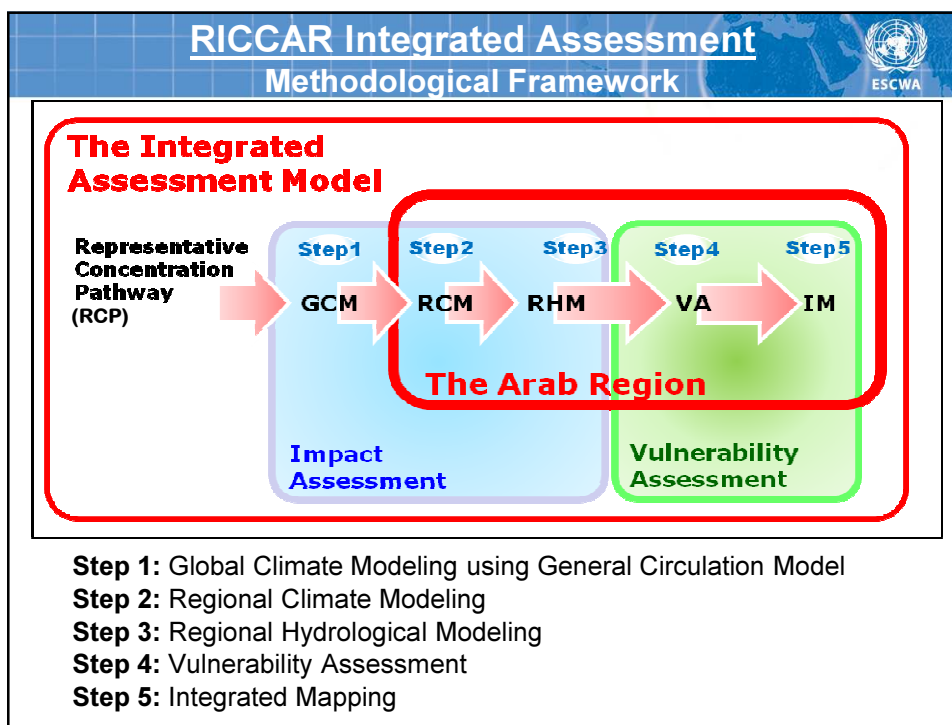
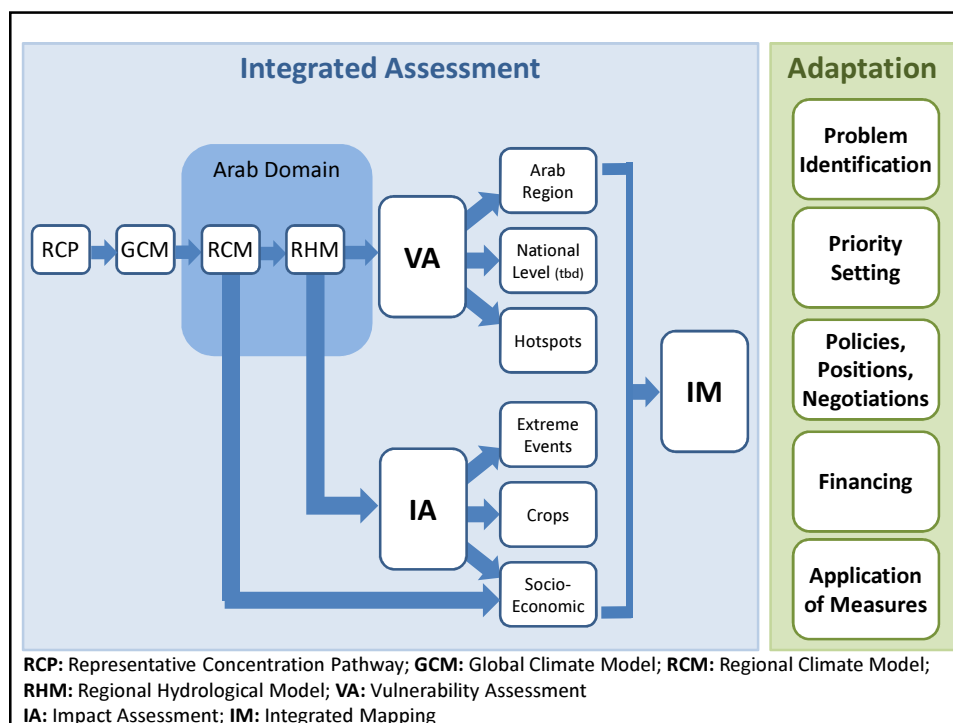


Applying the Vulnerability Assessment under RICCAR

Issues for Consideration






General Remarks



- Data files provided are for purpose of informing on the training and manual, but are not validated datasets that present final inputs or result.
- VA methodology is flexible and adaptable at the regional, national and sub-national levels.
- VA provides opportunity for regional analysis and integrated analysis across sectors



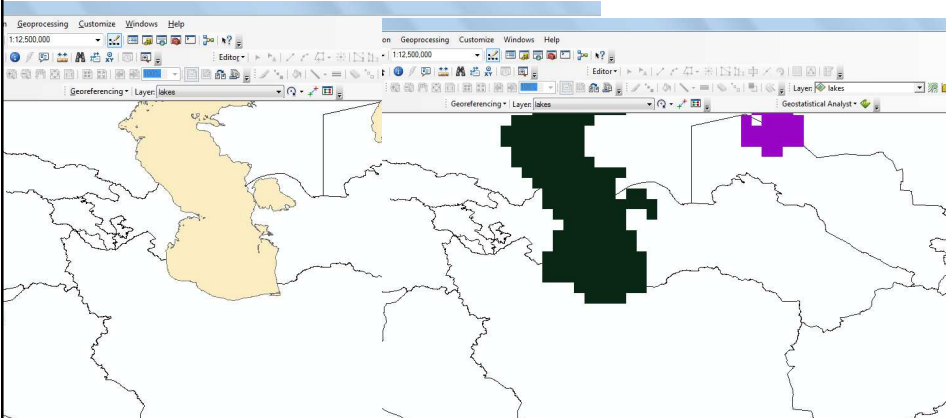
Part I

Lessons Learned and Trouble Shooting Potential Pitfalls

Data Resolution

– **Resolution differences:** risk of losing information but uniform data, or details and non-uniform data.

- e.g. Raster v/s Vector

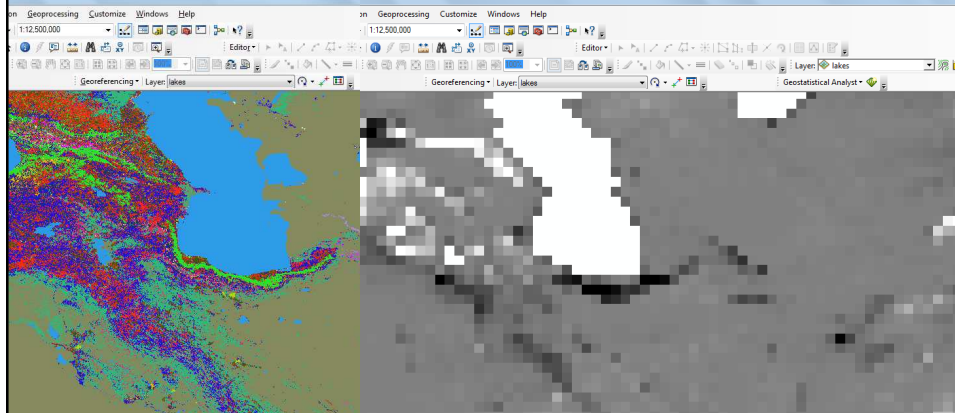


The screenshot shows a GIS application window with a map. On the left, there is a yellow vector polygon representing a region. On the right, there is a dark green raster polygon representing the same region, showing a blocky, pixelated appearance. This illustrates the difference in resolution between vector and raster data.

Data Resolution



- **Resolution differences:** uniforming the cell size when rasterizing.
 - e.g. raster high res. v/s raster low res.



Data Sources & Quality Control



- Historical dataset may be available from official government sources, public open-source data sources (UN, WB), academic sources, and private data sources.
- Raises question of data quality
- Quality assurance system needed, regionally and nationally.
 - e.g., for national level analysis or smaller scales analysis, precision of data could be increased using remote sensing with ground-truthing.

Data Availability for Regional Level Analysis

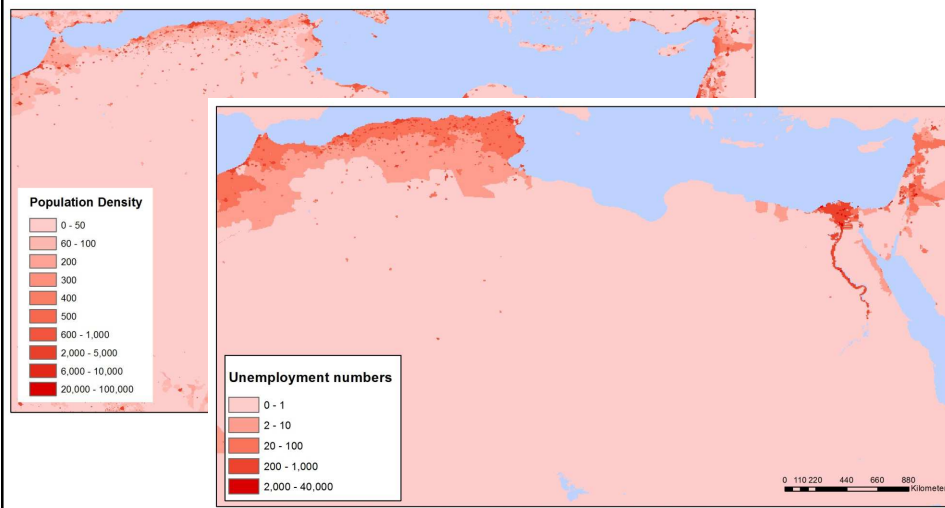


- Constant unit of analysis preferable for regional-level analysis, but this is affected by differences in data availability across countries
- Socio-Economic data that is comparable for regional analysis:
 - A. **Type:** tends to be national-level data
 - B. **Solution:** transforming the national Socio-economic indicators (Gender, Urban vs. rural, Employment ..) to grid level.
 - C. **Pitfall:** the representation of population density which is averaged-out over the national boundaries would average out the indicator

B. Interpreting National Datasets: Solutions



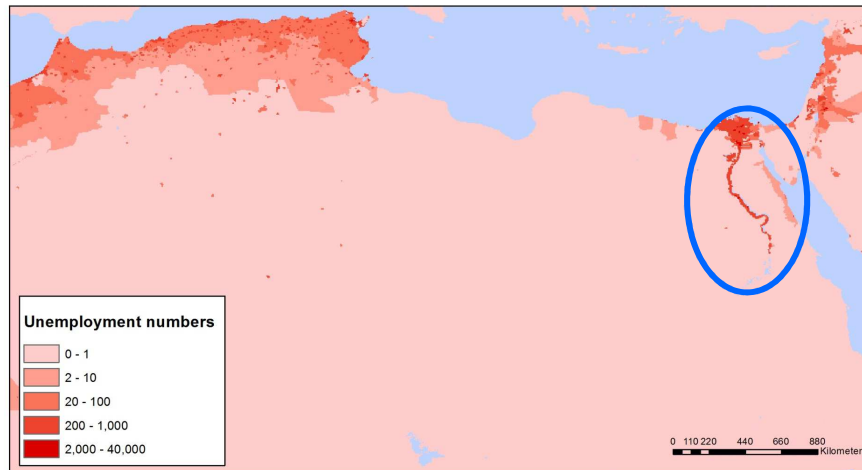
- Population density v/s Unemployed Population Density



C. Interpreting National Datasets: Pitfalls to avoid



- High Population density should not necessarily mean high unemployment rate




Dynamic v/s Static VAs




- Underlying approach to this VA methodology combines current and projected climate indicators for Exposure, and combines them with static parameters for Sensitivity and Adaptive capacity.
- How could socio-economic projections be introduced to the methodology to allow for a more dynamic VA
 - e.g., over the same time steps used by the RCM and RHM outputs.

Data Accessibility & Usability



- Use of ArcGIS10.x easily converts NetCDF files and is a useful alternative to Linux & Matlab expertise
- CORDEX has over 56 indicators (NetCDF files):
 - e.g., Air Temperature, Specific Humidity, Wind Speed, Potential ET etc.

High Level Cloud Fraction (5)	
Ice Water Path (5)	
Land Area Fraction (5)	
Low Level Cloud Fraction (5)	
Mid Level Cloud Fraction (5)	(45)
Near-Surface Air Temperature (15)	er Path (5)
Near-Surface Specific Humidity (15)	ipitation (5)
Near-Surface Wind Speed (15)	near-Surface Air (5)
Northward Near-Surface Wind (15)	near-Surface (5)
Northward Wind (45)	near-Surface (5)
Potential Evapotranspiration (5)	near-Surface Air (5)
Precipitation (15)	hine (15)
Sea Level Pressure (15)	Surface Wind (5)
Snow Area Fraction (15)	
Snow Depth (15)	(45)
Snowfall Flux (5)	
Soil Frozen Water Content (15)	ght (30)
Specific Humidity (15)	ry Layer (5)
Surface Air Pressure (5)	raction (5)



Part II

Discussion Questions for Applying the VA Methodology under RICCAR for the Arab Region

Training Manual



- Methodology adopts vulnerability assessment approach grounded in IPCC AR4 deliberations.
 - Training manual & applied methodology will seek to maintain constant relationship between Potential Impact (Exposure + Sensitivity) & Adaptive Capacity.
 - Additional indicators will be introduced, but based methodology applied.
- Revision of Training Manual would be sought.
 - *For your purposes, would you like to see a revised manual or an amendment to the current manual (with executive summary and additional explanatory notes)?*

Data Collection



- RICCAR is implemented through an inter-agency partnership & inter-governmental process.
- RICCAR Partners contribute data and expertise.
- Arab water ministries have been invited to nominate hydrological focal points and provide data under AMWC resolutions.
 - ACSAD and ESCWA will seek to vet available datasets with Arab Governments and regional partners through formal channels and consultations.
 - *Annex defines data sources for VA; are there others that you would recommend drawing upon?*
 - *How would you suggest structuring a quality control process for vetting this data?*

Data Validation & Testing



- This is the first instance of imparting the VA methodology and training manual and is a valuable contribution of ACCWaM to the RICCAR partnership.
- The methodology used under RICCAR will be tested and applied based on:
 - A final set of indicators defined for each sector.
 - Evaluation, conversion & classification of regional datasets
 - Testing and validation
 - Discussion of preliminary results with counterparts.
- *How can you as Arab research center contribute to this process of finalizing the methodology? Is there interest in set-up of a “Sensitivity Task Force” & “Adaptive Capacity Task Force” to vet indicators, data & maps?*

VA Application



- Regional workshop on moving from impact assessment to vulnerability assessment will be held Oct/Nov 2014 to present VA Methodology to Government.
 - Provides target data for finalizing indicators inputs.
- Application of methodology quickly implemented once indicators & inputs finalized.

Integrated Mapping Tool & RKH

- Integrated mapping tool related to the VA includes GIS map layers associated with the calculation of the integrated VA (around 50 layers).
 - RCM and RHM outputs will be also be available via the Regional Knowledge Hub
 - Facilitating access for different stakeholder groups under discussion:
 - Raw data sets for further research
 - Primary & Processed maps (with classifications)
 - Modeling inputs (base periods) & outputs
- *Question is how much additional information should be included for Policy-Makers, Researchers, Public & in what form.*

Thank you!