

RINGKASAN

Pulau Jawa yang luasnya hanya 7% dari luas Indonesia menampung lebih dari 60% seluruh jumlah penduduk Indonesia. Meskipun tingkat pertambahan penduduk pulau Jawa lebih rendah dari tingkat pertambahan penduduk pulau-pulau lain, namun karena penduduk pulau Jawa sudah sangat padat pertambahan tersebut akan membawa dampak baik fisik sosial maupun ekonomi. Pertambahan penduduk memerlukan pertambahan bahan makanan, tempat tinggal dan kebutuhan hidup lainnya, sedang kebutuhan-kebutuhan tersebut bagi petani diperoleh dari hasil lahannya, pada hal lahan yang ada tidak bertambah bahkan ada kecenderungan berkurang. Sebagai akibat lahan yang ada telah diolah di luar kemampuannya bahkan lahan-lahan di tempat yang sangat miring yang tidak cocok untuk pertanian telah diolah tanpa ada usaha-usaha pengawetan lahan, sehingga timbul dampak berupa erosi, banjir dan kekeringan yang menyebabkan produktivitas lahan menjadi menurun. Karena di satu pihak lahan tidak bertambah dan di pihak lain penduduk selalu bertambah maka pada suatu saat daya dukung lingkungannya akan terlampaui.

Penelitian ini bertujuan untuk memperkirakan besarnya daya dukung lahan pertanian, yaitu lahan sawah dan lahan kering lainnya tidak termasuk lahan pekarangan. Hasil penelitian ini diharapkan dapat digunakan untuk





mengambil langkah-langkah dalam kebijaksanaan kependudukan.

Lokasi penelitian ini ada di daerah aliran (DAS) Samin, suatu daerah aliran sungai yang terletak di bekas karesidenan Surakarta membujur ke barat dari gunung Lawu sampai bermuara di sungai Bengawan Solo dekat kota Surakarta. Daerah aliran ini lebarnya 7 Km dan panjangnya 39 Km dan meliputi sebagian kabupaten Karanganyar dan kabupaten Sukoharjo.

Data yang digunakan dalam penelitian ini terutama data sekunder, dilengkapi dengan data primer. Data sekunder diperoleh dari kantor pengembangan daerah aliran sungai Bengawan Solo hulu, kantor Dinas Pertanian Rakyat dan kantor Statistik kabupaten Karanganyar dan Sukoharjo. Data-data yang diambil antara lain data penduduk, tata guna lahan luas panen, produksi rata-rata dan produksi total hasil pertanian bahan makanan. Data primer diperoleh melalui wawancara dengan para pejabat yang berhubungan dengan pertanian dan dengan para petani.

Analisis daya dukung dilakukan dengan pendekatan kebutuhan kalori dimana sebagai kebutuhan kalori standar dipakai angka 2100 kalori per orang per hari. Untuk maksud tersebut semua hasil bahan makanan pokok dikonversi menjadi kalori dengan menggunakan tabel konversi.

Hasil penelitian ini menyatakan bahwa produktivitas lahan pertanian DAS Samin selama 12 tahun naik turun sepanjang tahun dengan rata-rata $9,27 \times 10^6$ kalori. Dengan



katan pendapatan masyarakat. Langkah-langkah yang dianjurkan untuk peningkatan pendapatan ini antara lain dengan intensifikasi pertanian termasuk di dalamnya diversifikasi tanaman pertanian, intensifikasi pekarangan dengan mengganti tanaman-tanaman tidak berharga dengan tanaman-tanaman berharga, peningkatan peternakan dan perikanan serta peningkatan industri rumah tangga. Disamping itu agar daya dukungnya dapat dipertahankan maka perlu adanya pengendalian kependudukan. Hal ini dapat ditampuh dengan peningkatan program keluarga berencana dan penerangan-penerangan program transmigrasi. Yang tidak kalah pentingnya adalah peningkatan pendidikan baik bagi anak-anak maupun orang tua.

Daya dukung dalam penelitian ini hanya menyangkut daya dukung lahan pertanian. Untuk menghitung daya dukung wilayah perlu diperhitungkan semua aspek pendapatan masyarakat. Untuk itu agar daya dukung wilayah dapat ditentukan dengan teliti perlu adanya penelitian yang lebih intensif yang memperhitungkan semua aspek yang berhubungan dengan daya dukung.

Summary

The island of Java with an area of only 7% of the whole area of Indonesia is occupied by more than 60% of the population of Indonesia. Although the population growth rate of Java is lower than the growth rate of the outer Java islands, however, because the population density in Java is very high, the growth of population in Java will bring serious impacts not only on the physical impacts but also on the social and economic impacts as well.

Population growth needs the growth of food, houses and other needs. For the farmers such needs will be fulfilled by the production of their land, but the existing land is not increased, however, tends to decrease because of the development of towns, infra-structures, industries and so on. As a result the existing agricultural land has been cultivated over its capability, even lands with heavy topography and not suitable for agriculture have been cultivated without efforts of water and soil conservation. As a result there will be serious impacts such as erosion, flood, and severe drought, so that the agricultural land productivity is low. Because the land is fixed or decrease in size on the other hand the population always increases, at the moment the carrying capacity of the land will be exceeded.



This theses aims to estimate the agricultural land carrying capacity of the Kali Samin Watershed, that is the carrying capacity of sawah (wet rice field) and other dry lands not included pekarangans (home gardens).

The location of this research was in the Kali Samin Watershed area, on the eastern part of Surakarta Residency and covers parts of the Regency of Karanganyar and Sukoharjo. This watershed is approximately 7 Km wide and 39 Km long, stretched lengthwise westward from Mount Lawu and meet Bengawan Solo 5 Km South of Surakarta City.

The data used in this theses are secondary data and primary ones. Secondary data were collected from the Watershed Development Project in Surakarta, the Agricultural Service and the Office of Statistics of Sukoharjo and Karanganyar Regency. The data collected were population condition, land use and agricultural production. The primary data were collected by interviewing the farmers and the governmental official working on agricultural matters.

The carrying capacity analysis was approached by the total calory needed by aperson with a calory standard of 2100 calories per capita per day, For this purpose all main agricultural production are coverted into calories using a conversion table.

The result of this research shows that the agricultural land production fluctuated during 12 years with an average of $9,27 \times 10^6$ calories. With the existing pro-

ductivity the carrying capacity also fluctuated in accordance with the amount of land production. The lowest carrying capacity occurred in 1975 and the highest occurred in 1983, with the amount of 789 and 1799 persons per square Km respectively. The average in the last 12 years was 1209 persons per square Km with a growth rate of 7,46% annually.

As a whole the carrying capacity of the Kali Samin watershed has been exceeded. But if we look at every sub district (Kecamatan) there are six sub districts namely Karanganyar, Jumapolo, Jatiyoso, Polokarto, Bendosari and Grogol which carrying capacity are still higher than the needs of the existing population. Four other sub districts which are Tawangmangu, Matesih, Jumanthone and Mojolaban the existing population have exceeded the carrying capacity.

The problem of the existing agricultural land can be solved by increasing the land productivity. Its carrying capacity can be increased 10%, meeting the needs of 1330 persons per square Km instead of 1209 persons per square Km. In other words the productivity should be increased from $9,27 \times 10^6$ calories to $10,2 \times 10^6$ calories. Such productivity has been reached during the last four years of 1980 to 1983.

If the calory need is expended 10% to meet the need of 2330 calories in stead of 2100 calories per person per

day, to get the fixed carrying capacity of 1209 person per square Km, the land productivity should be increased to $10,2 \times 10^6$ calories. Besides improving land productivity as mention above, the carrying capacity can be made greater by increasing their social income. The suggested step to reach this income are for example (a) by agricultural intensification including plant diversification, (b) home garden intensification by replacing less valuable trees with more valuable trees, (c) cattle and fish breeding intensification and (d) home industries.

In order that the carrying capacity can be maintained it is important to fix the number of people. This problem can be solved by the implementation of family planning programs, transmigration and education.

The carrying capacity in this theses is only concerned with the agricultural land carrying capacity. To estimate the real one it is important to count all aspects of social income so that there must be an intensive research to solve this problem.