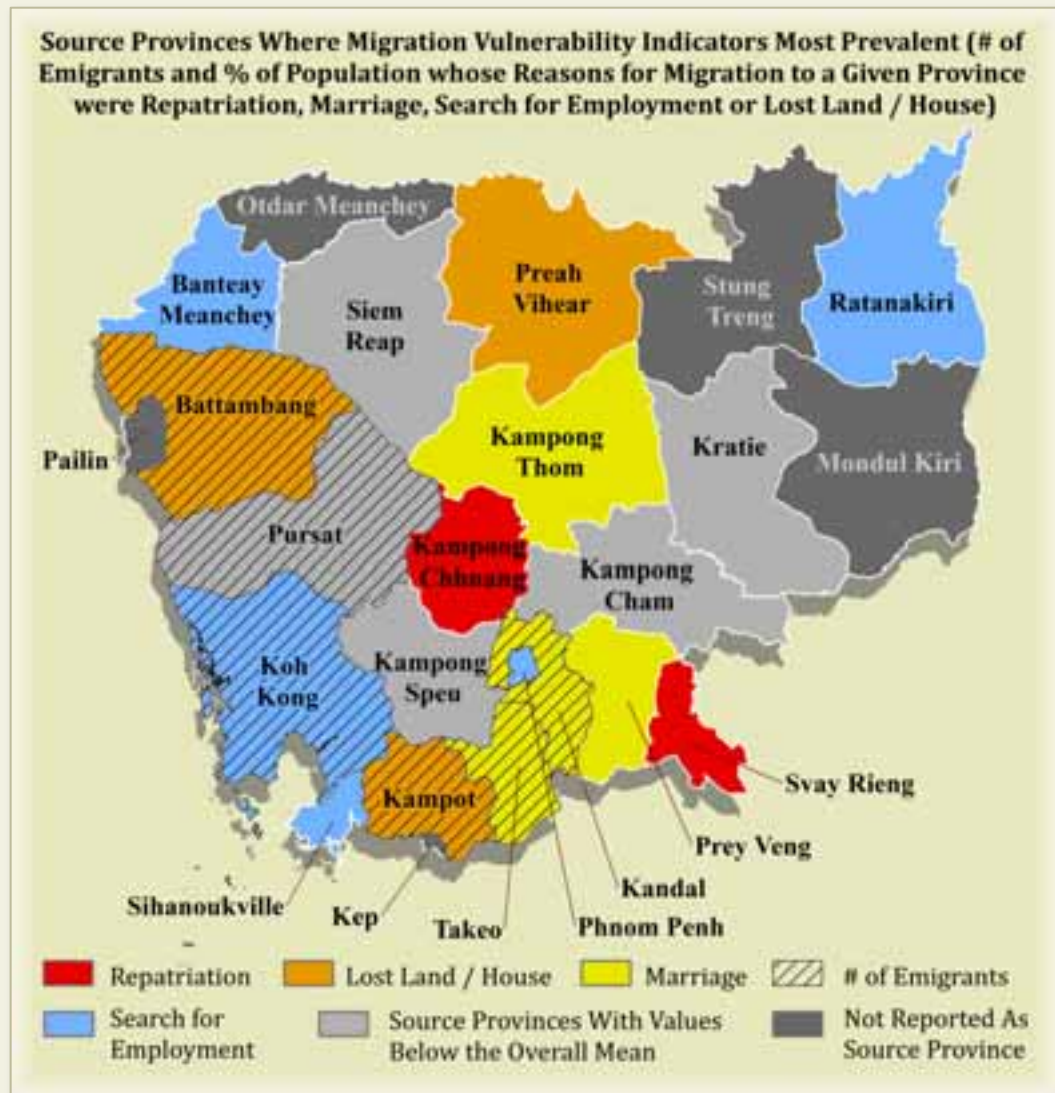
- Highest % in Svay Rieng (Many of these are likely returnees from Vietnam)
- NGOs had previously identified specific sending communities in Svay Rieng<sup>4</sup>
- Higher % also in Kampong Chhnang – Concerning due to recent complaints filed for missing migrants in Malaysia<sup>32</sup>

## Lost Land or House

- Highest % in Preah Vihear, Battambang and Kampot

## Emigrants

- Largest # of emigrants from areas along the Thai border and southern Cambodia



# Results: Infrastructure / Services in Source Provinces

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**The only consistent pattern observed when examining dwelling characteristics and access to basic services from the 2008 Census was that a lack of access to basic services is widespread outside of the capitol area**

- Applies to variables analyzed to assess percentage of the population with access to decent sanitation, water infrastructure and electricity in each province
- Results confirmed by the 2010 CDHS - Over 90% of urban households had access to electricity, but only 19% of rural households had access<sup>31</sup>

**It cannot be assumed that access to basic services and infrastructure is available for vulnerable populations in urban areas such as Phnom Penh**

- A perceived more established infrastructure and access to basic services may serve as a “pull” factor for migrants coming from the countryside
- The reality is that nearly 80% of Cambodians living in urban environments reside in slums, where access to safe drinking is limited and declining due to increased migration<sup>20, 31</sup>
- Future research endeavors may want to consider the percentage of urban versus rural populations in each province when examining these variables in the context of increased vulnerability in victim source provinces

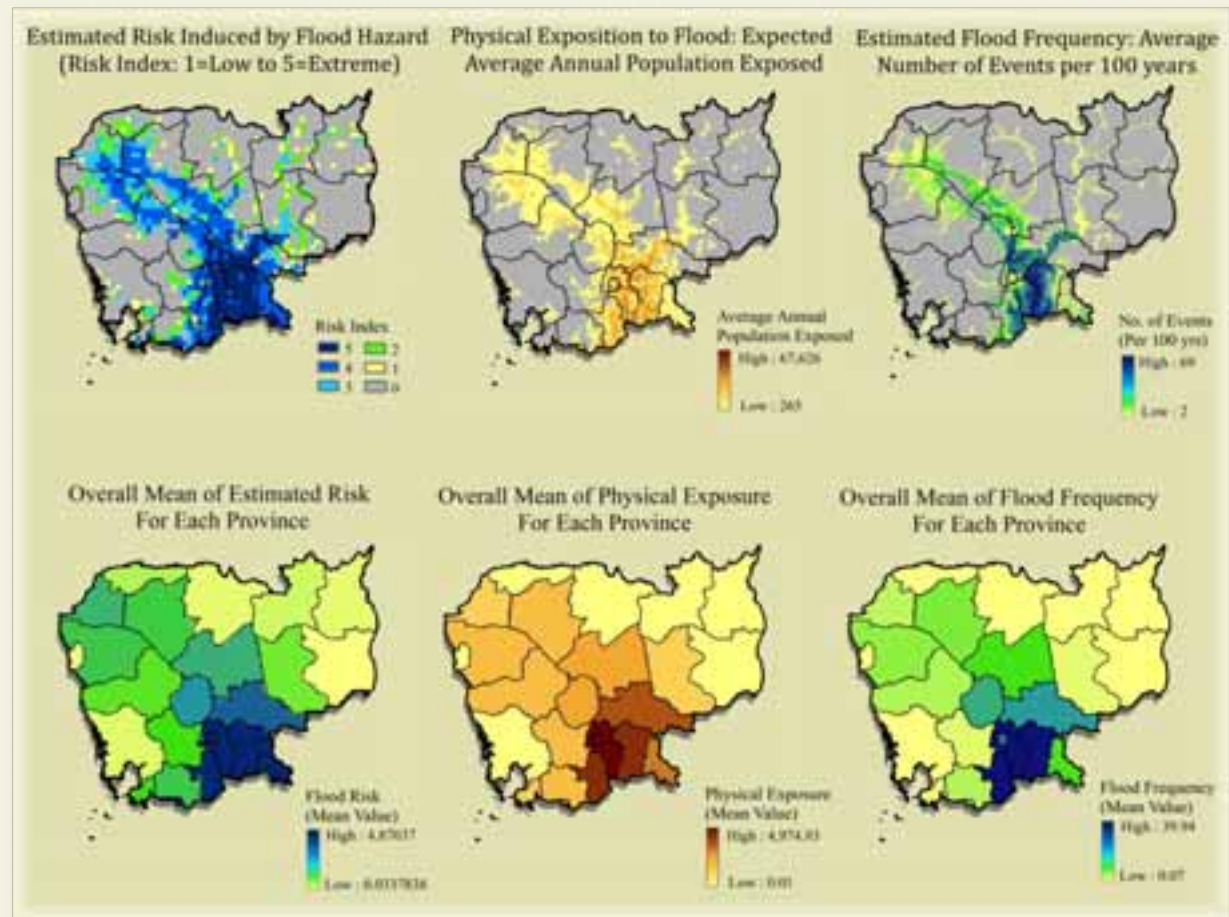
# Results: Vulnerability to Natural Disasters in Source Provinces

## Negative Effects of Severe Floods<sup>22</sup>

- Reduced access to safe drinking water
- Social stress
- Disease
- Loss of livelihood
- Can stimulate migration, increasing vulnerability

## Data Aggregation & Analysis

- Zonal statistics calculated to obtain the mean value for each surface type
- Southeast and central areas most vulnerable to flood risk, frequency and physical exposure
- Most affected source provinces: *Prey Veng, Takeo, Kandal, Phnom Penh, Kampong Cham*



# Limitations & Future Research

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## Data gaps and limitations

- Most research on victim vulnerability is based on review of secondary data sources or surveys conducted on limited populations
- Data on some vulnerability indicators could not be used – Values reported at national level, collected for specific areas, accuracy was questionable or data was not available
- No accurate data representing magnitude of victims from each province

## Province level scale of analysis

- Very discrete sending communities exist within provinces<sup>4</sup> (Vulnerability context may be different at that scale of analysis)
- Future field collection efforts on sub-provincial scale, geographic vulnerability indicator datasets is needed to enable geospatial analysis of the nuanced nature of trafficking

**While Mondul Kiri is not cited by prior research as a source province for victims, vulnerability indicators mirror those found in Ratanakiri**

## **Social attitudes in Otdar Meanchey – How does these effect trafficking?**

- Highest percentage of respondents with most favorable views toward women on every question in the gender attitudes portion of the 2005 CDHS
- It is also **not** a *reported* source province – Thus, is it a source province and the data to indicate such just does not exist *or* are there in fact no sending communities there?



# Questions?

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