



# JERSEY'S WATER RESOURCES

Note  
(13-8-04)

## A. INTRODUCTION

I understand that the submission made by the Environment & Public Services Committee to the Shadow Scrutiny Panel on 26-7-04 suggested that Jersey's fresh water resources per person are low in world terms.

I further understand that this was, however, criticised by Dr S Sutton (Entec) on the grounds that he considers that

1. It is inappropriate to compare a small jurisdiction such as Jersey with much larger countries, and
2. Some counties in Eastern England are even worse off.

Subsequently Dr Sutton's written Critique dated 29-7-04 has been received.

This Note responds to Dr Sutton's points, and seeks to put the scarcity (or otherwise) of Jersey's water resources into perspective.

## B. THE FACTS

The fresh water which nature provides per person is:

$$\frac{(\text{Rainfall} - \text{Evapotranspiration}) \times \text{Catchment Area}}{\text{Population}}$$

This is a widely used measure (eg by the UK's Environment Agency in its National and Regional Water Resource Strategies) giving the gross average amount of water available to meet all needs.

For Jersey this figure has been given as:

$$\frac{(852 \text{ mm} - 512 \text{ mm}) \times 116.5 \text{ km}^2}{90,000} = \underline{\underline{440 \text{ m}^3/\text{person}/\text{year}}}$$

The previous submission showed that 440 m<sup>3</sup>/p/y would place Jersey 11<sup>th</sup> lowest in the world and on a par with the Yemen. ('Population and the Future of Renewable Water Supplies', Population Action International, Washington, USA).

## C. COMPARISONS BETWEEN SMALL AND LARGE AREAS/ COUNTRIES

For reasons given below, I believe that comparisons between small and larger

areas/countries tend to understate any scarcity in the smaller area/country.

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#### **D. COMPARISON WITH ENGLISH COUNTIES**

In my view - based on over 30 years experience in water resources related work - comparisons with counties are not appropriate, because it is common for counties to rely on water supplies from far beyond their boundaries.

Having said that, if Jersey were to be compared with individual counties in the Anglian Region (as suggested by Dr Sutton), it would be found to receive much less water per person than all but Essex. Even compared with Essex, the difference would be marginal and Essex's water resource problems are so serious that it has to "import" large quantities of water from other counties (e.g. from Norfolk – a distance of up to 80 miles).

Instead, in my view, meaningful comparisons have to be with whole catchments, not with non-self sufficient counties. It is suggested that the English water regions offer the most appropriate comparison (see below).

#### **E. COMPARISON WITH ENGLISH REGIONS**

Equivalent figures for the most relevant English regions as given by the Environment Agency ('Water Resources for the Future', March 2001) are as follows -

Region	Rainfall –mm	m <sup>3</sup> /person/year
Anglian	604	691
Southern	738	921
South West	1019	2740
England & Wales	897	1334
cf Jersey	852	440

#### **F. SOME ADDITIONAL FACTORS**

Several factors may exacerbate Jersey's water resource position, for example -

- Seasonal variations (especially evapotranspiration) cause much water to be lost to sea as winter run-off.
- Year on year variations can drastically reduce effective rainfall; water availability in drought years is much lower than the average
- Much rainfall around coasts is lost as small flows to sea which cannot be

economically tapped. Jersey's effective catchment area is therefore significantly less than its total geographical area. (This effect is proportionately greater the smaller the island)

- The remaining resource has to meet all the water needs, both of people and of the aquatic environment (including flora & fauna). In some parts of England and Wales the allocation of water to the environment is the largest single 'user'.
- The larger the 'region', the more scope there is for neighbouring areas to help each other out. Water transfer systems in England are highly developed. But if a drought occurs in Jersey there is nowhere else to turn to (except possibly for expensive desalination)
- Holiday populations, plus the needs of private water abstractors.

## G. DR SUTTON'S CRITIQUE (29-7-04)

Dr Sutton's points are as follows:

1. **That the source of the international data previously submitted appears to be a lobby for population control.** – possibly, but this does not invalidate their figures. Whilst the Environment Agency quotes figures from a different source (World Resources Institute) they are mostly of similar magnitude to the data previously submitted to the Shadow Scrutiny Panel.
2. **That there is uncertainty over our figure.** – yes, all such measures carry a degree of uncertainty. The same applies to the international figures, from whatever source. But the point is that these are accepted as '**relative indicators**'; their purpose is to place Jersey broadly into context with other areas/ jurisdictions.
3. **That Guernsey and Alderney are also scarce of water** – yes, if we accept Dr Sutton's figures, but this still does not help Jersey's situation.
4. **That 440m<sup>3</sup>/p/y does not put Jersey in the "absolute scarcity" category.** - yes, Jersey's demands may well be much lower than those presumed in that categorisation and therefore such a phrase may not be applicable.

However, in relation to Dr Sutton's last, and main, point I would contend that there is no room for complacency in terms of Jersey's water resources situation. The net effect of all the "additional factors" listed above is that the amounts of water reliably available are in fact far less than the simple gross average resource. Although assessing supply/demand balance is beyond the scope of this Note, water scarcity situations are no doubt (partly) why -

- Jersey has had to build an expensive desalination plant
- Likewise parts of England with apparently higher water availability have had to build similarly expensive works and yet still suffer shortages from time to time
- Phrases like "absolute scarcity" are sometimes applied to regions which appear to have reasonable average water resources, and
- England & Wales and France introduced water resources management legislation 40 years ago.

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## H. CONCLUSIONS

1. The data previously submitted to the Shadow Scrutiny Panel give a realistic relative indication of Jersey's water scarcity situation.

2. Jersey's water resource situation, in terms of natural average quantity per person, is low in world terms and **significantly less** than comparable regions of England.

3. Jersey's much smaller quantity of practically-usable and reliable supplies is already largely committed. Any further pressures such as rising demand, greater environmental concern or deteriorating climate would exacerbate an already potentially serious situation, accentuating the need for sound water resources management on the Island.

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