

# Dampak industri pada kualitas irigasi di daerah Bekasi = The Impact of industry on the irrigation quality in the Bekasi Region

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## Abstrak

### <b>ABSTRAK</b>

Daerah Bekasi pusat pertanian tanaman pangan dan industri di Jawa Barat. Akan tetapi peran pertanian akan terganggu oleh kehadiran industri, yang mengakibatkan keseimbangan air untuk lahan terganggu. Oleh karena itu, faktor dampak industri yang berakibat pada kualitas irigasi akan diteliti, untuk dikelola bagi pertanian.

Dalam rangka tersebut, pokok penelitian meliputi a) debit dan kualitas air sebagai variabel kualitas irigasi, kebutuhan air dan air limbah sebagai variabel dampak industri, serta dampak kualitas irigasi pada lahan sawah dan produksi sebagai variabel produktivitas lahan, b) korelasi antara kebutuhan air dan air limbah industri dengan kualitas irigasi, c) korelasi antara kualitas irigasi dengan pemberian air untuk lahan.

Sehubungan dengan korelasi antara variabel diatas, dirumuskan dua hipotesis sebagai berikut :

- 1) Penurunan debit air dari sistem irigasi ada korelasinya dengan pemasokan air irigasi untuk industri, jika air limbahnya dibuang ke sistem drainasi.
- 2) Penurunan pemberian air untuk lahan tidak ada korelasinya dengan penurunan debit air irigasi dari sistem irigasi, jika kebutuhan air untuk industri dipenuhi dari air tanah.

Dengan menggunakan data perkembangan industri, kualitas irigasi dan produktivitas lahan pada MT Gadu dalam kurun waktu 9 tahun (thn 1983-1991), diduga ada korelasi antara kebutuhanair dan air limbah industri dengan perubahan kualitas irigasi. Indikasinya, intensitas tanam 65,5 persen (38.313 ha), produktivitasnya 6,68 ton/ha, pemberian airnya 12,685 m<sup>3</sup>/det, lahan kurang air 17,2 persen karena debit air irigasi menurun 0,21 persen dari 44.940 m<sup>3</sup>/det, akibat air limbah industri 56,8 persen dari pemasokan airnya (0,167 m<sup>3</sup>}/det) dibuang ke sistem drainasi. Kualitas air irigasi khususnya S Bekasi meningkat sebagai dampak Prokasih.

Data diungkapkan secara deskriptif dari hasil registrasi instansi terkait.

Pengumpulan data dilakukan dengan pengambilan sampel air 10 titik sampling termasuk 2 titik sampling limbah industri, 25 unit industri untuk pemasokan airnya dan 21 responden untuk produktivitas lahan (metoda cluster). Pengujian hipotesis dengan analisis statistik, menggunakan variabel kebutuhan air dan air limbah industri, debit air irigasi dan pemberian air untuk lahan.

Hasil analisis data memperlihatkan, 1) Dampak industri pada kualitas irigasi, adalah sebagai akibat pemasokan air untuk industri tersebut dari sistem irigasi yang lebih besar dari air limbah yang dialirkan ke sistem tersebut, sehingga debit air irigasi menurun (0,21 persen) dan kualitas air S Bekasi menurun (2,6 persen) (non significant); 2) Dampak kualitas irigasi pada produktivitas lahan, sebagai akibat penurunan debit air irigasi (1,51 persen) hingga pemberian air untuk lahan menurun (significant). Akibatnya, lahan

kurang air (27,9 persen) dan produktivitas lahan menurun (12,3 persen).

Air limbah sebagai faktor dampak industri diharapkan dapat dimanfaatkan lagi dan diprioritaskan untuk dikelola dengan baik agar memenuhi sebagai air irigasi namun pelaksanaannya relatif sulit. Dampak lebih jauh swasembada pangan dan kebutuhan air wilayah Barat akan terganggu, karena peruntukan air untuk industri meningkat menjadi 5,2 m<sup>3</sup>/det. Diversifikasi tanaman tahunan hemat air berpeluang, untuk mempertahankan kualitas irigasi dan swasembada pangan, tetapi timbul tantangan karena produknya berbeda dengan beras.

Kesimpulan yang diberikan, akibat air limbah industri yang cenderung dibuang ke sistem drainase adalah terjadinya penurunan kualitas irigasi (debit dan kualitas airnya). Akibatnya pemberian air untuk lahan menurun, swasembada pangan dan kebutuhan air wilayah Barat terganggu. Diversifikasi tanaman tahunan hemat air berpeluang, untuk mengatasi masalah kualitas irigasi dan swasembada pangan, hanya kualitas produknya perlu disesuaikan agar setara dengan beras.

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**ABSTRACT**

Bekasi region is the center of food crops agriculture and industry in West-Java. The agriculture role will be disturbed with the presence of industry and which is also important for the regional economy, due to the disturbance of the water balance for land plots. Therefore, the factor of the industry impact on the quality of irrigation will be surveyed, in order to be able to be managed for irrigation (agriculture).

In said frame, the priority of research shall cover : a) the discharge and quality of water as a variable of irrigation quality, the requirement of water and waste water as a variable industrial impact and the impact on the irrigation quality on rice fields and production as a variable of the land plot's productivity, b) the correlation between the requirement of water and industrial waste water with the irrigation quality, c) the correlation between the quality of irrigation with the discharge of water for land plots. In relation to the correlation between the variables above, two hypothesis are formulates as follows :

- 1) The declination of the water discharge of irrigation has its correlation with the supply of the water for the industry of the irrigation system, if its waste water to be disposed to the drainage system,
- 2) The decrease of the water supply for the land plots has no correlation with the decline of the irrigation water discharge of the irrigation system, if the need of water for the industry is fulfilled from ground water.

By using the industrial development data, the irrigation quality and land productivity at MT Gadu in the duration of 9 (nine) years (year 1983-1991), at is guessed that there is a correlation between the need of water and industrial waste water and the change of the irrigation quality.

Its indication comprises the intensity of planting 65.5 percent (38,313 ha), its productivity : 6.68 ton/ha, the discharge of its water : 12.685 m<sup>3</sup>/sec, land plots with insufficient water : 17.2 percent as the irrigation water discharge decreases with 0.21 percent of 44.940 m<sup>3</sup>/sec, consequence of industrial waste water : 56.8 percent of its water supply (0.167 m<sup>3</sup>/sec) is disposed to the drainage system. The quality of the irrigation water particularly Bekasi river increases as the impact of Prokasih (Clean River Program). The data are revealed descriptively based on the results of registration of linked government agencies.

The collection of data shall be conducted with the sampling of 10 points of water samplings including the 2 points of industrial waste samplings, 25 industrial units for the supply of its water and 21 respondents for the land productivity (cluster method). The testing of the hypothesis with the statistic analysis, uses variables on the requirement of water and industrial waste water, irrigation water discharge and the discharge of water for the land plots.

The results on analysis of data shows, 1) The industrial impact on the irrigation quality is as the consequence of the water supply for said industry of the irrigation system which is larger than a waste water which is discharged to said system, so that the irrigation water discharge -decreases of (0.21 percent) and the quality of the water of Bekasi River declines (2.6 percent) (non significant) ; 2) The impact of the quality of irrigation on the productivity of land plots, as the consequence of the decrease of the water discharge of irrigation (1.51 percent) so that the discharge of water for land plots declines (significant). The consequence thereof is that the land plots with insufficient water (27.9 percent) and the productivity of land plots decreases (12.3 percent).

Waste water as the factor of industrial impact is expected to be able to be made use of and priority is given to be managed well in order to fulfill the purpose as irrigation water but its implementation is relatively difficult. The further impact of self-supporting food and the need of water for the Western territory will be disturbed, because of the allocation of water for industry increases to 5.2 m<sup>3</sup>/sec. The diversification of annual plants which do not require much water shall have the opportunity to maintain the irrigation quality and self-supporting on food, but challenge will arise as its production differs from rice.

The conclusion given, that the consequence of industrial waste water which has the tendency to be discharged into the drainage system shall be the decrease of the quality of irrigation (its water discharge and quality). The consequence thereof is that the discharge of water for land plots decreases, the self-supporting of food and the need of water for the Western territory becomes disturbed. The diversification of annual plants which do not need much water shall have the opportunity to overcome the problem of the quality of irrigation and the self-supporting of food, only the quality of its production should be adjusted in order that it is equal to rice.</i>