IMPACT CANVAS EXAMPLE: FAULT ANALYSIS **GROUP**

The Fault Analysis Group (FAG) is a semi-autonomous research group within the School of Earth Sciences at University College Dublin. The group was founded in 1985 within the Department of Earth Sciences at the University of Liverpool and relocated to Dublin in June 2000.

Faults and fractures within the Earth's crust are often important factors in controlling natural resources such as minerals, gas, oil and water. The research objective of FAG is to understand all aspects of faulting and fracturing, including their impact on fluid flow in the Earth's subsurface. Such research helps to develop improved technical knowledge and innovative techniques to increase the success rate of resource exploration and production.

The broader field of geology in Ireland has recently had a fresh impetus through the SFI funded Irish Centre for Research in Applied Geosciences, or iCRAG. UCD is the lead University in iCRAG and Professor John Walsh from the School of Earth Sciences is Director of iCRAG and Joint Director of FAG. For more see: https://www.faultanalysis-group.ucd.ie/ and http://icragcentre.org/



UCD IMPACT PLANNING CANVAS

UCD RESEARCH & INNOVATION

CHALLENGE

What are the key research

Improve constraints and models of fault and fracture related processes

Develop a better understanding of faults and fractures affect fluid flow for:

- Minerals (including metals)
- Gas
- Oil
- Water

Security of supply of energy and water

Discovery and production of natural resources including minerals, gas, oil and water

RESPONSE

- Acquire, access and aggregate the best fault and fracture related data sets in the world from many sources (including field studies, government and industry)
- Analysis of data sets and the performance of high quality research for journal publications and for provision to government, industry and society

RESOURCES AND TEAM

- PhD students and Post-**Doctoral Fellows**
- Relevant Universities and Institutions globally
- National Geoscience-related organisations (GSI, EPA etc.)
- Industry Partners: oil, gas, mineral, water companies
- High quality data sets, knowhow and software techniques

UNIQUE VALUE PROPOSITION

What unique value will your research results bring to each beneficiary?

Direct Beneficiaries - Industry:

- More efficient discovery and production of resources i.e. less expensive
- Greater security of energy and natural resources
- Greater income/profits

Indirect Beneficiaries - Society:

- Security of energy and water supply - vital for society
- Discovery of minerals and resources leads to economic benefits/tax take

REACH AND ENGAGEMENT

- Regular engagement with public, government organisations and industry partners
- Attendance and presentations at technical conferences
- Industry-funded project steering committees
- Publications and software relevant to partners and beneficiaries



BENEFICIARIES

Who will benefit or use the results from your research?

Direct Beneficiaries:

- Academia: improved understanding of geological processes
- Industry: exploration companies looking for minerals, oil, gas & water



to the sector.

Economic: Direct jobs via partner company employment and secondary employment linked

Tax take by government. One gas field brings €4bn to €5bn in tax: 10 to 15 year time horizon.

Policy: Citations in policy documents

Scientific: High quality research publications in international journals

Environmental: Improved techniques for supply of clean water and diminishing environmental risks of geoscience-linked projects

Training: Number of PhDs and Post-Doctoral Fellows trained for academia, govt and industry

• Society: citizens, governments, companies

Indirect Beneficiaries:



FUNDING

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Funding and Sustainability:

- Industry funding long term basis from partner companies
- Irish government funding (direct)
- SFI

- International government funding (direct)
- European Funding (FP and
- Licensing income from software licenses



POTENTIAL IMPACT

What potential impact(s) will your research have? Cultural, Economic,

Economic:

Via industry and government

Political:

Citations to government policy documents

Scientific:

High quality fundamental and applied research

Environmental:

Improved knowledge for security of supply of clean water and for limiting any environmental risks associated with geoscience projects

Training:

PhDs and Post-Doctoral Fellows recruited by industry, positively impacting the competitiveness of those employers

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See related video at: www.ucd.ie/research/portal/impact