Model Ketahanan Suplai Air Bersih Masyarakat Perkotaan = Model of Urban Household Water Supply Security

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Abstrak

Ketahanan suplai air merupakan jumlah air tersedia per kapita dalam menghadapi berbagai risiko. Ciracas mengalami peningkatan rerata curah hujan tahunan yang tidak signifikan, berbeda dengan temperatur udara dan lahan terbangun sehingga mempengaruhi ketersediaan air tanah. Air perpipaan menghadapi risiko sedikitnya laju penambahan volume dan ATR. Selain itu, persepsi risiko dan status sosial ekonomi mengakibatkan perbedaan tiap kebutuhan. Tujuan penelitian adalah menganalisis variabel-variabel tersebut serta merumuskan model ketahanan suplai air masyarakat. Metodenya menggunakan statistical downscaling, regresi logistik, perhitungan matematis dan System Dynamics. Hasil penelitian menunjukkan bahwa curah hujan cenderung menurun dan temperatur udara meningkat dan terdapat faktor dalam persepsi risiko dan status sosial ekonomi yang menyebabkan perbedaan kebutuhan. Koefisien runoff akibat lahan terbangun menyebabkan ketersediaan air tanah berkurang, sedangkan ketersediaan air perpipaan meningkat namun tidak signifikan karena ATR serta kurangnya laju penambahan volume. Model terbaik adalah intervensi gabungan yakni mengurangi koefisien runoff dan ATR serta meningkatkan volume dan pertumbuhan pelanggan.

.....Water supply security is the amount of water available per capita facing various risks. Ciracas experienced an insignificant increase in average annual rainfall compared to air temperature and built-up land, affecting groundwater availability. Piped water faces less volume addition rate and NRW. While perceptions of risk and socioeconomic status result in different needs. The research aims to analyze these variables and formulate urban household water supply security. The method used are statistical downscaling, logistic regression, mathematical calculations and System Dynamics. The results showed that rainfall tends to decrease, air temperature increases, and risk perception and socioeconomic status factor cause differences in needs. The runoff coefficient due to built-up land causes the decrease of groundwater, while piped water increases insignificantly due to NRW and lack of addition rate. The best model is a combined intervention of reducing the runoff coefficient and NRW and increasing the volume and customer growth rate.