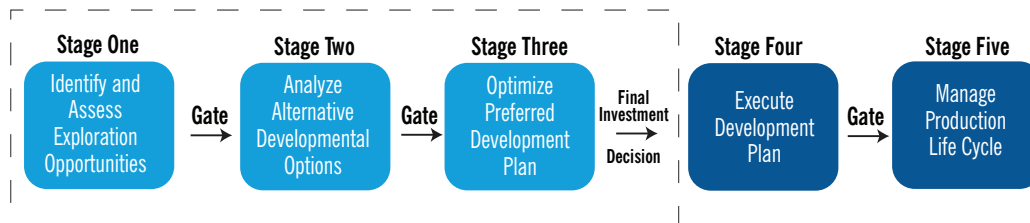




Offshore E&P Project Management Workshop

Program Objectives

The objective of this workshop is to review the commercial, technical, economic, and project management processes used by today's E&P specialist in exploring for and developing a challenging, deepwater offshore field, under a Production Sharing Contract (PSC). It covers all aspects of upstream project management, including concession terms; seismic program specification and results; exploration drilling decisions; field development planning including resource estimation, well and reservoir performance, uncertainty management, and project economics within the confines of the classical upstream project decision making process.



The five-step stage-gate management process as applied to E&P projects. This workshop focuses on Stages 1 to 3.

Instructional Format

In this program, learning takes place in a mentor-facilitated workshop environment where teams of participants methodically manage the exploration and development decisions on a deepwater offshore prospect in West Africa. During the business game, teams of participants make sequential decisions to move the prospect along a simulated timeline from the execution of the exploration agreement to the kick-off of a FEED study in support of Final Investment Decision (FID). However, the material presented will also look forward to future project phases through to the end of the production. Presentations are made by the participants to the IHRDC course mentors at key decision points during the week, and a comprehensive team presentation is made on their overall workflow, recommendations and expectations for field performance on the final day.

The major focus of the workshop is the Atlantica Business Game. Lectures are limited and are meant to provide overview, guidance, and subject reference materials for discussion as teams of participants make decisions in the various workshop sessions. Participants will be assigned pre-reading materials which will include: two modules of IHRDC's Petroleum Online e-Learning Series, introduction to the workshop, project economics presentation, and team dynamics guidelines.

Who Should Attend

This program is ideal for commercial and technology specialists who seek a practical understanding of the processes required to explore for and develop a challenging deepwater exploration prospect. Originally designed for the graduates of a major corporation's fast-track E&P development program, it incorporates all the skills needed by specialists to develop the subsurface plan for traditional and deepwater offshore prospects.

Program Location and Schedule

This program will begin on Monday morning with registration at 7:30AM and end Friday mid-afternoon. Participants may be asked to stay later on some of the first few evenings to complete workshop sessions. The final date and location will be decided at a later time.

PROGRAM CONTENT

Oil and Gas Value Chains, Project Formulation and Development Process

Oil and gas business fundamentals along the value chains; key steps and decisions in the formation and commercialization of an energy project; screening and feasibility analysis; design and development; key project agreements; financial and risk analysis; project management; project definition; resource scheduling, cost estimating; and project controls.

Seismic Overview

Real-life seismic program issues; acquisition design, planning, contracting, cost, timeline; processing options, contracting, cost, timeline; re-processing considerations.

Offshore Drilling Overview

Rig types, logistics; government regulations – permitting process; well design; environmental issues; data acquisition; pore pressure and fracture gradients; potential loss zones; possibility of H₂S or CO₂; type of mud system; P&A, T&A considerations.

Practical Reservoir Modeling Issues

Scope of reservoir engineering; reservoir modeling tools; model selection considerations; types of models; objectives of reservoir simulation; uncertainty management; probabilistic forecasting; simulation study components; building and selecting the right model; recent trends in reservoir modeling.

Managing Uncertainty in Field Development

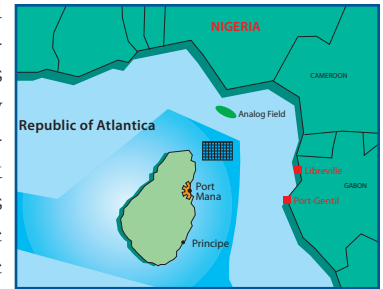
Decision making process and tools; reservoir management – team approach; subsurface uncertainty; uncertainties in surface facility and commercial operations; cumulative probability plots; Monte Carlo simulation; tornado diagrams; probabilistic forecasting; decision tree analysis; development planning; integrated reservoir characterization; portfolio management.

Offshore Well Completions

Extended reach drilling; well types; completion types (sand control issues); wet versus dry tree considerations; AFE preparation; corrosion issues and method for treating; production issues - wax/plugging issues, high viscosity, H₂S, CO₂; stimulation requirements; cased hole or open hole completions; perforation requirements; artificial lift; workover requirements; downhole pressure monitoring. Teams working on seismic decisions.

Atlantica: West Africa Offshore E&P Project Business Game

IHRDC's highly regarded all-digital project management workshop simulates a realistic E&P workflow as teams evaluate an exploration and development opportunity. Participants explore an offshore license area in the deepwater of the Republic of Atlantica, West Africa.



A production-sharing contract (PSC) has been negotiated with the Ministry, and your team has just been informed that it is to explore and, if feasible, develop viable prospects. At this point, you only have two old seismic lines across the license area that indicate the presence of some possible structures at the target formation. An analog field, just across the border in Nigeria, came on stream last year, and you have substantial information on its reservoir properties, well performance, development plan, production levels, and both capital and operating costs. You are provided with financial models and other technical tools to perform the necessary analysis on both deterministic and probabilistic bases. Now it is up to your team to use available capital, technology, and analysis tools, following the best practices of E&P project management. The team will perform high level analysis to help make the sequential decisions necessary to reach an optimal development plan for their deepwater play.

The sessions include:

- Review Atlantica exploration agreement.
- Tactical seismic acquisition decisions.
- Evaluate seismic results, select exploration well locations and data acquisition strategy.
- Design, plan and specify appraisal wells.
- Identify and evaluate field development alternatives.
- Study gas utilization options.
- Analyze and optimize development well design options.
- Study field development plan under primary depletion.
- Study the impact of improved recovery on field development plans, costs and economics.
- Specify the preferred integrated field development plan.
- Prepare optimal sub-surface field development plan for management approval.
- Review the economic indicators and delineation results and prepare team presentations.

INSTRUCTORS



Dr. Y. Serdar Dogulu is a Senior Technical Specialist at IHRDC. He is currently involved in the content development of interactive learning and training products. Dr. Dogulu has developed and taught several company-sponsored technical courses. He is also actively involved in technical and financial modeling studies of natural gas underground storage projects. After earning his Ph.D. degree in Petroleum and Natural Gas Engineering from the Pennsylvania State University, he held a post-doctoral researcher position with the Energy and Geo-Environmental Engineering Department at Penn State. His areas of interest include numerical simulation and reservoir characterization. His research on perforated completions led to the development of several fluid flow models that are used to predict the production performance of damaged oil and gas well completions. During his graduate studies he spent a summer as a Research Technologist at the Chevron Petroleum Technology Company developing reservoir simulation and management tools including stream-tube techniques for modeling large oil reservoirs.



Bob Pearson is a Petroleum Engineering Advisor and Managing Director of E&P Technologies -Training, a Singapore-based company focused on three core areas: unconventional oil and gas E&P technology transfer, Business Opportunities involving state-of-the-art productivity or recovery enhancement technologies, and provision of Technical Training Services. He began his career in 1970 as a Production and Well Engineer with Shell International in Southeast Asia and the North Sea, and later worked for Petro-Canada in Western Canada and the Canadian Frontiers. In 1983, he began consulting with APA Petroleum Engineering Inc (now part of RPS Energy Canada Ltd). In 2007, Bob returned to Singapore, first as the Operational Director of the RPS Energy consulting team and then for CBM/CSG Services before establishing E&P Technologies–Training in late 2009. In recent years, he has been heavily involved in subsurface peer reviews and development plan audits for major Unconventional and Frontier Projects on behalf of both operators and lenders. He has been a Distinguished Lecturer for the SPE and the Canadian Section (formerly the Petroleum Society of CIM) and is a Registered Professional Engineer with APEGGA in Alberta, Canada; and a member of the SPE.