REGIONAL NRM DATA PROJECT

Asset & Vulnerability Database

Government of South Australia
Department of Environment, Water and Natural Resources

Regional NRM Data Project

- The SAAL NRM board (and other regions across Australia) was been funded under through the National partnership agreement on Coal Seam Gas and Large Coal Developments to identify, collate and report on existing water assets, conduct vulnerability assessments of water assets in potential CSG/coal mining regions and to validate or ground truth existing data.

- This process helps the Regional NRM Boards to further identify water assets and assign attributes or values including environmental, cultural, social and economic

- This work helps identify potential risks to these assets from current and anticipated coal seam gas and coal mining development and indentifies knowledge gaps in relation to the hazards and risks to regional water resources associated with coal seam gas an coal mining.

- The Asset Dataset and Vulnerability Assessment is a key input to the IESC's process and the Bioregional Assessments and where appropriate, can also be used to update NRM plans or other instruments

Regional NRM Data Project

- This funding allows the regions to capture water assets data for delivery to OWS.
- South Australia adopted a collaborative approach to this task the benefits being:
  - A consistent approach to defining and identifying water assets, including
  - More efficient collation of data sources and data entry into the database
  - Controlled but relevant language in attributing water assets
  - More meaningful and structured assessment of water asset vulnerability to CSG and large coal mining activity
  - Improved availability of data for resource management & statutory processes
  - A spatial database

Asset Definition

- A water asset is defined as: ***A physical feature or region (natural or non-natural) of environmental, social, economic or cultural value that contains water permanently or periodically.***

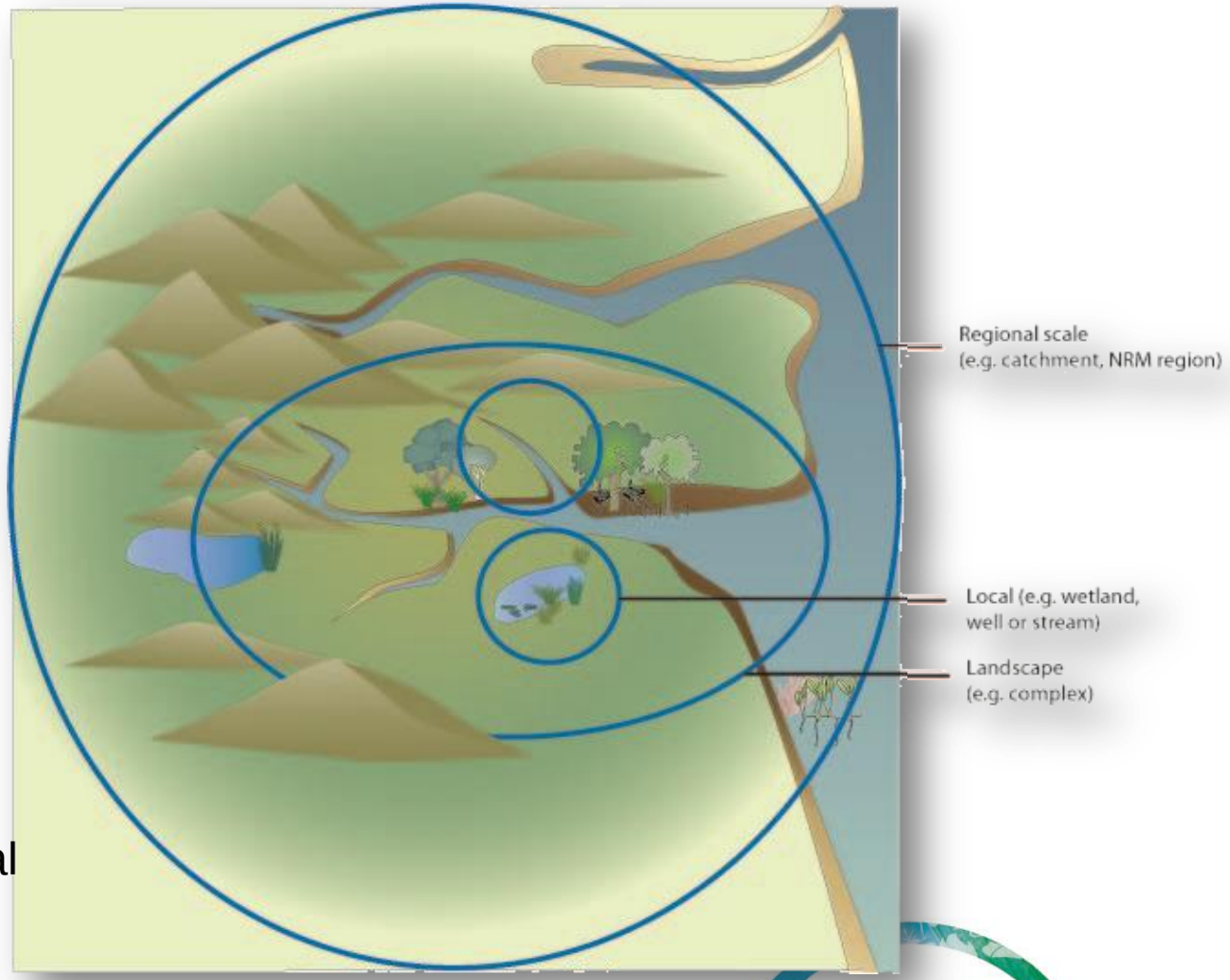
  - Assets can be defined at multiple scales based on relevant groupings of environmental, social, economic or cultural values.

  - Assets may be formed by aggregation of features for the following reasons:
    - ✓ They have the Hydrological &/or Biological &/or Cultural &/or Economic connectivity
    - ✓ They fall within a common management area
    - ✓ They fall within a common region

Asset delineation

Examples of assets include:

- Stream
- Wetland
- Aquifer
- Wetland complex
- Bore
- Monitoring well network
- Rockhole
- Catchment
- Groundwater basin
- Prescribed wells area
- Floodplain
- Drain
- Town water supply
- Industry water supply
- Area of indigenous/cultural value



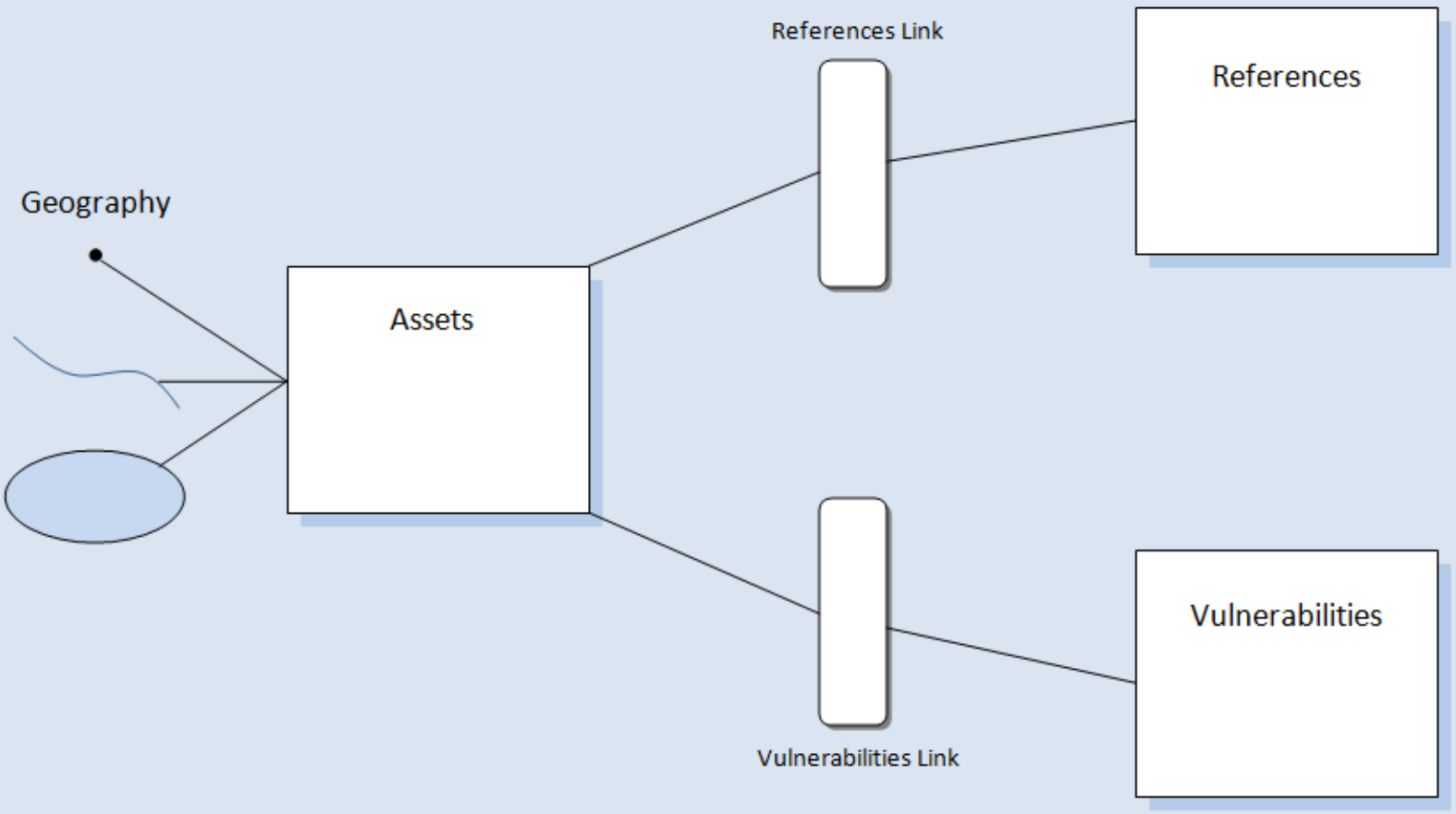
Values Definition

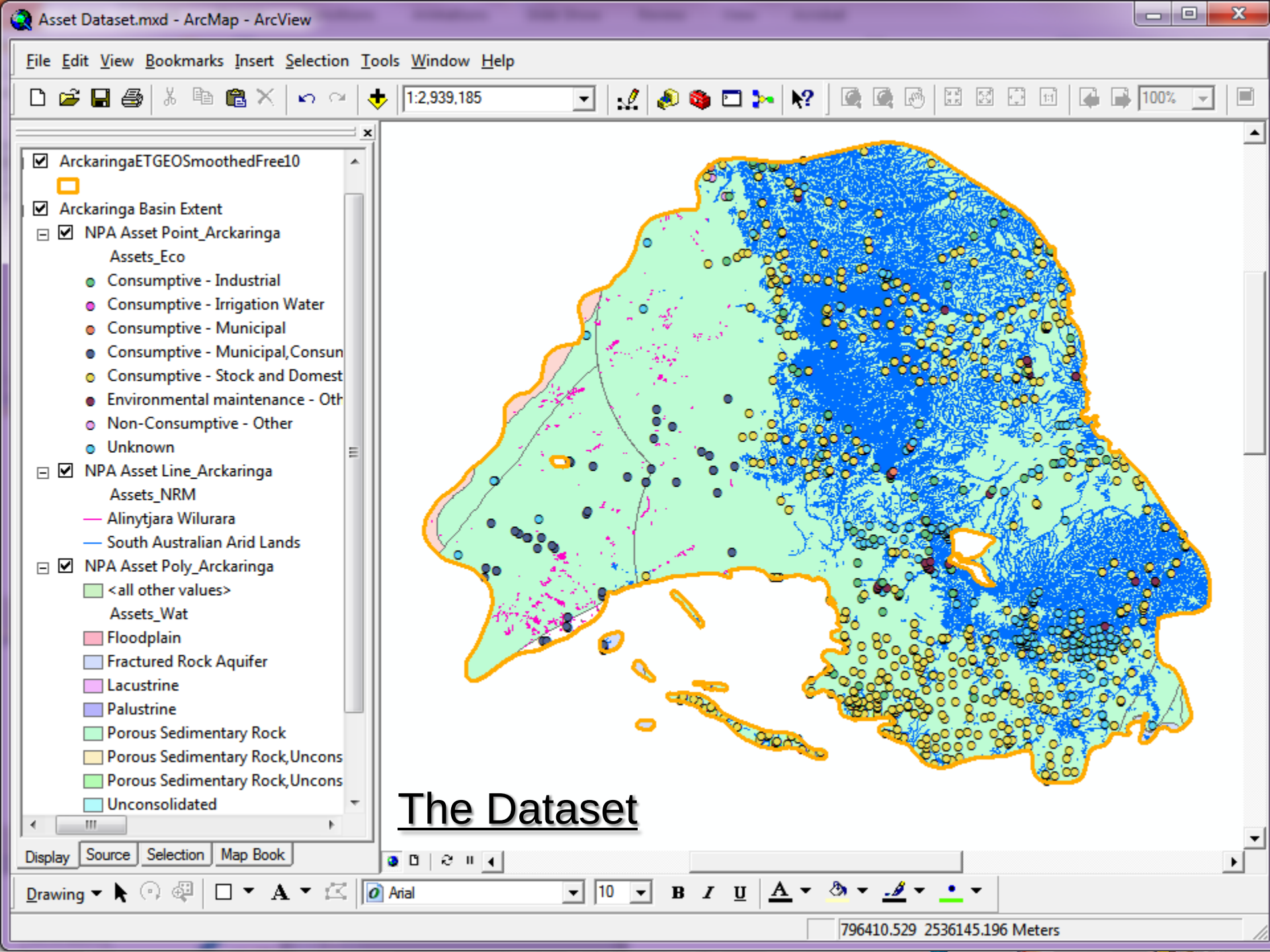
- In assessing whether or not a feature is an asset, it is important to consider the environmental, social, economic or cultural value of the feature.

  - A value is a perceived benefit of a water asset, either direct or indirect, and may be environmental, social, cultural or economic.
  - An asset may have multiple values attached to it, which can be identified in the database
  - The physical water feature is listed as the asset and the dependency e.g. an endangered species or red gum forest are attributed as values or additional information.
  - Similarly, a bore may have both social and economic value through water provision, so the bore would be identified as an asset and its social and economic values would be attributed to it in the database.

Data Sources

- State surface water layers (includes all waterbodies)
  - State wetlands layer
  - State watercourse and drainage datasets:
    - 50k watercourse (Topo.watercourses) and Geofabric watercourse layers
    - 250k watercourse layers (lines and polygons)
    - Drainage_SA
    - Drains_SA
    - River Murray polygon
  - Catchments
  - Surfacewater basins
  - Minor water storages
  - Mound Springs
  - 250k Waterpoints
  - 50k WaterSourcePoints
- State Groundwater datasets
  - Drillholes
  - Aquifers
  - Groundwater Basins
- State Administrative Boundaries
  - NRM Regions
  - Prescribed areas (water resource areas, surface water, groundwater, watercourses, notice of intent)
  - Groundwater networks
  - Water protection areas
  - Surface and groundwater management areas


References Link
References
Geography
Assets
Vulnerabilities
Vulnerabilities Link


Asset Dataset.mxd - ArcMap - ArcView
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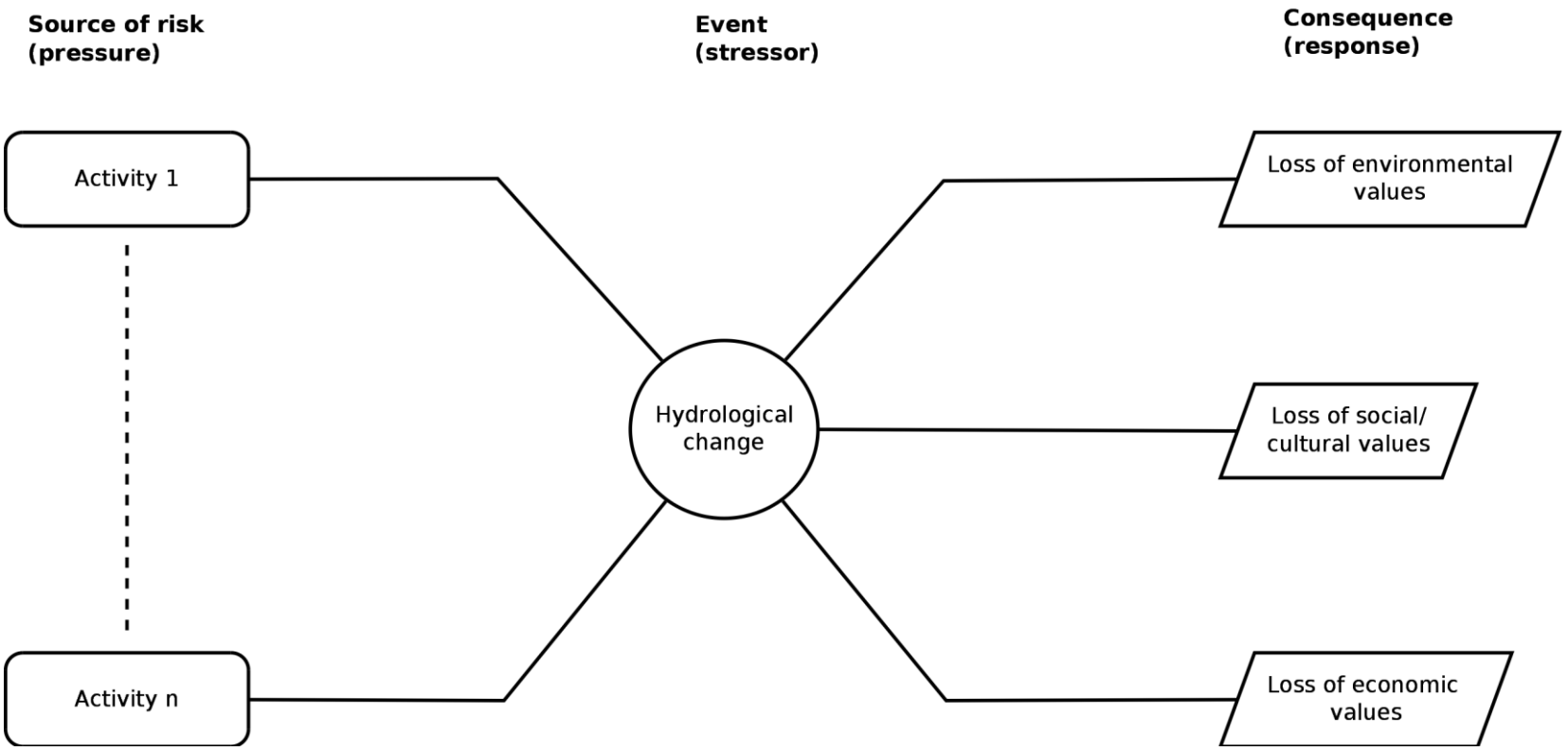
Water Asset Risk Model



Vulnerability assessment process

- For each asset class (i.e. water source/regime combo):
  - Expert panels rate potential impact for all activity/effect combinations
  - Confidence recorded for each impact rating
  - Miscellaneous notes, comments, references recorded for each vulnerability
- Vulnerabilities linked to assets through water source/ regime enabling interactive queries

Database Summary

- We built a spatially-enabled database
- Build database relationships between the points, lines and polygons and asset attributes and vulnerability assessment
- Capture and store a spatial representation (point, line, polygon) of the asset

ADVANTAGES / OUTCOMES:

- Definitions of a ‘Water Asset’
- Scalar concept for asset delineation
- Simplified data entry process
- Consistent asset description
- Better asset data
- Automated vulnerability assessment
- Greatly improved ability to query, analyse and report

Conclusions

NPA NRM data project vulnerability assessment:

- High level assessment based on:
  - NRM asset database attributes
  - agreed definitions for activities (pressures) and effects (stressors)
  - drawing on state and regional scientific knowledge
- Focus on hydrological vulnerability
- Simple 'lookup table' approach enabled timely delivery of consistent product