

SUSTAINABLE COMMUNITY PLANNING: LESSONS FROM THE NETHERLANDS

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ABSTRACT

In 1990, the Dutch Government adopted a national plan to develop integrated and comprehensive policies that would respond on a national, regional, and local level to the need for improved environmental quality for the welfare of current and future generations. The program, called the National Environmental Policy Plan (NEPP), represented a bold effort to develop cooperation and shared responsibility between the public and private sectors setting goals for reduced energy consumption, resource utilization, and improved environmental quality including the reduction of SO₂, NO_x, and CO₂ emissions. This paper reports on key elements of the NEPP and related policies that pertain to sustainable community planning. Although the transferability of policies for one locale to another may be limited by surrounding socio-cultural, economic and environmental conditions, these efforts represent some of the most innovative and pioneering examples of environmental planning currently being explored in Europe and the U.S. and as such deserve our consideration as we seek our own solutions to sustainable planning and architecture.

1. ORIGINS OF SUSTAINABILITY

The Netherlands has long been known as a country of tolerance, personal liberty, and cooperation, and embedded in these attitudes are the origins of sustainability. Since the end of the Ice Age, when the sea retreated and created a limited land mass in the area we know today as the Netherlands, the inhabitants of the area progressively reclaimed land for human development. As early as the first century, terps were created to protect cattle from the

changing tides. These terps were initially made of soil but waste was progressively added to the mounds to increase their size; an early example of recycling and material reuse.

Land use was also impacted early on by suitability concerns. The limited amount of high ground in the Netherlands, a common topography for development in the world's first cities, was not fertile enough to support human populations. Hence, in order to develop a food supply, it was necessary to locate in the lower regions where the fluvial clays were better suited to agriculture. However, this carried with it the inherent need to develop water planning policies. The great time and expense of reclaiming land caused the Dutch to develop careful land use policies, dedicating the highest and best use to the energy and economic resource intensive development of that land. Moreover, at every stage of growth and expansion, the community needed to decide how much land to reclaim based on present needs and the anticipated needs of future generations. The complexity of land reclamation demanded that town planning principles be strictly adhered to and "compact development", a rediscovered approach of the twentieth century, was a common practice. Specific guidelines to maximize waterfront access to buildings, depending on building type, created the narrow building form with long street elevations (called terraces) on the public side and gardens on the interior. The grassroots community participation and the planning horizon (one generation ahead) are clearly early expressions of the tenets of sustainability.

The dearth of natural resources in the Netherlands had and continues to have alternative resource implications for the Dutch. Unlike Britain, the lack of forests for fuel and half-timber construction, the Dutch were lead early on to rely on locally available earth-based materials. The primary fuel

source was peat from the marshy bogs in the pervasive low lying areas. The predominant building materials were brick and clay tile due to the wealth of the requisite soil type. The implications of using non-combustible and very durable materials are longevity and hence lower embodied energy over time. In addition, for some reason, the Dutch were not as heavily influenced by the fashionable architecture trends of the Renaissance and much of their building stock remains somewhat adaptively reused from the pre-Renaissance period (with the exception of buildings destroyed during wars).

The method of governance also built on a foundation of civil rights and social equity. Unlike most European cities which were dominated by duchies or religious influence, Dutch cities developed citizen-governed "charters" which sanctioned and promoted development. Water catchment boards were found as early as the 13th century to manage the affairs of lakes, tidal rivers, canals, and windmills which were used to regulate water levels. The first public health law was passed in 1533 due to the pollution of water bodies cause by urbanization. Unlike the conditions of most early industrialized cities, the Dutch developed sanitation and health codes that maintained the quality of life for their inhabitants. Many of these buildings and urban districts remain today as testimonials of their usefulness and desirable spatial qualities. Urban growth in the Netherlands, in these early times, occurred in a way that maintained the quality of the environment due to a carefully considered and ever evolving series of town planning and public policy decisions.

3. CURRENT PRACTICES

How these early town planning practices translate into contemporary thought and design strategies would likely be difficult to prove. However, the Netherlands continues to be one of the highest density cities in Europe and the U.S. and hence continues to weigh in the balance of quality of life (which includes environmental quality) issues versus growth and development pressures. How the Dutch are responding today is reflected in their national planning policies in particular as they relate to spatial and environmental planning facets.

3.1 The National Environmental Policy Plan

The Netherlands' national environmental plan (NEPP) was inspired by and became an outgrowth of the Bruntland Commission's report *Our Common Future* (WCED 1987) and the Rio de Janeiro Earth Summit *Agenda 21* (Sitarz 1994). Countries like the Netherlands who adopted Agenda 21 have shown a commitment to follow a "green" planning

approach to managing the environment with global and local considerations. While both the Bruntland Commission report and Agenda 21 are far reaching documents in their extent, dealing with all aspects of the interdependency of environmental quality, social equity, and economic prosperity, the NEPP selected a particular focus for developing policy. In particular, three areas were identified as deserving further examination: integrated lifecycle management, energy conservation, and improved product quality. Each of these areas has produced policies for community planning and building construction as demonstrated through development examples recently built or on the near term planning horizon. Planning issues and policy development of note are in the areas of transportation and land use, energy efficiency, and waste reduction.

4. CONTEMPORARY GROWTH PATTERNS

Projections of population growth in urban settings throughout the world has focused more attention on how to maintain environmental quality under the added strain of the even greater expanding flow of materials, energy, and people through our cities. The Netherlands, with its exceptionally high population density, 1,145 people per square mile in Holland compared to 70 persons/square mile in the United States, may be experiencing today a phenomena other developed countries will experience in the future.

One of the principle concerns of contemporary growth patterns is how to design for efficient and effective transportation and, a related issues, land use patterns. In this arena, Holland has responded both through a national transportation plan (NTP) and through a coherent interdisciplinary approach which combines transportation and environmental policy issues through the NEPP. The integrated plan is unique because it addresses all modes of transportation-- rail, urban mass transit, roads, waterways, bicycles) for passengers and products. The policies depend on long term land use planning measures.

There are two primary issues for the transportation plan: accessibility and environmental sustainability, which seem to be at conflict. While individuals seek greater mobility and individual choice, they are limiting access by congesting roads and they are adding to the degrading environmental quality. The government is setting limits on emissions to set goals for improvement. The means to attain these goals focus on the following: reducing car use through pricing constraints (such as tolls on bridges, parking, and permitting); heavy investment in public transport infrastructure (in particular, increasing the rail system); and,

land use measures designed to both reduce the need for mobility and enhance the role of public transport. The particular policy implementation was to create zones A-B-C which linked mobility needs to location. This policy has had some success in encouraging transportation-related development patterns, although has not been entirely successful due to the actual distribution of zone types.

On the development horizon in Holland is an area of particular interest to planners: the conurbation, or Randstad, formed by the ring of cities including Amsterdam, The Hague, Rotterdam, and Utrecht. This agglomeration of urban, semi-urban, and open space creates a unique reversal of the American city development pattern of urban growth boundaries and greenways. The Randstad encircles a rural, forested area called the Green Heart. Population and development pressures are raising the question of how this ring of cities should expand: claiming additional open space from the heart or closing the ring with more development at the perimeter. Alternatives are being evaluated according to transportation, land use planning, and environmental quality goals.

5. SUBURBAN DEVELOPMENT

Holland, much like the rest of Europe and the U.S., is subject to developments outside the urban core that create their own sustainable planning issues. In an effort to explore sustainable community development, a demonstration project that illustrated both planning principles and green building construction techniques was built on a suburban site in Alphen-an-der-Rijn, outside Utrecht. The project embodied principles of the national environmental plan and used a design competition comprised on one master planning architect, Lucien Kroll from Belgium, and nine individual firms to develop building clusters. NOVEM, the Netherlands Energy Agency, was involved with the project from the outset.

In general terms, the Dutch building industry was charged by NEPP with achieving the following targets by the year 2000 (Edwards 1996):

- a. examine environmental consequences of construction methods and products;
- b. reduce the use of finite natural resources with particular regard to tropical forest products;
- c. double the level of recycling of building and demolition waste;
- d. substitute materials whose extraction, use and waste has serious environmental consequences;
- e. save 25% in energy consumption in heating buildings;
- f. reduce risk values in internal environmental quality.

Ecolonia has been opened since 1993 and this project has offered experience with the process and outcomes of a sustainable community plan.

6. CONCLUSION

The social, economic, and political factors that shape environmental policy weigh heavily on the potential acceptance of planning recommendations and therefore cannot be discounted. The Netherlands has had a long history of cooperation whereas the United States has been known for its rugged individualism. The size and compactness of Holland as compared to the United States also limits the applicability of some of the planning principles offered by the national environmental plan. However, densification of U.S. cities and the need to develop coherent policies for transportation and land use in these areas is a shared goal as well as other community and building scale solutions. Identification of environmental problems and the creating of integrated planning strategies is perhaps the best lesson we can take from the innovative planning practices currently underway in the Netherlands.

7. REFERENCES

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