Field Survey Planning in Remote Areas
Using Imagery and Route Analysis

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Agenda

- Project Overview
- Define Problem
- GIS Solution
- Conclusions
- Future Developments
Project Overview

- Environmental & Social Impact Assessment (ESIA) for Oil & Gas Development
- Multiple baseline field studies (due diligence, ecology, water resources)
- GIS critical throughout project lifecycle from planning through reporting
The Problem

“Identify survey locations and develop a journey management plan in accordance with stringent Health & Safety protocols for remote areas”

Project Delivery

- Visit representative sites to establish baseline environmental conditions

Health & Safety Protocols

- Pre-determined detailed trip itinerary
- Required rest stop locations, driving time limits, speed restrictions, daylight
- Avoid dangerous areas, road conditions

Efficiency

- Conduct field survey efficiently at lowest cost
The Solution: Project Delivery

**Identify Survey Sites**
- Acquire satellite imagery
- Share project data on web-GIS viewer
- Enable specialists to identify survey points

**Initial Route Planning**
- Are the sites accessible?
- How long will it take to get to them?
- Estimated total trip time: 4 days
The Solution: Health & Safety Restrictions

Building Network Dataset

- Digitized routes to sites from imagery
- Ensured connectivity to main road network
- Avoided potential vehicle hazards
- Assigned speed limits based on road surface
The Solution: Route Optimization

Health & Safety Requirements

■ Fixed start / stop times
■ Driving time limits

Route Optimization

■ Acceptable 3-day route identified
■ GIS database ready for route map and itinerary production
The Solution: Journey Documentation

Health & Safety Requirements

■ Paper maps of daily route
■ Tabular itinerary
■ Pre-loaded GPS for navigation

GIS Solutions

■ Data driven pages and map templates
■ Automated route calculation templates
■ GPS data export tool
Conclusions

Project Summary (8 Day Survey)
- 47 Survey Points
- 179 Road / Track Junctions
- 1500 Total GPS points
- 127 Survey and Route maps

Conclusions
- GIS web-viewer enhanced site selection
- GIS routing reduced survey days by 20%
- Cost savings covered GIS development
- Repeatable methodology for future surveys
Future Developments

■ Replacing manual field collection with tablets
  ■ Collector for ArcGIS App

■ Use custom road network for live navigation
  ■ Navigator App