

Perancangan ulang model pendanaan extended producer responsibility untuk limbah elektronik dengan metode system dynamics-studi kasus di Taiwan = Redesigning extended producer responsibility based fund model for waste electrical and electronic equipment systems using system dynamics-a case study in Taiwan

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Abstrak

Kemajuan teknologi saat ini berkembang sangat pesat dan menyebabkan meningkatnya konsumsi produk elektronik. Namun, hal tersebut menimbulkan tantangan baru yaitu peningkatan limbah elektronik. Banyak negara yang telah mengadaptasi kebijakan Extended Producer Responsibility untuk melindungi lingkungan dari pencemaran limbah elektronik. Di Taiwan, kebijakan Extended Producer Responsibility telah ditetapkan sejak 1998 di bawah 4-in-1 Recycling Program dan evaluasi kebijakan tetap dilakukan secara terus menerus untuk mendapatkan kebijakan yang lebih baik. Saat ini, ketidak seimbangan model pendanaan Extended Producer Responsibility terjadi dan dapat merugikan pihak tertentu. Keterlibatan banyak pihak yaitu produsen, pemerintah, industri daur ulang dan konsumen mengakibatkan kompleksitas untuk kebijakan pengelolaan limbah elektronik semakin tinggi. Oleh karena itu, penelitian ini mengusulkan untuk melakukan perancangan ulang model pendanaan Extended Producer Responsibility untuk memastikan profitabilitas dalam sistem pengelolaan limbah elektronik di Taiwan menggunakan metode system dynamics. Berdasarkan hasil penelitian, trade-off antar banyak pihak dapat terjadi dalam penerapan kebijakan pengelolaan limbah elektronik. Berdasarkan model yang diusulkan, kebijakan Extended Producer Responsibility telah disimulasikan dan dapat diadopsi untuk memaksimalkan keuntungan produsen dan industri daur ulang tanpa pemerintah dan konsumen.

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The technology advancement in this era is growing rapidly and cause the increasing consumption of the electrical and electronic product. Nonetheless, it deals with other problems, Waste Electrical and Electronic Equipment (WEEE) increase. Many countries promote producer responsibility to protect the environment. For instance, in Taiwan, the Extended Producer Responsibility (EPR) policy that is responsible for managing waste electrical and electronic equipment has already established since 1998 called 4-in-1 Recycling Program and continuous review is still conducted to obtain a better policy. In addition, the unbalance recycling fund mode between recycling fee and recycling subsidy is appeared in implementation by this country. Due to the high complexity of multiple parties among manufacturer, recycling industries, consumers and government in such eco-system, this study proposed a new EPR-based fund mode to ensure the profitability of WEEE management using system dynamics. A case study is investigated in Taiwan. According to our study, a trade-off between the multiple agents appeared. Based on the present model, the best policy can be simulated and adopted to maximize manufacturer and recycling industries profit without harming other stakeholders.