

# Pengembangan model natural resources management untuk pengembangan blok migas Natuna Timur guna mencapai sasaran eksploitasi migas yang berkelanjutan = Development of natural resources management model for development of East Natuna gas field to achieving targets of sustainable exploitation of oil and gas

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## Abstrak

Terus meningkatnya kebutuhan gas bumi di Indonesia perlu dipenuhi dengan mengeksplorasi lapangan-lapangan gas bumi yang baru, termasuk lapangan Natuna Timur. Namun pemanfaatan lapangan gas ini menghadapi tantangan yang besar berupa kadar CO<sub>2</sub> yang tinggi 71 dan lokasi lapangan lepas pantai yang jauh dari konsumen, sehingga menimbulkan kebutuhan biaya investasi yang besar, sekitar US 27 miliar. Agar pengembangan lapangan Natuna Timur layak secara ekonomi, penelitian ini antara lain fokus pada perlunya pemberian insentif bagi hasil dan insentif fiskal kepada kontraktor kontrak kerja sama KKKS. Selain itu, pengembangan lapangan perlu dilakukan sesuai prinsip pengelolaan sumber daya alam natural resources management, NRM yang berkelanjutan melalui penerapan skema dana migas petroleum fund, PF. Kelayakan penerapan skema dana migas, berupa alokasi persentasi tertentu dari bagian negara government take, GT, dievaluasi menggunakan metode multi-criteria decision analysis MCDA berdasarkan model Preference Ranking Organization Method for Enrichment Evaluation PROMETHEE. Untuk memperoleh nilai PF yang terbaik, keempat alternatif PF yakni Alternatif 1 0 GT, Alternatif 2 10 GT, Alternatif 3 15 GT dan Alternatif 4 25 GT dianalisis dan diperbandingkan berdasarkan empat kriteria utama berupa aspek-aspek teknis, ekonomi, lingkungan, dan sosial-politik.

Hasil penelitian menunjukkan untuk mencapai nilai IRR proyek Natuna minimum 12, pemerintah perlu menawarkan pola bagi hasil 55 :45, tax holiday selama 10 tahun dan nilai first trench petroleum 10, serta toll-fee pipa gas Natuna-Cirebon sebesar US 2,3/MMBtu. Penerapan dana migas untuk pengembangan lapangan Natuna Timur yang berkelanjutan adalah relevan dan layak dilanjutkan, dimana Alternatif 4 25 GT merupakan pilihan yang paling baik. Pilihan tersebut memiliki dampak positif pada penciptaan lapangan kerja, pengurangan emisi gas rumah kaca, dan perolehan dukungan publik, serta pada peningkatan cadangan terbukti migas dan kapasitas terpasang pembangkit listrik tenaga panas bumi. Namun, kelemahan alternatif ini terletak pada aspek ekonomi, seperti pengurangan pendapatan pemerintah GT dan potensi kenaikan utang negara, serta pada aspek sosial-politik berupa potensi sikap keberatan pemerintah government resistance atas penerapan skema PF. Penelitian ini menawarkan solusi bagi para pembuat kebijakan, termasuk di negara lain, ketika dihadapkan dengan kompleksitas pengelolaan pendapatan migas, terutama berkaitan dengan pemanfaatan sumber daya alam yang berkelanjutan.

.....The East Natuna gas field in Indonesia has reserves of 46 trillion cubic feet thus, it should be developed to meet the increasing natural gas demand of Indonesia. The high CO<sub>2</sub> content and the offshore location of the gas reserves require development costs of around US 27 billion. This research investigates the techno economic feasibility of the gas field development by offering profit split and fiscal incentives. It also studies the sustainable development of the field through the implementation of natural resource management, using a multi criteria decision analysis method, namely the preference ranking organisation method for enrichment

of evaluations PROMETHEE. The concept of natural resource management NRM is represented by the implementation of a petroleum fund. As such, four alternatives to petroleum funds are considered, based on the government's take GT associated with each, namely Alternative 1 0 GT, Alternative 2 10 GT, Alternative 3 15 GT dan Alternative 4 25 GT. Moreover, an assessment model to compare and appraise these alternatives against sustainable development criteria derived from technical, economic, environmental, and socio political aspects.

The results show that to achieve minimum IRR value of 12, the government needs to offer incentives of 30 year contract period, profit sharing of 55 45, first tranche petroleum to 10, and tax holiday of 10 years. Toll fee for Natuna Cirebon pipeline is US 2.3 MMBTU at IRR of 12.6. Further, adopting a petroleum fund scheme to achieve sustainable development is both relevant and feasible. In addition, employing 25 of the government's revenue towards this fund is found to be the most preferable choice. Such an option would have positive impacts on the creation of jobs, reduction of greenhouse gas emissions, and gaining of public support, as well as on the increase of petroleum reserves and installed capacity of geothermal power plants. However, the downside of this alternative lies in the economic aspects, such as the reduction of government revenues and potential increase in government debt that lead to government resistance. This study could offer valuable insights to policymakers elsewhere, when confronted with the complexity of managing petroleum revenues, especially with regard to the sustainable use of natural resources.