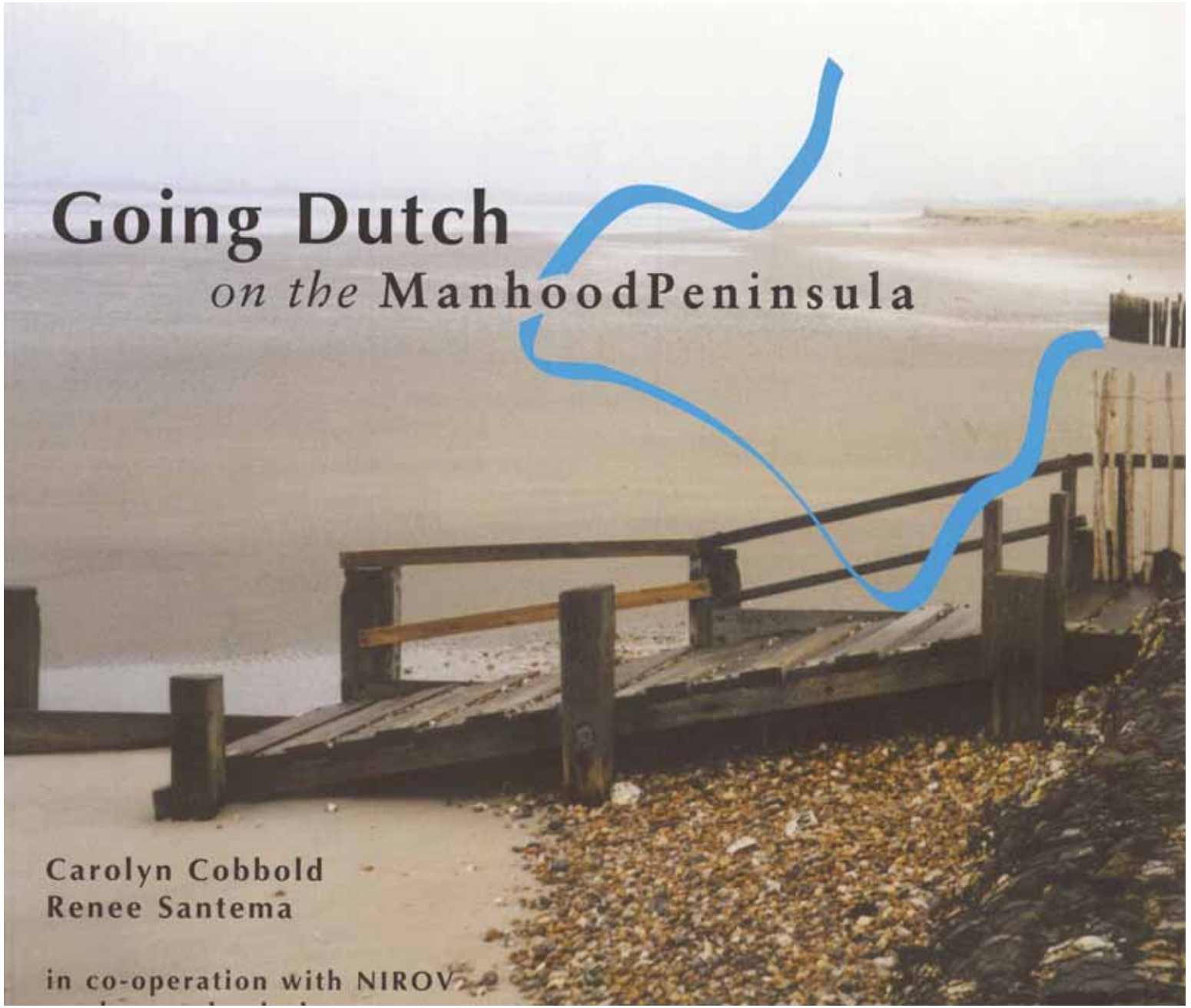

Going Dutch
on the ManhoodPeninsula
Carolyn Cobbold
Renee Santema
in co-operation with NIROV

Going Dutch *on the* Manhood Peninsula

Thou'lt find they Manhood all too fast
Soon come, soon gone! and Age at last
A sorry breaking-up!

Ode
Thomas Hood 1799-1845

Novel ideas include gravel pit homes and Selsey as an island!

Far-reaching ideas including waterside homes around new gravel pits close to Chichester, and a "marina hub" development near Chichester yacht basin, are now under discussion.

They were put forward by Dutch experts during a visit to the area, and full details of the proposals have now been issued.

The ideas are so radical – and expensive – that it is unlikely any will ever be implemented in full.

But district councillors agreed that there may be some elements which could be considered, and there will now be a debate by the council's coastal forum.

Patricia Tull (Lid) said at a meeting of the executive board that the experts were not bound by any of the constraints the council had, and could pluck ideas out of the air without having to justify or explain.

"I have difficulty finding anything here that could actually happen," she added.

The experts, from the Netherlands institute for spatial planning and housing, included coastal and water management engineers, town and country planners, landscape architects, transport managers and ecologists.

They chose the Manhood peninsula as the study area for their first overseas conference.

A report presented to the board on the outcome of their discussions said the scenarios they developed were not detailed blueprints or master plans. But they presented innovative approaches to managing long-term change.

A "golden rule" was suggested for the type of development that might be acceptable according to the height of the land above sea level.

No permanent development should be allowed below the four-metre land contour, and only "temporary or moveable" uses in the four to five metre belt.

Permanent developments should be permitted only on land above the five-metre mark.

"Each scenario suggested that the major settlements of Selsey and East Wittering should be defended, but differed in their approach to the long-term management of the coastline," said the report.

"It was recognised that some relocation of uses would be required. All of the proposals suggested the relocation of the Medmerry caravan site."

Alternative strategies were suggested to accommodate major development if this was considered necessary.

A "stone island" scenario saw Selsey as a location for major development, with a reinforced causeway providing access.

A "blue belt" scenario saw development – particularly housing – concentrated close to Chichester, taking advantage of the future working of gravel to provide a unique urban waterside environment, and leaving the rest of the Manhood free of further development.

A "marina hub" development saw concentration at the Chichester Yacht Basin, with severe restriction on access to the south by private car, with a park and ride facility and buses and cycles providing for all but residents' trips.

Development of intensive glasshouses was thought more appropriate in the Runcton and Tangmere areas.

One proposal suggested a "bike dyke" across the Medmerry frontage, allowing pedestrians and cyclists access, but also allowing over-topping and incursion of sea waters in periods of high tides and storms.

Medmerry lands could be used for high-value specialist crops that were saline tolerant, such as sea lavender and sea aster, that would complement the existing salad crop businesses.

Managed realignment of the coast could provide further opportunities for the creation of habitats beneficial for nature conservation, and could also provide additional recreational opportunities.

One of the key messages from the Dutch was that many of the area's perceived problems could turn out to be benefits, but that without long-term integrated planning the quality of the environment would slowly deteriorate.

"The innovative ideas developed should be the stimulus to a wider debate about the future of the Manhood area, with all the relevant bodies working with local people to find long-term solutions," said the council report.

■ The illustration above shows the "stone island" option suggested by Dutch planners that would see Selsey becoming an island, with a road on a causeway linking it to the mainland.

We would like to thank all the following organisations, authorities, businesses, groups and individuals, without whose help the workshop couldn't have happened

The sponsors (full addresses in appendix 4) In the UK
West Sussex County Council, Chichester District Council, The Environment Agency, Government Office for the South East (GOSE), WWF-UK, English Nature, UK Climate Impacts Programme, South East Climate Change Partnership, South East England Regional Assembly (SEERA), Southern Water plc, ABP Research & Consultancy Ltd., Posford Duvivier Consulting Engineers, Hampshire County Council, Chichester Harbour Conservancy, West Wittering Estate, Bunn Leisure Park (Selsey), Mr. J. Perry (Chairman of Apuldram Parish Meeting), and The Earnley Concourse, where the workshop took place.

In The Netherlands
National Institute for Inland Water Management and Waste Water Treatment (RIZA), Dwars Hederik en Verheij Consultants (DHV), National Institute for Coastal and Marine Management (RIKZ), Ballast Nedam, Proper Stok Building Company, Ministry of Agriculture, Nature Conservation and Fisheries (Department of Science and Knowledge Dissemination).

The providers of a brief for the workshop participants
South East Climate Change Partnership, WWF-UK/Sussex Wildlife Trust, Portsmouth Water South East England Development Agency, The National Trust, Chichester District Council, West Wittering Estate, Chichester Harbour Conservancy, Manhood Community College, Sidlesham Primary School, Friends of the Earth-Coastal Strategy Group, Natures Way Foods, National Farmers Union, Earnley Parish Council, John Way (Hazlewood Foods plc), Langmead, Sidlesham Parish Council, Birdham Parish Council, Apuldram Parish Meeting, North Mundham Parish Council, West Itchenor Parish Council, Donnington Parish Council, Selsey Town Council, and the Chichester Organic Garden Society.

The speakers and other workshop attendees
John Andrews (Posford Duvivier), Mike Beal (Chairman Selsey Town Council), Prof Peter Burbridge (Newcastle University), Michael Chater (Sussex Association of Local Councillors, Itchenor Parish Councillor), Kay Clay (East Wittering District Councillor), Rupert Clubb (Environment Agency), Tom Coates (HR Wallingford), Stuart Derwent (Southern Water plc), Richard Donithorn (West Sussex County Council), Phil Griffiths (Environment Agency), Harold Hall (West Sussex County Council), Simon Howard (Posford Duvivier), Sam Howes (Chichester District Council), Marinka Kiezebrink (RIKZ), John Kilford (West Sussex County Council), David Lowsley (Chichester District), Peter Midgley (Environment Agency), Keith Morgan (Chichester District Council), Bob Norris (Earnley Parish Council), Nigel Pontee (ABP Research & Consultancy Ltd.), John Ridd (Donnington Parish Council), David Tickner (WWF-UK), Joyce and Eddie Vines (Selsey Town Council), Brian Waters (Former engineer Posford Duvivier), Ed Wrigley (Selsey Town Council, Manhood Bridleways Association)

NIROV
Martijn Vos and Brendan McCarthy.

Workshop participants and chairmen
And of course to all the participants and the two chairmen, whose tremendous energy, enthusiasm and knowledge worked out so positively (full names, work addresses and professions are enclosed in appendix 3).

A special word of thanks goes to Mr Philip Coleman, Assistant to the Chief Executive of West Sussex County Council, for his constant support.

Carolyn Cobbold and **Renee Santema**
Birdham / West Wittering, May 2001

content

Foreword

From March 14-19 2001 a tornado of an unusual kind affected the Manhood Peninsula. A group of 18 Dutch and 10 British experts on coastal and water management issues and integrated planning visited the Peninsula for a 5-day workshop. Their task was to formulate ideas about a sustainable integrated planning approach for the future of the Manhood Peninsula.

The level of knowledge of all participants, their ability to get to the essence of the area's problems and qualities very quickly, combined with their enormous enthusiasm and energy was, in short, impressive. They have given us a tremendous number of new ideas, and, more importantly, have suggested a way of thinking which is particularly inspirational. It often takes someone from a distance to put things into perspective, to draw our attention to things we hadn't noticed, or had taken for granted.

'You are living in a very dynamic environment. It's in your hands to provide a direction for development in the area that will allow you to prosper, allow your children to have new, economic opportunities, to maintain the wonderful climatic and landscape conditions that you enjoy. This is one of the last remaining open areas of freedom, and choice and serenity in this part of the coastline. That is tremendously valuable. It is in your hands to work with that, and the natural processes, to create a new and exciting future" according to Professor Peter Burbridge, Director for the Centre of Tropical Coastal Management at Newcastle University, a leading world authority on coastal zone management, and one of the workshop participants.

We have been given a challenge and cannot abandon that. This report in front of you therefore is not only the product of this unique event, but also the starting document for a follow-up. West Sussex County Council is working closely together with Chichester District Council on this and is already organising a meeting on how to promote the Manhood Peninsula as a case study on sustainable integrated planning.

I hope that you as a reader of this report share my opinion that the tornado called 'Going Dutch on the Manhood Peninsula' has brought us a fresh non-destructive wind. We must make use of this new energisation.

John Kilford,
County Planning Officer, West Sussex County Council and Immediate Past President of Planning Officers Association

Executive Summary

Climate change and increasing development, environmental and other land-use pressures are presenting planners with huge challenges world-wide, particularly in coastal countries such as the UK and the Netherlands.

To examine how planning may need to adapt in the future, 28 Dutch and British professionals in planning, coastal and water management and the environment, studied a coastal area of southern England in a unique workshop sponsored by a wide-range of British and Dutch government agencies, private companies and environmental groups.

The area, known as the Manhood Peninsula, was chosen as a demonstration study because it faces many critical planning issues including coastal erosion, flooding, housing pressures, areas of environmental sensitivity, poor infrastructure, and a climate-sensitive economy based on tourism, agriculture and horticulture.

Aims of the workshop included a comparison of Dutch and British national, regional and local planning, coastal management and flood defence arrangements; an exchange of knowledge and understanding of integrated planning, coastal management and the impact of climate change between professionals from different backgrounds and cultures; a Dutch viewpoint on the local problems and opportunities on the Manhood Peninsula.

Input and involvement from the local community also was encouraged so that any pilot project that develops from the workshop will involve the public from an early stage of the planning process.

As a result of the workshop, three separate scenarios for the Manhood were produced, incorporating many, new ideas to solve existing problems in an integrated sustainable manner. The scenarios proposed are no blue prints for the future of the Manhood, as they have been based upon a limited amount of research and consultation. However, they provide a valuable series of suggestions for further research, analysis and consideration. The scenarios throw up new perspectives and opportunities for the organisations and agencies involved to explore and challenge.

The following are the main conclusions reached by the workshop participants.

1
A new long-term and integrated approach is needed for both planning and coastal management in the UK, which takes into account the effects of climate change. This approach should link together land use planning, coastal management, water management, housing development, infrastructure, transport, economic, employment and social issues, nature conservation and environmental issues, and should be **based on a long term vision**. The approach should be **flexible** so that solutions adopted now do not dramatically reduce options for the future.

2
Management of the coast and **planning of the coastal plain**, in particular, must **become more integrated and greater planning constraints** placed on coastal and river flood plain areas. Exposure to natural hazards, such as flooding, should be reduced by planning.

3
The Manhood Peninsula needs such an approach **now**. The Manhood's environmental qualities, on which its economy is largely dependent, have been severely degraded during recent decades and will continue to suffer from further degradation, unless a vision and long term, sustainable plan is adopted.

4
Plans should focus on **geographically defined areas** rather than administrative areas, and should look at areas in their **wider context**, to achieve more sustainable solutions.

5
By **bringing parties together at an early stage** in the planning process a greater consensus can be reached and a more holistic solution can be found. Also, by involving the public at the initial stage of the planning process, and to help formulate a vision and direction for the area, public confidence in the authorities can be increased.

6
Visualisation of ideas, on maps, drawings and cross-sections, can be very helpful in early discussions of any planning project (as long as they are not seen as a blueprint).

7
Take a positive approach to planning and see **problems as a chance to improve** the quality of a certain area.

8
The workshop has created a momentum and enthusiasm for a new approach within local agencies and the public. This should be used to drive the process forward to use the Manhood Peninsula and the outcomes of the workshop **as a demonstration or pilot project for a new approach to planning**.

Already West Sussex County Council and Chichester District Council have taken the initiative to set up a meeting with representatives from the local community, the Environment Agency, and with experts from various organisations from within and outside the Manhood Peninsula and Chichester District (fi. the Government of the South East, the South East of England Regional Assembly, Sussex Wildlife Trust, etc.), and chaired by an independent chair to establish a pilot project.

one

the Manhood PENINSULA

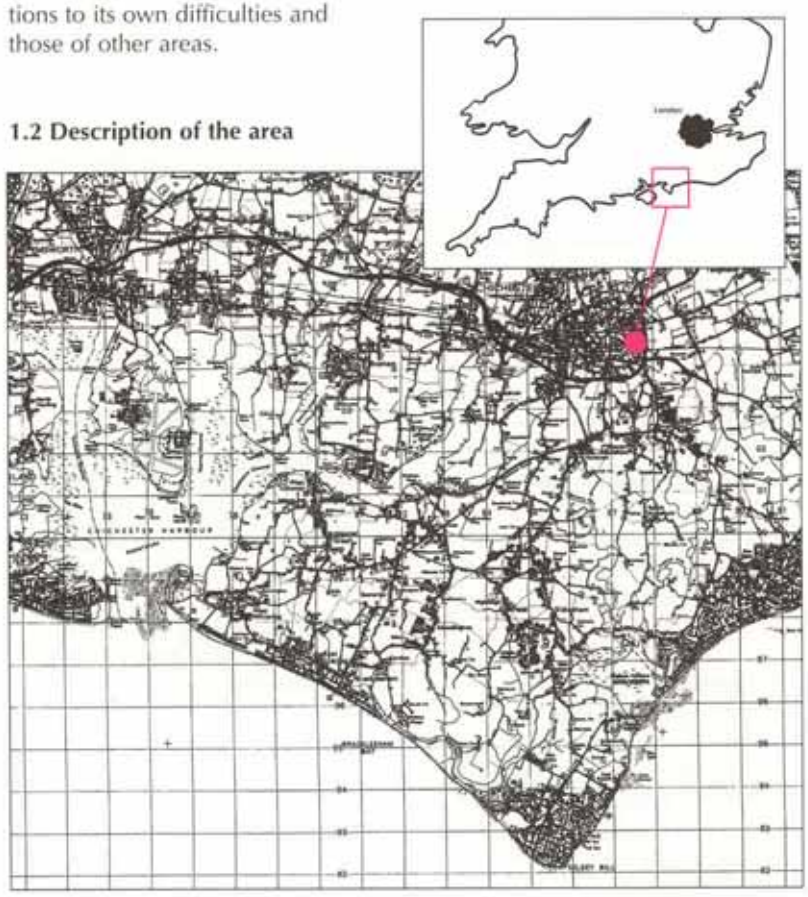
1.1 Why the Manhood Peninsula

the Manhood Peninsula is a coastal area under threat of flooding from the sea, rising water tables, and inland water ways. It also shares many planning problems of the Dutch and faces many of the problems increasingly shared by other areas of the UK, particularly in the South East: rapid housing development plus inadequate infrastructure; increasing conflict between housing, industry, farming and the environment; conflicts between sea defence and the environment; poor drainage; increased difficulties of providing good quality fresh water; plus a divided planning and management responsibility resulting in a lack of integration, and in a short-term planning approach, causing lack of trust from local residents towards the responsible planning authorities.

In many ways, the Manhood Peninsula is a microcosm of the entire South East. In addition, as a geomorphologically active part of the British coastline, still being affected by sinking land levels following the end of the Ice Age, and with a flood prone river bordering the peninsula, the effects of climate change are likely to be more dramatic and sooner felt here than in other parts of the UK.

As a distinctive area with natural boundaries and a unique landscape in an increasingly densely populated region, its problems and qualities make it the ideal location for a case study, which may hold solutions to its own difficulties and those of other areas.

1.2 Description of the area



Map of the area

1.2.1 Position

the Manhood Peninsula, a small, triangular peninsula of about 15x20km, is situated on the south coast of England, 160km south of London. It is one of the last relatively undeveloped stretches of coast line between Newhaven and Southampton. Forming part of the coastal plain south of Chichester it is semi-rural, open and flat. The Peninsula is bordered by the sea on its southern side; Chichester Harbour on its western side; Pagham Harbour on its east; and the A27, the railway, Chichester and the South Downs to the north.

High street East Wittering

There are 16 villages and settlements on the Manhood, with populations varying from 165 in Appledram to some 10,000 in Selsey. The total population on the Manhood in 2001 is 24,700, similar in size to Chichester, its nearest city. Employment is mainly in tourism, agriculture and horticulture, boat building and in local shops and schools. The majority of residents commute for work to Chichester and beyond, even to London.

1.2.2 Problems and potentials

Coastal and water management issues and climate change

A large part of the Manhood is an area at risk from flooding by the sea, lying below the 5m contour. A shingle bank of about 3-4 metres high helps to protect much of the Peninsula from the sea at Medmerry Beach but regular overtopping occurs. At this location there is a high risk of major flooding of land, property and a risk to life, particularly as one of Europe's largest caravan parks, with a summer population of up to 15,000 is located immediately behind the bank.

From the north, the River Lavant now flows from the South Downs through Chichester to both Chichester Harbour and Pagham Harbour. It was diverted to this course by the Romans. This river flooded the city of Chichester in 1994 and during the recent flood crisis in the Autumn and Winter of 2000/2001, the Lavant was partially diverted through additional water ways linking it to the Pagham rife, its original natural outlet.

During the next 20-25 years the Manhood Peninsula increasingly is likely to suffer from flooding from the sea, river and rifes and from groundwater flooding due to a rising water table. This will be due to two processes:

- *The geological process of the north of the UK rising and the south sinking, as a result of the end of the last Ice Age - essentially Scotland is still bobbing back up now that the weight of the Ice Sheet has been lifted. This means that even without any global sea level rise the South coast of England would still be sinking, as it has been for the last 10,000 years. This natural process will tend over time to make it hard-*

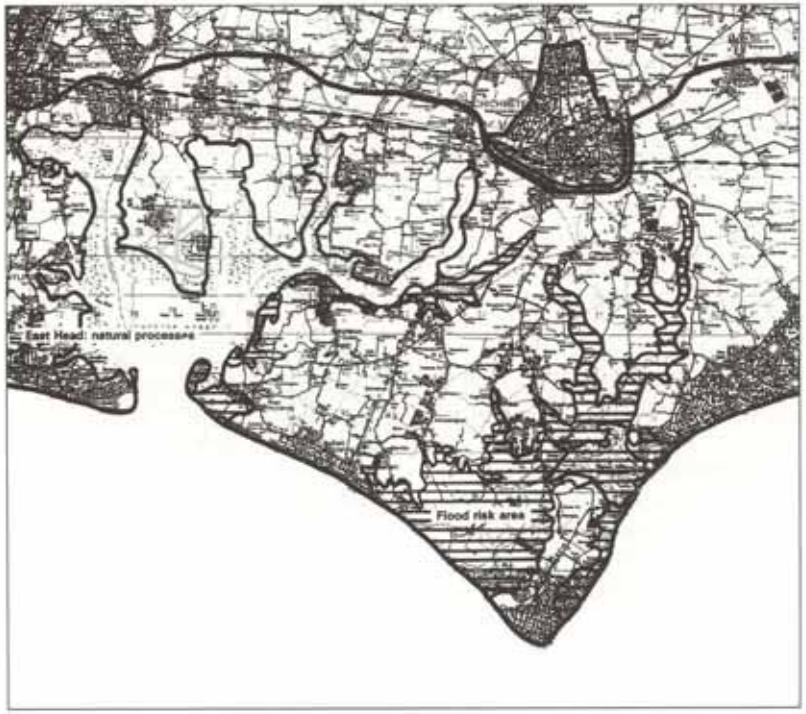
Bunn Caravan Park directly behind the Shingle Bank

er for freshwater to drain away, and cause the sea to encroach on low lying land.

Global warming resulting in rising sea levels, heavier winter rainfall, possibly more severe storms, and greater wave action. It is likely that summers droughts will also become a problem. Whether or not man is contributing to global warming, there is no dispute among scientists that the earth is going through a 'warming' period, which will result in climatic and physical changes.

Map with flood risk area

Drainage is an increasing problem in the Manhood and likely to worsen considerably. Water management and drainage should be a serious consideration in any new housing and orther land-use development. The area traditionally has relied on ditches and rifes to drain. Responsibility for clearing the ditches lies with the landowners, the Environment Agency and in some cases the Local Authorities. Many of the ditches now are not regularly cleared and responsibility is often not recognised by individual landowners.



Ditch

The special landscape of Chichester Harbour has led to its designation as an Area of Outstanding Natural Beauty (AONB). East Head, an important feature of the Chichester Harbour mouth, is a naturally formed sand spit. At the South-West corner of the Peninsula, it is owned by the National Trust. The spit is attached to the mainland by a small 'hinge' which is subject to coastal erosion. A long term solution for the future of East Head has yet to be agreed, with many differing views expressed by local agencies and groups.

There are major opportunities for cost-effective environmental enhancement on the Peninsula, especially around Pagham and Chichester Harbours, and Medmerry.

Agriculture and more particularly, horticulture - important employers and economic forces in the area - will face increasing difficulties with water supply during the 21st century as summer rainfall decreases. The Environment Agency already is stopping new licences for bore hole water abstraction and the likely increase in summer droughts (due to climate change) will make water storage an important issue for local growers.

The local tourism and recreational economy is largely dependent on the coast for its income. The most popular visitor attraction in the area is West Wittering Beach and East Head. Coastal erosion processes are severely affecting East Head. Future coastal processes will change the coast and a long term, integrated coastal management and planning strategy is needed to examine the future of the coast and the potentials of the hinterland together.

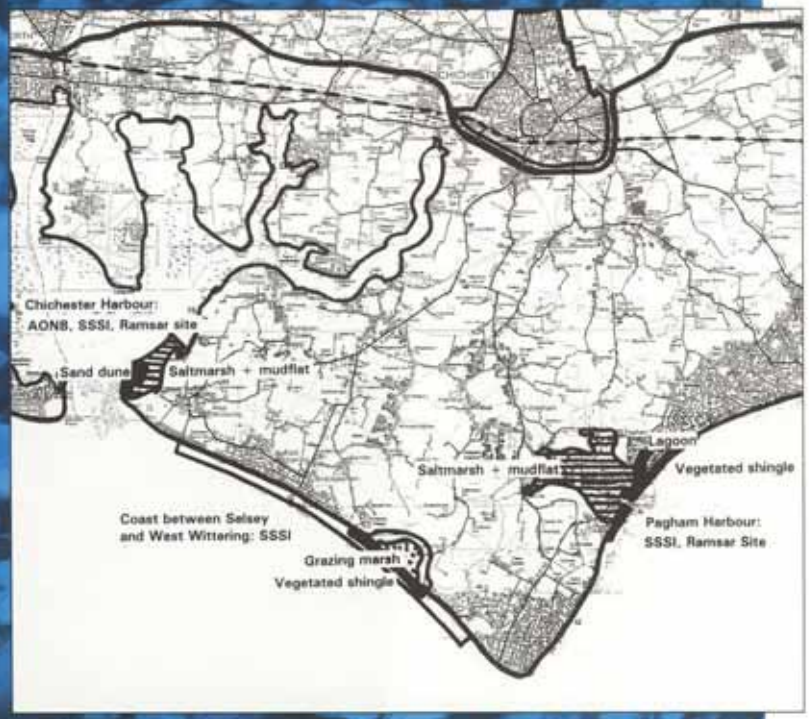
Nature Conservation

The Peninsula contains several important nature conservation areas including Chichester and Pagham Harbours, both designated as Special Areas for Conservation (SACs) under the EU Habitats Directive; as Special Protection Areas (SPAs) under the EU Birds Directive; and as Sites of Special Scientific Interest (SSSIs) under UK legislation. This gives wildlife in these internationally important areas the highest level of legal protection possible in the European Union.

Pagham Harbour

East Head

Map with nature designation



Housing and infrastructure pressures

West Sussex has to build 2,890 houses a year up to 2006 and increased numbers beyond that date, to fulfill government housing requirements. The Chichester District Council area, including the Manhood, will have to meet a specific quota of housing (1800 between 2001-2006). Much of the Chichester area includes Areas of Outstanding Natural Beauty, most notably the South Downs (proposed to become a National Park). This means an extra pressure on areas such as the Manhood. This is despite the fact that much of the peninsula will be increasingly threatened by flooding. This is a planning issue faced by many areas in the UK.

During the last 10 years many new developments have already been built on the Manhood, including those in potential flood risk areas. Development has the potential to increase the risk of flooding and severe drainage problems on the Manhood, if no long term strategy is adopted.

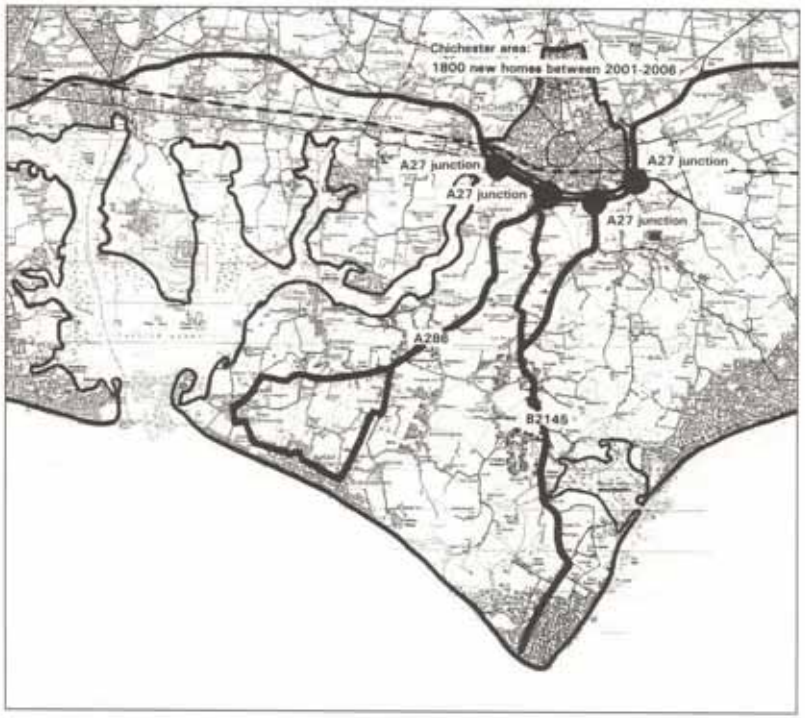
Large amounts of housing also have increased traffic and infrastructure problems as access in and out of the peninsula is only available in a north to south direction.

The population of Selsey, which is located at the southern tip of the

Houses almost on Shingle Bank

Peninsula, with one access road, increased by 400% in the last half of the 20th century, compared with a growth rate of 60% in Chichester. This has resulted in increased volumes of traffic leaving the peninsula for work, schooling, shops and other services. Residents in Selsey also feel that their town has been neglected in recent decades while having to absorb large quantities of additional housing.

Roads through the Manhood have become busier, traffic faster and rush hour congestion at the A27 junctions worse. Without integrated planning, promotion of more sustainable forms of transport, such as buses and bikes, recommended by government, will become less and less viable. Already many of the roads in the Manhood are perceived by residents and visitors to be too dangerous for cycling, despite the fact that its confined geographical boundaries and flat landscape would otherwise make it ideally suited for cycling.



Map with infrastructure

The increased level of traffic and housing is also undermining the local tourist and recreation industry. Unlike the rest of the south coast, the Manhood's main attraction for visitors is its unspoilt, low-key approach. Its natural environment and quiet beaches offer a completely different - and unique - tourism product to all the other south coast resorts. This product is becoming increasingly popular, and valuable, to today's tourists, both domestic and foreign. A sustainable and long-term approach to planning is required in the area to protect the tourism product for future generations of residents and visitors.

Such an approach is also needed to safeguard the area's other main economies, farming and horticulture and to allow it attract more 'new economy' business such as 'homeworking.'

Home working
the Manhood Peninsula is becoming a popular base for homeworking by professionals because of its environmental qualities and easy access to conurbations such as London and Southampton. Many of these home-based workers now are employing additional staff locally such as secretaries and administrative staff. This type of 'new economy' is likely to increase as technology and work culture changes but an area's ability to attract this type of homeworker depends on its ability to match lifestyle desires. Many homeworkers are moving to areas such as the Manhood Peninsula to escape from an urban or suburban environment.

Agriculture
Agricultural land on the Manhood is mainly Grade I and Grade II, among the best arable land in the country. Farms in the area have an average size of about 625 acres (250 ha). The National Farmers Union estimates that an arable farm needs to be about 400 acres 160 ha) or more to be profitable.

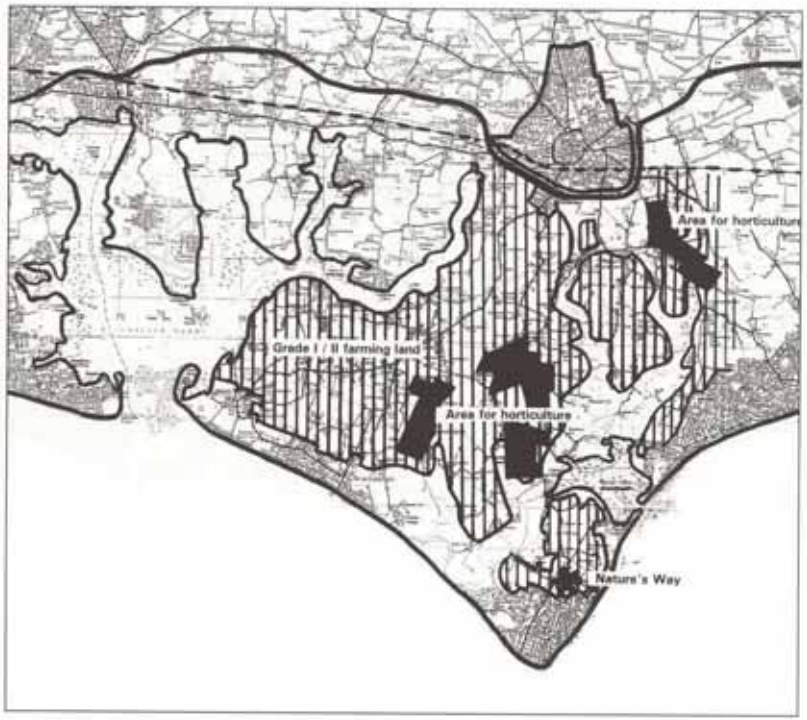
However, increasing drainage problems and recent flooding is resulting in difficulties for farmers. This is likely to increase with climate change. In addition, farm land nearer to the coast likely will face increasing salination due to sea water inundation from below ground and overtopping of sea

defences. Crops currently grown include wheat, barley, maize, and some peas and navy beans. Farmers may need to review crops and varieties due to climate change.

Horticulture
Horticulture is one of the fastest growing industries in the area. the Manhood supplies Tesco UK with most of its home grown lettuce, to give an idea of the industry's importance. The long hours of sunlight experienced in the flat, coastal plain, the milder winters and warmer summers mean the Manhood enjoys an extended growing season compared to most of the UK. Several large glasshouse complexes have been built in recent years using advanced technology and, in some cases, independent water systems. These are mainly located to the east of Chichester with good access on to the A27. However, there are many smaller, less economically viable and run-down glasshouse developments in the centre of the Peninsula.

Nature's Way, which provides most of the UK's salad products for Tesco and other supermarkets, has a packing and distribution centre north of Selsey and many of the salad products it supplies are grown locally.

Both the horticultural and agricultural industries play a major part in defining the area's landscape and, therefore, impact the area's other main economic provider - tourism and recreation.



Map showing agricultuveral land

Recreation and Tourism

The natural landscape of the Manhood Peninsula offers many possibilities for recreation and tourism. With its relatively undeveloped coastline and semi-rural hinterland it is a popular recreational destination within easy reach of the several major conurbations including London, Southampton and Portsmouth. Its natural contrast to the urbanised seaside resorts on the South Coast such as Brighton and Bognor Regis give it a unique status on the South coast.

The area is bordered by two Areas of Outstanding Natural Beauty, Chichester Harbour to the west and the South Downs to the North; a Site of Special Scientific Interest Pagham Harbour to the east and popular beaches to the South.

Rundown glasshouse

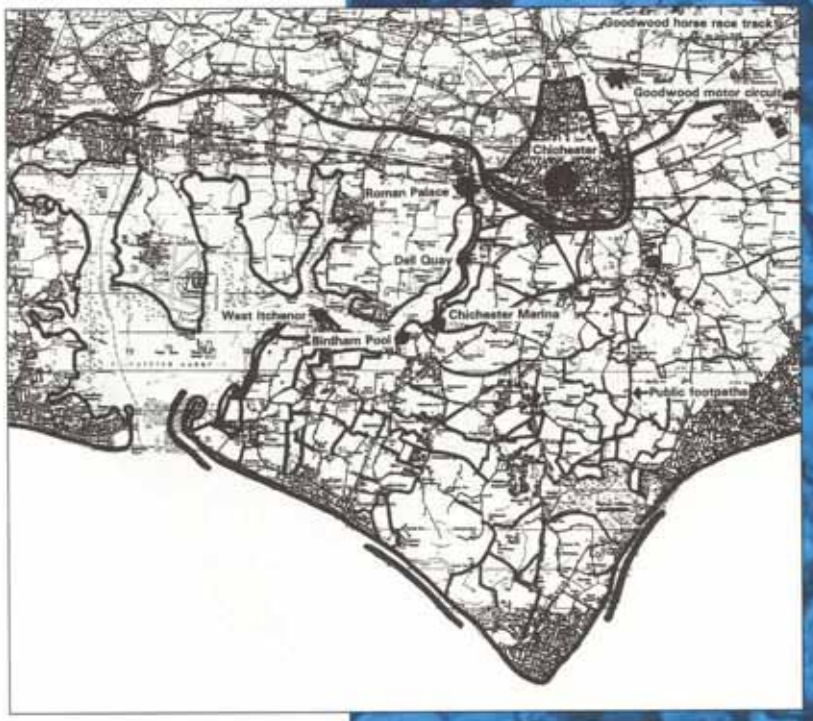
Modern glasshouse

Map with recreational facilities

Tourist attractions in the area, besides the natural environment, include the seaside resort of Selsey; the sandy beaches at West Wittering; the Chichester Marina (one of the largest marinas in the country); the historic city of Chichester, including a world renowned theatre; a Roman Palace at Fishbourne; horse and motor racing at Goodwood; and some of the best sailing and diving areas in the country.

Holiday accomodation primarily consists of caravan parks and campsites. There are few Bed and Breakfast facilities or hotels in the area.

As most of the current visitors are day visitors, often causing severe traffic congestion as they head to the beach, tourism is not viewed as beneficial by many residents. However, there is considerable potential to increase the number of short-term and long-term visitors, particularly high-income or foreign visitors, which would greatly benefit the area's economy and facilities. Wildlife and landscape designations present some constraints on tourism, but at the same time do attract visitors and protect the area's main assets.



Chichester marina

Map with gravel reserves

Mineral extraction

Large quantities of gravel are located underground in the Chichester area. There are already several large lakes surrounding Chichester, some used for recreational purposes, such as windsurfing. More extraction is planned for the area east of Chichester and south of the A27, as well as north west of Chichester.

There is much local opposition to this mineral extraction due to fears of property and landscape damage and increased ground water and drainage problems in the area. Little has been done to explore possible future uses of the redundant gravel pits and how gravel extraction and the future sites may be used to benefit the area from a planning, environmental, social or economic perspective.

Gravel lake

'birdwatching tours'

'Shake hands'

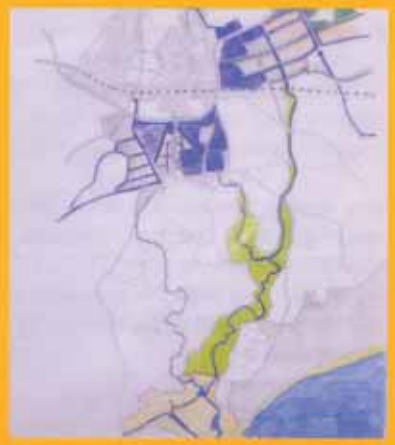
The basis for this concept is formed by the two existing water systems and related ecosystems in the area, combined with the relatively undeveloped character of the landscape:

- *The saline water system created by Chichester Harbour, the sea and Pagham Harbour, coming respectively from the south-west, the south and the south-east;*
- *And the fresh water system, created by the River Lavant and rain water via ditches and rifes running from north to south, both determining the identity, character and quality of the area.*

The fact that the area is relatively undeveloped provides the opportunity for both systems to actually meet on the Manhood, hence the name 'Shake hands', a concept which emphasises the meeting of the two water systems. By solving some of the water management problems in the area in an integrated way this concept aims to create win-win situations in such a way that the Manhood will gain in quality and strengthen its unique position in the region.

The two water systems form the basis for a landscape framework to host and set rules for a variety of land use functions.

The fresh water system
In the South Downs, north of Chichester, the stream flood plains should be allowed to flood in certain areas to relieve the pressure elsewhere.



The Lavant Flood alleviation scheme would be intensified east of Chichester, using current and future redundant gravel pits as potential flood storage in times of excessive flow. This area also is most suitable for intensive horticulture production, rather than in the interior of the peninsula, as roads and other infrastructure, including potential fresh water storage, are already on site.

1.3.1 Introduction

The scenarios devised by the workshop participants and presented in this chapter, again, are not plans or blueprints for the future of the Manhood Peninsula. They are meant as a means for discussion about a different way of thinking.

The three scenarios show striking similarities in the way the Manhood Peninsula is perceived. Although similar in vision, they nevertheless produced different ideas about solutions for the several landuse functions and processes on the Manhood. All three scenarios provide very useful and valuable series of suggestions for further research, analysis and thought.

This chapter contains the three scenarios and their conclusions for the Manhood Peninsula itself. The lay out is such that both the scenarios and the conclusions can be read as separate parts.

1.3.2 Vision

"Relatively unspoiled, undeveloped and isolated, semi-rural, tranquil, low-key, and being located between the South Downs and, especially, the sea", were the characteristics which all the teams saw as the strong points and qualities of the Manhood Peninsula, especially within the wider perspective of the built-up coast between Newhaven and Southampton.

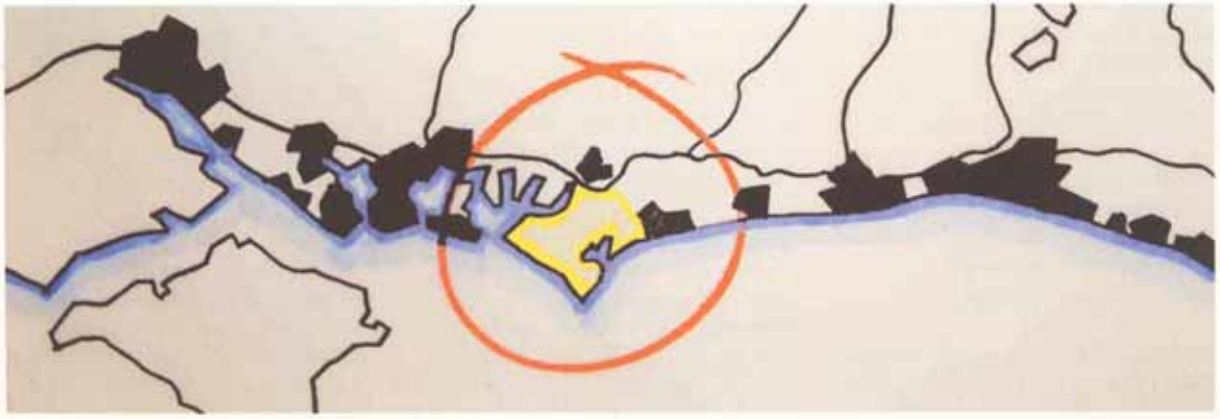
Although they also noted a slow, but gradual process of deterioration both in landscape quality and in social conditions, their shared opinion was that the Manhood has a huge potential to use its main assets more effectively by enhancing and improving them, to become 'the jewel in the crown' of a large stretch of the South Coast.

1.3.3 Coastal Management

Expectations were high among the local residents that Dutch experts would recommend hard sea defences and dykes to 'save' the Peninsula. However, all teams reached a level of consensus that a mixture of hard and soft sea defence is the most sustainable for the area on the long term in terms of safety, costs-benefits, landscape quality and opportunities for new processes.

All teams agreed

- *A mixture of hard and soft sea defences should be used to enhance the natural characteristics of the area, creating a more attractive environment and increasing the area's economic potential, particularly by upgrading its tourism and recreational features.*



The Manhood in wider context

In anticipation of the effects of climate change and future housing development resulting in heavier winter rainfall and greater run-off of rain water, this concept proposes flood areas and wet grassland alongside the Pagham Rife to give more room to this water system. A new tidal sluice is proposed at the end of the Pagham Rife: in normal situations the tide can come in; in extreme conditions the sluice can be closed.

A new cycle network of ca 25km is established along the Pagham Rife flood plain: on top of a small embankment of ca. 1 metre high on both sides.

The overflow and flood areas along the Lavant and Pagham Rife will create a nature conservation area with limited agricultural use. The concept for the Lavant and the Pagham Rife means that a special ecological link between the Downs and the sea is created: shake hands!.

Sea defence and the saline water system

The sea defence strategy should focus on soft sea defences where ever possible and hard defences only when necessary, to enable a more sustainable protection of the hinterland. Ultimately more space is needed for future sea defences, particularly as climate change is resulting in higher sea levels and increased storminess (i.e. increased wave action).

As a result, the sea defences will need to be heightened and broadened in future years, with regular beach nourishment provided. This is especially the case around existing settlements such as Selsey and East Wittering, where at present, there is very little space between the current sea defences and the first rows of housing. A wider frontage is vital for future sea defence (see Chapter 2.1), whilst also providing a valuable amenity for residents and visitors. A step by step retreat from the front to bolster sea defences for built-up areas should be actively planned for and embarked upon as soon as possible.

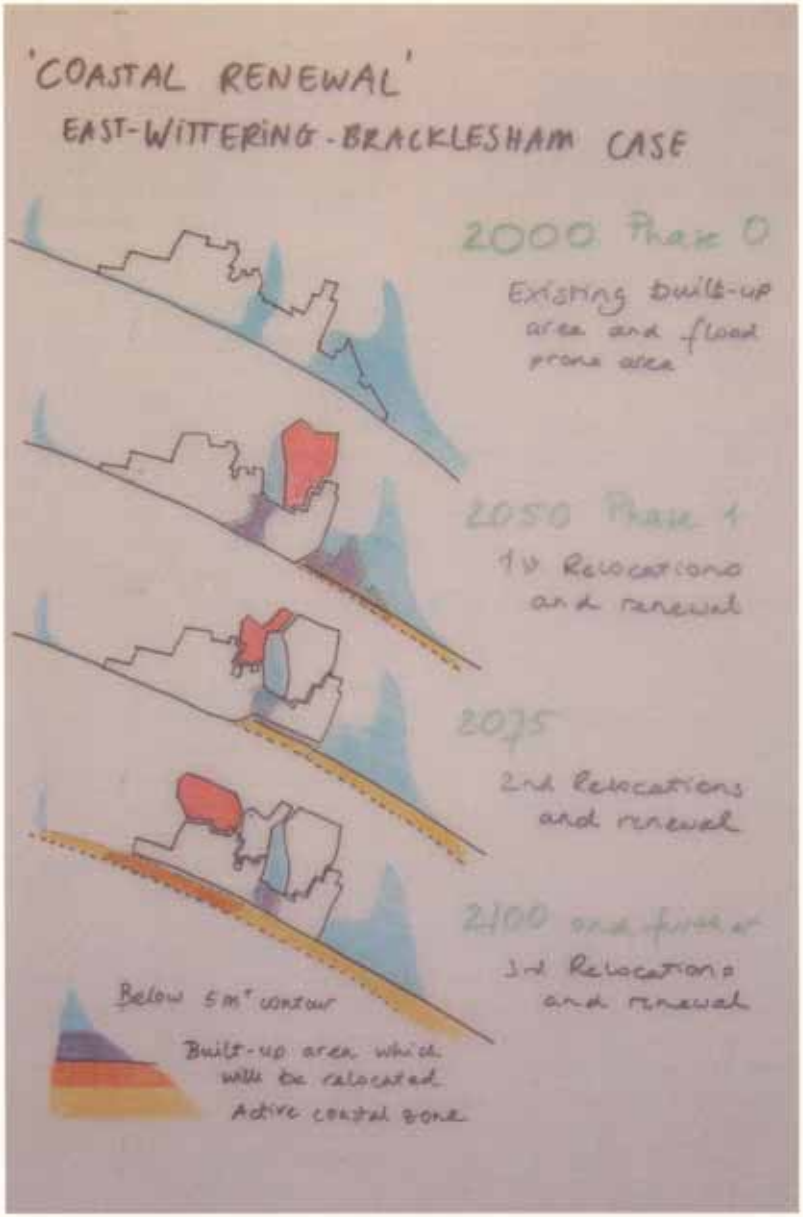
A first important step is not to allow new developments on the sea front and below the 5 metre contour, but to allocate them on safer ground. At the same time plans to retreat built-up areas, starting with the areas which are the most vulnerable should be a priority.

A more natural, soft sea defence between Selsey and Bracklesham Bay at Medmerry Beach, based mainly on regular nourishments of shingle or sand combined with a wider bandwidth in which natural coastal processes take place, will be more sustainable in the long term. The strategy of nourishments may also help reduce the rate of erosion on adjacent sea walls both at Selsey and East Wittering by reducing the slopes of the foreshore, which allows them to absorb more wave energy.

Even if defended, current methods of farming on the agricultural land immediately behind Medmerry will be forced to change as the ground becomes more saline due to underground salt water seepage. The Medmerry hinterland has potential as a saline horticultural area, additionally benefiting from the large salad packing and distribution plant near by in Selsey. The Nature's Way packing plant currently provides a large percentage of the salad products for Tesco, one of the UK's leading supermarket chains. Saline herbs and vegetables, such as sea lavender and sea astor demand premium prices (Marina Mixed Vegetables; Selsey Sea Weed!), particularly in high quality restaurants, as commercial production of these types of crop currently is very limited.

- *To maintain and/or strengthen the existing hard defences protecting the built-up settlements of Selsey and East Wittering, with sea walls and continuing beach nourishment.*
- *Not to use hard defences for the Medmerry frontage between Selsey and Bracklesham but to use soft defences and/or let the sea in to create saltmarsh and estuarine features.*
- *Relocate the Bunn Caravan Park to a safer location.*
- *Planners should prepare for accelerating coastal erosion due to climate change by allowing for a broadening of hard and soft sea defences, including the removal of some shoreline properties. This would also create a more attractive, commonly owned transition zone beside the sea.*
- *No new permanent development should be allowed on the shoreline or below the 5m contour anywhere on the peninsula.*

As a result of the striking similarities in the coastal management approach adopted by all teams - contrary to public expectation - a team of Dutch and British coastal experts were asked to concentrate on the possibilities of a hard sea defence. The conclusions of the coastal experts are as follows.



These are attractive flowering crops which would also add further quality to the environment and be a new tourism feature.

By creating an estuarine feature in this area, the current Bunn caravan park - a major economic provider for Selsey - should be relocated along the edge of the estuary. This new location would be safer, more sheltered and more attractive. There would be greater opportunity for landscaping the area, with trees etc, and providing additional high-quality caravan sites if desired by the local community and visitors. This could provide local farmers and landowners with alternative income.

Like Chichester Harbour, the new salt marsh area would have unique and valuable natural characteristics which should be respected by any caravan park or recreational development.

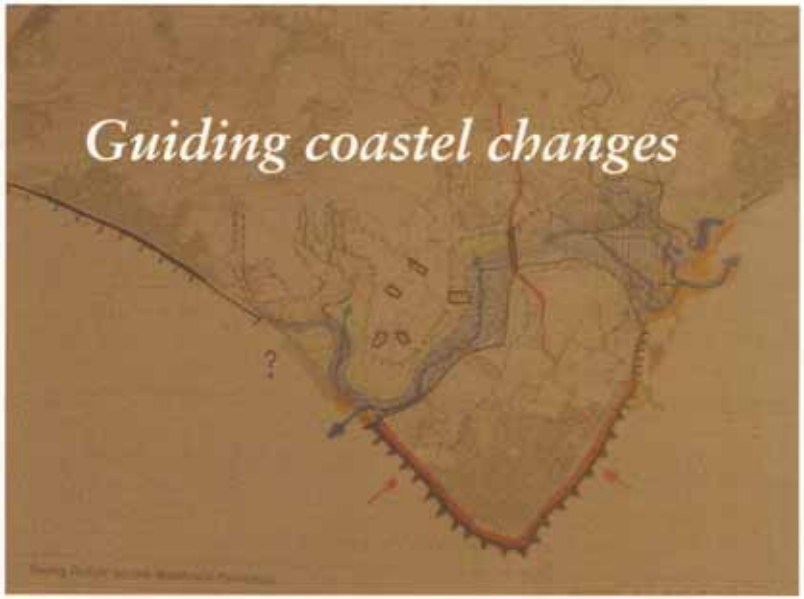
The fact that the Manhood Peninsula remains relatively undeveloped and has unique environmental qualities, which could be enhanced still further through managed coastal erosion, is the area's main economic strength and great potential. These factors should override demand for housing within the Peninsula.

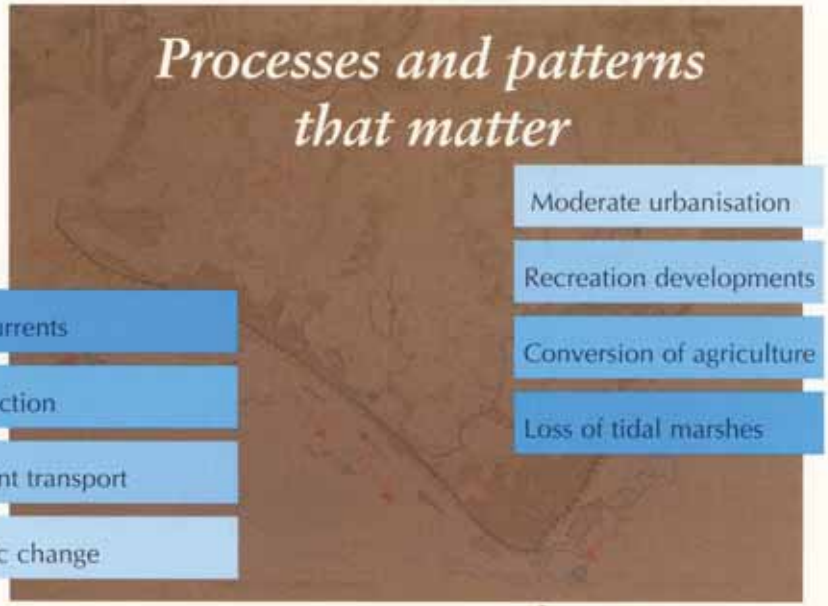
Future housing should be concentrated around Chichester, particularly surrounding the potentially attractive water based landscapes of former gravel pits to the south and east of the city. As the gravel-pit-areas are also subject to occasional flood risk, special building measurements should be taken to prevent new houses from flooding. Chichester has sufficient infrastructure and services to support further growth and good existing transport systems, which could be improved, and part funded, as a result of well planned development. For example, a fast, dedicated bus lane, as well as cycle paths and footpaths could be created to link the southern side of the city to the city north of the A27. Monies raised through development could be used to improve access from the Manhood to Chichester, thereby relieving much of the rush hour A27 congestion. Replacing one roundabout with a fast moving, fly over or on/off type junction would considerably ease congestion.

This scenario also takes advantage of the Chichester Canal: this special fresh water landscape feature could be incorporated into the future housing site south from Chichester and the A27 to create an even more attractive water based development, with a link to the Chichester Harbour. Restoration of the Canal would link Chichester to its Harbour once more and provide a valuable tourism and environmental amenity for the area.

The new housing developments south and east from Chichester and the A27, the new horticultural sites east from Chichester in combination with the Lavant, the Canal and the gravel-pits all together form the Blue Belt around Chichester: a completely new, water based landscape.

By enhancing the Manhood's natural features, the area would become more attractive to tourism. This would have to be managed to ensure that the type of tourism does not adversely impact the area's natural beauty. For example, cars should give way to bicycles and walkers; caravan parks should be well landscaped to blend into surrounding countryside.



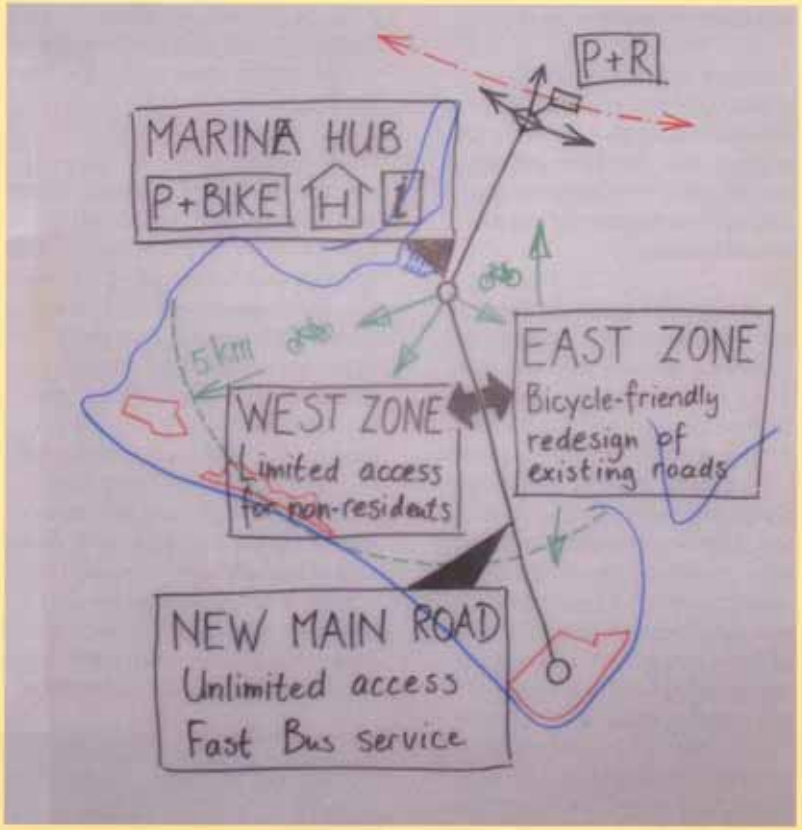


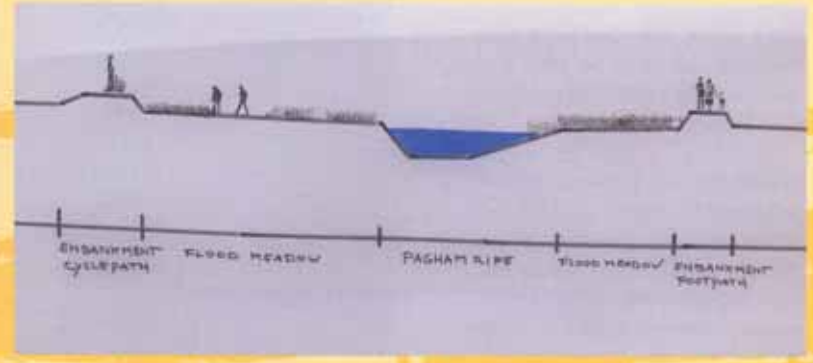
One of the basic assumptions the team took into account was that an expected sea level rise during the 21st century around the Manhood amounts to 8mm a year in a worst possible scenario (5mm due to climate change and 3mm due to the fact that the South of England is sinking), resulting in a rise of 80cm in this century. Increased storminess and storm surge waves will mean 1:100 year storms may become 1:20 year events and a future 1:100 year storm will be more severe than it is now.

With existing defences, Selsey would be gradually eroded in the next 100 years. A steady loss of properties to the sea following the abandonment of sea defence would mean a loss of investment, economic problems and risk to human life.

Assuming this is socially unacceptable, a full fixed sea defence could be built to prevent all losses and ensure all present values. This would cost about £30 million for a 7.5m sea wall at Selsey to protect against a 1:100 storm surge. To build it, the outer seafront row of houses would need to be demolished. This space is necessary for the top 1m wave return wall acting as a concrete shock absorber and the reduction of overtopping waves during storms. During quiet weather the area behind the wall can function as a 'boulevard' - an

A new Park and Ride Hub near Chichester Marina, linked to cycle paths would allow most tourist destinations in the area (including Chichester, Fishbourne Roman Palace, Selsey, Pagham Harbour, East and West Wittering, even Goodwood) to be accessible within a short, level bike ride. The Hub could include bike hire facilities, a visitor centre and possibly a hotel and restaurant. Development should be high quality and not intensive. To maximise the tranquillity of the Peninsula and restrict it to environmentally sensitive tourism a strict, resident-only policy for cars could be adopted in certain areas such as the western half of the peninsula, forcing visitors to leave their cars at the Marina Hub and travel further by bus or bike. A new road link between the A27 and the Marina is proposed.





attractive recreational area.

Exposure at Bracklesham/East Wittering is less and a £20m defence would give the same level of protection. Similarly additional space would need to be created between the beach and the first row of housing.

Several coastal geomorphologists believed that regular sand nourishment may be more effective than shingle nourishment, particularly for Bracklesham and East Wittering. "This would be no more expensive and possibly produce a shallower, wider and more sustainable beach sea defence. It would also produce other benefits, increasing the tourism appeal of East Wittering and possibly providing sand nourishment to reduce the rate of erosion at East Head or create a replacement sand bar spit across the Chichester Harbour entrance", Norbert Dankers, Coastal Morphologist for Research Institute Alterra, Texel.

Rock island defences were examined but judged to be more expensive (both to build and maintain) than beach nourishments.

In both the sea defence options proposed for Selsey and East Wittering spray and shingle would still come inland and cause damage during storms but no breach or major overtopping would occur.

Also, particularly in Selsey, the higher sea wall eventually required would restrict views of the sea from housing.

A full sea defence for the 4km Medmerry frontage (between Selsey and Bracklesham) would cost £60m-£120m (total UK sea defence spend a year is currently £350m!). The Environment Agency has suggested a 50 metre retreat and a new clay/shingle bank costing £10m which will be effective for the next 10-15 years. This allows time for the necessary geomorphological and sediment modelling studies to be done and the relocation of the caravan park to be done cost effectively and hopefully without too much disruption for the business. At present the bank overtops 1:1 (i.e. every year) and is getting worse. "A breach in defences in the vulnerable Medmerry stretch could lead to many fatalities in the Selsey Caravan Park, one of the largest of such parks in Europe" Peter Midgley, Sussex Area Manager for the Environment Agency.

However, most of the coastal experts concluded that a full sea defence at this stretch is not justified and could lead to further development in the path of future risk. They favoured either a dyke designed to overtop but not breach, with managed retreat through Pagham so the low-lying hinterland would become wet grassland with a saline influence; or a controlled breach allowing a new estuary and saltmarsh to form. The participants agreed that the Bunn Caravan Park in Selsey should be relocated and stressed the environmental, land-

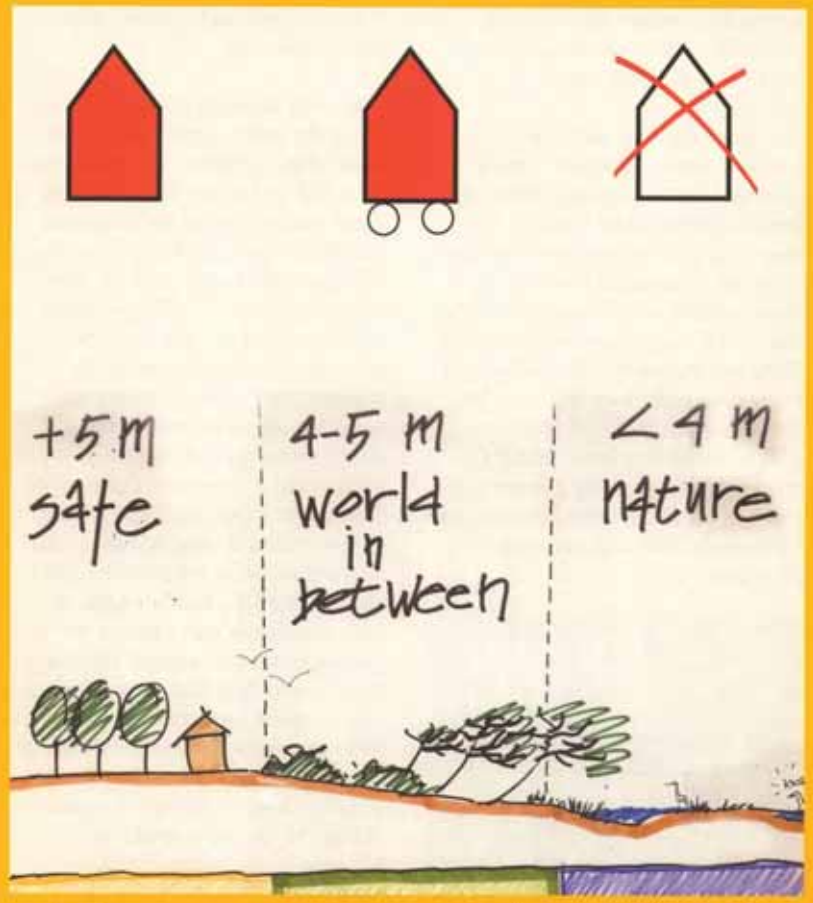
Medmerry beach

'Rules of the game'

The basis for this scenario is 'Safety first', safeguarded by one 'golden rule': the 5 metre-above sea level-line, based on Planning Policy Guideline 25 (PPG25). The golden rule is combined with the relatively undeveloped character of the landscape to create a clear and simple concept:

- *below 5 metre*
  unsafe zone; no-go-zone for permanent building structures.
- *above 5 metre*
  safe zone, divided in the area around Chichester and the remaining area on the Manhood.
- *between 4 and 5 metre*
  not-so-safe, or intermediate zone for mixture of functions, with moveable structures

Each zone has its own set of rules and possibilities for the future. Related to the 5-metre policy is the type of sea defence. In this concept, maintenance of the present sea defence around the built-up areas is proposed, where as for Medmerry Beach managed retreat is considered as the best option. The area is attractive and a magnet for recreational purposes, because it is a tranquil, relatively unspoilt sea location.



Below 5 metre zone
The unsafe zone is the area where the sea is of major influence, in combination with fresh water coming from the north. Sea defences along Medmerry Beach are dealt with in a more natural way (managed retreat). The sea is allowed more influence at Pagham Harbour, the sea has more influence. This is the zone where there is room for natural processes, where new nature reserves can be created, possibly in combination with alternative, extensive ways of farming. Being located in the unsafe zone, Bunn's leisure park has to be removed.

scape and tourism benefits of de-intensifying the immediate hinterland up to the 5 m line.

The coastal group identified a 'serious and urgent problem' with a potential breach through Medmerry breaking through to Pagham, followed by tidal scouring in the new channel. This could produce an irrecoverable situation with lives at risk and Selsey permanently cut off. They recommended the Sidlesham Ferry causeway into Selsey to be strengthened, at a cost of £10m-£20m, improving both Selsey's road link and creating a much stronger dyke between Pagham and Medmerry. This was considered to be a priority.

Causeway Sidlesham Ferry

A retreat at Medmerry would require the building of sea defences to the rear of Selsey at a cost of about £10m, but they would not need to be anything like the defences against the open sea. These sea defences could be partly funded by high quality development within Selsey, with recreational facilities built between the 4-5m contour and housing above the 5m contour.

"We tried to argue a hard defence along the entire coast line on the basis of four criteria: cost-effectiveness, risk to human life, planning gains and not to create long-term liabilities. Current plans (Shoreline Management Plans) tend to concentrate on the shoreline and not the hinterland. In addition, the present plans tend to stress the present asset value in their cost-benefit analysis which makes them rather short-sighted. We therefore introduced a long-term criterion of liability. We indicated that a hard defence should only be considered a feasible option where there are current capital assets at stake. A hard sea defence in front of the caravan park had several disadvantages (including) that it may induce more capital investments, for which there are far better locations nearby above the 5m contour. The present situation was, however, also considered to be not acceptable, because of the inherent risk to human life. The only structural solution is a relocation of the caravans towards a higher location close-by. The problem faced then is how to finance it. If this is done in an integral way, relocation may be co-financed by the Environment Agency," Jasper Fiselier, Senior Consultant at the department of Water Management at DHV Water BV.

"Excessive sea defences lead to complacency and new built developments which may restrict sea defence/retreat options in the future when costs and risks may be very much greater," Bill Jenman, Nature Reserve Manager at Sussex Wildlife Trusts.

"There is some concern that man's intervention may have accelerated the erosion in certain areas. We must learn how to work with nature," Professor Burbridge."A hard sea wall makes people feel secure. But it is a false security, encouraging more development in the path of risk."

The intermediate zone: not-so-safe zone
The intermediate zone, or almost safe zone, is the zone where the risk is lower, and which is safe most of the time: an ideal area for recreational uses with removeable structures (caravans, special designed holiday homes), close to the newly created and accessible nature reserves. Areas within this zone close to villages and main roads will attract recreational activities for larger groups and more intensive recreational uses; other, less accesible areas within this zone will attract visitors who prefer quietness and nature, such as bird watchers. This zone needs investment to transform it into an attractive recreational area (landscaping, tree planting, etc.). Bunn's Leisure Park could be relocated here.

The safe zone: above 5 metre
The remaining area of the Manhood is the safe zone. Although in principle safe for housing development and other more dynamic land-use functions this area is regarded as an area which should be kept low-key and tranquil, as this is one of the main assets of the Manhood. Through a more organic orientated agriculture, landscape quality can be improved by trees and hedges. Investments in this area should also include quality improvement of the existing villages, especially the coastal settlements: more space for collective use, like a sea frontage and more landscaping and tree planting, plus allocation of small businesses and sports facilities. The existing villages are allowed to extend for their own population growth, in (very) small amounts and only if really necessary.

1.3.4 Water Management

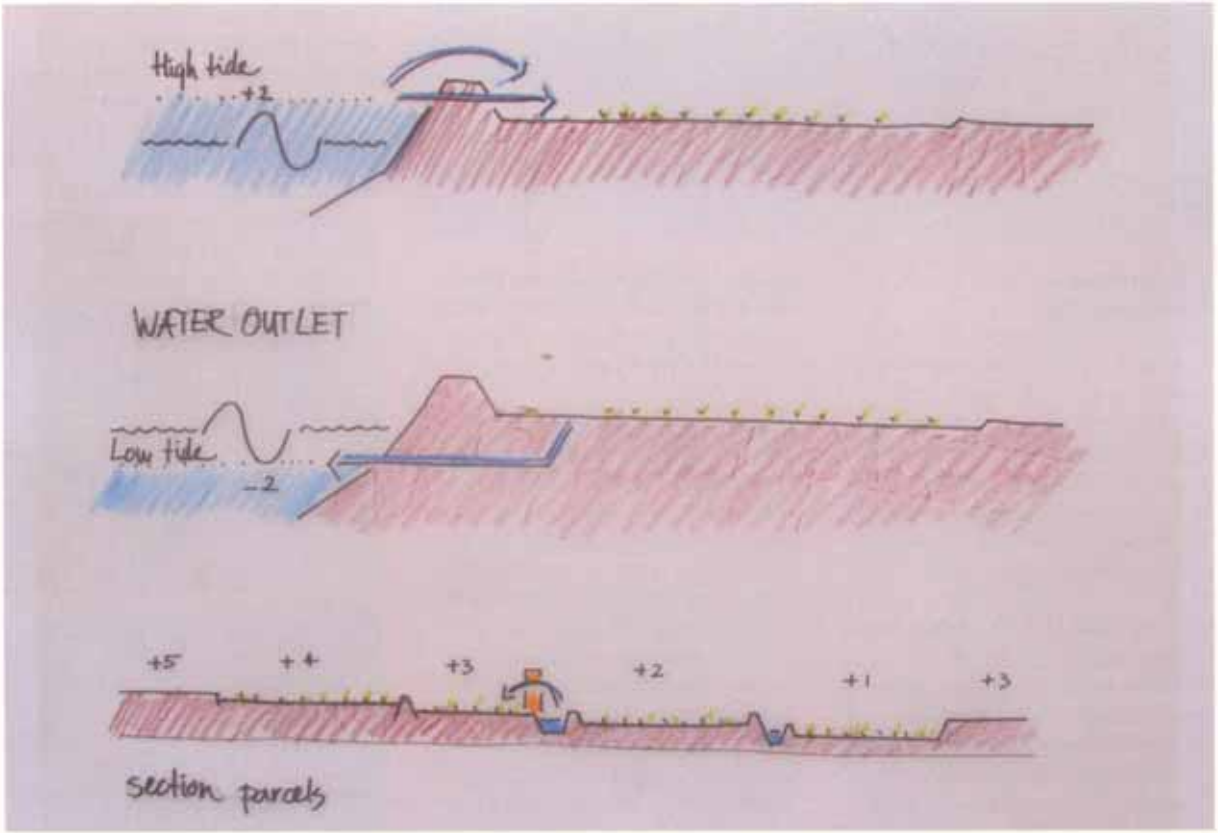
Solutions for the water management problems are sought in reserving physical space in the landscape for water storage for both fresh and saline water. Proposals are made to extend the flood plains along the River Lavant and Pagham Rife to prevent undesirable inland flooding; to create and extend the intertidal zone behind the sea defence at Medmerry Beach to ease the pressure on the sea defence elsewhere on the Manhood coast; and to use the gravel pits for water storage for both urban and horticultural uses. Water storage in redundant gravel pits would mean special construction and measurements of the pits to prevent the pits from flooding the surrounding area.

A new drainage system was recommended for example in the agricultural area which could be used for growing saline crops.

1.3.5 Future housing

All teams felt that the current method of allocating housing numbers, based on relatively short term planning, throughout the Manhood Peninsula settlements is resulting in marked degradation of the area's

Illustration from 'Shake hands'

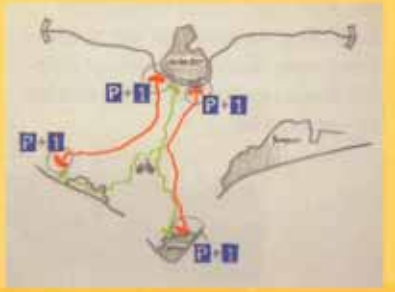


Building new houses is possible in this part of the safe zone, although only in a special designated area: the land use settlement area. This part of the Manhood landscape can be gradually transformed from an area in decline into a new landscape of so called 'new country parks': Neglected glasshouses are transformed into parklike settings containing high quality low-density houses and apartment buildings. Horticultural businesses should be re-located into the zone east of Chichester.

Large-scale future housing should take place in the zone east and south of Chichester, where it is possible to create a high quality urban area in combination with the redundant Chichester Canal and gravelpits with the possibility of creating urban waterfronts, with special types of housing, etc., to create a new attractive urban landscape: Chichester Lake Park. The location is close to the city centre, so cycling and walking along the canal and via newly created cycle links to the city is possible.

Also close to Chichester, on its eastern side, a concentration of greenhouses (relocated and new) is proposed, close to road and rail and in combination with redundant gravelpits, which could fulfill a role in water storage.

Traffic is not encouraged in this concept. By concentrating new housing and horticulture around Chichester the pressure on the present roads on the Manhood will remain almost the same. No proposals are being made for new roads or widening existing roads as that will create only more traffic in the long term. Stockbridge Road will be designated as cycle road and road for local traffic; main car roads are at Appledram, Hunston (multilevel), and at the Bognor round-about.



Especially in the summer months, when thousands of tourists will visit the area a Park + Information Scheme is proposed near the junctions with the A27: at those points day-tourists can get information about traffic conditions on the Manhood. If the situation is bad they can leave their cars and go further by bike or bus.

The result is a landscape with clear contrasts and identities. The safe zone will result in an image of the English countryside with trees, hedges, small villages, agricultural land and criss crossed with cycle- and foot paths; the intermediate zone will look almost like a park with trees, high standard of landscaping and with a concentration of recreational functions; and the unsafe zone will be developed mainly as a nature reserve with recreational access. An area of special interest is created in the transformed landuse settlements: a high quality landscape with high standard new housing.

landscape and environment as well as adding to the area's transport and social problems.

They also pointed out that housing and sea defence were not looked at in an integrated way, resulting in developments in areas which are increasingly vulnerable to flooding and erosion from the sea, and housing development which may conflict with future necessary sea defence measures.

In all scenarios proposals have been made for concentration of future housing, either south and east from the main town Chichester, which provides most of the employment and services for the area; or in Selsey. In particular, the southern area of Chichester was identified as offering the best potential for new housing while at the same time enhancing the area surrounding Donnington, which currently is divided from the town by the A27 and suffering as a transport corridor for the rest of the Manhood. By combining future housing and redundant gravel pits a complete new landscape could be created south from Chichester: living at a new urban waterfront. Another possible idea for new houses in this area might be the concept of floating cities. In The Netherlands this concept is getting attention, since new types of houseboats have appeared on the market, that are virtually unsinkable and require only very limited maintenance. With those, whole new living environments may be created that gradually merges with the gravel pits and the upstream parts of Chichester Harbour.

In one scenario Selsey is advocated as the main area for future housing development. However, this policy must only be adopted in conjunction with the creation of hugely improved sea defences around the town, the group stressed. In addition, new development must include high quality housing, increased infrastructure, better landscaping and employment opportunities such as holiday housing. The Bunn Caravan Camp would have to be relocated. A new causeway and new, direct road linking Selsey more effectively to the A27 also would have to be built. The participants felt that any more new housing in Selsey without these improvements would be unsustainable.

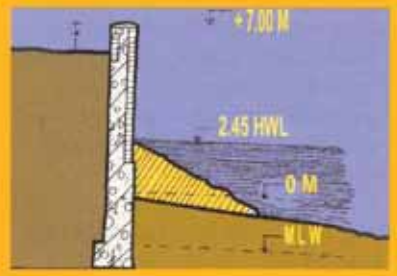
Floating city

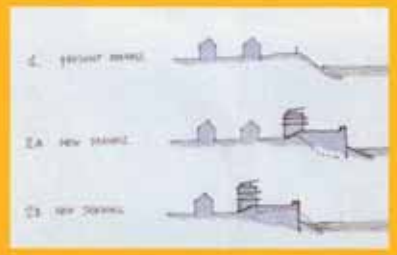
New Urban waterfront Roermond

'Stone Island'

In contrast with the two previous scenarios, where the natural features of the landscape are used as the basis for the scenarios (water system, 5 metre line), in this concept one intervention based on the housing programme is made to initiate a whole sequence of processes. The community and safety of Selsey are strengthened by concentrating all housing demands in this town, while maintaining the rural and tranquil qualities of the rest of the Manhood Peninsula on which its economy depends. Selsey as a target destination for living and tourism. Also characteristic of this concept is that it advocates a greater area of 'collective domain', a public area along the coast, recognising that the coast is one of the main attractions of the area.

By concentrating future housing in Selsey, and encouraging small businesses related to tourism, greater investments are possible to protect Selsey from the sea. With an extra 12.000 new houses, including 2000 new holiday homes, a new sea wall with a 1:250 year protection should be built around the town. The current sea defences must be heightened and broadened, resulting in the removal of some properties currently located close to the beach. This also would allow for the creation of a new boulevard (public area) which at the same time functions as a sea defence. Higher income earners will be attracted to the town.





1.3.6 Infrastructure and transport

The message was clear: the relatively limited accessibility of the Manhood is one of the reasons why it still is as it is: relatively unspoiled and quiet.

Participants agreed that many of the current traffic problems in the Manhood could be solved without the creation or widening of roads. Indeed, they believed that more roads would worsen the situation and cause futher environmental deterioration. Greater hierarchy of roads, with some smaller roads designated as cycle/local roads, would ease the situation, the teams agreed.

One team, which recommended a concentration of new housing in Selsey, noted that in such a scenario a new, express road linking Selsey directly with the A27 would have to be built. This could either be a road, a railway line or bus lane, or a combination of both.

Meanwhile, all teams recommended building a new causeway to Selsey at Sidlesham Ferry. This would serve three vital functions: improve flood defence at this vulnerable point; improve access into the town; and help to recreate a cyle/footpath to link Selsey to the rest of the Peninsula.

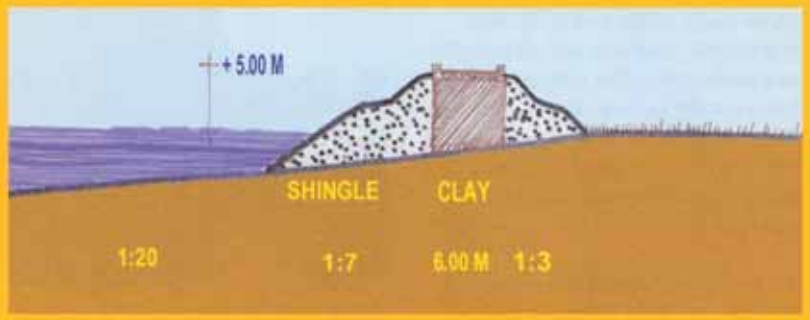
All teams were amazed at the lack of cycle paths in the Peninsula as a whole, particularly considering the area's topography and the short distances between settlements. They all believed that the creation of cycle paths would help local communities, ease traffic congestion, and create a valuable tourism resource.

On this point, the participants came across a cultural difference between the two countries. Whereas in The Netherlands cycling is a way of transport, in the UK it is considered mainly as a leisure activity. However, that attitude is changing rapidly and an increasing number of people would like to see more cycling facilities to be able to cycle to work and school.

Improved junctions at the A27, perhaps converting one or two of the existing round-abouts into fly-overs, would help the rush-hour and holiday traffic congestion at the northern end of the Peninsula, teams agreed. Profit accrued from housing development in the southern and eastern part of Chichester (which was seen as the most suitable area for new housing by almost all the participants) might help fund some of the transport infrastructure in the north of the Peninsula. For example, some participants recommended the creation of a fast bypass and connection to the A27 at Appledram, to allow the restoration of Stockbridge road to local traffic only and a bus and cycle lane.

Main road

It must be noted that this protection level of 1:250 years event is much less than would be acceptable in The Netherlands, but if a stronger level of protection is thought necessary, with the current UK standards of 1:200 years protection level for built-up coastline the costs would increase accordingly and even more space for defences would be required.



As employment will remain mainly outside the town a new road for commuting is created, without links to existing roads, straight up to the A27, Chichester and beyond.
A new causeway would be built linking Selsey with the rest of the Peninsula with new sluices and pumps to allow expansion of the influence of Pagham Harbour. Alternative roads throughout the rest of the Manhood have less car traffic, and are therefore more cycle friendly.

A small dyke along the Medmerry Beach, based on clay with a small concrete top carrying a cycleway / footpath, should be built linking Selsey and Bracklesham Bay. Some

degree of overtopping in stormy weather would continue. Therefore Selsey's main economic force, Bunn's Leisure Park has to be relocated to higher grounds, above 5 metre line or at least to the zone between 4 and 5 metres, as safety is not guaranteed.

Again, a greater area of public area should be created along the coast. A new boulevard at Bracklesham and East Wittering, serving a recreational and sea defence function, should be built, with the removal of some properties currently close to the beach.
A new sandy beach could be created in the Witterings by using sand nourishment rather than shingle nourishment on the beach. Sand nourishment will make the beach broader, shallower, safer and more sustainable. It will also give the area three more hours of sandy beach, as the beach will be heightened and therefore even during high tide a considerable stretch of sandy beach will still remain, a huge gain for tourism and recreation.

Although the sand will need o be replaced regularly, much of the sand lost through littoral drift will end up at East Head, also serving to protect East Head.

The interior of the Manhood has the perfect conditions for a strong agricultural industry; soil is Grade I and II and it is reasonably flat.

More cycle paths and footpaths linking the southern part of the city of Chichester to the rest of the town (under or over the A27) were recommended so that any new residents in this sector of the town might be more encouraged not to use their cars.

All teams advocated increased use of Park and Ride Schemes for the Peninsula, both for local residents and holiday-makers. Sites recommended varied: one team suggested a site just south of Chichester near the Canal; another a site located near the Marina and another a site near the Bognor Regis roundabout in the South East of Chichester. At the Park & Ride locations there would be bus connections to Chichester, Selsey and other destinations and bikes would be available to hire. This idea was viewed as a solution for traffic congestion, an amenity for local residents and visitors and, again, as a valuable tourism resource.

1.3.7 Horticulture

Most participants saw a dramatic expansion of horticulture in the area. Also, future greenhouses are likely to be much greater in size than in the past, as has been seen in many greenhouse areas in the Netherlands in recent years. As a result, it is imperative that a planning policy for horticulture development is adopted. Relocation and

again concentration are the actions to be taken for the expanding horticultural business, as proposed in the scenarios. Concentration of glasshouses creates opportunities to develop sustainable systems for energy, water conservation, water purification and logistics.

Thriving businesses from the heart of the Peninsula should be relocated to the eastern side of Chichester to reduce large lorry movements on small roads. New greenhouse developments should be encouraged to concentrate in locations close to the A27 and A29. In addition, potential water resources, which will increasingly be needed by the horticulture industry, could be created to the east of Chichester using the redundant gravel pits and Lavant/Pagham link close to the A27, the participants pointed out. By good landscaping and good planning, the greenhouses need not to be a 'blot on the landscape'. New 'flower' walks and cycle paths could be created throughout the greenhouse area, particularly if based near lakes and rifes.

1.3.8 Agriculture

the Manhood Peninsula contains a high percentage of Grade I and Grade II agricultural land, the most productive arable land in the country. Combined with horticulture, it means that agriculture is among the main economic forces of the area.

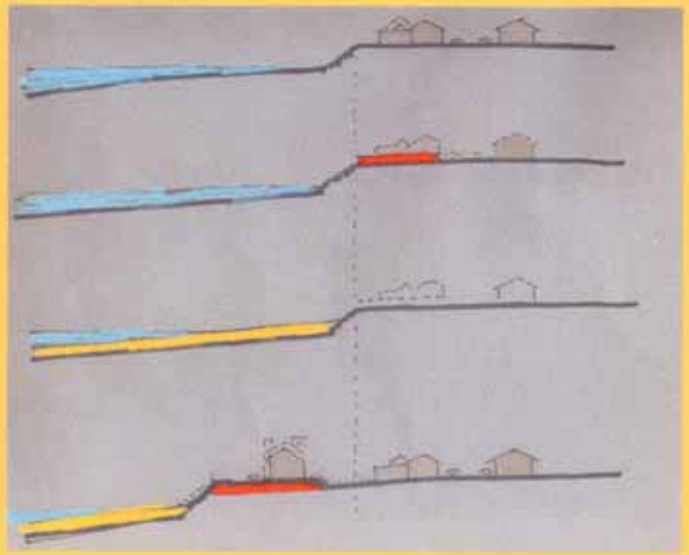
Participants believed that farmers will have to adapt their crops in coming years because of climate change (wetter winters/drier summers) and coastal erosion. Several of the groups suggested that by encouraging the farmers to work together alternative crops and farming methods may be developed. Options might include more organic farming and crops more appropriate to the changing ecosystem, such as saline vegetables.

As farmers are among the major landowners in the area, closer cooperation between the farmers and local authorities would also be beneficial in other areas such as improved landscaping, creation of more cycle ways and bridle paths etc. which, again, would also benefit tourism.

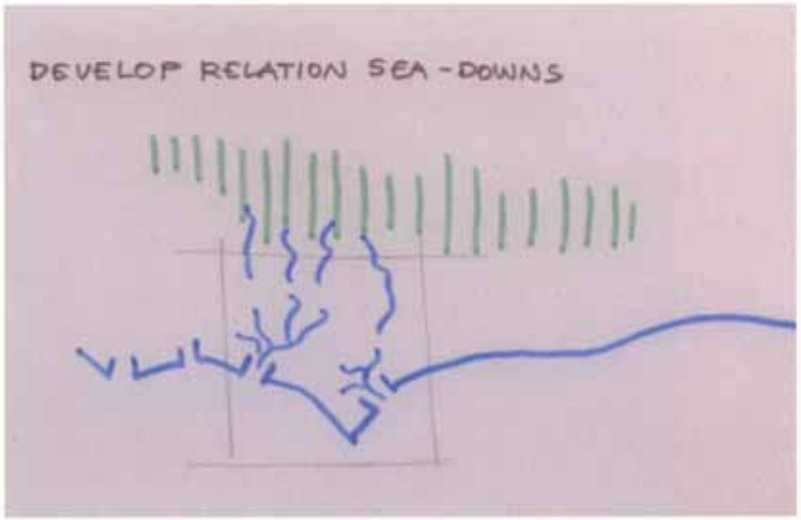
1.3.9 Recreation and tourism

All teams recognised that the area has great potential for tourism and recreation.
the Manhood Peninsula is the only part of the south coast between Newhaven and Southampton which provides a link between the

The interior should remain rural and relatively tranquil. Existing and expanding greenhouses should be relocated at the eastern side of Chichester, close to road and rail, where also new greenhouses should be concentrated. As tourism and recreation are likely to become the mainstay of the local economy, enhancing the whole Peninsula's rural landscape is vital for the type of tourism the area is likely to attract.



Develop relation sea-downs



countryside and the coast, two of the UK's main tourist attractions. It is vital to the area's economic future that that is not further undermined by inappropriate development, which adversely impacts the environment.

By focusing on eco-friendly, high quality tourism the area can enhance rather than damage its environment (its main attraction) the participants felt. It will also be tapping into one of the fastest growing areas of recreation and tourism.

Better landscaping of caravan parks, and transformation into higher quality facilities; the creation of more holiday cottages for long-stay accomodation, and more bridleways for horse-riding and cycling; and emphasising and improving the environmental qualities of the area will help attract more long-stay visitors and ultimately improve the stock of good hotels and restaurants in the area.

By persuading some of the many day visitors to stay overnight or longer in the area, traffic would not necessarily increase. Traffic management measures might include park and rides, to encourage more visitors to use bikes or buses. Swapping your car for a bike would in itself be an attraction offered by the area.

Public footpath

Intertidal zone

1.3.10 Nature Conservation

Both Pagham and Chichester Harbour SAC/SPAs are protected by international and UK law. Losses due to sea level rise, or indeed the construction of sea defences themselves, must be made good by habitat creation elsewhere. The UK Biodiversity Action Plan, which the Government supports, also requires that losses in intertidal habitats are replaced by allowing managed retreat. There are few if any other opportunities in Sussex to create new intertidal and wetland habitats on the scale which can be achieved on the Manhood, and probably none in the UK where the relative financial costs and benefits of doing so are so positive.

In all scenarios, new dynamic nature reserves are created by giving greater influence landwards to the sea, such as mud flats and intertidal zones. Especially by accepting the 5m contour below which no permanent structures should be built, more room could be given to natural processes.

Also, by extending the flood plains along the Pagham Rife and River Lavant more wetland areas are created, all of which will be complementary to the existing Nature Reserves on the Manhood and beyond. Altogether, the existing and newly created nature conservation areas form a strong(er) ecological network. Those nature conservation areas are not only valuable for the sake of nature itself, they also provide a tourist attraction for low key tourism and they may help farmers diversify.

Canal

Trees

1.4 Implementation

1.4.1 Organisation

The main problem with putting any of the ideas and visions into reality is implementation, both in terms of organisation and (financial) mechanisms, all participants recognised.

The planning system at the moment was seen and described as 'gridlocked', because of the number of organisations involved (including District Council, County Council, the Environment Agency, environmental groups and landowners, businesses and residents) and the lack of collective goals. In addition, according to the participants, the Manhood does not have a framework for comprehensive financing nor a framework for cooperation, whilst at the same time there is a need for stronger community stewardship, they felt.

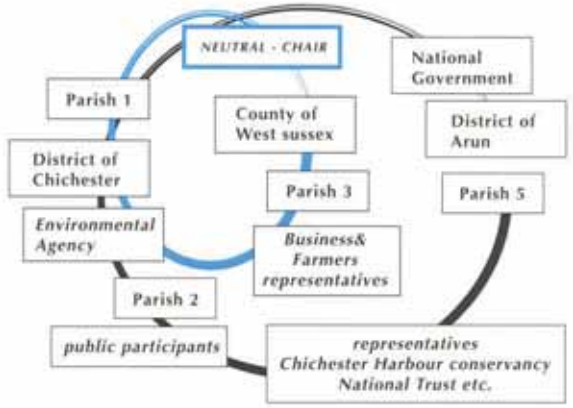
Greater cooperation between the stakeholders and shareholders of the Manhood would help in building trust and understanding and in allowing mutual solutions and more finance to be found. Integrating the driving forces of individual property owners and directing interest in the area to fulfill collective goals - providing the optimum (not necessarily the maximum) solution for each party - could be achieved by creating groups, such as a farmers association, a business society, a residents association, which might work as part of a wider organisation including local authorities and agencies.

"If no such organisation and cooperation is formed, there will continue to be more sectoral studies into coastal defence, land use planning, etc., everyone arguing that he has a right and that science proves his position, while sea level continues to rise and options continue to disappear. Finding a solution in 10 years time will be far more expensive,"said Albert Jansen, Infrastructure Specialist at NOVEM (Dutch Research Institute for Transport and Infrastructure). Mr Jansen recommended that the good examples of such organisations already established here, such as the Solent Coastal Forum, the Coastal Forum of Dorset, the Isle of Man, be examined.

If such an organisation, including stakeholders and responsible agencies, was going to be formed a letter of intent, including goals, themes and directions to progress, should be signed by those participants prepared to commit themselves to a sustainable future for the area. Information should be understood by everyone, raising awareness of the problems and allowing mutual communication and cooperation. A round table conference should be convened to debate the letter of intent and to formulate an agenda of problems, solutions and means of progressing to be materialised in a plan. The inner circle of the round table should include representatives from Manhood Parishes, Chichester District Council, West Sussex County Council, Environment Agency, environmental groups such as Sussex Wildlife Trust and/or English Nature, businesses including farming and/or horticulture. A wider circle may include representatives from neighbouring districts, other government agencies, other resident groups. The Round Table must be chaired by an independent, neutral chair, such as an academic.

The preliminary forum (Dutch Style)

The preliminary Forum (dutch style)



The benefits of such a Round Table organisation are:

- *Increased confidence and cooperation*
- *Reduced conflict.*
- *An increased opportunity to create more integrated solutions.*
- *Increased funding possibilities from private investment, national government and European Union sources.*
- *Gaining public support.*

The next condition towards implementation is to define the financial steering mechanisms.

1.4.2 Mechanisms

Integrated, long-term planning policy

The first, and most cost-effective, mechanism for authorities to implement some of the suggestions simply is to create an integrated, long-term planning and strategic policy for the area. A policy which defines a vision and sets a direction for the area using strategic zones for certain activities will enable market forces to help progress it. Then the policies as described further on ('red for green', etc.) can be applied.

For example, allowing greenhouse expansion only in a specially designated zone will encourage horticulturalists to relocate into that zone if they wish to expand their business. Similarly, if planning permission for low density housing could be obtained in their current location they would also have an economic incentive to relocate.

Similarly, if the area is recognised by the local authority as a prime tourist area, and the council's policy specifies the type of tourism it aims to focus on, it will attract more hotels, restaurants and appropriate tourism operators such as cycle hire shops. Without a long-term plan which guarantees the future of the district as an attractive, recreational area, tourism based businesses such as hotels, for example, are far less likely to invest in the Manhood.

Legislation

If a new, more integrated planning approach should be adopted, the Local Authorities may have to purchase and then redistribute land for the different land use functions and processes, such as relocation of housing, caravans, greenhouses etc.

In the UK, Local Authorities can allocate land for particular purposes through the Local Plans. In addition, they do have powers to compulsory purchase land to achieve community objectives and do have effective powers to prevent development in unsuitable locations. Private developers now often take the lead in (re)development schemes to assemble land through negotiation with private landowners. Also, in larger conurbations urban development corporations act in partnership with the private sector to assemble and develop land.

The British planning system allows local planning authorities to impose conditions on planning permission for new development or to enter into a planning agreement (obligation) with a developer to ensure that certain infrastructure, landscaping, or coastal defence requirements, or mitigation for wildlife losses are secured at the developer's expense. The requirements must be in the public interest and they must be needed directly

as a result of the development. The degree to which the developer provides such infrastructure etc. is at the discretion of the local planning authority, but the developer may appeal against the decision if he considers it unreasonable. Such arrangements do not normally meet the full cost of the capital and maintenace costs of any required infrastructure, particularly when the development is relatively small.

So far, this situation is not essentially different from that in the Netherlands. However, it is interesting to know that apart from the compulsory powers by Local Authorities, the Dutch have the Law on Land Organisation, a national scheme, for development in rural areas.

This law originates from the former Reallotment Schemes, which were established to create better and more efficient production circumstances for the agricultural sector. Gradually, functions such as recreation and nature conservation also became part of a Reallotment Scheme. Later, these schemes were transformed into the Law on Land Organisation, which can now be applied to the reorganisation and allocation of other land use functions as well, such as the construction of the High Speed Train. Nowadays it is a more general instrument used to realise changing land use functions in rural areas.

If a plan for Land Reorganisation has been asked for, the Province and Regional Directorate of the Ministry of Agriculture, Nature Conservation and Fisheries must give their consent. Once on the list, the planning process starts along regulated lines. First a special Committee on Land Reoganisation has to be installed. Administrative costs, and also the costs for necessary measures as part of the plan, are fully or partly financed by the Government. In the case of a third party, this third party has to pay as well.

Back to the UK: pro-active initiatives by the Local Authorities, i.e. allocate, assemble and purchase land and then ensure infrastructure and landscaping is provided before selling it to a developer, are quite rare in the UK. However, with a long term vision it might be that Local Authorities could have a greater incentive to use their compulsory powers to achieve more collective goals.

The workshop participants suggested the following financial constructions for implementation. However, these require an integrated planning approach as they are based on the combination of two or more different functions.

Policies: 'red for green', 'red for grey', etc.
One of the constructions suggested by the participants (in 'Rules of the game') was the so called 'red for red' policy for the transformation of the land-use-settlements areas into 'country parks' a 'red for glass' policy allowing a gradual conversion of often marginally used glasshouses into country houses. Property owners are given the opportunity to transform their greenhouses according to a special formula: Xm2 of housing for X+Ym2 of greenhouse ('space for space' construction). Two options are then possible:

- *To develop individual houses on former greenhouse plots.*
- *To create collective developments where several owners develop several plots together into estates. Examples can be found of environmentally friendly housing concepts which make use of the glasshouse-concept for reasons of interior climate and energy saving. Such a special building type may be promoted for this area, thereby conserving some of the characteristic features of these areas.*

This 'red for red' policy might even be used for financing the infrastructural solutions at the A27-junctions. through housing development south and east from Chichester and the A27.
At present, this type of policy appears in several forms in the

Netherlands, starting with the 'red for green' policy.

The rapidly increasing deterioration of the landscape, caused both by intensive farming and urbanisation and resulting in the disappearance of natural habitats, woodlands and contrasts between open and secluded landscapes, required more investments in improving and enhancing the landscape. But 'landscape' is not a function in itself, it is not economically viable and doesn't generate money. To create and maintain 'landscape' for the sake of 'landscape quality' means great costs both for the government and the taxpayer.

Mechanisms had to be found to finance this operation. Financial constructions have since been established in which housing pays for landscape enhancement and/or nature development: the so called 'red for green' policy. In some Dutch provinces, in restricted areas, a new building is allowed only when compensated with the designation and creation of 5-10 or more hectares of forest which are largely open to the public. The guidelines for such a development will be set out by the Provincial and/or Local Government involved. They take initiatives to develop special guidelines for the architecture of the buildings, and even often for the use of materials, which is based on guidelines from separate local Landscape Plans. So this green development will form an integral part of the building project. The basic idea is to create country parks with low density of housing to help strengthen the landscape quality. The beautiful setting of the new houses in such a green area is expressed in higher house prices. All the money from such a development goes straight to the developer.

It should be noted that in the Netherlands country parks with low density of housing have proven to be the most stable of land uses, especially in the otherwise dynamic inner dune zones. The country parks are also seen as an ideal buffer for the Ecological Structure, at present being created in the Netherlands.

Since then, more financial constructions have been established in which housing pays for other collective goals, such as soil remediation: 'red for grey'; water quality objectives: 'red for brown'; water storage capacity in water systems: 'red for blue'. The 'red for red' construction enables the conversion of stables into homes, thereby providing some housing development without creating more buildings in the countryside. This measure was initially meant to stimulate farmers to stop their activities in areas with a very intensive and environmental unfriendly type of agriculture.

However, this construction is now going to be applied to the whole countryside. (In Britain, the selling of stables and barns already is very popular and profitable). Some of these policies are vested in active policies of provincial governments.

The process is usually initiated by either a developer or a landowner. The whole construction is based upon close co-operation and consensus building between the relevant parties, who are:

- *Landowner (always)*
- *Province: sets the official planning guidelines.*
- *Local Authority: might have to make changes in Local Plan.*
- *A developer, or water company, or business, etc., depending on the type of construction to be used. Forms of co-operation have been established between Water Boards and developers where the restoration of brooks was involved; and between businesses, Local Authorities and developers in the case of remediation/ recultivation of industrial estates.*

These constructions are all quite new and the system is not perfect yet. For instance, difficulties occur when a new country park is going to be established within an area

with an already fixed allocated number of housing development and where the new houses have to fit in. Problems also occur when essential stakeholders are invited at too late a stage in the process and consensus is then not likely to be achieved.

But, nevertheless, there are already a few promising examples in the Netherlands of how these mechanisms can work. The three presented scenarios show other examples of combinations of functions which might create financial constructions for implementation, such as:

- *The combination of housing, gravel pits and green houses: 'red for blue'*
- *The combination of recreation (caravan-parks and holiday homes) and nature development: 'red for green'*
- *Housing development and a hard sea defence (Selsey): 'red for (new color!)'. 12,000 New homes, including 2,000 new style recreational homes with large gardens on the north western side of the town would help finance the sea defence. In order to ensure all the profits made on the development are spent on the town, the government would have to act as a project developer.*
- *And possibly the combination of gravel extraction, greenhouses and new housing can generate enough money to adapt the traffic system to improve the accessibility of Chichester from the Manhood and vice versa.*

For all these combinations, a farsighted and committed partnership of private and public sector interests needs to be formed to achieve the pacakage of proposals made in the three scenarios within the current British planning system.

Co-operation
The importance of co-operation is already mentioned. In the workshop, it was suggested that farmers should work more closely together to develop alternative crops and farming methods, such as saline crops. New forms of farmers co-operation have been established in the Netherlands, which may be beneficial to the future agricultural industry on the Manhood.

Farmers associations have been established especially to create nature and manage the landscape in specific areas for extra income, through contracts with the involved authorities. Most of these associations are regional, with a size in the order of 2000-5000 hectares. Most of these also form part of a national society as well ('In Natura'). The national society makes contracts with Provinces, Ministries and also private companies (e.g. in the case of nature compensation). In fact, in addition to their traditional products, farmers are being paid for producing 'nature' and 'landscape quality'.

Some associations also offer to provide buffer areas for flood protection or they provide recreational facilities, especially in areas where a regional recreation board is lacking.

And finally, some associations have their own Land Reorganisation Bank and promote their own specific regional products, such as special dairy products. On the Manhood, this might be a perspective for the growth of saline crops: the Manhood Marine Mixed Salads....

In the UK, various forms of grant aid are available to farmers and landowners to create hedge rows, woodlands, water features and uncultivated field margins. Special financial arrangements apply in SSSI's in appropriate circumstances. However, the levels of grants are not always sufficient to attract interest from the farmer. Again, the establishment of some sort of farmers co-operation might help to create more financial benefits in this respect.

Compensation
In any planning project where relocation or allocation of land use

functions is necessary, or where for instance, land is required for coastal defence, a compensation mechanism is essential to stimulate landowners or house owners to leave their properties. This mechanism must be part of any future plan for the Manhood.

At present, in the UK if land or a building is required for the construction of new or improvement of existing flood defences (sea or river), the Environment Agency, part of the Ministry of Agriculture, Fisheries and Food (MAFF) may compensate, but does not have to. Also, if coastal land is used to conserve or create habitat in designated natural conservation areas, English Nature may compensate, but again does not have to. A national compensation arrangement for those who are being displaced does not exist.
In the Netherlands compensation because of relocation or allocation goes along similar lines as in Land Reorganisation Schemes: land, houses, etc. are costed at day-value and bought by the authority responsible.

House on beach

In case of flooding, the National government is responsible for the primary dykes and dams for which a protection level is ensured. This is to a certain extend legally vested in laws, i.e. the Delta-wet. If flooding occurs within these levels, compensation for flood damage has to be paid, and even in the case of flooding beyond these protection levels compensation is to be expected on moral grounds.

The responsibility for protection against flooding lies not only with the national government, but also with the Water Boards. The Water Boards are responsible for the protection of secondary dykes (such as the 'boezemkades'). They also have to give guarantees for an adequate water management in polders and river valleys, which includes protection against inundation and water logging by rainfall and high groundwater levels. Sometimes landowners have a contract with a Water Board in which the Board is made responsible for, for instance, a discharge capacity. If the Board cannot guarantee the capacity the landowner is entitled to compensation for the damage caused by flooding.

In the UK, help is given to victims of flooding both at the time of the flood through the emergency services and after the waters have receded. Most of the post-flood works are community-wide

schemes, such as road repairs. Property owners are expected to have their own private insurance, but this is not always easy to obtain in some high risk flood areas. In some circumstances, Central Government contributes to the costs of dealing with a flood event. In the recent two riverine flood events in the Netherlands flood damage was compensated and paid out of national damage funds for about 2/3 of the damage occurred. However, these are general funds, not especially meant for flood damage. The total amount of compensation paid was so large that now the Government aims to create a system of flood damage insurance. The Society of Insurance Companies says that flood damage can be insured, but the costs have to be determined on the basis of flood frequency analysis. As a result costs are likely to increase. With climate change, flood insurance will become an increasing issue for insurance companies both in the Netherlands and in Britain.

And finally....
It happened to be Red Nose Day during the days the workshop took place: an event which the Dutch are completely unfamiliair with. They got to know more about the British culture of raising funds for charity and were impressed by all the private and individual initiatives around the UK. They suggested to make far more use of this strong cultural habit for environmental and landscape planning goals, of course in addition to, and not instead of, governmental responsibilities and the mechanisms described before.

two

DUTCH AND BRITISH APPROACHES

2.1 Coastal Management

2.1.1 Coastal Management in the UK

The population of the Manhood forms a part of the 16.9 million British people who live within 10km from the coast, that is more than 25% of the total population of Britain. But how safe is it to live and work within those 10km and to continue to rely on these coastal areas to support such a high percentage of the British economy and population without more long term, coherent coastal management and planning?

Rising sea levels and increased wave action already is resulting in increased erosion rates along the coast which necessitates a change in sea defence strategies. Other pressures on coastal zones stem from social and economic changes and environmental concerns, including habitat directives from Europe.

The changing nature of tourism and recreation has led to a decline in the traditional seaside resort. Meanwhile, coastal settlements tend to have a greater proportion of pensioners and economically inactive and dependent groups. This situation can lead to and compound infrastructure and service problems and problems of social exclusion and poverty.

Climate change is likely to increase environmental problems such as managing coastal habitats; beach starvation, possibly worsened by offshore dredging to renourish beaches; need to adapt agriculture in coastal areas and future problems of uninsurability in flood vunerable areas.

The responsibilities for management of the UK coast are divided between several bodies. The Ministry of Agriculture, Fisheries and Food (MAFF) is the government body responsible for overseeing the provision of coast protection and flood defence. The two operating authorities are the Environment Agency, which is responsible for flood defence of low-lying land subject to inundation and flooding and local maritime district and unitary authorities responsible for coast defence. Meanwhile, County Councils have a financial responsibility for coastal protection but no operational role.

Shoreline Management Plans were established by MAFF in 1993 (revised in 2000) to create a strategic plan for the entire shoreline of England and Wales. There are 11 regional coastal cells, based on coastal processes, each containing several SMPs. Coastal groups with representatives from MAFF, local authorities, the Environment Agency and other interested groups such as English Nature are brought together to produce an SMP after wide consultation. SMPs are non-statutory documents which should be integrated within the County Council Structure Plans and the District Council Local Plans. However, SMP's are intended to concentrate specifically on the shoreline and erosion problems of the coast, rather than look in detail at the hinterland.

The European Union and UK Government are encouraging local authorities to produce Coastal Zone Management Plans - non-statutory documents that integrate the various uses and characteristics of the coast. The Solent Coastal Forum in Hampshire was one of the first bodies to produce a more integrated Coastal Management Plan and Arun District Council to the east of the Manhood also has a coastal plan. Chichester Harbour and Pagham Harbour have management plans dealing with ecological, environmental and recreational issues which are recognised by planners and coastal engineers. The Chichester Coastal Forum is going

to produce a Coastal Plan.

However, current guidance from MAFF on coastal defence strategies are based on technical engineering, financial cost and environmental issues, not specifically on the local economic, social or recreational issues. Guidance on the cost-benefit methodology that should be applied to determine the standard of defence to be applied does not put a value on benefits that are difficult to quantify such as social and ecological benefits and does not put a direct value on human life or the cost of emergency works and services, for example, after a storm.

Local authorities are expected to take the lead in managing coastal development, with the Town Planning System being the main instrument for coastal management and land use planning stopping at the low tide mark. This sectoral policy adopted by the different agencies leads to a very fragmented coastal defence strategy. "We have no real coherent policy in the UK to guide coastal management. Much of the responsibility lies on the shoulders of local authorities and the local authorities are concerned that they are trying to so something on behalf of the nation without adequate support," according to Professor Peter Burbridge.

Wide spread and increased building on (river and sea) floodplains has occurred in the last decade, leading to greater risks from flooding. At present, 5% of the current population is at threat from coastal flooding. As pointed out, current policy still depends very heavily on Shoreline Management Plans rather than coastal zone management. "We haven't given enough recognition to the natural hazards of continuing to build on flood plains. Continuing to look at shoreline management rather than coastal zone management will result in a

Groins

rude shock with climate change," again Professor Burbridge.

At the same time, technical approaches to sea defence are changing. There is increasing evidence that many of the hard sea defences, such as sea walls and groins, adopted during the 19th and 20th century may have contributed to some of the erosion on other parts of the coastline. As a result, there is a move towards using softer, more natural, sea defences such as shallow beaches and mud flats which better absorb wave energy. However, this needs to be recognised by local authorities in their planning considerations. Traditionally, coastal plains have been heavily built on but as sea levels rise and winter precipitation increases due to global warming, a new planning approach should be adopted for the coastal plain.

the Manhood Peninsula is illustrative for the way coastal management is dealt with in the UK. It shows the need for a new approach that ties planning and coastal managament closer together. As a defined area, the Manhood has all the problems resulting from the current policy: erosion of the coast, inadequate sea defences, divided responsibilities along the whole stretch of Manhood coastline, and continued development along the shoreline and in the hinterland on flood plains. In the past five years, hundreds of houses have been built - and still are being built, in the area's coastal settlements, many of which on low-lying land close to the shoreline. This approach reduces coastal management and planning options for the future as well as increases the risk to the community.

A more integrated coastal/planning appproach was demonstrated in the way the Dutch tackled the Manhood. The Dutch advocated a mixture of hard and soft defences as most appropriate for the area, which took into account the geology and ecology of the area as well as the land-use functions of the Peninsula and the most appropriate environmental and economic future for the area. "As even the Dutch recommend this, then we probably have to get used to this idea of managed retreat", according to a local resident.

It is an example of the way management of the Dutch coast has changed radically in the last decade, focusing on integrated coastal zone management and softer, more natural sea defences.

2.1.2 The Dutch approach

Before going into detail about the Dutch approach, it is very interesting to note the difference in protection level between the two countries. Whereas in Britain for developed and built-up stretches of coastline a protection level of a 1:200 year event and for undeveloped coastline a 1:50 year event is applied, in the Netherlands a protection against a 1:10,000 year event is the norm for the whole coastline...(and a 1:4,000, sometimes a 1:2,000 year event for some of the islands)! Even inland, for the main river system of Rijn, Maas and Waal, a protection level of 1:1250 year is applied to the primary dykes. This huge difference in protection level puts the discussion about coastal management in the two countries in a somewhat different perspective!

However, lessons can still be learnt from the Dutch and the change in their whole approach to coastal management. Climate change with rising sea (and river!) levels and the fact that more than half the population and half of the wealth of the Netherlands lie below sea level led to a major reassessment of the country's coastal defence, when, a decade ago, the Dutch government took the decision to look at the coastline as a whole and not to allow further retreat. The Ministry of Transport, Public Works and Water Management established the

'basal coastline' as the position of the Dutch coastline on 1st January 1990 and determined that this coastline should be prevented from moving further inland. This is achieved through maintenance of the dykes and dunes to protect the low-lying hinterland against flooding from the sea during storm events (1:10,000; 1:4,000 or 1:2,000 year events) and combatting structural erosion using sand nourishments. At locations where the coast is receding, sand is added to the beach to act as a buffer zone to prevent coastline recession.*)

**) The sand is taken from the bottom of the North Sea, more than 20km from the coast and at depths greater than 20 metres, to ensure that the foundations of the coast are not undermined. Trailing suction hopper dredgers bring the sand to the beaches. Since 1990, some 5 to 7 million cubic metres of sand have been added to the Dutch beaches every year (an annual cost of about £20 million). If there is an accelerated rise in sea level, these operations will have to be increased.*
The Dutch have monitored their coast yearly for more than a hundred years and the Ministry has taken a coastal profile along every section every year since 1963, providing the Netherlands with basic coastal data unique in the world. Using the data, it is possible to predict coastline development and structural damage to the beach can be prevented by adding sand to the coastal system before the damage has gone too far.

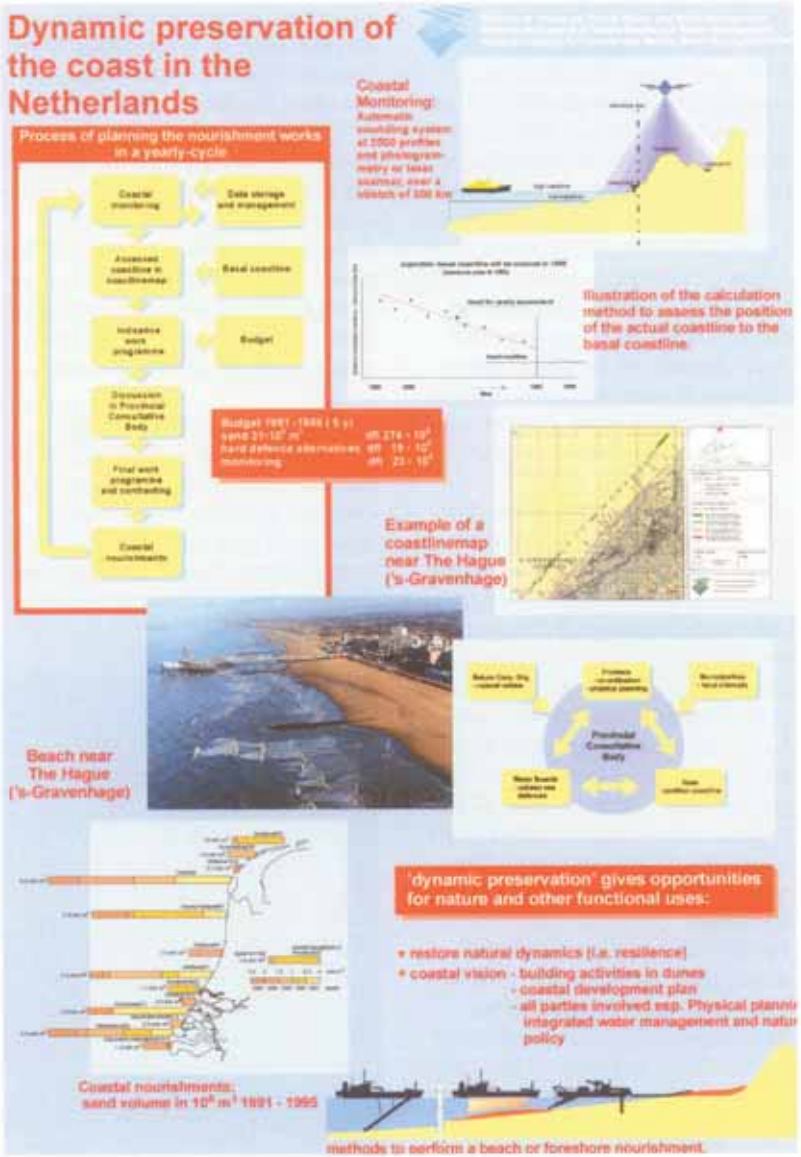
There has also been greater government and professional recognition of the need to closely integrate water management generally in the planning process. This is particularly important as heavier rainfall and rising sea levels will require more space for water and sea defences.

Until about 30 years ago, the Dutch tried as far as possible to put the sea under their control by successively building higher dykes, reclaiming land and damming off coastal inlets. Since then, however, there has been a growing realisation that this approach is subject to a law of diminishing returns and, in any case, exacts a heavy price on the ecology and dynamics of the coast. Netherland's current coastal defence policy is known as 'dynamic preservation', utilising the natural processes along the coast wherever possible through regular sand nourishment, and using hard defences and dykes only where necessary.

This policy of dynamic preservation has been successful in maintaining the coastline but has had other consequences. Sand nourishment has a beneficial impact on tourism and recreation in the coastal areas but building restraints need to be considered. Soft sea defences, such

Actual coastline and fluctuations

as sand dunes, are more effective in the long term but are more likely to be overtopped in extreme situations such as storms. In addition, rising sea levels and greater storm activity will increase the risk to property in the coastal zone. Climate change also will mean that sea defences will need to be broadened requiring more depth inland. As a result, coastal settlements need strict planning restrictions and some realignment of existing towns away from the beach is being considered to keep future sea defence options open.



The decision to focus on maintaining the whole coast, largely through soft sea defences and the use of critical undeveloped areas to keep options open in the future, entails a high degree of co-operation between local authorities and government agencies. It also means looking at the whole coastal zone rather than just the shoreline and factoring in intangible benefits - anything from the value of human life to the recreational and environmental benefits of certain forms of coastal defence.

The legal framework for coastline management is laid down in the Water Defence Act.
Co-operation between central government, the provincial authorities and the water boards is effected through the Provincial Consultative Bodies for the Coast (POKs). The POK's increasingly pay attention to the links between coastal protection, nature development, recreation and physical planning. Responsibilities are divided as follows:

- *Central government safeguards the position of the coastline and combats structural erosion.*
- *The Water Boards maintain the sea defences.*
- *Provincial Authorities are responsible for overall co-ordination and integration with other areas of policy such as physical planning. The provincial authority also chairs the POK.*

The introduction of the dynamic preservation policy for the Dutch coast in 1990 means that there have been few examples of coastal re-alignment in the Netherlands, such as has been suggested for part of the Manhood.

The two occasions where this has been done, on the uninhabited island of Rottumeroog and a man-made breach of the first rows of dunes in Noord-Holland ('De Kerf') were primarily for ecological reasons rather than safety reasons.

The standards for sea defence are laid down in the Sea Defence Act, which legally obliges the Dutch Government to protect property behind the sea defences. As said before, the coastal defences should be able to withstand a 1:10,000 years storm event; some of the islands have lower defence levels, such as 1:4,000 or 1:2,000 years.

Only the areas outside the sea defences are not protected and have no guaranteed level of safety against flooding from the sea. Any developments seaward of the sea defences are at the risk of the owner. Discussion is going on at the national and local level of government about the problem of increased risk in the coastal areas, to the seaward side of defences, and the issue of compensation. Currently, compensation is only available if property has to be removed due to the construction of new sea or river defences. The resettlement of coastal settlements judged to be at long term risk also is being considered by the government.

In 1999 the Ministry of Transport, Public Works and Water Management, the Ministry of Agriculture, Nature Management and Fisheries, the Ministry of Economic Affairs and the Ministry of Public Housing, Spatial planning and the Environment, working closely together on coastal and water management, published A Coastal Zone Perspective, an inter-departmental vision for the coast. Many of the concepts of this perspective have since been incorporated into government policies including the Fifth Policy Statement on Spatial Planning; the Third Coastal Policy Statement; the Policy Statement on Nature, Woodlands and Landscape in the 21st Century; the Policy Statement on Regional Economy and the Policy Statement on the Countryside.

The following are extracts from A Coastal Zone Perspective - many of which could be applicable to the UK:

"Taking safety as sine qua non, we can seek a more natural balance between land and sea and between economics and ecology".

"There is a need for different areas of policy to be better integrated where they affect the coast so that a synergy can be found between spatial planning, economic, environmental and safety interests".

"It is important to realise that decisions about what happens on land often have immediate repercussions for the sea and vice versa".

"Going for a sustainable solution often leads to conflict in the short term, but also leaves room for manoeuvre and is often more efficient in the long run".

"With the prospect of rising sea levels and sinking land, the defence of (the Netherlands) will continue to absorb ever increasing amounts of money and effort".

"Broader dunes (soft sea defences) offer the prospect of a more flexible approach to coastal defence .....(but) will take up more land, often at the expense of other forms of land use such as agriculture..... so it would be wise to make space for this well in advance".

"The 21st century will need a new form of water management in which land use will be adapted to the hydrology and not the other way round. Water will be given more space, as a result of which sustained heavy rain will not lead to immediate flooding".

"With rising sea levels, dykes likely will be more frequently overtopped during storms so that the area between the dykes would then have to be managed accordingly, with nature reserves and the local extensification of agriculture".

"Partly because of human intervention, intensive land use and climate change we seem to have painted ourselves into a corner: the cost of water management just keeps rising and flooding is expected to become more common, the land is continuing to fall and the sea level is now rising faster than before". "We will have to decide where the high cost of intensive water management is justified (such as in towns and industrial estates) and where not (for pasture or arable land). One thing is sure, though - the longer we delay, the harder the choices become".

"We are making water an important guiding principle in planning policy. The reform of water management is a difficult task that requires an integrated approach".

"Instead of continually trying to bring Nature under our control we can try to coax it into working for us by providing more space for the natural processes of the intertidal zones".

"The coast is one of the most important tourist destinations in the country. Tourists are mainly interested in the total package: landscape, nature, places of cultural and historical interest".

"Concentrate on quality not quantity".

The Third Coastal Policy, published in November 2000, recognises that, ten years on, the Dutch Government's decision to 'hold the line' through a dynamic, natural coastal defence, i.e. mainly sand nourishment, was the right decision.

Looking ahead, however, climate change will create more uncertainties. Sand nourishment will continue to form the main defence againts structural erosion. Where possible, these nourishments will be placed under water in the nearshore zone. At the same time, strengthening of the sea defences by making dykes or dunes higher and /or wider will be carried out to protect against increasing storms.

The new coastal policy also stresses the increased risk of property in the coastal zone, necessitating an integrated policy between coastal management and planning.

To control risks in the coastal zone, spatial planning boundaries are likely to be tightly controlled with development and rebuilding only be allowed if its design takes the risk fully into account. Outside these boundaries further urban development in the coastal zone will not be allowed unless there is a great public interest involved and the building cannot be located elsewhere.

The policy recommends leaving landward space for broader dykes and dunes, allowing no capital intensive use of the land on the landward side of sea defences (dunes or dykes), which, due to climate change, in the future will be too small to give the current protection level.
Back now to Britain, and what is needed here:

- Improved awareness by the public and Government of the importance of the coast and coastal issues.
- Creation of more sustainable investment in the coast and a much broader management of the coastal zones enabling more effective management of coastal processes.
- Better and more integrated planning. Planners need to be trained to deal with the marine environment. Planning competence currently stops at the low water mark. The land-sea boundary is a legal 'no-mans' land.
- Reduced exposure to natural hazards through good planning.
- Economic, social and environmental interests to be better balanced.
- Creation of more space in coastal areas for future defence mechanisms.

2.2 Planning

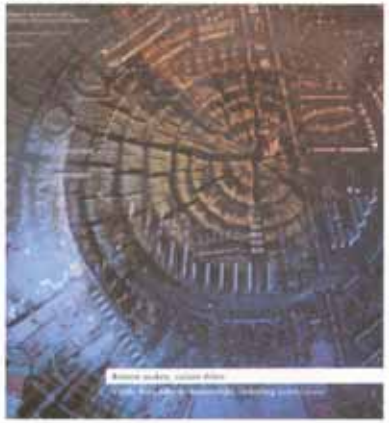
2.2.1 Differences

National Plan and PPGs

The planning structure in Britain and the Netherlands is very similar: from national via county/provincial to local level (District/Gemeente). However, there are several differences between the two countries.

For instance, where the Dutch have a visualised plan for the long term (30 years) on the national level, the British have rules and guidelines, Planning Policy Guidelines (PPGs).

In both countries the general planning principles are laid down by central government. In the Netherlands, however, the principles are based on a national strategic plan, the Report on Spatial Planning, visualised on a national scale map, which looks at the direction for the whole country for several decades ahead. Input for this report are more mono-functional reports and plans about transport, agriculture, the countryside etc. Also, distinctions are made between the different parts of the country, for each of which different futures are outlined. The recently published Fifth National Policy Document on Spatial Planning Part 1 produced by the Dutch government covers spatial and physical planning in the Netherlands for the next 30 years. It looks at issues such as the environment, economy, lifestyles, transport, etc.



Cover of Fifth Report on Spatial Planning (Part 1)

The next level in the planning hierarchy is the Province, which sets the guidelines for planning at a lower level, based on the national plan and guidelines, and expressed in the 'Streekplan' which usually covers a period of 10 years (the equivalent to the Structure Plan, covering 10-15 years). The lowest level is the Gemeente, although smaller in size comparable to the British Districts, which sets out its planning contours in the 'Bestemmingsplan', which covers a very variable period of time for the different 'gemeenten'. (the equivalent to the Local Plan in the UK, which covers 10 years).
In the UK, plans are formulated at regional, county and local levels based on specific planning rules and regulations, laid down by the government. These rules, known as Planning Policy Guidelines, PPGs, include general planning guidances for different issues. For example, PPG20 covers Coastal Planning; PPG3 covers Housing; PPG25 covers Building in the floodplain. Counties and District liaise across administrative boundaries on landuse planning issues within Regional Planning Guidances.

The current allocation of development land through the Structure and Local Plan process is a structured process to control the location of development, protect the environment and enable the social/economic needs of communities to be met. Both plans, however, are based on a short plan period of 5-10 years.

Needs-driven approach

Another difference between Dutch and British planning is a more cultural based one. Characteristic for the Dutch is their historically needs-driven approach, especially where coastal and water management are involved. That attitude is not a simple success story. The Dutch have repeatedly lost land to and reclaimed it again from the water. In one period, extraction of peat for use in households lead to the formation and growth of large lakes (like the Haarlemmermeer, Wormermeer, Beemster, etc.), which were pumped dry again in a later period, because they formed a threat to adjacent cities. In addition, at the same time pumping of

the peaty and clay-soils in order to make better arable land has lead to the gradual sinking of the soil due to oxidation of organic materials, causing an increase in flood risks and forcing the Dutch to continuously build higher dykes and invent new ways in water management. By reclaiming land, building dykes, inventing an ingenious water system throughout the country and organising land-use functions at the same time, the Dutch created their own landscape centuries ago. In total about 60% of the country has been created in this way.

This needs-driven approach is most clearly present in organisations like Rijkswaterstaat and the Water Boards, but can also be seen in the general planning approach. This attitude is so much part of the Dutch cultural inheritance, Dutch planners and engineers nowadays are not afraid to make big changes in the existing landscape, or even to transform the existing landscape into a new landscape. As a small country with a high density population (16 million in a country which is a sixth the size of Britain), and where the majority of the population and economic focus points are concentrated in the western part of the country which is highly dependent on the techniques of coastal and water management, a needs-driven approach in planning is still vital.

The main message from the Dutch to their British colleagues in that respect was: "if you want to safeguard the safety and the quality of the Manhood Peninsula for the future you have to make some strategic decisions now, and that does mean change". But residents on the Manhood are aware of that: "No change is not an option", Mike Beal, Chairman of Selsey Town Council remarked in the local newspaper months ago.

Perhaps a more needs-driven approach is now required in the UK.

Physical scale

Finally, there is also a difference in physical scale. the Netherlands are a sixth the size of the UK, so its Provinces and Gemeenten are far smaller than the British equivalents of County and District Councils. However, with a population a quarter the size of the UK, resulting in a greater pressure on the availability of land for many different land use functions, and with far more complex water management issues, planning is by no means easier in the Netherlands.

2.2.2 Need for sustainable integrated approach

As pressure for multiple land use functions on limited space increases and the effects of climate change impact, the need for a more integrated planning approach is clearly felt in both countries. Spatial Planning should reserve space for the unknown, both in terms of physical space and in flexible legislation, and be able to safeguard collective amenities and commodities such as good quality fresh water resources, nature reserves, coastal defences, etc. through strict rules and regulations.

An integrated long term planning approach is gradually becoming more practised in both countries. In the UK for instance, integrated coastal planning and management have been practised in some counties since the early 1990s. There are several Coastal Fora now, the objective of which is integrated coastal management and which are based on coastal processes, rather than administrative boundaries, see also Chapter 2.1.1.

In addition, Local Agenda 21 Plans and Community Plans are being developed to look at a sustainable approach to the development and management of an area as a whole. They promote the conservation and improvement of quality of life through respect for the environment and an awareness of climate change.
Also, in more urbanised areas, for instance in the urban fringes, integrated planning is now widely adopted.

However, the Netherlands seem to be in a different, maybe further stage of this process. Both the National and Provincial Government for instance, and even many of the Water Boards, which used to be mono-functional and very technical in their approaches, now have adopted a far more integrated approach and look for more sustainable solutions to their problems.

This process in the Netherlands got a fresh input about 18 years ago.

2.2.3 Turning points in Dutch Planning

During the Seventies a group of leading planners realised that more long term thinking and a more integrated way of planning was needed to be able to tackle increasing environmental, economic and ecological problems. That resulted in the establishment, in 1984, of the Stichting Nederland Nu Als Ontwerp (Foundation the Netherlands Now as Design) to research the future development of the whole of the Netherlands until the year 2050. Town planners, landscape architects, economists, sociologists, and others worked together in four different teams on four different scenarios for the future of the Netherlands, based on different life styles of Dutch society. Nederland Nu Als Ontwerp formed an impulse for a much more future-focused and more integrated way of planning.

Another impulse in this process was given in 1985 by the establishment of the Eo Wijersstichting, which was set-up to stimulate the debate and ideas about spatial planning and design at the regional and sub-regional level (f.i. a river catchment area), as well as to stimulate vision forming for long term spatial development.

During the Eighties, it became more apparent that for solving the increasing pressure for housing and economic development, together with increasing water management and ecological problems, the national government was too vague and didn't give satisfying solutions. The local government, however, was of too small a scale and tended to look mainly at short term and often unsustainable solutions. The need for a spatial planning level in between the national and the local level, plus a stronger spatial planning authority was clearly felt. The (sub)regional level functions as an intermediate to transform abstractly formulated planning policy at the national level towards projects which have to be realised on the local level. The (sub)regional level is based on geographical rather than administrative boundaries.

Also, due to economic forces, new technologies and globalisation, certain land-use functions, especially in the field of agriculture had to respond quickly to rapid changes, whereas others like nature conservation required a more stable environment; in other words, an increasing discrepancy developed between land-use functions in terms of dynamics (time, scale, money). Dealing with that discrepancy in spatial planning was another new challenge for which the Eo Wijersstichting formed the ideal platform.

Every three years the Eo Wijersstichting organises a design competition, in which multi-disciplinary teams are asked to come up with ideas and designs on a certain (sub)regional planning problem. The first one, in 1986, was about the river system of the rivers Rijn, Maas and Waal in the Netherlands: how to deal with changes in land-use functions, river management and effects of climate change in this typical Dutch landscape in the future.

The winning entry, Plan Ooievaar (Plan Stork), made mainly by landscape architects, was an enormous impulse for a more integrated planning approach with a clear distinction between long term and short term planning decisions, and a strong plea for an approach which is much more based on 'the working of the landscape', i.e. ecological interaction, water currents, soil,

geomorphology, water tables, etc. In a period, the Mid-Eighties, when many planners seemed to be suffocated by the administrative and legal complexities of spatial planning, this approach marked a radical breach with that situation and was able to show how by putting the working of the actual landscape first, by drawing boundaries based on the working of the landscape (instead of keeping to administrative boundaries, etc.), it is possible to achieve more feasible and sustainable solutions, both in terms of decision making, legislation and in actual projects.
The years 1984 till 1986 were more or less a turning point in Dutch planning, which resulted in a more area-focused planning approach in the Netherlands. The workshop on the Manhood Peninsula is a good illustration of such an approach.

It is important to note that the lead in this change of direction, actually a re-discovering of the Dutch way of planning and landscape design (the art of engineering), was taken by landscape architects and planners. As the total landscape is the basis of their working field these professionals are possibly the most appropriate for this leading role: in principle, they are able to have an overall and more or less neutral view of all issues involved and know how to combine functions. Consequently, since 1986, the role of landscape architects in planning projects in the Netherlands has dramatically changed. Where a landscape architect, or town and country planner, used to be called into a planning project almost at the end of the process 'to add a bit of green here and there' now he or she participates right from the start and is quite often the project leader of a planning project.

three

CONCLUSIONS FROM THE WORKSHOP

3.1 General impressions

By bringing together external experts, with various professional backgrounds, the ingredients were there to create ideas about a holistic, long term integrated planning approach for the future of the Manhood Peninsula. "You can achieve more imaginative outcomes by solving problems in multi-disciplinary groups than as an individual researching, planning and report writing," Steven Wade, Senior Hydrologist at Atkins.

Because the workshop participants were not bound by any political or administrative constraints, many of their ideas may never have been considered by the local planners in the past as practicable. Therefore, some of their ideas might seem to be more or less unrealistic. However, the three scenarios described in this report nevertheless show how a holistic approach can result in a variety of creative and useful ideas for the future, both in terms of practical solutions and in implementation, and both for the area itself and for the more general planning process. A holistic approach helps to identify short term and long term decisions, to identify problems and solutions on different levels, to identify what should be solved within the collective domain and what should be left to local and private initiatives, and also how one solution can address more than one problem and therefore create financial benefits.

Bringing together all parties and experts right from the start of any planning project has proven to be very constructive in the Netherlands during the last 15 years. It creates the possibility to reach consensus at an early stage of a project and provides a direction to follow. Such a process is time-consuming in the beginning, but it pays off during the planning process and can be more efficient and time- and cost effective, as all parties have to spend less time towards the end of the process in reaching consensus.

If the current planning policy for the Manhood, i.e. finding short term solutions for 'here and now problems' is extrapolated over a period of ca. 30 years, -"the area would be broken up in an unattractive patchwork with more houses here and there; more traffic, here and there; and more flooding. It will look full, while it isn't. It will look restless, while it is quiet. In a sneaky way, slowly but surely, the qualities of the Manhood Peninsula will be ruined. What you will get, nobody wants", stated Bert van Meggelen, the chairman of the workshop. The area will end up as a so called 'grey area' where there is a bit of everything everywhere, without a structure, with increased problems in many fields. In other words: an area without qualities and without a specific identity. -"and nobody will be happy" (Bert van Meggelen).

A long term vision for the area can prevent that. A long term vision provides a clear picture of the identity of the area and the direction in which the area should develop. Without such a vision, planning decisions will continue to be made on the basis of short term goals, remain piecemeal, and every attempt to develop an integrated planning approach remains in vain, because there is no goal, no direction to aim for.

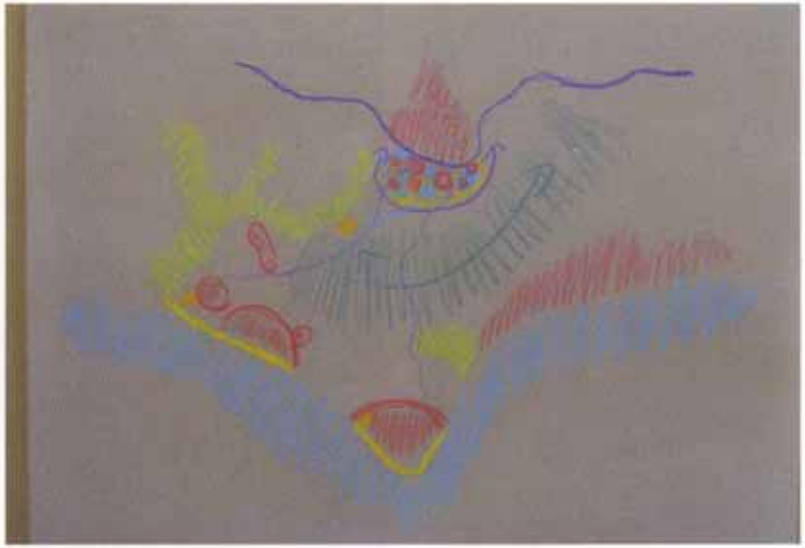
At the basis of all scenarios and ideas the teams came up with lies such a vision, based on a thorough analysis of the Manhood Peninsula's strong and weak points: its main assets, its qualities, plus the meaning and position of the area in a wider perspective.

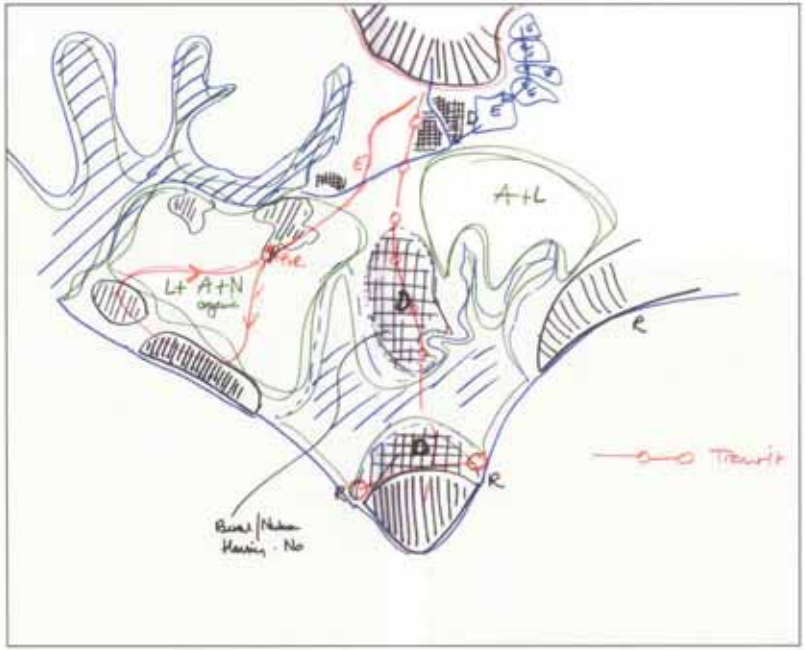
Participants at work, designing, discussion and excursion.

"Think first about the future of the area, then re-think about its problems instead of thinking about its problems first", according to Bert van Meggelen.

This positive planning approach enabled the teams to show that planning problems can be turned into opportunities to enhance the safety and quality of the whole area. A good illustration of this approach is the proposal for a new way of farming in the part of the area which is exposed to overtopping by the sea, the land behind Medmerry Beach. Instead of saying that good agricultural land will be lost to the sea, advantage could be taken from this salt water influence to start growing saline crops, for which there is an already increasing demand and which could become a speciality of the area: the Marine Mixed Salad for instance.

The teams were less optimistic, however, about the current division of responsibilities between many authorities, difficulties in coordination, too many individual interests, and a lack of collectivity and collective decision making. "Although practisioners from a range of professional backgrounds have creative ideas on how to combine flood defence, ecological, transport and other objectives, they are constrained by institutional, administrative and political obstacles," according to Steven Wade.





A solution to overcome those constraints could lie in the set-up of a new organisation, including all relevant parties, including representatives from the local community, local and outside experts, and with an independent chair. Proposals for such an organisation have been made in Part 1, paragraph 1.4.1.

Essential in every situation where planning decisions have to be made is good communication and understanding of each other's thoughts and ideas. Maps were used during the workshop to help the participants visualise their ideas ideas. These showed what ideas meant for the actual landscape and their impact on the area and on other land-use functions. As long as the visualisations are not seen as plans or blue prints for the area, but simply as a means for discussion, they can be a very effective aid for communication and co-operation. This process, 'planning through design', has been used in the Netherlands during the last 15 years.

From the above a few general conclusions can be drawn:

- *A long term vision on the area involved is essential for any planning project.*
- *A holistic, sustainable integrated planning approach generates more valuable and creative solutions than a mono-functional approach.*
- *If the need for a more integrated approach is felt in the UK, than a radical change in organisation has to take place in order to overcome the current divided responsibilities and constraining political, administrative and financial situation.*
- *Bring all parties and experts involved in a planning project together right at the start of a project in order to achieve consensus in an early stage of the project on the direction to be followed, and to be able to work in a way as integrated as possible right from the start.*
- *Take a positive planning approach and see problems as a chance to improve the quality of a certain area.*
- *'Planning through design' can be a very helpful means in discussions on any planning project.*

3.2 Benefits of the workshop

The workshop produced many gains for the participants, the responsible authorities and other sponsors and local residents.

Participants gains:

- *Knowledge and understanding of methodologies used in another country.*
- *Knowledge, experience and skills from peers.*
- *Knowledge, experience and new perspectives from professionals in other disciplines.*
- *The opportunity to tackle and learn from different problems*
- *A holistic approach*
- *Working together in a team*
- *Five days of intense brainstorming, hard work and fun!*

Several of the Dutch participants had worked in other planning workshops and noted that each workshop had provided new knowledge and experience. Many expressed even an interest in doing a follow up workshop on the Manhood.

Sponsors gains:

Despite a high degree of scepticism at the initial suggestion of bringing in 'outside experts', there was widespread agreement among officers from the local district and county councils and the Environment Agency that the workshop was extremely beneficial. Benefits derived by the local agencies, who co-sponsored the workshop included:

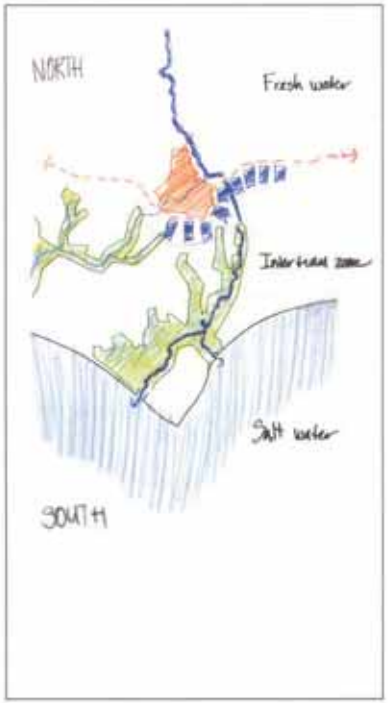
- *A greater degree of co-operation between agencies. Even from the planning stage of the workshop, officers recognised the benefit of working closely with officers from another agency on a joint project.*
- *A greater level of understanding of other agencies' perspectives and problems*
- *An opportunity for officers to step back from the problem and view it with fresh, broader vision.*
- *The opportunity to look at other methodologies and approaches to the same problem*
- *Knowledge, skills and experience learned from other professionals.*
- *A greater level of understanding and interest gained by local residents, politicians and community groups during the process.*
- *A greater awareness of residents views.*
- *Finding sustainable solutions.*
- *New directions to go forward.*

Benefits gained by other sponsors including outside agencies:

- *An opportunity to bring their views into the planning/coastal management process.*
- *Increased understanding of other issues and pressures.*
- *Examples of how an integrated approach can produce different, more sustainable, solutions.*
- *The opportunity to apply the methods and approaches used in the Manhood study to other regions.*

Gains for the public:
The workshop provided local residents, elected councillors, businesses, and community groups, such as schools and local societies, an opportunity to learn about planning issues and participate in the planning debate. Briefs were provided by many in the community prior to the workshop outlining issues and concerns they felt to be important. Publicity surrounding the workshop and its final presentation brought the issues to the public and provided them with an opportunity to respond. The whole process has increased the public's interest and involvement in their local community and environment and made them more aware of the problems and issues faced by the local authorities. This was welcomed by both local residents and the workshop's sponsors.

Such workshops provide valuable impetus to the planning process, as has been seen in the Netherlands in recent years. Although time-consuming to organise and set-up, the gains by all parties far outweigh the costs. The workshop can provide a way of breaking through entrenched thinking and impasses between different parties and provide a new direction and approach in which to move forward. Town and country planning, with its existing and increasing constraints, is a good example of how a workshop approach can be beneficial. Similar benefits, however, could be gained by using inter-disciplinary and mixed-nationality workshops in other policy areas such as education.



3.3 Follow-up

West Sussex County Council and Chichester District Council have agreed to work together to help bring some of the ideas from the workshop into reality and to plan a positive future for the Manhood Peninsula. They also believe that further study of the area with community representatives and interested agencies may help find ways of improving the current planning process, to adopt a long term sustainable approach to coastal defence and to management of the coastal zone, and better equip authorities to deal with future planning pressures.

An initial meeting to discuss the way forward is planned for 24th July, 2001, involving government agencies, environmental agencies, and representatives of the local community. The meeting will be chaired by an external and independent chair, probably a leading planning academic.

Climate change; increased demands for development, including housing and infrastructure; the role of the local community in the planning process; increasing regulatory demands for habitat creation; the potential changing role of the farmer from intensive agricultural producer to a custodian of the countryside; all are matters of national interest and current debate that will be addressed in the follow-up Manhood project.

Many organisations actively looking at sustainable regional planning already have been involved in the project including the Government Office for the South East; the UK Climate Change Impact Programme; the South East of England Regional Assembly; the Environment Agency; WWF-UK/Sussex Wildlife Trust, etc. All these organisations helped sponsor the workshop and some sent representatives as participants.

The workshop and its wide-ranging results have provided a valuable starting document for a project that can bring these organisations together to study the issues in a real, practical situation.

Funding also is likely to be available for many of the issues being considered. For example, the Manhood Project could be put forward as a pilot study for the work being done on planning and climate change by Oxford Brookes University, sponsored by the Department of the Environment, Transport and the Regions.

BACKGROUND WORKSHOP

The Dutch institute for physical planning and housing: NIROV
Every year, Werkgroep Landschap of the Netherlands Institute for Spatial Planning and Housing (NIROV) organises a workshop addressing a current planning problem in the Netherlands. People with specific knowledge and various professional backgrounds are invited to brainstorm together in multi-disciplinary teams over several days to come up with fresh ideas and solutions for a particular Planning problem.

These sessions allow planning professionals to stand back for a few days from the daily planning reality, and, by discussing, drawing and brainstorming, get new impulses and fresh ideas for existing planning problems. Themes of recent years were 'Integration of nature development and urbanisation'; 'Archaeology and planning design'; 'Planning and design of the Randstad (the most urbanised western part of Holland) and its Green Heart'. Usually, ideas from the workshops help to give fresh input into existing planning processes, either for local authorities or for planners and decision makers at national level.

For the first time in its history NIROV went overseas to hold its brainstorming sessions in the South East of Britain, on the Manhood Peninsula. Coastal management and Climate change were two of the main themes to be addressed in this years event. In total 18 Dutch and 10 British experts on coastal management, water management, town and country planning, ecology, infrastructure including transport, worked together during five days in three Dutch, one British and two mixed teams. They developed several scenarios for the future of the Manhood Peninsula, as well as ideas about implementation and organisation.

Working method before and during the workshop
Months before the start of the workshop local residents and groups such as farmers, horticulturists, schools, parishes, etc. provided short, written summaries of their views on the problems and future of the Manhood Peninsula, which were given to the workshop participants as a source of information. These views showed striking similarities in how the Manhood is perceived and in what were seen as the main problems.

Together with these views, a briefing document containing relevant information from existing planning documents (Structure Plan, Local Plan, Coastal Management Plan), and facts and figures on relevant issues was provided to all participants.

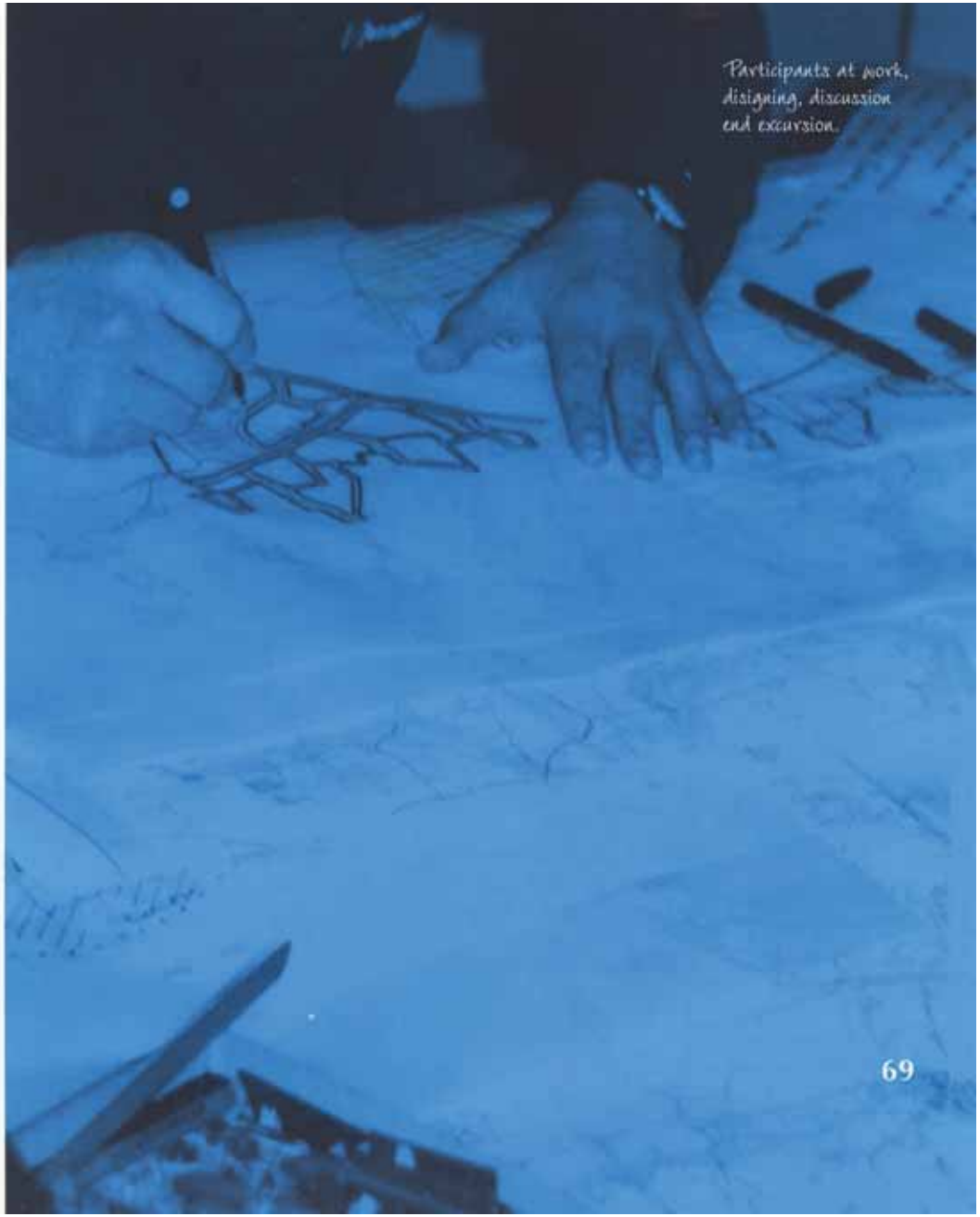
During the workshop people with specific local knowledge, members of the public and elected councillors were invited to sit in with the teams to inform them in more detail and discuss proposed ideas.

The workshop participants had to come up with ideas for a long term (15-30 years), integrated planning approach, based on an overall vision for the whole Manhood. In this approach, all planning problems facing the Manhood had to be addressed, including coastal management, flooding, housing development, adequate infrastructure, agriculture, horticulture, employment, recreation, nature conservation and environmental issues, all in the light of climate change.

The participants were originally divided into six mixed-profession teams, each team containing one or more coastal geomorphologists, coastal engineers or water management specialists; town and country planners or landscape architects; environmentalists or climate change specialists. No directions were given to the teams. By the

end of the first day of working, there were surprising similarities between the teams on many issues of planning, and coastal and water management.

Partly because of the striking similarities between the six teams, teams were merged and a total of three teams were created to explore three different scenarios. In addition, a group of coastal experts, both Dutch and British, were brought together to discuss costs and benefits of alternative sea defence options.



Participants at work, designing, discussion and excursion.

appendix 2

THE TEAMS

The Chairmen
Jan Vogelij for the first three days and, with one day overlap, Bert van Meggelen for the last three days.

*Team **A** (Dutch)*
1. Marlies Brinkhuijsen (team leader)
2. Paul Kurstjens
3. Norbert Dankers
4. Jasper Fiselier

*Team **B** (Dutch)*
1. Enno Zuidema (team leader)
2. Marinka Kiezebrink
3. Michael van Buuren
4. Bart Egeter

*Team **C** (Dutch)*
1. Berno Strootman (team leader)
2. Els Bet
3. Teunis Louters
4. Kees Vertegaal
5. Albert Jansen

*Team **D** (mixed Dutch/British)*
1. Jake Wiersma (team leader)
2. Arjan van de Lindeloof
3. Peter Burbridge
4. Marcel Rozemeijer
5. Bill Jenman

*Team **E** (mixed Dutch/British)*
1. Esther Kruyt (team leader)
2. Alan Inder
3. Brian Poole
4. Jan Klijn
5. Robbert de Koning

*Team **F** (British)*
1. Marc van Grieken (team leader)
2. Phillippa Dart
3. John Cheston
4. Richard Hein
5. Steven Wade

The organisation
Renee Santema
Carolyn Cobbold
Martijn Vos (NIROV)
Brenda McCarthy (NIROV)

CVs PARTICIPANTS

Els Bet (1957),
Town Planner (since 1996: own office)
Noordeinde 144
2514 GP The Hague

the NetherlandsArchitecture at the Technical University of Delft, Town Planning in Barcelona. Projects include:Ongoing: Industrial Estates in the Westelijke Tuinsteden of Amsterdam: a plan for high quality industrial estates within an urban environment; Plan for the Centre of Helmond, 3rd fase.

Projects include:

•
2000: 'Zoetermeer: the town, infrastructure and the region': a new planning approach for the future of the town; Plan for the Centre of Helmond, 1st and 2nd fase.

•
1999: IJburg; a study to incorporate town planning requirements for disabled people into an existing town plan for a new part of Amsterdam; 'Plan de Noord': a plan for a new town on the site of former sewage works.

•
1998: 'Verolme-location': a plan for a new town on a former ship-building site; a new economic and spatial planning future for six renovation sites in The Hague.

•
1997: 'Schoonenberg and Zeewijk': study for a country park-zone and a football-stadion.

—

Ir Marlies Brinkhuijsen (1963), Landscape Planner
Alterra
The Winand Staring Centre
PO Box 47
6700 AA Wageningen
the Netherlands

Landscape Architecture Degree MSc, Wageningen Agricultural University (1981-1988)

Projects include:

•
2000: Landstad Deventer: plans for the socio-development of a rural-urban area. Interactive planning process with government agencies and residents; Glasshousing and environmental quality: design and development of new glasshouse area.

•
1998 Schiphol Airport at Sea: location study for new airport in the North Sea; Sustainable Urban Development for residential and business areas

•
1997: Evaluation of policymaking by the National Planning Agency

•
1990-1999: River Management Projects

—

Professor Peter Burbridge (1942),
Professor of Coastal Management
Director of the Centre for Tropical Coastal Management
Department of Marine Sciences and Coastal Management
University of Newcastle
Ridley Building
Newcastle upon Tyne NE1 7RU

1965 BA Literature and Geography, University of Connecticut, USA
1968 Diploma in Town and Country Planning, Edinburgh Collage of Art, Scotland
1976 Master of Professional Studies in Natural Resources, Cornell University, USA
1978 PhD in Natural Resource Management specializing in Coastal Resources Management, Cornell University, USA
Member of the Royal Town Planning Institute
Life Member, Phi Kappa Phi Honour Society
Member, IUCN Commission on Ecosystem Management

Experience/projects include:
scientific and management advisor on Wadden Sea study for governments of Denmark, Germany, the Netherlands and WWF 1998/99; study of the 35 integrated coastal management demonstration projects funded by the Life and Terra programs of the European Commission 1998/99; WF funded technical support to Balkan States in development of pilot programmes in integrated coastal management 1998-continuing ; WWF/EC funded development of a new program to strengthen coastal management initiatives in Africa, Asia and the Pacific, Latin America and the Caribbean 1998 - continuing; technical support in the preparation of the Draft Policy for Integrated Coastal Management for South Africa 1998; advisor to EU Integrated Coastal Zone Management Programme 1999; currently advising the Local Government Association on the development of a strategy for strengthening coastal policy and management in England and Wales.

—

Dr ir Michael van Buuren, (1960),
Landscape Planner / Water Management Specialist
Ministry of Transport, Public Works and Water Management
Institute for Inland Water Management and Waste Water Treatment (RIZA)
PO Box 17
8200 AA Lelystad
the Netherlands

Land Use Planning, Wageningen Agricultural University, 1979-1986

Projects include:

•
Ongoing: Living with Floods: Resilience Strategies for Flood Risk Management and multiple land use in the River Rhine Basin; Water and Culture: Landscape development and design in relation to water management.
•
1997: Feasibility study for alternative strategies for drinking water production in the Netherlands
•
1996: Landscape plan for Salland
•
1993: Landscape plan for combining nature development and production of drinking water.

—

John Cheston (1965), Town Planner
Government Office for the South East;
Surrey
East and West Sussex Planning Team
Bridge House
1, Walnut Tree Close
Guildford
Surrey GU1 4GA
UK

Main areas of work: development control, preparation of regional planning guidance for the South East.

—

Norbert Dankers (1947), Coastal Ecologist / Morphologist
Head of Marine Section, Department of Aquatic Ecology
Research Institute of Estuarine Ecology
Alterra Texel
Zuiderhaaks 17
1790 SH 't Horntje
Texel
the Netherlands

Biology at University of Nijmegen (1968), MSc Ecology at the University of Wales (1971),
Doctorate Biology, Nijmegen (1972) and PhD Ecology in Sydney (1977)

Member of several national and international advisory groups including Commission on Environment Impact Assessment and the Wadden Sea Advisory Council.

Projects include:
•
1997: Aquaculture systems in Mekong Delta, Vietnam
•
1992: Member of team advising on implementation of 5 year plan for Kenya Wildlife Service
•
1989/91: Co-organizer of course on nature management for Indonesian Park managers
•
1988: Indonesian Wetland Conservation Strategy project; Integrated environmental management program in the urbanised coastal region of Sri Lanka
•
1985: Teaching coastal planning and management techniques in Thailand

—

Philippa Dart (1963), Landscape Architect
Senior Landscape Officer
Arun District Council
Bognor Regis Town Hall
Clarence Road
Bognor Regis PO21 1LD
West Sussex
UK

BSc Environmental Science, MSc Landscape Ecology Design and Management at Wye College, London University.

Main areas of work: Landscape planning, local plan policy, management plans and community projects

—

Bart Egeter (1957), Transport and Infrastructure Specialist
Transportation planner
TNO Institute of Infrastructure,
Transport and Regional Development
PO Box 6041
2600 JA Delft
the Netherlands

Researcher/lecturer Faculty of Civil Engineering, Delft University of Technology
1987-1997

Projects include:
•
2000: Development of design methodology for integrated regional transport networks; Development of integrated design and evaluation tool for land use and transport planning; Opportunities for additional public transport between metropolitan districts of the Randstad
•
1999: Land-accessibility for new airport in the North Sea
•
1998: Developing door-to-door transport concepts in 2050

—

Jasper Fiselier (1958), Specialist in Physical Geography / Coastal Ecology
DHV
PO Box 484
3800 AL Amersfoort
the Netherlands

Studied Physical Geography and Landscape Ecology at the University of Amsterdam.

Projects include:
Water management in new towns; Plans for flood plains at Fort St. Andries, Rosandepolder, and along the river Lek; Water Storage maps for the Provinces of Utrecht and Gelderland; studies to build on the foreshore; studies into the effects of a new airport on an island on the Dutch coast.

Marc J van Grieken (1957), Landscape Architect
Principal of Land Use Consultants Glasgow
Land Use Consultants
21 Woodside Terrace
Glasgow G3 7XH

MSc Landscape Architecture, Wageningen Agricultural University, the Netherlands

Projects include:
Landscape / urban design project manager for: Bush Research Park; Canary Wharf Station Park; North Greenwich Transport Interchange; redevelopment of former Glasgow Garden Festival site; 850 acre commercial development at Eurocentral, Lanarkshire; Callendar Business Park, Falkirk; Environmental Assessment of Cairngorm Funicular Project; Glasgow Airport International Business Campus Environmental Assessment; environmental assessment for Newhouse West, Motherwell, covering proposals for open-cast coal extraction, construction of Rail Freight Terminal and development of 350 hectares of greenbelt site. Currently, landscape consultant to Scottish Enterprise as part of Glasgow Land Renewal Programme.

Guest tutor and lecturer at Heriot Watt University, Department of Landscape Architecture

—

Richard Hein (1972), Maritime Engineer
Halcrow Group Ltd.
Burderop Park
Swindon SN4 0QD
Wiltshire
UK

MSc Maritime Engineering at the University of Liverpool

Projects include:
Project manager for Happisburgh to Winterton Sea Defences, Norfolk; deputy project manager for Lincshore Sea Defences Strategy Review; project engineer on Shoreline Management Plans for Walney Island to St Bees Head and St Bees Head to River Sark.

—

Alan Inder (1947), Town Planner
Coastal Manager Strategy Group
Hampshire County Council, Planning Department
The Castle
Winchester SO23 8UE
UK

Diploma in Urban & Regional Planning at Oxford Polytechnic (1972); Member of the Royal Town Planning Institute (since 1974)

Projects include:
•
Present: Manager for project officers for the Solent Forum and Solent European Marine Sites.
• 1991: Co-author of "A Strategy for Hampshire's Coast." Hampshire County Council.
• 1983-90 Planning and research manager for HCC's Recreation Service.
• 1976-83 Deputy Team Leader (Forward Planning) for Winchester City Council.

—

Albert Jansen (1948), Infrastructure Specialist
NOVEM
PO Box 8242
Utrecht
the Netherlands

Mechanical Engineering at Technical High school Enschede
Sociology and Planning at University of Groningen and Frankfurt (Main)

Projects include:
Housing and site development, research-programming on Planning,Transport and Infrastructure; Policy instrument development on sustainable transport especially in urban settings. For example the LTP and RTP (local and regional transport performance) design and development strategy to use spatial planning and urban design as a means for traffic calming.

—

William Jenman, (1963),
Reserves Manager
Sussex Wildlife Trust
Woods Mill
Henfield
West Sussex BN5 9SD
UK

MSc in Forestry and Land Management, BA in applied Biology

Work includes: working with English Nature, the Environment Agency, National Trust, Royal Society for Protection of Birds, National Farmers Union, communities, landowners and local authorities on reserves and projects. Mr Jenman head's up Trust's marine matters including coastal defence strategies.
(Sussex Wildlife Trust is responsible for 39 nature reserves with total of 1000 ha in Sussex, including three sites with major wetland restoration schemes).

—

Marinka Kiezebrink, (1971), Coastal Morphologist / Specialist in Physical Geography
National Institute for Coastal and Marine Management, RIKZ
PO Box 20907
2500 EK The Hague
the Netherlands

1997 Degree in Physical Geography at Utrecht University

Projects include: development and implementation of coastal zone management for Noord-Holland province; management of Haringvliet sluices to restore estuarine character of Haringvliet (one of river mouths of the Rhine); implementation of the Third National Coastal Policy

Document, including developing an integrated strategy for coastal towns and weak spots of coastal defence.

—

Dr Jan Klijn (1949), Coastal Morphologist / Ecologist
Senior Researcher Landscape Ecology
Alterra
The Winand Staring Centre
PO Box 47
6700 AA Wageningen
the Netherlands

Projects / reports:

•
1999 Landscape assessment methodology on a European level

•
1995 Scenarios for European Coastal Areas. Scenario studies for the Rural Environment.

•
1990 Dunes of the European Coasts

—

Robbert de Koning (1966), Landscape Architect
H+N+S Landscape Architects
PO Box 10156
3505 AC Utrecht
the Netherlands

Master in Landscape Architecture at Amsterdam School of Arts
Guest lecturer at the Urban Planning faculty of the Technical University, Delft and the Amsterdam School of Arts.

•
Past and present work includes urban renewal work in The Hague; projects on the interface of spatial design, water management, nature development and recreation; the interaction between regional scale planning and detail.

•
1996 second prize in Archiprix'96, national competition for best graduate students in the Netherlands.

•
1999 First Prize in NIROV Living Energy design competition.

—

Esther Kruit (1967), Landscape Architect
Senior Landscape Architect
Gillespies
The Coach House
Bagley Croft
Hinksey Hill
Oxford OX1 5BS
UK

MSc Landscape Architecture, Wageningen Agricultural University, the Netherlands
City planning and Urban Design, Delft Technical University, the Netherlands

Projects include: Urban design for Camden Town Centre, London; Paddington Basin regeneration project; ecological and strategic development plan for landscape north of the city of Amersfoort; design and project management of a 300 ha park in large, new residential area of Utrecht; urban design for new settlement of 12,000 dwellings in Rotterdam; urban sustainable hydrology system in Rotterdam; high speed train network for Rotterdam.

—

Paul Kurstjens (1954), Town Planner and Infrastructure Specialist
Gemeente Tilburg, Department of Infrastructure
PO Box 90155
5000 LH Tilburg
the Netherlands

Studied Planning at Academy of Transport and Infrastructure in Tilburg (1973-1979), and Town Planning at Academy of Architecture in Tilburg (1979-1986).

Worked for several different employers during the last 10 years, including the municipalities of Amsterdam, Rotterdam, Utrecht and Tilburg.

Projects include:
Visions for the ports of the rivers Maas and Waal; design of transferia; plans for the 'IJ-oevers' and 'Houthavens' in Amsterdam; adviser for several municipalities on town planning.

—

Arjan van de Lindeloof (1971), Landscape Architect
Bosch Slabbers, Landscape Architects
Zwaardstraat 16
2584 TX The Hague
the Netherlands

MSc Landscape Architecture, Wageningen Agricultural University, the Netherlands

Projects include:
Strategy to protect spatial quality of the Oosterschelde, part of the Schelde-Delta; Design survey for future developments on the Afsluitdijk and surroundings; analysis of 16 Dutch coastal plans for renewed national coastal policy; Impact of river area expansion on the landscape.

—

Teunis Louters (1962), Specialist in Physical Geography / Coastal Morphology
Project Manager
DHV
PO Box 1076
3800 BB Amersfoort
the Netherlands

Degree in Physical Geography, University of Utrecht, the Netherlands 1985

Experience includes: Coastal and river engineering, integrated coastal zone management. Senior advisor and project manager for many national and international projects including coastal and river management, modelling, hydromorphology, landreclamation, flood protection and coastal defence.

—

Bert van Meggelen (co-chairman) (1946), Sociologist
Director Foundation Rotterdam 2001, Cultural Capital of Europe
PO Box 1320

3000 BH Rotterdam
the Netherlands

Sociology of Building and Living at Erasmus University, Rotterdam, and University of Utrecht; also studied at Frankfurter Schule at the University of Frankfurt, Germany.

As director of Rotterdam 2001, Mr van Meggelen is responsible for preparing, organizing and executing the program of cultural events in 2001, when Rotterdam will be cultural capital of Europe. He has been director of the Rotterdam Academy of Architecture and Urban Design since 1990. Since 1993 he has also been director of the Academies of Architecture of Arnhem and Groningen.

—

Brian Poole (1933), Town Planner / Landscape architect
Retired

Town Planning at Manchester University; Retired member of Royal Town Planning Institute and The Landscape Institute

Former deputy planning officer for West Sussex County Council. Helped set up Chichester Harbour Conservancy and designation as an Area of Outstanding Natural Beauty. Involved in restoration work on the Manhood Peninsula following 1987 Great Storm and member of steering committee on flood alleviation scheme for Chichester.

—

Marcel Rozemeijer (1964), Coastal Ecologist / Morphologist
Scientist / advisor on Integrated Coastal Zone Management
Waterloopkundig Laboratorium Delft Delft
PO Box 177
2600 MH Delft
the Netherlands

MSc Biology, University of Amsterdam Ph Ds in toxicology and chemical reactivity

Overseas experience includes: fieldstudies on coastal zone management in Australia, Thailand, Brazil, and Venezuela, land and coast utilisation in Kenya, studies on national park management in Spain, Corsica, and Kenya. In the Netherlands experience includes: research on estaurial restoration; benefits of watermanagement; study on effects of shiplane deepening in Waddensea; effects of an airport in the sea; study to design island shores and ecotopes for marine and bird communities; contributor to redesign of estuarine area and landuse around Mainport Rotterdam; research on effects of windmills on marine ecosystem.

—

Berno Strootman (1961), Landscape Architect
Senior project leader / landscape architect
Bureau B+B Urban Planning and Landscape Architecture
Herengracht 252
1016 BV Amsterdam
the Netherlands

Lectures at School of Architecture in Amsterdam, Wageningen Agricultural University; International Agrarian College of Larenstein.
Author of landscape Architecture publications and member of the NIROV Landscape Working Group.

Has worked on a wide range of projects including park and public space design; urban planning; regional planning and design. Recent projects include structural plans for Uden en Veghel, Gilze-Rijen and Weesp. Currently working on regional design for the northern part of City of Enschede, with important role for drinking water production.

—

Kees Vertegaal (1954), Coastal Ecologist
Vertegaal Ecological Advise
Middelstegracht 87v
2312TT Leiden
the Netherlands

Ecology at University of Leiden

Projects include:

•
1989-2000: Preparing management plans of many coastal areas in the Netherlands
•
1992: Paper for the European Coastal Conference at Scheveningen (Holland): 'The golden fringe of Europe'
•
1995: Ecological aspects of future land reclamation near The Hague 'New Holland'
•
1996-2001: Ecological aspects of future land reclamation in the project Mainport Development Rotterdam: designing new nature, environmental impacts, compensation projects
•
2000: Evaluation and consultancy on the development of more natural coastal defences along the Dutch coastline

—

Jan Vogelij (co-chairman), (1947), Town Planner
General Manager
Zandvoort Urban and Regional Planning Consultants BV.
PO Box 19009
3501 DA Utrecht
the Netherlands

MSc Townplanning at Technical University Delft, in 1971.

1997: Vice President of European Council of Town Planners
1989-1995: President Association of Netherlands Spatial Planners

Projects include:

•
2001: Spatial development plan for region of Twente
•
2000: West Brabant

•
1998-2000: Spatial vision North West Europe, Interreg IIC and III
•
1997-1999: Regional Development Plan for Drechtsteden area
•
1997: Nederland 2030: National Plan
•
1994-1998: Scientific Secretariat European sustainable cities. EC DG XI (Environment).

—

Dr Steven Wade, (1969), Hydrologist, Water Management Specialist
Senior Consultant on Flooding, Water Management and Climate Change
WS Atkins
Woodcote Grove
Ashley Road
Epsom
Surrey KT18 5VW

1990 BA(Hons) Geography Kings College London
1992 MSc Land and Water Management, Cranfield University
1996 PhD Hydrology and GIS, Coventry University
Member of the British Hydrological Society

Recent relevant projects include:
Thames region climate impacts study for Environment Agency; the impacts of climate change on the south east region, Surrey County Council; Section 105 floodplain mapping projects in southern region and Wales, Environment Agency; climate change and the demand for water, Department of the Environment, Transport and the Regions; rapid flood risks appraisal, reinsurance consultant.

—

Jake Wiersma (1955), Town Planner
Municipality of Maastricht
Plenkershoven 41
6212 GL Maastricht
the Netherlands

Town Planning at Technical University Delft.

Projects include:
•
1997-present: Lectures and workshops at the Maastricht Academy of Architecture
•
1997: Research and design for the long-term development of the city of Maastricht and surrounding region.
•
1992-1997: Masterplan for the extension of Nijmegen: 12,000 dwellings, offices, amenities, industry, recreation area and nature development.(together with Jan Buijs).
•
1990-1991: Masterplan for the Upper Betuwe - a strategic plan, giving direction to the rapid urbanisation of the area between the cities of Arnhem and Nijmegen.(together with Erna ten Berghe).

Competitions:
•
1989 "Town and country in the Hills" - 1st prize in the prestigious Eo Wijers open competition to give form to an urban/rural complex in the Euregion, the three nation-region of Belgium, West Germany and the Netherlands containing the cities of Aachen, Hasselt, Liege and Maastricht (working in a team of five)
•
1995- "Designing the inner fringes of the Green Heart Metropolis" - 3rd prize in an international open competition putting forward new ideas for the development of the Randstad Holland. (working in a team of three).

—

Enno Zuidema (1968), Town PlannerTown Planning Office ZuidemaPosthoornstraat 6a
3011 WF Rotterdam

Studied Town Planning at Delft University of Technology; Visiting tutor at Delft University and other institutions; Coordinator of the urban design department of the Academy of Architecture, Rotterdam.

Projects include: Design of HSL Oost, industrial estate around Schiphol; Urban plan for Enschede; Regional plan for the Leiden-Haarlem-Amsterdam region. Previous work also includes urban design work for Berlin, Germany and urban and regional planning and infrastructure for the City of Rotterdam. Joint winner in May 1998 of prestigious Eo Wijers Competition 'Het Lege Noorden'.

Meeting

ADRESSES SPONSORS

West Sussex County Council
County Hall
West Street
CHICHESTER PO19 1RQ

Chichester District Council
East Pallant House
East Pallant
CHICHESTER PO19 1TY

The Environment Agency
Saxon House
Little High Street
WORTHING
West Sussex BN11 1DH

Government Office for the South East (GOSE)
Bridge House, Third Floor
1 Walnut Tree Close
GUILDFORD
Surrey GU1 4GA

WWF-UK
Panda House
Weyside Park
GODALMING
Surrey GU7 1XR

English Nature
Phoenix House
32-33 North Street
LEWES
East Sussex BN7 2PH

UK Climate Impacts Programme
Union House
12-16 St Michael's Street
OXFORD OX1 2DU

South East Climate Change Partnership
County Hall
Penrhyn Road
KINGSTON-UPON-THAMES
Surrey KT1 2DY

South East England Regional Assembly (SEERA)
Bridge House
1 Walnut Tree Close
GUILDFORD
Surrey GU1 4GA

Southern Water plc
Southern House
Yeoman Road
WORTHING
West Sussex BN13 3NX

ABP Research & Consultancy Ltd.
Pathfinder House
Maritime Way
SOUTHAMPTON SO14 3AE

Posford Duvivier Consulting Engineers
Eastchester House
Harlands Road
HAYWARDS HEATH
West Sussex RH16 1PG

Hampshire County Council
The Castle
WINCHESTER SO23 8UE

Chichester Harbour Conservancy
Harbour Office
Itchenor
CHICHESTER
West Sussex PO20 7AW

West Wittering Estate
The Estate Office
West Wittering
CHICHESTER
West Sussex PO20 8AU

Bunn Leisure Park
Paddock Lane
Selsey
CHICHESTER PO20 9EG

The Earnley Concourse
Earnley Place
Earnley
CHICHESTER
West Sussex PO20 7JL

National Institute for Inland Water Management and Waste Water Treatment
(RIZA)
Ministry of Transport, Public Works and Water Management
Postbus 17
8200 AA Lelystad
the Netherlands

Dwars Hederik en Verheij Consultants (DHV)
Postbus 1076
3800 BB Amersfoort
the Netherlands

National Institute for Coastal and Marine Management (RIKZ)
Ministry of Transport, Public Works and Water Management
Postbus 20907
2500 EX 's-Gravenhage
the Netherlands

Ballast Nedam
Postbus 500
1180 BE Amstelveen
the Netherlands

Proper Stok Building Company
Postbus 22050
3003 DB Rotterdam
the Netherlands

Ministry of Agriculture, Nature Conservation and Fisheries
Department of Science and Knowledge Dissemination.
Bezuidenhoutseweg 73
259 AC Den Haag
the Netherlands

COLOPHON

Authors
Carolyn Cobbold, Renee Santema

Editorial adviser
Marlies Brinkhuijsen, Philip Coleman, Catherine Cook, Richard Donithorn, Jasper Fiselier, Marc van Grieken, Harma Horlings, Bill Jenman, Alan Inder, Marinka Kiezenbrink, Robbert de Koning, Esther Kruyt, Keith Morgan, Leo Pols, David Tickner, Jake Wiersma, Enno Zuidema, Martijn Vos (final editing)

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Renee Santema, Werkgroep Landschap NIROV, Den Haag

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Carolyn Cobbold, Brendan McCarthy (NIROV), Renee Santema, Martijn Vos (NIROV)

Werkgroep Landschap
Marlies Brinkhuijsen, (Alterra, Wageningen), Hans Elerie (Keuning Instituut, Groningen)
Harma Horlings (H+N+S, Utrecht), Leo Pols (Ministry of Agriculture, Nature Conservation and Fisheries, Den Haag), Frank Stroeken (ZOA, Utrecht), Berno Strootman (Bureau B+B, Amsterdam), Willem de Visser (Ministry of Public Housing, Spatial Planning and the Environment, Den Haag), Martijn Vos (NIROV, Den Haag)