

Dinamika sistem distribusi minyak solar dalam situasi kelangkaan : studi kasus di Jawa Timur

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Abstrak

Penelitian ini bertujuan untuk memahami fenomena kelangkaan minyak solar di Indonesia dengan studi kasus di Jawa Timur. Distribusi minyak solar, menyimpan dinamika kompleksitas yang tinggi dengan adanya keterkaitan banyak faktor dan kepentingan. Sebagai mata rantai dalam sistem saluran distribusi fisik, Distributor mengutamakan volume dan waktu pasokan untuk persediaan guna menjaga kelancaran distribusi. Sedangkan faktor yang non fisik dari konsumen adalah faktor ketersediaan (availability), dan bagi penyeleweng adalah faktor keuntungan (profitability). Faktor-faktor tersebut akan menjadi dinamis dan menyebabkan kelangkaan bila faktor volume dan waktu pasok terganggu. Hal tersebut dianalisis dengan menggunakan dinamika sistem (system dynamics) dan QPID (qualitative politicised influence diagram) serta pilihan rasional (rational choice). Untuk memahami mental models ini digunakan gagasan teori pilihan rasional (rational choice theory) yang menjelaskan mengapa dinamika sistem distribusi minyak solar mudah berfluktuasi dan menimbulkan kepanikan masyarakat, penimbunan, pengoplosan, dan penyelundupan.

Fenomena kelangkaan minyak solar di Jawa Timur dapat dipahami melalui model dinamika sistem distribusi dan mental model para aktornya. Ada empat subsistem dalam dinamika sistem distribusinya yang digambarkan melalui causal loop diagram, yaitu: (1) Subsistem pengadaan dengan mental model menjaga keseimbangan antara pengadaan dan permintaan minyak solar; (2) Subsistem konsumsi dengan mental model menjaga ketersediaan dan menekan biaya bahan bakar minyak solar bagi dirinya; (3) Subsistem pengawasan dengan mental model mencari keuntungan melalui keseimbangan antara sanksi hukum dan keuntungan ekonomi yang bisa diperoleh; dan (4) Subsistem penyelewengan dengan mental model mencari keuntungan ekonomi semata. Selain faktor fisik dan non fisik tersebut, faktor penting lainnya yang ikut mendorong sistem distribusi menjadi semakin kompleks dan sulit dikendalikan, ialah disparitas harga beberapa jenis BBM bersubsidi, yaitu premium, solar, dan minyak tanah.

Secara simultan, faktor-faktor itu menjadi leverage dinamika sistem distribusi minyak solar. Artinya, ketika salah satu faktor tersebut berubah maka lima sub sistem akan berinteraksi dinamis sehingga memunculkan kejadian-kejadian seperti: harga minyak solar melambung, penegakan hukum melemah, pengoplosan meningkat, kolusi bertambah, dan menurunnya kegiatan produksi. Disertasi ini mengusulkan model solusi penanggulangan kelangkaan minyak solar dapat didasarkan pada skenario simulasi model solusi.

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This study is aimed to understand the phenomenon of diesel fuel oil scarcity in Indonesia based on a case study in the East Java. The diesel fuel oil distribution conceals the high complexity of dynamics due to its connection to various factors and interests respectively. As the links within the channel system of physical distribution, the distributor pays his main attention to the volume and supplying time for the availability aimed at maintaining the distribution smoothness. In the meantime, non-physical factors in terms of

consumers is the availability while for the embezzlers is the profitability. Those factors will become dynamics and will result in the scarcity if the volume factor as well as supplying time is hampered. Those factors are analyzed by means of system dynamics and QPID or quantitative politicized influence diagram and rational choice. To understand these mental models we make use of rational choice theory which explains on how the system dynamics of diesel fuel oil distribution might easily fluctuate and cause panics among the society, and will result in piling up, mixing up with other products and smuggling of the product itself.

The phenomenon of diesel fuel oil scarcity in the East Java is understandable through distributional model of system dynamics as well as mental model of the agents. There are four subsystems within the system dynamics of its distribution as described through the causal loop diagrams namely: (1) The subsystem of the availability with mental model which maintains the equilibrium between the availability and diesel fuel oil demand; (2) The subsystem of consumption with mental model which maintains the availability and suppresses the cost of diesel fuel oil for himself; (3) The subsystem of monitoring with mental model which tries to gain profit through the equilibrium between the legal sanction and the economic profit which might be gained; and (4) The subsystem of the embezzlement with the mental model which searches for merely the economic profit. Beside of the physical and non-physical factors, another important factor contributing to the more complicated system of distribution and more difficult condition to overcome is the price disparity among a number of subsidized fuel oils namely premium, diesel fuel oil, and kerosene.

Simultaneously, those factors become the leverage of system dynamics for diesel fuel oil distribution, which means that when one of those factors is changing, the other four subsystems will interact dynamically leading to the happening of various things such as follows: diesel fuel oil price will soar up, law enforcement will decline, the mixing of the oil with other products will be increasing, collusion will grow up, while production activities will decline. This dissertation proposes for the solution model aimed at overcoming the scarcity of diesel fuel oil based on the scenario simulation in order to develop a solution model.