Strategic Environmental Planning and Management
for the Peri-urban Interface
Research Project

A REVIEW OF POLICIES AND STRATEGIES AFFECTING THE PERI-URBAN INTERFACE

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1. INTRODUCTION

The aim of this paper is to present an overview of current government policies and strategies that have a direct or indirect impact on the peri-urban interface. The paper is one of several outputs in the first phase of a three-year project on strategic environmental planning and management for the peri-urban interface.[1]

As discussed elsewhere (Adell, 1999; Allen, 1999), whilst there is no accepted definition of what precisely constitutes the "peri-urban interface", the project team has identified at least three different approaches from where it has been conventionally conceptualised. These approaches may be classified according to the set of variables they choose to emphasise: physical attributes, such as proximity to the city and poor infrastructure; socio-economic variables; or urban-rural flows (of people, energy, goods).

When it comes to a working definition of the peri-urban interface, one point of departure of the project is a recognition that the peri-urban interface must be perceived in a multi-dimensional way. This views it as a system exhibiting a singular set of changing biophysical and socio-economic features and shaped by the dynamics of rural-urban flows into and across the system (Allen, 1999).

For the paper, a point of departure is what we understand by the notion of government policies and strategies. These are defined as a set of general guiding principles formulated by a public agency operating at the national, regional or local level, usually arising from a political process, that seek to inform specific planning and management interventions with intended or unintended environmental effects on a given location.

Thus, an examination of environmental policies and strategies as they relate to the peri-urban interface should not, in theory at least, be limited to interventions affecting only one of the three sets of elements enumerated above (physical, socio-economic or rural-urban flows). Such an examination ought to take a broader canvas to depict the range of possible policies and strategies affecting the peri-urban interface from the points of view of changes in its physical development, socio-economic change and the range of diverse flows that take place between urban and rural areas.

There is a real limitation, however, in that most interventions that might be regarded as explicitly focused on the peri-urban interface take as their starting point a physical definition, such as the 'urban periphery', the 'green belt' and so on. This is because most development interventions are either initiated or guided largely by one or more government tiers, which are by law obliged to implement their actions within a physical boundary. And although the state no longer possesses the undisputed monopoly in planning urban development that it enjoyed in most countries throughout most of the second half of the twentieth century (Healey, 1997), there is no doubt that it still plays a major role in providing some guidance over spatial development.

Another limitation has to do with the fact that when we talk about the peri-urban interface we usually refer to medium-sized and large cities and their surrounding areas or, in other words, metropolitan areas or regions. And, as has been argued by Mattingly (1999b), there are very few cases of metropolitan interventions (and therefore interventions directly or indirectly affecting the peri-urban interface) which might be seen as "pure" cases of metropolitan environmental planning and management. Institutions with an overall responsibility for the environment with a remit that cuts across administrative boundaries are very rare (Dávila and Atkinson, 1999). With few exceptions, most documented environmental interventions in a metropolitan context appear instead to be components of other forms of interventions, most of which take space as their starting point (Atkinson et al., 1999; Adell, 1999; Universities of Nottingham and Liverpool, 1999). This issue also becomes apparent in the present review, where most interventions selected as illustrations have a spatial point of departure.

[1] The outputs in the first phase include, among others, Allen (1999), Budds & Minaya (1999), Mattingly (1999a) and Adell (1999). For a description of the project aims and phases, consult the project website (www.ucl.ac.uk/dpu/pui).

In documenting the nature and impact of environmental policies and strategies for the peri-urban interface in a range of contexts, the paper distinguishes between two kinds of policies. The first type includes those with an explicit spatial dimension which directly or indirectly affect developments in the peri-urban interface; these, as was pointed out earlier, are rare. The second type refers to policies of a sectoral nature generally lacking an explicit spatial dimension whose application has (intended or unintended) effects on the environment of the peri-urban interface.

Three features of these policies and strategies are examined in the text that follows. The first refers to the problems or issues to which they are intended to respond. The second feature relates to the political and institutional context in which the policies and strategies are formulated; this is important as the global and national context in which environmental institutions are created or are asked to perform their functions is constantly shifting (Dávila and Atkinson, 1999). The final feature relates to the tools available to policy-makers, ranging from laws and regulations to participatory processes; this issue will be further elaborated in future outputs of this research, so the present review will only highlight a few tools from selected case studies.

The paper comprises four sections. Section two reviews the concerns of policies with an explicit spatial focus while section three examines strategies and policies lacking such a focus. With the help of three case studies, section four highlights the institutional obstacles found in the formulation process and the tools needed to put policies and strategies into practice. A final section concludes. Throughout the paper, particular attention is given to sustainability and poverty issues, as these constitute the main focus of the research project for which this paper has been produced.

2. POLICIES WITH AN EXPLICIT SPATIAL FOCUS

Policies for the environment in the peri-urban interface cannot be seen in isolation from the cities with which in some way or another the peri-urban interface is connected. The focus of policies and strategies differs from one national context to another and often from one region to another in the same country. In cities and regions of poorer countries marked by rapid urbanisation, uncontrolled urban expansion, lack of basic infrastructure, loss and degradation of agricultural land and of valuable ecological sites appear to be particularly acute problems (Allen, 1999). In richer countries and countries with a slower process of urbanisation, the use of renewable and non-renewable resources, and the generation of waste and pollution affecting the peri-urban interface would appear to be more pressing issues (ibid.).

Because a specific concern with the peri-urban interface is either relatively recent or rarely made explicit in governments' policy interventions, a review of cases of cities, metropolitan areas or regions must look for elements of individual interventions which might directly or indirectly impinge upon the peri-urban interface. It was stressed earlier that environmental interventions at a metropolitan or peri-urban scale are rare. Urban and regional policy interventions with an explicit environmental dimension are by and large restricted to individual sectors (i.e. water supply, deforestation), often constrained by strict territorial boundaries, and tend to be shaped by a combination of ready-made responses to problems as perceived by experts and the clientelist demands of their political masters (Atkinson and Dávila, 1999).

A focus of concern of the present research project is the use of strategic environmental planning as it relates to cities and metropolitan areas. In this context, strategic planning refers to a general framework setting a direction for development rather than to a list of detailed actions to be put in place through projects seeking to achieve a particular form of development. Over the past decade or so, the practice of urban and metropolitan strategic planning has taken on two, related, meanings. On the one hand, the concept has been used to describe a form of planning clearly grounded in a land-use planning tradition but which seeks to move away from the limitations of the urban project towards a more comprehensive form of metropolitan planning. Examples of this are found throughout Europe (cf. Healey et al., 1997). Box 1 shows how the

formulation of strategic planning is organised among the different government tiers in the United Kingdom.

Box 1: Policy for Strategic Planning in the United Kingdom

Strategic planning adheres to the central Government's national and regional planning guidance and is carried out by County Councils. This guidance articulates policies for land use and development for issues which apply across regions in order to achieve continuity between the plans of different councils.

County councils draw up an overall **development plan**, which serves as the main guide to planning decisions by local authorities, by setting out the main considerations on which planning applications are decided. Development plans also provide the framework within which structure plans and local plans are drawn up, and ensure consistency between these. In **structure plans** county councils set out key, strategic policies as a framework for local planning and development by district councils, primarily oriented towards land-use concerns. In **local plans** district councils and National Park authorities (where these exist) set out more detailed policies and specific proposals for land use and development in their areas, also providing opportunities for community participation with regard to development planning decisions. In the case of metropolitan districts, **unitary development plans** are drawn up which serve the combined function of structure and local plans. Separate plans are drawn up for minerals and waste.

Source: British Government, 1992.

On the other hand, the term strategic planning has also been used to describe an exercise in collective negotiation where, under a common vision of the city's place in the country or the global economy, different interest groups agree on a common set of projects seeking to secure or improve a better future for its citizens. The experience of Barcelona has been highly inspirational in this respect, and several cities especially in Latin America have engaged in similar exercises (Santacana, 1998).

The main difference between the two practices of strategic planning lies in the importance each one attaches to the spatial dimension, specifically in the extent to which the common project resulting from a negotiation process becomes translated into land-use regulations and explicit guidance for the location of investment. For while this is a main concern of the first group, a specific concern with the physical shape that the city or metropolitan area might take is not a central issue in the second. In the absence of a more systematic comparison of the two approaches, it can be hypothesised that a reduced emphasis on land-use issues in the second group may be explained, on the one hand, by the poor record that land-use planning may have had in guiding spatial development. Such has been the case in many large cities in the developing world, where rapid growth has exceeded the capacity of governments to react (Devas and Rakodi, 1993).

In other cases, the lack of reference to land-use planning may be traced to an inability of the planning process to respond effectively to issues that pertain to an entire metropolitan area. Such is the case of Barcelona, where a metropolitan-wide common project has been rendered virtually impossible by deeply-entrenched political rivalries between the city of Barcelona and its surrounding region (Santacana, 1998). For the metropolitan area the regional government has undertaken a parallel, more conventional and less participatory form of spatial planning with more explicit land-use implications (Serratosa, 1998). However, like several such plans currently in preparation by regional governments in Spain, it may face the possibly serious limitation of lacking the necessary backing of the government of the city of Barcelona, the largest and richest municipality in the metropolitan area (Nel.lo, 1997).

Given the lack of policies and strategies aimed explicitly at the peri-urban interface, the present review draws on a number of case studies selected chiefly from the literature on spatial planning. The choice of this particular angle because the case studies represent policies with an explicit spatial focus, which must by definition cut across the real or imaginary boundary between city and country.
A small number of case studies has been summarised in the boxes to illustrate a range of policy concerns and strategy foci, the political and institutional context and the tools of environmental

interventions that directly or indirectly impinge upon the peri-urban interface. While the choice of case studies was inevitably constrained by issues of time and availability of information, it sought to illustrate a diversity of geographical, environmental and economic contexts.

2.1 Land-use Changes

Policies that place land-use changes at their core can be found in a range of contexts. In US metropolitan areas, for example, where there is a long-drawn outward movement of population and employment from the core to the suburbs dating to the second half of the nineteenth century (Schnore, 1965), a preoccupation with suburban sprawl is a relatively recent phenomenon. And although falling energy prices and greater availability of individual forms of motorised transport no doubt contributed to rapid suburbanisation (Owens, 1992), policies to counteract sprawl have resulted more from a concern with the loss of agricultural land and other natural resources than with the loss of non-renewable fossil fuels.

In the US, at least 19 states have established either state growth-management laws or task forces to protect farmland and open space. The containment of suburban sprawl has become a subject of national debate, as witnessed by the opposing positions of, for example, the National Center for Policy Analysis' attack on containment policies (NCPA, 1999) and the Sierra Club's Challenge to Sprawl Campaign (Sierra Club, 1999). Box 2 summarises a range of solutions advocated by Sierra Club and presently being implemented in different US cities.

In other cases, a concern with the loss of valuable and scarce agricultural land provides the rationale for containing urban expansion. One of the most extreme examples is Egypt, a country where only four per cent of the land is suitable for agriculture and where 96 per cent of a population of 62 million live on four per cent of the territory, most of it fertile land on the Nile river valley. The rapid expansion of metropolitan Cairo, the country's capital city with over 12 million inhabitants and also located on both banks of the Nile, has preoccupied planners and policy-makers for the past two decades. This resulted in the launch of the New Communities Programme by President Sadat in the mid-1970s, an ambitious programme of construction of over a dozen new towns in different locations in the desert with the avowed aim of decongesting Cairo and protecting the valuable arable land around it (Stewart, 1996).

Inspired in the earlier experience of, amongst others, the British and French new towns programmes, during the seventeen years in office of Housing Minister El Kafrawy, Egypt's New Communities Programme also had the explicit aim of providing housing and jobs for Cairo's poor (El Kafrawy, 1999; Stewart, 1996). By the early 1990s, and in the context of economic liberalisation, slow take-up rates and a realisation that Cairo's poor could not easily move away from sources of jobs and services meant a dramatic shift of emphasis for the programme towards large-scale luxury developments (Aboul-Atta, 1999). Manufacturing industry and to a lesser extent services continued to be attracted chiefly through generous tax incentives.

Box 2: Some Solutions to Suburban Sprawl in the United States

Urban Growth Boundary (UGB): This is an official line separating an urban area from surrounding open lands, including farms, watersheds and parks. UGBs seek to protect natural resources, while funnelling growth to areas with existing infrastructure. In some cases the line is voluntary whilst in others it is fixed. The states of Oregon and Washington require all communities to draw UGBs. The city of Portland in Oregon has had a successful UGB in place since the 1970s.

Land purchase: A number of cities are purchasing environmentally sensitive land to protect it from development. Examples include $71 million set aside by Maryland State to buy agricultural, forest or natural areas.

Raising of open-space revenues: A number of measures have been approved by voters in different parts of the country to earmark revenues specifically to protect open space and slow down suburban sprawl. For example, in Austin, Texas, water rates have been increased to raise money to protect thousands of acres of environmentally sensitive land around the city.

Source: Sierra Club, 1999.

Although no reliable figures exist, the goal of protecting agricultural land and controlling the physical expansion of Cairo has not been successful. Nor has the goal of attracting population away from the capital. Planned for a population of half a million inhabitants each by the early 1990s, it seems that none of the three most populated new towns (6th October, 10th Ramadan, and Sadat City) exceeds 200,000 in 1999 (Aboul-Atta, 1999). The combined population of all new towns is equivalent to about one year's growth of population in Greater Cairo. And although Cairo continues to expand at very high densities, when measured in terms of the extent to which it helped control peri-urban expansion in the metropolitan area, the New Communities Programme cannot been judged a success.

A loss of agriculturally or ecologically valuable land to urban sprawl, coupled with a concern with the growing financial and environmental costs of peri-urban expansion appear in several metropolitan contexts (Nel.lo, 1997). The built-up area of Barcelona, for example, rose from 21,000 has. in 1972 to 50,000 has. in 1996 (Serratosa, 1998); a significant part of this growth has been of a dispersed, low-density nature, in areas formerly occupied by forests or farmland. Within this built-up area and around it, the network of transport and associated services supporting it occupies a surface estimated at 25,000 has. (ibid.). A policy response currently being prepared by the regional government for the expansion of the metropolis seeks to contain future growth within "metropolitan islands", with "open spaces" between them and an integrated network of public transport and roads linking them (ibid.).

In Hubli-Dharwad, Karnataka, India, good agricultural land is undergoing conversion to industrial uses, as the State government has designated Hubli-Dharwad as a target for industrial investment in order to relieve pressure from the state capital, Bangalore. Hubli-Dharwad was designated a desirable alternative due to its strategic location between Bangalore and Mumbai, and the existence of good transport links with both these cities (Budds and Allen, 1999). The conversion process is regulated by the Panchayat system. The Joint Director of the District Industrial Centre has the authority to authorise the conversion of agricultural land to industrial use if it is less than two acres, in consultation with the Deputy Commissioner. Compensation given to farmers is negotiable and is twice that fixed by the Registrar of Land Records. There is no obligation on the part of the industry to offer employment to those displaced from the land. This policy has encouraged many agricultural landowners to offer their lands for conversion in order to profit from the compensation (Nidagundi and Patil, 1999).

From its Cities Feeding People Programme in peri-urban Accra, Ghana, The International Development Research Center (IDRC) has identified potential policies which could be beneficial in reconciling the problems and opportunities caused by the conflicting interests of urban expansion and the preservation of agricultural land. As an increasing amount of land is required for residential development, it is suggested that building focuses on high-rise buildings rather than individual plots, in order to use scarce land resources efficiently. The programme has also identified the need for policy guidance on the extraction of construction materials which are extracted outside Accra. Such activities should be licensed and subject to taxes, in order to avoid the high costs of reclaiming environmentally degraded land. With regard to agricultural policy, the programme has identified the need for policy to promote the protection and promotion of livelihoods through the commercialisation and intensification of agricultural production and reinforcing the skills of farmers and their access to credit and farming resources such as water for irrigation. Faced with the certainty of at least some land conversion around Accra, the programme proposes policy to support those who rely on agriculture for their livelihoods and are thus the worst affected when agricultural land is lost. Such policy would support alternative livelihoods through training and access to capital for starting entrepreneurial activities (Maxwell *et al*, 1998).

2.2 Use of Renewable and Non-renewable Resources

Other policy concerns that have preoccupied planners and policy makers in a diversity of contexts include issues of water supply, energy consumption, deforestation, and mineral extraction. Explicit policies dealing with these issues from the point of view of urban or

metropolitan environmental management are relatively rare. This is largely because line ministries or watershed management agencies, rather than local governments have often dealt with such concerns. As a consequence, they are rarely integrated in a more comprehensive manner into urban or regional planning efforts.

Water is one resource that from the time of the earliest settlements, most city governments have been extremely careful to protect and secure, not merely for present, but also for future populations. Plenty of documentation exists on the history of water management for concentrated urban populations in a variety of contexts.[2] A not inconsiderable proportion of infrastructure expenditure in many cities goes into appropriating and treating water before their inhabitants consume it. A smaller proportion goes into treating it after it has been used and is disposed of as sewage or storm water.

The volumes at which water is needed to supply large volumes of concentrated population can have considerable environmental consequences for the city itself as well as for the areas around it. For example, by the second half of the nineteenth century, water was extracted from more than 1,000 boreholes to supply Mexico City's population, leading to soil subsidence at a rate of 5 cm every year. By the mid-twentieth century, the continuation of such practices led to rates of subsidence of 18 cm per year between 1938 and 1948 (Hagiwara, 1997). As the population has continued to grow, the area from which water is drawn has also been gradually expanding, leading to the eventual drying up of entire sections of once plentiful rivers like the Lerma river (ibid.). Today, the main sources of water supply for the city are located over 100 km away from it, and require large stations to pump the water 1,000 metres up the mountains. Two water supply agencies serve the 14 million inhabitants in the metropolitan area: one covers the central area of the Federal District, where the majority of the population live, and the other one is attached to the State of Mexico, which surrounds the Federal District. In addition to co-ordination problems, the two agencies must continue to face the issue of protecting water sources at a considerable distance from the administrative boundaries of the Federal District.

Water drainage also poses a serious challenge to the city engineers. Because the Valley of Mexico lacks a natural outlet, rainwater and sewage tend to accumulate and lead to flooding. As outlets constructed in the 15th, 18th and 19th centuries could no longer cope with a growing volume of population, sewage and storm water must also be pumped out of the valley or allowed to run northward with the sewage where it is often used for irrigation. Contamination of aquifers particularly to the south of the city is a growing problem (Rowland and Gordon, 1996).

In Manizales, Colombia, one of the case studies of the present research project, the city's partially-privatised water supply agency has recently purchased a forested area to protect water sources for future requirements. Although there is nothing unusual in this kind of action, the fact that the land is located within the boundaries of the neighbouring municipality of Villamaría with which it forms a conurbation, has added to existing tensions between the two municipalities centred around environmental issues (Velásquez and Pacheco, 1999). As with other similar actions started by its richer and more populated neighbour, the municipality of Villamaría has complained that it was not consulted. The mediating role of other actors such as NGOs, academic groups and professionals has helped ease tensions and co-ordinate actions between the two.

Examples of other natural resources which local and regional plans have sought to protect include energy resources, particularly woodfuel, minerals, especially those found in quarries from where building materials for the city are extracted, and valuable environmental services such as lakes and forests.

2.3Pollution and Waste Generation

Pollution affecting the peri-urban interface and originating largely in urban-based activities is an issue of growing importance (Allen, 1999). As with other issues documented here, major problems in dealing with this relate to the fact that institutional responsibilities are seldom clearly

[2] The case of Los Angeles, California, is examined in Reisner (1990).

defined. This may be attributed to several causes, including rapidly changing situations, a secular tendency of government agencies to operate sectorally or within narrowly defined remits, and perhaps more likely due to the fact that much pollution and waste are disposed of outside the administrative boundaries where they are generated.

The city of Concepción, in Chile, provides an interesting case where such problems were successfully confronted. Vaguely defined responsibilities among different government agencies gradually led to the environmental deterioration of seven lakes located in the city's peri-urban area. Causes included unplanned use of land, inadequate disposal of storm water, and a lack of environmental awareness (Gilbert et al., 1996). With assistance from UNCHS's Sustainable Cities Programme (SCP), problems were identified through a participatory exercise aimed at producing an urban environmental profile for the city that identified major development trends, their related demands on the resource base, and resulting conflicts.

This inter-sectoral approach and the appointment of a co-ordinator has led to progress in improvement of water quality, regularisation of land use along the lakes' shorelines, and increased environmental awareness. The Army has collaborated in cleanup activities with residents of the informal settlements along the shoreline; a housing developer will construct a public park on one of the lake shores; and sewer services are being upgraded by the local water authority. Much of the funds for a programme costing over $430,000 have been raised locally, with the leverage of an SCP grant of $20,000 (Gilbert et al., 1996).

2.4Spatial Integration and Environmental Equity

Rapid urban development as witnessed in many parts of the world over the past three decades all too often results in an unequal distribution of infrastructure and urban facilities. This is a well-documented process in many countries and regions of the world (cf. for example, Gilbert, 1994; Hardoy and Satterthwaite, 1989). And although spatial inequity largely results from an uneven distribution of political power and wealth, in practice it is compounded by governments lacking the necessary human, technical and financial resources to confront a rapidly changing situation. Unrealistic planning standards and norms often inspired in foreign realities all too often prevent the majority of the population from gaining access to a plot of land or housing unit classified as "legal" or at least acceptable by the standards of local authorities. As amply examined in other outputs of this research project (e.g. Allen, 1999), the poor in the rapidly growing fringes of cities must often resort to occupying areas that are environmentally precarious and often outright dangerous and hence less desirable for higher income groups who can afford better locations.

Box 3: Integrating Marginal Environments in Metropolitan Planning in Madrid, Spain

As a result of the rapid population and physical expansion of the 1960s, a decade when Spain's capital city attracted hundreds of in-migrants from other provinces in Spain, several municipalities located in the fringes of the metropolitan area grew in a disorderly and largely unplanned way. Some of them became the location of shanty towns, areas lacking basic infrastructure and social services.

The case of the southern metropolitan districts provides an interesting example of intervention in a peripheral area. For decades this had been no more than a dormitory suburb, an area increasingly attracting heavy industry, and the site of most waste disposal facilities. Population in the seven municipalities comprising the area grew at an average of over 7 per cent per year between 1971 and 1991 to nearly 900,000. Integrating this area into the metropolitan economy became a major policy issue in the 1980s.

The return of democracy in the late 1970s was followed by wide-ranging decentralisation reforms giving quasi-federal autonomy to the country's 17 regions. Madrid, from where the country had been ruled in a highly centralised manner for centuries, became also the capital of the "autonomous region" (Comunidad) of Madrid. The regional government is responsible for spatial planning (through the Consejería de Política Territorial), housing, transport and other regional infrastructure.

After 1983, the practice of metropolitan planning shifted from being top-down centralised and directing, to a more negotiated and horizontal approach. At the same time, metropolitan planning became the central instrument of re-election for the region's Socialist party. And it also helped provide a new direction to the

southern districts, an area that until the mid-1980s had been physically, economically and socially marginalised from the rest of the metropolitan area.

The main regional planning policy concerns of the Socialist government were:

- The search for greater regional equity in environmental, social, and economic terms; this sought a better metropolitan balance between the rich centre and the Northwest on one hand, and the poorer south and east on the other.
- The move from a centralised metropolis with the city of Madrid at its core, to a polycentric one with networked nodes.

The political strategy behind the metropolitan plan aimed to:

- Serve as political election strategy
- Confer regional identity
- Build the institution of regional government
- Craft a regional planning policy to govern land use and public intervention

The strategy was a success. The Socialists were re-elected to a new four-year term while Madrid was no longer regarded simply as the core city but, in people's minds, thereafter include also the surrounding municipalities.

Source: Neuman, 1997.

Shifts in urban governance towards a greater recognition of formerly marginalised groups have also resulted in shifts in planning practice and in the policies that help shape it. These policies explicitly and increasingly recognise the existence of spatial inequality, and the importance of incorporating a much wider spectrum of stakeholders into the planning process.

The need for better integration of metropolitan areas into large economic regions (be it within countries or internationally) have prompted some planners to rethink the spatial form of areas within their control and to provide greater spatial coherence to existing infrastructure, including links to other regions and cities. This has speeded up efforts to incorporate areas of the city, which were socially, economically or environmentally marginal in a bid to make the whole metropolitan area more internationally competitive. A case in point is Madrid's metropolitan plan of the 1980s which, among other aims, sought explicitly to incorporate the historically marginalised southern districts (cf. Box 3). An array of institutional, political, planning and marketing tools were brought to bear in the process.

3. POLICIES WITH NO EXPLICIT SPATIAL FOCUS

There is a range of government policies and strategies which, though lacking an explicit spatial or environmental focus, have intended or unintended environmental consequences on the peri-urban interface. Such policies are mainly of a sectoral nature, though in this category one must also include macroeconomic policies indirectly exerting an influence upon the nature and volume of flows (of goods, people, services, waste) between urban and rural areas. Literature and written information explicitly dealing with the range of policies enumerated above appear to be very scarce, so what follows is no more than a crude attempt to think through the possible environmental impacts these might have on the peri-urban interface.

Emphasis has been given to national sectoral policies, as in most developing countries this is still the level of government at which such policies are formulated. With the possible exception of a small number of highly populated countries with a federal system of government, such as India, Brazil and Mexico, in many countries the national government has exclusive control over the formulation of policies affecting areas like agriculture, energy use, transport and infrastructure. In all countries (with the growing exception of member states of the European Currency Union), the national government has a monopoly over the formulation of macroeconomic policies, particularly as they relate to issues such as taxation, pricing and import duties and export subsidies.

3.1 Sectoral Policies

Sectoral policies often have environmental consequences at the local level, most of which are unintended. Awareness about this is growing, partly as a result of pressures from local environmentalists and partly also due to the effect of international high-profile political events such as the 1992 UNCED meeting in Rio de Janeiro, in particular the Local Agenda 21 guidelines that came out of it (ICLEI, 1996). Some governments have sought to put in place programmes seeking not merely to raise awareness about this link, but also to attempt to measure and reduce the impact of such policies. In the United Kingdom, for example, local governments have at their disposal tools for local environmental auditing. These are used to measure the impact that different sectoral policies (e.g. energy, transport, land use planning) might have on the local environment, as well as to review the current practices of the implementing agencies (Barton and Bruder, 1995).

In some cases, local governments actively seek to co-ordinate policies across sectors, and they do so within a strategic framework. The case of Hertforshire County Council in England illustrates this point (cf. Box 4).

It was stressed earlier that not all sectoral policies or strategies are likely to have an environmental impact on the peri-urban interface. Some will affect it more than others. Such is the case, for example, of transport, energy, agricultural and rural land-use policies. This is because these sectors have a set of direct or indirect links to the environment, the resources found in the peri-urban interface or the poor who either live in it or depend on it for a living.

Box 4: A Strategic Approach to Sectoral Policy Design and Implementation in Hertfordshire County Council, United Kingdom

Hertfordshire County Council (HCC) takes a strategic view of county policies, and promotes the effective linkage between these policies. For example, the Council's 'anti-poverty strategy' should be considered when discussing changes to social services. It also advocates the need for its officers to have a thorough knowledge of the Council's policies and to share information with one another.

For this end, HCC has set up five commissions:

- Hertfordshire Economic Development and Anti-Poverty Commission
- Green County Hertfordshire
- Young People
- Early Childhood
- Communities

Each commission covers cross-service issues although certain issues - for instance, sustainability - can also cross the boundaries of individual commissions. Each commission is governed by the following policies:

- Equal opportunities
- Democracy, partnership, participation
- Quality of life and environment
- Liberty and choice

Source: Hertfordshire County Council, 1999.

3.1.1 Transport

Local transport policies are usually designed to increase accessibility of a given population. They set the framework for enlarging or improving the supply of roads or railways and related infrastructure, as well as for enhancing and extending public transport networks. A concern with the impact such policies might have on the environment is fairly recent, and in some national contexts this dimension is even today rarely present. In a developing country context, where increased individual accessibility is still the main concern of policy makers, politicians and users alike, this is likely to take precedence over environmental concerns.

Transport policies are likely to either seek to increase the accessibility of peri-urban areas to a growing number of local residents (mostly middle or lower-middle income groups who are politically vocal) or to connect the city with neighbouring cities. The main environmental impact that such policies are likely to have on the peri-urban interface relate to the direct or indirect destruction of protected habitats, natural parks, forests or waterways. They may also destroy scarce agricultural land either directly through the construction process or by improving accessibility to it and hastening the process of land conversion to urban uses.

Transport policies that seek to improve the road network for individual users, as opposed to enlarging and enhancing the availability of public transport such as commuter trains or buses will also have an environmental impact. Although not directly affecting the peri-urban interface, increased energy consumption and gas emissions accompanying growing volumes of individual motorised transport go against principles of environmental sustainability.

3.1.2 Energy

The process of national economic growth is generally accompanied by a disproportionate growth in the demand for energy. In Vietnam, for example, electricity sales in the years 1980-1995 grew 70 per cent faster than real GDP, a rate not unlike that of other low-income Asian countries (World Bank, 1998). Energy consumption also varies significantly from one region in a country to another. Again in Vietnam, for example, in 1995 electricity consumption was 108 kilowatt-hours per capita in the central region, 154 in the north and 188 in the south. However, in Hanoi and Ho Chi Minh City, the two largest agglomerations, it ranged between 550 and 600 kilowatt-hours per person (ibid.). Box 5 shows how energy demands have led to policy formation in Hubli-Dharwad, India.

Box 5: Energy Policy in the Peri-urban Interface of Hubli-Dharwad, Karnataka, India

Hubli-Dharwad is typical of South Asian cities whose development is constrained by power shortages. As a result of structural adjustment policies, public investment in infrastructure has dropped especially in the energy sector. Private sector energy development has also been subject to constraints and thus has not been able to develop significantly.

Although electricity has been extended to the more accessible villages in peri-urban Hubli-Dharwad, there are frequent and prolonged electricity shortages, which worsen with increased distance from the municipal area. Poor villagers typically use fuelwood or agricultural waste for cooking and either kerosene or electricity for lighting. Shortages in fuelwood and kerosene have been reported. In better-off households, and in the municipal area, Liquefied Petroleum Gas (LPG) is increasingly used.

The government has devised policies and programmes to address energy problems in the Hubli-Dharwad city region. Under the *Bhagya Jyothi* programme, landless labourers and some small farmers have been provided with access to electricity by the Karnataka Electricity Board, in which electricity is free of charge for a certain period and subject to a minimum rate thereafter.

LPG has been heavily subsidised by the state government with the aim of reducing deforestation by poor households discouraging the use of electricity for cooking. The subsidies have increased the uptake of LPG, leading also to a reduction in electricity consumption However, this has occurred principally in urban and middle-income rural households, while poorer groups have started to use agricultural waste (e.g. chilli stalks) as a substitute for fuelwood, which has become more expensive. Therefore, the benefits have accrued to urban and higher-income households, where the poor spend more time and money on fuel.

The following possible alternatives to this situation have been suggested:
- More efficient distribution and use of electricity
- Use of renewable resources
- Decentralisation of electricity generation
- Withdrawal of LPG subsidy from the urban area

Source: Universities of Birmingham, Nottingham and Wales at Bangor, 1998.

In some cases, such as that of the larger cities in richer countries and some third world metropolises, industrial consumption of energy will tend to remain stable or even drop as manufacturing production shifts to less-energy intensive processes (e.g. from steel to electronics) or simply falls as a result of de-industrialisation. In the early stages of economic growth, the use of energy for domestic purposes such as lighting, heating and cooking will also tend to grow faster than the rise in per capita incomes. At later stages of development, of the different forms of energy consumed in a metropolitan region, transport will tend to be the greater contributor to growth in energy demand.

The fact that energy consumed by transport will tend to grow faster than either population or incomes is due to a combination of increases in the use of individual forms of motorised transport resulting from increased personal incomes, and the longer commuting distances that are often a trademark of metropolitan growth.

The impact of energy policies on the peri-urban interface will tend to be indirect. This is the case, for example, of energy pricing policies favouring individual forms of motorised transport; the possible effects of this were reviewed above. But price subsidies for the fuel used by public transport are likely to reduce the environmental effects of transport by, for example, reducing the need to build wider roads and reducing the emission of greenhouse gases.

3.1.3 Agriculture

Policies towards agriculture of relevance here include a diversity of issues. These range from macroeconomic ones such as import liberalisation, domestic pricing of commodities and livestock products, farmer subsidies and other incentives, to policies with a more direct impact on the use of peri-urban land such as land-tenure reform, incentives to urban and organic agriculture, and national rural land-use planning guidelines. Box 6 shows how agricultural policies in the state of Karnataka, India have been formulated to benefit poor farmers and help alleviate poverty.

A national green belt policy such as that described earlier for individual US cities will also have a direct impact on the use of land and other resources in the peri-urban interface. Use of land in green belts is likely to be restricted to a limited number of commercial activities, such as agriculture and forestry, while construction densities are kept within a narrow band.

As part of strategies to liberalise internal markets while promoting agricultural exports, governments around the world have implemented policies designed to enhance access to markets by farmers. Underlying this is the belief that export-oriented agriculture relies on efficient economic linkages connecting producers with external markets. However, spatial proximity to a market may play a much more limited role in improving a farmer's access to the inputs and services needed to enhance productivity than access to land, capital and labour (Dalal-Clayton, Dent and Dubois, 1999). Market-led development strategies often fail to differentiate between different groups in society, and therefore fail to protect the weakest and most needy while often benefiting the already well-off who can take advantage of market opportunities.

This is especially important for poorer farmers in the peri-urban interface, as their needs may be greater than those of larger farmers located farther away from the main urban centre where their produce is sold and inputs may be purchased. Thus, for example, a national policy designed to secure rights of access to land for smallholders is likely to help sustain rural livelihoods (Quan, 1998).

Box 6: Agricultural Policy in Hubli-Dharwad, Karnataka, India

Farming is still the principal economic activity in India, especially in Karnataka state, where land forms the basis of livelihoods of many poor farmers. The central government has introduced policies and incentives to farmers in order to improve agricultural production and livelihoods in the country. These policies are implemented at district level by the *Zilla Panchayat* and at village level through the *Gram Panchayat.*

People with incomes of less than 2,000 rupees per annum (approximately US$46), are eligible for land grant to practice agriculture. Some people are also eligible to receive the land adjacent to that already owned by them in order to maximise their agricultural production.

Land is granted on a priority basis, starting with landless persons, and residents of the taluk. Not less than 50% of all land granted must go to lower castes, if they are present. However, eligible people who desire land grants are required to submit a written application to the *Tahsildar* of the Taluk, thus eliminating many potential grantees.

The central government has also endeavoured to provide regulated markets in each Taluk, introduce policies to ensure that farmers' crops are measured accurately, enable them to sell directly without middlemen and without incurring unforeseen expenditures.

The State Government has also introduced agricultural programmes in line with agricultural development policy. These programmes consist of training and education (by extension), availability of agricultural inputs (seeds, pesticides, tools) at heavily subsidised rates, and incentives for production of certain outputs such as oilseeds and compost from vermiculture. The *Beeja Grama Yojane* scheme provides improved seeds by planting a variety of seeds locally.

Under the Karnataka land reform of 1974, laws were introduced to give a person illegally cultivating the land belonging to another person the status of tenant. Landless labourers who were cultivating the land of a landlord were also given tenant status. A tenant then has certain rights, such as the right to build a house on the land being cultivated. This policy has resulted in the reduction in size of many large landholdings and redistribution of land among the landless. In turn, this has resulted in an overall increase in production, and the livelihoods of landless farmers has improved. This was a very strong measure taken by the state government towards poverty alleviation.

In recognition of the pressure on groundwater resources and in order to preserve levels of the water table for irrigation, state policy rules that borewells must be located at a minimum distance of 100 metres apart. However, this rule appears to be grossly violated in practice, especially on private land. The state government introduced a scheme, *ganga kalyana yojane,* which aimed to increase access to irrigation (and therefore productivity) through the provision of hand pumps fixed to borewells. Misuse of these has been reported, however.

Source: Nidagundi and Patil, 1999.

3.1.4 Natural Resources

The implementation of policies that impinge upon the use of renewable and non-renewable natural resources found in the peri-urban interface is likely to have an effect on the development of these areas. Examples include policies to protect natural or man-made forests near or close to major towns. An important issue here is an understanding that for the rural and for many of the peri-urban poor, secure access to a resource base may lie at the basis of their survival. In the case of forests, for example, these often provide the poor in the peri-urban interface with woodfuel for cooking (Soussan, 1998).

Box 7: Management of Water Resources in the Pirapama River Basin, Pernambuco, Brazil

The Pirapama River Basin (PRB) in the State of Pernambuco, Brazil, covers 600,000 km^2, encompassing eight municipalities and two thirds of the Recife Metropolitan Region, with a population of approximately 1.4 million.

Recife experiences water shortages caused by population growth and increased industrial demand, exacerbated by recent droughts and pressure from tourism. There has also been increased pollution of reservoirs and rivers in the PRB, largely attributed to discharges from distilleries, runoff from fertilisers and agrochemicals, untreated human waste and solid waste and leaching from landfills. These problems have significant impacts on the quality and quantity of available water, and also on the health of the population of the region.

The Pernambuco State Environment Agency (CPRH) is undertaking an Environmental Control Project with funding from the British Government's Department for International Development (DFID). The overall goal

of the project is to improve public health conditions through the sustainable supply of clean water for domestic and industrial uses. The objectives of the project are to assist state and municipal institutions within the remit of CPRH, and the production and implementation of a sustainable development plan for the PRB. The inter-institutional and multi-disciplinary project aims to achieve a balance between the different and conflicting objectives related to sustainable economic growth, environmental management and social development in the PRB. The project aims to produce plans for environmental improvement and monitoring in the PRB and guidelines for environmental and social appraisal of new development in the PRB.

To manage the PRB, CPRH has set up working groups including representatives from the Water Company, university, Metropolitan Development Agency, Rural Development Agency, and five municipalities, organised around themes such as socio-economic issues, pollution, and land-use/agriculture. The working groups carried out the initial data collection for the project, and this was found to be beneficial because of local people's knowledge of environmental problems and opportunities in the area. The use of focused working groups was also extremely effective for encouraging local ownership and institutional co-operation.

Stakeholder analysis was used to identify and classify stakeholders as primary or secondary stakeholders. Primary stakeholders are those worst affected by the poor water supply, drainage and sanitation and included farmers and fishermen. The project had to address conflicts arising between different stakeholders, principally those creating pollution and those affected by it.

CPRH carried out technical studies, and, together with the Water Company, developed an environmental monitoring system. Their strategy involved establishing individual River Basin Committees and an overall PRB Committee. These committees comprise representatives from all stakeholder groups. Community fora for primary stakeholders, a management council comprised of secondary stakeholders and a steering committee to oversee the project implementation will also be established. A new federal law entitled "Policy and Management of Water" has also been introduced, ruling that states should establish an integrated water resource management system and set up a State Committee for Natural Resources and individual River Basin Committees.

Source: Dallison *et al*, 1998.

In India, the Karnataka State policy promoting the use of Liquefied Petroleum Gas (LPG) in Hubli-Dharwad (see Box 5) arose partly from a concern for the use of firewood from nearby forests by the poor (Universities of Birmingham, Nottingham, and Wales at Bangor, 1998). Although LPG has substituted fuelwood in much of the urban area, the use of fuelwood from forests still remains prevalent in peri-urban and rural areas, and has led to serious forest depletion around Hubli-Dharwad. As a consequence, the state Forestry Department has switched from a role of energy supply to one of forest conservation. Conflicts have arisen between the Forestry Department wanting to reforest common areas with eucalyptus trees and local people. Reforested areas are also prone to further deforestation, as found in the case of Aminbhavi village (Nidagundi and Patil, 1999). Other pressures on the forest fringe arise from *gowlies*, who supply *kawa* - made using firewood to heat milk - to Hubli-Dharwad, and encroachment by poor cultivators. Despite the creation of the Forest Conservation Act in 1980, which orders prior approval from central government for non-forest activity within forest areas, this policy has proved difficult to enforce in practice (Universities of Birmingham, Nottingham and Wales at Bangor, 1998).

A more worrying - but unverified - concern arises from the possible impacts of deforestation on the local climate in the Hubli-Dharwad area. This is a prime agricultural area, but heavily dependent on irrigation. Recent shortages in rainfall and ensuing droughts have led to the failure of many crops, with serious implications for the livelihoods of poor farmers who have least access to irrigation. Such changes have been reported in Kotur and Mugad villages over the last 4-5 years. In Kotur, the drying-up of lakes has also been reported, and in Gokul village, changes in the local climate have lowered the water table and dried up borewells (Nidagundi and Patil, 1999).

Water is a natural resource which is often affected by changes in the urban system far beyond the city boundaries. In the Metropolitan Region of Recife in Pernambuco State, Northeast Brazil, the demands of industry and growing population in the urban region have led to the

pollution of water resources in the river basin, which spans eight other municipalities outside Recife. Box 7 outlines the policies and strategies being employed by the Pernambuco State Environment Agency in addressing this situation (Dallison *et al,* 1998). Similarly, in the province of Sichuan in Southwest China, urban development has led to the contamination of the main rivers of the region from industrial effluents, including heavy metals, and untreated sewage. Those principally affected are downstream and peri-urban communities, who use the rivers for washing, fishing, duck rearing and agriculture. Here the rates of water-borne diseases are the highest in China. As the province of Sichuan is one of the main tourist areas in China, the levels of water pollution and the ensuing risks to public health are also threatening the development of the tourist industry (Mott MacDonald, 1999).

Although much attention is given to the effects of the expansion of urban systems on agricultural land, natural areas are also vulnerable to changes, as illustrated by the case of fish species in Oregon, USA, which is described in box 8.

Mineral extraction is governed by the locations where minerals are found. In the United Kingdom, mineral sources may be exploited when they are found within designated green belts - which come under strict restrictions as to other forms of development - as long as specific regulations are adhered to. These regulations specify that mineral extraction should be regarded as a *temporary* activity, and require that high environmental standards are maintained and that the site is well restored when extraction has ceased. The UK Department of the Environment states that all local planning authorities should include appropriate policies with regard to mineral extraction in their development plans and that environmental standards at mining sites within green belts should be monitored (British Government, 1995).

Box 8: Regional Watershed Management to Protect Fish Species in Oregon, USA

In the States of Washington and Oregon, eight species of salmon and steelhead are listed as threatened and one as endangered under the Endangered Species Act. Oregon has devised a strategic plan to protect its watersheds and to restore salmon and trout resources to productive and sustainable levels that will provide substantial environmental, cultural, and economic benefits. The state recognises that rivers, streams and fish do not stop at jurisdictional boundaries, thus calling for a regional approach to fish conservation.

The regional planning and policy-making approach is co-ordinated by the Portland Metropolitan Authority, Metro. Metro has the unique position of being able to reconcile land use and fish recovery throughout the region, as it is the regional strategic planning forum of 24 cities and three counties. This strategic approach to natural resource conservation is part of a wider growth management strategy to avoid the expansion of Portland's Urban Growth Boundary (see Box 2), and to reduce the impact of development on waterways.

Metro has adopted policies and strategies for the conservation of the natural environment, both as a habitat for fish species and also as a vital part of communities, including:

- The acquisition of 27 miles of stream or river banks and 4,140 acres of important natural areas throughout the region via an open spaces, parks and streams bond measure.
- Adoption of the Stream and Floodplain Protection Plan which provides standards for limiting development on floodplains and along streamsides, to reduce erosion and improve water quality. However, this plan is currently under appeal by developers.
- Conduction of a fish and wildlife habitat inventory to identify areas necessary for maintaining biodiversity and watersheds for which protection, enhancement or restoration will be necessary through both regulatory and incentive-based measures.
- Collection of household hazardous waste throughout the region in order to reduce water pollution from improper disposal, and establishment of two permanent facilities where such waste can be deposited. Metro also closely monitors illegal dumping in collaboration with the Department of Environmental Quality.
- Promotion of integrated pest management to reduce pesticide use in the region, and promotion of composting and "grasscycling" to increase water conservation and reduce the use of lawn fertiliser.
- Planning of transport with consideration for the conservation of waterways and fish species, for example, by ensuring that culverts do not cut off fish passage.
- Implementation of a citizen activism and education programme, which provides financial assistance and contributions of staff expertise and logistical support to local watershed councils and other groups,

to increase their capacity to educate and motivate citizens to restore and protect streams in their own areas.
- Awarding of habitat restoration and environmental education project grants from Metro's Regional Parks and Greenspaces Department.
- Planned implementation of a no-build zone along the banks of rivers and streams.
- Proposed introduction of new building standards whereby all new development would be designed to eliminate run-off that pollutes streams and flushes out juvenile fish.
- Future conduction of an intensive outreach programme on strategies to protect regional fish and wildlife habitat along streams and rivers, to include workshops and open fora.

Source: Oregon Metro, 1999a and b.

3.2National Environmental Strategies

Over the past two decades or so, a number of countries around the world have engaged in national and regional strategies to help them confront environmental changes, preserve natural resources and plan for the future. Their nature and scope have varied over the years and from one country to another. A review of such strategies has collectively labelled them “national sustainable development strategies”, arguing that:

> They are needed to provide a framework for analysis and a focus for debate on sustainable development and processes of negotiation, mediation, and consensus-building, and to plan and carry out actions to change or strengthen values, knowledge, technologies and institutions with respect to priority issues (Carew-Reid et al., 1994, p. xiii)

Although the notion of sustainability *stricto sensu* only entered the language of plans produced after the 1992 Rio de Janeiro UNCED meeting, many countries have produced strategies of one kind or another whereby investment and institutional priorities are established, aimed at preserving natural resources, curbing emission levels, reducing poverty, or redressing social and economic imbalances. Strategies produced in several countries in the 1980s were followed after UNCED by the preparation of national strategies for sustainable development in the early to mid-1990s. In 1997, the UN General Assembly Special Session reviewed the target date for producing such strategies to 2002.

Box 9: A Typology of National Environmental Strategies

National Conservation Strategies: These arose out of a 1980 proposal by the World Conservation Strategy "as a means of providing a comprehensive, cross-sectoral analysis of conservation and resource management issues, to integrate environmental concerns into the development process" (Carew-Reid et al., 1994, p. 36). Such strategies resulted in policy documents and were generally strongly process-oriented, seeking to develop political consensus around issues identified by cross-sectoral groups.

National Environmental Action Plans: A type of strategy required under World Bank conditionality aid programmes from 1987 onwards to provide a framework for integrating environmental considerations into overall economic and social development programmes, sometimes in response to structural adjustment requirements. They usually consist of a package of environmentally-related investment projects, many of which call for donor assistance.

Green Plans: These were produced by Canada and the Netherlands, and consist of an evolving process of comprehensive, national programmes for environmental improvement and resource stewardship. They set limits to emissions and waste, with targets and schedules for reducing them.

National Environmental Management Plans: Developed by many island countries of the South Pacific, co-ordinated by the South Pacific Regional Environmental Programme, with support from the Asian Development Bank, UNDP and IUCN. They are designed to produce a portfolio of programmes and projects for donor support.

National Sustainable Development Strategies: This is a generic name used to describe "a participatory and cyclical process of planning and action to achieve economic, ecological and social objectives in a balanced and integrated manner" (Carew-Reid et al., op. cit., p. 37). They take many forms and build on many of the above approaches.

Source: Carew-Reid et al., 1994.

Box 9 summarises the main types of strategies found in many countries, often prepared by national governments with the help of international support agencies. These strategies tend to be a complement to (although in some cases enter into contradiction with) national development plans, an instrument used by governments around the world particularly since the middle of the twentieth century, as a means of establishing development priorities and producing a framework for investment and co-ordinated institutional action.

In addition to the national-level strategies summarised in Box 9, some countries have produced provincial or regional conservation and sustainable development strategies with the aim of creating similar frameworks for action at the provincial or state level.

Given the increased political relevance that sustainability issues have acquired among donor countries, and as aid agencies start demanding that development projects fit into an overall national framework, by the late 1990s countries with a completed national strategy for sustainable development are more likely to benefit from larger aid funds. There is no set approach to producing such strategies, nor are there agreed international guidelines for doing so. A recent review of some national strategies (IIED, 1998) has concluded that, when it comes to actors, in some countries NGOs are placed at the centre of their national strategy, while in others the strategy is government-led. Many are built on national conservation strategies or national environmental action plans of the type summarised in the box.

Similarly, many of the strategies produced initially have been criticised for their concentration on environmental issues, rather than on the more wide-ranging concerns arising out of a sustainability framework. In many cases, the strategy has been limited to producing a final document, rather than seeking to introduce change in projects or procedures (ibid.). Participation in the preparation of the strategies has generally been limited to central government officials so that in practice strategies have been poorly linked to development trends. Finally, where they have been present, donors have tended to dominate the process.

4. TOOLS AND INSTITUTIONS FOR POLICY FORMULATION AND IMPLEMENTATION

There are few documented cases of policies or strategies that specifically target the peri-urban interface in a developing country context. This is not surprising, as a concern with this issue is recent. Those that do exist tend to have a spatial focus, and are therefore generally limited in the tools and institutions which they can draw upon to achieve their goals. For example, the practice of conventional rural land-use planning will tend to be restricted to experts, who often lack the necessary expertise or inclination to involve poor farmers in a process of consultation, let alone a strategy formulation (Dalal-Clayton et al., 1999).

Different approaches to rural land-use planning have been used in developing countries as ways of rationalising the use of scarce resources in given cultural, geographical and economic contexts. However, the practice of land use planning often requires complex and sophisticated techniques which place high demands on experts who also tend to be outsiders. This means that locals are only involved in certain stages of the process, with the result that their better knowledge of local realities is not taken into account. Without a project of this kind being appropriated by locals, chances of success are low.

Building on a critique of more conventional rural land-use planning practice, Dalal-Clayton and Dent suggest a redefined set of steps, as summarised in Box 10.

Box 10: Steps in Rural Land-use Planning

Step 0: Foster partnership
An adequate identification of stakeholders is the foundation of legitimacy and broadly-based commitment to a plan.

Step 1: Setting the goals and ground rules
Goals may emerge from local concerns or national issues. These must be ranked, and criteria by which decisions will be made must be agreed and weighted. Decisions are made about the location, size and boundaries of the planning area, scope and time frame of the plan, responsibilities of various partners, and so on.

Step 2: Organising the work
Tasks to be accomplished, people and other resources needed, and schedule of activities.

Step 3: Structuring problems and opportunities
Finding out about the present situation, assessing why it is undesirable, and identifying ways in which it can be ameliorated.

Step 4: Specifying alternatives
Rigorous appraisal of different ways of tackling a problem, even if they do not involve land-use options (e.g. projects such as well boring or education programmes).

Step 5: Evaluation of land suitability
Biophysical comparison of requirements of proposed land use with what the land can offer.

Step 6: Appraisal of alternatives
This is done in economic, environmental and social terms, whilst in the past this was usually done only as a cost-benefit exercise.

Step 7: Choosing the best option
This is likely to be the outcome of intuitive judgement and hard bargaining.

Step 8: Prepare a land use plan
This states what has been decided and why, how it should be accomplished and, if funding is required, how much it will cost.

Step 9: Implementing the plan
Most failures arise from lack of support which should already be evident in steps 0, 1, 3 and 7. Where a project involves government departments, new project management institutions should not be created to

circumvent existing official structures (as donors often do). A better option is to work with existing government or other structures and try to overcome problems.

Step 10: Monitoring and revision
This refers not only to the use of funds for the project but also to the attainment of the goals of the plan (e.g. arresting land degradation, improvement of water supplies). Some feedback using updated information will be necessary.

Source: Dalal-Clayton and Dent, 1999, quoted in Dalal-Clayton et al., 1999

There are nonetheless instances where policies using innovative approaches from which one could draw interesting lessons that might be applied to interventions in the peri-urban interface. Given the areas of concern of the research project of which this paper is one of the outputs, it is useful to highlight two issues in these policies. One refers to the institutional landscape within which the policies have either been formulated or are proposed to operate in. The other refers to the tools of intervention through which the policies are implemented.

The following sections summarise three case studies which help illustrate how certain institutional arrangements and certain tools of intervention might contribute to promoting sustainability and improved livelihood strategies in the peri-urban interface. They draw partly on a review of existing interventions in developing countries where external support agencies played a role (cf. Budds and Minaya, 1999), but also on a brief review of interventions in developed countries, namely the US and the UK.

4.1 Case Study 1: Incorporating the Principles of Sustainable Development into Strategic Policy/Planning: the Case of Hertfordshire County Council, UK

Hertfordshire County Council (HCC) has taken an innovative approach to incorporating sustainable development into its Structure Plan (see box 1 for details on structure plans in the United Kingdom) by integrating the principles of Local Agenda 21: policy integration and participation (Counsell, 1999a). This approach differs considerably from the conventional land-use and development approach to strategic planning.

This holistic approach, termed the “Whole Settlement Strategy” (WSS) plans for cities as complete urban systems by taking an integrated and cross-sectoral approach of planning issues, in order to integrate economic, social, land use, urban policy and environmental decision-making, with citizen participation as a key component. The WSS policy is to examine the whole range of activities carried out within a town and the interactions between them, for instance service delivery to the town as well as the use of energy, water and transport, taking into account issues such as the specific needs of minority groups, personal safety and crime prevention. The WSS determines the amount of growth in each town, guided by overall policies advocated by HCC, such as preference for planned regeneration within existing urban areas for the accommodation of housing demand, rather than the development of new sites.

In the UK, the existing structure for citizen involvement at the strategic level takes the form of a three-stage process: public consultation, formal objection and the Examination in Public (EiP) before a panel of experts. This approach is based on the premise that planners decide the plans for development that are to be undertaken, make these known to the public, and then the public has the *opportunity* to raise objections. HCC’s WSS approach, however, takes a different stance by adopting mechanisms that *actively seek* the participation of local communities in the formulation of decisions and plans, including minority groups, such as ethnic communities and the disabled. The participation techniques employed are based on those of Agenda 21, principally discussion groups and focus groups, and make use of the visioning technique.
The Hertfordshire approach was heavily criticised by the pro-development lobby, which saw it as anti-development. It considered that the WSS strategy went too far beyond the normal scope of land-use planning issues in UK development plans, and also adopted a definition of

'sustainable development' which was too radical. The EiP panel also found the approach to participation too radical, and suggested that community-based appraisals to inform local plan reviews be adopted instead.

The Hertfordshire approach therefore illustrates both the limitations of the conventional planning system based on land-use and its inappropriateness for incorporating non-spatial concerns, and also the difficulty of incorporating the principles of sustainable development into a planning system which lacks policies that can promote greater integration of social, economic and environmental considerations. It also exemplifies the difficulty of reconciling developmental and environmental concerns and achieving consensus between conflicting parties in planning at the strategic level (Counsell, 1999a).

4.2 Case Study 2: Links Between National Environmental Policies and Urban Environmental Management Guidelines in Thailand

The situation in Thailand is very similar to that of other newly industrialised countries, characterised by rapid economic expansion (especially of the tourist industry) and concurrent population growth in the urban areas with widespread increases in water, air and noise pollution (GTZ, 1994).

The first important policy on natural resources and environmental management in Thailand featured in the Fourth National Economic and Social Development Plan (1977-1981). However, environmental protection policy was not systematically enforced. The following plans emphasised not only environmental protection but also the performance of the administration including co-operation between local authorities, NGOs, community based management and local action plans. Policies gave great emphasis to the protection of natural resources, management of pollution and public co-operation; however there is no specific mention of the peri-urban interface.

The Department of Local Administration (DOLA), within the Ministry of the Interior, is one of the offices responsible for the management of natural resources and the environment in both urban and rural areas. In response to government policy guidelines, it declared the following objectives for its five-year policy (1992-1996):

> "To develop and improve the systems of natural resource and environmental administration and management. Enforce the law. Raise the awareness of the public to co-operation in protecting the environment, preventing environmental problems, and conserving natural resources."

The intention of DOLA was to promote, support and upgrade the capabilities of local authorities to take responsibility for the management of the urban environment. At this point GTZ was invited to assist in launching a programme for strengthening municipal capability in urban environmental management.

GTZ proposed a series of principles and strategies of urban environmental management to be applied at Municipal level in Thailand. Most recommendations are for the "inner city" although some consideration has been given to the urban fringe, the use of natural resources and, to a limited extent, pollution and waste generation outside urban municipal boundaries.

4.2.1 Land Use Planning in the Urban Fringe

Recommendations for the management of the urban fringe are related with new housing and industrial development in hazardous areas (e.g. flood-prone) or on prime agricultural land. They are also concerned with the lack of environmental services and infrastructure in the urban fringe, and a number of recommendations are made for the improvement of infrastructure, sanitation, social welfare and economic initiatives in low-income settlements in the urban fringe.

The guidelines for land-use planning on the urban fringe state that development should not be permitted merely because there is land. All new developments should conform to a basic local plan that allows for the efficient installation and operation of infrastructure. In order to carry this out, the municipality must appoint a Planning Officer supported by adequate trained staff to plan, control and monitor development. The Planning Officer should work out a schedule for development of all areas of the town.

Development should only be encouraged and permitted in areas designated by the comprehensive plan. Particular attention should be given to safeguarding existing irrigation systems and other aspects of farming.

GTZ considers that 'ribbon development' (where development tends to follow major roads extending from the city, whether or not infrastructure is present) can hinder the balanced development of the hinterland in the future. The guidelines therefore suggest that the municipality resist this form of development, or permit it only within the framework of specific plans for the hinterland. This can be undertaken jointly with the Department of Highways, until such time that the area as a whole is ready for development.

In the case of floodplains or other areas subject to natural hazards, the guidelines discourage development in these areas, and recommends that they be reserved for flood retention/aquifer recharge and public parks. Planning staff should make an inventory of the geological, ecological and economic resources of the municipality, and the comprehensive land use plan should ensure that other land uses are not squeezed out by development.

The guidelines also make recommendations for the generation of waste with some reference to transboundary (inter-municipal) pollution, for which recommendations are in line with those for resource management.

4.2.2 Use of Renewable and Non-renewable Resources

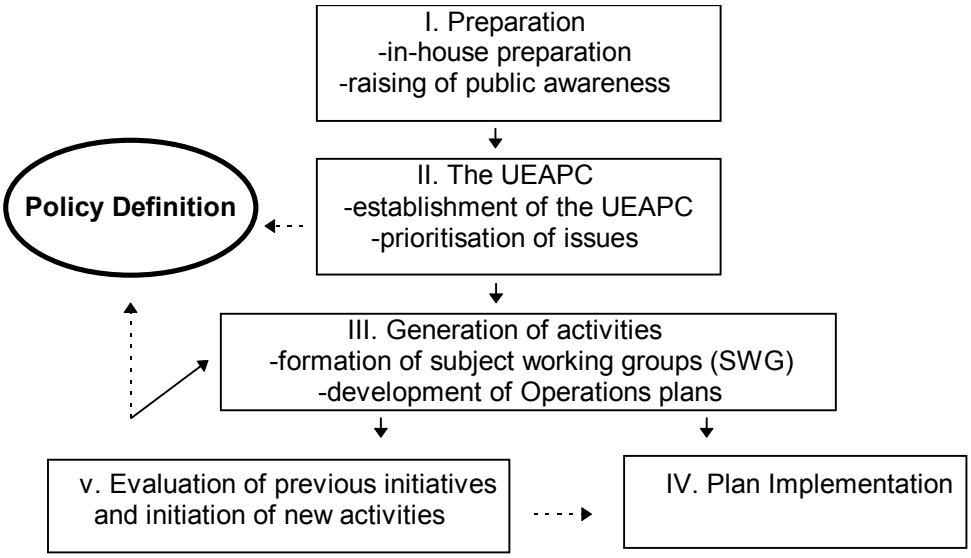
GTZ's urban management guidelines confront the problem of natural resource degradation arising from development pressures, albeit from an urban perspective. The main policy recommendation is the co-operation between different neighbouring local authorities in order to tackle problems which escape their own jurisdiction. Neighbouring local authorities should share planning and management strategies for the urban region as a whole, as well as co-operating closely with one another and with the provincial authorities and relevant national agencies, in order to establish compatible regional development and environmental management strategies.

In order to gauge the threats to natural ecosystems as a result of development, the municipality and its regional partners should compile a regional resource inventory of all natural resources, and record the current development pressures on these resources. A regional strategy for the long-term protection and development of these resources will involve an agreement among the municipality, its regional partners, the Department of Land Development, the Office of Environmental Policy and Planning, and the other national agencies, on the balance to take between development and conservation.

The guidelines recommend that restrictions be drawn up for mining companies, and rules to minimise the immediate sterilisation of land and pollution during operations, as well as how to return the land to a satisfactory condition when operations are complete.

4.2.3 Urban Environmental Action Planning Committee

In order to scale up from policy guidelines to policy formulation and implementation, GTZ's environmental management strategy proposes the establishment of an Urban Environmental Action Planning Committee (UEAPC) where different stakeholders are organised through 'subject working groups' to identify and prioritise environmental issues and develop a coherent policy framework for the ongoing action planning process. The UEAPC sets a timetable for reviewing strategy and policy regularly in order to achieve an integrated view:



Policies defined by the UEAPC are then passed to the municipal council for adoption and integration into the activities of the municipal staff. Where appropriate, they are promulgated as municipal regulations.

4.3 Case Study 3: Citizen Involvement in the Planning Process in Oregon, USA

In the State of Oregon, USA, citizen involvement at all stages of the planning process is a mandatory component in state planning law (State of Oregon, 1992, 1996, 1997a and 1997b).

The state advocates the policy of including people in the planning process for a number of reasons. Firstly, citizen involvement is part of the democratic process. Secondly, it leads to better planning through the provision of information from local people in the formulation of planning decisions. Citizen involvement educates people about planning so they are better informed to contribute to decision-making and ensure the laws are enforced, and this fosters co-operation between citizens and government, leading to fewer conflicts and less litigation suits. It should be noted that the avoidance of litigation processes is a key consideration in the context of planning in the USA, since these suits are frequent and costly.

Oregon defines the term 'citizen' not just as individuals, but organisations that represent groups of individuals, such as corporations, government agencies and interest groups. This definition is important, because today such organisations play a vital role in land use planning, and many citizens find it difficult to participate as individuals through lack of time, money or expertise. Oregon actively encourages the participation of such groups.

The Committee for Citizen Involvement (CCI) is the vehicle through which Citizen Involvement Programs (CIPs) are undertaken. Each town or city must have a CCI and this is made up by unpaid volunteers. The CCI can be based around a geographical area, or an important issue. The CCI is an advisory committee with citizen involvement as its sole function, to ensure that citizen involvement is not overlooked in the planning process. Its main purpose is therefore to monitor CIPs. Towns may also have Citizen Advisory Committees (CACs), which are non-mandatory committees organised by geography or function/issue and deal with a variety of planning and land-use issues. CACs give advice on the planning process with regard to their specific area or issue.
Oregon stresses that participation is not merely a matter of getting involved, but *expressing oneself at the proper time and in the proper forum.* A key factor of the CIP is to inform citizens about **how, when** and **where** they may participate in order to make the planning process

efficient. The state advocates the involvement of citizens during the planning process. However, once decisions are implemented as a result of the planning process in which citizens have been involved, further objections from other citizens are not accepted.

Each county and city/town plan must include a CIP which describes how the public can participate in each phase of the planning process. State regulations and local laws must be written into plans, so that citizens do not have to consult legal documents. Whichever governing body prepares and adopts a comprehensive plan must adopt and publicise a CIP detailing the procedures by which the general public can be involved. The CIP should reflect the scale of the proposed development: if it concerns a minor amendment, a small-scale programme is appropriate; however, if it concerns a major controversial proposal, the CIP should be scaled up. The CIPs must be periodically reviewed and updated. A good CIP will go beyond the minimum requirements and seek to involve all those who may be affected or interested – not only those living near the proposed development. Although governing bodies are not required to do more than the minimum, a well-prepared CIP is recommended to avoid costly revisions of plans and litigation suits at a later stage.

The CIP is an *integral part* of the development plan rather than a separate category or an add-on, and must articulate and make provision for the following six components:

1. **Citizen involvement:** provide for widespread citizen involvement which includes a cross-section of affected citizens, using range of media and dissemination techniques. Citizens can be represented by Committees for Citizen Involvement (CCIs)
2. **Communication:** assure two-way communication with citizens and establish mechanisms for this, such as mail-back questionnaires or newsletters
3. **Preparation of plans:** provide the opportunity for citizens to be involved at all stages of the planning process: preparation of plans and implementation measures, plan content, plan adoption, minor changes and major revisions
   Through the CIP, citizens should have the opportunity to:
   - inventory, record, map, describe, analyse and evaluate the elements of plan development
   - Identify public goals, develop policy guidelines, evaluate alternative land conservation and development plans, and prepare comprehensive land-use plans
   - Review and recommend changes to proposed comprehensive land-use plans prior to public hearing process (which formally considers proposed changes) and adoption of plans
   - Develop, adopt, and apply legislation needed to carry out land-use plan; review each proposal and application prior to formal consideration of plan
   - Evaluate land-use plans
   - Review and make recommendations on proposed changes in land-use plans prior to the public hearing process
4. **Technical information:** ensure that technical information is available in an understandable or simplified form. Agencies evaluating or implementing public projects (of a technical nature) should assist the CIP for this purpose.
5. **Feedback:** assure that citizens receive a response from policy-makers through clearly-stated mechanisms for this purpose; citizens' attitudes should also be synthesised.
6. **Financial support:** ensure sufficient funding for CIP is available to allow effective citizen involvement.

When a development activity is proposed, specific arrangements must be set out to determine who must get notice of the proposed decision, what information must be contained in that notice, when the notice must be provided, and the arrangements for appealing against the proposed decision.

The Oregon Citizen Involvement Advisory Committee (CIAC) advises the LCDC and local governments on matters pertaining to citizen involvement. It is an advisory body with no explicit or implied authority over local government or state agency, does not set policy or review plans. It also produces material to educate and inform citizens about citizen involvement, gathers and disseminates information about techniques and advises state and local government officials

about ways to enhance citizen involvement. CIAC committee representatives are unpaid volunteers appointed by LCDC on two-year terms.

Oregon has drawn up guidelines on the implementation of CIPs for their maximum efficacy. It stresses that CIPs should be drawn up like any other programme with detailed work programmes, specified budgets, skilled staff and properly allocated staff time. It provides guidelines on effective planning and dissemination, gives advice on how to avoid common problems such as apathy on the part of the citizens and recommends methods for the effective running of the CIP.

4.4 Lessons from the Case Studies

The above case studies have illustrated innovative institutional arrangements and tools and that can be used to make the strategic planning process more effective, thus influencing policies that can affect the peri-urban interface.

The institutional arrangements in the three cases have all shown attempts to integrate policy concerns, and use a more democratic and participatory approach to planning and decision-making at the strategic level. The Whole Settlement Strategy adopted by Hertfordshire County Council consists of cross-sectoral planning, aiming to plan issues in an integrated manner rather than as isolated issues. The Thailand approach aims to protect natural resources by promoting policy integration between neighbouring local authorities. In Oregon, strategic policies are designed by state agencies and implemented via a comprehensive citizen involvement strategy.

The tools of intervention in the cases reflect a shift in strategic planning from the domination of land-use planning to a process in which a variety of stakeholders is increasingly involved All three cases have attempted to integrate public participation into strategic planning. Hertfordshire has adopted participation techniques used in Local Agenda 21, Thailand has set up Urban Environmental Planning Committees comprising different stakeholders to devise policies to be recommended to the Municipal Council. The Oregon citizen involvement approach advocates the involvement of citizens at all stages of the planing and decision-making process, in the belief that more democratic methods of planning leads to better informed citizens and hence better planning, with less conflicts and litigation. In this way, all three cases have sought to maximise the effectiveness of the strategic planning process through more participatory approaches.

These innovative approaches, however, have not been problem-free. The Hertfordshire strategy came up against strong opposition from the pro-development lobby which threatened the future of the very approach. Counsell (1999b) believes that the participatory and visioning approach adopted by Hertfordshire can achieve meaningful participation at a stage prior to strategy formulation, but after this vested interests and "nimbyism"[3] tend to cloud the real issues and restrict the ability of people to engage in strategic thinking. The Oregon approach relies on volunteers to run its Citizen Involvement Advisory Committees, who are recruited for two years, paid minimal travel expenses, and receive a certificate of appreciation after their term. The Citizen Involvement Programme has experienced minor difficulties in finding residents willing to act as volunteers, as the benefits are not substantial. This exemplifies the conflict between state initiatives to involve the public in planning and decision-making, and motivation of the part of the citizens.

5. CONCLUDING REMARKS

This paper has reviewed a range of policies and strategies which directly or indirectly impact upon the peri-urban interface. Since a specific concern with the peri-urban interface from the points of view of sustainability and social equity does not figure in the agenda of most

[3] "Not In My Back Yard"

development interventions be these by governments, the private sector or NGOs, the review has sought to examine a broader canvas of interventions at a national, regional and local level.

The paper makes a distinction between policies with an explicit spatial dimension and those of a sectoral nature generally lacking an explicit spatial focus whose application has usually unintended effects on the environment and the livelihoods of the poor in the peri-urban interface. Among spatial policies, those targeting the use of land around the urban area were found to be most prevalent. This is facilitated by the existence in most national contexts of well-established institutions (such as planning agencies) and legal tools geared to regulating changes in the use of land. Such tools have been used in a variety of contexts usually with limited results, although as the case of Oregon shows, they have been more effective where citizen involvement has been successfully enlisted.

Other policies with an explicit spatial dimension can also help steer developments in the peri-urban interface towards attaining goals of greater equity and sustainability. Apart from those seeking to protect natural resources and minimise the production and flow of pollutants into the peri-urban interface, the review has identified policies which explicitly seek greater spatial integration and environmental equity. The government of Madrid, Spain, provided a good example of this in the 1980s, when it successfully integrated the poor southern districts into the metropolitan area, not merely physically but also in the psyche of its citizens.

But while spatial policies can achieve a certain measure of localised success, there is a need to identify and measure the effects of non-spatial policies, particularly as these are often designed by central government with little regard for the specific needs of localities. Thus, national transport policies which favour the use of the private car and penalise public transport are likely to promote sprawl, as has been amply documented in Britain and the US. Local governments can seek to counteract this but may end up adding a high burden to their budgets. And, in many developing country contexts, governments at all levels tend to be more preoccupied with increasing accessibility than with curbing emissions from fossil fuels or reducing sprawl.

Although this review has identified a lack of policies directed towards the peri-urban interface *per se,* it does not advocate the creation of policies specifically for it. Rather, it proposes that an awareness of problems and opportunities of the peri-urban interface be integrated *throughout* those existing policies that can have an impact on areas where the peri-urban interface occurs, many of which have been outlined here. It advocates greater awareness of the effects spatial and non-spatial policies can have on the peri-urban interface particularly as regards the goals of enhancing the livelihoods of the poor and achieving long-term sustainability.

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