Insert" then choose "Picture" – select your picture.

Right click your picture and "Send to back".

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Simple Tools for Smart Results –
Spatial Data in a Digital Age

IAIA15 – Impact Assessment in the Digital Era – Florence, Italy

Alan N. Cochran
Spatial data and the digital age

How to navigate this maze of information and possibilities to find the approach that is fit-for-purpose?

Software Capability & Processing Power
Global Connectivity
Variety of Data Sources
Volumes of Analysis outputs and tools

Google Earth
LANDSAT
CNES SPOT Image
QuickBird

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Key Actions to get Smart Results from Simple Tools

- Determine Study Resolution
- Design the Study
- Capture and Integrate Data
Case study: Baynes Hydropower Plant SEA

Client: PJTC (Project Joint Technical Committee)
Location: Namibia & Angola
Sector: Power

- Development of a hydropower scheme on the Lower Cunene River (border between Angola and Namibia);
- Techno-economic study completed;
- ESIA nearing completion;
- Need to consider options for ancillary infrastructure for construction and operation of the project.
- SEA of ancillary infrastructure undertaken to support ESIA

SEA required to provide sufficient information to facilitate informed decision-making with regards to the environmental and social impacts of the overall project
Study Resolution

Field Surveys VS Desktop

Google Earth VS Purchase Satellite Imagery

■ High level understanding of what environmental and social features are potentially occurring and where they are in relation to the ancillary infrastructure (e.g. habitats or settlement types); and

■ Assessment of the potential sensitivity of the identified features to the proposed activities associated with the ancillary infrastructure
## Study Resolution

### Data Cost vs Coverage and Spatial Resolution

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Spatial Resolution</th>
<th>Data Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 387km²</td>
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<td>$794 836.00</td>
</tr>
<tr>
<td>12 290km²</td>
<td>0.5m</td>
<td>$344 120.00</td>
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<td>$41 904.64</td>
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<tr>
<td>12 290km²</td>
<td>5m</td>
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</tbody>
</table>

WorldView-2 Namibia
WorldView-2 Angola
SPOT 6 Namibia
SPOT 6 Angola
RapidEye Namibia
RapidEye Angola
Study Design

**Step 1:** Understand the location and nature of the ancillary infrastructure.

**Step 2:** Identification and characterisation of environmental and social sensitive features.
Specifically designed a mapping procedure employed by two specialists in each country (a social specialist and a biophysical specialist respectively).

- Designed for the project with the final outputs in mind and combined the use of Google Earth, Microsoft Excel, and finally ArcGIS.
Data Integration

Development of a detailed data capture system to ensure data integrity during transfer from Google Earth into ArcMap

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Results

Working data in ArcGIS

Report Map

Google Earth

Data Output

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Conclusions

Key Actions:

- Study Resolution
- Study Design
- Data Integration

Simple Tools:

- Local Expertise
- Freely available data and commonly used software

Smart Results:

- Cost Effective
- Time Efficient
- Fit for Purpose
- Flexible to Change

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728, Cochran, A.N. Cochran, 2015: *Simple tools, smart results – spatial data in a digital age*
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