

'Red Tide' Menace Spreads to the Indian Subcontinent's Largest Natural Freshwater Lake

Kashmir, a beautiful valley that is partially isolated by snow-capped Himalayan mountainous ranges, is blessed with an array of fascinating natural lakes. Several of these lakes, in the recent past, have fallen victim to human greed and apathy, thereby endangering the very survival of these natural resources. Thus Dal Lake, once a pristine waterbody, developed a temporary and short-phased massive red-bloom of a rare euglenoid flagellate (*Euglena pedunculata* Gojdics) during the summer–autumn of 1991, rendering its surface waters murky.

Notwithstanding the speculative status of the flagellate's colonization in such an isolated habitat as Dal Lake, the organism gained wider proliferation, carving out additional ecological niches in other floodplain lakes of the Himalayan Jhelum Valley. One such lake that has been affected by the 'red tide' occurrence is the renowned high-altitude (1,500 m) Lake Wular (31.1° N and 74° E), about 34 km to the northnorth-west of Srinagar, the summer capital of Jammu & Kashmir State.

Lake Wular is considered to be the largest-area (20,200 ha) natural freshwater lake in India and probably in Asia. During floods, the Lake area even spreads over 26,700 ha (cf. W.R. Lawrence, 1992 — *The Valley of Kashmir*, Chinarn Publishing House, Srinagar [reprint edn]). Besides its water-input from several springs and streams, Lake Wular is fed and drained primarily by the River Jhelum. However, the River also contributes significantly to the Lake's siltation problem, with the result that extensive peripheral areas have become converted to marshland and been reclaimed for cultivation of Rice (*Oryza sativa*), vegetables, or even willow (*Salix* spp.) plantations. There are recent

reports (e.g. *Kashmir Times*, 31 January 1994) of shrinkage of the surface area of Lake Wular from 19,000 ha in 1991 to 7,900 ha in 1993 reduction to only about 41% of its former size, and highly alarming if true).

Added to the already deplorable plight of Lake Wular's health, the present Author, while surveying it on 7 September 1993, observed that vast expanses of the surface had turned red — a phenomenon earlier reported (see M.A. Khan, 1993, *Environmental Conservation*, 20[4], pp. 352–6, 5 figs) in Dal Lake, Srinagar. Such an observation, hitherto probably not documented for Lake Wular, signals rapid environmental deterioration of the ecocomplex, as euglenoids dwell mostly in organic-rich waters and are biological indicators of pollution.

Lake Wular is of great socio-economic importance, providing a good source of Water-nut (*Trapa natens*), fodder, and fish. The fisheries are made up of the Common Carp (*Cyprinus carpio*) (70–75%) and many other species including the endemic trout. The Lake also serves as a breeding habitat for a large number of resident and migratory birds.

The need of the hour is to arrest the spreading menace of the red-tide phenomenon and combat the ecological deterioration of Lake Wular to salvage one of Asia's unique ecocomplexes from extinction.

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Population Projections to the Year 2050: IIASA Scenarios for Europe and the World

What might the population of Austria and other European countries be sixty years from now? Several scenarios which have been developed by the *Population Project of the International Institute for Applied Systems Analysis (IIASA)* raise questions about the future that are relevant today. The questions are crucial because some of the economic and political decisions of today have to be based on assumptions about the future. For example: how will pensions be financed in the year 2050, if the working population of Austria decreases from 4.3 millions to 3.5 millions, or even as low as 2.5 millions, and the proportion of elderly people increases from the present 20% to 40%? These figures are realistic if one assumes that immigration stops and the currently low birth-rates persist.

Population Ageing Problems

The most dramatic demographic development in Europe is the rapid ageing of the population. Again using Austria as an example, the number of 80 years-old people in AD 2050 could be four times as high as it is today, although the total population may be lower. Such potentially large shifts call for important political decisions in areas such as health care, immigration, and equal employment opportunities — especially for women, so that they are able to devote time to both job and family.

These population projections include sensitivity analyses over a wide range of assumptions. The sensitivity tests show that, although the results vary depending on the assumptions, all the scenarios point to the urgent need to

take political action.

Much has been said and written about the increasing ageing of Europe's population, but its implications are still vastly underestimated. It is almost certain that, if comprehensive pension reforms are not carried out soon, welfare systems of European states will face a deep crisis. However, the still-favourable situation over the next two decades provides a window of opportunity for decisive action.

World Population Scenarios

According to the scenarios developed at IIASA, total world population will increase by at least 50% by the year 2030 — up from the present 5.6 thousand millions to 8 thousand millions. The maximum likely increase is to 11 thousand millions, i.e. nearly 100%. The most probable figure will be about 9.5 thousand millions (an increase of nearly 80%). Thereafter, world population is projected to increase very slowly, to stabilize at around 12 thousand millions in the second half of the next century.

'The world population projections developed at IIASA account for a much wider range of possibilities than those of the UN and the World Bank', says Professor Wolfgang Lutz, Leader of IIASA's Population Project. 'They consider alternative future paths not only in fertility, but also in mortality and migration', he adds. In making these projections, the IIASA study also examines potential impacts of ecological constraints and new mortality risks such as AIDS — but not those of wars or internecine strife.