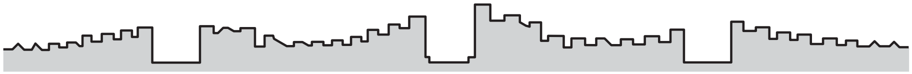
Figure 8.9 Compact city: Distribution of densities



degradation, now patently obvious, but it is very much the result of a twentieth-century perspective – the culmination of a thought process that began with Howard and developed during the planning of the new towns in the last half of the twentieth century. This thought process has been overlaid with the notion of ‘urbanity’ – an idea associated with the wonderful compact medieval European cities such as Sienna. The British interpretation of the notion of urbanity is a compromise between the Cerda grid of Barcelona and the leafy suburb of the semi detached home, a compromise that may not be too unacceptable to voters in ‘Middle England’.

How far does the British version of the compact city meet the needs of sustainability? There is no simple quantifiable answer to this question. It depends upon the shade of green philosophy that underpins the answer and the degree of pessimism with which the future is viewed. For environmental optimists, the establishment figures, sporting a philosophy of the paler shade of green, the answer would probably be ‘Yes’, and this is certainly as far as the political climate in Britain would support. For those who believe that we are underestimating the environmental problems ahead and for the ‘hair- shirted environmentalist’, the answer is a resounding – No!

Is there a valid position to be taken between the established view and those who, with much justification, proclaim ‘. . . that we, in the rich countries, have to learn to live simply, so that all may simply live’ (Juffermans, quoted in Roelofs, 1996). The city set within the ecological limits of the bioregion may provide the framework for such a position. The idea of the largely self-sufficient and autonomous bio-city, anchored in a set of regional ecosystems was introduced in Chapter 7. The parts of such a bio-city – its quarters – would also aim to achieve a large measure of the autonomy observed in the dynamic balance of nature’s ecosystem: that is, a unit that is self-producing in terms of needs, one that reuses wastes, and exports no pollution. Such a city would share some features with the compact city. But it would differ mainly in its density, which would be lower, affording greater possibility for the production of food on the additional space allocated for private and public use. It, too would be served by public transport, though walking distances to centres and public service routes would inevitably be greater than those in the compact city: walking distances, however, would not be nearly as great as those in many Third World cities.

The concept of the eco-industrial park exemplifies the thought process which underpins the ecological approach to location decisions, both for industry and other urban land use activities. In the eco-industrial park, industries’ and companies’ location decisions are made in order to trade in waste and the recycling process, so that one company’s waste is another’s raw material. An interesting example of waste and energy trading is reported from

Kalundborg in Denmark. The partners in the park include a large coal-fired power plant, a refinery, a wallboard factory, a biotech firm making insulin and industrial enzymes, and the city of Kalundborg. 'The exchanges include:

(1) Refinery gas, previously flared off, used by the power plant to produce electricity, steam, and district heating for the city.
(2) The gas is also used by the wallboard company.
(3) Excess heat from the power plant used for fish farming.
(4) Fly ash and chemical wastes from the power plant and refinery are raw materials for other industries.
(5) Sludge from fish farming used as fertilizer on local farms.
(6) Yeast from the insulin-making process is used in feeding pigs on local farms' (Roelofs, 1996) (see Figure 8.10).

By taking this systemic view of industry, its ecological footprint can be reduced considerably. Industrial ecosystems, which result in a continuous cyclic flow of materials and energy, would largely eliminate the direct impact of industry. (See Tibbs in Birkeland (2002) for additional measures necessary to reduce further the environmental impact of industry.) A design policy promoting mixed land uses goes some way to achieving a balanced autonomous quarter. It is, however, a crude surrogate for the dynamic balance associated with the ecosystem in nature. A systemic analysis of the bio-city and its quarters would indicate how much of its needs could be met locally, the extent that those needs be supplemented from elsewhere in the bioregion and, as a last resort, from beyond its regional base. Such an analysis would indicate those areas of

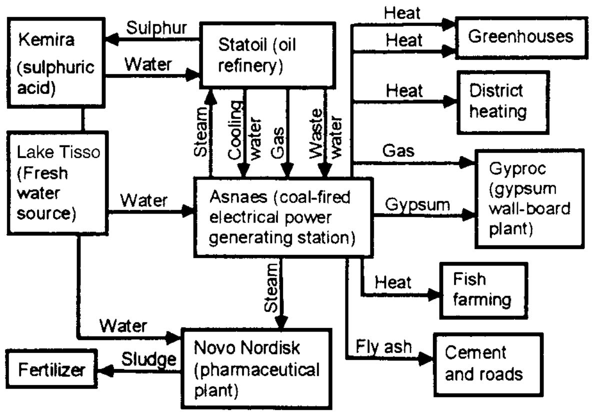


Figure 8.10 Industrial Ecology Park, Kalundborg

profitable exchange in terms of material and energy, using the eco-park as a model. Such analyses do not lend themselves to a neatly drawn architectural model: each bio-quarter being an environment-specific solution similar in nature to the permaculture case study reported in *Urban Design: Method and Techniques* (Moughtin *et al*., 2003a).

THE CITY QUARTER AND NEIGHBOURHOOD IN PRACTICE

AMSTERDAM SOUTH: BERLAGE

Amsterdam has a continuous tradition of town planning unbroken since 1900. During the late nineteenth and early twentieth centuries Amsterdam was growing rapidly. For example, the city grew by 50 per cent in the first two decades of this century. To accommodate this growth there has been almost uninterrupted building activity for most of this century. Town building in Amsterdam dating from the early decades of the twentieth century is particularly interesting: at that time several new quarters were added to the city. These extensions were enhanced by a number of imaginative