



Advancing ESG through Interdisciplinary Approach

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deepwater[™]
development consortium



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John G. Aronson

- Environmental Lead, Future Energy Partners, Ltd.
- President and Principal Advisor, ESG Resiliency Plus, LLC
- Over 5 decades of progressive environmental consulting experience
- Projects throughout the USA and in 50 countries worldwide
- Clients: Shell (Sakhalin Energy Investment Company, Sakhalin II, 12 years), Chevron (Tengiz, 7 years), Mobil Oil S.A. and Exxon Mobil (Peru, Venezuela, Indonesia, Argentina), Anadarko, ConocoPhillips, Govmt of Guyana, Myanmar, Marathon, et al.
- Global advocate of interdisciplinary approaches to solve complex problems, meet new ESG challenges
- Based in Windsor, Colorado, USA – Author, Speaker, ESG Advocate

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Modern ESG Approach

- ESG = Environment, Social, and Governance
- The key foundation for modern project development and acceptance
- Understand your ESG framework and communications
- Approaching ESG with broad interdisciplinary basis is important
- Key interdisciplinary components to be considered:
 - Physical
 - Chemical
 - Biological
 - Social
 - Regulatory
 - Engineering



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Challenges of Onshore and Offshore Oil & Gas

- Engaging projects using interdisciplinary understanding & approach
- Environmental & Social Impact and Risk Assessments – interdisciplinary
- Define zones of influence - sensitivity to local, regional, national, global
- Physical, chemical, biological, social, permitting, & engineering components
- Air and water quality, greenhouse gases, toxic chemicals, wastes
- Worker health & safety, community sensitivity and impacts, early consultations & representations (seeking Free, Prior, Informed Consent)
- Oil spill risk & impact analysis, response prep/equipment/training
- Higher complications with offshore operations (e.g., waste management, logistics, transportation, oceanographic conditions, oil spills, etc.)
- Using Ecological Approach for onshore and offshore biodiversity, broaden coverage beyond sentinel or T&E species, expand ecosystem knowledge



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Interdisciplinary Requirements

- Definition of the key elements being considered for ESIA (Environmental and Social Impact Assessment)
- Understanding the project from all aspects: physical, chemical, biological, and social, regulatory, engineering – broader is better
- Capacity within the governmental agencies and engaged organizations
- Optimizing communications with all parties, including communities
- Early data gap analysis, risk analysis, & comprehensive study designs
- Broad coverage for Environmental Monitoring and Management Programs- air, water, land, social, biodiversity, land use, pollution.



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Onshore versus Offshore

- Onshore: more existing infrastructure usually prevalent: roads, power, supplies, access by public
- Offshore: requires marine based activities and development
- Onshore: Higher risk of impact to established populations and activities
- Offshore: multiple issues concerning ocean ecology, especially direct discharges, and transport of oil spills to sensitive areas, including estuaries
- Offshore waste management complicated due to need for onshore treatment of some wastes unable to be directly discharged
- Offshore facilities considered as “point source ecosystem”



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Interdisciplinary Aspects of Social Consultation

- Initial consultations conducted early in the exploration process requires expertise, not just exploration geologists
- Expectations must be understood in great detail, requires considerable efforts in the field and with analysis
- Defining area of influence: local, regional, national, international
- Examples of allowing affected communities to define compensations
- Inclusion of the associated infrastructure components of projects
- Interdisciplinary means transport, energy, manpower, supplies, social
- Answer the age old question: “What’s in it for me?”
- Establish local presence and integration with the community



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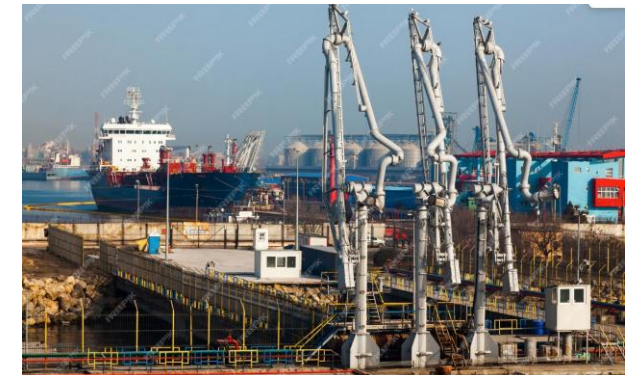
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Emerging Interdisciplinary ESG Challenges

1. **Environmental Sustainability:** Using data-driven models, such as advanced satellite monitoring and AI analytics, to mitigate environmental risks associated with oil and gas activities. Concerted waste management and oil spill technological support.
2. **Social Impact:** Collaborating with local communities and stakeholders to ensure equitable benefit-sharing, skill development, and long-term socio-economic advancement.
3. **Governance Excellence:** Building robust regulatory frameworks informed by best practices in transparency, anti-corruption measures, and stakeholder engagement from other resource-rich nations. Importance of local capacity building.



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Summary

- Interdisciplinary understanding of project and environs starts early
- Focus on compartments all interacting together – physical, chemical, biological, social, regulatory, engineering
- Engage communities using the interdisciplinary approach so they know where they fit into overall development strategy
- Offshore can be more challenging than onshore in most cases
- Know your impacts and risks from broad viewpoints and perspectives
- Interdisciplinary approach all along the project development path
- Break down silos and broaden communications with stakeholders



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