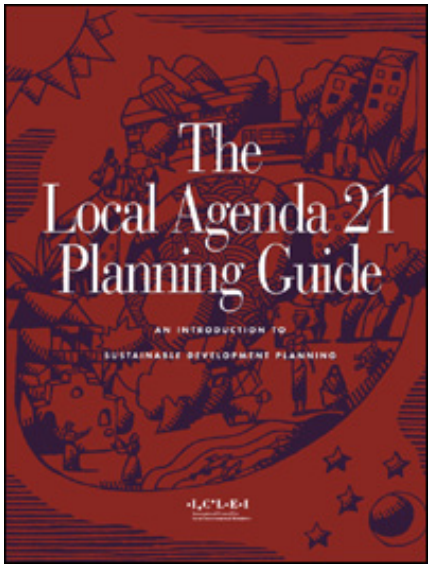

The Local Agenda 21 Planning Guide

**AN INTRODUCTION TO
SUSTAINABIE DLVELOPMENT PLANNING**

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FOREWORD

By Maurice Strong Chairman, Earth Council

In 1992, the leaders of 179 countries gathered in Rio de Janeiro for the United Nations Earth Summit to finalize a global action plan for sustainable development, called Agenda 21. In this document, they recognized that because "so many of the problems and solutions being addressed by *Agenda 21* have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling its objectives." *Agenda 21* further calls upon local authorities in every country "to undertake a consultative process with their populations and achieve a consensus on 'Local Agenda 21' for their communities."

When this mandate was set out in 1992, there was little information available on how to proceed. It therefore gives me particular satisfaction to report that, since 1992, more than 1,300 local authorities from 31 countries have responded to the Agenda 21 mandate by developing their own Local Agenda 21 action plans for sustainable development.

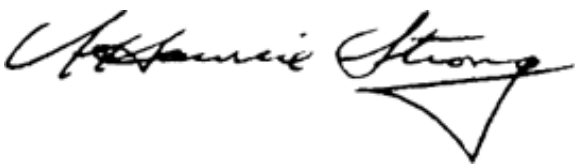
The task of mobilizing and technically supporting Local Agenda 21 planning in these communities has been led by the International Council for Local Environmental Initiatives (ICLEI) and national associations of local government. Now, with the further support of the International Development Research Centre and the United Nations Environment Programme, ICLEI is able to present the first worldwide documentation of Local Agenda 21 planning approaches, methods, and tools in this *Local Agenda 21 Planning Guide.*

The planning framework presented in the Guide has been derived from real-life Local Agenda 21 planning efforts around the world. The framework is being tested and reviewed by municipal professionals from 14 countries, North and South, East and West. The Guide should therefore provide a very useful introduction and technical resource on Local Agenda 21 planning to municipal professionals and NGOs facing a variety of development conditions.

The transition to sustainable development is not a soft option, but an imperative for our survival and well-being. It is going to require a great deal of courage and commitment from all sectors, including municipalities, to ensure its success.

Even as urban areas increasingly represent a concentration of our greatest social, economic, and environmental problems, they offer opportunities for some of the most effective solutions. They encompass great pools of talent and expertise within their many sectors, which local government officials can pull together to work on local strategies for action.

In my parting words at the conclusion of the Earth Summit, I said that we all "must move down from the Summit and into the trenches where the real world actions and decisions are taken that will, in the final analysis, determine whether the vision of Rio will be fulfilled and the agreements reached there implemented." Of the many programs that have resulted from the Earth Summit, none is more promising or important than this one, which has hundreds of local authorities around the world now setting out and implementing their Local Agenda 21s.



Maurice Strong

FOREWORD

By Elizabeth Dowdeswell Executive Director, United Nations Environment Programme (UNEP)

Today, humanity is on the move as never before. Driven from the countryside by political turmoil, population pressures, and ecological breakdown, most of those who head for the city do so to seek a better quality of life.

But this massive movement has only further strained the resources and infrastructure of already overburdened cities. The most explosive growth has been in the Third World, which has 213 cities of more than a million people and some 20 at the 10 million mark. The blanket of smog that hangs over cities such as Rio de Janeiro, Mexico City, Delhi, Beijing, and tens of thousands of smaller cities is symbolic of more critical problems—of vulnerability to environmental sanitation problems, to natural disasters, and to man-made disasters such as chemical plant accidents and urban fires.

The increasing pace of global integration will determine whether in the future the lines that separate a city, a country, a region, and a continent will become progressively more blurred. But one thing is clear: the fate of cities will determine, more and more, not only the fate of nations but also of our planet. We can afford to ignore the issue of the sustainable management of our cities only at our peril.

How can sustainable development be made meaningful at the local level? How can we develop systems to involve the stakeholders in devising appropriate solutions to local environment and development issues? How can the quality of municipal services be improved and integrated to address the environmental, economic, and social prospects of the communities?

These questions are critical, especially since terms like sustainable development and environmental conservation can often conjure up images of processes too grand for local communities and their organizations to handle and influence. Clearly, sustainable development at the municipal level requires an entirely different approach to the planning and provision of services.

The *Local Agenda 21 Planning Guide*, prepared by the International Council for Local Environmental Initiatives (ICLEI), introduces just such an approach—a planning framework for sustainable development at the local level. In simplest terms, the Guide documents a process for developing action plans to address complex problems inherent in modern urbanized societies. It presents a framework for engaging local authorities with residents and local organizations in the design and provision of services to the community, while simultaneously protecting local, regional, and global ecosystems.

In presenting this planning framework, ICLEI has given us a book filled with insights that subvert many of our most basic assumptions and suggest fresh ways to think about them.

For all these reasons, the *Local Agenda 21 Planning Guide* is more than just another book. It is a lever for changing the art of managing sustainable development at the level of local government. Indeed this guide can serve as a symbol of today's historic transformation in the concept of partnerships—one that no informed person can afford to ignore.

Elizabeth Dowdeswell

Table of Contents

List of Figures

List of Worksheets

List of Checklists

List of Boxes

Preface

The *Local Agenda 21 Planning Guide* has been prepared to assist local governments and their local partners to learn and undertake the challenging task of sustainable development planning. This planning approach is a fundamental first step that will enable them to provide the residents of their communities with basic human needs, rights, and economic opportunities, and at the same time ensure a vital, healthy, natural environment; in other words, a planning approach that will enable them to manage their cities, towns, and/or rural settlements in a sustainable way. The Guide offers tested and practical advice on how local governments can implement the United Nations' *Agenda 21* action plan for sustainable development and the related United Nations' *Habitat Agenda.*

The United Nations Conference on Environment and Development (UNCED) produced *Agenda 21* in 1992, and since that time *Agenda 21* has become the guiding international blueprint for development into the twenty-first century. During the preparation of *Agenda 21,* the International Council for Local Environmental Initiatives (ICLEI) worked to ensure that this global plan also addressed the roles and perspectives of local governments. As a result, Chapter 28 of *Agenda 21* calls upon local governments, working with their communities, to create their own local action plans, or Local Agenda 21 programs. The *Local Agenda 21 Planning Guide* presents a tested sustainable development planning approach for this process.

The *Local Agenda 21 Planning Guide* is based on more than five years of experience of cities and towns in all world regions that are in the process of integrating planning and action across economic, social, and environmental spheres. Today more than 1,300 local governments in 33 countries are engaged in Local Agenda 21 planning. During the past three years, ICLEI has been providing training and technical assistance to local planning efforts and has been building regional and international networks to support the worldwide Local Agenda 21 process. In particular, ICLEI's Local Agenda 21 Model Communities Programme (MCP) has supported 14 local governments in Africa, Asia and the Pacific, Europe, Latin America, and North America to work together to test and evaluate different planning approaches and methods. Their experiences and contributions have guided the development of the approach presented in this Guide. The approaches in this Guide are also based upon presentations and discussions in regional seminars held in Buga, Colombia, Hat Yai, Thailand, Johannesburg, South Africa, and Yokohama, Japan; these seminars involved

more than 300 local government representatives from over 30 countries.

The contributions of all of these local governments have been invaluable to the definition and refinement of the approach presented in the Guide. In particular, ICLEI would like to thank the municipalities of: Buga, Colombia; Bulawayo, Zimbabwe; Cajamarca, Peru; Cape Town, South Africa; Durban, South Africa; Gothenburg, Sweden; Gulu, Uganda; Hamilton, New Zealand; Hamilton-Wentworth, Canada; Hat Yai, Thailand; Jinja, Uganda; Johannesburg, South Africa; Johnstone Shire, Australia; Kanagawa Prefecture, Japan; Lancashire County, UK; Leicester, UK; Machala, Ecuador; Manus Province, Papua New Guinea; Mwanza, Tanzania; Ottawa, Canada; Pimpri Chinchwad, India; Quito, Ecuador; Santa Monica, USA; and Santos, Brazil. Case studies of the local efforts of some of these cities are used to illustrate the different chapter topics of the Guide. Special recognition is also given to the work of the European Sustainable Cities and Towns Campaign, the Institute for Sustainable Communities in Vermont, the UK Local Government Management Board, and the ICLEI European Local Agenda 21 Programme.

Special thanks is due to current and past members of the ICLEI Executive Committee who gave the initial support and impetus to the Local Agenda 21 initiative, specifically, Sir John Chatfield, Dr. Helena Ribeiro Sobral, Dr. Siegfried Brenke, Dr. Noel Brown, Mr. Jakob Eng, Dr. Jaime Lerner, Mr. Pekka Jalkanen, and Mr. Jaime Valenzuela.

Members of the ICLEI network who have been involved in the development of this Guide, either through the preparation of case studies, or the provision of materials and comments on the various drafts include: Mr. Lawrence Altros, Sr. Alvaro Saenz Andrade, Mr. Graham Alder, Mr. Mark Bekkering, Mr. Lars Berggrund, Ms. Sue Costello, Mr. Darryl Low Choy, Ms. Yasmin Dada, Ms. Siomara Gonzalez Gomes, Mr. A.G. Kyessi, Mr. Eddie McEachan, Mr. Paul Macdonald, Mr. Paul Markowitz, Ms. Ina Silva Martos, Sr. Salvador A. Munhoz, Mr. Steve Nicholas, Mr. Samuel Paul, Mr. Graham Pinfield, Mr. Derek Taylor, Ms. Yasmin Von Schirnding, and Mr. Sven-Erik Skogsfors.

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This Guide was written by an ICLEI staff team consisting of Mr. Jeb Brugmann, Ms. Charlene Easton, Ms. Prabha Khosla, and Dr. Pratibha Mehta. It was produced, managed and edited by Charlene Easton and Reena Lazar.

Support for the development and testing of the ideas in the Local Agenda 21 Planning Guide has been provided through the ICLEI LA 21 Model Communities Programme. Its supporters include: the International Development Research Centre (IDRC); the Canadian International Development Agency (CIDA); the Dutch Ministry of Foreign Affairs; the Japan Environment Agency; the United Nations Development Programme's (UNDP) LIFE Programme; and USAID (South Africa).

The publication of this Guide was made possible through the generous support of the International Development Research Centre (IDRC) of Canada and the United Nations Environment Programme (UNEP). We would particularly like to acknowledge the assistance and support of Ms. Denise Deby and Ms. Esther Beaudry of IDRC and Mr. Strike Mkandla and Ms. Mireille Strunck of UNEP for their support.

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CHAPTER 1 Sustainable Development: The Local Context

1.0 What is Sustainable Development?

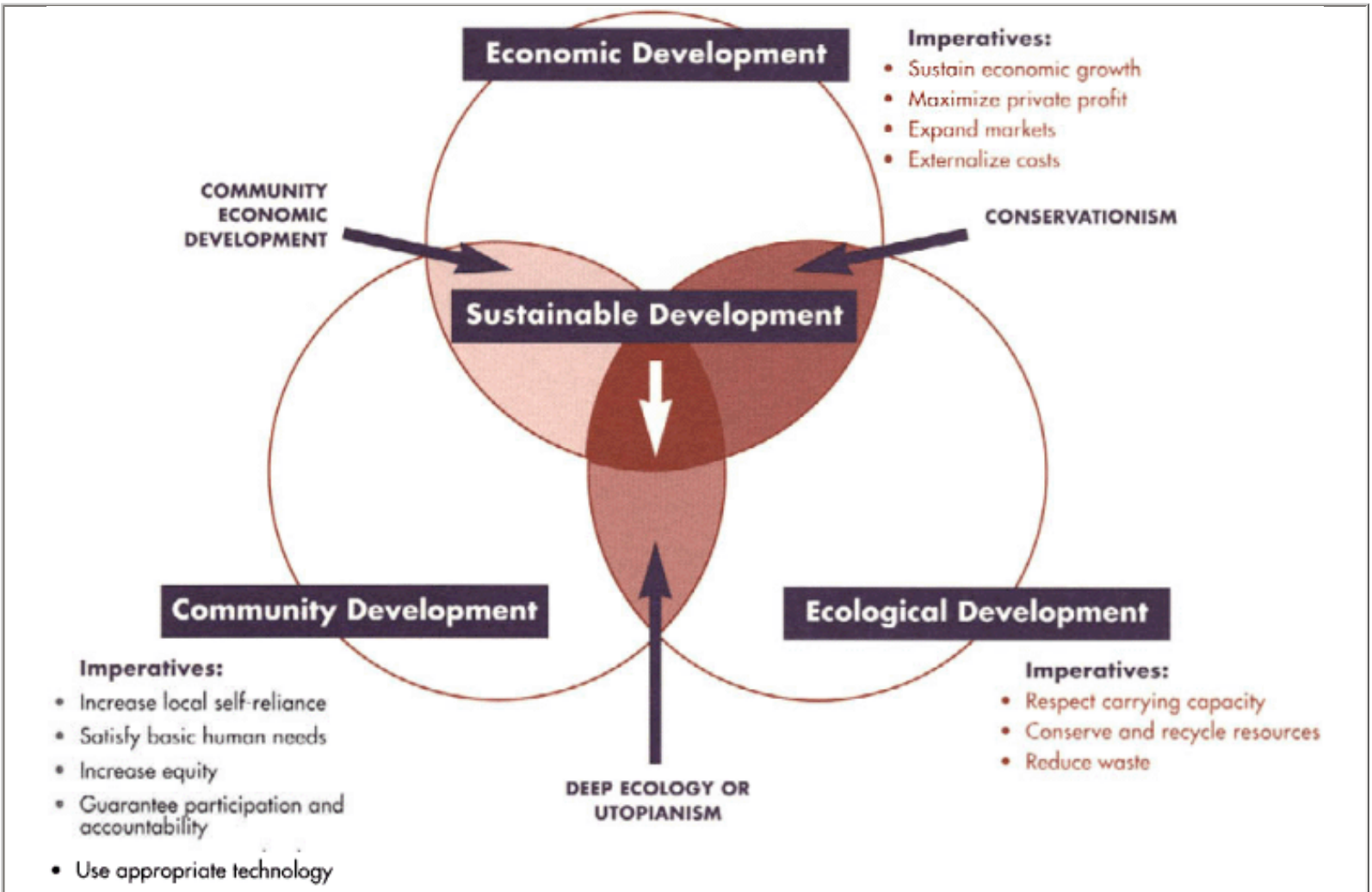
The realities of life on our planet dictate that continued economic development as we know it cannot be sustained. This is so because present-day forms of economic activity are rapidly under-mining two other development processes that are essential for human life and civilization: the process of ecological development and the process of community development. Ecological development reproduces the biological wealth and climatic conditions necessary for life on our planet. Community development reproduces communities, families, educated and responsible citizens, and civilization itself. The compromising of these processes by current economic activities is destroying both the viability of human communities in a growing number of areas of the planet and the quality of human life in many other communities and neighborhoods throughout the world.

Sustainable development, therefore, is a program of action for local and global economic reform—a program that has yet to be fully defined. The challenge of this new program is to develop, test, and disseminate ways to change the process of economic development so that it does not destroy the ecosystems and community systems (e.g., cities, villages, neighborhoods, and families) that make life possible and worthwhile. No one fully understands how, or even if, sustainable development can be achieved; however, there is a growing consensus that it must be accomplished at the local level if it is ever to be achieved on a global basis.

At the local level, sustainable development requires that local economic development supports community life and power, using the talents and resources of local residents. It further challenges us to distribute the benefits of development equitably, and to sustain these benefits for all social groups over the long term. This can only be achieved by preventing the waste of ecological wealth and

the degradation of ecosystems by economic activities.

FIGURE 1 **THE SUSTAINABLE DEVELOPMENT CHALLENGE**



There are always three distinct development processes under-way at the local level—economic development, community development, and ecological development. Each of these processes has its own distinct imperatives.

The development imperatives of the current economic system favor market expansion, externalization of costs, and sustained private profit. The current imperatives of community development are to meet basic human needs, increase economic and social equity, and create community self-reliance. The imperatives of ecological development are established in the natural order. Humans can support ecological development by limiting the consumption of natural resources to a rate that allows nature to regenerate resources and by reducing the production of wastes to levels that can be absorbed by natural processes.

The imperatives of these development processes often contradict one another. Many examples can be found of such contradictions. For instance, the externalization of costs in order to maintain rates of private profit can contradict the ecological imperative to value and conserve natural resources. The global expansion of markets and the integration of national economies through structural adjustment programs and free-trade agreements can undermine the community development imperatives of local self-reliance and meeting basic human needs.

Sustainable development is a process of bringing these three development processes into balance with each other. The implementation of a sustainable development strategy therefore involves negotiation among the primary interest groups (stakeholders) involved in these three development processes. Once an Action Plan for balancing these development processes is established, these stakeholders must each take responsibility and leadership to implement the plan.

1.0.1 HOW CAN THE SUSTAINABLE DEVELOPMENT CONCEPT BE APPLIED BY LOCAL

GOVERNMENTS?

Local governments are powerful actors in their local economies. They build and maintain infrastructure that is essential for economic activity. They set standards, regulations, taxes, and fees that determine the parameters for economic development. Local governments procure large numbers of services and products and can influence markets for goods and services. And like private enterprises, local governments serve as public enterprises to produce "products" that are sold on the market. These products include environmental services (e.g., water, waste management, and land use control), economic services (e.g., transportation infrastructure), and social services (e.g., health and education).

Just as sustainable development requires private sector corporations to reform their production and management approaches, sustainable development requires that local governments change the ways that their municipal corporations are organized and operated. This reform must ensure that municipal services can be sustained and equitably distributed for future generations. Achieving this objective requires a strategic planning approach that equally factors long-term community and ecological and economic concerns into the development and provision of today's municipal services.

> Sustainable development is a program to change the process of economic development so that it ensures a basic quality of life for all people, and protects the ecosystems and community systems that make life possible and worthwhile.

1.0.2 THE IMPORTANCE OF SYSTEMS

Services can only be provided over the long term through the establishment and maintenance of various service systems. These systems have a number of components, such as:

- **infrastructure (e.g., public transit systems, sewerage systems);**
- **programs (e.g., health clinics, public safety);**
- **procedures (e.g., development approval processes);**
- **management routines (e.g., repeated activities such as waste collection or building inspections); and**
- **management interventions (e.g., pollution control).**

The different components of municipal service systems allow us to make effective use of resources, including both natural resources, such as potable water, and human resources, such as skilled labor. The sustainability of municipal service systems, therefore, depends upon the support of the ecosystems (watersheds, coastal fisheries, forests) and social systems (families, neighborhood organizations, kinship networks) that provide these resources. If municipal service systems undermine these resources, then they will ultimately fail.

The strategic planning approach presented in this Guide, therefore, specifically aims to develop municipal service systems and ensure that these systems 1) will equitably distribute their services and 2) can be sustained because they are both economically viable and able to contribute to community and ecological development. In this light, sustainable development in local terms can be defined as follows:

> *Sustainable development is development that delivers basic environmental, social, and economic services to all, without threatening the viability of the ecological and community systems upon which these services depend.*

1.1 The Local Agenda 21 Mandate

In June 1992, the United Nations Conference on Environment and Development adopted *Agenda 21,* the global action plan for sustainable development. Chapter 28 of *Agenda 21,* entitled "Local Authorities' Activities in Support of *Agenda 21"* states that

> *Because so many of the problems and solutions being addressed by* Agenda 21 *have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling its objectives. Local authorities construct, operate, and maintain economic, social, and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and assist in implementing national and sub-national environmental policies. As the level of governance closest to the people, they play a vital role in educating, mobilizing,*

> *and responding to the public to promote sustainable development.*

The approaches presented in this Guide are being tested and evaluated by hundreds of local governments throughout the world.

Chapter 28 of *Agenda 21* also contains a direct call to all local governments to create their own action plans for sustainable development. These "Local Agenda 21" action plans translate the principles and mandates of *Agenda 21* into concrete service strategies for each local community. Chapter 28 states that:

> *By 1996, most local authorities in each country should have undertaken a consultative process with their populations and achieved a consensus on a "Local Agenda 21" for the community.*

Hundreds of local governments, working with their national and international associations of local government, are engaged in Local Agenda 21 planning activities. National campaigns for Local Agenda 21 exist in Brazil, Colombia, Finland, Sweden, Denmark, Germany, the United Kingdom, Netherlands, China, Japan, Australia, and New Zealand. The European Sustainable Cities and Towns Campaign was created in 1994 to assist European local governments to establish Local Agenda 21 processes in their communities. In addition to the participants in these campaigns, individual local governments have established Local Agenda 21 planning processes in Peru, Ecuador, the United States, Canada, Poland, Germany, Austria, Hungary, Bulgaria, Italy, Spain, Greece, Senegal, Uganda, Tanzania, Zimbabwe, South Africa, India, Thailand, and Papua New Guinea, to mention a few countries.

With support from the International Development Research Center, the Netherlands Ministry of Foreign Affairs, the United Nations Development Programme, the US Agency for International Development and other sources, ICLEI has established an international research program to document and evaluate these Local Agenda 21 sustainable development planning efforts. The program, called the Local Agenda 21 Model Communities Programme, is a collaboration among fourteen local governments to develop the standards, methods, and guidelines for sustainable development planning at the local level.

1.2 How to use the Local Agenda 21 Planning Guide

This Guide is presented as a preliminary and introductory guide on the planning elements, methods, and tools being used by local governments to prepare their Local Agenda 21s. By drawing general conclusions from the work that is already underway at the local level, it recommends a general sustainable development planning approach.

A theoretical, step-by-step sequence to be followed is provided in order to clarify key planning issues. While it is recommended that all of these steps be considered, the actual approach will have to be tailored to local circumstances. Furthermore, while these steps have a certain logical sequence, they are not presented here as a strictly chronological "recipe" for action. In many instances, the key elements of a sustainable development planning process are to be undertaken simultaneously.

At all times, the Guide attempts to recommend approaches that could be applied in both rich and poor communities. Methods that may be effective in developed countries, but may not currently be appropriate in the developing world, have not been included in this Guide. The Guide also does not provide detailed technical descriptions of key planning methods that are already provided in existing manuals and documentation.

The *Local Agenda 21 Planning Guide* uses figures, boxes, and case studies to help illustrate how different concepts and methods have been applied at the local level. Worksheets and checklists are provided for readers to use in their local planning process. A reference list of publications, manuals, and contacts for further information about specific methods or Local Agenda 21 campaigns at the national and regional level is also included.

The *Local Agenda 21 Planning Guide* is not a comprehensive final guide on Local Agenda 21 and sustainable development planning. The approaches presented in the following pages are being tested and evaluated by individual local governments and by the Model Communities Programme. The conclusions of these tests and evaluations will be used to prepare more detailed reports on specific methods and tools, as well as to prepare future editions of this Guide.

The sustainable development planning approach presented in this Guide combines the principles and methods of corporate, environmental and community-based planning to create a public-sector, strategic planning approach that reflects the imperatives of sustainable development.

1.3 The Elements of Sustainable Development Planning

1.3.1 INTRODUCTION

The scope of municipal planning and management is traditionally constrained by a variety of factors, including: political jurisdiction; limits in legislative or constitutional authority; the professional standards of key management disciplines; technology; and financial resources. While these constraints focus the municipal planning task, they also prevent methodical and routine consideration of many social, economic, and environmental developments that are outside the municipal purview (e.g., national infrastructure projects, land markets, labor legislation, terms of trade). As the impacts of these developments increase (e.g., population migration, depletion of water resources, loss of industries, youth unemployment), the lack of methodical consideration of such impacts in municipal planning can severely undermine the performance of municipal service systems and related infrastructure.

The purpose of sustainable development planning is to broaden the scope of factors considered in municipal planning and decision making within the context of the legal, technical, and financial constraints upon municipal activities. The sustainable development planning approach presented in this Guide combines the principles and methods of corporate, community-based, and environmental planning to create a public-sector, strategic planning approach that reflects the imperatives of sustainable development.

Strategic planning has been used extensively in the private sector to provide corporations and businesses with long-term visions and goals, and short-term action plans to achieve these goals. Strategic planning is seen as a means to rally the collective resources of a firm around specific strategies designed to increase the firm's competitive advantage in the arena where it is active.

Community-based planning has been used extensively in the development field to engage local residents and service users in participatory processes to develop and implement local service projects and programs.

Environmental planning, with its different assessment methods, was developed in the 1970s to ensure that development projects take environmental conditions and trends into consideration, and that the managers of such projects identify and take measures to mitigate the specific environmental impacts of a development activity.

As a hybrid of these three planning traditions, sustainable development planning makes use of the different planning methods and tools of each tradition in assisting communities to:

- **equally factor economic, community, and environmental conditions into the design of development projects and service strategies;**
- **fully engage relevant interest groups and, in particular, service users in the development of service strategies that meet their needs; and**
- **create service strategies that can be sustained because they focus on underlying systemic problems rather than problem symptoms, and because they consider long-term trends and constraints.**

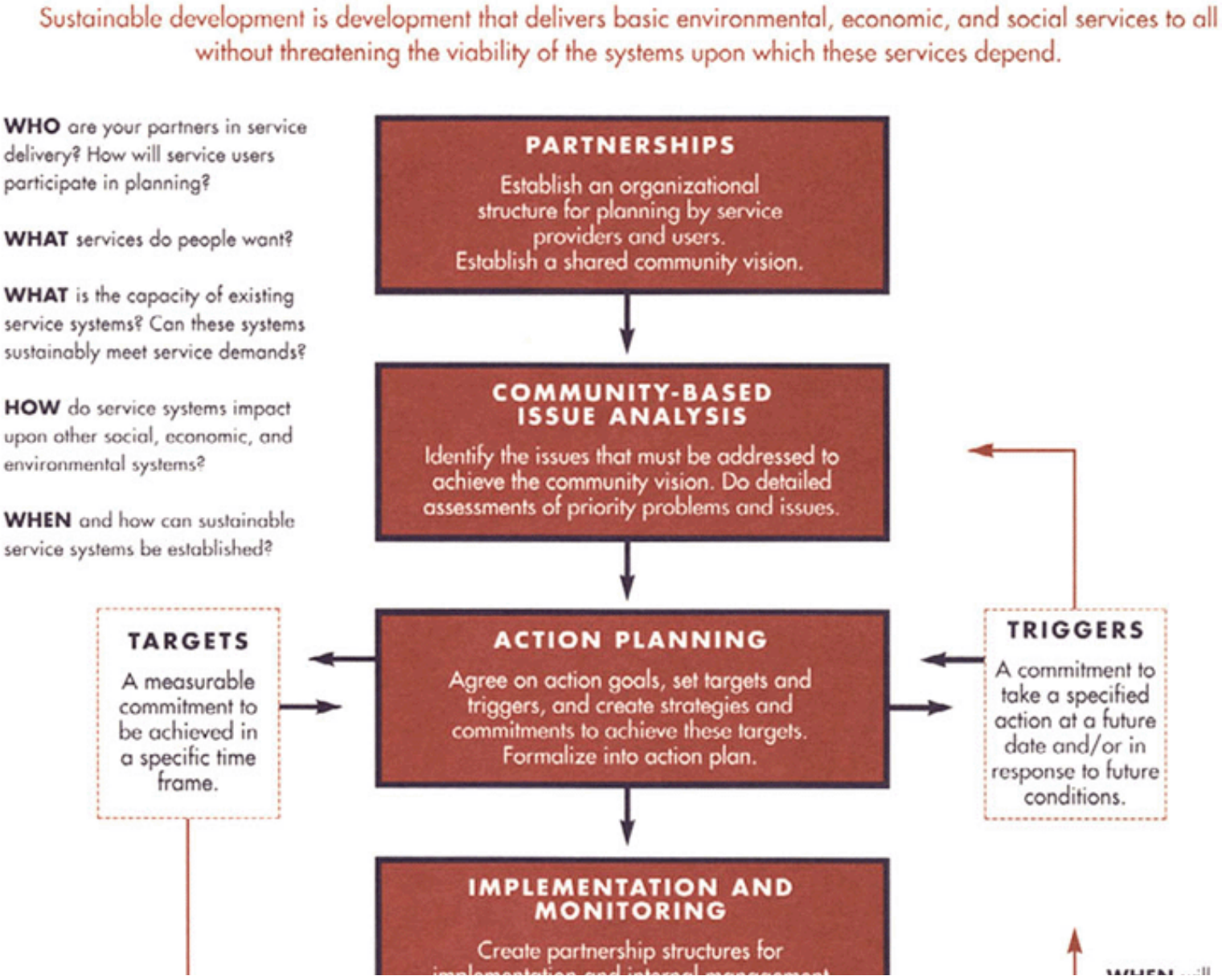
As such, sustainable development planning is a proactive process that allows the local government and its partners to support and engage the intellectual, physical, and economic resources of residents to chart a course toward a desired future. Although there is no single 'correct' way to engage in sustainable development planning, the following elements are proposed in creating a suitable local planning process. These elements are represented in Figure 2.

Sustainable development planning is a proactive process that allows the local government and its partners to support and engage the intellectual, physical, and economic resources of residents to chart a course toward a desired future.

1.3.2 PARTNERSHIPS

Sustainable development planning engages residents, key institutional partners, and interest groups, often known as “stakeholders,” in designing and implementing action plans. Planning is carried out collectively among these groups. It is organized so as to represent the desires, values, and ideals of the various stakeholders within the community, particularly local service users. There is remarkable variation in the types of

FIGURE 2 **THE ELEMENTS OF SUSTAINABLE DEVELOPMENT PLANNING**



stakeholders that different communities have involved in planning. In general, the creation of a dedicated structure or "Stakeholder Group" to coordinate and oversee stakeholder involvement in planning is an important first step in any sustainable development planning effort. Typically, the first task of such a Stakeholder Group is to formulate a Community Vision which describes the community's ideal future and expresses a local consensus about the fundamental preconditions for sustainability.

1.3.3 COMMUNITY-BASED ISSUE ANALYSIS

Involving local communities in the analysis of development and related service issues is essential to the optimal solution of problems. Municipal investments are more likely to succeed and win public support if they are responsive to the articulated needs, concerns, and preferences of service users. Service strategies can also benefit from the knowledge and resources that local residents and institutions can themselves contribute to solving problems. At the same time, the process of issue analysis can be used to educate stakeholders about technical conditions and constraints for service delivery, such as ecosystem carrying capacities or financial constraints.

Community-based issue analysis typically involves two components. First, a process is established to gather and discuss the knowledge and wisdom of local residents about local conditions. Second, technical assessments are undertaken to provide stakeholders with further information that may not readily be available to them. Popular knowledge and technical research are then reviewed together by the stakeholders. Using this information, they aim to establish a consensus about local problems.

Community-based issue analysis provides two additional benefits. First, the process can help the local community to establish priorities for action. As resources are very limited in most communities and not all problems can be effectively addressed at the same time, priority-setting can be very important for the success of local action plans. The combined use of technical assessments and participatory issue analysis also permits the community to establish "baseline" data and indicators against which progress and future changes in conditions can be measured.

1.3.4 ACTION PLANNING

Following the identification and analysis of priority service issues, partners can begin the process of creating Action Plans. The action planning process has three basic components:

- **Action Goals:** Action goals are the specific aims that the community wishes to strive towards to achieve its vision for the future. They should translate the Community Vision into focused directives and resource allocation priorities. They are used to guide organizations, experts, or professional staff to develop specific programs, and in this way they serve as an intermediate step between a Community Vision statement and specific measurable targets for improvement of conditions related to sustainability.

- **Targets and Triggers:** After action goals are established, professional staff should work with stakeholders to define specific targets to be achieved within specified time frames. Planning efforts benefit greatly from the establishment of concrete targets. These targets permit managers to evaluate both the adequacy of actions being taken and the progress made

in implementing an Action Plan. Triggers are unique forms of targets. They are agreed-upon future conditions that trigger further action by stakeholders when addressing a problem. For example, a community with air pollution problems may not be able to agree at present to establish restrictions on private automobile use, but they could agree that when local roadway use reaches a certain level they will institute a system of road pricing, such as toll collection.

• **Action Strategies and Commitments:** It is essential that an Action Plan specifies the action strategies and commitments of different stakeholders in order for them to work as partners in achieving the different objectives of an Action Plan. Action strategies and commitments should be very precise and contain specific projects, time schedules for implementation, and commitments to allocate money, time, and human resources.

Ideally, these action strategies will include commitments by service users to contribute to implementation. It is recommended that action strategies be designed to commence immediately. This is especially important because the sustainable development planning process will inevitably raise community expectations for action and change.

1.3.5 IMPLEMENTATION AND MONITORING

The implementation of partnership-based Action Plans requires adjustments in standard operating procedures and, oftentimes, some institutional reorganization. Pre-existing administrative procedures, divisions of responsibility among municipal departments, contract arrangements, and other practices must be adjusted to allow for the active participation of service users and partner institutions in the implementation of an Action Plan. While the municipality institutes internal reforms to support partnership approaches, external projects and/or service partnerships must be formalized. Agreements that outline the responsibilities and investments of each partner are required, including specific work schedules and methods for ongoing monitoring of work. The Stakeholder Group or municipality may consider it necessary to establish a new organization or institution to coordinate the implementation of certain aspects of an Action Plan.

Monitoring begins during the implementation phase; not afterward. Accurate documentation of both implementation activities and their impacts should be kept regularly, in order to allow for the evaluation of action strategies, service approaches, and their impacts on local conditions. Such documentation is extremely valuable, and at times necessary, to identify the causes of problems that arise during the institution of new service approaches.

1.3.6 EVALUATION AND FEEDBACK

Monitoring is primarily useful for internal management purposes. Evaluation and feedback are used for both internal and external purposes. It is necessary to maintain accountability among the stakeholder participants in the implementation of an Action Plan. Evaluation and feedback are also used to inform the general public about progress in meeting specific targets, and to signal when the Action Plan must be altered in the face of change.

An effective evaluation and feedback system provides regular information to both service providers and users about important changes in local conditions and progress towards targets; with this information, the actors can adjust their own actions and behaviors. Evaluation information is used to guide planning and resource allocation (budgeting) processes so that these processes are kept accountable to the Community Vision and its action objectives. If an Action Plan fails to correct problems or to satisfy prioritized needs, the feedback system triggers further planning or action.

In summary, the sustainable development planning approach presented in the *Local Agenda 21 Planning Guide* is a participatory planning process. It can be used to improve municipal sector performance, to mobilize and focus resources available in a community, and to address the sustainable development challenge at the local level. Since the Guide emphasizes partnership approaches to service delivery, values the concerns of residents and validates their role and contribution in development, and addresses the need to preserve environmental and community systems, it will almost certainly contribute to the implementation of *Agenda 21.*

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CHAPTER 2 Partnerships

2.0 Introduction

Sustainable development requires the negotiation of a balance among the three distinct, everyday development processes: economic development, community development, and ecological development. The importance of maintaining a balance among these three processes is evident in cities and towns throughout the world. For example, if a local water supply is not affordable (economic development), clean and hydrologically sustainable (ecological development), and available to all inhabitants (community development), then the livability and viability of that community will eventually decline.

Balancing the diverse interests of business, the environment, and community development requires partnerships. This is especially true in today's environment of rapid urbanization and globalization. The pressures facing local communities today make it increasingly difficult for any one institution to single-handedly develop, supply, and maintain an essential service. Traditional service roles (of government, the private sector, community organizations, trade unions, religious organizations, neighbors, and families) are rapidly changing due to fiscal constraints, constitutional and legal reforms, resource scarcity and ecological concerns, globalization of economies and market liberalization, changing values and social norms, and demographic pressures.

Balancing the diverse interests of business, the environment, and community development requires partnerships.

As a result of such changes, local communities are taking a partnership approach to service provision. Services are increasingly provided through the coordinated efforts of service users, local authorities and their affiliated service departments, private investors, local businesses, interest groups such as taxpayer associations, trade unions, religious groups, community organizations, provincial and central governments, and even international development and financial institutions. These partners, often called "stakeholders,"

are groups that have a “stake” in the quality, distribution, and sustained delivery of local services. Only when the stakeholders agree to develop and implement a common strategy is it likely that a service will be sustainable.

Who, then, will coordinate the actions and desires of different stakeholders within this increasingly complex local environment? And how will these stakeholders agree upon a common purpose to guide their work together over a period of many years?

2.1 Objectives

The process of building partnerships among stakeholders must be facilitated by some institution that is seen to be legitimate by diverse community interests. Sometimes this institution is the local authority. In other cases, new institutions must be created to serve as an acceptable intermediary among these interests.

Over the past decade, local authorities on a worldwide basis have been establishing new structures for partnership planning to engage stakeholders in addressing service problems and in developing new service approaches. These partnership structures, called “Stakeholder Groups,” range from round tables and forums with specific, limited-term mandates to new statutory committees and councils with long-term planning mandates.

> The process of building partnerships must be facilitated by some institution that is seen by diverse community interests to be legitimate.

The case studies in this chapter provide examples of Stakeholder Groups such as the Lancashire Environmental Forum in Lancashire County, United Kingdom; the Inter-Institutional Consensus-Building Committee of Cajamarca, Peru; the Popular Citizen Councils of Santos, Brazil; and the Consultative Committees of Johnstone Shire, Australia. These cases highlight six key objectives for involving stakeholders in sustainable development planning. These objectives are:

- **to create a shared community vision of the future;**
- **to identify and prioritize key issues, thereby facilitating immediate measures to alleviate urgent problems;**
- **to support community-based analysis of local issues, including the comprehensive review of long-term, systemic problems that confront particular service systems and the need to integrate different service strategies so that they are mutually supportive;**
- **to develop action plans for addressing key issues, drawing from the experiences and innovations of diverse local groups;**
- **to mobilize community-wide resources to meet service needs, including the joint implementation of sustainable development projects; and**
- **to increase public support for municipal activities and local understanding of municipal development needs and constraints.**

2.2 Steps

The six basic steps in the establishment of partnerships for sustainable development planning purposes are:

STEP 1.
Determine the scope of the planning exercise and define goals and objectives. This should be done by the initiating organization (e. g., the municipality) in consultation with stakeholders. It should include a preliminary educational campaign to generate public interest and support.

STEP 2.
Create or designate a Stakeholder Group to coordinate and guide the overall planning effort, and to integrate the results of discussions, research, and planning into an Action Plan(s).

STEP 3.

Establish distinct Working Group structures under the supervision of the Stakeholder Group. Working Groups are given responsibility for each of the unique planning tasks, e.g., priority setting, issue analysis, visioning, action planning, implementation, etc. They may be established to focus on distinct issues, such as a Working Group on solid waste, housing, etc.

STEP 4.
Identify appropriate partners to participate in the Stakeholder Group and its Working Groups.

STEP 5.
Establish the terms of reference for the activities of each group, which includes defining the relationship between stakeholder planning and statutory processes, such as official development plans.

STEP 6.
Develop a common Community Vision to guide the entire planning process.

Expanded comments on these six steps follow.

2.2.1 DETERMINE THE SCOPE OF PLANNING

Planning is only valuable if it generates action. The first step in any planning exercise, therefore, should be to define the "theater of action"—the issues, places, and time periods for action. This theater of action, or scope of the planning effort, is usually determined by five factors:

- **the subject of concern (e.g., sustainable development in a comprehensive sense or a few specific priority service areas);**
- **the geographic area for planning (e.g., neighborhood, city, or watershed);**
- **the relevant jurisdictions (e.g., political, geographical, or service jurisdictions);**
- **time (including both the urgency of the problem(s) addressed and the number of years to be covered by the final plan); and**
- **the institutional and community resources available for planning activities.**

The first step in any planning exercise is to define the "theater of action."

These factors will ultimately determine how comprehensive or focused the planning effort will be. Stakeholders may decide that resources for planning are not adequate to effect a simultaneous review of the full range of development issues facing the local community. In this instance, the resulting planning approach would be designed to focus on a priority issue (to be determined) while simultaneously considering the impact of activities in other issue areas upon it.

After considering the above factors and defining the theater of action, a mission statement for the planning effort should be prepared. This mission statement should include both goals and detailed objectives for planning. This information could be used to inform a larger group of stakeholders about the proposed planning effort. Such an educational campaign could be designed to facilitate stakeholder review of the mission statement. Feedback from this review could be used in defining the formal mandate for the Stakeholder Group that would oversee the planning effort.

2.2.2 CREATE THE STAKEHOLDER GROUP

Partners are not ad hoc participants who occasionally share their opinions. On the contrary, they are expected to share responsibility for the planning process and its outcomes. Their involvement needs to be facilitated through an organizational mechanism. In the cases provided with this chapter, each municipality established special organizational structures to oversee the partnership planning process. For some, this coordinating mechanism was external to the municipality. For others, it was internal to the municipal institution.

In Lancashire County, UK, an Environmental Forum was established to oversee and support their Local Agenda 21 effort. This Forum was made up of members from a broad range of stakeholder constituencies, including the municipality, and received staff support from a special municipal Environment Unit. The Environment Unit linked the Forum's planning efforts to internal municipal planning processes.

In Cajamarca, Peru, an Inter-Institutional Consensus-Building Committee made up of stakeholder representatives coordinated thematic working groups, public forums, and workshops to prepare and present project proposals to the Provincial Council.

In Santos, Brazil, all of the municipal Councils developed action proposals for their distinct areas of concern. Each Council is directly linked with a municipal secretariat or department to which it communicates its recommendations. Cross-seating between members of the various Councils is arranged to permit exchange between sectors.

In Johnstone Shire, Australia, a small municipal steering team provides the strategic vision and governs four theme-based stakeholder committees. These committees convene periodically to integrate their various planning activities.

Coordinating bodies, or Stakeholder Groups, serve as the Boards of Directors for the planning effort and govern the planning process. The diversity and status of their stakeholder membership can provide both legitimacy and credibility to the planning effort. This broad-based membership can also facilitate the recruitment of participation from different sectors, the gathering of information, and the negotiation of agreements on controversial issues. It can build consensus on a strategic community vision, make final reviews of action plans, and hold the municipality and other implementing agencies accountable to agreed upon plans. In the case of both Lancashire and Cajamarca, the governing Stakeholder Groups were given direct mandates from their respective municipalities. Whatever the scope of the exercise, a clear mandate and authorization from the local government provides both democratic accountability and a close link with the official planning activities of government. This mandate should specify the roles and responsibilities of the Stakeholder Group. It should define what planning is to be undertaken, how results and recommendations will be reviewed by the municipality and other key institutions, and how the results will be used in statutory planning efforts, such as annual budgeting or development and structure plans.

> Municipalities throughout the world are establishing special organizational structures, generally called "Stakeholder Groups" to oversee their partnership planning process.

2.2.3 DESIGN WORKING GROUPS

Because a sustainable development planning process involves a variety of activities, the Stakeholder Group will most likely wish to form partner-based organizational structures to implement the distinct elements of the planning process. The ambitious planning efforts in Lancashire, Santos, Cajamarca, and Johnstone Shire are designed to address a full array of local issues. In order to facilitate the participation of people from different disciplines, backgrounds, sectors, and levels of expertise in discussing these issues, the Stakeholder Groups established a variety of specialized Working Groups. These Working Groups undertook the distinct tasks of issue identification, problem analysis, technical research, priority setting, action planning and impact analysis, implementation and monitoring, and evaluation and feedback. Some structures were used to collect and analyze information or to develop action proposals; others were used to integrate action proposals with municipal plans; and still others were used to develop performance indicators and to evaluate progress in achieving targets.

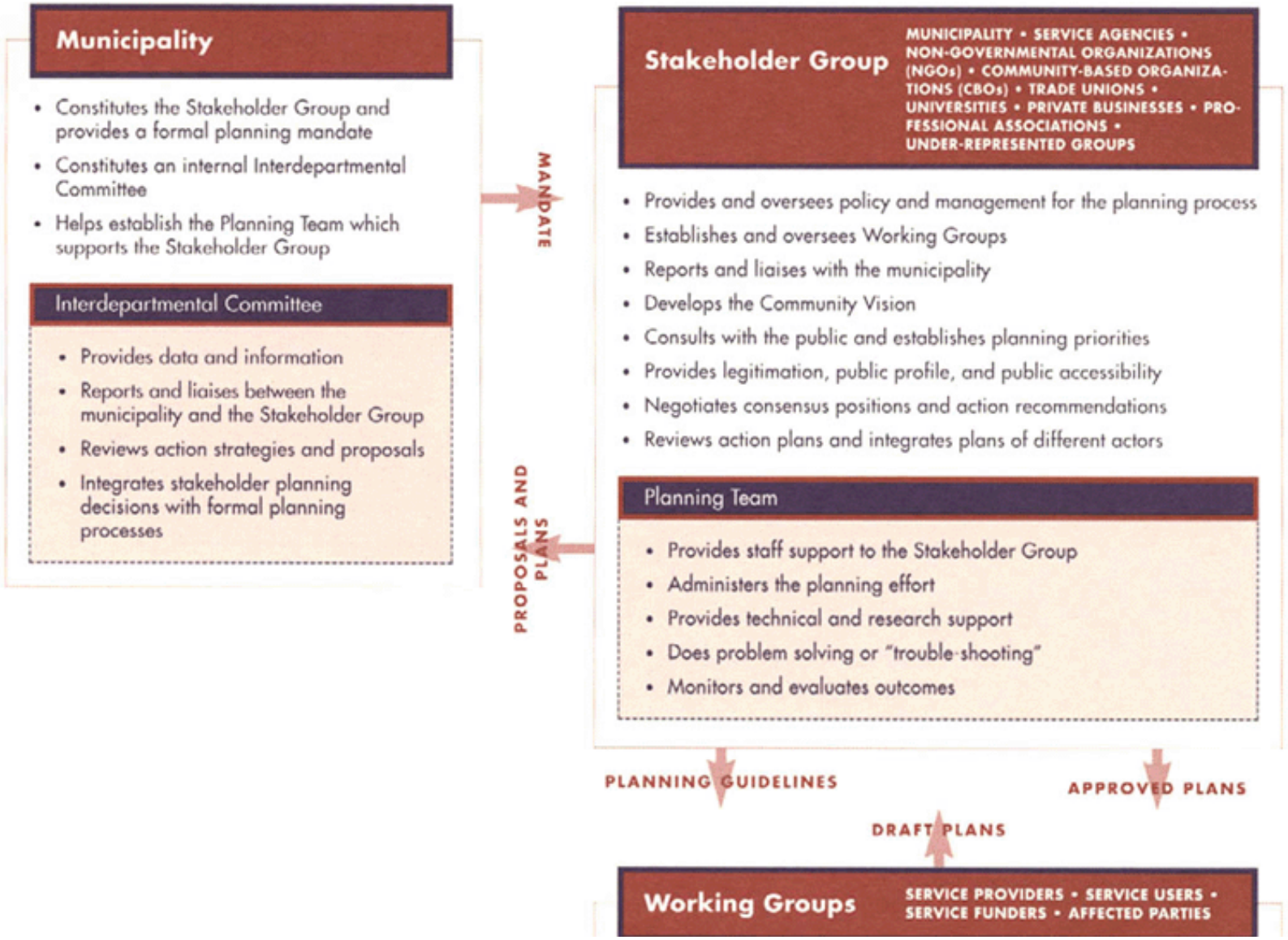
A Working Group is typically a small body of 10 to 20 stakeholder representatives who have a particular interest or expertise in a specific issue or problem. In addition to the various models presented in the diagrams accompanying the cases, a general diagram of a stakeholder planning process can be found in Figure 3. In this model, the Working Group plays a lead role in research, issue analysis, and technical assessment. It contributes its information and conclusions, as well as its action recommendations, to the larger Stakeholder Group for review and discussion. Based upon these recommendations, the Stakeholder Group negotiates and approves a final Action Plan.

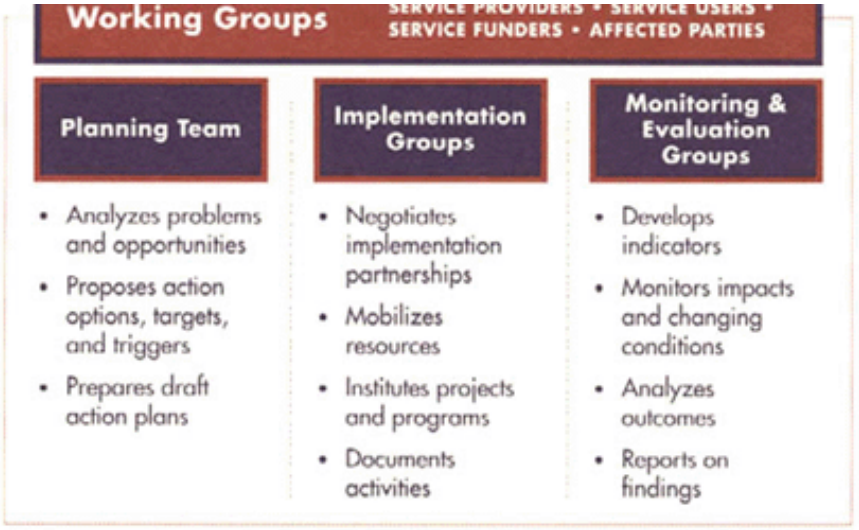
The processes of issue identification and priority setting often require unique structures, such as neighborhood forums, public hearings, and focus groups, which permit extensive participation by residents and/or service users. A Working Group may be established to coordinate these activities. Technical analysis and research is usually coordinated by specialist Working Groups. In order to develop a systemic analysis of issues and problems, these Working Groups usually include representatives with expertise in different professional disciplines, municipal departments, and sectors.

The development of Action Plans is usually an iterative process in which specialist Working Groups prepare specific proposals and submit these to the larger Stakeholder Group—or directly to the public—for review, comments, and changes. A typical structure used in action planning is the Interdepartmental Committee of municipal staff, which advises stakeholder Working Groups and reviews their action proposals prior to formal approval by municipal policymakers.

> Stakeholder Groups often establish distinct Working Groups to undertake the different tasks of issue identification, technical research, priority setting, and developing Action Plans.

FIGURE 3 **A GENERAL PARTNERSHIP MODEL Sustainable Development Planning**





2.2.4 IDENTIFY PARTNERS

Once the planning tasks and respective partnership structures are determined, appropriate individuals and institutional representatives can be identified to participate in the various planning activities and structures. In general, these partners will include:

- **service providers: those people who control and manage services;**
- **service users: those people who use and are affected directly by services;**
- **parties whose interests are indirectly affected by the impacts of the service or service system; and**
- **parties with a particular knowledge related to the service or the service environment.**

The development of Action Plans is usually an iterative process in which specialist Working Groups prepare specific proposals and submit these to the larger Stakeholder Group.

The proper selection of participants for the Stakeholder Group and its Working Groups is perhaps the most critical step in establishing a partnership planning process. The composition of the participants will determine both the legitimacy of the Group and its ability to develop new ideas, insights, and consensus for action. As a rule, it is important to always include service user representatives and representatives of groups who are traditionally underrepresented in planning efforts. Worksheet 1 presents a matrix exercise that can help in the identification of partners for the Stakeholder and Working Groups. Checklist 1 can then be used to verify that representation is inclusive for effective sustainable development planning.

Once the desired representatives are identified, the process of negotiation begins over the terms for their participation. These negotiations can be used to develop a committed membership for the Stakeholder Group and to establish the terms of reference for the planning partnership.

WORKSHEET 1 **IDENTIFYING PARTNERS FOR STAKEHOLDER AND WORKING GROUPS**

Potential Partners	Components of Sustainable Development		
	1 **Community Development** • housing • social services • public safety	2 **Economic Development** • transportation • employment • tourism	3 **Ecosystem Development** • pollution control • green space • waste management
A **Community Residents** • special groups of people *(women, youth and indigenous people)* • community leaders • households • teachers			
B **Community-Based Organizations** • coalitions • church groups • formal women's groups • traditional social groups • special interest groups			
C **Independent Sector** • non-governmental organizations • academia • media			
D **Private/Entrepreneurial Sector** • environmental service agencies • small business/ cooperatives • banks			
E **Local Government and Associations** • elected officials • management staff • field/staff operations • regional associations			
F **National/Regional Government** • planning commission • utilities • service agencies • financial agencies			

CHECKLIST 1

PARTNER SELECTION FOR SUSTAINABLE DEVELOPMENT PLANNING

Ensure Representation of:

1. Under-represented groups.

2. Service users—those people who use and are affected by services.

3. Service providers—those people who control and manage services or service systems.

4. Parties with a particular expertise related to the relevant services or issues.

5. Parties whose interests are affected by the service and the service system.

In Selecting Partners Consider:

1. The scope of work to be undertaken by the partners.
2. The involvement of a critical mass of organizations and individuals who have the political will to take action.
3. The degree of inclusiveness you hope to achieve.
4. The skills, knowledge, and experience that different individuals or organizations can contribute.
5. The inclusion of parties who will need to be involved in the implementation of any plan.
6. The inclusion of organizations or individuals with credibility within their own constituencies.

2.2.5 ESTABLISH TERMS OF REFERENCE

Once the scope of the planning exercise is determined, the partnership structures are defined, and participants are identified, terms of reference should be developed to define roles and responsibilities in the planning process. The terms of reference should describe the following:

- **the activities to be jointly undertaken in the planning process;**
- **the roles of the different participants in the planning process, including the specific activities to be performed, information to be provided, and schedules for their input and contribution;**
- **standards for the sharing of information to be used in the process, including agreements on confidentiality;**
- **methods of decision making, including dispute resolution and review;**
- **resources to be provided by each partner; and**
- **agreements on how the outcomes of the planning process will be integrated into statutory planning activities of the municipality.**

These terms of reference should be signed by the members of the Stakeholder Group and the municipality, and reviewed periodically to assure that they are being observed and are up-to-date.

2.2.6 DEVELOP A COMMON COMMUNITY VISION

Before the Stakeholder Group fully begins its planning activities, it is often very useful for the group's members to develop a common vision of the kind of community they want to be working towards. This shared Community Vision can provide a foundation of agreement that will guide the group as it selects issues for analysis and negotiates action goals, targets, and work plans.

In a visioning process, participants should be willing to present their images of the ideal situation, including ideas that might normally be judged as unrealistic. Communicating these ideals can inspire ambition and excitement in the planning process. It also helps to clarify the fundamental values that stakeholders apply to a situation or service area. One method for identifying common values is to synthesize the mission statements of participating organizations and to apply this shared statement to the issue areas that are being focused on. Ultimately, the visioning process should identify key principles or values that all stakeholders can agree to as fundamental to their notion of sustainability.

> The proper selection of participants for the Stakeholder Group is perhaps the most critical step in establishing a partnership planning process.

2.3 CASES

2.3.1 CASE # 1
LANCASHIRE COUNTY, UNITED KINGDOM

PARTNERSHIP-BASED PLANNING

Program Name

The Lancashire Local Environmental Action Programme (L.E.A.P.)

Background

Lancashire County, UK, is a mixed urban and rural municipality covering 3,070 square kilometers with a population of 1.4 million. The Local Agenda 21 process of the Lancashire County Council (UK) highlights the evolution of a Local Agenda 21 partnership structure over a five-year period. Lancashire County has set about the task of sustainable development planning in a measured and ordered way, recognizing that much energy and time can be wasted trying to engage partners in planning if effective structures and consensus have not been established.

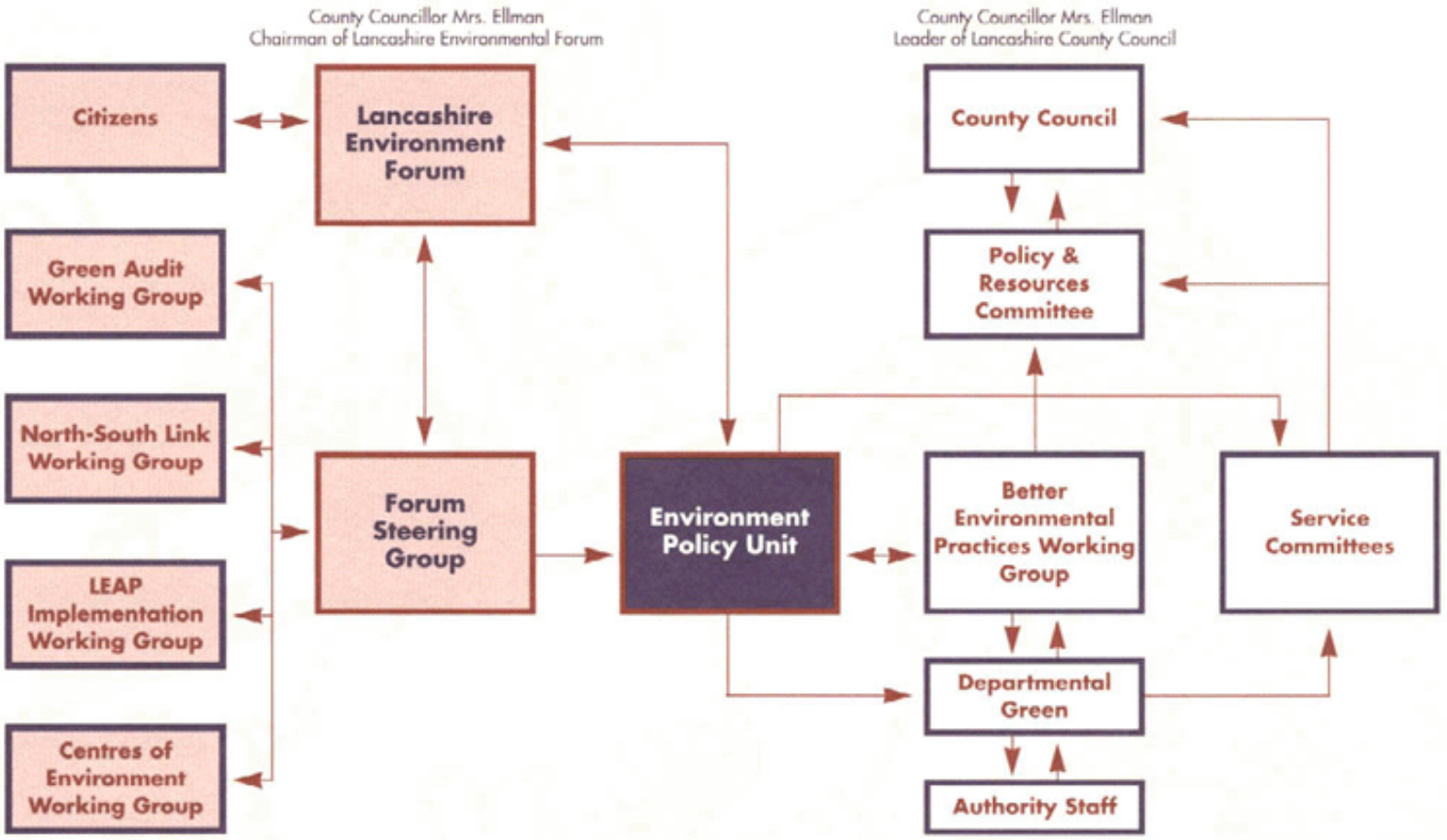
The County Council effectively started its Local Agenda 21 process in 1989 when it established a multi-stakeholder “Environmental Forum” to perform the county’s first environmental audit. Still in existence, membership in the Environmental Forum comprises 89 organizations representing local government, NGOs, business and industry, academia, and central government.

The Environmental Forum meets twice a year and is guided on a day-to-day basis by a Steering Group. The Steering Group meets every two months and confers directly with an Environmental Policy Unit consisting of municipal officers within the County Council. The Environmental Policy Unit reports directly to the County Council Planning Committee. The Forum guides the overall external aspects of the Lancashire Local Agenda 21 Process and the County Council develops appropriate programs and corporate strategies to implement Local Agenda 21. The Chair of the County Council is also the Chair of the Environmental Forum, creating a link between the two. The Lancashire Local Agenda 21 Partnership Structure is shown in Figure 4.

Program Description

Since 1989, Lancashire’s Local Agenda 21 process has gone through three phases: informational, policy making, and implementation (Fig. 5). The organizational structures outlined above have changed and evolved since 1989 to meet the unique challenges of each planning phase.

FIGURE 4 **LANCASHIRE’S LOCAL AGENDA 21 PARTNERSHIP**
Current Structure 1994



1989-1992: Information Phase

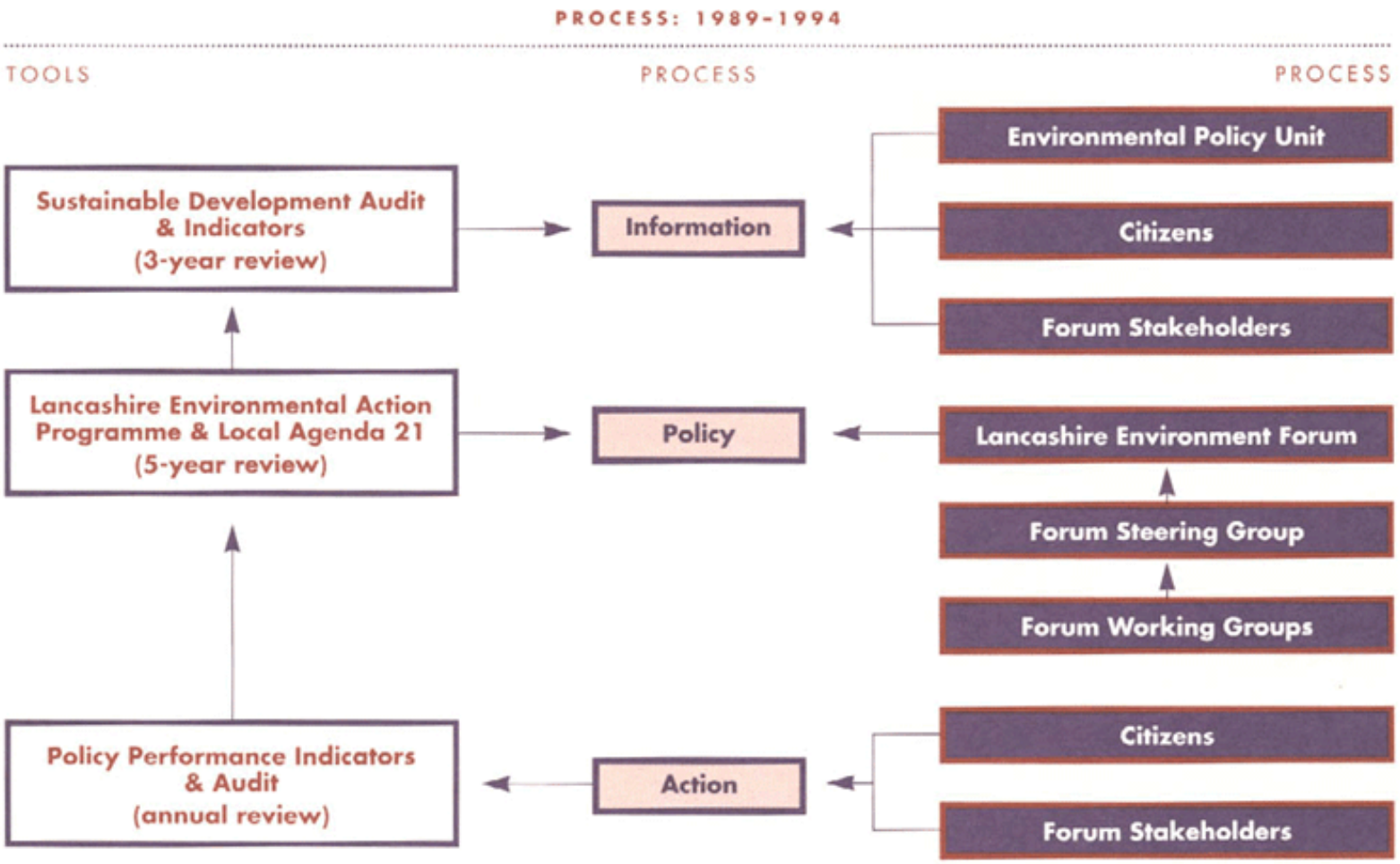
The Environmental Forum was the first of its kind to be established in the United Kingdom. During its formative years (1989-92), it had a simple structure reflecting its straightforward agenda.

As one of its first tasks, the Forum commissioned a county-wide State of the Environment Report, or "Green Audit," and established an Environment Unit to coordinate the work. Forum stakeholders provided much of the raw data, which was then analyzed and interpreted by the Unit. Forum stakeholders also verified the accuracy of the Audit's findings. A Forum Steering Group guided the whole initiative. It advised on how the Green Audit should be carried out, what it should contain, and how its findings should be communicated to decision makers and citizens.

Following publication of the Green Audit in 1991, citizens and the wider community were involved in a consultation and publicity campaign featuring:

- **the circulation of Green Audit reports to libraries, information centers, schools, colleges, voluntary and local groups, Council offices, and Forum partners;**

FIGURE 5 **LANCASHIRE'S LOCAL AGENDA 21 PARTNERSHIP PROCESS**



- **a Green Audit "road show" to major towns in the county, marked with a media campaign highlighting Green Audit findings relevant to each part of the country; and**

- **the circulation of 40,000 Green Audit leaflets to citizens, seeking their views on the audit findings and on priorities for action.**

The Forum's Information Phase generated three important sources of information, namely:

- **the Green Audit;**

- **Forum Stakeholders' priorities for action; and**

- **citizens' priorities for action.**

These were used to underpin the forum's next phase—policy making.

1992-1994: Poiicy - Making Phase

The Environmental Forum's policy-making phase began in 1992. The forum's target was to produce a program of action to deal with the issues raised in the information phase. The program was to be based on building consensus through partnerships while making full use of the forum's expertise. This new focus required a new organizational structure. The forum therefore established four multi-sectoral Specialist Working Groups, with representatives from its membership. Their mandate was to produce proposals for action in four topic areas over a nine-month period. The four Specialist Working Groups (SWGs) were:

- **SWG1: Air, Energy, Transport, and Noise;**

- **SWG2: Water, Waste, Land, and Agriculture;**

- **SWG3: Wildlife, Landscape, Townscape, and Open-space; and**
- **SWG4: Education and Public Awareness.**

The SWGs allowed the full range of expertise held by the forum organizations to be made available to the initiative. Giving all members a direct role provided increased ownership of the environmental action plan and enhanced the prospects of implementation. SWG activity was coordinated by the forum's Steering Group. Each SWG chairperson reported back to the Steering Group, where matters of mutual interest were addressed and initiatives coordinated.

Towards the end of the policy-making phase, all four SWGs held a combined seminar to discuss challenges and to defend each other's draft proposals. University and sixth-form students were invited to provide input. The draft document was then launched and citizen input invited. The outcome was converted into the Lancashire Environmental Action Programme (LEAP), which was published in March 1993. This marked the start of a new phase for the Environmental Forum—implementation and action.

1994 Onwards: Implementation and Action Phase

To meet the requirements of this new phase, the forum has created new Working Groups with distinct mandates. These Working Groups are:

- **The Green Audit Working Group, which oversees information aspects of the Forum's work, including the selection of new indicators for sustainable development that will underpin Green Audit II;**
- **The North-South Link Working Group, which is to oversee a developing link between the Forum and a municipality in Uganda;**
- **The LEAP Implementation Working Group, which oversees the implementation of LEAP by the forum organization, monitors projects through annual reports, and tackles the "deferred issues" on which it was not possible to reach consensus during the first policy-making phase; and**
- **The Centers of Environmental Excellence (CEE) Working Group which will coordinate and oversee the creation of a network of topic-based CEEs across Lancashire.**

The new Working Groups were established in May, 1994. It is too early to gauge their overall impact, but the signs are very promising. The new implementation phase has generated considerable enthusiasm from forum stakeholders for the Action Programme.

In summary, the Lancashire Environmental Forum has matured since its creation in 1989. Its organizational evolution has reflected its ability to meet new challenges, the growth stages being in tune with the Local Agenda 21 policy making process of information—policy—action.

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2.3.2 CASE #2
THE PROVINCIAL MUNICIPALITY OF CAJAMARCA, PERU
PARTICIPATORY REGIONAL DEVELOPMENT PLANNING

Program Name

Inter-Institutional Consensus-Building for a Sustainable Development Plan

Background

The Provincial Municipality of Cajamarca, located in the high altitude sierra of northern Peru, is a local government authority with jurisdiction over the entire province, including both urban and rural areas. Approximately 55% of Cajamarca's 233,575 residents live in rural areas. The provincial capital, Cajamarca City, serves as a commercial center for the activities of the surrounding countryside. The province's main economic activities include agriculture and livestock production, followed by commerce, mining, and tourism. Residents lack basic services and many rural citizens live in extreme poverty.

The development planning issues faced by the municipality of Cajamarca illustrate the inter-dependency between urban and rural development and the need for coordinated planning. Small and large scale cattle ranching and agricultural production are the predominate economic activities in rural areas. Increased demand for milk and milk products has resulted in cattle farmers encroaching on marginal lands prone to environmental degradation. The region's watershed has been seriously affected. Deforestation, soil erosion, reduced water quality and quantity, and the loss of biodiversity have been the results. Due to increasing population and unemployment in rural areas, people have migrated to provincial urban centers in unprecedented numbers. Consequently, municipalities such as Cajamarca have experienced unplanned growth. Squatter settlements have emerged in areas that are fertile and unsuitable for housing development. Increased demand for basic services has severely undermined the municipal government's ability to manage and deliver quality services. The Kilish River, the main source of drinking water, was contaminated from rural mining activities and a lack of sewerage. Water-borne diseases afflict the population. Poor management of storm water run-off in urban areas persistently results in flooding problems.

The regional level of government traditionally has authority over development in Peru, while public and private institutions deliver development infrastructure and services at local levels. Private institutions such as corporations, para-statal agencies, and NGOs have primary responsibility for agrarian issues such as forestation and agricultural management, while both private and public sector institutions are involved with health and education issues, among others. Public sector institutions have extremely limited budgets, while private institutions have outside funding. Lack of coordination between these institutions in Cajamarca resulted in the duplication of services and uneven resource allocation between urban and rural areas.

Program Description

In accordance with Agenda 21, the municipality of Cajamarca decided to implement a participatory regional development planning process designed to coordinate development activities and improve the delivery of community services. The goal of the initiative was to create a "Regional Sustainable Development Plan."

Decentralized Structures

The council recognized that creating this plan would require decentralizing the local administrative structures and democratizing the planning process. Hence, the Council delegated power to a series of newly created local jurisdictions and established partnership structures to undertake the planning process.

Within the existing Peruvian legal framework, the Provincial Council created local authorities below the district level by dividing Cajamarca City into 12 neighborhoods and the surrounding countryside into 64 "Minor Populated Centers" (MPCs). In April, 1993, general elections were held throughout the province to elect mayors to these newly created local authorities. As a result, the new Provincial Council now has 48 mayors of MPCs, 12 neighborhood mayors from Cajamarca City, 12 district mayors, and a provincial mayor. Each mayor heads a democratically elected governing body for his/her jurisdiction.

The expansion and decentralization of the local leadership strengthened the decision-making powers of small and rural communities. With this newly decentralized municipal structure in place, the Provincial Municipality proceeded to establish a Provincial Sustainable Development Plan. In order to formulate a viable Provincial Sustainable Development Plan, the Council had to devise a mechanism to coordinate planning on a province-wide basis. It was felt that the planning mechanism would have to synthesize elements of the disparate statutory District Plans and integrate environmental considerations. To develop plans responsive to community needs and priorities, the planning mechanism would also require input from local communities, as well as from the public and private institutions that provide services.

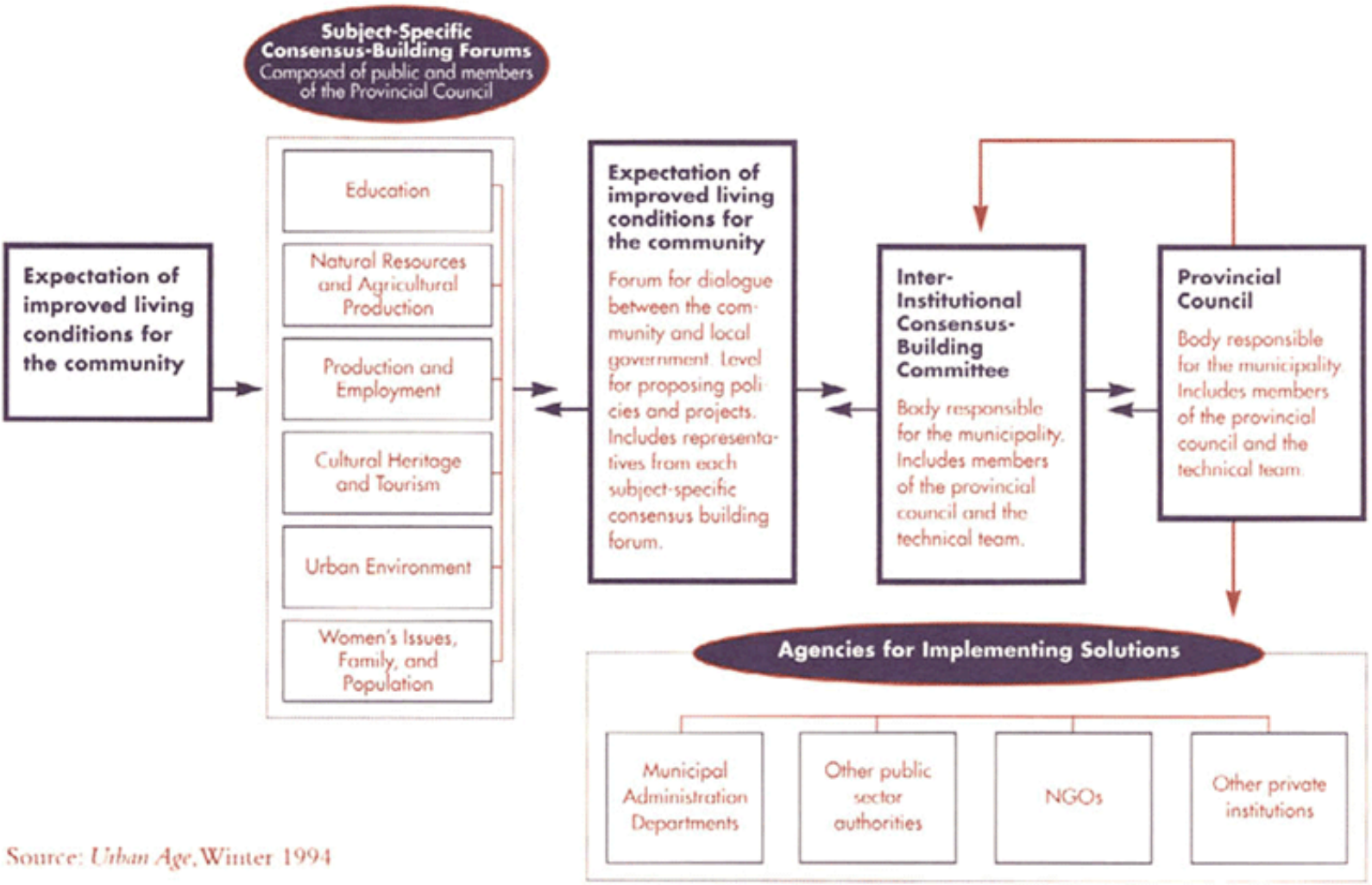
Inter-Institutional Consensus-Building

The Provincial Council established new partnership structures (Fig. 6), which for the first time convened a wide range of stakeholders, including several private and public institutions operating in rural and urban affairs, local communities, farmers, entrepreneurs, and state and national governing organizations. The initiative, known as the "Inter-Institutional Consensus-Building Process," aimed for broad-based consensus on projects that would form the basis of a Provincial Sustainable Development Plan.

In June 1993, the Provincial Council established an interim Inter-Institutional Cooperation Board, specifically mandated to unite stakeholders and interest groups in reaching consensus for projects and initiatives to be included in the Provincial Sustainable Development Plan. This board devised both partnership structures and processes to fulfill this mandate.

The Inter-Institutional Cooperation Board first established a larger Inter-Institutional Consensus-Building Committee to oversee and coordinate the entire planning process. The Committee is responsible for coordinating six "subject-specific, consensus-building forums" (Theme Boards), and serving as a point of contact between the Theme Boards and the Provincial Council. The Committee has representation from each Theme Board, the Provincial Council, and a technical team comprising the municipal and institutional experts represented on each Theme Board. The Committee is, however, a new municipal entity

FIGURE 6 **INTER-INSTITUTIONAL CONSENSUS BUILDING IN CAJAMARCA, PERU**



Source: *Urban Age*, Winter 1994

Source: *Urban Age*, Winter 1994

and does not have legal recognition within the municipal government.

The six Theme Boards focus on the following areas of development:

- **education;**
- **natural resources and agricultural production;**
- **production and employment;**
- **cultural heritage and tourism;**
- **urban environment; and**
- **women's issues/family and population.**

Each Theme Board is responsible for formulating a strategic plan containing policies and proposals for inclusion in the Sustainable Development Plan. The Theme Board's members include municipal experts and the councillors responsible for local jurisdictions, as well as representatives from relevant public and private institutions. The Theme Boards help facilitate environmental considerations that cross jurisdictional and sectoral boundaries. A larger Inter-Institutional Forum provides an opportunity for discussing proposals among all the Theme Boards.

The Committee reports to the Provincial Council, which is responsible for drawing up policy guidelines and approving the specific policy proposals submitted by the Theme Boards. It also publishes a bulletin about the activities and status of the Theme Board's consensus-building process, which is distributed to members of institutions involved in the process and to the heads of all the local government authorities.

A key feature of the consensus-building process is a series of training workshops that the Committee has organized as forums for discussion between the Theme Boards and the various local authorities. These workshops are organized by the technical representatives on each of the Theme Boards and are presided over by the respective local authorities. The workshops are intended to assist the mayors of the local jurisdictions with the new planning process and to provide them with methods and materials that enable them to take subject-specific Theme Board proposals to their constituents for discussion and approval. This workshop process helps the local mayors coordinate the statutory planning processes at the district and provincial levels, and provides a mechanism for direct community input into the Provincial Sustainable Development Plan.

The proposals and strategic plans, which are submitted by the Theme Boards and gain approval from local and provincial authorities, comprise a preliminary plan that must be debated by Council and approved in a citizens' referendum. The Inter-Institutional Consensus-Building Committee approved a preliminary version of a Sustainable Development Plan in August 1994. This version was debated by the Council and submitted for approval through a citizens' referendum, supported by a series of public educational seminars. The plan is now in its last draft and is undergoing final adjustments. The Sustainable Development Plan, envisioned as a dynamic plan that will be continually updated and improved, will direct development in Cajamarca when it is finally approved.

Several initiatives aimed at promoting sustainable agriculture and urban settlements and improving environmental and health conditions are already being implemented. The Environment and Urban Development Board, for example, created a permanent health package for Cajamarca City, a refuse collection program, and a parks and gardens improvement program responsible for the sowing of more than 80,000 seedlings along streets and in parks.

The agencies that are responsible for implementing the initiatives outlined in the Sustainable Development Plan include: municipal departments; other public sector agencies; NGOs; and more than 60 public and private institutions. These institutions are required to sign inter-institutional agreements concerning their respective roles for the implementation of the Sustainable Development Plan.

The municipality is devoting one-third of its budget to financing the Sustainable Development Plan; approximately 10 percent of the plan is being borne by other public and private institutions. Three people working on the plan are being paid by an NGO known as

ASODEL, which is funded by international and bilateral organizations. The provincial municipality also created the Municipal Communal Development Fund, to which the provincial and district councils have assigned approximately US $70,000 and 40 percent of revenues from the taxes on mining operations. In addition, the Provincial Council received some national and international funding for initiatives that grew out of the Development Plan.

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2.3.3 CASE #3
THE CITY OF SANTOS, BRAZIL CITIZEN COUNCILS FOR MUNICIPAL PROGRAMME PLANNING

Program Name

Popular Democratic Administration

Background

Established around 1545, Santos was one of the first Brazilian urban centers. Located 78 kilometers from Sao Paulo on the Atlantic coast, 39.4 square kilometers of the city's total area is on the island of Sao Vicente, and the remaining 434.6 square kilometers is on the continent. While Santos itself is a small municipality, it is part of an urban agglomeration including eight other municipalities. Additionally, it is located next to the metropolitan region of Sao Paulo, which has a population of 16 million. While its own industrial base is almost negligible, the port of Santos is the gateway to a vast and highly industrialized region, for the region of Sao Paulo is the most industrialized area in South America. Moreover, Cubatao, Santos's neighboring municipality, includes the largest complex of petrochemical plants in the country. Santos is also the weekend and holiday getaway for the middle and upper classes of Sao Paulo. Two-thirds of the economy of Santos is based in the tourism industry.

Program Description

In reaction to the military dictatorship and the accompanying curtailment of civil rights in the past decades, Santos adopted an approach of community involvement in municipal politics and programs. The city of Santos made considerable efforts to support the active involvement of its residents in the definition, management, and execution of municipal services. The municipality has used different methods to create dialogue with its citizens; among them are forums, commissions, "nuclei of defense," guardianships, and Municipal Councils. The Municipal Councils now play a central role in the development and implementation of sustainable development projects and strategies for the city.

Municipal Councils were established to bring into public life those sectors of society that have historically been excluded from decision making: women, children, the unemployed and working poor, unionized workers, the elderly, the physically challenged, and the Black community. The Councils are not only bodies of the poor and marginalized members of society, but also include academics, professionals, the private sector, and civic workers. Currently Municipal Councils exist in the following sectors:

- **Council for the Participation and Development of the Black Community**
- **Council for the Rights of Children and Adolescents**
- **Guardian Council for Children**
- **Council of the Elderly**

- **Council for Social Assistance**
- **Council for the Environment**
- **Council for the Defense of the Cultural Heritage of Santos**
- **Council for the Physically Challenged**
- **Council of Neighborhood Organizations**
- **Municipal Anti-Drugs Council**
- **Education Council**
- **Council for Assistance and Investment in Tourism**
- **Cultural Council**
- **Sports Council**
- **Health Council**
- **Housing Council**
- **Municipal Social Solidarity Fund**
- **Transport Council**
- **Businessmen's Economic Development Council**
- **Municipal Council for the Defense, Information, and Orientation of the Consumer**
- **The Northwest Zone Popular Council**

Instituted by municipal laws, Councils have different origins. Some Councils originated in federal laws as stipulated in the Federal Constitution of 1988. These include the Health Council, the Housing Council, the Council for Social Assistance, the Council for the Rights of Children and Adolescents, Guardianships, the Sports Council, and the Council for the Environment.

Other Municipal Councils such as the Education Council, the Council of Municipal Schools, the Council for the Defense of the Cultural Heritage of Santos, the Council of the Physically Challenged, the Council of the Elderly, the Council for the Participation and Development of the Black Community, the Transport Council, and the Northwest Zone Popular Council do not originate from constitutional mandates. These Councils were created due to the mobilization of different segments of the community and they demonstrate the community's desire for involvement in community affairs.

The majority of the Councils were created through a process of Municipal Conferences. This process starts with preconferences in various parts of the city, where delegates are elected from residents' associations, unions, social movements, interest groups, cooperatives, women's groups, and others. The elected conference delegates represent their group's interests and priorities at the Municipal Conferences. Through consensus decision making and priority setting, the recommendations adopted at the Conferences provide the parameters for the elaboration and implementation of sector-specific municipal policies and programs. Aside from evaluating the existing situation in various sectors and determining the appropriate course for creating solutions to problems, the Conferences elaborate proposals for the composition and functioning of Municipal Councils. Each Council is directly linked with a municipal secretariat or department to which it communicates its recommendations.

For example, the Education Council's objective is to encourage residents to engage in the discussion of education and citizenship, to evaluate the quality of educational services, and to guarantee society the right of participation in decisions affecting education. The Council comprises 37 members, and was instituted by Municipal Law No. 1182 of November 1992.

The Environment Council was created by Municipal Law No. 675 of July 1990, and was reformulated after the Environment Conference of June 1994. Twenty-eight members now constitute the Council, and its action areas have been expanded. Aside from proposing methods for preserving the environment and receiving complaints about threats to flora and fauna, the Environment Council is also concerned about environmental sanitation. It has a mandate to defend nature from abuse and to involve other public institutions in doing the same.

Set up in September 1993, the objective of the Northwest Zone Popular Council is to involve itself in the development activities of the Regional Administration, and to present proposals and collaborate in defining priorities for the area. It is also mandated to work with the residents and the executives of the 14 societies for the improvement of the region.

To exchange information and experiences among various sectors, members of some Councils sit on other Councils. For example, representatives from the Council of the Physically Challenged participate in the Councils of Health, Transport, Education, and the Environment. Representatives from the Council of Neighborhood Organizations sit on the Councils of Health, Housing, and the Council for the Defense of the Cultural Heritage of Santos. This “cross-seating” provides an opportunity for deepening the understanding and alliances between one sector and another.

The break with the traditional forms of city planning and management obliges the local authority to develop alternative methods and techniques for communicating technical matters to the public. The process of demystifying technical know-how has been a learning process for all parties involved.

Expanding the notion of knowledge and expertise has made it possible to acknowledge and value popular knowledge and local cultural values. It has been important for Santos to incorporate these values when elaborating public policies. This process also involved the democratization of information and led to increasing public access to information.

The Municipal Councils of Santos are, in effect, broad-based partnerships, in which service users and providers influence sector specific municipal policy and jointly assess and define service provision. Councils are equal partners in defining the priorities of local government for their sectors and they play a crucial role in budgetary allocations to that sector. Councils have decision-making power in the allocation of funds for the various municipal functions, as well as the mandate to manage the budget for each of their particular councils. Councils have greatly enhanced public participation in municipal affairs in Santos, legitimized the local authority, and provided a cross-fertilization of ideas and strategies among different interest groups in the municipality.

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2.3.4 CASE #4
JOHNSTONE SHIRE COUNCIL, AUSTRALIA
PARTICIPATORY LOCAL STATUTORY PLANNING

Program Name

The Johnstone Plan

Background

The local authority of Johnstone Shire comprises 1,260 square kilometers that adjoin two World Heritage sites, the Great Barrier Reef and the Wet Tropics, in the state of Queensland, Australia. The Shire has a population of 19,144, which is equally distributed between its principal town, Innisfail (9,000 persons), and the rural area. The Shire’s agricultural economy is based on sugar cane and

banana production, with some growing tourism interests.

Under the Australian Constitution, the principal responsibility for land use planning and environmental management rests with individual state, governments. The Queensland state government's Planning and Environment Act of 1990 requires that all local authorities in the state prepare a statutory Town Plan to guide future development in their respective areas. There is no mandatory requirement under this legislation to incorporate public participation into the planning process, except for placing the draft town plan on public exhibition for a period of at least 60 days and calling for written public submissions. Consequently, individual local authorities can determine the degree of public participation and consultation that they wish to undertake beyond the statutory requirements.

The Johnstone Shire Council decided to prepare a new and revised Town Plan immediately after its election in April 1991. The motives for this initiative can be attributed to a number of factors, including:

- **the aspiration of the mayor of that Council to improve environmental management in the Shire;**
- **the desires of the general manager (chief executive officer) to improve the Council's corporate services and establish a more responsive corporate structure capable of responding to community needs;**
- **inadequacies in the former Town Plan, which did not meet the aspirations of the current Council and community;**
- **Council's desire to improve public involvement in decision making; and**
- **increasing community awareness and concerns for planning and environmental issues expressed in forums, including the Council's innovative town meetings.**

The Council adopted objectives in the Johnstone Plan Review process (later to be incorporated into its 1993 Corporate Plan) that sanctioned the establishment of a participatory planning approach, namely:

- **to involve the community in the decision-making process and be aware of community aspirations; and**
- **to develop both a vision of the Shire that reflects community aspirations and the corporate plans and structures necessary to achieve that vision.**

Program Description

The specific terms of reference for the Johnstone Plan Review were:

- **to review the Land Use Planning Scheme to determine if it adequately reflects the community's aspirations for the social, environmental, and economic well being of the Shire;**
- **to involve residents and special interest groups in the process;**
- **to address the conflict between urban growth and preservation of agricultural land, incorporate the outcomes of integrated catchment management (ICM) study, enhance the character of townships, and establish a vision and strategy for tourism development;**
- **to produce a Land Use Plan; and**
- **to produce a Council Action Plan.**

In the initial phases of the Plan Review process (1991), the Council engaged in community consultation by first announcing its planning intentions through a number of media and subsequently hosting a series of 21 town meetings throughout the Shire with the objective of directly ascertaining what the people wanted from their Council. These meetings produced a list of some 1,585 items for the Council to address.

Priority issues identified included: retention of good agricultural land; strengthening the local economy; improving management for the Shire's natural and cultural resources; managing the character and lifestyle of the Shire; providing improved community

services; minimizing the impacts from tourism on the quality of life and the environment; and establishing tourism based on natural and cultural heritage. Other issues included: improving opportunities for youth; improving the Innisfail town center; recognizing and supporting Aboriginal identity and self-management; improving access for people with disabilities; and encouraging a range of housing types and affordable housing.

Social, economic and environmental profiles were prepared in parallel with the consultation. Information from the profiles, combined with issues and priorities identified during the consultation, were used to formulate a community "vision" for the Shire.

Formal partnership structures were subsequently established to facilitate further public discourse and civic engagement in the Johnstone Shire Review process.

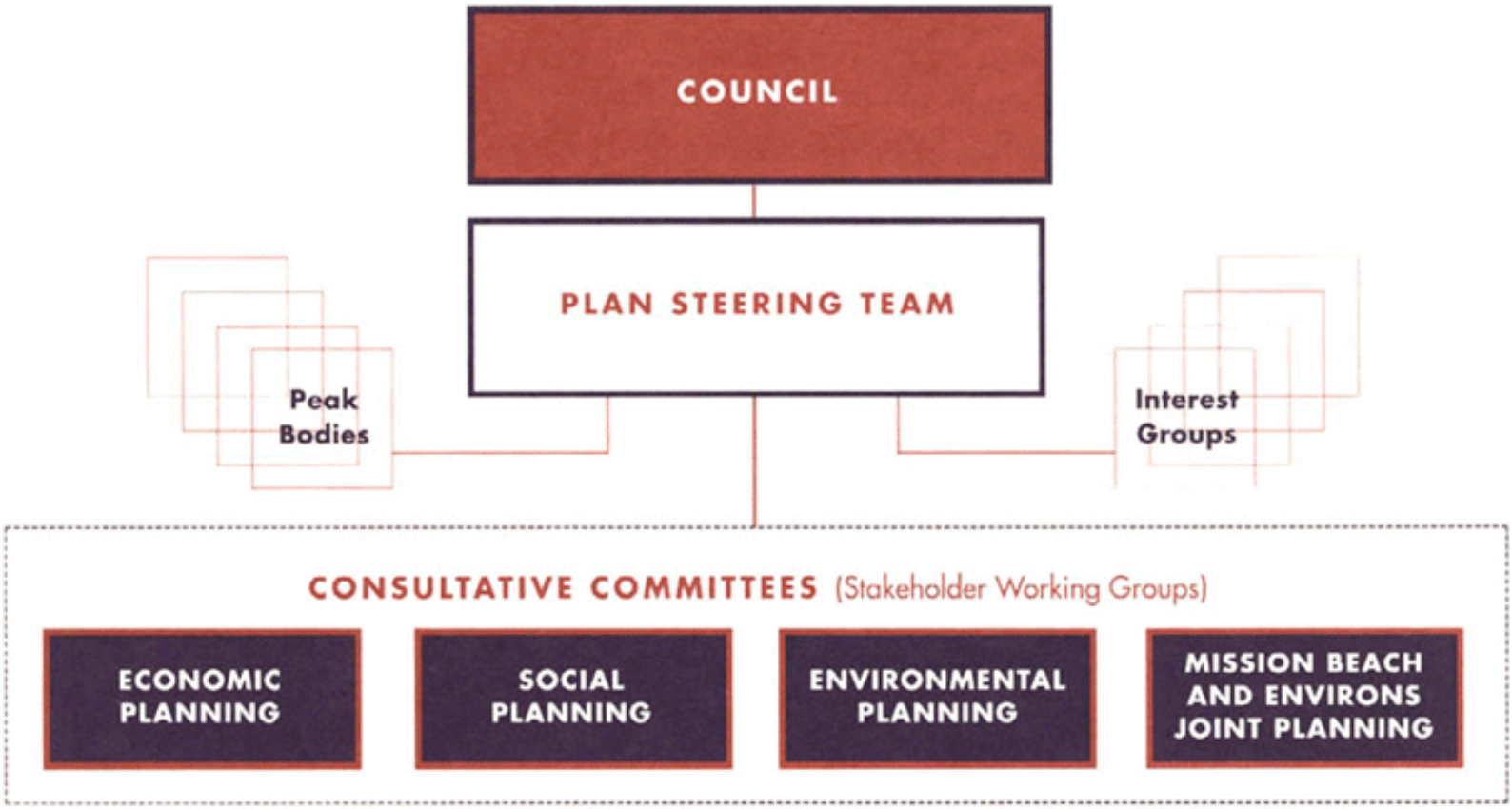
Partnerships

The formal organizational structures established to proceed with the planning process included the Steering Team, Interdepartmental Group, Community Consultative Committees, Peak Bodies, and Interest Groups (Fig. 7: Organizational Structure and Partnership Arrangements for Johnstone Plan Review).

Plan Steering Team

The preparation of the Johnstone Plan was overseen by a Plan Steering Team, comprising the mayor, general manager and planner, and later the Shire engineer. This team coordinated the activities of all partnership groups and reported directly to Council. The Steering Team was the conduit through which all information and recommendations passed between the Council,

FIGURE 7 **ORGANIZATIONAL STRUCTURE AND PARTNERSHIP ARRANGEMENTS FOR JOHNSTONE PLAN REVIEW**



which governed the plan, and the stakeholder groups. The small size of this team was deliberate to ensure that all members shared a common vision and could remain clearly focused, that a "change" agenda could be pursued, that members did not feel they had to defend past decisions, and that the team would be capable of bringing the changes into effect.

Interdepartmental Group

An interdepartmental group, known as the Council's Senior Management Group, was set up to process decisions and recommendations made by the stakeholder bodies, and develop the Council's Corporate Plan. The Council's Senior Management Group comprised the CEO, departmental managers, and the planner.

Community Consultative Committees

The organizational structure for the Plan Review incorporated four multi-stakeholder groups, called "Consultative Committees." The four groups, formed in May 1992 and given a two-year mandate, were:

- **The Economic Planning Consultative Committee;**
- **The Environmental Planning Consultative Committee;**
- **The Social Planning Consultative Committee; and**
- **The Mission Beach and Environs Joint Planning Consultative Committee.**

The process commenced with Council calling publicly for registrations of interest for membership on these committees. The Plan Steering Team made the final selection from the nominations received. Specific individuals who were thought to have some expertise and relevance to the program were also approached directly to serve on the committees. Each of the committees comprised up to 12 members, including representatives of key interest groups within the community, (for example, farmers, fishers, teachers, industry, cane millers, environmental NGOs, social workers, artists, Aboriginal people, and engineers) and up to three Shire councilors (elected members) and the Shire planner. The membership of these four committees comprised 30 percent female representation. The Shire planner and some senior staff of consultants engaged by the Council were female.

The Committees were essentially utilized as working groups during the planning process. The terms of reference for the Economic, Social, and Environmental Committees were:

- **to provide advice, information, and feedback to Council on matters relating to the future growth and development of the Shire;**
- **to promote a better understanding among the different points of view in the community; and**
- **to encourage wide and informed debate within the community on planning issues.**

The terms of reference for the Mission Beach and Environs Joint Planning Consultative Committee were:

- **to promote coordination between the forward planning activities of relevant government bodies in the area, but especially between the Cardwell and Johnstone Shire Councils;**
- **to raise issues that need to be addressed in future plans for the area;**
- **to provide feedback and advice on planning strategies proposed for the area;**
- **to consider planning issues for the area in its wider regional setting;**
- **to advise on interest groups who should be consulted regarding relevant planning matters as they arise;**
- **to respect that different and conflicting points of view will occur and seek opportunities for resolution of conflicting interests;**
- **to promote balance between the social, economic, and environmental needs of the community in considering future plans for the area; and**
- **to promote balanced and constructive debate within the Committee, as well as within the community, on forward planning issues.**

Based on priorities established in consultation with the community, the respective planning matters that each Consultative

Committee was required to focus upon, deliberate, and make recommendations on, included:

ECONOMIC PLANNING: allocation of land for business and industry; infrastructure needs of business and industry; identity and provision for development of tourism; protection of agricultural land and other industry resources; impediments to economic development; and search for common ground between economic development and sound environmental management.

ENVIRONMENTAL PLANNING: identification and conservation of natural resources; integration of World Heritage Area planning and findings of the Johnstone River Catchment Management project into the Plan; preservation of biological diversity; and search for common ground between economic development and sound environmental management.

SOCIAL PLANNING: access to adequate housing; leisure and recreational needs; cultural development; heritage conservation; and provision of needs for special populations, including children, youth, women, ethnic communities, the elderly, and people with disabilities.

MISSION BEACH & ENVIRONS: encourage coordination between the different agencies (local and state government), with a responsibility for planning the future growth and development of the Mission Beach Area.

Decisions and recommendations taken by the Consultative Committees were transmitted to the relevant municipal departments for action through the weekly meetings of the Council's Senior Management Group.

The Consultative Committees played a significant role in influencing the outcomes of the Johnstone Plan. For example, in the case of the Mission Beach exercise, the Council deferred all the main decisions to that Committee. Once consensus was reached, the Council endorsed the decision. Through partnership involvement in the committees, there was consensus and ownership of the final plan.

Peak Bodies

Council also encouraged and facilitated the establishment of a number of "Peak Bodies," both prior to and during the planning process. Peak Bodies were formed in response to the specific needs of a key constituency or interest group with the intention of providing input into the planning process. The Council undertook joint planning studies with each body and incorporated the relevant findings into the final plan. The Peak Bodies thus formed included:

- **Johnstone River Integrated Catchment Management (ICM) Committee/Johnstone Shire River Improvement Trust;**
- **Consultative Committee for Cassowary Conservation (C4);**
- **Cassowary Coast Development Board;**
- **Johnstone Shire Cultural Association;**
- **Sporting Peak Bodies; and**
- **Aerodrome Management Group.**

The joint studies successfully completed with the Council, include:

- **Economic Development Strategy (March 1994)—a joint study with the Cassowary Coast Development Board;**
- **joint study with the ICM committee to ascertain mechanism for incorporating ICM outcomes into the Johnstone Plan (August 1994);**
- **joint study with C4 committee to map and evaluate all cassowary habitats in the shire, and to derive guidelines for acceptable development; and**
- **joint study with adjoining local authority (Cardwell Shire) for Mission Beach.**

These joint studies achieved community ownership over this process. It also allowed the participants to utilize the data from these joint studies to develop their own strategies on how they could contribute to the achievement of the community vision.

Interest Groups and Other Partnership Arrangements

A series of meetings was also convened with various interest groups to discuss issues that could affect those groups. During the planning process, partnership arrangements were established with organizations, including: Chamber of Commerce; various farm industry groups; Combined Sports Association; Meals on Wheels; Pensioners' League; Community Advice and Information Centre; Progress Association; Blue Nurses; Housing Forum; Innisfail Youth and Family Services; Chjowai Housing Cooperative (a local Aboriginal organization); and Landcare Groups;Wildlife Preservation Society.

Towards Partnerships in Implementation

Currently the draft Johnstone Plan is on public exhibition, prior to its approval by the Queensland state government and its eventual implementation by the Shire Council. The Shire planner is responsible for the completion of the final plan and its supporting documentation. Implementation will be through an integrated "Umbrella Action Plan," using the statutory town planning process, the Council's new Corporate Plan, and a reorganized corporate structure.

An integrated Umbrella Action Plan is currently being drafted in association with the various stakeholder groups in the Johnstone community. The community's vision of sustainability and underlying economic, environmental, and social values will be reflected in the "Umbrella" of this Action Plan. Community principles and values are intended to influence the programs of the Council, namely the operational, land use, and community action plans. This concept is dia-grammatically outlined in Figure 8: Johnstone Shire's Integrated Umbrella Action Plan.

To oversee the implementation of the Johnstone Plan, Council is currently assessing the role and composition of a multi-stakeholder group that will be based upon the membership of the four Community Consultative Committees.

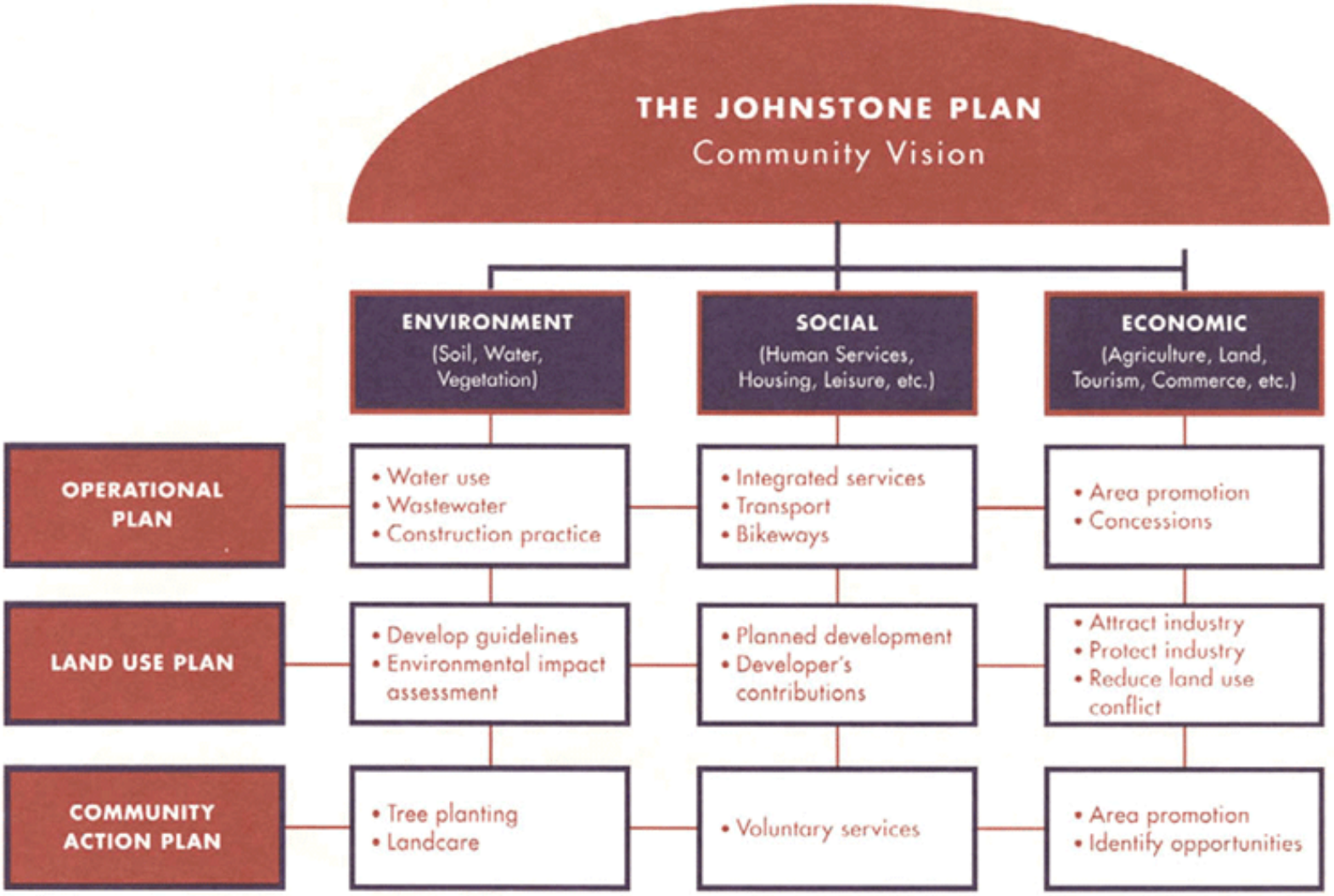
Council recognizes that organizational changes are required to achieve the desired sustainable development targets outlined in the Johnstone Plan. Integrated and holistic operational systems capable of operating under the "Umbrella" will be set up. Council also notes the crucial importance of establishing a direct connection between its Corporate Plan (including Council's organizational support structure) and its physical Land Use Plan. To develop a "partnership" concept for implementation, three arenas of joint council-community decision making have been identified:

- **council actions: where it decides to build roads, to provide social services, or to influence other levels of government to alter their practices;**
- **land use planning: where the Council exercises powers over how outside influences interact with the plan; and**
- **local community actions: both organizational and individual.**

In addition, Council's four Corporate Plan programs, which include environmental services (including land use planning), social services (housing, human services, and leisure services etc.), works (infrastructure provision), and corporate services (administration and finance), are envisioned as vehicles for providing effective responses to community concerns related to environment, social, and economic development.

To conclude, the Johnstone Shire Council case illustrates the use of theme-specific, stakeholder partnerships to undertake specific planning tasks, namely, research, formulating action options, building community consensus, advising on technical matters, and short-term studies related to the development of a plan. Multi-stakeholder partners were not formally engaged in the overall coordination and governance of the planning process. These tasks remained internal to the municipality. As in the case of other municipalities, partnership terms of reference and structures will be renegotiated and reformulated with

FIGURE 8 **JOHNSTONE SHIRE'S INTEGRATED UMBRELLA ACTION PLAN**



the stakeholders for the implementation stage of the planning process.

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CHAPTER 3 Community-Based Issue Analysis

3.0 Introduction

Community-based issue analysis provides stakeholders with the opportunity to develop a detailed, shared analysis of the key issues related to their Community Vision. Through such analysis, they can make informed choices in preparing an Action Plan.

The analysis of issues by the community is fundamental to a truly participatory planning effort. Unlike traditional "consultation" and "auditing," which are usually implemented as top-down, expert-driven, information-gathering activities, community-based issue analysis uses a series of exercises to help stakeholders share knowledge, review and participate in technical assessments, set planning priorities, and jointly develop options for action. In short, community-based issue analysis:

- **initiates detailed dialogue among community groups and between the community and technical experts;**
- **focuses planning on peoples' recognized interests, needs, and preferences;**
- **informs stakeholders about the technical aspects of the problems they wish to resolve by engaging them in the collection and analysis of data;**
- **prevents uncritical and sole reliance upon the assessments of (often external) experts; and**
- **creates a well-informed constituency of residents to work for sustainability.**

Community-based issue analysis uses a series of exercises to help stakeholders share knowledge, review and participate in technical assessments, set planning priorities, and jointly develop options for action.

A comprehensive community-based issue analysis process uses both participant assessment and technical assessment methods in parallel to achieve a consensus analysis of key issues. Participant assessment exercises are used to involve local inhabitants and service users at a very basic level. Inhabitants are assisted in defining problems and identifying what services they want most and how the services can be provided sustainably. Special exercises are used to identify indigenous solutions and to apply local know-how to the analysis of problems and the development of solutions. Technical assessment methods are designed and employed to inform the participant assessment process. As is illustrated by the case of Troyan, Bulgaria (Case #5), technical assessment methods —such as comparative risk assessment or environmental impact assessment—can be modified to allow for extensive stakeholder participation. This approach strengthens the accuracy of the final technical analysis, as popular knowledge and expert opinion are

checked against each other. This approach also maximizes the public education benefits of assessment activities.

Within this context, the issue analysis process generally has four steps:

STEP 1.
Determine the scope of the issue analysis process.

STEP 2.
Identify the issues to be analyzed.

STEP 3.
Implement complementary participant and technical assessments of key issues.

STEP 4.
Complete the issue analysis.

> In community-based issue analysis, technical assessments activities are designed and employed to inform the analysis of issues by stakeholders. Popular knowledge and expert opinion are checked against each other to strengthen the final analysis.

3.1 Steps

3.1.1 DETERMINE THE SCOPE OF THE ISSUE ANALYSIS PROCESS

Determining the Level of Participation

One of the first tasks of a Stakeholder Group or its Working Groups will be to determine the extent to which the public will be engaged in issue analysis. This determination will be a function of:

- **the scope and complexity of the issues to be addressed;**
- **the time and resources made available for planning;**
- **the size, composition, and diversity of the local population and its institutional community; and**
- **the need to evaluate and understand differences between public knowledge and perceptions and expert opinions.**

The degree of participation in issue analysis will range from stakeholder representation to broad-based, direct participation.

The representative approach relies upon the members of the Stakeholder Group or a Working Group to consult with their communities using commonly accepted methods such as public forums, direct interviews, or focus groups. Having consulted with some sample of their constituencies, the stakeholder representatives then meet to analyze the information gathered from both consultations and technical assessments in order to form a consensus on issues and priorities. This representative approach ultimately relies upon the opinions and impressions of the stakeholder representatives and limits the scope and benefits of a community-based approach. It specifically limits the educational benefits gained by involving residents in analyzing and defining problems and solutions.

The participatory approach uses neighborhood surveys, community meetings, and public forums to directly engage the resident population in identifying and analyzing issues. In large or very diverse municipalities it is unlikely that most residents could be involved. Nevertheless, representative target groups and communities can be engaged to undertake their own issue analysis process and directly report their conclusions to the Stakeholder Group. In this way, community opinions are less influenced by the individual opinions of stakeholder representatives or outside experts, and the identified community constituencies are given direct responsibility in the planning effort. This increases both the legitimacy and the ownership of the process in the community. Case #6 describes how the small, low-income Martha Bucaram neighborhood in Quito, Ecuador, used participatory issue analysis and ranking to develop a neighborhood action strategy. Box A on the Prosnear Project in Brazil illustrates how a participatory issue

analysis approach can be extended to involve inhabitants directly in the design of specific service systems.

The issue analysis process can be strengthened by engaging community associations or local residents in the design and implementation of issue analysis activities in their communities.

BOX A:
The Prosanear Project, Brazil Comparative Cost Assessment

Residents of low-income settlements in Brazil typically lack adequate water and sanitation services. Low-income settlements are often unplanned and sometimes occupy high-risk areas such as steep slopes and flood plains. Public utilities companies are often reluctant to provide services in these areas. They assume that the poverty-stricken residents of these areas are unwilling and unable to pay for services. Experience gained over the past decade indicates that low-income communities are not only willing to pay, but also want to participate in the entire process of planning, designing, and maintaining the services. The Prosanear Project uses this participatory approach and illustrates how a comparative cost approach can assist low-income communities in selecting viable service options.

Initiated in 1993, the Prosanear Project works to establish affordable and flexible water ond sanitation service systems in low-income neighborhoods in 11 medium-sized Brazilian cities. Jointly financed by the Brazilian national and state governments and the World Bank, the Project develops technical and institutional solutions in the low-income neighborhoods without any preconceived blueprint In terms of service levels, delivery systems, and targets.

Resident participation in the design, construction, and maintenance of their neighborhood water, drainage, and sewerage treatment systems, as well as cost-sharing by residents and cost-recovery, are integral to the Prosanear Project's methodology. The State water companies or municipalities that manage the Project in each city are encouraged to try out flexible, adaptive, and participatory designs, so that the services are based on what the residents want and are willing to pay for. Residents are given the opportunity to assess costs and benefits of different design models of sanitation service and to opt for the one that is affordable and acceptable to them.

The project is implemented by local teams comprising engineers, social workers, planners, technical staff of the municipality, and the State water companies. Engineers develop cost-effective service options suitable to each community. Options may include, on-site systems such as latrines and septic tanks, or condo-minial sewerage and conventional sewerage systems. The financial implications of each option in terms of installation costs, maintenance, and service-user costs are calculated and presented to residents so that customers can make a choice according to their needs and financial abilities.

The first step of the Project methodology, "community mobilization and organization," involves consultation with the leaders of the existing community organizations and, subsequently, with the resident service users themselves. The local project team works with the residents to explain the proposed project, the cost of each design option, and the role of the residents and the public utility in each option. Block-by-block meetings are held to discuss the technical, financial, and maintenance details of each option. Residents are encouraged to see and understand the various options in operation in pilot locations. In addition to creating an awareness of the technical and financial aspects of the options, environmental health information is disseminated to increase awareness and create further demand for the service.

These meetings are followed by intensive negotiations between the project staff, the local service provider (water company or municipality), and the residents (service users). Direct agreements are reached between the design engineers and the residents. Issues that are negotiated are: level of service (selection of a design option), water rate levels, maintenance costs, and user maintenance responsibilities. In one city, Angra dos Reis, local residents can pay for their sewer hook-ups by making a direct payment, contributing their labor, accepting financing from the municipality, or by exchanging a specified volume of recyclable garbage, such as cans and paper.

Once residents decide on a design option, they sign a formal petition asking for the sewer system to be built and committing to pay the agreed-upon tariff.

Only after signing the final petition does the construction begin. The entire process of mobilization and negotiation can take a few months or as long as a year or more.

The Prosanear Project provides evidence of the benefits of an approach that is both participatory and flexible. The approach has led

to reduced costs for adequate service provision as well as an increased sense of ownership within communities. These results are attributable to several factors, including:

> • **the requirement of the Project that community-based organizations are consulted at every stage from design to construction, and that the contracts for local project construction/management are awarded to those engineering firms/NGOs specializing in community participation; and**
>
> • **the insistence of the national Project staff that the proposals on service levels, technology, construction schedules, cost recovery arrangements, billing, etc., be finalized only after the conclusion of active negotiations with communities.**

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Defining Target Communities and Target Groups

Based on the level of participation to be achieved, the Stakeholder Group or Working Group will need to determine which target communities and target groups will be recruited to participate in issue analysis.

Target communities consist of neighborhoods, districts, or other geographical areas which, in spite of the diversity of their populations, may share common concerns such as traffic congestion, crime, erosion, flooding, and so on.

Target groups are cross-sections of the population that may not share common geographical concerns, but that have common sectoral or social interests. These groups include private business, women, youth, racial or ethnic groups, environmentalists, and so forth. It is extremely important in a community-based issue analysis process that traditionally underrepresented target groups are involved. It is equally important to recognize that many traditionally defined groups are not homogeneous and that members of these groups may have differing opinions as well as their shared positions. Participation and the breadth of the issue analysis process can be increased by engaging community associations or local residents in the management and implementation of issue analysis activities in their communities. Similarly, special interest organizations can be recruited to undertake appropriate information-gathering activities within their constituencies.

> Local residents and community groups have day-to-day experience with the problems affecting them and they can identify and characterize key problems more readily than outside experts.

3.1.2 IDENTIFY THE ISSUES TO BE ANALYZED

While the scope of the issue analysis process is being defined, the target communities and groups are assisted in selecting the key issues that they think must be addressed to achieve the Community Vision. This selection is facilitated through a general information campaign and priority-setting and issue identification exercises.

General Information Campaign

Access to information is a prerequisite to effective and fair participation. The public should be provided with meaningful information about the whole planning process, including the Community Vision developed by the Stakeholder Group. Other information might include:

- **information on sustainable development and its implications for local development and municipal service activities;**
- **summaries of current research findings and reports on present and projected future conditions in the community;**
- **a description of the issue analysis process and its time schedule;**
- **how local groups and individuals can become involved;**
- **what to expect and what not to expect from the issue analysis exercise; and**

- **how final decisions will be made.**

Characterization of Problems and Issues

After an initial information campaign, the target communities and groups are involved directly in selecting and characterizing the broad areas of concern that will become the focus of further assessments and analysis. The principal assumption underlying this approach is that local residents and groups have day-to-day experience of the problems affecting them and they can identify and characterize key problems more readily than could outside experts using a characterization process.

Activities during this phase are designed to identify and facilitate discussions about priority issues and problems. Surveys, community meetings, open forums, mapping, ranking, and other similar activities can be undertaken to engage the community in the initial identification of key issues. These discussions can also be used to obtain input and proposed amendments from the community about the Community Vision. Additionally, these activities will help prepare inhabitants and stakeholders for the ensuing detailed assessment of priority issues. Box B describes how the Leicester City Council involved public consultation in their "Blueprint for Leicester" process.

Appendix 1 and the related Worksheet 2 describe a problem characterization technique called "service issues mapping." Service issues mapping is a group brainstorming and analysis exercise that assists stakeholders in identifying the systemic nature of a local problem. Based upon the characterization of the problem in the mapping exercise, stakeholders can join with technical experts to undertake a detailed assessment of the problem and its potential solutions.

> The use of technical or expert assessment procedures in sustainable development planning should meet four basic requirements.

3.1.3 IMPLEMENT DETAILED ASSESSMENTS

Once the key issues related to a problem are identified, a more detailed assessment of those issues must be undertaken so that stakeholders and inhabitants fully understand the complexities of the problem and can define effective options for action. The specific activities undertaken in an assessment will be determined by the different participant and technical assessment methods that are selected.

Typically, the Stakeholder Group or a related Working Group determines what assessment methods and tools will be used and designs the assessment process. In general, the selection of methods and design for a community-based assessment process should meet four basic requirements. First, the methods and tools should be appropriate to the community, its resources, and the issues to be analyzed. Second, both technical and participant assessment methods and tools should be used in any analysis. Third, the participant and technical assessment processes should be integrated with each other to verify results. And fourth, procedures should be established to assure that the assessment generates baseline data about local conditions and provides insight into the systemic nature of the issues being analyzed. These four requirements are further explained below.

BOX B:
Public Input into the Blueprint for Leicester[1]

In October 1995, Leicester City Council completed the firs) stage of the three-slage sustainable development planning process illustrated in Figure 9, the "Blueprint for Leicester Process." The first stage in the creation of the Leicester Blueprint involved public consultation. Over 2000 individuals ond more than 100 groups and organizations were consulted over a period of 12 months to solicit public input into the Leicester Blueprint, A variety of consultation methods were employed:

- **a neighborhood survey of 748 Leicester households was conducted to identify the views of a representative cross-section of the public;**
- **a short 'Snapshot' questionnaire wos sent to all homes via the City Council's *Link* magazine and a local paper. It was also made availoble in leaflet form; 803 were relumed;**
- **eighty-eight priority target groups representing businesses, women, disabled people, young people, older people, cultural and ethnic minority communities, people on low incomes, and other voluntary and workplace-based groups took part in meetings and events, developed projects, and made written comments; and**
- **the eight Environment City Specialist Working Groups, together representing 29 organizations, were invited to submit their comments in detail; all eight did so.**

The Snapshot questionnaire, designed to be brief, allowed the participation of individuals who might otherwise have been excluded from the process. The questions consisted of a mixture of open and closed questions related to environment, economy, and society. The open questions asked about people's likes and dislikes and suggested improvements lo the city. The closed questions focused on a topical ond holly debated issue, transportation policy, and on specific factors that influenced quolity of life. The results were intended to be viewed in conjunction with the in-depth neighborhood survey and extensive consultation with special interest groups.

The in-depth neighborhood questionnaire contained four types of questions related to the environment, economy, and society: profile questions to confirm a representative survey; satisfaction questions to identify areas of dissatisfaction with aspects of the city and quality of life; priority questions that asked about a series of policy options they would most support; and open questions to ask respondents why they felt a certain way, to add details to a response, or to make suggestions.

Priority target groups were approached through key organizations and with varied community specific consultation tools. For example, older people were surveyed through a questionnaire (some implemented in face to face interviews, others were completed by indi viduals) and in-depth interviews with o small number of respondents. In another instance, the business community was engaged in facilitated visioning processes using SWOT analysis A survey was also conducted to target 200 small businesses.

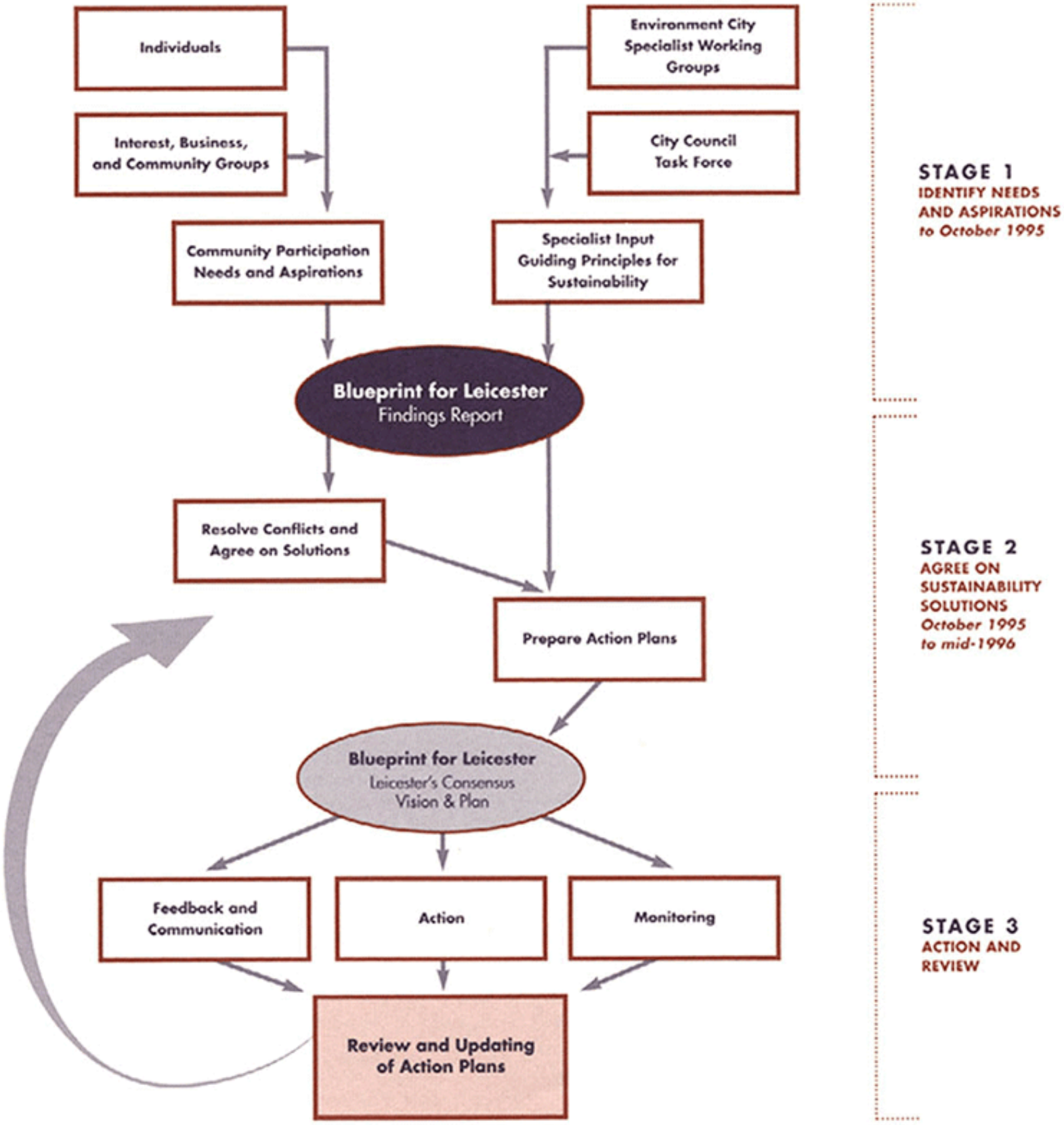
The final report, the Blueprint for Leicester Report Findings, documents the results from each of the consultations, for each specific large) groups. These findings will be used to look at key areas of conflict ond to build consensus for the development of Local Agenda 21 Action Plans.

1. Enviton, beicester City Council, and feicester Promotions Bluepring for leicester Findings. Leocester, UK: leicester City Council 1995

Assuring Appropriateness of Methods and Tools

Involving local communities and "lay persons" in assessment requires the use of methods and tools that complement the culture, educational levels, and size of each group, as well as local resource and time constraints. The selection of methods and tools should consider indigenous modes of communication and forums for sharing information. Tools may also need to be

FIGURE 9 **THE BLUEPRINT FOR LEICESTER PROCESS**



selected on the basis of the technological resources available to participants. Technological resources can range from the simple (audio-visual equipment) to the complex (remote sensing and GIS mapping).

Each local community will also have its own predispositions about methods based upon past experiences with planning and government consultation. Some tools and methods require specialized training for their use and may not be appropriate unless special training is given. For example, focus groups are a specialized activity and may require skilled expertise to run a successful session.

Selecting Both Participant and Technical Assessment Methods

Participant assessment methods and tools are group learning and analysis exercises that can be used with lay people and diverse stakeholder groups to clarify, exchange, and debate the knowledge and wisdom of residents about different issues. They can also be used to negotiate priorities and develop an appreciation of the systemic nature of issues. Participant assessment methods that have been used around the world include: mapping, focus groups, SWOT analysis, and search conferences. A variety of methods and tools for issue analysis are described in the Glossary of Selected Methods and Tools for Sustainable Development Planning in this Guide.

> It is important to remember to gather information not only on local conditions and problem issues, but also on the innovative, informal approaches being presently used by residents to solve problems.

In implementing a participant assessment, it is important to remember to gather information not only on local conditions and problem issues, but also on the innovative, informal approaches being presently used by residents to solve problems. These approaches can often be upgraded and applied more widely to address issues on a larger scale.

Technical assessment methods are more formalized assessment methods that use technical expertise to scientifically and statistically evaluate and document conditions. These methods include environmental auditing, Rapid Urban Environmental Assessment, State of the Environment Reporting, Environmental Impact Assessment, comparative risk assessment, and systems analysis. These and other methods are summarized in the Glossary. Each technical method is uniquely suited for use in different kinds of projects or in evaluating different kinds of issues. A detailed description of Rapid Urban Environmental Assessment can be found in Appendix 2 and a description of a Participatory Comparative Risk Assessment process can be found in Appendix 3.

Linking Participant and Technical Assessment Processes

The key to a successful community-based assessment process is to link together the use of participant assessment exercises and expert technical assessments. Specifically, an assessment process should be organized in such a way that: 1) stakeholders participate in the technical assessments; and 2) the findings of the technical assessments are provided as final input into the participant assessment process. In this way, the full assessment exercise can be used to educate residents and stakeholders. Technical findings can be used to validate participant observation and knowledge, and vice versa.

> Technical assessment methods will need to be modified to permit extensive stakeholder involvement in the process.

In order to implement such a community-based process, technical assessment methods will need to be modified to permit extensive stakeholder involvement in the process. This will require the training of stakeholders as well as the provision of an appropriate time schedule for the completion of the assessment. Contrary to common assumptions, it is possible to use technical assessment methods and tools within the context of a participant assessment exercise. This is illustrated in the case of the Greenpoint-Williamsburg community in New York City, USA (Case #7), where residents use a Geographic Information System (GIS) and Comparative Risk Assessment to undertake a community-wide analysis of environmental risks.

Assuring Analysis of Systemic Problems and Creating Baseline Data

Until now, this chapter has emphasized the importance and implications of a community-based approach to assessment. In order for such an approach to have a long-term or strategic impact, two other factors must be built into the assessment process. First, the assessment process should assure that the systemic nature of issues and problems is clearly understood. Second, the assessment process should be designed to produce baseline data that can be used in future years to evaluate changing conditions and progress towards the achievement of the Action Plan and its targets.

Effective sustainable development planning requires that the issue analysis process, and the assessment methods it employs, will

provide detailed insight into the systemic nature of local problems and service issues. Traditional municipal management and environmental planning usually focus on the assessment and alleviation of problem symptoms. Programs can be established to temporarily mitigate symptoms, but since the symptoms usually are the result of systemic problems, the symptoms eventually reappear. For example, traffic congestion is a symptom of a faulty transportation system. Municipal traffic managers use a variety of measures to alleviate congestion symptoms, such as the installation of traffic lights or increasing road capacity. However, the congestion problems of most cities are usually only resolved when the transportation system is reassessed and redesigned to use new transportation modes (such as mass transit) and practices (such as reformed land use patterns).

As argued in chapter 1, the key distinction between sustainable development planning and traditional environment management is that sustainable development planning 1) factors in the systemic relationships between economic, community, and environmental issues and 2) considers the long-term, systemic sustainability of different action strategies. Appendix 1 provides a summary of different methods that can be used to generate a systemic analysis of issues during the community-based issue analysis process.

> Finally, the issue analysis process should accurately measure key baseline conditions. Baseline data is essential not only to understand current conditions, but also to monitor changes in those conditions as the action strategies are implemented.

Finally, effective action planning requires that the issue analysis process provides an accurate measurement of the key baseline conditions related to each issue to be addressed in the Action Plan. Baseline data is essential not only to understand current conditions, but to monitor changes in those conditions as the action strategies are implemented in future years.

> The assessment process should look beyond problem symptoms to understand the systemic problems that produce these symptoms.

A standard protocol needs to be established for measuring the baseline conditions in each issue area, using the same methods from year to year so that comparable data can be established to monitor changes and progress towards targets. Without such baseline data, evaluations of the success of an action plan and related municipal programs are usually made on an anecdotal basis. This can easily cause confusion, since opposing parties can always find positive and negative anecdotes for most situations.

3.1.4 COMPLETE THE ISSUE ANALYSIS

Completing the issue analysis process requires that the target groups and communities, and ultimately the Stakeholder Group and its Working Groups, are engaged in the evaluation of technical assessments and the discussion of technical findings during the final stages of their participant assessment exercises. Through such an integrated analysis of both technical information and popular experience and knowledge, the interrelationships and interdependencies between issues can be revealed, further enabling people to determine underlying systemic problems that need to be addressed.

Different tools will be required to present technical findings to different groups and communities. Tools used for the presentation of information can range from workshops to puppet theaters to geographic information systems. Methods for analyzing information range from structured activities such as force field analysis to expert papers and popular education activities, such as role playing and theater.

After review and discussion of technical assessment findings, a final report on the community-based issue analysis findings should be prepared. Ideally, the Stakeholder Group should determine at the beginning of the issue analysis process how all the information that is collected and reviewed will be processed into a consensus report about the relevant issues. This report should:

- **thoroughly describe the findings of the participant and technical assessments;**
- **present baseline data about relevant conditions that should be monitored in the future;**
- **identify areas of disagreement or issues that require further assessment; and**
- **present any proposals or options for action that should be considered in the action planning process.**

CHECKLIST 2

COMMUNITY-BASED ISSUE ANALYSIS

Decide what level of participation will be facilitated in the issue analysis process—stakeholder representation or direct participation?

Determine what target communities and target groups will be recruited to participate in the process.

Inform the target communities and groups about the issue analysis process.

With the target communities/groups, decide what specific issues will be analyzed.

Select methods and tools for the participant assessment of the chosen issues.

Select methods and tools for the technical assessment of the chosen issues.

Modify the selected technical assessment methods to permit stakeholder involvement in the technical assessment exercise.

Review assessment methods to ensure that they support the analysis of systemic problems.

Establish baseline data on key conditions.

Present the findings of technical assessments to the issue analysis participants before the conclusion of the participant assessment exercises.

Identify any issues that require further assessment.

Identify any proposals or options for action that should be considered in the action planning process.

Prepare the final issue analysis report.

3.2 Appendixes

3.2.1 APPENDIX 1
PARTICIPATORY SYSTEMS ANALYSIS

Description

One of the shortcomings of traditional environmental assessment methodologies, such as State of the Environment Reporting, is the

tendency to focus on symptomatic conditions within the community, such as levels of air pollution or public health conditions. These methodologies do not necessarily provide insight into the systemic issues that underlie and reproduce problem conditions. Planning efforts aimed at long-term solutions and sustainability must somehow analyze and address the systemic aspects of problems.

Sustainable development planning, therefore, should provide a framework for stakeholders to identify and analyze systemic problems. This framework can be referred to as "systems analysis."

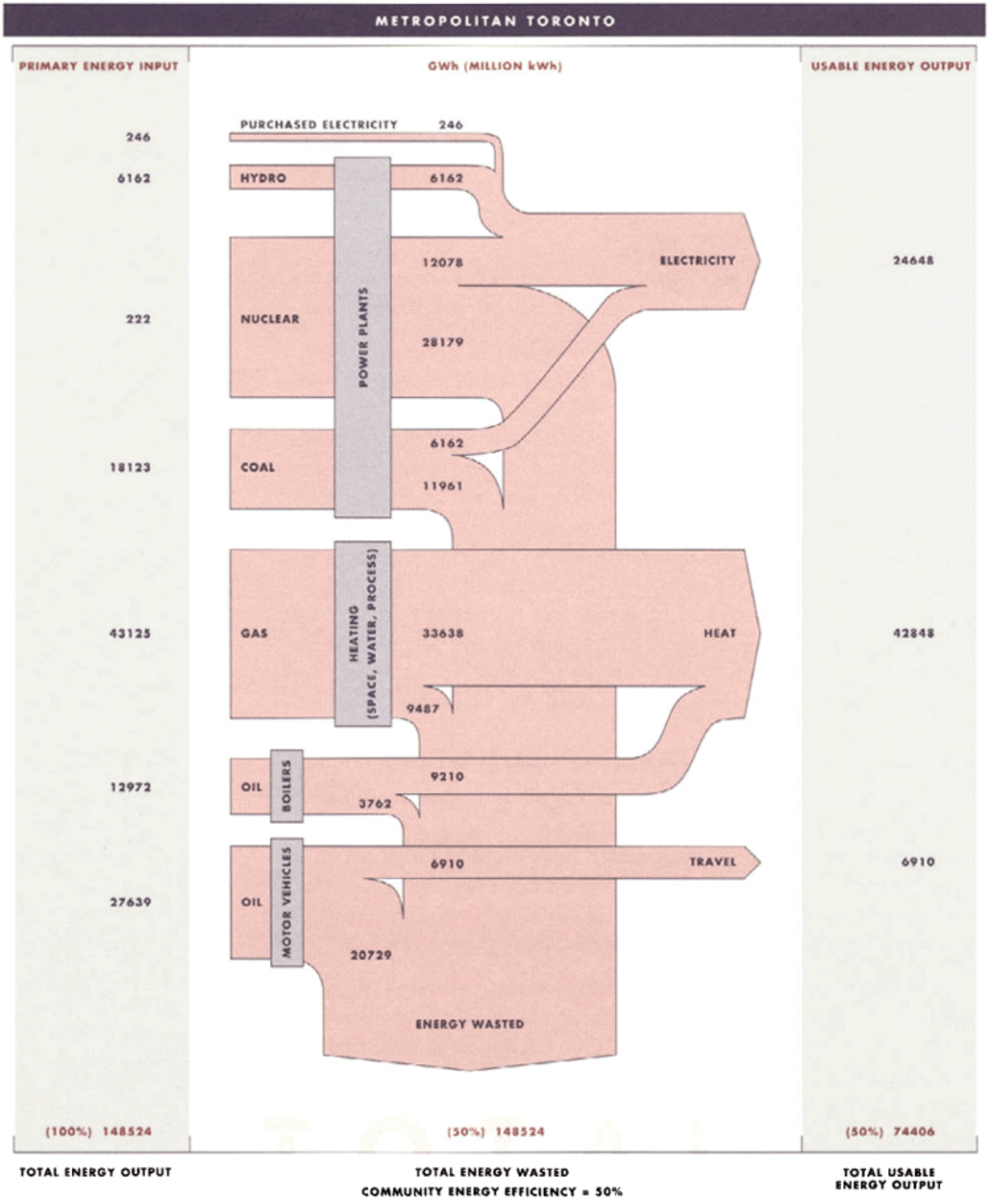
Systems analysis provides insight into the functioning of the systems upon which services depend. It does so by focusing on the interdependent nature of the natural, built, social, and economic systems that support a community or a particular service system. For example, a municipality that wishes to sustain its water supply will require more than simple baseline data about water levels and water quality in a reservoir. It must understand the complex functioning of the entire watershed system, including such things as the function of forests and wetlands in the system, and the impacts of irrigation, land prices, and even external terms of trade upon the watershed. By shifting the focus of assessment to the understanding of systems that are being developed or changed, systems analysis helps planners address the long-term ability of a community to meet its needs.

Methods: Technical versus Participant Assessment

Technical assessment methods for systems analysis are widely used today in the fields of industrial and civil engineering, the biological sciences, and in management science. The fields of urban studies and planning have also made limited use of these methods. Case #8 describes how the City of Gothenburg, Sweden, is beginning to use technical assessment methods for systems analysis in its local environmental programs.

Systems analysis is increasingly being used to study the sources, uses, and flows of natural resources in cities, as illustrated in Figure 10. Figure 10 depicts the "energy system" for the Helsinki Metropolitan Area, Finland, including the sources and quantities of different fuels, how they are processed and used, and the efficiency of their use. The total efficiency of the metropolitan energy system—including electricity generation, heating,

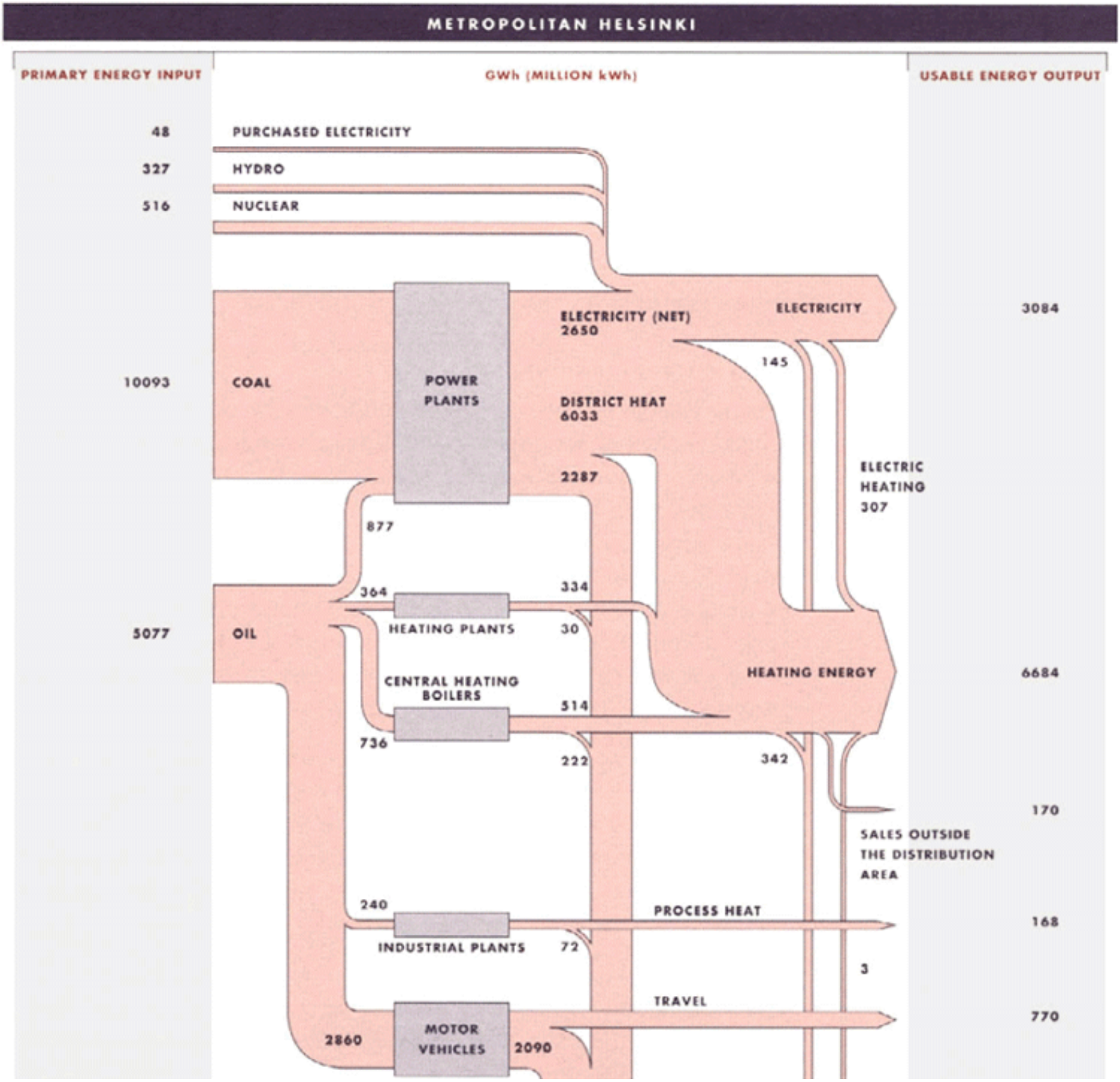
FIGURE 10 **MATERIALS FLOW ANALYSIS Understanding the Energy Systems of Metropolitan Helsinki and Metropolitan Toronto (1988)**

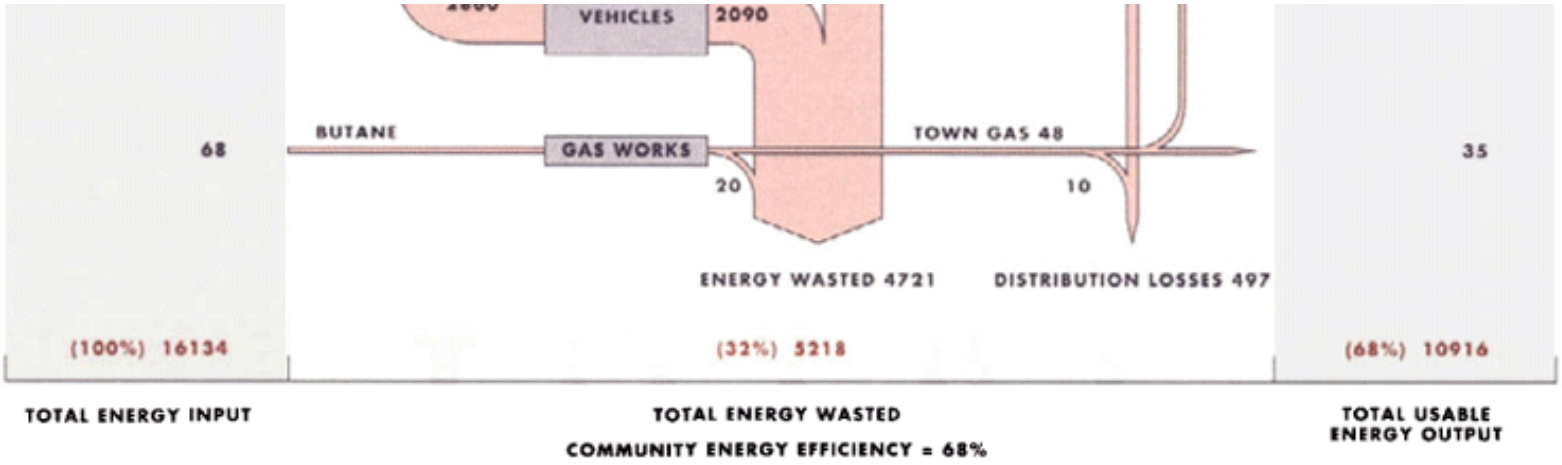

METROPOLITAN TORONTO
PRIMARY ENERGY INPUT
GWh (MILLION kWh)
USABLE ENERGY OUTPUT
246
PURCHASED ELECTRICITY
246
6162
HYDRO
6162
12078
ELECTRICITY
24648
222
NUCLEAR
28179
POWER PLANTS
6162
18123
COAL
11961
43125
GAS
HEATING (SPACE, WATER, PROCESS)
33638
HEAT
42848
9487
12972
OIL
BOILERS
9210
3762
6910
TRAVEL
6910
27639
OIL
MOTOR VEHICLES
20729
ENERGY WASTED
(100%) 148524
(50%) 148524
(50%) 74406
TOTAL ENERGY OUTPUT
TOTAL ENERGY WASTED
COMMUNITY ENERGY EFFICIENCY = 50%
TOTAL USABLE ENERGY OUTPUT

Source: Metropolitan Toronto Council

These figures use materials flow analysis or “balancing” to technically illustrate the “energy systems” of two cold-climate municipalities, Helsinki, Finland, and Toronto, Canada. Each analysis determines the sources of energy, the different uses of energy, the processes of energy use, and the different types of energy waste in each municipality. Through such analysis the total efficiency of each energy system can be calculated. The major sources of waste or inefficiency can be identified so that the energy system can be modified to make use of these resources and become more economically and environmentally sustainable.

A comparison of the two municipalities reveals that Helsinki significantly improved its efficiency by using the waste heat that is produced by local coal power plants to warm 90% of the buildings and homes in Helsinki. Further analysis has demonstrated that Helsinki’s energy system was able to achieve its overall level of 68% efficiency because the city’s compact land-use pattern made investments in energy-saving infrastructure, such as district heating and public transit, economically viable.





Source: Helsinki Metropolitan Area Council

industry, and transportation—is presented at the bottom of the figure. The findings of this technical assessment allow managers in Helsinki to identify and then address waste and inefficiencies in the energy system to make it more sustainable. This figure shows that the Helsinki Metropolitan Area has vastly improved the efficiency of its energy system by using waste heat from the electricity generation process in the city's district heating system.

The technical methods used in systems analysis require access to extensive, detailed data, a high-level of technical expertise, computer equipment, and considerable time. Although they can provide invaluable information, they may not yet be appropriate or effective for community-based planning in most cities and towns. Nevertheless, the concept of systems is still indispensable to successful planning for sustainability. For this reason, a participatory planning exercise called "service issues mapping" and a participant assessment method called "networked assessment" are recommended in sustainable development planning.

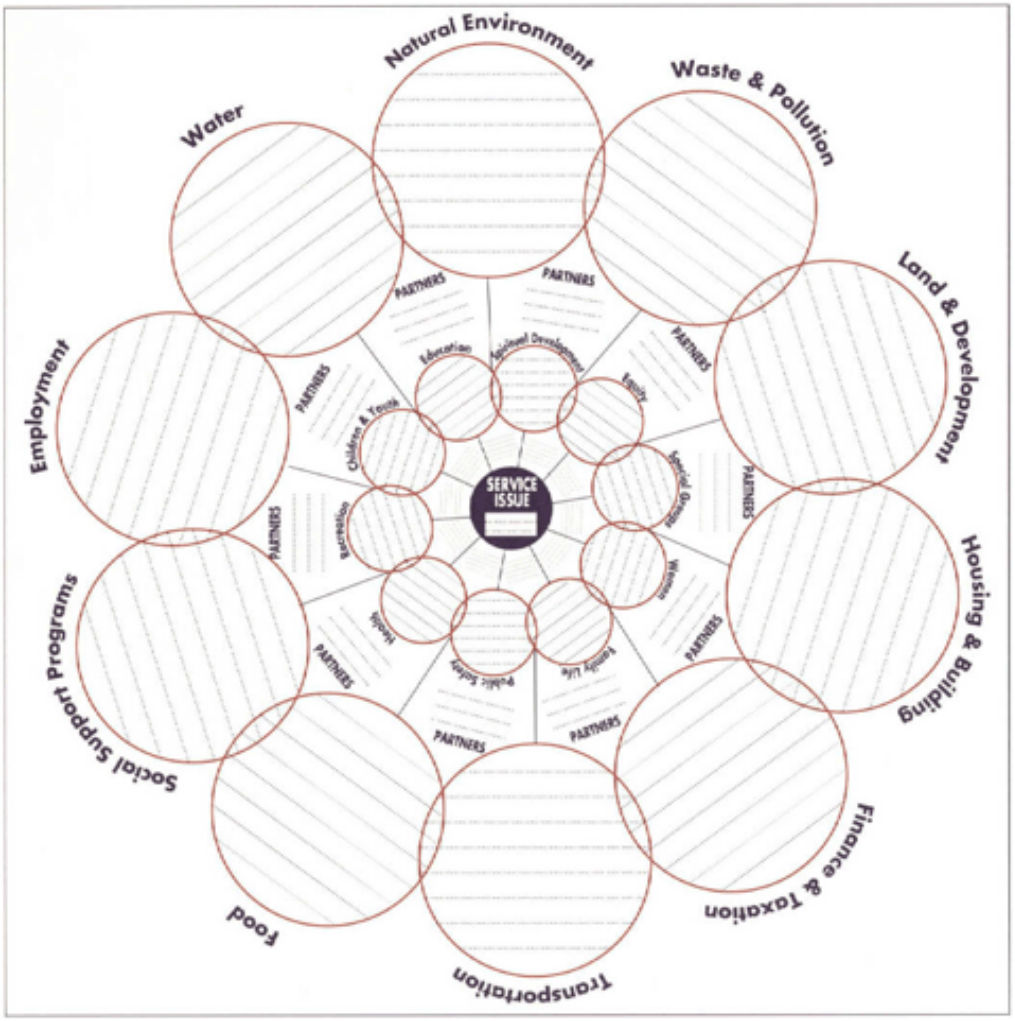
Service Issues Mapping

Systems analysis begins with a common understanding of the system that is being addressed, the issues confronting that system, and how it can be sustained. Service issues mapping is an exercise which combines concepts of systems analysis with simple community-based mapping techniques. Mapping has been used in the field of development planning over the past decades as a tool for engaging local residents in sharing and discussing information about their local conditions. The mapping process creates a "map" to guide and focus group analysis of issues and problems. Maps can be constructed by a group for a physical area, a neighborhood, family relations, a series of issues, or a natural, built, or service system.

Service issues mapping is a group brainstorming and analysis technique to help stakeholders identify the full range of issues that must be considered in order to address a single priority service issue. In addition, the tool is useful to identify the different stakeholders who need to be involved in the performance of a more comprehensive assessment of a service issue: "networked assessment."

The steps used in a service issues mapping exercise are presented in Worksheet 2. In a small group setting, stakeholders from different sectoral and issue backgrounds work together to analyze the relationships among a priority service issue and the other issues facing their community. The facilitator of the exercise uses the Worksheet to list the issues that are identified by the stakeholders as being connected to the solution of the priority service issue. These "connecting issues" are then presented to participant and technical assessment teams to be addressed during their assessment exercises.

WORKSHEET 2 **SERVICE ISSUES MAP**



Key Service Issues

Instructions on back

WORKSHEET 2 STEPS FOR USING THE SERVICE ISSUES MAP

1. Select the priority service issue to be addressed in the exercise. For example, a priority issue could be “how to provide affordable housing.”

2. Select an appropriately skilled facilitator to guide the exercise. Also identify another person who can take notes on flip charts or chalk boards during the exercise.

3. Convene a group of stakeholders representing the diverse interests shown in the service issues map. The mapping exercise requires one to two hours.

4. Write the priority issue in the center of the Service Issues Map. It is best to phrase the issue as an action objective such as “provision of affordable housing.”

5. Brainstorm on the relationship between the priority issue and the other issues identified on the map. For example, ask “what is the relationship between finance and taxation and the provision of affordable housing?” Repeat this for each of the issue areas, one at a time. In other words, for each of the different issue areas identified on the map, the participants are asked, ”How does this issue area relate to the objective of providing affordable housing?” or “Why would an organization responsible for this issue area have an interest in the objective of providing affordable housing?”

The answers—called “connecting issues”—are written in the respective circles. The names of any organizations or individuals who can give further information about these connecting issues are written in the spaces labeled “partners.” These ideas can also be written on the flip charts or boards. (Worksheet 4 is provided to make a list of “partners” to be contacted in the next step of developing an assessment network.)

6. Each time an answer is given in #5 above, a new question is asked: “What further questions need to be answered in order

to understand the connection between the priority issue and the connecting issue that was just identified?" These questions are recorded in the right hand column and are used to guide the research in a networked assessment of the issue or system.

7. Participants are organized into an assessment network consisting of Working Groups that collect information (with or without technical assistance) to answer the questions identified in #6 above. The Working Groups are organized on the basis of connecting issues that need to be better understood, such as "Housing, Land Development, and Transportation" or "Social Support Programs, Recreation, and Health." Each Working Group collects and analyzes data related to its issue, and identifies the sources of further information, the regularity of data availability, and the gaps in data availability. The Working Groups can also be asked to prepare preliminary assessment reports.

8. After technical research is completed and final Working Group reports are made to the whole group in a future meeting, discussions are facilitated to develop a consensus analysis on the key issues that must be addressed to "provide afford-able housing." A final system map can also then be created to illustrate the chain of issues that are relevant to the priority issue of concern.

This exercise can be organized to either constitute a full assessment procedure or can be used as a preliminary exercise to scope out the key issues and terms of reference for a more formal technical assessment procedure.

A completed service issues map can be used by stakeholders throughout the process of issue analysis and action planning. The preliminary map can be prepared based on the issues identified on the Worksheet during the mapping exercise. This map can be upgraded after further technical research on these issues is completed. The map helps stakeholders to remember the different systemic issues that must be considered when preparing action plans.

Networked Assessment

Networked assessment is an organizational approach used to involve stakeholders in the technical assessment of systemic issues. The networked assessment approach can be used in conjunction with a variety of technical assessment methods and with communities of all development backgrounds.

BOX C:
Systems Analysis: Technical Methods

There are four primary technical methods of systems analysis that are presently applied in local planning. These are: materials flow analysis or "balancing," carrying capacity analysis, system diagramming, and system modelling.

The Helsinki (Fig. 10) and Gothenburg (Case #9) cases are examples of materials flow analysis. They are helpful to quantify the different end uses and waste streams of a resource, and to identify possible ways that a resource could be more efficiently used or recycled within the community. This method focuses heavily upon the biophysical dynamics of a system and often overlooks their relation to social and economic activities.

Carrying capacity analysis is used to determine the operating limits of a particular system—be it a natural ecosystem or an infrastructure system—beyond which it is seriously damaged or becomes dysfunctional. This analysis requires separate assessments of the different pressures or "loads" on the system and the possible response to these cumulative pressures.

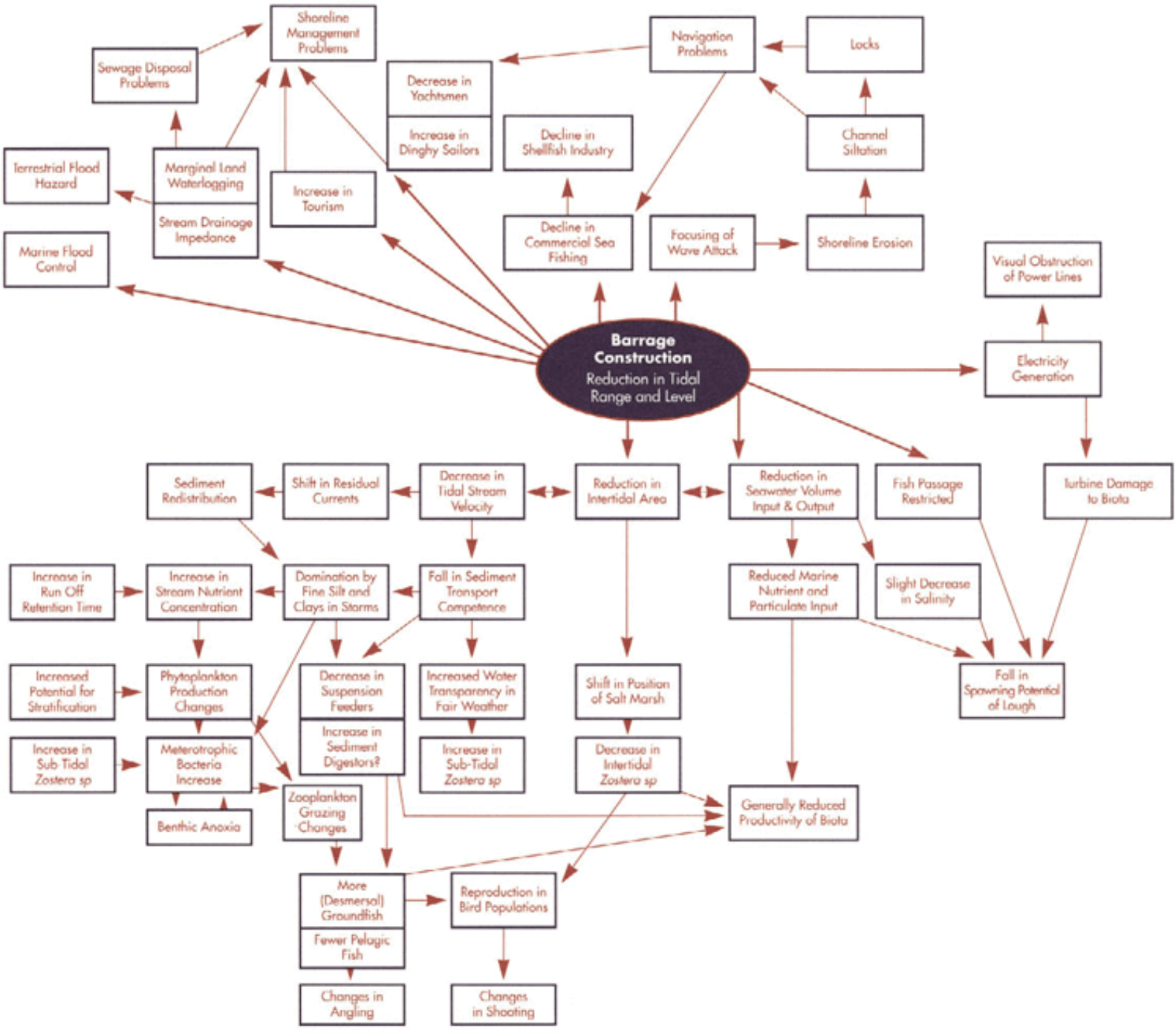
Recently the methodology for "ecological footprinting" has been developed to assess the sustainability of current human activities by estimating a city's or household's total appropriation of the Earth's ecological carrying capacity. The methodology estimates the resource consumption and waste assimilation requirements of a defined human population or economy in terms of a corresponding productive land area. This land area is then compared with the average per capital and area available on the planet in order to evaluate the sustainability of local lifestyles and identify activity areas that require change.

System diagramming produces a basic tool for planning: a diagram of the diverse components of a particular system and their interactions. Figure 11 is an example of a system diagram that illustrates the complex impacts resulting from an infrastructure project.

System modelling represents the next level of complexity in systems analysis. Building from a system diagram and information from carrying capacity and materials flow analysis, a model attempts to indicate the causal relationships between the components of

a system. Figure 12 represents a simple systems model. A plus sign (+) indicates a positive impact resulting from increased recreotional activity and a minus sign (–) indicates a negative impact resulting from increased recreational activity. A more complex system model uses statistical analysis to assign mathematical values or coefficients to each causal relationship. These models are constructed for their predictive value. Due to the complexities of causal relationships and data problems, these models may be far less accurate in making predictions than the collective wisdom of people who have observed causes and effects over a period of many generations.

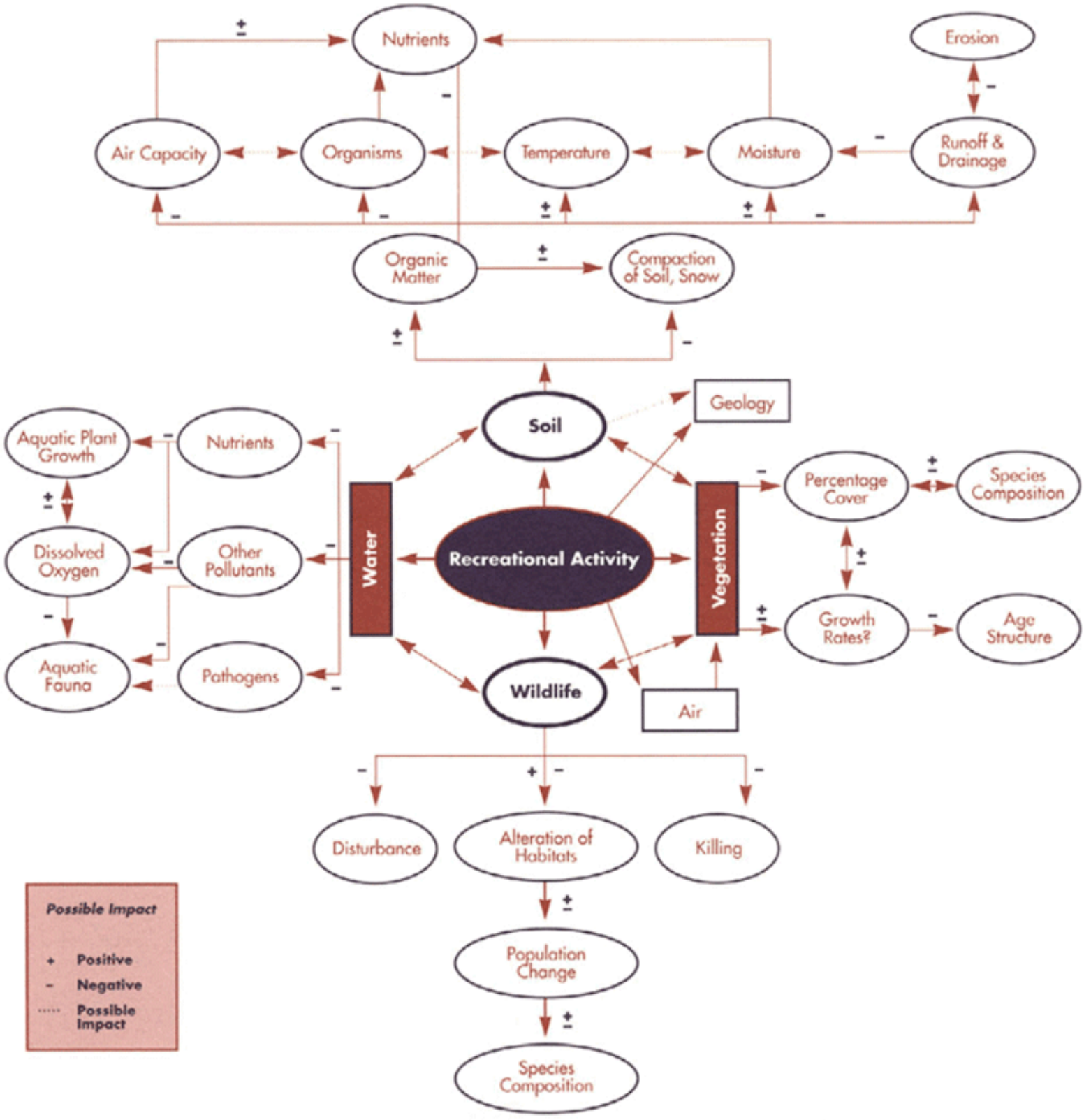
FIGURE 11 **SYSTEM DIAGRAM ILLUSTRATING ENVIRONMENTAL IMPACTS OF AN INFRASTRUCTURE PROJECT**



Source: R. Carter and P.J. Newbould, “Environmental impact assessment of the Strangford Lough tidal power barrage scheme in Northern Ireland” in ***Water Science and Technology 18,*** 1984, 455–62.

FIGURE 12 **SYSTEMS MODEL FOR RECREATIONAL ACTIVITIES**

This diagram depicts how recreational activities can affect the host systems: soil, water, vegetation, and (animal) wildlife. There are probably more linkages between the soil and the other systems that this type of diagram can portray.



Source: A. Mathieson and G. Wall. Tourism: *Economic, Physical and Social Impact.* London and New York: Longmans, 1982.

The basic premise of networked assessment is that the conditions and dynamics of a system can be better understood if the technical assessment itself is executed by those parties or people who have distinct interests in and day-to-day knowledge of the different components of the system. A network of these informed stakeholders—service investors, providers, users, and other impacted parties

—is organized to participate, with the help of experts, in the use of a traditional technical assessment method, such as State of the Environment Reporting or Environmental Impact Assessment. An assessment network is organized to help collect, compile, and review baseline and trend data, using techniques that are appropriate for the group. Technical methods can be used to analyze the operating efficiencies, balances, system capacities, and other technical issues identified in the meetings of the assessment network. The findings from the use of technical methods can then be reviewed by the assessment network to validate them against people's day-to-day experiences.

After the assessment is completed, the assessment network can prepare a report with information about key system components, conditions, and trends, and present this report to members of the Stakeholder Group for their review and verification.

One of the practical benefits of involving stakeholders in data collection and analysis is that new sources of information can be tapped and technical assessment costs can be reduced.

Case #8 describes how Lancashire County, UK, used a networked assessment approach to produce their first Lancashire Environmental Audit. The networked assessment approach involves the following six steps:

1. Select the key issues, problems, or systems to be assessed.

2. Use service issues mapping to identify the connections among different service issues. This exercise also helps to identify the people and institutions who would be concerned with the issues. (Worksheet 2 describes the service issues mapping exercise.)

3. Based on the above identification of concerned stakeholders, a series of interviews or meetings is organized with the stakeholders to discuss each issue in depth. The primary purpose of these interviews is to clarify which issues require further technical research and analysis, and to determine what information each stakeholder can provide to further analyze these issues. These meetings can be used to recruit participants to join the assessment network that will perform the technical assessment.

4. The assessment network is typically organized into working groups that collect the information that is necessary to research each of the key issues identified through service issues mapping. Typically, the working groups are organized on the basis of multiple, connecting issues such as "Housing, Land Development, and Transportation" or "Water Management, Health, and Social Support Programs." The assessment network coordinates the research of these working groups to make sure that they share information and insights.

5. As the process proceeds, data from the different working groups are compiled and submitted to the assessment network members for further review, analysis, and comment. This can be done through a series of facilitated meetings. These meetings aim to highlight the fundamental systemic concerns that must be addressed through a technical assessment. Tools such as SWOT, force field analysis, interpretive brainstorming, and interaction matrices can be used for this purpose. Worksheet 3 provides a "Connectivity Matrix" which can be used to rank the identified community problems and service issues according to their systemic importance and connect problem symptoms to long-term system deficiencies and needs. These rankings can be used to focus the technical assessments.

6. After ample preliminary research and discussion, the assessment network prepares the terms of reference for the identified technical assessment(s). As the technical assessments proceed, the findings are presented to the assessment network or relevant working groups for discussion and validation. Ultimately, the findings and conclusions of the assessment network and the technical assessment professionals are integrated together and presented to a wider audience of stakeholders (the Stakeholder Group). After a review of the findings and options presented for action, the Stakeholder Group can begin work on the preparation of an action plan to address the service issue.

WORKSHEET 3 **THE CONNECTIVITY MATRIX**

Key Systems *(Environmental, Social, Infrastructure)*	**Priority Service Issues and Problems (Symptoms)**					
HOW TO USE THIS MATRIX: 1. Estimate the magnitude or significance of the relationship between each problem (symptom) and each system on a scale of 1–10. Indicate a positive (+) or negative (–) relationship. Total all rows and columns.	TOTAL SYSTEM SIGNIFICANCE	Waterborne diseases	Lack of recreational spaces	Flooding	Irregular waste collection	Industrial pollution
River X Watershed System	29-	10-	1+	6-	4-	10-
Regional Health System	32-	10-	2-	6-	6-	8-
Regional Transportation System	10-	1-	1-	7-	1-	0
Regional Solid Waste Management System	20-	3-	0	4-	7-	6-
Drainage and Sewerage System	31-	10-	0	6-	7-	8-
Educational System	13-	5-	3-	2-	0-	3-
Family/Neighborhood System	28-	5-	7-	8-	5-	3-
TOTAL SYSTEMIC SIGNIFICANCE	X	44-	12-	39-	30-	38-

Key Systems (Environmental, Social, Infrastructure)	Priority Service Issues and Problems (Symptoms)	
HOW TO USE THIS MATRIX: 1. Estimate the magnitude or significance of the relationship between each problem (symptom) and each system on a scale of 1–10. Indicate a positive (+) or negative (–) relationship. Total all rows and columns.	TOTAL SYSTEM SIGNIFICANCE	
TOTAL SYSTEMIC SIGNIFICANCE	X	

Instructions on back

WORKSHEET 3 THE CONNECTIVITY MATRIX

Matrices are a common tool used in the field of environmental impact assessment (EIA) to identify the impacts and interactions between local development activities and different environmental components. EIA matrices range in sophistication from simple checklists to complex exercises that estimate the magnitude of different component interactions.

The Connectivity Matrix has been developed by ICLEI to assist working groups or stakeholder meetings in identifying the connections between a community's major service issues or problems and the key systems upon which the community depends. By ranking these connections or relationships, the matrix can be used to prioritize issues and to identify systemic problems that require in-depth technical assessments.

In order to use the Connectivity Matrix, list the priority service issues or problems that have been identified in stakeholder meetings, surveys, and other issue analysis activities on the top, horizontal axis. List the key environmental, social, and built (i.e., infrastructure) systems on the left, vertical axis.

For each cell in the matrix estimate, on a scale of one to ten, the magnitude or significance of the direct relationship between each problem (symptom) and each system. In a group setting, ask the group to discuss the following question:

- What is the magnitude or significance of the direct relationship between problem X and system Y?

  Those instances where the direct relationship is very strong or significant will get a high score. Those where the direct relationship is weak or insignificant will get a low score.

Indicate whether the relationship is positive (+) or negative (-) in answer to the questions:

- Does the existence of problem X demonstrate the strength or weakness of system Y?

• Does problem X strengthen or weaken system Y?"

Once a score is indicated in each cell, total these scores along both the vertical and horizontal axes. The vertical totals— the "total system significance"—indicates the extent to which each system is important to the solution of the identified priority issues and problems. Those systems with the greatest negative totals (i. e. -44 is a greater negative than -12) should be given priority attention.

The horizontal totals—the "total symptom significance"—indicates the extent to which each issue or problem is impacting upon the systemic health of the community. Although these issues may not be seen as the most urgent issues facing the community, their solution is fundamental to the long-term health of the community and they should be given immediate attention.

3.2.2 APPENDIX 2
RAPID URBAN ENVIRONMENTAL ASSESSMENT (RUEA)

Background

Rapid Urban Environmental Assessment (RUEA) is an environmental auditing methodology developed by the World Bank/UNDP/ UNCHS Urban Management Programme. The methodology has been employed on a test basis in six cities: Accra, Jakarta, Tunis, Katowice, Sâo Paulo, and Tianjin, as well as the urbanizing area of Singrauli, India.

The objective of RUEA is to "enable local (city-based) experts to rapidly assess the state of the urban environment" as input into a "strategic urban environmental management process" that includes the development of an environmental management strategy and the implementation of an environmental action plan.

The RUEA methodology has three main components:

1. completion of an environmental data questionnaire;
2. preparation of an urban environmental profile; and
3. validation of the questionnaire and profile through public consultation.

Environmental Data Questionnaire

An environmental data questionnaire has been prepared by the Urban Management Programme with the objective of measuring a consistent set of data that is cross-sectoral and cross-media in nature, and that provide a comprehensive picture of existing conditions. The questionnaire is designed to rapidly collect data from existing sources. An outline of the environmental data questionnaire can be found in Figure 13. Full versions of this questionnaire are available from the Urban Management Programme in hard copy and on diskette in English, French, and Spanish.

The questionnaire covers the following categories of information:

- **baseline social and economic statistics;**
- **baseline housing conditions;**
- **baseline health conditions;**
- **the natural environment;**

- **land use;**
- **urban transportation;**
- **urban energy use;**

FIGURE 13 **RAPID URBAN ENVIRONMENTAL ASSESSMENT**
Outline for an Environmental Data Questionnaire

OUTLINE FOR AN ENVIRONMENTAL DATA QUESTIONNAIRE

1.	**Socioeconomic Background**	urban population, demographics, income and poverty, employment, municipal services, municipal expenditures
2.	**Housing Conditions**	ownership, facilities, size, marginal units
3.	**Health Conditions**	basic statistics, mortality rates
4.	**Natural Environment**	location, ecosystem type, meteorological data, dispersion conditions, topography, environmental hazards
5.	**Land Use**	urban land use, newly incorporated urban land, land ownership, land registration, land use regulation, land market
6.	**Urban Transport**	basic statistics, vehicle stocks, motorized travel by mode, emissions, injuries from accidents, passenger car restrictions
7	**Energy Use**	annual gross energy consumption, emissions from combustion, interconnected electricity grid, in-city electricity utility, urban electricity self-generation, household energy consumption, other indicators, energy pricing
8.	**Air Pollution**	emissions intensity, emissions control, policy implementation, ambient concentrations, monitoring, environmental health
9.	**Noise Pollution**	noise levels, noise pollution control
10.	**Water and Sanitation**	water resources, ground water abstraction problems, future resources, water supply, water delivery, household sanitation installations, drainage network coverage, sewage flow rates, sewage treatment plants, sewage disposal, industrial effluents, water pollution policy instruments, water quality monitoring, monitoring
11.	**Solid and Hazardous Wastes**	total solid wastes generated, municipal solid wastes, disposal of municipal solid wastes, municipal expenditures for solid waste management, dump sites, hazardous waste facilities, hazardous waste policies being implemented

- **air pollution;**
- **noise pollution;**
- **water resources, water supply, and sewerage/sanitation; and**
- **solid and hazardous waste**

Data for this questionnaire are to be collected at three spatial levels: the city proper, the metropolitan area, and the urban

conglomeration. Collection and collation of data is expected to be performed by a local expert who is familiar with sources and institutions.

Urban Environmental Profile

Using data collected for the questionnaire, the hired expert or team prepares an urban environmental profile to "analyze the nature, trends, and factors that influence environmental quality" in the city. The environmental profile provides background information on the historical, geographical, and socioeconomic aspects of urban development. An environmental status section summarizes available information on the quality of the various environmental media (air, water, land, etc.) and on key natural hazards, such as erosion, flooding, etc. A third section aims to analyze "how development-oriented activities and services in the public, private, and informal sectors influence environmental quality and how environmental factors constrain or promote development." No specific methodology is provided for identifying or determining these interactions. Finally, a fourth section focuses on the key institutional actors engaged in environmental management, the initiatives they have underway, and the constraints they face in improving environmental conditions.

In addition to data from the questionnaire, the researchers or staff who prepare the profile are expected to review existing reports and hold interviews with key actors and experts. A variety of analytical tools are employed to interpret information for the environmental profiles, including spatial analysis, review of survey data, institutional analysis, map overlay analysis, preparation of energy balances, trend analysis, and long-run marginal cost pricing.

Public Consultation

Following the completion of the environmental profile, a series of public consultations are organized to "allow for public dialogue on environmental priorities and options as well as to partially validate the results of the questionnaire and profile through public discussion." Consultations take the form of interviews with institutional leaders, small group meetings, and large, open public forums. One of the primary objectives of the consultations is to identify priority environmental issues that will be the further focus of planning.

The Urban Management Programme defines key stakeholders for participation in consultations as:

- **parties whose interests are affected by environmental degradation (NGOs, community leaders, municipal officials);**
- **parties who possess information and expertise that can be used in addressing environmental problems (academics, research institutes, etc.); and**
- **parties who control the relevant instruments for environmental management, and who can solve problems through their institutions (local, regional, and national government officials, private sector representatives, community organizations, etc.).**

The recommended consultation process involves:

- **informing the stakeholders about the process;**
- **giving them a defined role;**
- **providing a sense of common ownership; and**
- **offering support for their participation.**

Once stakeholders are identified and informed, a two-stage process of consultation is implemented. First, a variety of small group meetings, focus groups, small round table discussions, and interviews are held with the different stakeholders. The second stage is the organization of a public forum that brings together representatives from all of these groups. The primary purpose of the forum is to reach a consensus on priorities and to develop political momentum for action.

In practice, the actual consultation methods varied from city to city, based on local institutional and cultural traditions. In Accra, Jakarta, Katowice, and Sao Paulo, the above-described process was more or less followed. In addition to the priority-setting and political-momentum objectives mentioned above, the consultations worked to obtain feedback on the draft profiles and questionnaires and to obtain further information. In Accra, a special questionnaire was completed by 33 public and private organizations to identify priorities and to define "a vision of the city in the year 2010." Multi-stakeholder thematic meetings were also held, focusing specifically on water, housing, and air quality issues.

Conclusions

The RUEA process has been found to be an efficient and relatively low-cost method, due to the access of local experts to local information. The local costs for research, writing, and organization ranged from US$16,000 in Accra to US$27,000 in Jakarta.

The questionnaire and profile outlines provide useful checklists to use in developing audits. The questionnaire is particularly sensitive to the different and interrelated issues of environmental management on the levels of the city, the metropolitan area, and the urban agglomeration. It facilitated the collection of an extensive amount of data from multiple sources. While the process of consultation used in preparing and reviewing the environmental profile did draw together the diverse conclusions and opinions of key stakeholders about problems, no specific methods were established to ensure that systemic problems and complex cross-sectoral issues could be clarified. According to the Urban Management Programme, the methodology generates purely descriptive information. It provides some guidance as to what might be a priority problem, but little or no indication as to what might constitute the range of possible solutions. The approach relies on existing sources of information. Results are confined by the range and quality of work that has already been done. The reverse side of this coin is that the methodology identifies gaps in knowledge.

The principal drawback of the profile is that it is a static document. Each profile has a relatively short lifespan, and no provisions have been made to institutionalize the updating of the profile.

Finally, while the results of the consultations and the priority-setting exercises were not linked to any formal planning or decision-making processes, the results of the REUAs were used by the municipalities to support existing or new projects. Nevertheless, the engagement of local stakeholders at the end of the assessment process, while contributing to speed, may well sacrifice in-depth stakeholder analysis and ownership of the process. Stakeholders were used to provide and validate information, but were not engaged as partners in developing and, ultimately, implementing solutions.

References

Leitmann, Joseph. *Rapid Urban Environmental Assessment: Lessons from Cities in the Developing World, Volumes 1 and 2.* Washington, DC: The World Bank, 1993.

This summary also relies upon discussions with persons involved in the trial use of the methodology. All quotes are drawn from the above publication.

Contact

This publication and copies of the questionnaire can be obtained by contacting the Urban Management Programme Coordinator (at UNCHS in Nairobi, Kenya. Tel.: +254-2/623218; Fax:+254-2/624264,6) or a regional UMP office. Materials are also available from The World Bank, Urban Development Division. Tel.:+1-202/473-1015; Fax: +1-202/522-3232.

3.2.3 APPENDIX 3.
RISK-BASED PRIORITY SETTING AND COMPARATIVE RISK ASSESSMENT

Description

Risk-based priority setting uses information about potential and actual harm caused by environmental threats to inform the environmental decision-making process in a community. Risk-based priority setting involves a series of steps in which a number of specific tools are applied.

Comparative Risk Assessment (CRA) is the central method used in risk-based priority setting. CRA uses the conceptual and methodological framework of environmental risk assessment to estimate and compare the human, health, ecological, and quality-of-life impacts of different environmental threats in a given community. The ranking of environmental threats generated through CRA are used to guide decision making regarding environmental priority-setting, action strategy development, resource allocation, and environmental monitoring.

Risk-based priority setting considers risk analysis and priority setting to be distinct steps in the priority-setting process. The risk-analysis step involves the collection and analysis of quantitative data on impacts and the use of probability and statistical methods to quantify and rank different risks. This information informs the priority-setting step. Priority setting involves the presentation of quantitative risk assessments to stakeholders and the qualitative evaluation of this information to select priorities based on both risk and non-risk factors.

Background

Comparative risk projects evolved out of the work of the US Environmental Protection Agency (EPA), following the release of a 1987 publication entitled *Unfinished Business,* in which an assessment of 35 environmental threats revealed discrepancies between the urgency of these threats (measured as risk) and the money being spent on them. Based on the findings of this report, a second study was commissioned, and the resulting report, entitled *Reducing Risk, Setting Priorities and Strategies for Environmental Protection,* proposed how risk assessments should be used as a primary factor in the allocation of resources for environmental protection. Since that time, risk-based environmental planning projects have been initiated in cities in the United States, Russia, Bulgaria, Hungary, Egypt, Ecuador, and Thailand, to set priorities and plan actions that will achieve the greatest reduction of risk to human health and ecosystems.

Procedures

The application of risk-based priority setting generally conforms to the following steps:

- **problem area identification and definition;**
- **risk ranking; and**
- **priority setting.**

Problem Area Identification and Definition

This step involves the identification of broad problem areas, which will be studied and compared in the risk assessment phase. Problem definition has traditionally been limited to a focus on problems related to human health and the environment. However, there is growing recognition of the need to expand the scope of the problem definition exercise in the context of sustainability. An expanded definition can include issues related to equity, future trends, and other social and economic factors. In addition to scientific information on current conditions and trends, tools such as surveys, forums, force field analysis, SWOT analysis, and search conferences can be used to identify the key problem areas of concern.

Risk Ranking

In the risk-ranking step, environmental problems are assessed on the basis of three types of risk: human health risk, ecological risk, and quality of life risk, including adverse economic and social impacts. Environmental problems are assessed and ranked within a common framework that allows for comparisons between problems. Specific steps and formulas for assessing risk have been developed for each of three types of risk and are outlined in detail in the EPA Guidebook referenced below.

Priority Setting

In the priority-setting step, the information gathered through risk analysis is presented to stakeholders and decision makers to

augment, but not to replace, people's values, concerns, and judgments in setting priorities. Stakeholders are invited to set priorities based on both an analysis of risk and non-risk factors. Priorities may ultimately differ from the risk ranking, due to such non-risk factors as cost-effectiveness, technical feasibility, public perception, and resources available.

Three activities are commonly used in risk-based priority setting: negotiated consensus, voting, and formulas. These tools range from being relatively unstructured to being very systematic.

Negotiated consensus is the least-structured priority-setting method and involves open discussion to analyze and discuss data, values, and uncertainties. The following steps are generally followed: review data; solicit proposals for how individual problems should be prioritized; discuss objections or alternatives to proposals; discuss and debate unresolved objections; and establish final priorities.

Voting to establish the majority's will is the approach used if there are unresolved disagreements about problems or projects. The majority can be defined by the decision-making group (e.g., 51%, 66%, and so forth). There are at least three voting methods—secret ballots, open voting, and multi-voting.

Formulas are used to break environmental problems into parts, evaluate each of these parts mathematically, and recombine the parts to produce an output. Priorities are determined based on resulting scores assigned to each problem. There is a wide variety of formulaic approaches to priority setting. Weighted scoring is commonly used in comparative risk and involves five steps:

STEP 1.
identify criteria for evaluating risk;

STEP 2.
score each problem for each criterion;

STEP 3.
assign weights to each criterion;

STEP 4.
multiply the criteria scores by the weights and add the results to produce a total score; and

STEP 5.
rank problems according to total scores.

Conclusions

Risk-based priority setting has demonstrated that effective environmental management emanates not from the technical and quantitative information generated, but from the application of this information in a consensual priority-setting process.

Risk-based priority setting has some limitations. By focusing the analysis of problems on the identification of present problems, the method can overlook opportunities to prevent risk in the first place. In addition, in some contexts increased emphasis should be put on future risk. Trends in rates of population growth, land use, and natural resource depletion may be so severe that the scale and impact of a given environmental problem in the future may vary drastically from the current risks these pose. By systematically comparing and setting priorities in a limited set of problems, risk-based priority setting also does not promote a systemic analysis of problems and can result in short-term symptomatic treatment. Finally, risk-based priority setting does not explicitly analyze and promote institutional reform of structures that contribute to the perpetuation of fundamental problems.

References

US Environmental Protection Agency (EPA). *A Guidebook to Comparative Risk and Setting Environmental Priorities.* Washington, DC: EPA, 1993.

Nicholas, Steve. *Risk-Based Urban Environmental Planning: The Seattle Experience.* Seattle, WA: Office of Management and Planning, City of Seattle,1995.

3.3 CASES

3.3.1 CASE #5
TROYAN, BULGARIA
RISK-BASED PLANNING

Program Name

The Troyan Environmental Action Project (Troyan EAP)

Background

Troyan is a community of 46,000 people located 54 kilometers east of Sofia, the capital of Bulgaria, in the northern foothills of the Balkan Mountains. Troyan is located at the edge of a biosphere reserve and national park. Environmental problems have compromised Troyan's natural beauty and economic prosperity. Severe shortages of potable water are common and it is rationed in the summer and fall. Water quality is poor and cases of dysentery are common. Troyan's drinking water comes from an upriver intake on the Osam River, which flows through the city. Untreated and inadequately treated municipal, industrial, and agricultural

wastewater pollute the river, and an uncovered municipal landfill, situated on the river bank and containing both solid and hazardous wastes, pollutes it as well. The combustion of high sulfur coal and oil for home heating and industrial processes pollutes the air.

Program Description

The Troyan Environmental Action Project (Troyan EAP) was a 21-month demonstration project. Its aim was to improve the environmental management capacity of the municipality by introducing a risk-based planning model that integrates comparative risk assessment with participatory decision-making methods. The comparative risk-assessment methodology employed in the Troyan EAP was originally developed by the US Environmental Protection Agency.

The Troyan EAP was managed by the US Institute for Sustainable Communities (ISC), which promotes environmental protection through participatory decision making at the community level in Central and Eastern Europe and Eurasia through technical assistance and demonstration projects.

Figure 14 outlines the five planning phases of the Troyan EAP. Described here are the series of planning elements used in Troyan to determine environmental risks, priorities, and actions, namely: project organization and start-up; problem area identification and comparative risk analysis; priority setting for environmental action; identification and selection of action strategies; and strategy implementation.

Project Organization and Start-Up

Two citizens' committees were established to oversee the Troyan EAP and undertake specific activities. Mandates and terms of reference were established for each of these committees. A Technical Committee, responsible for collecting and analyzing information about the risks associated with various environmental problems and potential solutions, was mandated to prepare a list of environmental problems. A Policy Committee, mandated to formulate a plan for public participation, was made responsible for educating and actively involving the public and soliciting public opinion. A project office was established, a local coordinator hired, and a US Peace Corps volunteer appointed to provide logistical support for the citizens' committees.

The Committees comprised members from local government, business, non-governmental organizations, farmers, small villages, students, teachers, media, and technical experts. Institutions with specific environmental mandates, such as the Regional Environmental Inspectorate, the Regional Health Inspectorate, and water quality agencies were also represented. Committee members were appointed by the mayor of Troyan and served on a volunteer basis.

Committee members and project staff were provided with training and resources required to fulfill risk-based planning tasks. Task included evaluating risks associated with the community's environmental problems, ranking these problems on the basis of their relative risks, and developing and implementing an action plan to address the most severe problems.

Problem Identification and Comparative Risk Analysis

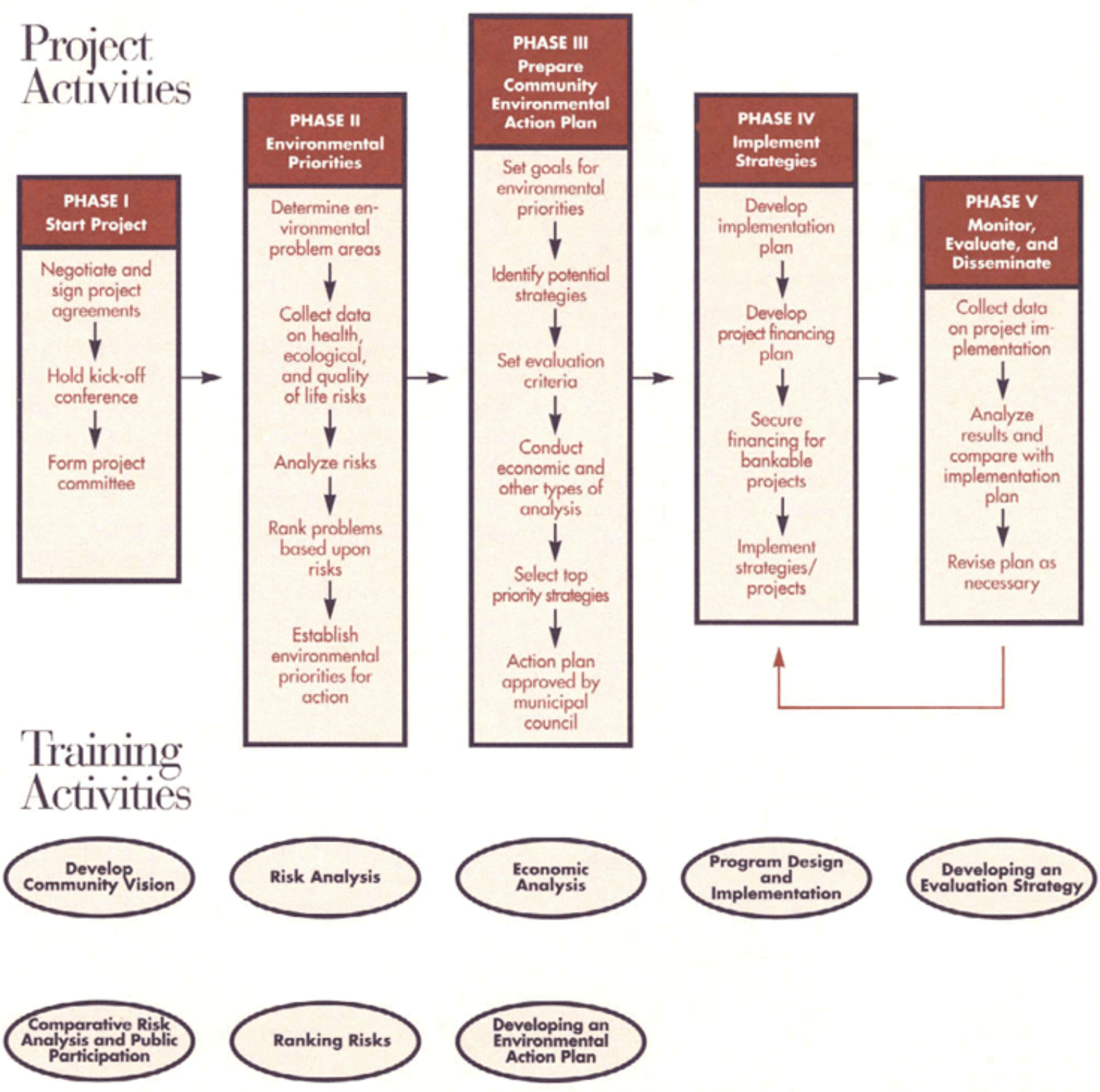
As a first step, a preliminary list of environmental problems was identified. To solicit public input in the problem identification process, the Policy Committee canvassed 5,000 local residents to determine which environmental problems were considered to be the most serious. The 4,000 citizens who responded (an 80% response rate) identified the lack of adequate supplies of clean drinking water, air pollution, deforestation, and surface-water contamination as the most serious problems. The Policy Committee also carried out numerous activities to educate the public, which included holding information meetings, publishing articles in the local press, and setting up information displays.

The Technical Committee collected further data and assessed the scope of related ecological problems. During the project start-up phase, categories of risk had been selected for the evaluation of environmental problems. The specific categories of risk used to evaluate problems in Troyan included public health, ecology, and quality of life (social and economic factors). The final list of problems was subjected to a comparative risk analysis in which the best available scientific information was used to assess the relative risks of environmental problems to human health, ecology, and quality of life.

Priority Setting

Environmental problems were ranked based on the scientific information derived from risk analysis and public input. To help achieve initial consensus on priorities, a two-day workshop was held, information associated with risk analysis was reviewed, and a practice ranking session was convened.

FIGURE 14 **TROYAN COMMUNITY ENVIRONMENTAL ACTION PROJECT**



Public Participation: The process includes several opportunities for public participation. The project committee, which is responsible for managing the project, is composed of representatives from government agencies, NGOs, and industry. The committee is responsible for conducting public eduction activities, public surveys, community environmental initiatives (e.g., river cleanup), and public meetings.

Source: Institute for Sustainable Communities, 56 College Street, Montpelier,Vermont 05602 USA +1 802/229-2900

Through an examination of data and public discussions, problems were eventually ranked into high, medium, and low risks. The

Committees were then charged with the task of selecting the most serious problems facing the community and developing a cost-effective strategy to address these problems, taking into consideration the limited financial resources of the municipality. Two problems were identified as having the highest priority for action—poor quality and low quantity of drinking water, and pervasive air pollution.

Identification and Selection of Action Strategies

A workshop was held to develop environmental strategies for specific problems. Focusing on drinking water and air pollution, the Committees collected information on potential implementation strategies. Long-term goals were set to provide guidance in selecting strategies, and information on alternative strategies was gathered from both the US and Western Europe. As part of this process, a delegation of 11 Bulgarians visited the US and Canada to collect information and observe how environmental programs are implemented. A one-day workshop was held on developing an environmental Action Plan. Among other criteria, potential strategies were evaluated through brainstorming sessions and group discussions, based on their relative cost efficiency, effectiveness in addressing the problem, and time needed for implementation.

The Committees then summarized the information on the risks associated with each problem and the appropriate strategies for the top-priority problems. Initially, the Action Plans consisted of detailed lists of strategies and sub-strategies grouped into five categories:

- **education and public involvement;**
- **economic incentives and sanctions;**
- **municipal programs;**
- **technical assistance; and**
- **acts and regulations.**

Bearing in mind the limited financial resources of the project, the Committee analyzed and ranked the strategies. A profile of each problem was developed through group consensus, which included: a problem description; goals and objectives in solving the problem; strategies and practical steps; and obstacles for solutions. A conservation strategy was chosen, which included infrastructure repairs as well as water efficiency and conservation measures. A draft document was circulated for comment by the public, city council, and municipal government, and a final plan was prepared and approved by the Troyan City Council.

The *Final Report* and *Environmental Action Plan,* prepared by the Troyan EAP citizens' committees, is a 90-page document that gives an overview of the project as well as its process and results. It contains a ranking of the various environmental problems and a discussion of each problem in terms of impact on human health, ecosystems, and quality of life. The document includes objectives and strategies to deal with each problem, and an implementation plan for addressing the drinking water problem that identifies specific steps, details organizational management, delineates responsible groups and agencies, and establishes a budget.

Strategy Implementation

The Action Plan document has been used as a framework for strategy implementation. The first action plan focused on the water problem. The objectives of this action plan included increasing the quantity of drinking water and improving its quality and distribution. A number of measures were considered and it was decided that implementing a conservation and education program was the most cost-effective way to solve the water quantity problem. The concrete steps required to implement this strategy included: control and repair of leaks in water mains, creation of new local regulations to encourage the efficient use of water, especially by industries, sanctions against those who waste water, and the creation of an education program to explain strategy and to encourage efficient water use.

Repairing leaks in the water mains was chosen as the highest priority action because 50-60 percent of the available water was being lost before it reached consumers, and because similar programs had achieved positive results in several US communities. In cooperation with the municipal government and the local water utility, the Committees established a comprehensive program to detect and repair leaks in the underground water main and distribution pipes. The municipality purchased leak detection equipment and an expert from a US Water Resources Authority helped local water utility officials launch the program.

The plan also targeted industrial water use, since this consumes more than 60 percent of Troyan's drinking water. A Bulgarian-born, Canadian wastewater specialist conducted wastewater audits for five Troyan industries that revealed enormous opportunities for saving water and reducing wastewater flows. The committees recommended, and the local government will be implementing, an industrial water audit and control program to reduce industrial water consumption. In addition, the municipality sponsored a technical workshop for 20 industry representatives on pollution prevention and waste minimization.

Finally, the Committees supported the establishment of the Troyan Environmental Education and Information Center. Based in the school system, the center is developing environmental education curricula and producing and disseminating environmental education materials. The center's initial focus is educating children on ways to save water. A coordinator for the center has been hired, and Troyan's mayor has appointed a Board to oversee its activities.

In order to implement the water strategy, the municipality had to design a new institutional structure for water management. The local water utility had no water conservation department or programs; as a first step, a leak detection unit was founded. In addition, a new municipal law was promulgated to establish citizen ownership over the local water resources, and new regulations were enacted to control the use of drinking water. A Local Ordinance that stipulates the collection and dissemination of environmental information, environmental monitoring, programming and realization of environmental activities, as well as the rights and responsibilities of the municipality, companies, and citizens for environmental protection, was developed. Industries are required to file reports about water practices, showing sources and consumption rates as well as wastewater details and how they are complying with standards for various discharges.

The Troyan EAP has demonstrated how a municipality, with the active participation of its citizens and effective planning tools, can prioritize environmental problems, formulate cost-effective strategies to deal with these problems, and create new partnerships to implement the desired actions.

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References

Markowitz, P. *Guide to Community Environmental Action in Bulgaria.* Montpelier, VT: Institute for Sustainable Communities, 1994.

Markowitz, P. *Bulgarian Community Environmental Action Project: Final Results and Evaluation.* Montpelier,VT: Institute for Sustainable Communities, 1994.

3.3.2 CASE #6
THE METROPOLITAN DISTRICT OF QUITO, ECUADOR
COMMUNITY-BASED PRIORITY SETTING

Program Name

Community Development Planning by the Martha Bucaram Cooperative

Background

Quito, Ecuador, is located in the Andean mountains at 2,800 meters above sea-level. With a population of 1.4 million, Quito is the second largest urban center in Ecuador and the national capital. Of the total surface area of the Metropolitan District, only 15 percent constitutes the urban zone.

Martha Bucaram is a poor neighborhood in the low-income South Zone of Quito. As with many neighborhoods in the South Zone, there are few, if any, services for most of the residents. The Martha Bucaram Cooperative is a neighborhood-level cooperative of 850 residents. Its members were brought together by the Municipal Administration of the South Zone in a pilot project to create a community development plan. The process of creating a community development plan has greatly facilitated the self-organization of the neighborhood into a cooperative, which provided a means for the generation of solutions in an area severely lacking in basic services.

Program Description

The members of the Martha Bucaram Cooperative jointly identified problems and their causes, and with the Zonal Administration identified the means to their solution. The list of the cooperative's identified problems and causes follows:

PROBLEMS	CAUSES
• contamination	• poor water quality
• lack of water	• newness of the neighborhood
• insecurity	• delinquency and lack of faith
• lack of mobility	• distance
• lack of services and supplies	• inadequate access to the neighborhood
• difficulty in uniting people	• lack of a collective meeting place
• impassable roads	• climate and lack of maintenance
• contamination	• abandoned lots, garbage, lack of education, and stray animals
• lack of education	• lack of infrastructure
• unoccupied youth	• lack of services for youth

Solutions were developed by identifying concrete projects ideas that would alleviate the problem causes. These projects were then ranked and prioritized. The prioritized list of projects of the Martha Bucaram Cooperative follows:

1. **sewerage system**
2. **potable water**
3. **police**
4. **a church**
5. **public transport**
6. **a bridge**
7. **a neighborhood house**
8. **pavement of roads**
9. **garbage collection**
10. **education**
11. **extermination of animals**

12. solidarity

13. telephones

14. educational centers

15. parks and recreational grounds

16. cultural spaces

Many of these projects are now being realized with the involvement of the community and the assistance of the NGOs and Zonal Administration. The community usually invests in these projects by providing labor. The following planning steps were implemented to develop the community plan for Martha Bucaram.

The Planning Process

STEP 1.
The first step involves informing the community about the idea of a community plan. This is done through the neighborhood committee and an assembly of all interested residents. The assemblies provide a forum where residents can speak about their experiences of living in the neighborhood, their living conditions, and the state of services. The steps of the planning process and the objectives are explained. Dates are set for capacity-building workshops, information gathering, and analysis of data. A team is selected to carry out a household-level survey of the residents and a survey of the state of the neighborhood as a whole.

STEP 2.
The collection of information constitutes the second step of the process. A selected team of residents is trained and conducts the neighborhood survey. Municipal staff assist in formulating the survey and analyzing the results. The survey results are presented to the community assembly.

STEP 3.
The third step is a consultation process, which uses a visioning exercise. Visions of the future of the community are developed by women, youth, and children. The men in the community have never united to create their own vision.

STEP 4.
The fourth step involves consolidating all the visions into one, and identifying the factors that are preventing the realization of that vision. A list of problems is generated through a voting process, and objectives and goals are then set for solving these problems. Project ideas are generated for each of the problems before ranking. This makes the ranking exercise more concrete and practical. Ten projects are prioritized and chosen for the action plan. Project prioritization is achieved through a ranking system which uses weighted numbers. People give the highest number to the project that they feel is the most urgent. Those projects with the highest numbers become the first ones to be dealt with. The projects are further divided into short- and long-term projects.

STEP 5.
Once the projects have been prioritized, the residents try to identify how to overcome barriers to implementing these projects. For this purpose, a distinct committee of residents is created to consider each project. The committees meet each week and define planning activities with the Zonal Administration. The committees, with the assistance of the Zonal Administration, try to identify other individuals, groups, NGOs, etc., that can help develop the projects. Following a process of resource identification, contracts with assisting parties formalize the partnership between the community and other actors.

STEP 6.
Once the project contracts have been negotiated, the implementation stage involves a much larger section of the community, as well as relevant municipal departments and other organizations.

STEP 7.
The process is broadly monitored by both project-specific committees and residents. Specific indicators to monitor progress have yet to be generated by this planning process.

The participatory process, the development of solutions addressing the lack of services, and the spirit of solidarity that the process

has generated among residents have encouraged other neighborhoods in the South Zone to also create their own community development plans. Furthermore, women, youth, and children have continued with their groups and have greatly changed the spirit of the neighborhood.

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3.3.3 CASE #7
GREENPOINT/WILLIAMSBURG, NEW YORK CITY, USA
PARTICIPATORY ENVIRONMENTAL IMPACT ASSESSMENT

Program Name

The Greenpoint/Williamsburg Environmental Benefits Program (EBP)—GIS and Auditing Tools

Background

The Greenpoint/Williamsburg Environmental Benefits Program was created by the City of New York to assess and remediate pollution problems in an impoverished, heavily industrialized and contaminated inner-city neighborhood. The three-year program (1991-94) was the result of a court agreement that aimed to address emissions violations by a municipal sewage treatment facility, and to engage “environmentally disadvantaged” residents in decision making in order to improve environmental quality and public health in their community.

The Greenpoint/Williamsburg neighborhood is a heavily industrialized and densely populated area in Brooklyn, New York City. It contains the city’s largest sewage treatment plant, several solid waste transfer stations where garbage is stored before transport to landfill, the only radioactive waste storage facility in New York City, a decades-old solid waste incinerator, 30 facilities that store extremely hazardous waste, 17 petroleum and natural gas facilities and 96 above-ground storage tanks that have contaminated the underlying soil with 14.5 million gallons of oil.

Citizen outrage about pollution problems in their neighborhood played a role in the creation and design of the EBP. The mostly low-income and racial-minority residents claim that the neighborhood has a multitude of environmental and health problems related to the many sources of pollution in their community. There was a perception among residents that enforcement of existing regulations was inadequate and that the existence of so many polluting facilities in their neighborhood was unjust.

Program Description

The Greenpoint/Williamsburg Program demonstrates how local governments can work in cooperation with communities within their jurisdiction to address environmental inequities. The overall goal of the program was to engage the public in environmental decision making, monitoring, and enforcement related to cross-media pollution—an acute problem in heavily polluted areas. This goal required that residents be given access to information and management tools that could be used for effective participation in environmental decision making, as well as local enforcement and monitoring. This case study highlights two environmental assessment tools that were used to build local capacity for participation in decision making: Cumulative Environmental Impact Assessment and Geographic Information Systems (GIS). These tools provide the community with access to information and the ability to independently assess pollution risks and environmental compliance by local firms and facilities.

A Citizens’Advisory Committee (CAC) was first established by New York City’s Community Environmental Development Group as a forum for citizen participation. This Committee consisted of Greenpoint/Williamsburg residents, environmental advocates, local business people, elected officials, and representatives of the local Community Board. Total participation in the CAC exceeded 300;

it met monthly and provided a forum for citizens to discuss the environmental benefits sought by the community and to design projects to reduce existing environmental problems and promote environmentally sound economic development.

Remediation initiatives undertaken by the CAC include the establishment of pollution prevention projects in local households and businesses. These include a Clean Industries project, a Green Industries Incubator project, a Household Hazardous Waste Reduction project, and school-based activities. Hand in hand with these, the New York City DEP developed several pollution prevention strategies. The Clean Industries Program (CIP), works cooperatively with local businesses to identify and implement cost-effective methods to prevent or reduce pollution at the source.

Citizens in Greenpoint/Williamsburg were particularly concerned with the cross-media pollution that results from the location of multiple pollution sources in such a densely populated area. Cross-media enforcement is needed because pollutants released into one environmental medium (air/water/land) can cycle through the other media. Traditionally, the media themselves are regulated separately, by disparate agencies. This form of environmental governance sometimes serves to transfer pollution from one medium to another. Regulations that focus solely on the primary pathway of the pollutant into the environment do not always result in adequate environmental or health protection, because pollutants may accumulate in other environmental media through which humans become exposed. This problem requires a multi-media approach to environmental enforcement and regulation in which the impacts of all pollutants released into the environment as a whole are evaluated and regulated simultaneously. This can be accomplished through new research and analytical methods, new or restructured institutions to coordinate standards and enforcement, and reformed legislation.

Cumulative Environmental Impact Assessment

The most immediate need of the EBP was to establish a Baseline Aggregate Environmental Load (BAEL) Profile, which would create a total pollution load profile of the neighborhood considering noise, odors, air emissions, water and soil contamination, and environmental hazards from the storage or use of highly flammable, explosive or toxic substances. The BAEL Profile is being produced by a research team using information from various sources, including the City's Department of Environmental Protection (DEP) and its various divisions, DEP monitoring activities in Greenpoint/Williamsburg, a Greenpoint/Williamsburg epidemiological study of pollution, disease and mortality carried out by the New York City Department of Health, and other state and institutional data bases including compliance and enforcement information.

To provide updated emissions information for the BAEL Profile, the DEP is to establish a new air monitoring station at a centrally located public school in Greenpoint/Williamsburg. This station will measure volatile organic compounds in the ambient air. The DEP also requisitioned a state mobile air unit for a two-week period, and a city mobile air monitoring van is being developed by the DEP.

The BAEL Profile efforts are bringing together information from air, water, and land-use agencies. Comprehensive compliance information from agencies that regulate these various media will provide a cumulative "multi-media" (land/air/water) view of companies' pollution loading. This information will enable the community and the DEP to push for policies that implement effective abatement and pollution prevention strategies. In particular, it will be used to undertake geographically-based assessments to determine the level of exposure to the community from individual or multi-source pollution, based on the toxicity of emissions and proximity to residents, and ultimately to establish rigorous compliance inspections and more aggressive enforcement strategies. This cumulative multi-media compliance effort, including the BAEL profile, enhanced inspections, and aggressive enforcement strategies, is an innovative attempt to create a new approach to environmental governance.

Geographic Information Systems

A key feature of the EBP is the computerized Geographic Information System (GIS) that has been established. A GIS enables users to access information from several data sources and to depict the spatial relationships between them by mapping the information. The Greenpoint/Williamsburg GIS contains information from a variety of environmental, census, land-use, health, compliance, and enforcement data bases—all the information used by the DEP for the BAEL Profile—and gives Greenpoint/Williamsburg citizens the ability to create maps that visually dramatize environmental conditions in their neighborhood.

The GIS is an important tool for analysis, risk assessment, and enforcement. It helps citizens to analyze compliance and enforcement data from local companies in relation to federal and state standards, since it integrates permit and compliance records from several government agencies and divisions, as well as information about the location and identity of hazardous substances, and the history of citizen complaints and remediation at particular facilities. The ability to produce their own environmental compliance profiles, or

scorecards, of local companies and to assess risks posed by various pollutants has enabled citizens to formulate pollution remediation measures, carry out their own risk-based compliance assessments, and lobby government decision makers with respect to management and enforcement issues. Information gained through the GIS has also been used for education of local residents and businesses about local conditions.

To extend the impact of the EBP beyond its three-year mandate, the a neighborhood "Watchperson Office" was established in 1995 of to act as the central location for all EBP data. The Watchperson helps residents use the GIS, enter data into the GIS and analyze environmental and enforcement data, assist residents in filing environmental complaints with appropriate agencies and in monitoring the status of the complaints, and act as an environmental organizer to facilitate action among community groups.

The legacy of the Greenpoint/Williamsburg EBP consists of long-term environmental awareness and advocacy, an innovative multimedia compliance approach to environmental regulation within the New York DEP, strengthened enforcement of environmental laws, as well as efforts aimed at pollution prevention and remediation and sustainable economic growth. The program demonstrates a model for improved municipal environmental governance as well as a model for community assessment and remediation programs. The GIS, the Watch-person, the BAEL Profile and the compliance initiatives are all innovative assessment and remediation strategies. No other US city has initiated a similar approach to environmental equity with a focus on remediation measures institutionalized within community-based organizations.

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3.3.4 CASE #8
LANCASHIRE COUNTY COUNCIL, UNITED KINGDOM
STATE OF THE ENVIRONMENT REPORTING

Program Name

Lancashire's Green Audit

Background

Lancashire County straddles highland and lowland Britain and is characterized by a diversity of landscapes ranging from coastal marshes to high moorland. Although it is one of the most populated and urbanized counties in Britain, the major industrialized towns are tightly concentrated, and two-thirds of the county is farmed grassland and moorland. Just under 20 percent is covered by built development, and only 5 percent is wooded. Approximately 25 percent of the county is protected for its landscape quality. Although many habitats and species are diminished, Lancashire's coastal marshes provide habitat of international significance and are protected under international agreements.

The local economy is currently based on a very diverse range of industrial and service sectors and is less dependent on a small number of dominant older industries. Unemployment in the county is rising, and is currently around 9 percent. Public and private investment in industry and infrastructure has been relatively poor, and as a result, the urban environments and physical assets, including infrastructure, industrial buildings, and housing stock, exhibit far greater deficiencies than most other areas within the United Kingdom.

Lancashire's long industrial history has left a legacy of environmental problems including contaminated or derelict lands and outdated infrastructure for wastewater disposal and water supply. New problems are associated with the over-consumption of energy, urban expansion, resource depletion, and the rapid growth in car ownership as public transportation services decline. Vehicle emissions are now the largest single source of air pollution within the county.

Program Description

The Lancashire County Council resolved to carry out a State of the Environment Report for Lancashire in 1989, in order to establish a framework that could be used to help citizens and government measure progress towards sustainable development and take related decisions. The county, in partnership with the Lancashire Environmental Forum, initiated the first "Green Audit" of environmental conditions throughout Lancashire.

The overall goals of the Green Audit include:

• providing Lancastrians, and all interested parties, with the first-ever complete picture of the state of the health of their environment at the end of 1990;

• increasing awareness and knowledge to help generate the action needed to improve and sustain the local and the regional environment; and

• enlisting the support and cooperation of the people of Lancashire and all agencies in caring for and safeguarding the environment.

The Green Audit forms part of a wider environmental program. The key environmental problems identified in the audit form the basis of an Action on the Environment Report, which was published in 1991.

Building on the broad goals of the audit, the Green Audit report has six specific objectives:

• providing a comprehensive statement and analysis of the present conditions of Lancashire's environment by collecting and presenting together available data for all environmental components, and comparing these with accepted indicators, standards, and targets;

• providing a factual baseline against which future change can be assessed;

• providing the opportunity to identify and analyze trends in environmental conditions in order to assess the improvement or deterioration of the environment;

• identifying shortfalls and inadequacies in available information so that these can be addressed and remedied;

• furnishing the data that are essential to the task of deciding on action required for sustaining and improving the health and condition of Lancashire's environment; and

• helping the County and District Councils to further develop the process of ensuring that their services are delivered in an environmentally friendly manner, and to help others achieve similar improvements in their own operations.

The Green Audit entailed a three-stage process:

1. information gathering;
2. information analysis; and
3. documentation and dissemination.

Data for the Green Audit were obtained from existing, publicly available sources, and much of the information was provided by the stakeholders in the Forum. A small amount of original research was conducted to fill gaps in existing knowledge. In instances where data was incomplete and did not allow for firm conclusions, these were highlighted as issues for further consideration. The Green Audit focuses on conditions within Lancashire County, some regional influences, however, are also included.

The multi-stakeholder Environmental Forum, with more than 70 organizations, participated in information gathering, analysis, and dissemination. The services of specialists from two universities were hired to collect information related to air, water, noise, and energy. Remote-sensing techniques were also used to collect data on land and agriculture. A new Environment Unit within the

municipal structure coordinated the work and analyzed and interpreted the data; forum stakeholders verified the accuracy of their findings.

The Green Audit was completed in May 1991. The results of the data collection and analysis were documented in a report entitled, "Lancashire, a Green Audit." This report details the assets and quality of both natural and manufactured resources, and considers how human activities and natural processes are influencing these resources. The report covers sections on geology, topography, soils, climate, and vegetation, and it devotes chapters to air, water, waste, noise, land and agriculture, wildlife, landscape and townscape, open space, transport, and issues. The report has been designed to assist readers' understanding of these topics, and as such, maximum use has been made of figures and tables and a glossary of technical jargon is included.

Once the Green Audit report was prepared, an extensive awareness campaign was launched. The Green Audit report was widely circulated to libraries, schools, colleges, and Council offices. Each community in the county hosted a traveling information display. Forty-thousand information leaflets were circulated, and through this circulation process, citizens and Forum members were canvassed to identify priority issues.

The major aim of the Green Audit awareness campaign was to gather the community's views on the environmental issues and problems that concerned them most. These responses, together with the views expressed by all Forum partners, formed the basis for prioritizing the Green Audit's issues of concern. This prioritized list of concerns formed the agenda for the development of Lancashire's strategy for sustainability, the Environmental Action Programme (LEAP).

To contribute to the monitoring and reporting process, the Green Audit will be updated every three years. LEAP will be updated every five years to address changes and incorporate new approaches. The Forum is now working to move beyond their environmental sustainability focus. The second Green Audit, which began in 1994, will be broadened to incorporate the social and economic aspects of sustainable development, providing the basis of an integrated approach to development.

A Green Audit Working Group has been established to oversee the information aspects of the Forum's work, including the selection of new sustainable development indicators. The next Green Audit will include indicators of physical sustainability, the quality of life, the social and equity consequences of environmental change, and the availability of sustainable lifestyles, in addition to providing up-to-date information on the state of the natural environment.

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References

Lancashire County Council. A Green Audit, *A First State of the Environment Report.* Preston, UK: Lancashire County Planning Department, 1991.

3.3.5 CASE #9
GOTHENBURG, SWEDEN
ECOCYCLES IN THE URBAN SYSTEM

Program Name

The Eco-Balancing Method

Background

Gothenburg, Sweden, located at the mouth of the Gota River, has served as an important western port and trading center for Sweden since the city was founded in 1621. During the eighteenth and nineteenth centuries, Gothenburg was one of the largest shipping cities in the world. Today, Gothenburg has a population of 445,000 and covers 454 square kilometers. The port is still the largest in Scandinavia, with approximately 25,000 ships arriving every year. The dominant economic activities are automobile production, oil refining, trade and transport, technology and research industries, and education and services.

Over the past century, Gothenburg has become increasingly contaminated due to the large quantities of hazardous substances used in local industries, as well as the presence of hazardous substances in locally consumed products. Other environmental problems, such as ambient air pollution, result from the high rate of population growth in the city's suburbs, which has increased long-distance commuting into the city. Air quality problems have been aggravated because the city is located in a mountain valley and is subject to air inversions.

For many years, the primary criteria used in making planning decisions during reviews of the city's Structural Plan have been of an economic nature. Traditionally, structural planning in Swedish cities has not considered relationships between urban structure and environmental quality. However, recent recognition of the linkages between environmental resources and land use and development has made it imperative to develop new approaches to structural planning.

Since 1987, Swedish local authorities have been required by the Swedish Planning Act to have a current structural plan covering the entire municipal area, including all land and water areas. These structural plans are to be based on assessments of both urban and natural systems. To obtain information on the relationship between the city's physical plan and local environmental issues, and to identify and create public debate on "eco-cycle" issues, Gothenburg employed an "eco-balancing" methodology. This method offers residents and municipal officials an understanding of the possible environmental impacts of development alternatives by analyzing the flows of materials and energy in the city. Eco-balancing identifies existing or potential imbalances in these flows, thereby providing important information for consideration in structural planning.

Program Description

Definitions

Eco-balancing employs a terminology not yet common in local government management. Eco-cycles refers to the fact that all matter that is circulated on Earth is used over and over again. In exploring eco-cycles in an urban system, two issues are studied and considered: 1) the recycling of materials and energy in urban processes and built systems, and the incoming and outgoing flows of materials generated by human activities, and 2) the impacts of urban processes upon natural cycles.

Natural systems are known to have a limited carrying capacity. The term loads and limits refers to a calculation of the capacity of built systems (infrastructure) and natural systems (rivers, fisheries) to operate or absorb stresses before they fail, collapse, or change unalterably. Eco-cycle measurement and analysis conducted on any single material flow does not result in a comprehensive representation of the load on any given system. Urban systems are complicated and contain numerous material flows and links, which cumulatively impact or "load" biophysical cycles.

Eco-balancing is a method for measuring the principle material and/or energy flows of a city. These include incoming flows such as water, energy, and raw materials, outgoing flows, such as wastewater and air pollution and the loads and limits on biophysical systems. Balancing analysis reviews the importation of materials and energy into urban processes, the conversion of such resources in the processes, and the export of materials and waste products into the economy and environment. This information is used during a planning process to inform and broaden public debate about the possible cumulative impacts of a course of development. Eco-balancing can fulfill many roles. Its functions include:

- **providing accessible and easily understood information on sustainability for public debate;**
- **providing information for decision making;**
- **identifying points of balance or non-balance in a system in order to determine how the creation, preservation, and change of settlements should take place; and**
- **measuring progress towards sustainability.**

Application of the Eco-Balancing Approach

Prior to 1992, structural plans for the city of Gothenburg did not contain an analysis of the balance of materials. In preparation for the city's 1993 Comprehensive Plan, Gothenburg developed "material cycles" for water and nitrogen (Nielsen et al., 1992). The aim was to stimulate informed public debate on eco-cycle issues in the city and to ultimately influence the planning process itself. Later, a study of the city's carbon cycle was also completed.

Measurement of the water cycle in Gothenburg provided a flow representation that linked land, water, and air, and crossed municipal and regional boundaries. It also identified and described the cycles that link human activities to water sources, pollution, and liquid and solid waste.

Because nitrogen cannot be seen, the nitrogen cycle is less understood than the water cycle. However, nitrogen is associated with a number of environmental problems and is recognized as an important element to measure and report to the public. The nitrogen-cycle model developed in Gothenburg included, and demonstrated the linkages between, many urban activities such as transportation, heating, industrial production, cultivation, food, waste deposits, and sewerage systems. The presentation included facts on the average citizen's annual nitrogen emissions from energy use in the home, in transport, and in the generation of solid and liquid waste.

Describing the materials cycles for one or more damaging substances was considered important as a means of explaining the need to keep natural cycles intact if they are to be sustained. For this reason, material cycles for toxins were tested as an educational tool. Gothenburg explored the development of a material cycle for chlorinated benzenes and household solvents. Due to an effective educational program that led to a reduced use of chlorinated benzenes, and due to the fact that household solvents are almost exclusively emitted into the air and therefore impossible to track, these substances proved to be poor examples for promoting the discussion of toxic material cycles. The strength of eco-balancing lies in its ability to track the flow of a substance.

The anticipated results from a study of a quicksilver (mercury) cycle in Gothenburg are expected to be more useful. Mercury is still used and does not evaporate, and is therefore easier to trace.

The material cycles method has been used to compile information on the overall state and functioning of the city's "metabolism." Based on this information, discussions with politicians were initiated. As a result of these discussions, the city's Planning Committee decided to include questions about sustainability and eco-cycles into the regular consultation process for the Structural Plan. Between June and September 1992, a public consultation was conducted with more than 100 groups and organizations. Discussions were guided by questions regarding the city's metabolism, eco-cycles, and sustainability. The outcomes of these consultations have been subsequently integrated into the Structural Plan. One priority identified was the need to reduce the sprawl of residential development on the urban periphery by restricting new suburban housing developments.

Eco-balancing studies in Gothenburg have increased awareness about the linkages between land development and material flows and cycles in the city and the local environment. They have educated policymakers and residents about the metabolism of the city and about the imbalances in the city's imports of materials and exports of wastes. These studies have mobilized support for work on sustainability and have provided the opportunity for consideration of ecological cycle issues in urban planning. The future challenge is to develop an eco-balancing tool or model that will have more direct input into the structural planning process.

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References

Berggrund, Lars. "Ecocycles in the Gothenburg Structure Plan," in *Ecology-based Planning and Construction in Sweden.* The Swedish Council for Building Research, 1994.

Nielsen, B. et al. “The Nitrogen Cycle in Gothenburg,” in *Structure Plan for Gothenburg. Gothenburg,* Sweden: Base Material, 1992

CHAPTER 4 Action Planning

4.0 Introduction

The creation and implementation of an Action Plan is the central element in sustainable development planning. Every activity that precedes it—the formation of partnership planning structures, the establishment of a community vision, and the analysis of issues and priorities—is preparatory work for creating an attainable and effective Action Plan.

These Actions Plans are said to be “strategic.” No matter how focused the plan might be on a specific issue, a strategic plan addresses problems and needs at a systemic level and with a long-term perspective. It mobilizes local resources, and creates “synergies” by combining the efforts of different stakeholders to achieve a common goal. To assure that strategic goals are implemented, an Action Plan is linked to existing, formal planning processes such as mandated five-year development plans, general plans, and operating and capital budgets. Finally, a strategic Action Plan contains concrete targets for both short- and long-term progress and describes the mechanisms by which the achievement of these targets can be evaluated.

All of these factors require that strategic Action Plans are, in essence, multi-stakeholder agreements. If important stakeholders do not feel ownership of the plan, then they will not contribute to its implementation. Worse yet, they may create competing plans or continue acting in a way that undermines the ultimate purpose of a strategic Action Plan, which is the sustainable provision of desired services and the maintenance of desired living conditions.

To help in the design of local action plans, the following action planning approach can be taken. This approach aims to create a “living” plan, which recognizes and sanctions the many partnerships and independent actions that can be taken to meet a community’s strategic goals. This being said, the following approach is intended for use only as a guideline. In each local situation, an action planning approach will need to reflect existing planning processes and traditions.

> A strategic Action Plan addresses problems and needs at a systemic level and with a long-term perspective. It contains concrete targets for both short- and long-term progress and describes the mechanisms by which the achievement of these targets can be evaluated.

4.1 Structure and Objectives

> Citizens, local institutions, and organizations can be invited to submit implementing agreements to be included as an annex to the strategic Action Plan.

Astrategic Action Plan can be seen as a framework document to which the specific action commitments of different institutions or

stakeholders can be attached. The framework document is a consensus document, developed by stakeholders, which is used to guide its signatories in developing their own implementation plans. This Action Plan document would therefore contain:

- **a community vision, developed by the stakeholders, including a position on current problems and opportunities;**
- **strategic goals for each problem or opportunity area related to this vision;**
- **specific targets to be achieved in meeting each goal;**
- **identified implementation strateqies and programs for achieving these targets and goals;**
- **a description or key partnerships to be established for implementation, including linkages with existing planning processes; and**
- **a framework for periodic evaluation of progress, including "triggers" for future planning and action.**

Once this document is prepared and agreed upon by stakeholders, citizens, local institutions, organizations, and agencies can be invited to submit implementing agreements, to be recognized and included as an annex to the strategic Action Plan document. The municipality would be the first institution expected to outline its specific implementation plans and programs.

Implementing agreements will include:

- **specific program commitments of government departments, service agencies, private corporations, non-governmental organizations, etc.;**
- **agreements among different stakeholders to undertake joint work; and**
- **commitments by individuals, households, neighborhoods, schools, private businesses, and so forth, to improve their performance in relation to the community's sustainability goals.**

These different implementing agreements are incorporated into the strategic Action Plan as an annex, and estimates are made of how each agreement will impact upon the achievement of the Plan's overall goals and targets. In this way, the strategic Action Plan is used as a dynamic document to encourage and focus the efforts of individual residents and institutions to achieve the strategic goals of the community.

4.2 Steps

Within the context of the above framework, the action planning process would include the following steps:

STEP 1.
Define the action planning process.

STEP 2.
Review the Community Vision and the findings from community-based issue analysis.

STEP 3.
Establish strategic action goals.

STEP 4.
Set targets and triggers.

STEP 5.
Select specific implementation strategies and programs.

STEP 6.
Develop the framework Action Plan.

STEP 7.
Promote partnerships for implementation.

4.2.1 DEFINE THE ACTION-PLANNING PROCESS

The action-planning process begins during the process of community-based issue analysis. An effectively organized issue analysis process will identify both key goals and the different strategies available for achieving these goals. The issue analysis process also will establish a broad group of informed stakeholders and organize them into working groups which can now be used to develop Action Plan proposals.

Nevertheless, before these stakeholders and working groups begin to develop the Action Plan it is important to agree upon the contents to be included in the Action Plan and the procedures for negotiating agreements on goals, targets, and implementation strategies.

Participation of Stakeholders and the Public

Continued stakeholder participation in the finalization of an Action Plan is necessary to build a constituency of institutions and individuals who are committed to implementation of the plan. Participation should be maximized within the constraints of time and resources. Every effort should be made to include stakeholders who have an identified interest in the relevant action or service area. Short of participation, a review process should be designed to obtain comments on draft action plan proposals and documents. However, it needs to be recognized that consultation and review is not a substitute for public participation and will not create the same sense of ownership and commitment to the final Action Plan.

> Every effort should be made to obtain a commitment from municipal and other government authorities that the recommendations of the strategic Action Plan will be integrated and applied in existing formal planning processes.

Linkage with Existing Formal and/or Statutory Plans

Every effort should be made to obtain a commitment from municipal and other government authorities that the conclusions and recommendations of the strategic Action Plan will be integrated and applied in existing formal planning processes such as annual budgeting, general plan reviews, and urban development plans. If these assurances cannot be obtained, it is all the more important to have extensive stakeholder participation in action planning, so that non-governmental stakeholders will be fully committed to the Action Plan even if governmental institutions are non-committal.

Use of Issue Analysis Information in the Planning Effort

The planning process should permit the participating stakeholders to make full use of the information gathered through community-based issue analysis. This information will need to be presented in different ways and at different levels of complexity, depending upon the backgrounds of participants. One role that can be played by stakeholder representatives is to prepare and disseminate this information to their constituencies. The education of various stakeholder constituencies about conditions is an important preparatory step in obtaining consensus and commitment to Action Plan targets, recommendations, and proposals.

Ranking and Priority Setting

Having considered information and analyzed the problems, the community may wish to select a few issues that will be given priority attention in the Action Plan. This will require the design and implementation of a ranking and priority-setting exercise as part of the action-planning process. The first step in priority setting is to decide which criteria will be used for ranking problems. Once criteria are established, different problems must be ranked by the participants. Ranking methods can range from negotiating consensus and voting, to the use of matrices and mathematical formulas. Force field analysis is a participatory, priority-setting method that uses a

simple weighting system for ranking different issues.

Experience shows that priorities ultimately will be ranked on the basis of both the available quantitative information and the qualitative views, values, and perceptions of a community. Therefore, a successful priority-setting process will, to a large extent, depend on the provision of effective forums for stakeholder discussion and consensus building.

Deciding on Goals, Targets, and Triggers

Establishing a consensus to achieve specific targets and triggers can be a difficult and sometimes controversial process. It therefore needs to be very clearly defined how targets will be decided by the participants in the process.

The ability of the action planning process to establish clear targets will require that:

- **clear information is available about the nature and extent of a problem or need;**
- **viable and acceptable action options have been identified to address the problem or need; and**
- **the costs of implementing different options are known.**

The design of the action-planning process should assure that the above information is available in a user-friendly form before the negotiation of targets begins.

Selection of Methods and Tools for Action Planning

The Glossary of Methods and Tools provided in this guide presents a variety of participatory approaches and methods that can be used to define action goals and priorities, develop action options, and negotiate consensus on targets.

4.2.2 REVIEW OF THE COMMUNITY VISION AND FINDINGS FROM COMMUNITY-BASED ISSUE ANALYSIS

The community-wide review of findings from issue analysis should be seen as an educational process aimed at building stakeholder understanding and confidence that they can affect complex problems through their own actions. The review process will provide people with an opportunity to collectively reflect on technical information and engage in critical thinking, heightening their capacity and motivation to act. It will provide further opportunities for community-based groups to contribute their views and indigenous solutions as action options, thereby allowing them to buy into the process. Such a review already may have been implemented at the final stages of a community-based issue analysis process.

Technical information will need to be prepared in forms appropriate for dissemination to different communities and community groups. Stakeholder and community group meetings will need to be organized to synthesize existing community knowledge and opinion with the findings of the issue analysis process. These meetings should also be used to review the Community Vision that was first prepared by the Stakeholder Group to guide the planning process. Does this Vision still reflect the issues and conditions that were clarified during issue analysis? If necessary, the Vision should be revised by the Stakeholder Group to reflect changed understandings.

> A community-wide review of the findings from issue analysis can build stakeholder confidence that can affect complex problems through their own actions.

4.2.3 ESTABLISH STRATEGIC ACTION GOALS

The revised Vision can be used as a starting point for the establishment of Action Plan goals. The specific values and principles embodied in the Vision can be applied to relevant issue areas, such as employment or air pollution control, in order to establish a specific goal for each issue area. These goals should show how the stakeholders intend to achieve the Community Vision. The goals must be practical and achievable, but they also must be sufficient to ultimately achieve, over time, the Community Vision.

Fulfilling these two conditions may require that a priority-setting exercise be used to give immediate priority to the achievement of some goals, leaving other goals to be implemented only after progress has been made with the priority goals. This approach recognizes that sufficient resources may not be available in the community to achieve all goals simultaneously. Nevertheless, while in the short term it focuses resources on the priority goals, it ensures that the Action Plan still addresses the other longer-term goals that are essential to the ultimate achievement of the Community Vision. Under this approach, future evaluations of Action Plan implementation are used to determine whether sufficient progress has been achieved with a priority goal to permit resources to be redirected to a secondary goal, or whether the community itself has changed its priorities.

Force field analysis is a priority setting method that is specifically designed to help stakeholders to identify which goals should be given immediate priority. The method guides stakeholders to identify the facilitating and the hindering conditions that are present to achieve each goal. In this way, it encourages actors to implement in those areas goals where present conditions will facilitate immediate success and to work, in the meantime, to reduce the hindering conditions that would undermine progress in other action goals. A full description of the force field analysis method can be found in Appendix 4.

> While in the short term, resources may be focused on priority goals, the Action Plan must address long-term goals that are essential to the ultimate achievement of the Community Vision.

4.2.4 SET TARGETS AND TRIGGERS

Once goals are agreed upon, it is vital that concrete targets be developed and agreed upon for each goal. A target is a measurable commitment to be realized within a specific time frame. Targets are the core of any strategic Action Plan. They focus resources and guide the selection of action options. They also are used to measure progress in implementing the Action Plan and to evaluate the Action Plan during future Action Plan reviews.

Because targets imply very concrete actions and behavior changes by different stakeholders, they are the product of negotiation. Some questions that a Stakeholder Group may wish to discuss during this negotiation are:

- **Is the target level of achievement sufficient to meet immediate, priority needs? Is the target level sufficient to achieve, over time, the ultimate strategic goal?**
- **Can the target be achieved? What measures would need to be taken? Are the responsible stakeholders willing to take these measures, or are we willing to convince them to take these measures?**
- **Would we be willing to settle for a lower level of achievement than is set in the target? What level?**
- **Can performance relative to the target be objectively measured?**

> A target is a measurable commitment to be realized within a specific time frame. A trigger is a commitment to take specified actions at a future date.

Figure 15 presents the policy goals and the related targets established under the Sustainable City Program of Santa Monica, USA. Under this Program, the city's Task Force on the Environment worked with municipal departments and local organizations to develop measurable targets for

FIGURE 15 **THE SANTA MONICA SUSTAINABLE CITY PROGRAM Goals, Targets, and Indicators**

In 1994, the Santa Monica Task Force on the Environment developed a Sustainable City Program in partnership with the City of Santa Monica Environmental Programs Division. The Program's strategy has four policy areas, each with clear goals that reflect the city's current and future programs. Specific targets have been established for each goal. The target year is 2000 and the base line year is 1 990. In order to measure performance, an indicator has been established for each target.

The goals, targets, and indicators for two of the four policy areas are presented below.

Policy Area: RESOURCE CONSERVATION

Goals:

- Promote the use of conservation technologies and practices and reduce the use of non-renewable resources.
- Develop local, non-polluting, renewable energy, water, and material resources, and expand recycling technology in these areas.

Targets:

- Reduce energy usage by 16%.
- Reduce potable water usage by 20%.
- Reduce solid waste volumes by at least 50%.
- Achieve a 50% average post-consumer recycled and/or tree-free content in all city paper purchases.
- Convert 75% of the city vehicle fleet to reduced-emission fuels.
- Reduce wastewater flows by 15%.
- Increase total number of trees on public property by 350.

Indicators:	1990 (Actual)	1993 (Actual)	2000 (Target)
Energy Usage (non-mobile sources)	4.0 million Btu / year	4.0 million Btu / year	3.36 million Btu / year
Water Usage	14.3 million gallons / year	12.0 million gallons / year	11.4 million gallons / year
Post Consumer Recycled/Tree-Free Paper Purchases	Unknown	Unknown	50%
Wastewater Flows	10.4 million gallons / day	8.5 million gallons / day	8.8 million gallons / day
City Fleet Vehicles Using Reduced-Emission Fuels	Unknown	10%	75%
Trees in Public Spaces	28,000 trees	28,000 trees	28,350 trees

Policy Area: COMMUNITY AND ECONOMIC DEVELOPMENT

Goals:

- Encourage the development of compact, mixed-use, pedestrian-oriented projects.
- Promote the growth of local businesses that provide employment opportunities to Santa Monica residents.
- Facilitate education programs that enrich the lives of all members of the community.

Targets:

- Provide 750 additional affordable housing units.
- Create 3 new community gardens.
- Establish partnership with local schools to create and compliment a Sustainable Schools program.
- Increase total public open space area by 15 acres.

Indicators:	1990 (Actual)	1993 (Actual)	2000 (Target)
Deed-Restricted Affordable Housing Units	1,172 units	1,313 units	1,922 units
Community Gardens	2 gardens	2 gardens	5 gardens
Creation of a Sustainable Schools Program	N / A	N / A	Implemented
Public Open Space	164 acres	164.8 acres	180 acres

Source: City of Santa Monica, Environmental Programs Division, P.O. Box 2200, 200 Santa Monica Pier, Santa Monica, California, 90401-2200 USA

all areas of activity related to achieving each policy goal. Once these targets were established, the city developed indicators to be used on an annual basis to monitor the city's progress in meeting each target.

Triggers are another key instrument to hold stakeholders accountable to the terms of their Action Plan. Sometimes an action-planning process cannot achieve agreement on a specific target due to a lack of information, commitment, immediate resources, or

consensus about the nature of a problem. Additionally, a specific target may not always be realistic when applied to the extended time-frame of a long-term strategic plan, which may cover a period of 30-100 years. Where targets are not appropriate or cannot be agreed upon, a trigger can be established.

A trigger is a commitment to take a specified action at a future date. The implementation of this agreed future action is catalyzed or "triggered" when certain specified conditions develop. The instrument is called a "trigger" because a future condition—for instance, a decline in water supply or per capita income, or an increase in pollution, population, or disease—"triggers" a specified action that has been defined by prior agreement. In the negotiation of a trigger, the stakeholders must agree upon 1) the future condition(s) that they feel requires and justifies immediate action and 2) the different actions that must be taken when the trigger condition(s) takes place. The triggered action could be the effecting of a regulation, the undertaking of further planning, or, as in the case of the city of Los Angeles (see Case #10), the engineering of new infrastructure.

If the goal-setting process has resulted in the establishment of first-and second-level priority goals, stakeholders may choose to establish targets for first-level goals and to establish triggers for the implementation of second-level goals.

The following example illustrates how goals, targets, and triggers are integrated together in an Action Plan.

ACTION PLAN GOAL #1
To promote technologies, products, and practices that reduce the use of non-renewable resources and the creation and disposal of wastes.

ACTION PLAN TARGET #1.1
By 2010, reduce the generation of household solid waste by 50 percent from the 1995 levels.

ACTION PLAN TRIGGER #1.1
If household solid waste is not reduced by 25 percent of 1995 levels by 2000, then volume-based waste collection charges will be instituted.

4.2.5 SELECT SPECIFIC IMPLEMENTATION STRATEGIES AND PROGRAMS

Once stakeholders have defined goals and agreed upon ideal target levels of achievement, they are in a position to create an action strategy that can achieve those goals and targets. A set of criteria will need to be established to evaluate action options, such as:

- **Will the selected actions be sufficient to achieve the related target?**
- **Is there likelihood that the selected actions can be successfully implemented?**
- **Do the selected actions fairly distribute the cost or responsibility for action among the responsible stakeholders?**

A variety of group planning methods exist to guide the prioritization and selection of different action options. In addition to force field analysis, SWOT analysis and comparative cost assessment can be very helpful for this purpose. When used to evaluate action options, force field analysis compares the viability of different action options, given different social, institutional, political, and economic forces that facilitate or hinder the situation.

Comparative cost assessment is one planning method used for developing detailed action proposals with the affected service users. In this method, the Stakeholder Group or planners prepare a number of proposals that indicate how a specific community goal or target could be achieved. Planners inform service users about the comparative costs that service users will have to pay for each approach. Based upon dialogue between planners and service users, a final action program is jointly developed and agreed upon.

Once different action options are selected to address each of the goals, these different options should be reviewed together to identify how they could be cost-effectively and jointly implemented. Such a review by the Stakeholder Group would provide the basis for the finalization of an action strategy that integrates the diverse activities to be recommended by the Plan. The Prosanear Project (Chapter 3, Box A) describes how this approach was used in a number of community sanitation projects in Brazil.

4.2.6 DEVELOP THE FRAMEWORK ACTION PLAN

The framework Action Plan would include the following elements:

- **Description of the final strategic vision of the community, including a consensus statement on current problems and opportunities;**
- **Presentation of the key goals for addressing problems and opportunities;**
- **Presentation of specific targets to be achieved;**
- **Presentation of specific triggers;**
- **Action options and programs for achieving these goals and targets;**
- **An action strategy that describes the key partnerships to be established for implementation, including linkages with existing planning processes; and**
- **A framework for periodic evaluation of progress.**

  If the planning process ends after the completion of the strategic Action Plan, the plan is likely to become just another book on the shelf. Therefore, the Stakeholder Group has an ongoing role in approaching all sectors to develop implementing agreements.

The framework Action Plan establishes an overall action strategy but does not provide a step-by-step blueprint of all the detailed steps to be taken by all the institutions in a community. While the framework document will include concrete program proposals made by the members of the Stakeholder Group, further campaigning, planning, discussions, and negotiations will be needed to define the specific implementation activities of other individuals, households, and institutions. For example, Worksheet 7 in Chapter 5 provides a format for organizing and summarizing a detailed implementation strategy for each target in the Action Plan.

Once this general action strategy is established, the Stakeholder Group must complete the task of designing a framework for evaluating the performance of different stakeholders in implementing the plan. A detailed description of an evaluation framework is provided in chapter 6, “Evaluation and Feedback.”

4.2.7 PROMOTE IMPLEMENTATION PARTNERSHIPS

The final step in developing a framework Action Plan is presenting it to the community and local institutions for final review and comment. It is through such consultation that these institutions are informed about how they can contribute to the plan by establishing implementing agreements as an annex to the Action Plan. Developing partnerships and agreements for implementation is an ongoing process. This is what is meant when the framework document is called a “living” document. If the planning process ends after the completion of the framework document, then the strategic Action Plan is likely to become just another plan on a book shelf. Therefore, the Stakeholder Group, supported by the municipality, has an ongoing role in approaching all residents, organizations, and sectors to develop implementation agreements.

The development of implementing agreements among stakeholders takes place throughout the process of implementation, discussed in chapter 5. It requires continued priority setting by investors, service providers, and service users to select among alternative action options.

4.3 Appendix

4.3.1 APPENDIX 4
FORCE FIELD ANALYSIS

Description

Force field analysis is an analytical exercise used for priority setting and for selecting and assessing action strategies. The analysis enables a) the identification of specific forces that will either facilitate or hinder achievement of a goal, strategy, or issue, b) the assessment of the relative strength of each force, and c) the planning of action strategies to overcome hindering forces and to promote facilitating forces.

All institutions and programs operate in some environment that forms its field of operations. At any given time, certain forces—some positive and some negative—exist in the field of operations. Some forces tend to inhibit and hinder successful operations and therefore weaken the effective attainment of the stated goals. At the same time, there are other forces that tend to facilitate and promote program effectiveness and the attainment of goals. One of the tasks of a planning process is to identify these forces and analyze them in order to find ways of weakening the negative or inhibiting forces, and strengthening the positive or facilitating forces that will create sufficient forces in the field of operations to ensure the success of the given program and institution.

Procedures

The following procedure is used to conduct force field analysis.

- **Select and describe the different goals, action options, or activities that will be compared and analyzed.**

- **Undertake a separate force field analysis of each goal or action option. To do this, create a list of the different social, political, economic, environmental, and other forces that will either facilitate or hinder the success of each goal or action option. List the facilitating forces in one column and the hindering forces in another column.**

- **Once a separate list of facilitating and hindering forces is created for each goal or action option, rank the forces in each column on the basis of the strength with which they will affect the achievement of the stated goal or the success of the activity. Give the highest rank to the force that will have the greatest impact or influence and the lowest rank to the weakest force. Mark with an asterisk (*) those forces that cannot be changed and with a number sign (#) those forces that can be influenced or changed.**

- **Now review the two lists and underline those forces that seem to be most important for the effective attainment of the goal or activity, and that could be changed, either by increasing the power of the facilitating force or by reducing the strength of the hindering force.**

- **Do a separate analysis of each of the underlined forces. For facilitating forces, list the action steps that could be taken to strengthen these forces. For hindering forces, list the action steps that could be taken to weaken these**

forces. Brainstorm action steps without worrying about how practical they would be.

• For each action step identify, discuss, and list the personal difficulties, (e.g., you don't have the skill), outside difficulties (e.g., no finances), and the help you would seek to overcome these difficulties and to carry out the action. Also estimate the time it would take to complete the action step.

• Review the action steps that have been listed for each goal/force in order to identify what steps are common to address the different facilitating/hindering forces and to succeed with the different goals/action options. Use this review to analyze which actions and goals can be facilitated simultaneously and which will require distinct strategies and resources.

• On this basis, go back and compare the different goals and/or action options to determine which can be most easily facilitated and which will be most hindered. Depending upon the available resources, decide which goals and/or actions should be given most immediate priority.

GOAL #1—Facilitating Force A: _____
Possible action steps to strengthen this force

1 _____

2 _____

3 _____

4 _____

5 _____

GOAL # 1—Facilitating Force B: _____
Possible action steps to strengthen this force

1 _____

2 _____

3 _____

4 _____

5 _____

GOAL #2—Facilitating Force A: _____
Possible action steps to strengthen this force

1 _____

2 _____

3 _____

4 _____

5 _____

GOAL #2—Facilitating Force B: _____
Possible action steps to strengthen this force

1 _____

2 _____

3 _____

4 _____

5 _____

and so on.

GOAL # 1—Hindering Force A: _____
Possible action steps to reduce this force

1 _____

2 _____

3 _____

4 _____

5 _____

GOAL #1—Hindering Force B: _____
Possible action steps to reduce this force

1 _____

2 _____

3 _____

4 _____

5 _____

GOAL #2—Hindering Force A: _____
Possible action steps to reduce this force

1 _____

2 _____

3 _____

4 _____

5 _____

GOAL #2 —Hindering Force B: _____
Possible action steps to strengthen this force

1 _____

2 _____

3 _____

4 _____

5 _____

and so on.

4.4 CASES

4.4.1 CASE #10
LOS ANGELES, USA
THE USE OF TRIGGERS IN LONG-TERM INFRASTRUCTURE PLANNING

Program Name

Advanced Planning Report, Los Angeles Clean Water Program

Background

The City of Los Angeles has a service jurisdiction covering more than 1,750 square kilometers. One of the City's primary service responsibilities is wastewater drainage and treatment, which is regulated by state and federal laws. Los Angeles has a very complex system of sewers and waste-water treatment plants, which currently provide collection, treatment, and disposal services to more than 3.8 million people. The system includes approximately 10,400 kilometers of major interceptors and mainline sewers, more than 3,200 kilometers of house sewer connection, two wastewater treatment plants, two water reclamation plants, 58 pumping stations, and various other support facilities. It is anticipated that the population of Los Angeles will double over the next 100 years. This will require additional sewers, more treatment plant capacity, and additional sewerage sludge handling capacity.

Recent droughts in southern California, and the diversion of available water to rehabilitate ecologically stressed wetlands and estuaries, are limiting water supplies for the city. Meanwhile, the demand for water due to population growth is increasing. The city has a projected long-term water resource deficit of nearly three billion liters (715 million gallons) per day. Thus, Los Angeles must make the most efficient use of existing water resources.

Existing water use already exceeds the capacity of the wastewater system. Sewer overflows have repeatedly caused discharges of untreated waste-water. In response, federal and state of California water quality agencies, as well as the California Courts, are requiring the city to meet increasingly stringent wastewater quality standards. In response to a court order to meet federal and state mandated wastewater treatment and disposal requirements, Los Angeles initiated the Clean Water Program. As part of the program, the Advanced Planning Report attempted to find ways to prevent pollution from wastewater treatment facilities.

Program Description

In 1988, Los Angeles initiated a 100-year Advanced Planning Process for wastewater treatment as part of the city's Clean Water Program (CWP). The Advanced Planning Report (APR) provides overall guidance for all wastewater conveyance, treatment, and related facilities that will be needed in the next 100 years. These facilities will include the major interceptor sewers, pumping stations, wastewater treatment plants, sludge processing and disposal facilities, and effluent disposal and reclamation facilities.

The 100-year planning time frame is more appropriate than the traditional 20-year planning time frame for wastewater services,

since the life span of costly wastewater treatment facilities is about 100 years. Furthermore, it takes approximately 20 years to bring a wastewater treatment facility on-line from initial plan to final construction. During such a time period it is expected that population growth would overwhelm 20-year plans before they could be implemented, resulting in continued infrastructure capacity shortfalls and sewer overflows, contamination of coastal waters, and disruption for reexcavation and reinstallation of pipelines.

The APR provides a long-term planning process for future wastewater facility and infrastructure needs. Future needs are determined based on projected wastewater flow volumes, and facilities are sized and located in the APR to accommodate that flow. To accomodate the fine-tuning of facilities plans to future conditions, the actual design and construction of a facility is delayed until wastewater flows in the system reach a specified “trigger level.”

The “Trigger” Flow Concept

The staging of wastewater infrastructure design and construction in the APR process is based upon current wastewater flows and projections of flow growth rates using a threshold, or “trigger”, concept. A trigger flow is a volume of waste-water flow that, once reached, would initiate detailed project planning sufficiently in advance to allow it to be completed by the time it is needed. When the flow reaches a predetermined trigger level, the facilities planning process would be initiated. If the flow continues to increase to the second trigger level, the detailed design process would be initiated. Thus, the continued monitoring of the volume of sewage flow serves as a planning check to verify that growth is continuing as projected. If it is, the project proceeds; if not, the project is deferred. This procedure, if properly employed, is self-directing and self-correcting. Using the trigger flow approach for staging capacity needs, helps to keep as many expansion options open as possible.

In the APR, data on historical wastewater flows as well as population projections are used to make predictions about future wastewater flows. Projected future flows are then correlated with treatment capacity and an estimation is made about when additional capacity will be required. Once this is established, planners use this information to calculate trigger flow levels. The trigger flow is recalculated every one to two years based upon updated data on wastewater flows and population projections.

The calculation of the trigger flow is made by working back from the date at which new capacity will be needed. Since it takes 20 years to bring a facility on-line, the planning trigger is the predicted wastewater flow 20 years prior to the date at which new capacity will be needed. Since it takes about 10 years to design and construct a facility, the design trigger is the predicted flow 10 years prior to the date at which new capacity will be needed.

The trigger concept is best visualized as a graph with time along one axis and wastewater flows along the other. Projected wastewater flows and treatment capacity can be plotted on the graph as separate lines. The point where these two lines intersect is the date at which new capacity will be required. The trigger that initiates planning is a point on the projected flow line 20 years before the point of intersection. The trigger that initiates the design stage is a point on the projected flow line 10 years before the intersection.

The predetermined triggers, calculated using projected wastewater flows, are used as reference points and are applied to data from monitored wastewater flows. The volume of sewage flows to facilities is metered at several locations in Los Angeles. Data are compiled and analyzed. It is this metered flow that is monitored to determine when the trigger flows have been reached. The implementation of the APR is a dynamic process that is intended to evolve as conditions change.

Using projected wastewater volume flow data, planners in Los Angeles arrived at average daily dry weather flow projections of about 560 million gallons per day (mgd) for short-term conditions (2010) and 880 mgd for expected long-term (2090) conditions. The threshold, or trigger, flow that initiates the planning process is therefore 440 mgd, and it has already been reached. A facility report is being prepared by the Advanced Planning Group in the Wastewater Program Management Division of the Bureau of Engineering. This planning stage requires environmental assessment and Council approval. Workshops to get input from other city departments and the public are being organized. The trigger for the design of the facility is approximately 515 mgd. Until this flow is reached, the city can defer actual design and construction of the facility. When the trigger for the design process is reached, the planning process will move to the design stage, permits will be acquired, a site survey will be carried out, and construction will begin.

The trigger flow concept does not rely entirely on population projections. It also employs the monitoring of actual sewage flows. This is important because population projections can be inaccurate for a number of reasons and are subject to political considerations. In addition, other variables such as weather, economy, and conservation measures will all affect wastewater flows.

By tracking actual flows, these variables are taken into account and a more accurate and realistic picture of wastewater treatment needs is created.

The trigger mechanism ensures that facilities and infrastructure will be in place when needed. It provides justification for planners to begin the planning and design process well before increased capacity is actually needed. As such, it represents an innovative strategic planning tool.

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References

Kawasaki, L.Y. *Los Angeles Advanced Planning Report for Its Wastewater System.* Environmental Affairs Department, City of Los Angeles, n.d.

City of Los Angeles, Bureau of Engineering. *Application for the 1992 President's Environment and Conservation Challenge Awards.* City of Los Angeles, 1992.

City of Los Angeles Wastewater Program Management Division, Bureau of Engineering, Department of Public Works. *Advanced Planning Report.* City of Los Angeles Clean Water Program, September, 1992.

4.4.2 CASE #11
KANAGAWA PREFECTURE, JAPAN
ACTION PLANNING

Program Name

Agenda 21 Kanagawa

Background

Kanagawa Prefecture is located in the center of Honshu, the main island of the Japan archipelago, just south of the Tokyo Metropolitan area. Kanagawa Prefecture is a region of 2,413 square kilometers and home to some eight million residents who live primarily in the Yokohama and Kawasaki urban areas in the eastern part of the Prefecture along Tokyo Bay. It is one of the most highly populated and developed regions of the country, containing the major urban and industrial centers of Yokohama and Kawasaki. The economy of Kanagawa is highly diversified, with a wide range of high-technology, manufacturing, and service industries that account for nearly 10 percent of the GNP of Japan. With a gross domestic product equivalent to that of Sweden or the Netherlands, Kanagawa is also one of the most highly industrialized regions of the world and one of the largest consumers of energy and natural resources. Geographically, Kanagawa is an ecologically diverse region, bordered by the Tokyo Bay coastal region, and a mountainous and forested western region that includes part of the Mt. Fuji National Park.

In the 1960s and 1970s, Kanagawa experienced severe industrial pollution and public health problems as a result of rapid post-war development. Kanagawa overcame these problems through strict regulatory measures at the local level. Through the 1980s and early 1990s however, Kanagawa became aware that the focus of environmental concern shifted away from end-of-the-pipe industrial pollution problems to the more complex and non-point source issues of consumer lifestyles, the structure of urban space, and the gradual loss of natural lands to urbanization. Further, the impact of local activities on the global environment, as demonstrated by

such issues as ozone depletion, also played a part in this changing awareness. The process of dialogue that led to the creation of Kanagawa's Local Agenda began from a realization that these modern environmental issues would have to be tackled through the cooperative efforts of all sectors and citizens of the region and by taking a long-term and international perspective on the issue of the environment and development.

In 1991, Kanagawa declared the year 1992 as "Earth Year Kanagawa: Year 1 for the Global Environment," and undertook a wide variety of events, campaigns, and policy-making efforts. Central to the Earth Year events was a series of meetings that took place throughout the Prefecture, and aimed at the development of a set of action guidelines for global environmental protection. These guidelines were designed to be Kanagawa's own local version of *Agenda 21. The* guidelines were formally named *Agenda 21 Kanagawa* in January 1993, when the document was adopted by the Kanagawa Prefectural Government. The development of Kanagawa's action plan is described below.

Program Description

In 1992, the Prefecture established a Local Agenda 21 planning framework and process to establish *Agenda 21 Kanagawa.* Within the Prefecture, the Prefectural Environmental Policy Section of the Environment Department served as the secretariat for the Local Agenda 21 project. This department undertook the lead in the overall organization, planning, and preparation of various meetings, and in the drafting of *Agenda 21 Kanagawa.* Under this department's direction, *Agenda 21 Kanagawa* was prepared in consultation with the community through what was called an "Agenda Building Process."

The Agenda Building Process

The Prefecture first established an *Agenda 21 Kanagawa* Experts' Advisory Panel comprising 10 eminent members of the scientific and academic community to review the process and make recommendations on the final Local Agenda 21 document. This body met a total of five times throughout the agenda-building period.

The Prefecture began hosting a series of meetings of key organizations in Kanagawa. Three sectoral "conferences," or committees, were subsequently established to represent prefectural citizens/nongovernmental organizations, local private enterprises, and local municipalities in Kanagawa. Each of these bodies included representatives of key organizations in the Prefecture. The citizens' body, for example, the Kanagawa Citizens' Conference for Global Environmental Protection, comprised 43 key citizens' groups and NGOs. The private-enterprise committee consisted of six economic and trade associations in Kanagawa, such as the local Chamber of Commerce. Finally, the local municipality committee was made up of representatives of all 37 city, town, and village authorities within the Prefecture. Each of these committees met from five to seven times throughout the year to develop a set of concrete proposals to input into the overall Local Agenda 21 building process. Mid-way through the process, "Unified Conferences," or round-table meetings, were also held, in which representatives of all three sectors gathered to report on their progress and exchange views on common tasks and the potential for cooperative action.

Within the Prefecture an Interdepartmental Liaison and Coordination Committee, incorporating every department head within the prefectural government, was established to ensure a coordinated response to the input and recommendations that arose from the Local Agenda 21 process. This body met twice per year, and was chaired by the Vice Governor. Below this body, a working-level committee made up of section chiefs from each department was also established; it met four times per year. The secretariat would summarize the input from each of the three sectoral conferences, report on this progress internally to the Interdepartmental Liaison Committee, and then provide feedback to the external dialogue process.

The secretariat took a variety of measures to ensure opportunities for broad-based input from other citizens and local organizations of Kanagawa that were not involved directly in the partnership processes. These included the hosting of a number of neighborhood consultative meetings at which prefectural representatives would explain the objectives and aims of *Agenda 21 Kanagawa* and listen to proposals and input from the community. The Prefecture also conducted direct mail campaigns in which information on *Agenda 21 Kanagawa* was mailed out to thousands of households with return address postcards to allow community feedback. Finally, the Prefecture took advantage of other Earth Year events and the mass media to build awareness of, and promote involvement in, the *Agenda 21 Kanagawa* planning process. The Prefecture estimates that thousands of direct written responses were received as a result of these efforts.

Institutionalizing Agenda 21 Kanagawa

The resulting Agenda for Action contains numerous action proposals specifically targeting citizens, business, and local government

in four goal areas. These four areas and examples of action recommended in the agenda follow:

ENVIRONMENTAL LIFESTYLES

Citizens:
Switch off the pilot light of the boiler. Avoid disposable paper products.

Business/Government:
Use air-conditioner/heater efficiently. Introduce cleaner vehicles.

SUSTAINABLE CITIES

Citizens:
Protect and plant greenery.

Local Government:
Surface roads with water-permeable pavement.

Business:
Surround factories and offices with greenery.

ENVIRONMENTALLY SYMBIOTIC SOCIO-ECONOMIC SYSTEM

Citizens:
Reduce the amount of industrial waste.

Local Government:
Form a comprehensive strategy for waste reduction and resource recycling.

INTERNATIONAL ENVIRONMENTAL COOPERATION

Citizens:
Learn more about developing countries' issues.

Local Government:
Promote environmental cooperation with sister states/cities.

One of the key features of *Agenda 21 Kanagawa* is its quantitative approach to target setting. Concrete, measurable targets for each of its action proposals are provided (e.g., "reduce electricity use 10 percent"). The estimated result of each action is calculated based on simulated data, translating the effects of each action into easy-to-understand terms such as "equivalent of four days' energy

output from all the power stations in Kanagawa would be saved." Quantifying the results of actions proposed by a Local Agenda 21 is important to gain public support and action. Kanagawa officials emphasize the need to keep concepts and objectives clear for the general public. Accordingly, the expected results of individual efforts should be expressed in easy-to-understand terms, such as "number of trees saved."

In January 1993, the Prefecture hosted the Kanagawa Conference for the Promotion of Global Environmental Protection. Representatives of each sector that took part in the *Agenda 21 Kanagawa* building process attended the conference. It was here that *Agenda 21 Kanagawa* was formally adopted as the new action guidelines for global environmental protection. The conference participants were instituted as the permanent *Agenda 21 Kanagawa* oversight body to monitor the progress of the Agenda's implementation. The former Interdepartmental Liaison Committee was also institutionalized as a permanent new addition to the Prefectural Government and renamed the Kanagawa Council for Global Environmental Protection.

Agenda Implementation

As a result of the creation of *Agenda 21 Kanagawa*, members of the public and private sector have become involved in a variety of activities to support its goals and promote sustainable development.

Prefectural citizens' groups have been implementing volunteer activities such as tree planting, the recycling of cans, bottles, milk cartons, and used clothing, the recycling of used cooking oil into soap, "environment-watch" activities to check the state of the environment in their own neighborhoods, and the hosting of environmental festivals. Local businesses have hosted a series of environmental training seminars, are working to develop a framework for environmental auditing, and have provided financial support to a variety of public events and projects.

The Prefecture has implemented some 52 projects relating to *Agenda 21 Kanagawa* with a total budget of US$149 million. A "Household Edition" of *Agenda 21 Kanagawa* has been published and distributed throughout the Prefecture. A comprehensive study of the environmental activities of local businesses was conducted and a Manual for Corporate Environmental Action was developed especially for small and medium enterprises. The Prefecture also supports the activities of citizens and non-governmental organizations in a variety of ways, such as through direct financial support and the provision of information, facility space, and/or technical expertise.

Specific large scale projects undertaken as the result of the *Agenda 21 Kanagawa* have included the construction of model "eco-housing" developments that are designed to conserve energy, and make use of rainwater and recycled materials. Currently, over one hundred of these units have been completed and are in use. To reduce the burden on the waste water treatment and storm water system and increase the replenishment of groundwater in the urban environment, the Prefecture decided to use a water-permeable pavement on prefectural roads. Already, 30 kilometers of roadways have been surfaced with the new substance.

Another major new development was the creation of a Prefecture-wide system for the recovery and destruction of ozone depleting CFCs. Through the cooperation of private enterprise and local municipalities, a system was implemented in which municipalities collect CFC-containing wastes such as refrigerators from households and businesses, and recover the CFCs with the appropriate equipment. The Prefecture then collects the tanks of CFCs and delivers them to a centralized CFC demolition facility operated by the national government. The Prefecture also has set up a subsidy system to provide funds for the purchase of non-CFC equipment.

The conservation of tropical forests is another major area of action. The Prefecture has set a target to reduce the consumption of tropical timber for public construction works by 70 percent over a three-year period, and is working with local businesses and researchers to develop alternative materials and construction methods to reduce the widespread practice of using such timber for concrete moldings. A new foundation was implemented by the Prefecture, which works actively in the developing world on projects to protect and restore tropical forests.

In the field of international cooperation, the Prefecture has decided to investigate the possibility of engaging in environmental cooperation projects with its sister states in the developing world. Kanagawa has also set up a "people-to-people cooperation system" to educate people about developing world issues and support citizens' initiatives for development assistance. In October 1993, Kanagawa established the new International Ecology Center as a base for research and international cooperation efforts for sustainable development. The center is engaged in research on tropical forest restoration and has a number of projects in progress in the Sarawak of Malaysia and other Southeast Asian nations.

Agenda 21 Kanagawa has created positive side effects in terms of the internal decision-making process and systems at the prefectural government. Primarily, the newly established Kanagawa Council for Global Environmental Protection provides a framework for unprecedented inter-departmental cooperation on issues like urban greening that cross traditional departmental lines such as Parks, Construction, and Forestry. Additionally, a system was established in which an individual employee in each section would be placed in charge of in-house environmental matters, including disseminating information related to the environment, setting up and maintaining an office paper recycling system, turning off unused lights, etc.

The Agenda 21 Kanagawa process has created new awareness of the need to protect the environment, as well as a sense of common purpose regarding the environment throughout the community. Furthermore, as the first Local Agenda 21 initiative in Japan, *Agenda 21 Kanagawa* has become the model for other Local Agenda 21 efforts throughout the country.

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4.4.3 CASE #12
DAR ES SALAAM, UNITED REPUBLIC OF TANZANIA
COMMUNITY-BASED ACTION PLANNING

Program Name

Sustainable Dar es Salaam Project (SDP)

Background

The city of Dar es Salaam ("Haven of Peace") is the industrial, commercial, and governmental center of Tanzania, serving the nation (and several neighboring land-locked countries) through its natural harbor and communications linkages. The city has an estimated growth rate of 8 percent per annum, one of the highest in sub-Saharan Africa. While rapid growth provides numerous economic opportunities to the urban population, environmental conditions in Dar es Salaam have deteriorated rapidly, severely limiting national and city economic development and adversely affecting the health and welfare of the city's residents.

The environmental and development problems constraining Dar es Salaam include lack of formal access to the water distribution, solid waste collection and sewage disposal in settlement areas, extensive industrial pollution, unplanned transportation networks and traffic congestion, environmental health problems, and urban sprawl.

Dar es Salaam faces a number of institutional constraints. Development of the city generally failed to follow the long-term Master Plan that was created in 1979. There was no institutional mechanism to coordinate the parties involved in managing the city's growth, or to provide resources for investments, and no enforcement against those developers who did not comply with the land use and development standards.

Faced with the rapid growth of the city, a severe lack of financial and institutional capacity in both the Dar es Salaam City Council (DCC) and central government led to rapidly deteriorating environmental conditions in and around Dar es Salaam, reducing opportunities to achieve sustainable socio-economic and environmental growth and constraining the development of the city.

Program Description

The Sustainable Dar es Salaam Project (SDP) began in 1992 and addresses critical environmental issues that are constraining the

economic growth of the city and imperiling the natural resource base. It is being implemented as part of the global Sustainable Cities Programme of the UN Center for Human Settlements (Habitat).

The SDP meets its goal of socio-economic development and growth in the city of Dar es Salaam by:

• enhancing the availability of, and promoting, the sustainable use of natural resources and reducing exposure to environmental hazards in the city of Dar es Salaam; and

• strengthening local capacities to plan, coordinate, and manage urban development.

The short term objectives of the program are to:

• define the most pressing environmental issues affecting the city's growth and development;

• establish an environmental planning and management capacity within the DCC based upon improved cross-sectoral and multi-institutional coordination between local and central government, in partnership with the private sector and nongovernment/community-based organizations;

• prepare detailed physical, financial, and institutional Action Plans to address the priority environmental issues identified;

• aggregate the Action Plans into a dynamic strategic development plan for the city; and

• assist responsible institutions to implement the Action Plans and through them to implement, monitor, and adjust the city's strategic development plan.

Priority Setting

As resources were scarce and the problems faced enormous, the SDP required an early and continuing process to prioritize issues. This was done as follows:

• An "Environmental Profile" was prepared to identify Dar es Salaam's environmental resource base, the consequences of "environment development interaction," and the institutional framework available for resource management.

• A City Consultation was held in August 1992 at which representatives of the highest levels of government and key stakeholders in the city defined and prioritized nine key environmental issues:

- **improving solid waste management;**
- **upgrading unserviced settlements;**
- **servicing city expansion;**
- **coordinating city center renewal;**
- **managing surface waters and liquid waste;**
- **managing air quality and urban transportation;**
- **managing open spaces, recreational areas, hazard lands, green belts, and urban agricultural potential;**
- **managing the economy and integrating petty trading; and**
- **managing coastal resources.**

Two priority areas were picked for immediate action:

- **solid waste management; and**

- **servicing urban land.**

Proposition papers were prepared for priority environmental issues that summarized the problems, justified the need for urgent interventions on social-economic grounds, and proposed a simple strategy of intervention based upon a partnership of public, private, and popular sector institutions.

Preparation of Action Plans and Immediate Implementation

At the City Consultation it was agreed that a new partnership approach to management was required, which would broaden the range of actors involved and would include the private sector and community-based organizations. Specifically, working groups were to include:

- **affected sectors and levels of government;**
- **affected geographical locations; and**
- **the private sector, community groups, and interested individuals.**

Workings Groups, each dealing with a specific environmental issue, were established to prepare pragmatic physical, financial, and institutional Action Plans. The SDP would eventually coordinate and integrate these into an overall strategy.

Solid Waste Management had been identified as the highest priority during the City Consultation. Five Working Groups were established, reflecting a five-point strategy of intervention that focused on the following:

- **launching an emergency clean-up;**
- **initiating a community collection system;**
- **recycling waste;**
- **managing disposal sites; and**
- **privatizing services.**

Working Groups addressed the most pressing problems and prepared draft project proposals for some $40 million of donor, technical, and capital financial assistance. This was backed by government of Tanzania counterpart financing through sectoral ministries, as well as by Dar es Salaam City Council in current budget estimates.

A technical coordinating committee chaired by the city director meet every six weeks to receive working group Action Plan proposals, which were subsequently presented to Council committees for final approval. The technical coordinating committee reports to a steering committee chaired by the principal secretary of the ministry responsible for local government. The role of the steering committee is to:

- **monitor project progress;**
- **provide policy guidelines;**
- **integrate the SDP and other donor activities;**
- **relieve operational constraints; and**
- **support project activities with necessary resources.**

Outcomes

At the institutional level, an environmental planning and management process is operational on a full-time basis, developing strategies and action plans to tackle critical environmental problems in the city. Technical capacity has been mobilized from the city,

central government, and the private and popular sector in partnership to support these activities. Two examples are worth citing:

EXAMPLE 1.

Faced with a total collapse of the Solid Waste collection-system in mid-1992, the Working Groups on Privatization, Emergency Clean-up, and Managing Disposal Sites prepared detailed Action Plans that resulted in significant DCC, central government, and donor resource mobilization. As a result, waste collection increased to between 10 percent and 15 percent of that generated each day, and a sanitary landfill operation was developed at a new disposal site. Some $2.75 million of donor and private sector capital investments and further technical assistance have been committed.

EXAMPLE 2.

The Working Group on Upgrading Unserviced Settlements selected the Hanna Nassif Settlement as a pilot project to support (in association with ILO and UN volunteers) a community-based initiative to provide much needed surface drainage. Six community groups have been mobilized, electing members to a Community Development Committee (CDC) whose membership is 60 percent female. The CDC was registered and a bank account established with locally raised funds of approximately US$500. “Community Construction Contracting” procedures designed to maximize local employment and income-generating opportunities have been agreed upon and used by the CDC to construct their own project offices and initial form work for drainage molds. Seed capital of $250,000 has been raised from the donor community for materials, with community groups contributing unskilled labor. As a result, three other communities have approached the project for support.

Broad strategies for intervention and some detailed Action Plans have been established for a number of environmental issues. These include:

- **privatization, emergency clean-up, and managing waste disposal;**
- **upgrading unserviced settlement;**
- **managing open spaces, recreational grounds, hazard lands, and green belts;**
- **improving air quality through transportation management; and**
- **managing liquid waste and surface waters.**

Lessons Learned

The SDP has become a focal point in the DCC for interested individuals and institutions to identify with, and become involved in managing the city’s environmental resources. It has also become a focal point for UN agencies and the donor community to channel funds into the city’s rehabilitation and future management. Hence, the project has made significant progress in improving the image of DCC to residents, and increasing service delivery on a more sustainable basis using more realistic cost-recovery mechanisms.

The sustainability of the process being developed and integrated within the city management structure is based upon its focus on environmental issues, and the Working Group members developing a sense of ownership of their proposals. As the groups build their environmental data bases, review the costs and benefits of alternative interventions (especially the cost of environmental neglect), and implement their proposals, they create a greater awareness of good environmental planning and management practices. They can then anticipate the potential impacts of city growth on its natural resources base before they become a crisis.

In spite of the progress recorded so far, the SDP has faced a number of problems. Professionals tend to be trained conventionally and more time is required to sensitize, and “de-school,” various actors who participate in the Working Groups to respect and adapt to other professional views and individual opinions. Time is needed to introduce professionals, technocrats, decision makers, and members of the public, to the project principles, process, and activities. Because the program focuses on environmental issues which cut across institutional divides, certain institutions, departments, professions, and individuals, feel threatened. Fears have been expressed of a “takeover” of some city departmental functions by the city planner, requiring further emphasis on the fact that the program is meant to support all institutions involved in better managing of city resources, and is not a new department itself.

Other problems include the poor financial resource base of Dar es Salaam City Council, a demoralized work force, and a lack of

equipment, especially communications and transportation equipment, which greatly slows down program implementation. Finally, there is constant pressure to demonstrate progress to keep actors, especially decision makers, motivated and involved; and yet the SDP is essentially a long-term process that delivers visible results gradually and whose most important achievements are institutional changes.

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CHAPTER 5 Implementation # Monitoring

5.0 Introduction

An excellent Action Plan provides no guarantee that problems will be solved, that needs will be met, or that the life of a community will become more sustainable. Indeed, one of the major hurdles that a local government may encounter in establishing a Local Agenda 21 planning process is the skepticism that residents and service users may feel toward more planning and more plans.

The failure of local governments to actually implement plans is often attributed to a lack of will on the part of government institutions and officials. However, poor performance just as often results from a shortsighted planning approach that conceives of

the ultimate product as a plan rather than institutional reform and action. A successful planning process must directly address the practical requirements of implementation.

The successful implementation of a strategic Action Plan requires two primary activities. First, the stakeholders who researched and developed the plan must transform the organizational structures that they used for planning into organizational structures that have specific responsibilities and capabilities for implementation. Second, the local government must integrate the proposals and targets of the stakeholders' Action Plan into its own practices, including its budgetary priorities and investment decisions. Mobilizing the institutional capacity of the local government may be essential to implementation, as it is typical for volunteer stakeholder participants to reduce their time investment following an extensive community-based planning effort—just as the critical implementation phase begins.

There are five key components to an effective joint implementation strategy between a local government and its external stakeholders:

- **the creation of new structures or the reform of existing structures to support implementation partnerships;**
- **the establishment of a working linkage between the stakeholders' Action Plan and local statutory planning requirements;**
- **the review of existing municipal policies, budgetary priorities, and internal practices and procedures to test their compatibility with the Action Plan;**
- **the monitoring of new or future municipal policies, decisions, or actions to assure their consistency with the Action Plan; and**
- **the documentation of actions taken, both by stakeholders and by the municipality, to implement the Plan.**

5.1 Creating Effective Structures

An Action Plan is only as good as the structures put in place to implement it. In most communities, the existing governmental structures that are used to manage local development and provide services are antiquated and fail to meet present-day challenges and needs. For example, the formal jurisdictions of these structures may reflect old settlement boundaries; the major service problems facing the community may now arise from development activities outside the local jurisdiction. Local government structures also may be organized according to professional disciplines, whereas today's problems can only be solved through interdisciplinary approaches. In short, the fiscal, technological, and political constraints on governments may make it impossible for public sector institutions to fulfill their traditional functions at all.

The first step in implementing an Action Plan should therefore be to ask the following questions:

- **What reforms in jurisdiction or mechanisms for interjurisdictional cooperation are required to implement new programs and to enforce the proposed policies?**
- **How must structures be decentralized so that they can focus on community needs and facilitate the continued participation of stakeholders in the implementation of Action Plans?**
- **What structures must be put in place to assure that the responsible municipal staff from different departments can coordinate their activities with one another?**
- **What new institutions, established outside the municipal corporation, are necessary to implement proposed programs?**

5.1.1 JURISDICTIONAL REFORM

Many development and service problems arise from the inflexibilities imposed by antiquated jurisdictional boundaries. Urban areas now sprawl beyond the jurisdictional boundaries of the municipalities that are charged with managing urban growth, development, and service provision. Furthermore, ecosystems themselves often extend across multiple jurisdictions, making protection efforts

from a single jurisdiction impossible. Finally, in many cities, different municipal, provincial, parastatal, and private agencies have conflicting jurisdictions and compete with each other for resources and customers.

Create clear jurisdiction over the relevant action areas; eliminate jurisdictional competition.

Implementing a comprehensive Action Plan often requires either 1) jurisdictional reform or 2) mechanisms to bring different jurisdictions together to coordinate the implementation of strategies. Jurisdictional reform can include the extension of existing municipal boundaries, the amalgamation of multiple jurisdictions into larger local authorities, the renegotiation of service territories, or the transfer of powers, responsibilities, and resources from one jurisdiction to another. Inter-jurisdictional coordination can be formally established through the creation of joint commissions or councils with representation from each jurisdiction. Where formal jurisdictions cannot agree to coordinate with each other, residents can establish informal mechanisms, such as “round tables” or other stakeholder groups, which consist of influential persons or groups from each jurisdiction. These groups can lobby and facilitate agreements between the different formal jurisdictions to accept common standards.

Establish structures to coordinate actions between the different jurisdictions and sectors in the service area.

Worksheet 4 provides a matrix that can be used to identify which jurisdictions need to be involved in the implementation of Action Plan goals. Case #13 demonstrates how one group of municipalities in the Jundiai River Basin in Brazil worked together to establish a common management strategy for a shared river valley.

5.1.2 DECENTRALIZATION

Securing the participation of service users in the implementation of an Action Plan often requires the decentralization of highly centralized municipal structures. Decentralization permits municipal departments to work closely with neighborhood organizations and residents in order to implement programs and evaluate services. At the local level, two major kinds of decentralization are evident today.

Municipalities are actively decentralizing mechanisms for delivering specific services. For example, solid waste collection services have been decentralized in numerous cities. La Paz, Bolivia, reorganized its traditional solid waste management department into a quasi-public enterprise that

WORKSHEET 4 **JURISDICTIONAL COORDINATION FOR ACTION PLAN IMPLEMENTATION**

Action Plan Goal
Making River X safe for public use, e.g., swimming, fishing, etc.

Policy & Management Jurisdictions Relating to Goal		Local Sector/ Neighborhood			Local (Geographical Jurisdictions Relating to Goal)			Metropolitan		Sub-national				National	Regional Global
		Policy jurisdictions to involve	Solid waste micro-enterprise	Private solid waste contractor	City of Apple	City of Orange	Town of Banana	Regional Planning Commission	Regional Transportation Authority	State Water Company	State Industrial Control Board	State Roads Commission	State Dept. of Environment	Ministry of Environment	
PRIMARY	Wastewater management	6													
SECONDARY	Sewerage system	3			X	X	X								
SECONDARY	Wastewater treatment	1								X					
SECONDARY	Water quality monitoring	2											X	X	
PRIMARY	Solid waste management	6													
SECONDARY	Solid waste collection	2	X	X											
SECONDARY	Solid waste disposal	4			X	X	X						X		
SECONDARY		0													
PRIMARY	Industrial pollution control	2													
SECONDARY	Facilities permitting	1									X				
SECONDARY	Facilities inspection	1											X		
SECONDARY															
PRIMARY	Road construction & maintenance	10													
SECONDARY	Road construction	5			X	X	X	X	X						
SECONDARY	Maintenance & clearing	3			X	X	X								
SECONDARY	Bridge engineering	2							X			X			
PRIMARY															
SECONDARY															
SECONDARY															
SECONDARY															
Geographic Jurisdictions to Involve					X	X	X	X							

Action Plan Goal

Policy & Management Jurisdictions Relating to Goal		Local Sector/ Neighborhood	Local (Geographical Jurisdictions Relating to Goal)	Metropolitan	Sub-national	National	Regional Global
		Policy jurisdictions to involve					
PRIMARY							
SECONDARY							
SECONDARY							
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SECONDARY							
SECONDARY							
Geographic Jurisdictions to Involve							

Instructions on back

WORKSHEET 4 JURISDICITIONAL COORDINATION FOR ACTION PLAN IMPLEMENTATION

This Worksheet can be used to help stakeholders identify which geographic, policy, and management jurisdictions must be involved in working towards each Action Plan Goal. The Worksheet will clarify the complexity of taking different actions necessary to achieve each Goal, thereby facilitating the development of realistic strategies.

To use the Worksheet, write the Action Plan Goal in the upper left hand corner. On the top, horizontal axis of the Worksheet, write all the possible geographic jurisdictions that might relate to the Action Plan Goal. On the left, vertical axis of the Worksheet, write all the policy and management jurisdictions that might relate to the Action Plan Goal. These jurisdictions may be divided into different sub components or “secondary” jurisdictions.

Once the full range of possible policy and management jurisdictions are identified, place an “x” in each box to indicate which geographic jurisdictions are responsible for these policy and management areas. After completing this task, write the total number of geographic jurisdictions related to each policy or management area under the heading “Policy Jurisdictions to Involve.” The greater the number of geographical jurisdictions that need to be involved in taking action in a policy or management area, the more complex such action is likely to be. For example, the sample Worksheet indicates that ten geographic jurisdictions will need to be involved to achieve the Goal through road construction and maintenance activities. Will the benefits of road construction activities be great enough to merit the potentially complex activities in this area?

At the bottom of the Worksheet write, under the heading “Geographic Jurisdictions to Involve,” the total number of policy or management areas in which each geographic jurisdiction must be involved. Below this line, mark an “x” to indicate the key geographic jurisdictions, based on the number of policy or management areas or other factors.

provides contracts to micro-enterprises in low-income neighborhoods to collect and process the solid waste from those neighborhoods. In Phoenix, USA, the local government divided solid waste management services into geographical districts, and now establishes distinct solid waste collection arrangements for each district based upon competitive bidding between private firms and the municipal solid waste department on a district-by-district basis.

> Decentralize the administration of the plan so that the distinct needs of different neighborhoods and groups can be factored during implementation.

In a growing number of cases, municipalities have decided to decentralize their entire operations in order to bring local government closer to neighborhoods and to serve the differing needs of these neighborhoods. The first step taken by the City of Quito, Ecuador when it was given the legislative powers of a metropolitan municipality was to decentralize municipal operations into three “Zonal Administrations.” The South Zonal Administration has established offices in the low-income South Zone and is engaged in detailed planning efforts with neighborhood organizations to upgrade services in that area.

In order to empower and provide services to many small villages in the province of Cajamarca, Peru, the municipality reorganized into 12 urban neighborhoods and 64 “Minor Populated Centers” in the surrounding countryside. Mayors are elected for each of these newly created local authorities, which then form a new Provincial Council. Each mayor also heads a democratically elected governing body for his/her jurisdiction (see Case #2).

5.1.3 INTERDEPARTMENTAL COORDINATION

Of equal importance to decentralization is the need for structures to be established that facilitate inter-departmental cooperation. Effective issue analysis and action planning will produce strategies that address systemic problems. However, the limited disciplinary focus of traditional municipal departments usually only permits each department to manage a specific set of problem symptoms within its area of responsibility. No one has responsibility for the functioning and health of an integrated system. The implementation of strategies to address systemic problems therefore usually requires careful coordination between transportation, housing, public health, urban services, green space and recreation, and numerous other departments. Without a coordination mechanism among departments during the implementation phase, these strategies will not succeed. The independent actions of each department to address their own specific set of symptoms will either be duplicative or will overlook or even worsen the systemic nature of the problem(s) that produce those symptoms, wasting scarce municipal resources. Worksheet 5 is provided to assist in identifying the roles of different departments in achieving the goals and targets in the Action Plan.

Create structures to coordinate the actions of different municipal departments.

WORKSHEET 5 **INTERDEPARTMENTAL COORDINATION FOR ACTION PLAN IMPLEMENTATION**

ACTION PLAN GOALS	Municipal Department / Agency Tasks				
	Public Works	Health and Social Services	Transportation	Housing	City Administrator
Make River X safe for public use.	Connect all households to sewage treatment facilities. ☒	Institute regular testing and reporting on water quality. ☐	Divert storm water drains from river valley. ☐	Reduce household stormwater connections to sewerage system. ☐	Obtain financing for new sewage treatment facilities. ☐
Provide affordable housing for all residents.	Increase infrastructure capacity in designated housing areas. ☐	Identify residents in overcrowded housing. ☐	Link public transit line extensions with new housing areas. ☐	Create loan fund for housing upgrading intensification in designated areas. ☒	Obtain legislative approval for housing loan fund. ☐
Achieve national air quality standards.	Institute particulate control in public works projects. ☐	Establish clean air and transportation alternatives education projects. ☐	Expand public transit services; restrict inner city parking. ☒	Institute clean fuel home furnace and stove policy. ☐	Switch to use of clean fuels in municipal fleet. ☐
Increase number of locally controlled businesses.	Provide contract preferences to local businesses. ☐	Establish "young entrepreneurs" program. ☐	Provide advertising to local business at transit stops and stations. ☐	Develop and use locally sourced construction materials. ☐	Establish office of Economic Development. ☒
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

ACTION PLAN GOALS	Municipal Department / Agency Tasks				
	Public Works	Health and Social Services	Transportation	Housing	City Administrator

Instructions on back

WORKSHEET 5 THE INTERDEPARTMENTAL COORDINATION FOR ACTION PLAN IMPLEMENTATION

This Worksheet can be used to help municipal officials and stakeholders identify which responsibilities each municipal department must take to implement each Action Plan Goal. It can also be used to identify which municipal department will take the "lead," or coordinating role, for each Goal.

To use the Worksheet, write the Action Plan Goals on the left, vertical axis of the Worksheet under the heading "Action Plan Goals." Write the names of the different municipal departments on the top, horizontal axis of the Worksheet.

In each box of the matrix, write the responsibility that each department will need to take to achieve each Goal. On the basis of this division of responsibilities, indicate in the lower right hand corner of each box which department will take on the coordinating role for achieving each Goal. In addition to their implementation responsibilities, these lead departments would also be given primary responsibility for documenting and reporting on the activities undertaken to achieve each Goal, and for monitoring indicators and evaluating trends related to each Goal.

In recognition of this common shortcoming in municipal government, inter-departmental committees have become a standard element of municipal sustainable development planning. In Lancashire County, UK, (Case #1) an inter-departmental committee was established to review proposals submitted by the Environmental Forum (via the Environment Unit) before their submission to Council committees. The Region of Hamilton-Wentworth, Canada, (Case #17) has maintained a Staff Working Group on Sustainable Development, which meets regularly to monitor departmental efforts to integrate the Region's Vision 2020 goals and objectives into departmental programs.

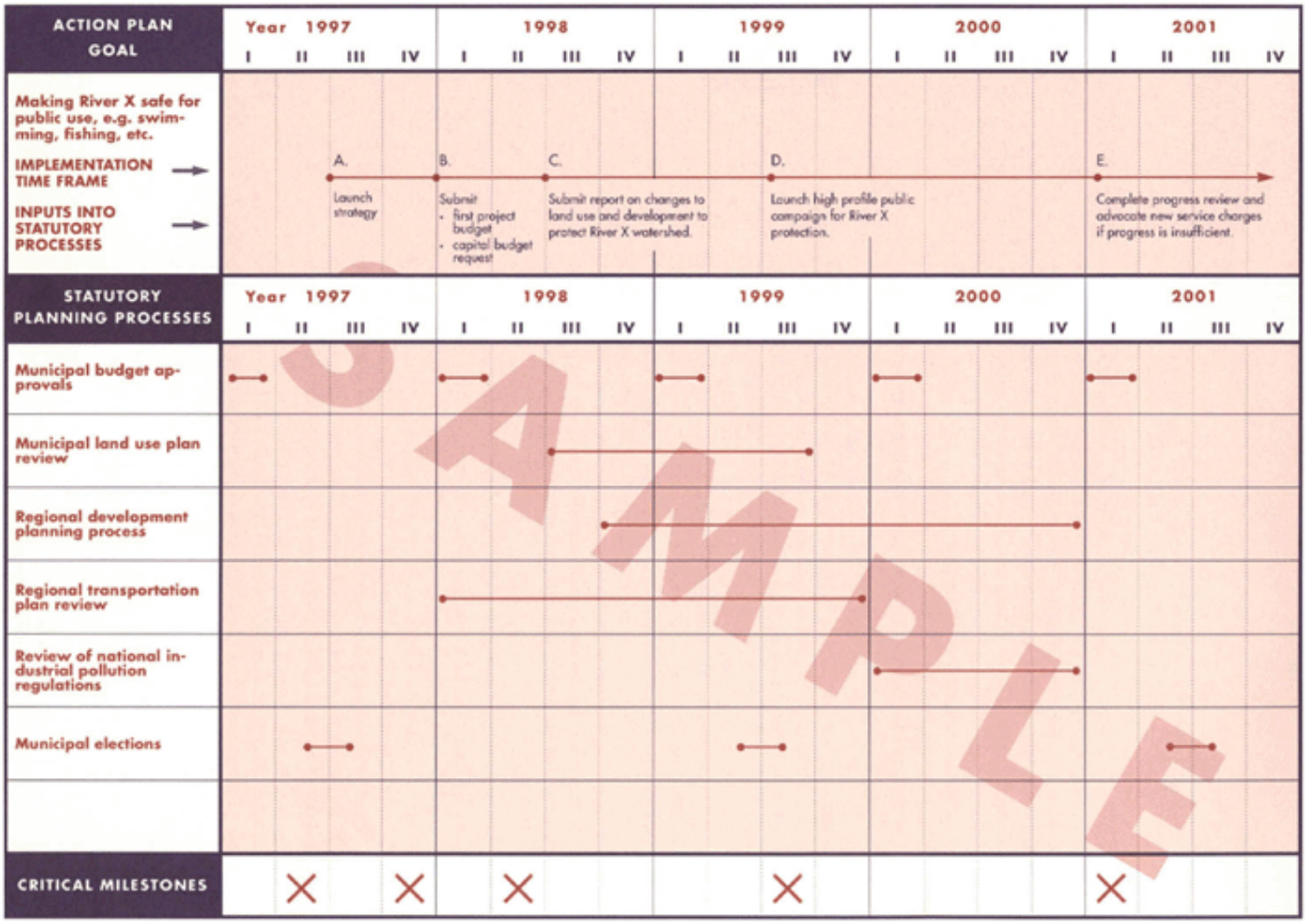
5.1.4 QUASI-GOVERNMENTAL AND COMMUNITY AGENCIES

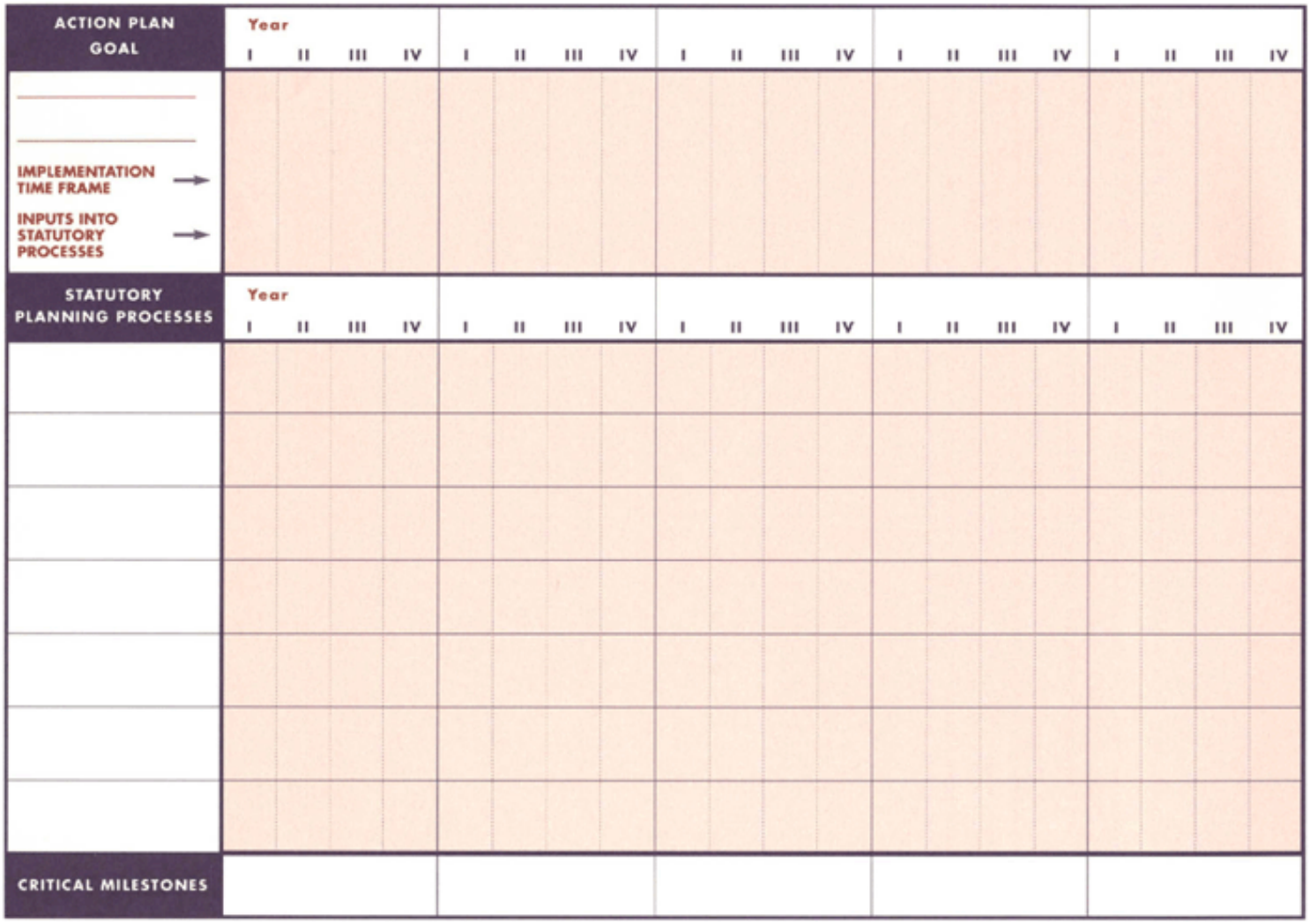
In most communities, many of the actions required to address a systemic problem are outside the purview or the control of the local government. Housing, air pollution, health, or other problems may result as much from private practices, market imperfections, product designs, or the actions of private corporations as from problems with municipal infrastructure or policy. The case of Stockholm, Sweden, (Case #14) demonstrates how a progressive municipality can use its regulatory powers and its controls over infrastructure to support and induce households and private companies to change their practices and redesign their products. However, in other countries, where municipal capacities and powers are not as strong, local governments can create external structures, generally known as “intermediary institutions,” to facilitate and coordinate the necessary involvement of households and private corporations in the implementation of an Action Plan.

Numerous examples of such institutions exist. A classic example is the Curitiba Research and Urban Planning Institute (IPPUC) of Curitiba, Brazil. IPPUC was established by the city of Curitiba in 1965 as a quasi-independent planning agency to oversee the long-term implementation of the city’s Master Plan. Since that time, IPPUC has served as a stable agent guiding Curitiba’s rapid development according to an urban structure plan that maximizes the cost-effective delivery of public transportation services and the preservation of the city’s central business district. The establishment of an independent implementation agency was required to implement this long-term strategy, due to the fact that Brazil’s local government system places a mandatory one-term limit on mayoral administrations.

Case #15 describes how the City of Graz, Austria, has used the mechanism of a stakeholder-based partnership between the city, the local universities, and local businesses to encourage businesses to review and redesign their industrial processes to make them more environmentally friendly. Examples of other municipally supported intermediary institutions abound. In the United Kingdom, municipalities are actively establishing

WORKSHEET 6 **COORDINATION OF ACTION PLAN IMPLEMENTATION WITH STATUTORY PLANNING PROCESS**


ACTION PLAN GOAL
Year 1997 1998 1999 2000 2001
I II III IV
Making River X safe for public use, e.g. swimming, fishing, etc.
IMPLEMENTATION TIME FRAME
INPUTS INTO STATUTORY PROCESSES
A. Launch strategy
B. Submit • first project budget • capital budget request
C. Submit report on changes to land use and development to protect River X watershed.
D. Launch high profile public campaign for River X protection.
E. Complete progress review and advocate new service charges if progress is insufficient.
STATUTORY PLANNING PROCESSES
Municipal budget approvals
Municipal land use plan review
Regional development planning process
Regional transportation plan review
Review of national industrial pollution regulations
Municipal elections
CRITICAL MILESTONES
SAMPLE



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WORKSHEET 6 COORDINATION OF ACTION PLAN IMPLEMENTATION WITH STATUTORY PLANNING PROCESSES

Worksheet 6 is provided to prepare a time schedule for implementing strategies related to each Action Plan Goal, and for linking these strategies with the time schedules of existing statutory planning processes.

To use the Worksheet, enter the relevant Action Plan Goal in the top left corner. List the relevant statutory planning and political processes on the left, vertical axis of the Worksheet. Indicate the time schedules for each of these processes in the appropriate row (see the sample Worksheet). Based upon the critical conjunctions of these statutory and political processes, mark with an “x” the “critical milestones” at the bottom of the Worksheet. Use these critical milestones to prepare a schedule for the implementation of the Action Plan. The schedule should allow stakeholders to provide necessary inputs into statutory processes and to arrange for the timely launching of public education and advocacy campaigns.

“trusts”—a form of private foundation—to raise funds and coordinate the implementation of the non-municipal aspects of their Local Agenda 21 strategies. In 1992, the City of Toronto, Canada, established the Toronto Atmospheric Fund to assist with implementation of the City’s policy to reduce Toronto’s CO_2 emissions by 20 percent by the year 2005. The Fund, which is governed by a board of city officials and citizen members, manages a significant endowment, provides grants to city departments and local organizations for projects, and advises the City Council on strategies for energy efficiency.

5.2 Creating Effective Planning Linkages

Effective and appropriate organizational structures are the first precondition for successful implementation of an Action Plan. However, an Action Plan can only provide direction to the municipality's most fundamental decisions—infrastructure investment, budgeting, land-use controls, and development approvals—if it is linked with its legal or "statutory" planning processes. These statutory processes include annual budgeting processes, preparation of municipal development plans, general land-use plan reviews, and capital/infrastructure planning processes.

> Create a formal linkage between the Action Plan and the statutory planning processes of the municipality—budgeting, land-use planning, development planning, etc.

Ideally, linkages with statutory processes will have been established at the early stages of the planning effort. The best time to undertake a sustainable development planning process is concurrent with, or preceding, the deadlines for statutory planning. For example, in the case of Johnstone Shire, Australia, (Case # 4) the sustainable development planning process had direct linkages with the Town Planning Review process and the development of a Corporate Plan. In such a case, the work of the Stakeholder Group, such as issue analysis and target-setting, is used to inform, if not direct, the recommendations of these statutory processes. However, if timing does not permit such direct linkage, the municipality should consider, at a minimum, the establishment of procedures and guidelines for municipal staff on how they must integrate the goals and proposals of the Action Plan into the statutory planning effort.

Worksheet 6 is provided to assist in mapping out the schedules of different statutory planning processes and identify how these can be linked with the strategic planning and Action Plan implementation effort.

> Audit internal practices to make sure they are consistent with the Action Plan.

5.3 Internal Auditing and Monitoring

The day-to-day implementation of an Action Plan requires the establishment of procedures and standards that municipal departments, service agencies, contractors, and suppliers must use to guide their behavior. There are three key elements for developing and implementing such procedures:

> **• an audit of the compatibility of existing internal procedures and practices with the goals and targets of the Action Plan;**
>
> **• the establishment of procedures, rules, and standards that put the Action Plan into effect as a matter of internal operations; and**
>
> **• the establishment of a management system that monitors compliance with new procedures and standards.**

5.3.1 INTERNAL AUDIT

Just as financial auditing provides a procedure for the annual review of financial activities according to specified professional and legal standards, it is useful—and some might say necessary—for municipalities to review how their existing procedures and practices might support or hinder the implementation of an Action Plan. This review will provide a framework for introducing the

Action Plan to all municipal departments and agencies.

Internal audits can be undertaken by external consultants or can be organized as participatory processes involving municipal staff. A participatory process will better guarantee that the Plan itself is fully understood, discussed, and even challenged by the municipal professionals who take responsibility for much of its implementation. In some cases, the review might result in proposals from staff to alter the Plan so that it can be better implemented.

The two key elements of an effective auditing procedure are the audit criteria and the audit protocol. The audit criteria are the measures against which performance will be measured. The criteria are defined by the person requesting the audit and should be communicated to the party being audited prior to beginning the audit. In the case of sustainable development planning, the criteria are defined to test the consistency of current municipal practices, procedures, and policies with the goals, targets, and action strategies of the Action Plan.

The audit protocol consists of a set of procedures that will be used by the auditor to determine performance relative to the criteria. By applying a clear audit protocol, a similar audit by different auditors should produce similar results.

> Reform the standard operating procedures of municipal departments to assure compatibility with the Action Plan. Create an internal management system to review the compatibility of proposed projects or developments with the Action Plan.

5.3.2 REFORM OF PROCEDURES, RULES, AND STANDARDS

Based upon an internal audit of the compatibility of municipal practices with the plan, a municipality can identify and define what procedures, rules, and standards will need to be reformed in order to support implementation of the Plan. An inter-departmental committee can serve as an internal stakeholder group to review proposals generated by staff and prepare a comprehensive proposal for procedural reform to be submitted to department heads or directly to the elected municipal Council.

5.3.3 INTERNAL MANAGEMENT SYSTEM

Following an initial audit and reform of municipal procedures, a system needs to be put in place to ensure that future actions or plans of the municipality are consistent with the objectives set forward in the Plan. For this purpose, a variety of environmental management systems (EMS) have been designed for both private sector and government application. These systems establish the organizational structure, responsibilities, and procedures that will be consistently used by the municipality to achieve its goals and control its impacts. Typical EMS procedures require systematic internal reviews of proposed development activities before these proposals are submitted to decision-making bodies. These procedures identify the extent of possible impacts that a project might have and define when a detailed environmental or social impact assessment should be undertaken to help mitigate negative impacts.

Case #16 presents the environmental management system applied by the City of Ottawa, Canada, to assure that all development activities undertaken by any municipal department are reviewed before implementation. The Ottawa system is a general review system to assure compliance with environmental regulations and is not linked to any specific Action Plan. The Regional Municipality of Hamilton-Wentworth, Canada, has established a simple procedure that requires all departmental submissions to Regional Council Committees to be evaluated according to how the proposal would advance or undermine implementation of its VISION 2020 Action Plan. The reporting procedure is described in the region's *Sustainable Community Decision Making Guide*, which was officially adopted by the Regional Council.

In another case (Case #7), New York City, USA, established the position of an environmental Ombudsman to work with the community of

WORKSHEET 7 **IMPLEMENTATION STRATEGY FOR ACTION PLAN TARGETS**

ACTION PLAN TARGET
Eliminate untreated sewage and industrial discharges into River X by 2002.

RELATED TRIGGER(S)
If external finance for new treatment facilities is not obtained by June 30, 1999, then industrial discharge fees will be levied and commercial/residential sewerage fees will be increased.

Actions Required to Achieve Target	Strategy	Responsibility	Time Frame	Progress Check	Required Resources	Monitoring Documentation Record	Performance Evaluation (Indicators)
1. Construct new treatment station.	Begin design work in next budget year.	Public Works Dept. City Administrator	Obtain financing by June 30, 1998. Complete construction by June 30, 2001.	Monthly progress meetings until end of 1997. Thereafter, quarterly meetings.	$ _____ 10 industrial engineering volunteers.	Progress reports on 1, 5, and 6 as well as volume of discharges, treated and untreated, written and filed by Public Works Dept.	Volume of untreated discharge (per month) from a) city sewerage system; b) industrial plants and facilities.
2. Require industries to pre-treat discharges.	Provide technical assistance. Institute regular discharge monitoring.	Chamber of Industries Health Department	Begin monitoring in this year, technical assistance in 1997.	On same schedule, submit written reports to Director of Public Works.	2 water quality monitoring staff. Student volunteers $ _____ / year		
3. Where possible, disconnect rooftop storm drains from roadside storm drains.	Provide water bill rebate to households that install rainwater collection barrels	State Water Company Public Works Dept.	Announce rebate in third quarter billing. Provide barrels beginning 1997.		Program paid by Water Company	Evaluation reports on partnership programs (2 & 4) prepared by City Health Council.	
4. Decrease household waste water generation through conservation and reuse.	Provide water-saving toilet and faucet equipment to all households. Educate residents on water use.	Neighborhood associations in partnership with local business groups	Begin three-year program in 1997.		$ _____		
5. Connect all households to treatment system.	Complete 1989 infrastructure plan for East District.	Public Works Dept. Housing Dept.	Complete construction by December 31, 1999.		$ _____		
6. Divert storm-water drainage from river valley.	Build storm-water reservoir near treatment station.	Public Works Dept.	Complete construction by December 31, 1998.				

ACTION PLAN TARGET				RELATED TRIGGER(S)			
Actions Required to Achieve Target	Strategy	Responsibility	Time Frame	Progress Check	Required Resources	Monitoring Documentation Record	Performance Evaluation (Indicators)

Adapted from *Guidelines for the Development of a Local Environment Policy*, Dept. of Environment and Land Management, South Australia, October, 1992.

WORKSHEET 7 IMPLEMENTATION STRATEGY FOR ACTION PLAN TARGETS

Worksheet 7 is provided to prepare a detailed implementation strategy to achieve each Action Plan Target.

To use the Worksheet, write the Action Plan Target in the upper left hand corner and the related Trigger(s) in the upper right hand corner. On the left, vertical axis of the Worksheet, write each of the specific actions that will be required to achieve the target. Then complete the Worksheet, specifying the strategies, responsibilities, time frames, reporting deadlines, resource requirements, and performance indicators related to each activity.

Greenpoint-Williamsburg to assure that the city and local industries complied with an agreed strategy to reduce pollution in that community. The Ombudsman also serves to monitor new environmental issues and brings these to the attention of the community and the city for action.

5.3.4 DOCUMENTATION

A final, but often overlooked, aspect of an effective implementation and monitoring effort is the establishment of capacity and procedures for documenting the implementation of a plan. Although documentation may seem to be a costly or burdensome nuisance, it should also be considered for the savings and benefits that it will provide as the plan is implemented, evaluated, and revised in years ahead.

Document actions for use in future performance evaluation.

A documentation program can be used to make the reporting required under an internal management system more consistent and reliable. Since a great deal of information is gathered during the implementation of projects, a documentation program can ensure that this information is available for future issue analysis, assessment, and planning exercises.

5.4 Conclusion

After the detailed issues of jurisdiction, interdepartmental coordination, linkages to statutory planning processes, monitoring, and documentation, have been discussed and decided, detailed implementation strategies can be established for each target in the Action Plan. Worksheet 7 provides a simple format for organizing and summarizing these implementation strategies.

5.5 CASES

5.5.1 CASE #13
THE MUNICIPALITY OF JUNDIAÌ, BRAZIL
INTER-JURISDICTIONAL COORDINATION

Program Name

Water Quality Control in the Jundiai River Basin

Background

The Jundiai River runs a 123 kilometer course through six municipal districts in the state of São Paulo, Brazil. These districts are Campo Limpo Paulista, Varzea Paulista, Jundiai, Itupeva, Indaiatuba, and Salto. The population of the Jundiai River basin is approximately 600,000 people, 90 percent of whom live in the urban area of Jundiaí and the remaining 10 percent in rural areas. The economy of the rural areas is based on small farm production of fruit and coffee, but the close proximity of the river basin to the city of São Paulo, Brazil, has resulted in the location of a wide range of industries along the river. These industries are responsible for the majority of employment in the region, and have therefore rapidly increased urbanization along the river banks. The primary environmental consequence for the region has been the increasing disposal of untreated industrial and domestic wastes into the river. Pollution of the river has increased to such a level that large portions of its waters are unsuitable for either domestic or industrial use. The Jundiai's polluted waters flow into the Tietê River, the main water course of the state of São Paulo.

For years, the splitting of both the service and political jurisdictions for water supply, land-use control, industrial pollution management, and drainage infrastructure prevented a comprehensive solution to the pollution of the basin. Each of the small municipalities did not have sufficient resources on their own to invest in sewerage infrastructure, and had little incentive to do so if the other municipalities in the basin continued to pollute the river.

Incremental approaches were not adequate. For example, in 1980 the municipality of Jundiaí (the largest of the municipalities with a population of 400,000) passed a law to protect the catchment area of a tributary river, the Jundiaí-Mirim. This law established permanent reserves within the Jundiaí-Mirim basin, regulated land uses, prevented the location of new industries in the basin, and controlled the density of human settlement. In 1980, Jundiaí also constructed a system of drains in the basin to prevent the flow of wastewater into the riverway. Nevertheless, in spite of these protection efforts, during eight months of the year the flows from the Jundiaí-Mirim were not adequate to meet local water demands, and an aqueduct had to be constructed by the São Paulo state water

company to pump water from another river basin, the Atibaia River, to the Jundiaí-Mirim for local use.

Based on this history, and the limits imposed by existing jurisdictions, the six municipal districts in the region established a cross-jurisdictional initiative to comprehensively address the pollution and protection of the Jundiaí River basin.

Program Description

In 1983 the six municipalities in the Jundiaí basin, local industries, the state of São Paulo water company (CETESB), and local community groups joined together to design and implement a comprehensive strategy for the recovery of the Jundiaí River and its catchment basin. These parties agreed to an initial protocol that established a joint Commission to study the pollution problem, and specified the terms and steps required of each party to develop the strategy. The Commission prepared a detailed map of all of the industrial and domestic outflows and drains into the river and analyzed the water quality at different points along the river. The study also presented the technical alternatives available for collecting and treating wastewater, ranging from individual facility control, to separate domestic and industrial control, to the establishment of a basin-wide sewerage collection and treatment system. Cost estimates for these different options were prepared. The different institutional and jurisdictional agreements required to undertake these alternatives were also specified. Finally, the Commission also addressed the need for basin-wide coordination and enforcement of land-use controls and environmental planning, which involves the community.

Based on the Commission's findings, the Commission established an agreement among the six municipalities, CETESB, and local industry representatives to create the Committee for Studies and Recovery of the Jundiaí (CERJU). CERJU is credited with negotiating the commitment and investment of key institutions and jurisdictions to implement a common Action Plan.

CERJU's plan had three major components, each of which had to be integrated with the other components and required coordination on a basin-wide level.

The first component was the design and construction of an extensive industrial and domestic wastewater drainage and treatment system, including local domestic treatment facilities and a regional industrial treatment facility. The second component was the revision of local land use policies to support the protection of the river and fragile basin areas. The third component was the establishment of an environmental planning process, focusing on the engagement of community groups and rural interests in protecting forest areas essential to the health of the river basin.

These three components of the task were addressed through the establishment of local CERJU committees in each of the six municipalities. These local committees consisted of municipal, state, industrial, and community representatives. Each municipality worked with its local committee to design and construct the locally required sewerage infrastructure to reduce wastewater outflows into the Jundiaí River and to transport effluents to a regional treatment plant. Local designs had to be carefully coordinated through CERJU on a regional basis to avoid interference with local facilities, regional railroads and highways, and other impediments. The state water company, CETESB, first constructed an experimental treatment station for regional treatment, and based on the experiences with this station, a permanent regional station is being constructed with local funds. Approximately 97 percent of the urbanized area in the river basin will be served by this infrastructure. The funding for the infrastructure component of the strategy was divided among the key stakeholders. The local municipalities covered 39 percent of the costs among them, the state of São Paulo covered 39 percent, and local private industries covered 22 percent through their purchase of local bonds.

To maximize the efficiency and strategic benefits of the infrastructure investment, the second and third components of CERJU's work—particularly the updating of local land use plans—were undertaken concurrently with the design and construction of the sewerage system. Other projects included the construction of a retention dam for storm water runoff in the Jundiaí-Mirim basin, which is used for riverside farm operations, and the establishment of a greenhouse and tree farming operation for the recovery of the "matas ciliares" forest on the upper slopes of the Jundiaí basin. The environmental objective of both of these projects is to prevent the siltation of the Jundiaí and its tributaries. Additional projects were undertaken with local communities to strengthen the protection efforts for the "Serra do Japi," a major forest reserve on the south side of the Jundiaí basin that has been threatened by local agricultural and land uses. One of these projects was to create a new local citizen organization, called S.O.S. Serra do Japi, which monitors protection and management of the forest reserve.

The result of the regional cooperation system created by CERJU and implemented by the local municipalities has been to significantly remove wastewater outflows into the river, increase the supply of usable water in the basin, and set necessary policies and programs in place to protect the long-term ecological stability of the basin. By 1992, in the city of Jundiaí alone, the pollution of

the Guapeva tributary river and more than 70 percent of the direct pollution loading into the Jundiaí had been eliminated.

The intensive communication and coordination among the six municipalities, local industries, and community organizations has stimulated the development of a regional pollution control and long-term environmental planning system.

Contact

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5.5.2 CASE #14
STOCKHOLM, SWEDEN
MUNICIPAL FACILITATION OF PRODUCT REDESIGN

Program Name

Measures at the Source

Background

Sweden's capital, Stockholm, has a population of 1,000,000 people and covers an area of 320 square kilometers. The city is located on the east coast of Sweden, where Lake Malaren empties into the Baltic Sea. Because of the city's many waterways, it ranks first in coastal traffic among Swedish cities. Stockholm's largest employers are the metalworking, engineering, publishing, food processing, chemical, textile, and clothing industries.

Stockholm Water Ltd. (Vatten) is a municipally owned company responsible for producing and distributing drinking water and for treating wastewater in the greater Stockholm area. For the past three years, Vatten has carried out an intensive program aimed at reducing discharges of hazardous substances into the sewer system, particularly metals such as lead, cadmium, and mercury. The wastewater from households, small industries, municipal activities, and urban storm drains undergoes primary and secondary biological treatment processes before it is used as fertilizer on arable land or is discharged into the Stockholm archipelago and the Baltic Sea. The use of municipal wastewater sludge as a soil enhancer on farmland was stopped by the Swedish Farmers' Federation in 1989 because of fear over its toxic constituents, especially heavy metals. Since modern sewage treatment facilities are not capable of eliminating metals from wastewater, Vatten embarked on a program that is based on preventing the entry of these non-biodegradable substances into the water system in the first place.

Vatten's multi-sectoral approach involved the city government, the neighboring municipalities, small businesses, professional associations, and local households. Vatten divided its efforts into four major groups based on the source of the pollutants, namely: small industry generators, wastewater from municipal activities, household wastewater, and storm water. To change small generator behaviors, Vatten used a consistent strategy of coupling new discharge standards and operational requirements with cooperative research, product development, marketing, and education programs to encourage voluntary improvements in wastewater handling. Appropriate methods for preventing or minimizing pollution discharges at each source were developed and implemented in cooperation with the various parties.

Stockholm Water Ltd. carried out the analysis of pollution levels, prescribed limits, conducted information campaigns, evaluated products for environmental friendliness, and developed treatment technologies in cooperation with industries.

Local businesses and small industries cooperated with Stockholm Water to create less polluting products and to develop treatment technologies. For example, the Swedish Dental Federation cooperated with Stockholm Water to address the problem of mercury discharges from dental practices.

The city of Stockholm imposed the pollution limits determined to be appropriate, coordinated with neighboring municipalities in the purchase of preferred products, purchased environmentally friendly products endorsed by Stockholm Water for its own use, and

provided stations for the collection of household hazardous wastes.

For their part, local households switched to products that have been determined to be environmentally superior, reduced usage of household products containing polluting substances, and disposed of household hazardous wastes at collection points instead of directly into the sewer system.

Reducing Mercury Discharges

Vatten's efforts to reduce mercury discharges provide an example of this combined regulatory and cooperative approach. In Stockholm, the sludge produced at the Henriksdal waste-water treatment plant, the largest of Vatten's three sewage treatment facilities, had a particularly high mercury concentration. The concentration was so high that, if left unabated, it would exceed limits set by new national standards coming into force in 1995. In 1987,Vatten initiated investigations into the sources of mercury in wastewater, and the reasons why mercury loads in Henriksdal were higher than in other treatment plants.

The investigation process involved identifying all of the possible sources of mercury in Stockholm. An inventory was taken of small- and medium-sized companies that used mercury in some way in their production or trade, such as companies manufacturing fluorescent tubes, laboratory devices and instruments, and dental materials. Heavy industries were ruled out as potential sources of mercury discharges because these industries were not connected to Stockholm's sewerage and drainage network.

The inventory identified 18 companies, which were then contacted and visited. The investigation concluded that the processes used by these companies were dealt with in such a way that either no contamination of the wastewater could occur or that accidental mercury discharges were highly unlikely. Thus, small industries connected to the sewage system were eliminated as possible sources of mercury.

Analyses conducted during the investigation showed that about 20 percent of the total mercury load in the Henriksdal plant came from storm drains. These loadings were largely traced to the smoke fumes emitted by crematoria. Tests conducted in the two crematoria located in the Stockholm area had shown that crematoria smoke emissions contained some 50 kilograms of mercury each year. These emissions were presumed to find their way to treatment plants via storm water drains.

Samplings of household wastewater indicated that about 15 percent of the total mercury levels entered the sewerage system through the use of mercury thermometers in the home and from small amounts of mercury in food and in amalgam fillings in teeth. Samplings of discharges from hospitals, which use instruments and chemicals containing mercury, demonstrated that these institutions emit some 6 percent of the mercury loading in the Henriksdal plant system. Reduction in mercury discharges from hospitals was expected due to efforts to minimize the use of instruments and chemicals containing mercury in these institutions.

Based upon these findings, which accounted for only a portion of the mercury levels found in the wastewaters entering the Henriksdal plant,Vatten hypothesized that remaining discharges came from the more than 1,100 dentists in the Henriksdal area. The number of dentists in the Henriksdal area was three times the number of dentists connected to Vatten's other treatment plants. An investigation showed that sewage from the dental clinics had a mercury concentration 150 to 1,300 times higher than levels found in sewage from households. A 1988 investigation found that the amalgam separators used in dental offices as a measure to reduce mercury discharges functioned poorly due to bad construction and poor maintenance. This accounted for the presence of amalgam in the water traps of sinks installed in these clinics.

To address this situation, Vatten, in cooperation with the local environmental protection authority, developed standards for dental clinics connected to the municipal sewer system that exceeded Swedish national standards. These local standards, jointly implemented by the cities of Stockholm, Malmo, and Gothenburg, require that by January 1, 1994, all dentists must use amalgam separators that have passed the German or Danish national standards for amalgam separators. In addition, the local standards require that water that comes into contact with amalgam should be treated by an amalgam separator before discharge into the sewer system. This means that clinics must connect their washing machines, sinks, and dental chair drains to the amalgam separators. Requirements for the maintenance of these separators are also part of these new local standards.

Using the new standards as a minimum practice requirement, Vatten has initiated cooperative efforts with the Swedish Dental Federation to address the dual problem of low separator efficiency and the continual leakage of mercury from the amalgam accumulated in the pipes. An information campaign has been conducted to increase awareness of the problem as well as to promote the proper handling of amalgam by dental personnel.

To control mercury discharges from households, the sale of mercury thermometers was recently banned by the city. Electric thermometers with reusable or rechargeable batteries are now on the market for use in households and in hospitals. A campaign run in April 1992 to encourage people to turn in their mercury thermometers to pharmacies has resulted in the collection of about 190,000 thermometers, which corresponds to about 380 kilograms of mercury.

Toxic Discharges from Small Industry

Control of other toxic discharges from small businesses into the sewer system in Greater Stockholm was another of Vatten's antipollution measures. Focusing on surface finishing industries, graphic and photo laboratories, automotive repair shops, service stations, car wash shops, and food processing industries, Vatten's approach aimed to promote:

- **a shift by manufacturing industries to chemicals that are safer for the environment;**
- **the adoption of process containment technologies to reduce the amount of wastewater disposal from a manufacturing process; and**
- **extensive internal purification of wastewater by these industries before release into the sewer system.**

According to Swedish law, municipalities are only obligated to provide sewerage services to private households. Municipalities are under no obligation to provide wastewater treatment services to industrial users. While pollution standards and discharge limits for businesses are established by the Swedish Environmental Protection Act (SEPA), depending upon the size of the industry, regulations are set by either the national or regional environmental protection authorities or by the local environmental protection authority. In the process of establishing regulations, the sewage treatment plants, among others, are given the opportunity to make their own demands. In accordance with standards set by SEPA, Vatten compiled a list of acceptance limit values or parameters that these industries have to comply with in order to be allowed connection to the municipal treatment facility. This list, which was first compiled in 1980, was updated in 1989 by the city in order to intensify restrictions on additional substances.

- **Photo laboratories are now required to treat developer or fixing solutions separately before they are discharged into the sewer system. In addition, they must treat all rinse water containing silver, using ion exchange or similar methods. This measure has prompted larger companies to acquire their own treatment equipment. Waste produced by smaller graphics companies and laboratories that do not have treatment facilities are collected by waste disposal companies in the area for treatment.**
- **Car wash companies are required to run wastewater through oil separators and to maintain the oil separators according to regulations. They must also assign company personnel to be responsible for implementing environmental measures in each installation, including the annual reporting to Vatten of measures taken to comply with local regulations on auto care products. Auto care products containing APE (a nondegradable toxic substance) have been prohibited by the city's standards since July 1990. Auto care products with more than 20 percent petroleum will also be banned in the near future by the city. It is anticipated that car wash companies will be required to install purification equipment when appropriate technology is available on the market.**

Although the city does not have the authority to impose penalties to an industry that does not comply with the limits set by the list, the city can cut the violator's connection to the sewer system, or, if damage is done to the treatment plant or to the sewer system because of non-compliance by an industry, it can take legal action against the party involved.

Municipal and Household Discharges

Vatten's anti-pollution program also addressed hazardous discharges from households and municipal institutions resulting from the use of environmentally damaging dishwashing, laundry, and cleaning detergents, insecticides, and the reckless disposal into the sewer system of household paints and solvents and other toxic household products.

The shift to safer chemicals, especially in detergents, was achieved after discussions with product wholesalers and manufacturers. These discussions centered on the issue of harmful substances in dishwashing, laundry, and cleaning detergents, such as EDTA (a chelating agent) and nonylphenol (a surfactant) and the need to come up with better products. As a result of these meetings, nonlyphenol is no longer used in detergents. Two wholesalers have developed environmentally safe detergents for households and a leading manufacturer has developed a new detergent that has been marked with "the Swan," a Scandinavian symbol for

environmentally safe products.

In the autumn of 1989, SKAFAB, the city's waste disposal company, opened environmental stations or collection points where households may dispose of hazardous wastes that should not be released to the sewer system. Vatten also launched an extensive public information campaign in May 1990, aimed at influencing the behavior of the public towards purchases of household products that have adverse environmental impacts. An information campaign called "Wash Wisely" discouraged the use of unsuitable laundry and cleaning detergents. Primarily directed at large consumers, the campaign covered all municipal administrations in the city, including city-run schools, day care centers, hospitals, and neighboring communities. The campaign also provided every household in the city with an information folder on environmentally safe cleaning methods and products. This was followed by advertisements in daily newspapers, and poster displays in public places. Four months later, another folder containing information on environmentally hazardous household waste was distributed. This contained information on how to deal with hazardous household waste such as mercury from a broken thermometer.

Stockholm Water has initiated cooperation between municipalities in the region through the organization of a number of working groups. One of the working groups organized concentrates on the promotion of environmentally friendly construction materials during the permitting and financing processes for building renovations and new construction.

Ongoing cooperation has been fostered with other municipalities with regard to the purchase of suitable detergent brands, not only to realize economies but also to exercise their market influence over product designs. Vatten supports the effort through the continual grading of the detergents from an environmental viewpoint. As a result of the higher environmental consciousness among consumers, products that are excluded from the list of suitable products have lost market share, forcing the manufacturers to make their products more environmentally suitable.

Another component of Vatten's efforts was to reduce pollution from storm water drains. This involved a year-long study, started in autumn of 1991, to measure emission levels of dioxides, PAH pollutants, PCB pollutants, and metals from automobile traffic. Findings from this study will provide the basis for anti-pollution measures, such as imposing a ban on the use of cleated tires in the inner city area, reductions in the use of leaded gasoline, and the construction of separate storm water lines for high traffic streets.

This program has achieved substantial reductions of various metal contents in sewerage sludge—from 50 percent to 84 percent—over an 18-month period in 1990-91. This was achieved in spite of the city's lack of regulatory powers to impose penalties or to close down polluting industries. Vatten has skillfully leveraged the city's legal position to disconnect polluting industries from sewage treatment facilities in order to achieve the compliance of businesses and small industries to the imposed limits. Vatten also collaborated with industries in the development of technologies that would render pollution limits more achievable, conducted awareness campaigns to harness consumer sovereignty to steer the market away from inferior products, and used the city's own purchasing power to encourage the introduction of environmentally superior products.

Solutions and technologies continue to be explored. Purification technology for car wash wastewater is being developed, and, when completed, will be required in all car washes. A year-long study is in progress to analyze the pollutants in storm water runoff and to provide the basis for measures to be taken. In cooperation with crematoria owners, purification of smoke fumes (primarily from mercury) is being conducted on a trial basis with plans to install effective facilities in the near future.

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References

Brattberg, Gunilla and Sven-Erik Skogsfors.
"Measures at the Source—A Presentation of Stockholm Water Ltd.'s Efforts to Reduce the Discharge of Environmentally Hazardous Pollutants

into the Sewer System." Submission to the UNCED Local Government Honours Programme. Stockholm: Stockholm Vatten, March 1992.

Dean, Robert B. *Water Reuse: Problems and Solutions.* London: Academic Press, 1981.

Elinder, C.G. and E, Kessler. "Toxicity of Metals," in *Proceedings of a Seminar on Utilization of Sewage Sludge on Land: Rates of Application and Long-Term Effects of Metals.* Uppsala, Sweden: Department of Environmental Hygiene of the Karolinsha Institute and the National Institute of Environmental Medicine, June 1983.

Guterstam, Bjorn. "Experiences from Full-Scale Ecological Engineering for Wastewater Treatment in Sweden," in *Proceedings of Seminar on Emerging Technologies in Municipal Wastewater Treatment.* Stavanger, Norway: August 1991.

Hamer, Mark J. *Waste and Water Technology.* Toronto: John Willis and Sons, Inc. 1975.

5.5.3 CASE #15
GRAZ, AUSTRIA
PARTNERSHIPS FOR INDUSTRIAL PROCESS REDESIGN

Program Name

ECOPROFIT Graz

Background

The cumulative loading of pollution and wastes to the urban environment from numerous industrial and commercial companies located in urban areas is significant. In Graz, Austria, water and air pollution caused by industrial emissions are priority environmental problems. Graz, a city of 240,000, is surrounded by mountains to the north, resulting in poor air circulation, especially in winter when air inversions occur. The main economic activities are automobile and machine production, shoe manufacturing, and brewing; much of the pollution problem is generated by these small enterprises.

Pollution reduction measures for small- and medium-sized companies differ from those for large industries. Corrective technologies are generally expensive and may not be practical or appropriate for use by small- and medium-sized companies. Further, because of the relatively small amounts of wastes and pollution that these firms generate individually, they are often not subject to regulatory measures, or they may simply escape detection due to a lack of municipal resources to enforce pollution regulations. Both corrective technology and regulatory approaches to pollution problems in such instances are ineffective and unworkable.

Preventing pollution is a superior approach to "end of pipe" waste management techniques, as the benefits include both a reduction in wastes and emissions as well as a reduction in resource consumption. Moreover, changing production processes to prevent pollution may be the only viable option for many smaller businesses. A pollution prevention approach is a fundamental strategy of sustainable industrial development since cleaner production avoids wastes and emissions and also increases industrial production efficiency and can ultimately lower overall costs.

Although many small- and medium-sized enterprises may have neither the technical expertise nor the financial resources to change

from a corrective to a preventative approach in handling their wastes, municipal governments have compelling reasons to promote pollution prevention through cleaner production. The municipal mandate to manage wastes and to deliver clean water means that local governments have a vested interest in pollution prevention in order to avoid the steadily increasing costs of water treatment facilities, waste management, and other remediation measures. Municipalities also have a pecuniary interest in helping local companies to increase efficiency and profitability in order to support the municipal tax base.

The case of Graz demonstrates how local governments can facilitate a preventative approach to pollution and waste problems by forming partnerships with the academic, business, and industrial sectors and by mobilizing the technical expertise and entrepreneurial skills of these communities. Such partnerships facilitate the transfer of sophisticated pollution prevention technologies and methodologies from advanced technical institutes to the business and industrial communities. In this way, local governments can play a role in demonstrating to industries and businesses how they can profit from pollution prevention. Minimizing polluting emissions and increasing the efficiency and profitability of private companies will result in cost savings for municipal governments and environmental benefits for the entire municipality.

Program Description

ECOPROFIT Graz, ongoing since 1991, is a project that attempts to put into practice the concept of profit from pollution prevention. The program works within the existing legislative framework to introduce companies to new low-and non-waste technologies and to demonstrate how these technologies can increase efficiency and profits while preventing pollution. Successful private-sector examples of economic and ecological waste minimization are then marketed to attract wider acceptance of the preventative approach within the business community.

The municipality's Department of Environmental Protection, in cooperation with the Graz University of Technology, initiated ECOPROFIT. ECOPROFIT (ECOlogical PROject For Integrated environmental Technologies) uses an innovative approach that couples information and technical assistance with marketing support.

ECOPROFIT highlights improved management techniques and production processes based on the closed-cycle concept. The closed-cycle production scheme used in ECOPROFIT is based on the concept of a circular, non-linear flow of materials similar to the recycling of materials in natural ecosystems. Although there are always some losses of materials from the production process, the idea is to maximize the recycling of materials into the original production process or to use the materials lost from one production process as inputs into another production process. The application of closed-cycle pollution prevention measures integrates economic and ecological considerations by increasing efficiency and profits while reducing wastes and pollution.

The Waste Minimization Research Group of the Institute for Chemical Engineering at the Graz University of Technology, which heads the project, is investigating strategies for closed-cycle production and has investigated related international research activities on waste minimization and ecologically conscious design. Previous efforts in this area have been carried out in the United States, Sweden, and the Netherlands.

Information about the ECOPROFIT project was widely disseminated to the public and to local companies in order to recruit interested participants. Five companies were chosen for the initial phase of the program, according to criteria based on their representative potential for wider applications of the project results. Each company had to be a "typical" size for the city, had to employ commonly used technology, and had to be willing to play a role in the public relations activities associated with the project. Following selection, company personnel were trained in the concept of closed-cycle production. A tool kit was made available to interested companies, including manuals, data sheets, videos, and other training materials.

The initial companies in the ECOPROFIT project included three printing companies of different sizes (from six employees to 500 employees), a large vehicle repair garage with 230 employees, and a wholesale coffee roaster and chain-store company with 342 employees. Each had released emissions into the air and water as well as solid wastes with varying toxicity. An introductory workshop was held to train the concerned representatives of these companies in ECOPROFIT methods and data collection methodologies. Program managers felt that it was necessary to establish a basis for trust; the company representatives were assured that the internal data of the companies would be confidential.

The following principles were used as guidelines that the participating companies were encouraged to adopt:

- **anything that leaves the production process should be considered as a product or raw material that can be used**

directly, or after processing, as an input for another production process;

• every product is optimized regarding reparability and recyclability;

• production is based on renewable sources of energy and substances that, as far as possible, are based on recycled (secondary) materials;

• the producer is responsible for the whole life cycle of his product, including energy consumption and emissions during the use of the products, its reparability, and ability to be recycled or disposed of;

• the producer chooses materials from renewable resources and releases wastes in a way that does not diminish nature; and

• the producer minimizes the energy demand to a level that can be provided by renewable energy sources.

Project managers recognize that these guidelines are general and can be transferred from one company to another in their principle ideas and strategies, but not in their details. According to the project, it is extremely important that the solutions be worked out within each company by the employees of that company, as part of its own particular internal structure. The support from external experts was limited to training in the implementation of the approach.

In order to integrate waste minimization into the production process the companies were required to:

• avoid all substances that cannot be kept in closed cycles;

• reduce all substances outside closed cycles to an amount that can be borne by ecosystems; and

• reduce the demand for non-renewable resources to a level that does not compromise following generations.

ECOPROFIT uses emissions standards contained in legislation enacted as part of the Austrian National Clean Air and Clean Water Acts. These emissions standards are relatively stringent compared to those in many other countries.

Each company was required to form a project team made up of members of different disciplines. Business, technical, legal, and maintenance personnel were all considered equally important. The basis for a cleaner production program is the fostering of an understanding of flows from inputs to outputs. Therefore the first phase of the project concentrated on the awareness of personnel to flows of mass—materials and energy—to wastes. Company operations and maintenance procedures were assessed with regard to these flows. For each company, an input/output analysis was carried out and was displayed in flowsheets. These analyses examined manufacturing techniques and processes, organizational structures, and the raw and processed materials used.

Each company was classified according to the characteristics of its waste stream. There were three classifications: dangerous or hazardous waste stream (requiring some form of security); waste streams that entail high costs; and waste streams that could be minimized or prevented. Waste minimization measures that could be carried out without investments were introduced during this phase of the project.

In the next phase of the project, the company's existing internal materials and energy flows were compared with those attainable with the application of state-of-the-art low- and non-waste technologies. The possibilities for incorporating low- and non-waste technologies into each company's production processes were assessed. A list of proposed measures that could improve the situation of the company was compiled. This list included actions aimed at all levels of the organization. For example, it included:

• organization of responsibilities regarding environment, material handling, and waste treatment;

• reorganization of the accounting system in order to improve knowledge about costs of generation and treatment of wastes;

• training and education of personnel at all levels (from top management to cleaning personnel) to increase levels of awareness about waste issues;

• changes in product design in order to minimize wastes during production, use, and disposal;

• technological changes in production to minimize consumption of materials and energy, while at the same time reducing the generation of wastes and emissions;

• changes in raw materials acquisition in order to reduce the amount and toxicity of wastes and to increase the utilization of renewable resources; and

• improvement of the waste management and logistics in order to maximize the reuse and recycling of materials.

The overall goal of the identified measures was the minimization of wastes and emissions through increased efficiency. Emphasis was placed on measures that could be carried out with little or no investment. The options were graded according to their technical and economic feasibility. In particular, identified measures were classified according to their pay-back (or amortization) period. For example, it was determined that the printers' garages had 54 technically feasible management options for waste minimization and pollution prevention and that 24 percent of the suggested measures would be profitable within one year, 30 percent would be profitable within two years, and 15 percent would have no impact on profit or loss. Company personnel chose the low- and non-waste technologies that they felt would benefit them the most.

In all, 30 of the originally identified measures were classified as "possible in the short term," meaning that they made sense from both a technical and an economic perspective, and were implemented immediately. Company personnel were trained in the new procedures and equipment and results were monitored.

It is more costly to generate emissions and wastes than it is to prevent them in the first place—usually by a factor of 10 or more. It was felt that reductions could reach up to 60 percent or 90 percent for materials that are not part of the product, and that toxic substances (e.g., heavy metals, halogenated carbons) could be eliminated or replaced. Overall, it was anticipated that cleaner production measures could lead to a reduction in the total amount of wastes and emissions by a factor of 10. The overriding issue for the project was to determine how much of the existing wastes and emissions could be prevented within the existing legislative and economic context with an economic benefit for the company.

In addition to the efficiency and productivity gains resulting from this program, the municipality provides a further incentive for companies to participate. Successful companies will be promoted as ecological market leaders to the local community. It is hoped that this promotional support will act as an incentive to motivate other companies to become involved in the project.

The "ECOPROFIT Label"

Companies that achieve a significant reduction in wastes and emissions as defined by the project are awarded an "ECOPROFIT label" by the municipality and are authorized to use the label for marketing purposes for one year. Successful companies to date include: several vehicle repair garages, several printers, the public transit authority, a brewery, a car production plant, several home construction companies, a coffee roaster and chain-store enterprise, a machine fabricator, one hospital, one health services company, one home construction supply store, and one company that restores antiques.

After one year, companies will have to continue to participate in the ongoing activities of the program and will have to implement further waste minimization and pollution prevention measures in order to gain re-authorization to continue to use the label.

The criteria for earning the label include implementing management options as well as achieving quantifiable improvements. The criteria are derived from the European Union environmental auditing scheme—Eco-Audit—modified for small- and medium-sized enterprises. The standards that must be achieved in order to receive the ECOPROFIT mark of quality label include: 30 percent solid waste reduction; 50 percent hazardous waste and air emissions reductions; environmental capability in production and handling; transparent internal and external information; and compliance with all legal regulations. The goal of the label is to promote participating companies and to provide an incentive to other companies to join the project and incorporate improved environmental management techniques into their operations. The 1st European Round Table on Cleaner Production (held in Graz in October 1994) was chosen as the occasion to hand out the first ECOPROFIT awards to local companies.

In order to accommodate as many companies as possible, a continuous training program called ECOPROFIT II has been established. For a period of 10 months, leading employees of about 20 companies of varying sizes attend workshops where they are educated and

trained in closed-cycle production processes.

Companies are required to form eco-teams of employees who are encouraged to formulate theoretical programs and modifications specific to their companies. These are reported to the training program group as well as to the public. An ECOPROFIT III project that involves an auditing process based on the European Eco-Audit standard will soon be established.

New targets will be defined after each phase. Approximately 40 projects with firms of different sizes have been carried out or are ongoing. The participating companies vary in size from very small companies having no more than six employees, to those with 1,000 employees, and include printers, breweries, vehicle repair garages, dry cleaners, hospitals, building contractors, mechanical engineering firms, a battery production and a wire coating company, a food (sausage) production company, and the municipal public transit authority.

Results

Project follow-up indicates that there has been an overall reduction of more than 50 percent in the generation of toxic and solid wastes from participating companies. In some garages the reductions are as high as 82 percent.

Halogenated and oil-containing materials have been completely eliminated from the participating garages (100% reduction) and solvents have been reduced by 50 percent or more. The material efficiency of enameling (spray painting) has increased by 91 percent in some cases. Overall costs have been reduced by as much as 60 percent.

Specific improvements were achieved through better environmental management, including improved housekeeping, changes in material selections, and the implementation of new technologies and process modifications. For example, in the vehicle repair garages, a high volume/low pressure spraying technique reduced the overspray by 25 percent. In printing enterprises, mixing inks in gravure printing cut down on hazardous wastes. Chemical inputs in reproduction processes were reduced by as much as 70 percent. Changing material selection was also effective. Toxic halogenated degreasing agents were replaced with waterbased cold dip degreasers in garages resulting in a 50 percent reduction in solvent emissions. Waterbased paints were selected wherever possible for printing enterprises and resulted in a reduction of 80-90 percent in solvent emissions. Oil-based offset cleaners were replaced with less volatile vegetable oil cleaners and in-bulk purchasing of inks reduced the generation of empty containers by 50 percent.

The results of the program, including evidence of reduced production inputs, wastes, emissions, and costs attributable to the new low- and non-waste processes, were tabulated and distributed through a public information campaign.

The municipal administration feels that these measures are proving to be more effective than regulations, and that there is now better cooperation with companies. In addition, the program is producing useful environmental data. The companies report financial savings, higher productivity, improved relations with the municipal administration, and an improved public image. The Technical University of Graz benefits from the practical nature of the research project, improved education through the case study approach, and better job prospects for graduating students.

The project does not aim to financially support the efforts of specific companies. Rather, it places an emphasis on successful results that are of general applicability. ECOPROFIT is a continuing effort by the City of Graz to generate local examples of waste minimization projects that are successful both in terms of economy and ecology. Through this ongoing project the City of Graz is proving that pollution prevention pays.

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References

Niederl, Karl and Hans Schnitzer. *Cleaner Production in a City Based Project.* City of Graz: Department of Environmental Protection, May 1994.

Schnitzer, Hans et al. *The Cleaner Production Approach to Sustainability in Austria.* Graz University of Technology. Graz, Austria: May 1994.

Niederl, K. and H. Schnitzer. *ECOPROFIT—An Ecological Project for Integrated Environmental Technology by the City of Graz.* Graz, Austria: Office for Environmental Protection, November 1991.

Niederl, K. and H. Schnitzer. *Economical and Ecological Evaluation of ECOPROFIT.* Proceedings of a NATO (North Atlantic Treaty Organization)/CCMS (Committee on the Challenges of Modern Society) Workshop on Pollution Prevention Strategies for Sustainable Development, held in Graz in April 1993. Editor, US Environmental Protection Agency, Pollution Prevention Research Branch, Cincinnati, Ohio, USA.

5.5.4 CASE #16
OTTAWA, CANADA
MUNICIPAL ENVIRONMENTAL EVALUATION PROCESS

Program Name

The Municipal Environmental Evaluation Process (MEEP)

Background

During the development of the city of Ottawa's new Official Plan (1988-91), the community was pressuring the municipality to be environmentally accountable in their decision making. As a result, Ottawa's new Official Plan (1991) includes an Environmental Management Chapter that sets out a number of objectives and policies to guide the city towards environmentally sustainable urban development. An integral part of the Environmental Management Chapter is the concept of municipal environmental evaluation as a tool to assess the impact of planning and land use activities on the natural environment. The approved Official Plan introduced specific policies to better define a Municipal Environmental Evaluation Process (MEEP).

The Department of Engineering and Works, Environmental Management Branch, began work on the development of the MEEP in May 1991, with the approval of the draft procedures and guidelines by City Council in August 1992. The draft procedures were developed in conjunction with many agencies, including city staff from various departments, the National Capital Commission, the Regional Municipality of Ottawa-Carleton, the Federal Environmental Assessment and Review Office, the Ministry of Environment

and Energy, developers, and private citizens. Once approved, the draft procedures went through another round of consultation in order to finalize them and, on March 3, 1993, the final procedures and guidelines were approved by City Council.

At the same time, the Environmental Management Branch held public meetings and workshops in order to clarify the public's expectations for their urban environment. Eleven environmental issues and concerns were identified, including energy, waste, air, water, soils, open space, land use, partnerships, education and awareness, and monitoring and compliance. Long-term goals have been established and the Environmental Management Branch is now working on the development of measurable targets to achieve these goals.

Some targets have been developed through watershed studies, comprehensive planning studies, and secondary policy plans. Each process involved a public participation process, which allowed the public's input into establishing targets. MEEP is used to ensure that these targets are being respected in the development of its land base. As target development proceeds, MEEP will be used to measure the cumulative impacts of projects and activities over time to meet these targets. When it is seen that an individual project or activity will have an environmental effect that will not allow the community to meet its targets, this information will be made available in the decision-making process.

Program Description

The MEEP provides a means of assessing the impacts of public and private activities on the environment and for determining mitigation measures necessary to prevent or reduce those impacts during the planning phase of a proposal. MEEP applies a broad-based definition of the environment where both the biophysical and socio-economic environments within Ottawa are considered, including its land, air, and water, together with other social, economic, and cultural information. MEEP is a planning tool rather then a regulatory process. It simply provides a consistent format for the collection, analysis, and presentation of environmental information in the decision-making process.

MEEP evaluates activities within the city of Ottawa jurisdiction. Activities that require the city's approval in the form of Council approval or in the form of Planning and Development Department approval, will be subject to the application of MEEP, which include:

a) City of Ottawa development activities: involving building and construction where City of Ottawa funding or land is involved. An example would be the construction or renovation of an Ottawa community center.

b) City of Ottawa non-development activities that do not require planning approvals (normally considered operation and maintenance activities), which may have an impact on the environment. These activities may include building and tree maintenance.

c) Private sector development proposals that require planning approvals from the City of Ottawa, such as Site Plan Control, Subdivision Control, Official Plan Amendments, and Zoning By-law Amendments.

d) Development proposals from other agencies and levels of government requiring City of Ottawa planning and/or Council approval. These activities may include federal government-sponsored development within Ottawa.

The process has been effectively accommodated within the already existing approvals procedure. All applicants are responsible for the initial assessment of their projects and for all necessary funding. The Department of Planning and Developments' Development Information and Applications Center (DIAC) will inform applicants of the requirements under MEEP for their project or proposal. All applications are reviewed to ensure that the evaluation is complete and that environmental targets are being met.

All Council submissions now require a mandatory Environmental Impact Section. This section summarizes the findings of the MEEP, including all environmental impacts of the recommendations and reports on any mitigation measures and monitoring involved. The Environmental Management Branch reviews the Environmental Impact Section of all report submissions to the city's Standing Committees to ensure that the requirements of MEEP have been met.

The Process

MEEP is based on a successive screening approach and as such is divided into two phases. Phase I screens the proposal to determine if a detailed study of potential impacts and mitigation methods is necessary. Phase II involves the detailed study, called a Municipal Environmental Evaluation Report (MEER). Exclusion and inclusion lists help streamline the process such that only proposals that may have environmental impacts are subject to the requirements of a detailed study.

Phase One: Initial Evaluation

During Phase I evaluation, the applicant would determine if the proposal is automatically excluded, in which case no further study is necessary; or would determine if the proposal is automatically included, in which case a Municipal Environmental Evaluation Report (MEER) would be required. If neither of these lists apply, the project manager or applicant must complete the Environmental Screening Checklist.

STEP I: AUTOMATIC EXCLUSION
Not all activities have an impact on the environment. The exclusion list designates activities that will require no further study under the process. This ensures a streamlining of environmental evaluation such that only the activities that may have impact are evaluated.

STEP II: AUTOMATIC INCLUSION
The 1991 Official Plan designates certain areas of the city of Ottawa as potentially the most sensitive to development proposals or other activities. Development proposals in these areas could have significant impact on the natural ecosystem and/or human health. Any planning application for Official Plan Amendment, Zoning By-law Amendment, Subdivision (including part-lot control), or Site Plan Control that is:

a) related to a waste management system or a snow disposal site;

b) within the Greenway;

c) on a contaminated site;

d) on an unstable slope;

e) on an existing pit or quarry; or

f) in an Area of Natural and Scientific Interest

will automatically require a MEER. These areas are identified on the Planning and Development Information System (PDIS) so that the automatic requirement for a MEER is determined at the time of development application.

STEP III: THE ENVIRONMENTAL SCREENING CHECKLIST

If the proposal being considered does not appear on either the inclusion or the exclusion list, the completion of an Environmental Screening Checklist is required to screen the proposal for impacts. Since the Process is one of self-assessment, it is the responsibility of the project manager for city projects, or applicant for development projects, to complete this task. Refer to Figure 16 for an overview of the MEEP Process.

Phase Two: The Municipal Environmental Evaluation Report(MEER]

A MEER will be required when:

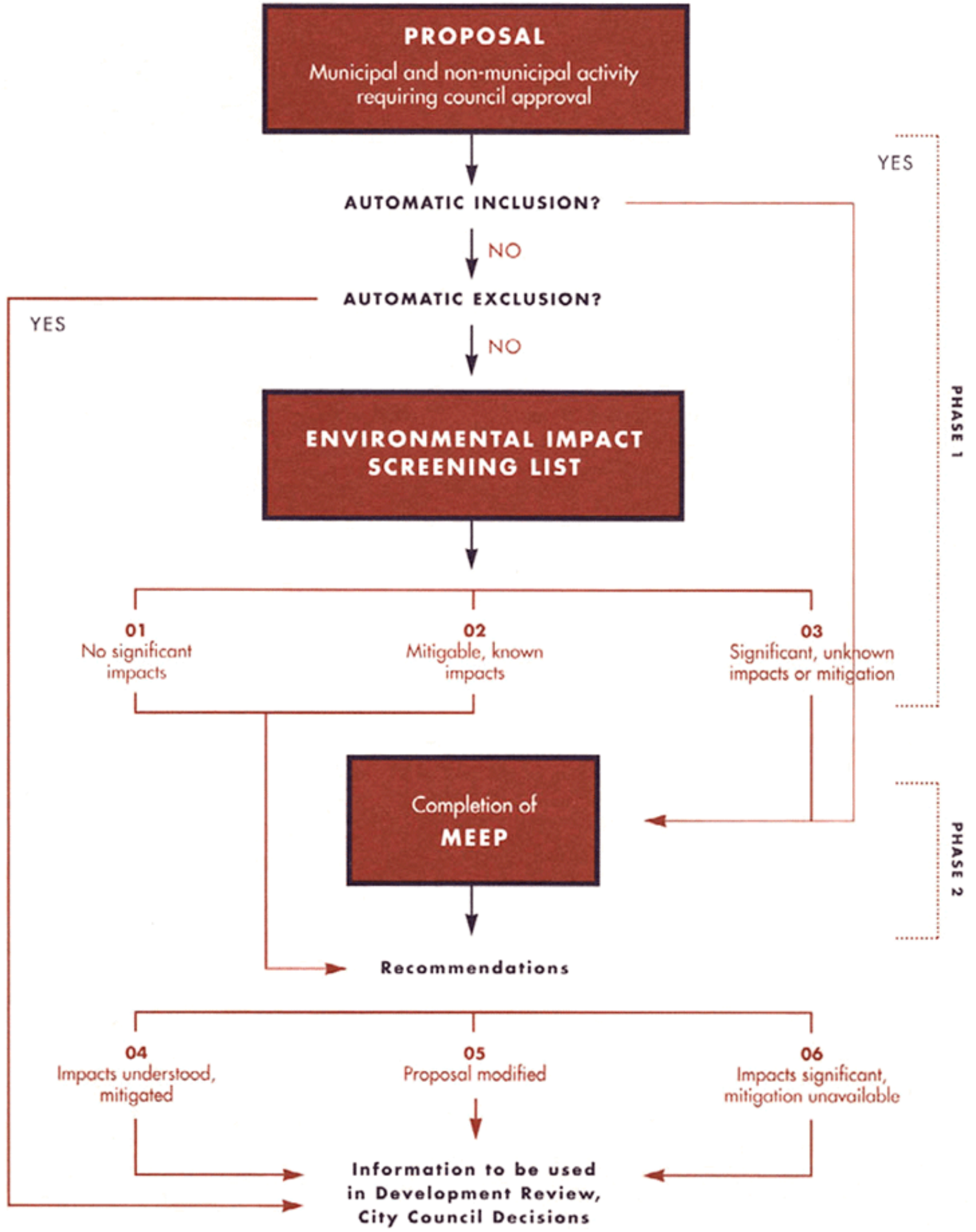
a) a development activity is proposed for any area listed on the automatic inclusion list; or

b) completion of the Environmental Screening Checklist indicates the proposal has the potential for significant adverse environmental impact(s); or the impact(s) or mitigation is unknown; or the mitigation of such impact(s) requires specialized study; and/or if genuine public concern is raised relating to known or suspected environmental impacts.

A MEER requires a detailed analysis and a statement of the significant adverse environmental impact(s), plus a description of the measures necessary to prevent, mitigate, and/or compensate for the identified adverse impacts and monitoring plan. It is the responsibility of the project manager, with support from his or her department, or the applicant in the case of private development, to provide the appropriate environmental expertise required to complete a MEER. If it cannot be sufficiently completed in-house, a consultant is to be retained.

The City of Ottawa has a Public Participation Process built into the planning approval process. All Standing Committee meetings are open to the public, whereby members of the public can voice their option and provide written submissions. In

FIGURE 16 **CITY OF OTTAWA Municipal Environmental Evaluation Process (MEEP)**


PROPOSAL
Municipal and non-municipal activity requiring council approval
AUTOMATIC INCLUSION?
YES
NO
AUTOMATIC EXCLUSION?
YES
NO
ENVIRONMENTAL IMPACT SCREENING LIST
01
No significant impacts
02
Mitigable, known impacts
03
Significant, unknown impacts or mitigation
PHASE 1
Completion of MEEP
PHASE 2
Recommendations
04
Impacts understood, mitigated
05
Proposal modified
06
Impacts significant, mitigation unavailable
Information to be used in Development Review, City Council Decisions

addition, all submissions to Council must include a section that describes how the public has been consulted and the nature of the participation. Public input is an essential component of the decision-making process. The MEER and Environmental Screening Checklist are public documents and, as such, the citizens of Ottawa can review these documents prior to approval to ensure all their concerns have been addressed. Public meetings can be held during the review stage for those projects generating public concern.

Conclusion

The MEEP is making a difference in Ottawa. Being a self-assessment process, it allows both city staff and the private sector to gain an understanding of the associated impacts development can have on both the biophysical and socioeconomic components of the environment. The proponent also becomes aware that most negative impacts can be alleviated through mitigation measures or modifications to the project. As well, the environmental evaluation may highlight positive impacts that can be used as a rationale for a project to proceed.

MEEP has raised the profile of the environment within the Corporation. City staff now realize that they have to be environmentally accountable in their actions and decisions. Initially there was resistance to the program from other departments; however, it became evident that the environment could no longer be ignored. All city projects must integrate environmental considerations into project planning, development, and implementation by evaluating the impacts of the activity on the environment prior to its approval. The Environmental Management Branch is now informed and consulted in the development of city projects.

Under MEEP, any federal or provincial environmental assessment conducted in Ottawa must take into consideration all environmental matters of municipal interest. In many instances, local values are overlooked in upper tier government processes. MEEP ensures that local community targets and goals are addressed in the environmental assessment. In addition, departments undertaking environmental assessment studies must consult the Environmental Management Branch throughout the process.

The process has allowed for environment issues to be considered in the approval of city programs and development projects. However, the environment is only one issue; the economic benefits of a proposal carry considerable weight in the decision-making process. The environment will only be weighted equally if the public becomes vocal over environmental issues and priorities. The long-term benefits of protecting the environment are difficult to convey when City Council is only considering the planning horizon of their elected three-year term. Therefore, public support for environmental programs and initiatives is essential if environmental targets are to be met.

MEEP is a flexible tool that can be easily incorporated into the local government decision-making process. It provides a means to monitor activities within a municipality to ensure that the environmental targets are being met. Over time, exposure to MEEP will lead to a heightened awareness of the environment by all participants. It is hoped that an enhanced and regenerated urban environment will result.

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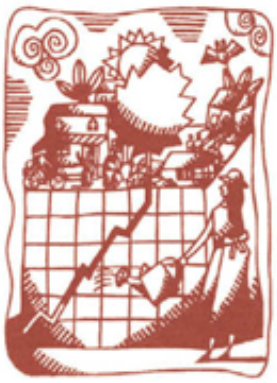
CHAPTER 6 Evaluation & Feedback



6.0 Introduction

Once people are engaged in the details of implementing a plan, they can easily lose sight of the overarching purpose for planning in the first place: to make the community sustainable. Making progress towards sustainability requires systematic evaluation of whether the plan's action strategies are adequate and whether they are having the desired effects. Periodically, the Stakeholder Group, the municipality, and local residents will need to explore this fundamental question and share information about local, regional, and global conditions so that new actions can be devised to achieve their Community Vision.

There are four key components to an effective evaluation process. These are:

• the establishment of a system whereby all the key stakeholders report to each other on the actions they have taken to implement the Action Plan;

• the development of methods and tools, such as indicators, to measure the performance of the community as a whole in achieving its goals and targets, and to determine whether any "trigger" conditions have been reached, requiring further planning or action;

• the implementation of a comprehensive analysis and review, on a periodic basis, of local, regional, and global conditions and an analysis as to whether these conditions indicate progress towards actually achieving sustainability and the Community Vision; and

• the establishment of mechanisms for reporting on progress and performance to local inhabitants and their community organizations, so that they continue to be informed and guide their own behaviors in a way that is consistent with the goal of sustainable development.

6.1 Reporting

An effective reporting system must address two related but distinct needs. The first is reporting on the performance of stakeholders and local institutions in achieving the goals, commitments, and targets established in the Action Plan. The second is reporting on whether this performance is resulting in community progress towards the Community Vision and sustainability. These two issues are distinct, and should be separately evaluated, as it can never be assumed that the commitments and targets established in an Action Plan will in fact be accurate, adequate, and/or sufficient to meet the real and complex challenge of sustainability in a rapidly changing world.

> Create distinct reporting procedures for evaluating performance vis-a-vis the Action Plan and progress towards sustainability.

6.1.1 PERFORMANCE REPORTING

Performance reporting focuses on the actions being taken to achieve the overall goals and the specific targets established in the Action Plan.

The establishment of an internal management system within the municipal corporation (5.3.3) should produce sufficient documentation and internal reporting on municipal actions to implement the plan. The major challenge in a community-based

reporting process will be to get all the major stakeholders and institutions in a community to report on their actions in a candid, consistent, and regular way. Community-wide performance reporting requires, in effect, the establishment of a system of accountability among all the major actors and sectors: large institutions, businesses, government, key interest groups, and individual households. This approach is considerably different than the traditional one-way process in which business reports to government, government reports to the community, but residents and their organizations do not report back to either.

> Institute a multistakeholder "accountability" system for regular reporting of each sector's performance to implement the Action Plan and for the periodic joint review of the Action Plan.

An ideal community-based reporting system would accomplish the following:

> **• Provide a schedule and guidelines for all actors to report to each other. The best guidelines would assure that reports from different parties can be aggregated to determine the joint progress being made to achieve a specific target.**
>
> **• Establish a set of indicators to measure performance in achieving targets. (The reporting system should provide the Stakeholder Group or municipal planners with the data needed to determine the present values of these indicators.)**
>
> **• Provide a periodic opportunity for all actors to meet together to review each others' performances relative to their commitments and targets, and to discuss how to better coordinate their actions.**
>
> **• Provide an opportunity to expose local residents to the different projects and campaigns being implemented, and to inform them about how they can participate.**
>
> **• Link the performance reporting process to relevant statutory planning cycles of the municipality, such as annual budgeting, so that the municipality can adjust its plans based on the actions taken by other sectors.**

Hamilton-Wentworth, Canada, has developed an interesting structure for accomplishing the above objectives. Each year the municipality organizes an "Annual Sustainability Day" to bring together all the organizations and institutions in Hamilton-Wentworth that have committed to implement their VISION 2020 Action Plan. Workshops are organized for different actors to meet together to discuss implementation of the different aspects of VISION 2020. An exhibition is organized for local organizations, businesses, and municipal departments to distribute reports and display their activities to the general public. Educational study tours are organized for citizens to visit and learn about project sites or new municipal facilities. All members of the Regional Council are invited to attend this event and, due to public expectations, most councillors do attend. In this way, the Sustainability Day offers an opportunity to inform and engage decision makers prior to annual budget deliberations, elections, or other planning activities. Hamilton-Wentworth used its first Sustainability Day to undertake a survey on possible indicators to measure performance in implementing VISION 2020. These performance-based indicators are now being used to prepare an annual "Report Card" on VISION 2020 performance, which is presented and discussed at the Annual Sustainability Day. The procedure used to develop these indicators is described in Case #17. A similar approach in Bangalore, India, called the Citizen Report Cards process, is used to evaluate the municipality's performance in the area of service delivery. This process is briefly described in Box D.

> Link the performance reporting process to relevant statutory planning cycles of the municipality, such as annual budgeting.

6.1.2 PROGRESS REPORTING

Progress reporting focuses on a community's progress toward actually becoming more sustainable. This kind of reporting requires an entirely different and more analytical approach than performance reporting. In spite of the very best performance of all parties, relative to a plan external conditions and previously unknown or overlooked complexities may inhibit actual progress towards sustainability and the Community Vision.

BOX D:
Citizen Report Cards in Bangalore, India

Citizen Report Cards can be a useful feedback tool for assessing public service performance and for prompting joint action between civic groups and public agencies to improve agency performance and accountability. The Public Affairs Centre (PAC) in Bangalore, India, an independent not-for-profit organization, prepared citizen report cards on public services in the cities of Ahmed-abad, Bangalore, Calcutta, Madras, and Pune, India. The PAC report card process involved conducting random citizen surveys on city services, compiling and reporting results, and working with the media for effective coverage.

The Report Card on the City of Bangalore illustrates the kinds of findings that emerged from the study. Bangalore is a growing city of over 4.5 million people, about one-eighth of whom live in slums. Services are provided by public institutions that are large bureaucracies operating under monopoly conditions. The report card revealed the following:

- **The citizens of Bangalore identified seven service agencies with whom they most frequently interact, including the Bangalore Development Authority (BDA), the Bangalore Municipal Corporation (BMC), the Bangalore Water Supply and Sanitation Board, the Electricity Board, the Regional Transport Office, public hospitals, and public banks.**

- **Citizens ranked these agencies and their services in terms of satisfaction. All agencies were given low ratings. Even public hospitals, which were the best rated, received a satisfaction rating of only 20 percent.**

- **Over 25 percent of all problems with public agencies concerned excess billing, something that can be partially improved, at little cost, through better internal management.**

- **Sixty percent of citizens reported visiting public utility offices two or more times to sort out a single problem. Improved information and guidance from the agencies could improve efficiency.**

- **Citizens reported having to pay bribes in all agencies except banks.**

- **The cost of public services to residents exceeds service fees and bribes. People invest large sums of money in assets such as overhead tanks, tube-wells, and generators, to protect themselves against unreliable services.**

The support of the local media in disseminating the report card findings was key to influencing resident and agency responses. One newspaper published findings for two consecutive months, releasing one finding at a time on the front page of the Sunday edition. The quantification of assessment results permitted comparisons across services in the newspaper reports. The findings were presented as a bar chart that compared different agencies. Comparisons between cities also yielded interesting results. Sanitation turned out to be the number one problem identified by the urban poor in almost all cities.

Almost all public agencies covered by the study acknowledged receipt of the report and initiated follow-up action. The BDA invited PAC to discuss the findings with the agency's senior management. Subsequently, the chairman of BDA announced an agency reform initiative and has set up several taskforce groups involving citizens to explore ideas for joint actions. The chairman of the public transport corporation invited PAC to an internal management seminar to discuss the findings and to involve those managers to develop strategies to improve performance. They are currently pursuing some of these actions.

PAC has published a manual on the report card methodology.

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Adapted from, "Innovations in Urban Management," in *Hie Urban Age,* vol. Ill (December 1995).

Many communities are attempting to develop indicators to measure their progress towards sustainability. As described below, measuring sustainability through the use of simple indicators may be fraught with difficulties. Although no method is fully adequate to evaluate whether a community is truly becoming more or less sustainable, probably the best method is the performance of a detailed audit of actual conditions in the community, such as a State of the Environment Report. Further discussion on this matter can be found in section 6.4.

> While indicators are an effective tool to measure performance in implementing an Action Plan, they are an unreliable way to evaluate sustainability itself.

6.2 Performance Measurement

In addition to reporting, performance evaluation requires specific tools to measure the impacts of actions. Indicators are a measurement tool that can be used cost-effectively to permit any interested stakeholder to evaluate, on an ongoing basis, the performance of a community relative to its established performance targets and commitments.

Indicators are measures of conditions that are accepted by a community as valid criteria for evaluating change. The most common challenge in developing a set of indicators is getting and maintaining agreement about which measures are accurate, relevant, and valid to diverse local stakeholders. This challenge is greatly reduced if a performance-oriented Action Plan, as described in chapter 4, has been prepared. Such an Action Plan establishes the agreed-upon performance targets that will be used to both guide action and evaluate performance. These targets effectively define the indicators that can be used to measure future performance. The performance evaluation approach developed by the city of Santa Monica in California illustrates this point. Santa Monica's Sustainable City Program established a series of targets to be achieved in fulfilling each goal in their action plan. Then, in order to evaluate the attainment of targets, the program established a performance indicator for each target. The relationship between goals, targets, and performance indicators in Santa Monica's program can be readily understood in Figure 17 (chapter 4).

> Develop indicators for each of the targets and triggers specified in the Action Plan, and use these indicators to evaluate and report on performance.

The following example (from 4.2.4) illustrates how goals, targets, triggers, and indicators can be integrated together to evaluate performance in the implementation of an Action Plan.

ACTION PLAN GOAL:
To promote technologies, products, and practices that reduce the use of non-renewable resources and the creation and disposal of wastes.

ACTION PLAN TARGET:
By 2010, reduce the generation of household solid waste by 50 percent from 1995 levels.

ACTION PLAN TRIGGER:
If household solid waste is not reduced by 25 percent of 1995 levels by 2000, then volume-based waste collection charges will be instituted.

PERFORMANCE INDICATOR:
Average annual volume of solid waste generated per household.

In this example, the target itself defines what indicators are used to evaluate performance. The primary issue that needs to be addressed in creating the indicator is exactly how "solid waste" will be measured and who will do the measuring. Worksheet 7 (chapter 5) provides a table for listing the targets, triggers, and possible performance indicators in your local Action Plan. Box E discusses the effective use of indicators by comparing three different programs.

BOX E:
The Effective Use of Indicators

Indicators are a very simple measurement tool. They are quick and relatively inexpensive to use. When appropriately applied, they can be used to educate stakeholders and keep them accountable to their goals and commitments. However, they can also provide a simplistic and biased representation of the conditions in a community or system. They may fail to "indicate" unexpected trends or developments in a community.

The cases of Seattle, Washington (US), Santa Monica, California (US), and the UN Centre for Human Settlements (UNCHS)/World Bank Indicators Programme illustrate different approaches being used to create local "sustainability indicators." The Sustainable Seattle Project uses indicators to guide and evaluate the progress of the city toward a condition of "sustainability." The Sustainable City Program in Santa Monica uses indicators to evaluate the performance of the local government and its partners in achieving specified performance targets in their local action plan. The UNCHS/World Bank Indicators Programme is encouraging local governments to create indicators that are comparable on a worldwide basis in order to guide national government policy and United Nations programs. These three approaches are briefly reviewed below.

SUSTAINABLE SEATTLE: Measuring Progress Towards "Sustainability"

Started in 1990, the Sustainable Seattle Project has been recognized worldwide for both its participatory and empowering approach. The primary objective of the Project was to engage stakeholders in defining what constitutes a sustainable community and in providing measures of sustainability that could be used to guide local decision making. Representatives of different sectors in the city prepared and discussed lists of possible indicators, and decided upon 40 final indicators of sustainability. These indicators attempt to be informative to individual local residents and, at the same time, they try to "indicate" complex, long-term trends and systemic conditions.

While the indicators were developed by stakeholders independently of any local government plan or planning process, they are presently being used as criteria to evaluate the environmental, social, and economic implications of proposed development projects, and municipal planning decisions. As such, they are used 1) as an assessment tool to guide the design of specific projects and 2) as an evaluation tool to judge whether Seattle is becoming a more "sustainable" city.

Sample Indicators *Santa Monica, USA*	1990 *(Actual)*	1993 *(Actual)*	2000 *(Target)*
Average vehicle ridership of employers with over 50 employees	**N/A**	**1.34 persons**	**1.5 persons**
Ridership on Santa Monica bus lines (millions)	**19.0 riders**	**18.0 riders**	**20.9 riders**

Sample Indicator
Vehicle miles traveled per capita and gasoline consumption per capita.

Explanation
Increased miles reflect increased use of resources; decreased ability to work, live and participate in the neighborhood or local community; and an increased amount of time spent on commuting from one place to another. (The project reports on whether the indicator trend is moving up or down.)

SANTA MONICA SUSTAINABILITY INDICATORS:
Measuring Performance in Achieving Local Targets

The City of Santa Monica developed a set of "sustainability indicators" in 1994 for the specific purpose of evaluating their performance in achieving the targets in Santa Monica's official Sustainable City Program. In contrast to the Sustainable Seattle Project, which used indicators to create a community debate, vision and a means to measure the condition of "sustainability," Santa Monica is using indicators for a much more limited purpose: to determine whether the plan is being implemented. Every indicator is directly related to a specific target in the local action plan for the year 2000. The indicators are measured periodically to determine whether progress has been made towards the targets. They are not used to determine whether Santa Monica has become a "sustainable city."

THE UNCHS INDICATORS PROJECT:
Measuring Global Trends in Urban Conditions

In preparation for the 1996 United Nations Conference on Human Settlements, UNCHS and the World Bank began encouraging cities and national governments to prepare urban indicators that could be reported to a central UN Urban Indicators system in order to determine urban trends at the global scale. The UNCHS/World Bank Indicators Project developed a set of generic indicators that all participating countries/cities were encouraged to use. The primary objective of the project is to provide information to guide and strengthen national urban policy. However, the project also hopes that local residents and city managers will use the Urban Indicators system.

Emphasis has been placed on achieving comparability of the data collected for 46 key indicators, from city to city, and from country to country. These indicators were developed through an international expert group and tested in a few countries. Local participation and links with local planning processes were not, and have not, been established.

Sample Indicator
Proportion of work trips, disaggregated by gender, undertaken by: a) private car, b) train or tram, c) bus or minibus, d) motorcycle, e) cycling, f) walking, and g) other.

Ratio of automobiles to 1,000 population, disaggregated by sex.

Key Issues for Effective Indicator Use

In the above projects, indicators were developed for different purposes to suit different contexts. In each context, the projects have helped to advance the agenda of sustainable urban development. Each approach provides valuable innovations, and also has potential shortcomings as a strategic planning tool.

Can "sustainability" be defined and evaluated by indicators?

Many communities are using indicator projects to a) define what "sustainability" means and b) to determine whether "sustainability" is being achieved. "Sustainability" is normally used to describe a very complex condition in which ecological limits are being respected at the local and global levels while people are equitably provided with basic needs—in this and future generations.

Particularly where indicators are meant to be usable and understandable to local residents, one must consider whether these simple, highly aggregated bits of information provide enough information to analyze and evaluate the existence of such a truly complex condition. This guide recommends that an extensive public consultation and assessment process be used to create a preliminary community vision or estimation of sustainability. The assessment process should use a whole variety of assessment methods and tools developed for specialized purposes to explore different complex issues. The results of this exploration should be included in an action plan. While indicators can be effectively used to evaluate whether this action plan is being implemented, a variety of assessment methods and tools might be necessary to determine how, and whether, the actions in the plan actually have created more sustainable conditions.

Do indicators establish accountability and reveal whether stakeholders are fulfilling their responsibilities?

When indicators are used as a performance measure, they work to create accountability among stakeholders. Indicators can be used most effectively as a performance measure when clear targets are established.

Conversely, if indicators are not linked to the commitments and targets of an action plan—either because they are prepared prior to the negotiation of the plan or independently of the planning process—their effectiveness as a performance measure may be compromised.

Are comparable global indicators compatible with local action plans and local values?

The effective use of indicators at the local level depends upon their connection to a local vision, a local action plan, and local targets. Therefore, local indicators must be developed at the local level to reflect local values, concerns, understandings, goals, ambitions, and concrete commitments. The process of adjusting a set of "top down" global indicators to local circumstances can be difficult and unwieldy. If the global indicators are adjusted to reflect local preferences and conditions, they may lose their

comparability. Conversely, if local indicators are adjusted to be comparable at a national or local level, they may lose their sensitivity to local priorities and their relevance to local stakeholders. Therefore, it may remain necessary to recognize that local and global indicators are two distinct tools for two distinct purposes.

SELECTED SOURCES:

City of Santa Monica. *City of Santa Monica Sustainable City Program.* Santa Monica: City of Santa Monica Environmental Programs Division, 1995.

Sustainable Seattle. *The Sustainable Seattle Indicators of Sustainable Community.* Seattle: Sustainable Seattle, 1994.

UNCHS/World Bank. Indicators Programme: *Monitoring Human Settlements—Key Indicators.* Nairobi: UNCHS/World Bank, 1995. Fax: 254-2-624-264.

UNCHS. *Indicators Newsletter,* vol. III. Nairobi: UNCHS, 1995.

Zachary, jill. *Sustainable Community Indicators: Guideposts for Local Planning.* Santa Barbara, CA: Community Environmental Council, 1995. Tel: +1-805/963-0583.

In developing a performance indicator, the following key factors should be considered:

• The use of the indicator should be feasible. First and foremost, the collection and compilation of data to measure the present value of the indicator must be feasible given the time and cost constraints upon the municipality or its stakeholders. Wherever possible, existing monitoring, auditing, and reporting data and capacity should be used.

• The indicator should be measurable on a frequent basis. The ability to monitor performance and trends over time requires consistent, comparable time-series data. This data must be available frequently enough to aid decision making at key times. For instance, indicators on air quality must be reported frequently enough to inform, for example, private automobile users or home wood stove users about whether they should alter their behavior on any particular day. Other indicators might be specifically tied to annual processes such as budget reviews.

• The indicators should be valid. Indicator measures need to be based upon quality data and accepted measurement standards and methods if they are going to be accepted as valid by a diversity of institutions and interest groups.

• The indicators need to be relevant to local residents. Performance indicators must be relevant to things that are understood and valued by their users. This standard is satisfied if the indicators are linked to the agreed targets and triggers in an Action Plan. However, in order to guarantee that people will understand and use the indicators to guide their decisions and actions, consultations and focus groups should be organized to test their relevance. Performance indicators are most useful if they relate specifically to things that people can act upon; in other words, they might indicate not only conditions but also sets of responses to ranges of indicator values.

Establish clear institutional responsibility for collecting and processing the data used to measure each indicator.

Other important considerations for the successful use of indicators include:

• the establishment of clear institutional responsibility for collecting and processing the data used to measure indicator values;

- **the incorporation of indicators into official reporting, review, and assessment processes; and**
- **the use of a clear and consistent reporting format for presenting indicator values to the public.**

Box F illustrates how a performance-oriented planning and evaluation process has been put into effect in the state of Oregon, USA. One of the important elements in the success of the Oregon Benchmark Program is the institutionalization of the indicator measurement and application process. The state legislature has established clear legal provisions to ensure that indicators are applied. A senior government official is given responsibility for each "benchmark" indicator, and the benchmarks are used as criteria for allocating resources during the state budgeting process.

Figure 17 provides an example of the reporting format used by the city of Jacksonville, USA, to report on its quality of life indicators. The format clearly states the target, illustrates trends, and transparently communicates how the indicator is measured.

Link indicators to statutory planning and resource allocation decisions.

6.3 Periodic Progress Review

While indicators can be a very suitable tool for the evaluation of local performance relative to action targets, they are generally too simplistic a tool to use in evaluating a community's actual progress in becoming more sustainable. The ability of a community to sustain itself economically, socially, and environmentally in a complex and rapidly changing world cannot be determined from a limited set of simple measurements of local conditions.

Use periodic progress auditing to evaluate the actual sustainability of local conditions.

Therefore, just as State of the Environment Reporting periodically reassesses and reevaluates local environmental conditions, it is recommended that progress towards sustainability be periodically evaluated (every two to five years) through a comprehensive audit. Such a sustainability progress audit should broadly review local conditions and trends, indicate the systemic nature of conditions, and describe how these local conditions relate to regional and global trends. As a practical matter, the system of data collection for performance indicators and for a sustain-ability progress audit can be integrated to link performance and progress evaluations, but a progress evaluation should seek to undertake a deeper analysis of conditions and trends in a local, regional, and global context. The results of the progress audit can then be distributed to the community at large, can be debated by experts, and can ultimately be used to determine whether revisions need to be made to the Community Vision and to the Action Plan and its goals, targets, and action strategies so that these reflect the latest information about sustainability.

FIGURE 17 **EXAMPLE OF INDICATOR PRESENTATION IN THE "LIFE IN JACKSONVILLE" PROJECT**

The effective use of indicators as a reporting and accountability mechanism requires consistent, clear, and understandable presentation of indicator information. This example from Jacksonville, Florida, USA, demonstrates the key features of effective indicator presentation. Trend data is clearly presented in both data and graphic formats. The target is presented along with the method for calculating the indicator, i.e., performance relative to the target. Verbal explanations are also provided for the lay reader.

Water Level in Floridan-Aquifer Wells Monitored by the City.

TRENDS: (Feet)	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
	39.3	38.7	36.4	36.8	36.1	34.9	33.7	33.2	36.2	36.0				

Target for 2000

Maintain an average annual water level above mean sea level in monitored Floridan-Aquifer wells of no lower than 30.9 feet.

Source

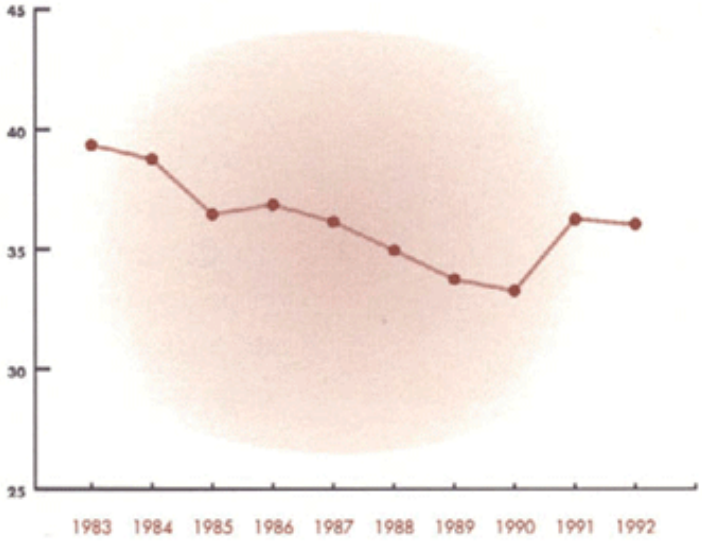
City of Jacksonville, Water Quality Division

Method of Calculation

Average annual water level above mean sea level in 11 Floridan-Aquifer wells located throughout Duval County and monitored by the city.

Caveats and Explanation

- The Floridan Aquifer is a thick layer of limestone located about 500 to 1500 feet below the surface. It is porous and contains large quantities of fresh water, which are the main source of drinking water in Duval County. Water levels in Floridan-Aquifer wells are above sea level because of underground water pressure, meaning that in most areas of Duval County these wells have a natural artesian flow.



- As of 1991, the historical average *high* water level for wells monitored since the 1930s by the U.S. Geological Survey, the St. Johns River Water Management district, and the city of Jacksonville was 50.9 feet above mean sea level. The historical average *low* was 30.9 feet. The highs and lows for the various wells did not necessarily occur during the same year.

- Retarding the water-level decline in Floridan-Aquifer wells might become important to protect the quantity of drinking water available. Already it is important to protect water quality by preventing salt-water intrusion into fresh-water wells, especially along the Atlantic coast and the St. Johns River.

- Water levels in Floridan Aquifer wells may decline both from increased human use and from natural causes. Greater or lesser amounts of rainfall can affect well levels in the short term. In addition, a gradual natural decrease in Floridan-Aquifer water levels appears to be occurring. Regardless of these natural declines, human use, especially heavy use, in areas susceptible to salt-water intrusion, can endanger the quality of the drinking-water source.

6.4 Community Feedback

Feedback is generally one of the most overlooked and yet most valuable tools for the implementation of a strategic Action Plan. In a complex community, a local government will never be in a position to monitor and guide the millions of daily actions of local residents and organizations. For this reason, a feedback system is used to disseminate information so that individuals and organizations can make wise choices. Such a system will provide both recognition or rewards for positive behaviors and disincentives or punishments for detrimental behaviors in order to guide a community to regulate its own behavior without external control.

A feedback system provides information, rewards, and disincentives so that a community will regulate its own behavior.

The first and most fundamental requirement of a good feedback system is to disseminate appropriate information to the different "audiences" within a community. The primary objectives of information provision are 1) to inform people about the status of conditions and 2) to inform people about preferable behaviors and actions. The impact of this information is greatly influenced by who prepares it (e.g., a municipal department, an expert, a business), by who disseminates it (e.g., a neighbor, a community organization, a mayor's office), and by the vehicle used for dissemination (e.g., a personal meeting, print, radio). Generally speaking, the familiarity, credibility, and accessibility of information sources should be optimized when designing a local feedback system.

Information dissemination can reinforce people's action commitments, but it is only one element in a successful feedback system. It does little good to inform households that they are using their private automobiles too much when the municipality is, at the same time, providing financial incentives to use automobiles, such as free employee parking, rather than public transportation.

Therefore, the second important requirement of feedback is the establishment of clear incentives and rewards for desirable behaviors and clear disincentives for undesirable behaviors. Incentives can include rewards ranging from public recognition to financial rewards or rebates. Disincentives can range from simple notification of problems to the imposition of fines and regulations. The ICLEI publication *Economic Instruments to Improve Environmental Performance: A Guide for Local Governments* (1996) provides an introduction to the use of economic tools or "market mechanisms" to provide positive and negative feedback.

The third key element of feedback is regularity and consistency. If feedback is not regular and consistent, people lose confidence that their actions will be appropriate, will be noticed, and will be rewarded. An effective program will establish a regular, consistent system for providing information, will consistently and fairly apply incentives and disincentives, and will provide channels for people to communicate their responses or actions to other parties.

The Global Action Plan program's EcoTeam methodology described in Case #18 provides an outstanding example of a system for performance feedback that is improving environmental conditions in communities throughout the world.

Regularity and consistency are essential qualities in a successful feedback system.

BOX F:
Performance Indicators—The Oregon Benchmarks Program

The Oregon Benchmarks process of the state of Oregon, USA, began in the late 1980s, and has by now *become* a model for a number or stale level programs elsewhere in the United States (e.g. Minnesota, Montana, and Kansas).

Under the Benchmark Program, key performance targets ("benchmarks") and related indicators are identified by major stakeholders through a public consultation exercise. These targets and indicators include both the biophysical environment and social and economic development issues. The program provides not only historical and current values

Identifying Partners for the Policy Group

OREGON BENCHMARKS	Historical							Targets		
Housing	1980	1989	1990	1991	1992	1993	1994	1995	2000	2010
141. Percentage of Oregon households that can afford the median-priced Oregon home for sale			47%					50%	50%	50%
142. Rate of home ownership	65%		63%						65%	65%
A. African-Americans (non-Hispanic)	41%		38%						65%	65%
B. American Indians (non-Hispanic)	47%		47%						65%	65%
C. Asians (non-Hispanic)	52%		48%						65%	65%
D. Hispanics	42%		39%						65%	65%
E. Whites (non-Hispanic)	66%		65%						65%	65%

This is a sample of the annual report on two of 159 Benchmarks reported by the Oregon Progress Board (1994).

for each indicator, but also quantitatively reports future targets.

The Benchmark Program has devised 159 measurable indicators and targets for which there are currently four data points: 1970, 1980, 1990, and 1992. Benchmark projections are identified for 1995, 2000, and 2010. Among the 159 indicators, the most critical ones are identified as “urgent benchmarks,” and ones that are considered important for longer-term sustainability are designated as, “core benchmarks.”

The actual application of indicators is ensured through legal provisions approved by the state legislature. Specific measures include appointing an accountable senior government official to be responsible for each core benchmark. Benchmarks are incorporated into the state budgeting process as important criteria in allocating resources.

A key feature of the benchmarking process in Oregon is that besides the continuous process of data collection on individual indicators, benchmarks are revisited every second year. Thus, the project ensures that the changing perceptions and values of the public, as affected by recent developments, are reflected in benchmarks for the future. In fact, it may be more accurate to consider Oregon Benchmarks as an institution instead of a project that will be completed in the foreseeable future. As a sign of official commitment, primary responsibility for the benchmarks rests with the Oregon Progress Board, headed by the State Governor. This multi-stakeholder structure coordinates the benchmarking process, including the institutionalization of benchmarks in state government decision making.

SOURCE:
International Institute for Sustainable Development, “Models and Methods of Measuring Sustainable Development Performance,”Winnipeg, 1995. Also, Oregon Progress Board, “Oregon Benchmarks: Standards for Measuring Statewide Progress on Government Performance, Report to the 1993 Legislature,” Salem, Oregon, 1992.

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6.5 CASES

6.5.1 CASE #17
THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH, CANADA
SUSTAINABLE DEVELOPMENT REPORTING

Program Name

The Annual Report Card Day and the Indicators Project—Signposts on the Trail to VISION 2020

Background

Located at the western end of Lake Ontario, Hamilton-Wentworth encompasses an urban center and almost 100,000 acres of farmland. Approximately 75 kilometers west of Toronto, the region is part of a larger urban agglomeration encompassing almost six million people. Although the perception of the community is one of smokestacks and industry, it is also an area of many natural features. The Niagara Escarpment, which has been designated as a world biosphere, runs directly through the center of the city of Hamilton. Large tracts of forest have been protected, while almost twelve thousand acres of wetlands remain in the rural areas.

Hamilton-Wentworth includes six area municipalities: the cities of Hamilton and Stoney Creek, the towns of Ancaster, Dundas, and Flamborough, and the township of Glenbrook. The Region is governed by a chairperson and a 27-member Council, elected every three years. The chairperson of the Region is elected from the Region at large, while Council consists of the mayors of each of the six area municipalities, 16 aldermen from the City of Hamilton, and one council member from each of the other five local municipalities. As the upper tier of the province's two-tier municipal government structure, the Regional Council is responsible for providing water and sewerage, major roads, public transit, police, social service, public health services, economic development, and regional land use planning.

Program Description

Hamilton-Wentworth's sustainable community initiative began in 1989, when the Region's management decided that new

mechanisms were needed to improve coordination between municipal budget decisions and policy goals and objectives. Sustainable development was identified as the appropriate philosophy to incorporate the many concerns and issues facing the community, as it emphasized a balance between social, environmental, and economic issues.

In June 1990, the Regional Council formally launched the Sustainable Community Initiative by creating a Citizens' Task Force on Sustainable Development. This group was instructed to consult with the community to explore the concept of sustainable development and how it might be applied in the Region. The Task Force was given the following mandate:

- **to develop an overall vision to guide future development in Hamilton-Wentworth, based on the principles of sustainable development;**
- **to establish a public outreach program to increase awareness of the concept of sustainable development and to act as a vehicle for feedback on potential goals, objectives, and policies for the Region;**
- **to provide input as to how the concept of sustainable development could be turned into practical applications through Regional initiatives;**
- **to demonstrate and articulate in detail the usefulness of the sustainable development concept in view of the Region's long-term planning policies; and**
- **to provide direction to staff and the Economic Development and Planning Committee, who would be using the concept to guide their review of the Region's Economic Strategy and Official Plan.**

Through a consultation process lasting two and a half years and involving over a thousand citizens, the Region developed a community vision called VISION 2020:The Sustainable Region.VISION 2020 describes, in broad terms, the type of community that Hamilton-Wentworth could be in the year 2020, if the community's actions follow the principle of sustainable development.

Implementing VISION 2020

The community consultation process highlighted 11 key areas that require major policy shifts if the Region is to become sustainable. These include:

- **natural areas and corridors;**
- **improving the quality of water resources;**
- **improving air quality;**
- **reducing the amount of waste;**
- **consuming less energy;**
- **land use in the urban area;**
- **changing modes of transportation;**
- **personal health and well-being;**
- **community empowerment;**
- **the local economy; and**
- **agriculture and the rural economy.**

Additionally, the consultation process identified 300 detailed recommendations forVISION 2020.

The implementation of the VISION 2020 document, the 11 key areas targeted for policy change, and the 300 recommendations are supported by a system of monitoring, reporting, and evaluation of performance and progress towards sustainability. This system has

five main components:

- **the definition of concrete performance targets based upon the 11 target areas and their respective action recommendations;**
- **the institution of an internal, municipal decision-making process to assure that all departmental proposals to a Council Committee—including policies, budgets, and work programs—are reviewed according to their contribution (or contradiction) to VISION 2020;**
- **the creation of a set of performance indicators to monitor progress towards implementation of VISION 2020;**
- **the convening of an annual "Sustainable Community Day," where the municipality, citizens, and other sectors and institutions come together to share their actions and progress towards VISION 2020; and**
- **municipal staff review of VISION 2020 itself, based upon the indicators and the outcomes of the Sustainable Community Day.**

This reporting and feedback system is illustrated in Figure 21.

Signposts on the Trail to VISION 2020—Sustainable Development Indicators

The Sustainable Community Indicators Project began in the summer of 1994, in partnership with the ICLEI and McMaster University's Environmental Health Program and the Health of the Public Project. The purpose of the project was to develop a set of indicators for measuring the community's progress against VISION 2020. The Indicators Project provided a set of measures to monitor the implementation of VISION 2020 through key statutory plans such as the:

- **Regional Official Plan, called The Sustainable Region;**
- **Regional Transportation Review;**
- **Comprehensive Municipal Pollution Prevention Plan; and the**
- **Renaissance Project (the strategic plan for long-term economic development).**

The indicators will serve as a critical mechanism in linking projects together by emphasizing the overriding goal of VISION 2020.

The first step in the development of indicators was the distribution of a questionnaire to the participants in the first annual Sustainable Community Day in June 1994. This questionnaire provided municipal staff with an indication of the kinds of conditions and trends that residents consider indicative of progress towards sustainability. Through a review of these findings and existing programs and initiatives, the Indicators Project Team drafted a first set of 60 indicators. These were grouped into the 11 areas for policy change that are targeted in VISION 2020. A target was then defined for each potential indicator.

The following criteria guided the selection of indicators:

MEASURABILITY
The indicator must be measurable and not a statement of intent or vision. It should be sensitive to any improvement or deterioration in the condition it targets. Results should be useful to decision makers.

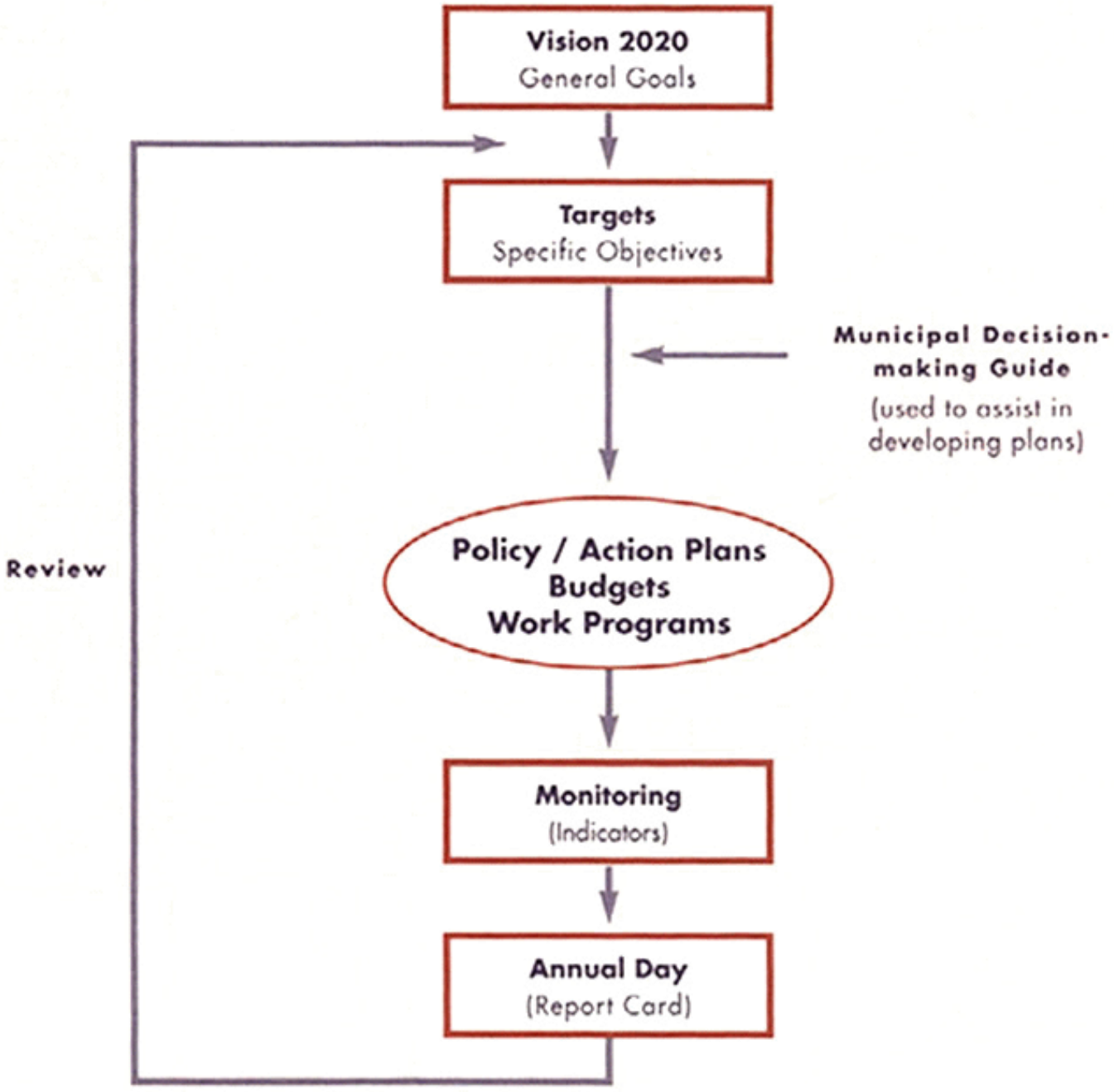
COST/EASE OF COLLECTION
Data needed for the measurement of the indicator must be available on a frequent basis to monitor trends, and must be accessible at a minimal cost. Ideally, the data should be drawn from existing research and/or monitoring programs.

CREDIBILITY AND VALIDITY
The indicators should be unambiguous and their relevance should be self-evident or easily understood by residents of the Region. The standards of measurement should be consistent over time so that indicators will be comparable from year to year.

BALANCE
Ideally, indicators should reflect more than one of the three aspects of sustainability: economic, environmental, and social/health considerations.

POTENTIAL FOR EFFECTING CHANGE
Emphasis has been placed on selecting indicators that can be influenced by individual, group, or community initiatives, as well as government or private sector action. Indicators that lend themselves to media use have also been included.

FIGURE 18 **HAMILTON-WENTWORTH'S SUSTAINABLE COMMUNITY INITIATIVE**



Indicator Identification: Examples

The following are some examples of the indicators proposed by citizens and members of the Project Team.

Natural areas and corridors is one of the 11 topic areas requiring indicators. The objective of this category is "to develop a system of interconnected protected natural areas, which provides for the growth and development of natural flora and fauna and, where

appropriate, provides access for all citizens of Hamilton-Wentworth." Proposed indicators included:

- **total area protected as a percentage of all Environmentally Sensitive Areas (ESAs). Target: 100 percent;**
- **total kilometers of linked public walking/biking trails. Target: Greenlands policy;**
- **an indicator of species diversity. Indicator species and targets would be determined with the Hamilton Region Conservation Authority (HRCA), Naturalists' Club, and the Remedial Action Plan;**
- **participation in environmental education programs run by the Naturalists' Club, school boards, and other relevant groups; and**
- **number of visitors to conservation areas in the Region.**

Another example of an area to be considered for indicators is **personal health and well-being.** The objectives for this category include the following:

- **to increase the number of years of good health for all citizens by reducing illness, disability, and premature death;**
- **to develop cultural institutions that reflect our historical development and to encourage contributions from our increasingly diverse population;**
- **to ensure that all levels of government are coordinated, efficient, effective, and easily accessible to all citizens; and**
- **to develop a population that is literate, educated, possesses the skills of lifelong learning, and supports the concept of sustainable development.**

Proposed indicators included:

- **regional adult literacy rate. Goal: 100 percent;**
- **indicators of the state of children and youth in Hamilton-Wentworth. Could include indicators such as the percentage of babies born to mothers under 20 years of age; the percentage of children participating in regional nutrition programs; or the percentage of children living below the poverty line;**
- **percentage of the adult population living above the poverty line (or adequate budget levels developed by SPRC);**
- **the availability of affordable housing (waiting lists, waiting time, etc.);**
- **percentage of the regional health budget spent on health promotion and disease prevention;**
- **indicator of voluntarism, such as rates of participation, hours contributed, etc.; and**
- **percentage of the adult population with a library card/per capita.**

Once the Indicator Project Team had developed a list of possible indicators for each of the 11 areas, a community consultation process was developed for further discussion and modification of the indicators.

Citizens and Indicators

Public input has been an essential component in the development of community indicators for Hamilton-Wentworth. The aim is to encourage broad-based participation from across the Region and its different sectors so that the selection of indicators may be understandable, realistic, motivational, and credible in the eyes of the entire community. Community discussion was sought to provide insight on indicators as a means to motivate personal action. Citizens are asked in focus groups if indicator results will create a change in their own lifestyle choices.

The community consultation process included focus groups, a youth seminar, and working groups. This process was used to reduce the number of indicators to between 30 and 40. Once the indicators were finalized, a process was developed for monitoring the

indicators. The results will be included in an Annual Report Card.

The completed Report Card will be presented to the community at its annual Sustainable Community Day, where the citizens of Hamilton-Wentworth take stock of their progress on the trail to VISION 2020.

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6.5.2 CASE #18
THE GLOBAL ACTION PLAN PROJECT
COMMUNITY FEEDBACK FOR SUSTAINABLE LIFESTYLES

Program Name

Global Action Plan for the Earth: Household EcoTeam Programs

Background

Global Action Plan for the Earth (GAP) is a US-based, non-profit organization that has worked for a five-year period to design and test an effective behavior change methodology for households in the advanced industrialized world. This methodology is called the Household EcoTeam Program. The program ran a campaign called “The North Puts Its House in Order... Household by Household,” which implemented the EcoTeam methodology in over 8,000 households in 12 countries: the United States, Canada, Ireland, the United Kingdom, Norway, Sweden, Finland, Denmark, Germany, the Netherlands, Switzerland, and Australia.

The Household EcoTeam Program includes a feedback component to support continued involvement and commitment at the household level. In the United States, the households that have participated in the feedback part of the programs reported that on average they sent 42 percent less garbage to landfills, used 25 percent less water, reduced their carbon dioxide emissions by 16 percent, used 16 percent less transportation, and gained an average annual cost savings of US$401.00.

Program Description

The Household EcoTeam Program operates by organizing small groups of family members, residents, and co-workers in a neighborhood or city to work together to make their consumption patterns more sustainable. The program works on the basis that information is not enough to produce behavior change; in fact, the program recognizes that in many industrial countries there is an “overload” of information about the environment, which may inhibit action. For this reason, over a period of four months, the Household EcoTeam Program organizes individuals into “EcoTeams,” which not only provide and distill information about useful actions, but facilitate the provision of mutual support to put these actions into practice.

A Household Eco Team Workbook is provided to each new EcoTeam to give step-by-step guidance in each action area. The teams meet once every two weeks with a different member facilitating each meeting, and are supported by a GAP-trained volunteer “coach.”The coach leads each EcoTeam through a process of taking action in the following areas:

- **reducing garbage output;**
- **improving home water efficiency;**
- **improving home energy efficiency;**

- **improving transportation efficiency;**
- **being an eco-wise consumer; and**
- **empowering others at the household, workplace, and community levels.**

For each of the first five action areas, participants choose actions from a list of suggestions. The results of the actions taken are measured and communicated back to each Eco Team and to the community at large. Positive feedback is maximized by the coach, the team members, and local leaders and media to encourage effective actions. Newspapers, radio, television, and bulletin boards are used to "broadcast" results, and awards are provided from local governments and businesses to recognize success.

In the sixth action area, each Eco Team is helped by the coach to spawn two or more new Eco-Teams by hosting a gathering for friends and neighbors. At these gatherings, the accomplishments of the Eco Team are reported and guests are informed about how they can form their own Eco Team.

GAP observes that the Eco Team approach is a far more effective approach than merely providing lists of "things to do," because peer support and direct human contact is essential to sustain life-style changes. By regularly showing participants the results of their actions relative to the other members of their team, other Eco Teams, and the community, a feedback system is provided to encourage further commitment to positive change.

Based on five years of experience with the Eco Team model, GAP is now employing a system to establish a "critical mass" (50–85 percent participation rate) of Eco Teams in key communities so that the total impact of Eco Team actions can have an aggregated positive effect for the whole community. For instance, the participants in Santa Cruz, California, USA, have determined that high diffusion of Eco Teams in that municipality would greatly reduce ground water consumption and the need to construct a US$43 million desalinization plant.

This "Community Lifestyle Campaign" builds on the GAP observation that most Eco Teams were established by word-of-mouth through existing social networks. By supporting each Eco Team's process to personally invite friends and neighbors to develop two other Eco Teams, a doubling of the number of Eco Teams occurs with minimal effort every six months. (This recruitment method has been pilot tested with 20 teams, and each was able to form an average of two new teams.) As Eco Teams multiply and mobilize, their impact has an increasingly significant effect at the community level. This heightened impact, in turn, creates new opportunities for positive feedback through the media and local political leadership.

In summary, the Eco Team methodology uses the simple tool of systematized personal support networks to encourage and increase positive behavior change. In the course of changing behaviors, participants learn about environmental issues, build confidence that they can have an impact, and inform and recruit more friends and associates.

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Concluding Remarks from the IGLEI Local Agenda 21 Team

As the preceding chapters have described, Local Agenda 21 planning is a collective process for creating community visions and actions to achieve environmental, social and economic sustainability. Although the Local Agenda 21 mandate was given by the United Nations to local governments, it is the responsibility of every local organization and resident to ensure that this process is started in their respective towns, cities or villages. If carried out effectively, these collective local initiatives will have a perceptible global impact.

The Local Agenda 21 planning process can be started on any scale—at the neighborhood, village, city, or metropolitan levels. Some local governments are implementing Local Agenda 21 throughout their entire region, covering several cities, towns and rural areas, while others have started it in only one or two municipal zones or wards. Whatever the scale, all efforts should incorporate the key guiding principles of sustainable development planning including multi-stakeholder partnerships, community based dialogue, systemic and holistic analysis, integration of social, environmental and economic considerations, and preparation of long-term strategies. The planning approaches and tools that are used should involve and empower people.

The effectiveness of a Local Agenda 21 Action Plan will largely depend on the quality of the planning process used to create it. Therefore, it will help to periodically review and reflect on local planning efforts to ensure that Local Agenda 21 planning is:

- **systematically involving all major community groups such as different ethnic, gender, income and age groups, in all stages of planning, implementation, monitoring and evaluation of the local Action Plan;**
- **creating awareness and commitment in households, neighborhoods and communities so that decisions and choices made at these levels do not contradict sustainability;**
- **involving all relevant municipal departments and agencies in the process, and is creating linkages between the ongoing statutory planning activities and the local Action Plan;**
- **creating a network of informed and committed partners to examine the systemic causes of problem issues from social, economic and environmental perspectives;**
- **meeting immediate, priority needs in the short-term and is making steady progress to address the long-term threats to local sustainability; and**
- **developing concrete targets and commitments to achieve measurable performance for sustainable development.**

Finally, the Local Agenda 21 process is a means for creating strong and self reliant communities that will collectively create a sustainable global community. To appreciate and recognize your individual contribution in making an impact at the global level, it also will be necessary to create local management and information systems to monitor and record your performance.

As one of the main actors in the creation of Local Agenda 21 mandate, ICLEI continues to play an active role in promoting and facilitating implementation of Local Agenda 21 at the local level, and in reporting on local progress and performance at the global level through the United Nations and other international forums. We invite you to send us information on the status of your Local Agenda 21 process and on the performance and impact of your local Action Plan. Your individual performance reports will help us to document the cumulative impact of local initiatives at the global level. We hope that such reporting will help strengthen international support for local initiatives and, consequently, local governance.

This Planning Guide provides a practical framework of action using various examples, cases, methods, tools and worksheets. We invite you to use this material in your work and to provide us with critical feed back on its usefulness and appropriateness to your local context. Based on the experiences and results we will be making suitable modifications to future editions of the *Local Agenda 21 Planning Guide.*

Above all, good luck with your local efforts, which have inspired us tremendously while preparing this Guide and which, we believe, will ultimately reveal that sustainable development is within our grasp.

Glossary of Selected Methods and Tools for Sustainable Development Planning

This glossary contains brief descriptions of methods and tools that can be designed and adapted for sustainable development planning and implementation in local contexts. There are dozens of methods and tools available when undertaking planning and action. This glossary highlights a selection of these tools and methods, which are intended to provide the user of the Local Agenda 21 Planning Guide with key instruments that can be applied to achieve specific planning outcomes for sustainability. Some methods and tools are designed to achieve awareness building, information collection, and community participation. Others are useful for assessment, priority setting, monitoring, and evaluation. The glossary is organized in two sections: Group Planning Methods and Tools, and Assessment Methods and Tools. Many of these methods and tools have crossover capabilities.

Group Planning Methods and Tools

This section describes methods and tools used for group awareness building, problem diagnosis, and dialogue and participation in decision making. Generally, these methods and tools can be used from the pre-planning through to the evaluation stages of the sustainable development planning process.

Brainstorming

Brainstorming is a tool used in group settings to generate a large number of ideas. In its simplest form, a structured brainstorming session invites participants to: generate and record as many ideas as possible related to a specific question or issue; build on each others' ideas; reserve criticism; and process ideas only after a full list has been generated. This tool is usefully applied in group settings to generate ideas related to problem identification, analysis, and problem solving.

Community Meetings

Community meetings differ in terms of size, composition, format, and purpose, but generally follow a set agenda and are facilitated or chaired by a designated person. Minutes are often kept to record discussion items and decisions. Community meetings should be carefully planned, well-timed, and advertised with prime consideration given to the convenience of the participants.

With careful design and facilitation, meetings can encourage maximum participation, foster a two-way flow of information with a high degree of dialogue and exchange, and create consensus-building amongst stakeholders. Community meetings can be used in the pre-planning through to the evaluation stages of the sustainable development planning process to initiate, establish, and sustain collaboration. Specifically, meetings can provide a forum for communities to discuss issues, achieve consensus on issues, identify problems, solutions, opportunities, and constraints, plan activities, negotiate conflict, and validate interpretations of evaluation results. When multiple tools such as mapping, ranking, and focus groups have been used, community meetings are important venues for gaining feedback on analysis.

Field Trips

Field Trips are organized, instructional visits that stakeholders take to one or more sites. These sites can be selected to illustrate information related to local issues and conditions. Experts may be enlisted to provide on-site interpretations and engage in on-site discussion. Field trips are an excellent tool for initiating discussion and the development of a common understanding of a problem or set of problems. Photographic documentation of field trip events can provide an instrument for ongoing discussion and monitoring. When followed by a workshop, greater in-depth discussion and problem analysis can take place. Field trips can catalyze issue identification, provide information for auditing, analysis, and priority setting, and facilitate target setting and action planning.

Media Campaigns

Media campaigns involve the use of local radio, newspaper, and television coverage to generate public awareness on issues, to disseminate specific information items, and to influence and reflect public views. Media campaigns should consider the various media in a community, assess their coverage and credibility, and develop media coverage suitable to the task at hand.

Some media forms lend themselves to public debate on a topic. For example, in some communities, call-in radio programs have been used to solicit public opinions on a particular problem. Television surveys are gaining popularity in some regions. Although limited to a yes/no response, these surveys can be used to poll public opinion on key problems faced by the city. Television polls can be

conducted as part of an information/news program. Viewers can respond to specific questions by calling a telephone number at the television station from a touch-tone phone and recording their opinions.

Media can be used to build public awareness on sustainability and local issues, to disseminate information related to the strategic planning process and stakeholder involvement, to poll public opinion on specific topics, and to provide feedback to the public on the sustainable development planning process.

Open House

An open house is used to present information to the public for response. Usually held at a central location, an open house has displays with text and relevant graphics, depicting the main elements of a proposal. The public is invited to attend at their convenience, ask questions, and stay as long as they want. The public is invited to make comments and suggestions and may be asked to complete a written interview. The open-house method can be used to disseminate information on Local Agenda 21, sustainable development, the planning process, and proposed action plans in the context of the sustainable development planning process.

Popular Education

A number of methods and tools have evolved in the context of popular education. These include theater, sculpturing, puppet shows, and storytelling. These media have grown out of the traditions of the communities in which development practitioners and educators have worked. Popular techniques engage the community in the identification and critical analysis of issues, information gathering related to these issues, and problem solving and decision making related to development interventions. The underlying philosophy of popular education has been to enhance people's capacity to participate in decisions and actions affecting their lives. Popular education tools and methods, and its underlying goals, should be considered as a source of teachings for sustainable development planning.

Public Hearings

Public hearings, usually conducted in response to a statutory and/or administrative requirement, are structured and require a public record. The primary purpose of the public hearing is to allow the public an opportunity to express opinions or views to the responsible or hearing agency about a specific proposal before such a proposal is considered for adoption and implementation. The hearing allows the public to challenge or support the proposals of public agencies.

Public hearings are useful for the dissemination of information to a large number of stakeholders in a short time period and to create an opportunity for public debate. However, limited participation will take place in a large public forum because it does not present the opportunity for people to engage in discussion and consensus building. Due to cultural or political restraints, people can also feel restricted in voicing their real concerns in such a forum. Public forums often become a public debate where a few have their say. In the context of sustainability planning, public hearings can be a useful mechanism for a formal public presentation of the results of a community priority-setting or action-planning process.

In most cases, a public notice is required for a public hearing. This can be done via the media and/or through civic or other community groups. The formal proposal should be available to the public well in advance of the hearing so that the opportunity is provided for people to review the proposal in detail. Often pre-public hearing meetings are held to familiarize the public with the proposal. The public should be notified that both verbal and written statements are acceptable.

Public Meetings

Public meetings differentiate from public hearings in that they are not necessarily organized in response to a statutory and/or administrative requirement, and they are usually less structured or formal. Public meetings may be conducted by an agency on its own initiative in order to involve the public at one or more points in the decision-making process. They can be used to disseminate information; secure information; secure response to a specific proposal; or arrive at a consensus on a specific proposal. In some communities there is a long-standing tradition of town meetings, where public views are expressed and decisions made. Such traditional forums should be considered in planning.

Role Playing

Role playing is a tool that enables people to creatively remove themselves from their usual roles and perspectives and allows them to

understand choices and decisions made by other people with other responsibilities. Participants are asked to play a certain role and act out a situation. Role playing can range from simple and short exercises to more elaborate productions. It is useful for team-building as well as for the analysis of issues and discussions on interventions.

Search Conferences

A search conference is a two- to three-day strategic planning conference designed to engage stakeholders in planning and managing the future. A search conference entails building consensus on a vision of the future as a basis for planning within and among all sectors. Future possibilities and trends rather than current problems or risks are made the focus of subsequent action planning. The methodological elements of a search conference include:

- **a review of the past and current trends: This can be accomplished with expert papers prepared prior to the conference on various sector-based issues;**
- **an analysis of external and internal forces: Multi-sectoral groups convene at the conference to review and discuss the papers, and to analyze the current state of "systems" and trends in order to achieve consensus on the present situation and a prediction of the future, should current trends continue;**
- **the creation of a Future Vision: Based on a common understanding of what the future could be, the group collectively creates a preferred vision of the future. This becomes the basis of planning; and**
- **an Action Plan: Groups commit to actions that will incrementally work toward achieving a preferred future. Derived actions are mullti-disciplinary and cross-functional. Everybody becomes involved in improving whole systems.**

In the context of sustainable development planning, a search conference is an effective forum for involving city-wide stakeholders in processing information gathered from the technical and participatory assessments. Assessment information can be used to predict trends, create a vision of the future, and build consensus on and commitment to a set of action strategies. These strategies can be further developed into detailed plans in a postconference phase by multi-stakeholder work groups established during the conference.

Vision Building

Vision building is a consensus-building exercise among stakeholders. In the context of sustainability, it involves developing a collective vision of the future in which social, environmental, and economic objectives are integrated. This vision will reflect a set of underlying values and principles and will provide targets to guide actions for a sustainable future. Visioning is an important first step in the formative stages of partnership building and in defining the scope of the planning exercise.

Workshops

Workshops are usually limited-size meetings designed to have stakeholder groups not only discuss a topic, but actually perform assigned tasks that often result in an enhanced understanding of a topic or the generation of a product. Workshop design will consider: workshop outcomes; resource information that participants require; activities that will result in the desired outcomes; tools and resources required to undertake these activities; and a mechanism for evaluating the final product.

Workshops can be used from pre-planning through to the evaluation stages of the sustainable development planning process. For example, workshops can be used to engage stakeholders in:

- **familiarization with the principles and practices of Agenda 21;**
- **defining issues and problems and ranking them;**
- **reviewing the results of the final assessment report;**
- **creating a vision of a sustainable future for the community or city;**
- **developing solutions to problems and action plans; and**
- **developing monitoring and evaluation criteria and mechanisms.**

Assessment Methods and Tools

This section describes methods and tools which are specific, but not exclusive to, the assessment process.

Community Case Studies

Community case studies are collective descriptions and analyses of the community and its problems. These are documented in a local language or medium (drawing, storytelling, role playing, audio-visual, etc.). Case studies can be used to promote awareness and discussion amongst community members, and to gather baseline information for assessment.

Community Environmental Assessment

Community environmental assessment is a tool that can be used to involve stakeholders in gathering information and analyzing the environmental and social impacts of planned activities in order to predict, as far as possible, the various positive and negative effects proposed activities may have. This tool is designed for group observation and value judgment. The importance of any impact is determined by the community and given numerical assignments (value), such as environmental, and social scores. Although the scores are not useful in and of themselves, a comparison of the rates for a number of impacts can indicate the relative importance of different factors to monitor. This tool can be used to facilitate priority setting as well as to identify indicators for monitoring and evaluation.

Community Interviews

A community interview is a structured tool used to survey people's concerns, needs, and actions. During community interviews, all members of a community or neighborhood are invited to a meeting where specific pre-set questions are asked (usually no more than fifteen). These questions assist in the collection of comparable, systematic information and help to keep discussions focused. Because the meeting size is large, discussion among all participants is restricted; the opportunity for consensus building is, therefore, minimal. This tool can be useful to gather preliminary information on community perspectives or to solicit community feedback on proposed strategies and actions.

Comparative Risk Assessment

Comparative risk assessment is a systematic method for ranking and prioritizing environmental problems based on the severity of hazards to human health ecology and quality of life. Comparative risk projects identify a range of environmental problem areas, analyze them, and rank them according to their risk. The method usually involves both a technical and public advisory component to assure a balance between scientific and socio-economic information and public values. When combined with management issues such as cost, political feasibility, and ease of implementation, comparative risk-based strategic planning integrates the concerns of the public, environmental groups, industry, and government agencies.

Eco-Balancing

The eco-balancing approach uses methods developed to model natural ecosystems and industrial processes in order to establish an actual model of the stocks, flows, and balances of energy and materials in a system. Eco-balancing methods have been used to analyze the energy, water, drainage, nutrient exchanges, transportation flows, and other urban systems in a variety of cities worldwide. In recent years, these methods have found increasing use by municipal planners and natural resource managers in Northern Europe.

Eco-balancing methods focus on the biophysical dynamics of a system and overlook the impact of social, political, and economic dynamics upon biophysical conditions. This often makes it difficult to apply the results in a practical planning context. Furthermore, as "top-down" methods, they do not elicit popular knowledge and wisdom about system dynamics in day-to-day life. Nevertheless, eco-balancing can provide an accurate and fascinating analysis of a city, and data and insights from these methods can be used in a broader analysis of systems by non-expert groups.

Ecological Footprint

Ecological footprint analysis is an accounting tool that enables an estimate of the resource consumption and waste assimilation requirements of a defined human population or economy in terms of a corresponding productive land area. It accounts for the flows of energy and matter to and from any defined economy and converts these into the corresponding land/water area required from nature to support these flows. It measures the resources required to sustain households, communities, regions and nations, and

converts complex concepts of carrying capacity, sustainability, resource use, and waste disposal into mathematical information and charts. The tool is both analytical and educational. It not only assesses the sustainability of current human activities, but is also effective in building public awareness and assisting in decision making.

Environmental Auditing

Environmental auditing involves the systematic examination of environmental information about an organization, facility, or site, to verify whether, or to what extent, it conforms to specified audit criteria. The criteria may be based on local, national, or international environmental standards, national laws and regulations, permits and concessions, internal management systems specifications, corporate standards, or guidelines of organizations. Environmental audits provide a snapshot of the environmental situation at a given time. They do not attempt to predict the potential impacts of planned activities. There are various types of environmental audits, which may differ with the scope and objectives of the study.

An environmental audit generates reliable environmental information and may assess the potential environmental risks enterprises could cause, their environmental liabilities, and their degree of compliance with environmental standards and legislation. Within the planning context, environmental audits provide a source of information for assessing the implementation of a project against requirements derived from an environmental assessment. They can also serve as a source of base-line information.

Environmental Impact Assessment and Social Impact Assessment

The most comprehensive and analytical methods used today for auditing are Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA). Both of these methods have been employed internationally for many years and are supported by extensive academic, research, and training networks. EIA and SIA employ a wide range of methods, depending upon the required sophistication of the assessment.

EIA and SIA use past and present data to predict the impacts of planned or future practices. Specific tools have been developed to identify the linkages between proposed activities and the different components of the natural or social environment that could be impacted. Further tools and techniques are available to predict and quantify impacts. Methods are established for evaluating the importance of possible impacts, including weighting techniques and risk assessment. Finally EIA and SIA propose ways to reduce, avoid, compensate, and monitor impacts.

EIA and SIA techniques are highly effective for project-based assessments. However, because the use of EIA and SIA is commonly triggered by a specific development proposal, it tends to be reactive and does not offer a view of the overall trends that result from the cumulative impact of individual development decisions and that constrain the opportunities for sustainable service delivery. In response to these shortcomings, new experiments have been conducted to undertake “cumulative effects assessments.” However, the methodologies for conducting cumulative effects assessments are not well established.

Focus Groups

Focus groups are generally conducted with small groups of four to twelve selected participants who represent particular communities and community interests. In a facilitated session, lasting anywhere from two hours to two days, participants are presented with ideas or proposals, after which professional facilitators solicit people’s reactions to what they have heard. The aim is to clarify values, feelings, concerns, and understandings of the representative group. Historically, focus groups have been used by businesses or political parties in developing marketing strategies. However, focus groups are increasingly used by social scientists and development practitioners to gather qualitative rather than statistical information from a sample group or several sample groups. Focus groups can be used to refine preliminary ideas and provide information to be used in other consultation activities. Setting up a focus group process, including the selection of a sample group and the facilitation of sessions, requires trained facilitators.

In the context of sustainable development planning, a focus group meeting is a useful information-gathering tool that can be used to gain insight into public/community issues and priorities and to obtain feedback on action proposals.

Force Field Analysis

Force field analysis is a facilitated and structured exercise in which participants identify specific hindering and facilitating forces affecting the functioning of any situation, assess the relative strength of each force, and plan alternative actions to overcome or promote these forces. Force field analysis is useful for achieving a shared understanding of opportunities and constraints that can influence a desired goal. This enables stakeholders to better determine which action strategies will be most effective and to set

priorities amongst a host of options. In the context of sustainable development planning, force field analysis can be used to facilitate the selection of the specific action strategies that are most likely to succeed in achieving desired goals. For detailed procedures, refer to chapter 4.

Geographic Information Systems

Geographic information systems (GIS) are computer-based data systems for the storage, easy retrieval, manipulation, transformation, comparison, and graphic display of data. They are particularly designed for the spatial display of data. They usually are established using pre-existing data from historical records and monitoring programs. In order to provide an ample picture of a particular geographic condition, further intensive data gathering is often required. Due to the time required to collect, validate, and relate different data sets to each other, and then input this data into a computer, GIS systems are costly to create and to maintain. However, once established, they can provide an extremely user-friendly source of data that can be used and manipulated by experts and non-experts alike. In some municipalities, GIS systems have been used by community "watch-dogs" to monitor community environmental situations.

Mapping

Community-based mapping is a base-line information gathering and analytical tool that involves community residents in the pictorial construction of information about their community. Community maps are constructed from local knowledge and observation, and provide an alternative source of information to technically gathered data. During a mapping exercise, participants are asked to draw, individually or collectively, their community or any aspect of it which they see as important. Map construction and analysis are guided by a facilitator who has residents draw and label places, activities, or issues, and who promotes analysis by asking questions about the relationships between activities and issues. Techniques of map construction must be tailored to local perceptions and mediums (i.e. the use of drawing in the sand rather than using felt pen on paper). Photographs can also be used to construct maps.

Maps are an excellent starting point for discussion about community-based problems and solutions amongst stakeholders. Maps have been used to understand how people perceive and relate to their environment. Mapping processes have sometimes resulted in the discovery of new information by outsiders working in communities.

Mapping processes have been used in British parishes to encourage local people to work together to identify what they value about their community and its surroundings. This has heightened awareness of place and the desire to conserve. People rediscover the richness of their environment and are reminded of what they value.

Within the sustainable development planning process, maps are an important tool for community issue identification, analysis, and problem solving. These same maps can be used later by the community to monitor change related to project intervention.

Networked Assessment

Networked assessment is a technical approach in which assessment methods are executed by those parties or people who have distinct interests and day-to-day knowledge of the different components of the issues and systems being studied. The involvement of key stakeholders maximizes the identification and discussion of system dynamics.

Oral History

Oral history is a participatory technique for information sharing during the analysis of local issues. Oral histories can provide information on when, why, and how problems came about. Historical accounts can be compared with the state of the community today to generate an analysis related to underlying trends and structural problems. They can be used in educational materials to inform residents about the history of changes and development in their communities.

Periodic Monitoring Reports

Monitoring programs is a regular element in many municipal operations, ranging from monitoring of public health, building code compliance, transportation use, water and air quality, noise levels, soil contaminants, crime rates, etc. Systems for monitoring are generally established to collect specific data on a periodic basis, based upon redefined standards to ensure compatibility over time. The selection of data is often related to established regulations or professional standards. Data is used in this way to correct practices so that they comply with regulations.

Data from monitoring programs can also be used as the basis for more extensive auditing efforts. The technical standards established for such data are often quite high; however, the result is that the data collected may be of a highly technical nature and reflect only the narrow requirements of a specific regulation. It therefore may not provide an ample, user-friendly picture of actual conditions in a community.

Ranking

Ranking is an analytical tool that involves having people identify and then evaluate options. This is typically done by assigning both qualitative and quantitative value to problems and comparing these assigned values in order to rank problems from low to high priority. Ranking can be used to identify priorities, monitor changes in preferences, and compare preferences and priorities between groups. There are different types of ranking techniques, including direct ranking, preference ranking, formula ranking, and risk-based ranking.

Preference ranking, or direct-matrix ranking, is an exercise in which people identify what they do and do not value about a class of objects (for example, tree species or cooking fuel types). This ranking instrument allows participants to understand the reasons for local preferences and to see how values differ among local groups. Understanding preferences is critical for choosing appropriate and effective interventions. Risk-based ranking utilizes risk-based factors associated with health, ecology, and quality of life to rank environmental problems. This tool is described in chapter 3, Appendix 3.

Ranking tools should be considered for the community-based, priority-setting stage of the strategic planning process.

Rapid Urban Environmental Assessment

The World Bank/UNDP/UNCHS Urban Management Programme has established a specific method of state-of-the-environment reporting called “Rapid Urban Environmental Assessment” (RUEA). RUE A provides a streamlined State of the Environment Report (SOER) framework for stakeholder analysis of environmental conditions. The RUEA method uses a basic questionnaire to quickly and cost-effectively collect existing data from monitoring programs, public records, and other formal sources. The data are used by professional staff or consultants for the development of a profile of the urban environment. This profile is then submitted to stakeholders to both validate the results of the profile and to discuss priority issues and problems identified in the profile. Analysis of the data is done by both professional data collectors and the participating public. The involvement of the public offers an opportunity to gather insights about the relationship among issues; lack of involvement of stakeholders in data collection and the preparation of the environmental profile reduces their role and influence.

Service Issues Mapping

Service issues mapping is a facilitated group brainstorming and analysis technique that helps stakeholders identify or “map” the diverse issues that must be considered in order to address a single priority issue. The exercise promotes an understanding of the systemic nature of local problems by highlighting the complex sets of relationships among different issues. The tool also identifies different stakeholders who need to be involved in the performance of a networked assessment. This tool is described in chapter 3, Worksheet 3.

State of the Environment Reporting

State of the Environment Reporting (SOER) is a general term used to describe the compilation and review of data collected over a period of two to five years. State of the Environment reports generally review the conditions and trends of different natural media (air, soil, water, noise, etc.) and key public issues (child health, employment, training, etc.) for this particular time period. In effect, these reports are comprehensive reviews of data gathered from different monitoring programs. GIS-generated data may be used for graphic presentation. SOERs collate existing data on a periodic basis and provide analysis of this data to clarify trends in relation to some base line.

In some municipalities, SOERs are performed with the involvement of the public and numerous stakeholder institutions. In Lancashire County, UK, for instance, more than 70 organizations formed an “Environmental Forum” to jointly collect and analyze environmental data for the “Lancashire Environmental Audit.” This network-based approach to SOER, which is further discussed in Case #8, can increase access to data and information that is not normally made public. Additionally, it facilitates the interpretation of data by knowledgeable stakeholders during the process of data selection and analysis.

Surveys

Survey are a relatively low-cost method of directly obtaining information about people's attitudes, opinions, needs, perceptions, policy preferences, behavior, and characteristics. Surveys are a sequence of focused, pre-determined questions with limited options for responses. They can be designed to obtain quantitative or qualitative information from the public; however, surveys can also be used to generate interest and involvement in an issue.

While surveys can obtain relatively accurate information on public opinions because they demand immediate and frequently simplified answers, they do not provide the opportunity for carefully debated and considered responses. Surveys present a very limited and controlled agenda to citizens, often overlooking citizen's important concerns that are unknown to those implementing the survey. Surveys can add value when they are used to identify problems, narrow the focus to clarify the objectives of a project or policy, plan strategies for implementation, and monitor or evaluate participation.

In the context of sustainable development planning, surveys can be used to gather specific information for issue identification and assessment, provide public feedback on decisions that are made by the stakeholder group, and provide public input into indicator selection and program monitoring.

SWOT Analysis (Strengths, Weaknesses, Opportunities, and Threats)

SWOT analysis is a strategic planning tool that can be used to do an analysis of the strengths, weaknesses, opportunities, and threats of any proposed action. Strengths (i.e. capacities, contacts, resources, etc.), and weaknesses (i.e. diminishing ability to provide quality services), refer to factors internal to the community. Opportunities (a combination of circumstances which, if accompanied by a certain course of action on the part of the community, is likely to produce benefits), and threats (probable events which, if they were to occur, would produce significant damage to the community) refer to outside influences. SWOT analyses can be highly structured and thorough or unstructured and general. SWOT analysis produces a comprehensive list of strengths, weaknesses, opportunities, and threats, which will aid in the formulation of attainable long-range goals, action programs, and policies.

Systems Analysis

Systems analysis is an analytical approach that relies upon a variety of statistical and scientific methods to characterize and measure the functioning and capacity of a social, economic, and environmental system. Some of the principal methods used in systems analysis are materials flow analysis, carrying capacity analysis, systems diagramming, and systems modeling. Based on these analyses, points of non-sustainability or instability in the functioning of the system can be identified for corrective or remedial action. In the context of sustainable development planning, systems analysis will highlight the systemic issues that underlie and reproduce economic, environmental, and social problems and conditions.

Local Agenda 21 Resources

Local Agenda 21 Handbooks and Guides

Association of Finnish Local Authorities, Ministry of the Interior, Ministry of the Environment, and the National Research and Development Centre for Welfare and Health. *Sustainable Development—A Handbook for Municipalities.* Helsinki, Finland:The Association of Finnish Local Authorities, 1994.

Australian Municipal Association and the Department of Environment, Sport and Territories. *Managing for the Future:A Local Government Guide.* Melbourne, Australia: Commonwealth Department of the Environment, Sport and Territories, 1994.

German Technical Corporation, Urban Environmental Training Materials Project. *Manual for Urban Environmental Management.* Bangkok, Thailand: (Gesellschaft fur Technische Zuammenarbeit (GTZ), Dag-Hammarskjold-Weg 1–2, PO Box 5180, D-6236 Eschborn, Germany), 1992.

German Technical Corporation (GTZ), Urban Environmental Guidelines Project. *Urban Environmental Management Guidelines, Thailand.* Bangkok,Thailand: (Urban Environmental Guidelines Project, Local Government Development Division, Department of

Local Administration, Wang Sunantha, Ratchasima Road, Dusit, Bangkok, 10300. Tel.: 66 2 243-0540; Fax: 66 2 243-1812), 1994.

International Council for Local Environmental Initiatives (ICLEI). *European Local Agenda 21 Planning Guide—How to Engage in Long-Term Environmental Action Planning Towards Sustainability.* Brussels, Belgium: European Sustainable Cities and Towns Campaign, 1995.

Juffermans,J. *Sustainable Lifestyles: Strengthening the Global Dimension to Local Agenda 21, Guide to Good Practice.* The Hague, Netherlands: Towns and Development (P.O. Box 85615, 2508 CH. The Hague, Netherlands. Tel.: 31 70 362 3894; Fax: 31 70 364 2869), 1995.

Local Government Management Board. *Agenda 21:A Guide for Local Authorities in the U.K.* Luton, UK, n.d.

Local Government Management Board. *Earth Summit: Rio '92, Information Pack for Local Authorities.* Luton, UK, 1992.

Local Government Management Board. *Local Agenda 21, Principles and Process: A Step by Step Guide.* Luton, UK, 1994.

Local Government Management Board and the University of the West of England. *Sustainable Settlements: A Guide for Planners, Designers and Developers.* Luton, UK, n.d.

Ministry of the Environment and Local Government Association. *Taking Up the Challenge of Agenda 21: A Guide for Local Government,.* Wellington, New Zealand: Ministry of the Environment, 1994.

Municipal Conservation Association. *Managing for the Future, A Local Government Guide.* Melbourne, Australia: Department of Environment, Sports and Territories (Fourth Floor, Ross House, 247 Flinders Lane, Melbourne 3000. Tel.: 61 3 654 1322; Fax 61 3 650 3689), 1994.

Municipal Conservation Association and Victoria Office of the Environment, Department of Conservation and Natural Resources. *Looking Forward:The Next Step;A Guide to Preparing a Local Conservation Strategy.* Melbourne, Australia, n.d.

Ontario Round Table on Environment and Economy.*Sustainable Communities Resource Package.* Toronto, Canada: Ontario Ministry of Environment and Energy, 1995.

World Associations of Major Metropolises (Metropolis), United Towns Organization (UTO), International Union of Local Authorities (IULA) and Summit Conference of Major Cities of the World (SUMMIT). *Towards a Local "Agenda 21":An Urban Synthesis of Agenda 21,A Guide for Local Authorities.* Paris, France: METROPOLIS (Iaurif, 16, Bd. de Raspail—75007, Paris. Tel.: 33 1 40 43 78 00; Fax 33 1 40 434 79 85), 1994.

The World Conservation Union (IUCN). *Guide to Local Sustainable Development Strategies* (LSDS). Gland, Switzerland: Strategies for Sustainability Service (SSS), Commission for Environmental Strategies and Planning (CESP) Working Group on Strategies for Sustainability (WGSS) Joint Programme, 1993.

The World Conservation Union (IUCN). *Strategies for National Sustainable Development: A Handbook for their Planning and Implementation.* Gland, Switzerland: Earthscan Publications, International Institute for Environment and Development (IIED) and IUCN, 1994.

Local Agenda 21 and Sustainable Development: Selected Reading

Bartone C. et al. *Toward Environmental Strategies for Cities: Policy Considerations for Urban Environmental Management in Developing Countries.* Washington, DC: United Nations Development Programme (UNDP), United Nations Centre for Human Settlements (UNCHS), and World Bank Urban Management Programme, 1994.

Dillinger,W. *Decentralization and Its Implications for Urban Service Delivery,.* Washington, DC: United Nations Development Programme (UNDP), United Nations Centre for Human Settlements (UNCHS), and World Bank Urban Management Programme, 1993.

Barrett, R,J. Martin-Brown, and I. Serageldin, eds. *The Business of Sustainable Cities.* Washington, DC:The World Bank, 1994.

Brugmann,J. “Who Can Deliver Sustainability? Municipal Reform and the Sustainable Development Mandate,” in *Third World Planning Review* 16,2 (1994): 129–46.

Brugmann, J. “Sustainable Development Planning: Assessing Progress Towards an Applied Methodology,” in *Environmental Impact Assessment Review.* Boston, MA: Massachusetts Institute of Technology (MIT), 1996.

Earth Council. *Directory of National Councils for Sustainable Development.* San José, Costa Rica: Earth Council (P.O. Box 2323,1002, San José, Costa Rica,Tel.: 506 256 1611; Fax 506 255 2197), 1995.

European Union Expert Group on the Urban Environment.*European Sustainable Cities.* Brussels, Belgium, 1994.

International Council for Local Environmental Initiatives (ICLEI) Asia and Pacific Secretariat. *Asian Local Environmental Case Book*, Tokyo, Japan: ICLEI Japan Office (ICLEI Asia and Pacific Secretariat Japan Office, c/o GEF Iikura Building, 1–9-7 Azabudai, Minato-ku,Tokyo 106, Japan. Tel.: 81 3 5561 9735; Fax 81 3 5561 9737), 1995.

International Council for Local Environmental Initiatives (ICLEI). *Local Initiatives: ICLEI Members in Action 1993–1995.* Toronto, Canada: ICLEI, 1995.

International Council for Local Environmental Initiatives (ICLEI). *Local Agenda 21 Network News Newsletter.* Toronto, Canada: ICLEI, 1994–95.

International Council for Local Environmental Initiatives (ICLEI). *Towards Sustainable Cities and Towns, Report of the First European Conference on Sustainable Cities and Towns, Aalborg, Denmark, 24–21 May 1994.* Freiburg, Germany: European Commission, Directorate General XI, 1995.

International Council for Local Environmental Initiatives (ICLEI) and the UN Commission on Sustainable Development. *The Role of Local Authorities in Sustainable Development: 14 Case Studies on the Local Agenda 21 Process.* New York, USA: UN Department for Policy Coordination and Sustainable Development, 1994.

Local Government Management Board. *Decentralised Cooperation:A Video on Community Governance and Decentralised Development in Ghana.* Luton, UK, n.d.

Local Government Management Board. A *Framework for Local Sustainability:A Response by UK Local Government to the UK Government’s First Strategy for Sustainable Development.* Luton, UK, 1993.

Manchester City Council. *First Steps: Local Agenda 21 in Practice, Municipal Strategies as Presented to the Global Forum, Manchester, 1994*, London, UK: HMSO Publications, 1995.

Ministry for the Environment and the Local Government Association. *Making Connections: An Overview of Agenda 21.* Wellington, New Zealand: Ministry for the Environment, n.d.

Serageldin, I., M.A. Cohen, and J. Leitmann, eds. *Enabling Sustainable Community Development.* Washington, DC: World Bank, 1995.

United Nations. *Agenda 21.* New York, USA: United Nations (United Nations Publications Office,Two United Nations Plaza, Room No. 853, New York, NY 10017. Tel.: 212 963–8302; Fax: 212 963–3489; E-mail Publications@UN.ORG), 1992.

United Nations Centre for Human Settlements (UNCHS).*Sustainable Human Settlements Development, Implementing Agenda 21.* Nairobi, Kenya: UN Commission on Sustainable Development, 1994.

UNCHS, ICLEI,The United Towns Development Agency (UTDA). *Local Authorities: Custodians of the Urban Environment.*

London, UK: Earthscan Publications (forthcoming, 1996).

White, R. and J. Whitney. “Cities and the Environment: An Overview” in Stren, R. et al., eds. *Sustainable Cities: Urbanization and the Environment in International Perspective.* Boulder, USA: Westview Press, 1992.

World Commission on Environment and Development. *Our Common Future.* London, UK: Oxford University Press, 1987.

The World Conservation Union (IUCN). *World Conservation Strategy.* Gland, Switzerland: IUCN, 1980.

The World Conservation Union (IUCN), United Nations Environment Program (UNEP) and World Wildlife Fund (WWF). *Caring for the Earth—A Strategy for Sustainable Living.* Gland, Switzerland: IUCN, UNEP and WWF, 1991.

The World Conservation Union (IUCN). *Report on Workshop on Strategies for Sustainability in Latin America, Isla Taboga, Panama, July 1993.* Gland, Switzerland: Strategies for Sustainability Service (SSS), Commission for Environmental Strategies and Planning (CESP) Working Group on Strategies for Sustainability (WGSS),Joint Programme on Strategies for Sustainability, 1993.

The World Conservation Union (IUCN). *Regional Review on Strategies for Sustainability in Africa—Vol. 1*(Review Draft). Gland, Switzerland: Strategies for Sustainability Service (SSS), Commission for Environmental Strategies and Planning (CESP) Working Group on Strategies for Sustainability (WGSS) Joint Programme, 1993.

World Conservation Union (IUCN). *Regional Review of Strategies for Sustainability in South and East Asia—Vol. 1*(Review Draft). Gland, Switzerland: Strategies for Sustainability Service (SSS), Commission for Environmental Strategies and Planning (CESP) Working Group on Strategies for Sustainability (WGSS) Joint Programme, 1993.

The World Conservation Union (IUCN). *The IUCN Joint Programme on Strategies for Sustainability: Activities and Lessons Learned*, Gland, Switzerland: Strategies for Sustainability Service (SSS), Commission for Environmental Strategies and Planning (CESP) Working Group on Strategies for Sustainability (WGSS) Joint Programme, 1993.

Planning Elements: Selected Reading

Partnerships

Beresford, P. and S. Croft. *Citizen Involvement:A Practical Guide for Change.* Toronto, Canada: MacMillan Publishers, 1993.

Canadian Healthy Communities Network. *Begin With People.* Toronto, Canada: INME Communicates (1350 Hawthorne Drive, Peterborough, ON, Canada. Tel.: 705 745–5864; Fax: 705 740–9573), 1995.

Canadian Wildlife Service of Environment Canada, Fisheries and Oceans Canada, Fraser Basin Management Programme, Forest Renewal British Columbia. *Community Stewardship:A Guide to Establishing Your Own Group.* Vancouver, Canada: Environment Canada, 1995.

Carpenter, S. *Solving Community Problems By Consensus.* Washington, DC: Program for Community Problem Solving (PCPS), 1990.

Creighton,J.L. *Involving Citizens in Community Decision Making: A Guidebook*, Washington, DC: Program for Community Problem Solving (PCPS), 1992.

Doering, R.L. “Evaluating Round Table Processes,” in *National Round Table Review.* Ottawa, Canada: National Round Table on the Environment and the Economy (NRTEE), 1995.

Environment Canada. *Working in Multi-Stakeholder Process.* Ottawa, Canada: Evaluation and Interpretation Branch, Ecosystem Conservation Directorate and Stakeholder Relations Branch, Response Assessment Directorate, 1994.

Finsterbusch, K. and W. A. Van Wicklin III. “The Contribution of Beneficiary Participation to Development Project Effectiveness,” in *Public Administration and Development* 7 (1987): 1–23.

Gray, B. *Collaborating: Finding Common Ground for Multiparty Problems.* San Francisco, USA:Jossey-Bass, 1989.

Habana-Hafner, S. and Horace B. Reed and Associates. *Partnerships for Community Development: Resources for Practitioners and Trainers.* USA: University of Massachusetts, Center for Organizational and Community Development, 1990.

Himmelman, A.T. *Communities Working Collaboratively for a Change.* Minneapolis, USA: The Himmelman Consulting Group, 1992.

Institute of Development Studies. *Participatory Rural Appraisal: Abstracts of Selected Sources.* Brighton, UK: University of Sussex, 1995.

International Council for Local Environmental Initiatives (ICLEI). *Citizen Participation in the Siting of Waste Facilities, Linz, Austria* (Case Study #15). Toronto, Canada: ICLEI, 1993.

International Council for Local Environmental Initiatives (ICLEI). *Partnerships for Environmental And Economic Regeneration, Blackburn, United Kingdom* (Case Study #25). Toronto, Canada: ICLEI, 1994.

International Council for Local Environmental Initiatives (ICLEI). *Participatory Regional Development Planning, The Provincial Municipality of Cajamarca, Peru* (Case Study #30). Toronto, Canada: ICLEI, 1995.

Johnson, S. *Participatory Research: A Selected Annotated Bibliography.* Ottawa, Canada: International Development Research Centre (IDRC) and the Norman Paterson School of International Affairs, Carleton University, 1994.

Local Government Management Board. *Canadian Round Tables and Other Mechanisms for Sustainable Development in Canada: A Local Agenda 21 Briefing Paper.* Luton, UK, n.d.

Narayan, *D. The Contribution of People’s Participation: Evidence from 121 Rural Water Supply Projects.* Washington, DC: World Bank Environmentally Sustainable Development, Occasional Paper Series No. 1,1995.

National Round Table on the Environment and the Economy (NRTEE). *Building Consensus for a Sustainable Future: Guiding Principles.* Ottawa, Canada: NRTEE, 1993.

Ontario Round Table on the Environment and the Economy. *Local Round Tables on Environment and Economy: A Guide.* Toronto, Canada: Ontario Round Table on the Environment and the Economy, 1991.

Ontario Round Table on the Environment and the Economy. *Restructuring for Sustainability.* Toronto, Canada: Ontario Round Table on the Environment and the Economy, 1992.

Program for Community Problem Solving. *Building the Collaborative Community: A Select Bibliography for Community Leaders.* Washington, DC, 1992.

Susskind, L. and J. Cruikshank. *Breaking the Impasse: Consensual Approaches to Resolving Public Disputes.* New York, USA: Basic Books, 1987.

The Center for Conflict Resolution. *Building United Judgment: A Handbook for Consensus Decision Making.* Madison, USA: The Center for Conflict Resolution, 1981.

Walker R. “Including the Excluded: Four Models,” in *National Civic Review*, 76,5 (1987): 413–21.

Weisbord, M.R. et al. *Discovering Common Ground: How Future Search Conferences Bring People Together to Achieve Breakthrough Innovation, Empowerment, Shared Vision and Collaborative Action.* San Francisco, USA: Berrett Koehler Publishers,

1993.

Community-Based Issue Analysis

Brown,V. *Risks and Opportunities: Managing Environmental Conflict and Change.* London, UK: Earthscan Publications, 1995.

Burton, Paul. *Community Profiling: A Guide to Identifying Local Needs.* Bristol, UK: School for Advanced Urban Studies (Rodney Lodge, Grange Road, Bristol, BS8 4EA, UK. Tel.: 44 272 741117), 1993.

Crawfoot,J.E. and J.M. Wondolleck. *Environmental Disputes: Community Involvement in Conflict Resolution.* Washington, DC: Island Press, 1990.

Environ, Leicester City Council and Leicester Promotions. *Blueprint for Leicester Findings.* Leicester, UK, 1995.

International Council for Local Environmental Initiatives (ICLEI). *Community-Based Service Delivery, Quito, Ecuador* (Case Study #21). Toronto, Canada: ICLEI, 1994.

International Council for Local Environmental Initiatives (ICLEI). *Participatory Priority Setting,Troyan, Bulgaria* (Case Study #29). Toronto, Canada: ICLEI, 1995.

Lewin K. *Force Field Theory in Social Science: Selected Theoretical Papers.* New York, USA: Harper Publications, 1951.

Local Government Management Board. *Local Agenda 21 Roundtable Guidance Series No. 1: Community Participation in Local Agenda 21.* Luton, UK: Local Government Management Board, 1993.

Markowitz, P. *Guide to Community Environmental Action in Bulgaria.* Montpelier, USA: Institute for Sustainable Communities, 1994.

McCarney, P. *World Cities and Environment:A Five-City Consultation Process.* Toronto, Canada: Centre for Urban and Community Studies, University of Toronto, 1991.

Mitchell, R.C. and R.T Carson. *Using Surveys to Value Public Goods: The Contingent Valuation Method*, Washington, DC: Resources for the Future, 1989.

Northeast Center for Comparative Risk and the Western Center for Comparative Risk. *The Comparative Risk Bulletin* (occasional publication). South Royalton, USA:Vermont Law School.

Norton, A. andT. Stephens. *Participation in Poverty Assessments.* Washington, DC: World Bank Environment Department Papers, Participation Series, 1995.

Program for Community Problem Solving (PCPS). *Facing Racial and Cultural Conflict: Tools for Rebuilding Community.* Washington DC:World Bank Environment Department Papers, Program for Community Problem Solving (PCPS), 1992.

Auditing

Altech Environmental Consulting Ltd. *Environment Canada Development Guide, Vol. 1: Principles of Effective Environmental Auditing; Vol. 2: Environment Audit Protocol.* Ottawa, Canada: Environment Canada, 1990.

Canadian Environmental Advisory Council (CEAC). *Preparing for the 1990s: Environmental Assessment: An Integral Part of the Decision Making,.* Ottawa, Canada: CEAC, 1988.

City of Los Angeles Environmental Quality Board. *State of the City's Environment Primer.* Los Angeles, USA: Environmental Affairs Department, 1990.

Collier, W. and K. Santoso. *Surabaya Water Environment Study: An Application of Rapid Urban Appraisal Techniques.* Indonesia: PT Intersys Kelola Maju Consultants, 1992.

Colnett, D. "Sustainable Development, Urbanization, and Environmental Impact Assessment," in *Issues in Urban Sustainability 2.* Winnipeg, Canada: Institute of Urban Studies, 1993.

Crooks R. and S. Foley. *Review of Environmental Assessment and Management Experience in Indonesia.* Washington, DC: Environment Department, World Bank, 1995.

Daneke, G., M. Garcia, and J. Priscoli, eds. *Public Involvement and Social Impact Assessment.* Boulder, USA: Westview Press, 1983.

Gardner, J.E., WE. Rees, and P. Boothroyd. *The Role of Environmental Assessment in Promoting Sustainable Development:Three Views, Discussion Paper #13.* Vancouver, Canada: University of British Columbia School of Community and Regional Planning (SCARP), 1988.

Gardner, J. "Decision Making for Sustainable Development: Selected Approaches to Environmental Assessment and Management," in Environmental *Impact Assessment Review 9*(1989): 337–66.

Heywood, I. "Geographic Information Systems in the Social Sciences," in *Environment and Planning A 22* (1990): 849–54.

Hostovsky, C. *Social Impact Assessment: Planning for Human Values in Environmental Assessment. Toronto,* Canada: Ontario Ministry of Environment, 1989.

International Council for Local Environmental Initiatives (ICLEI). *Environmental Auditing, Lancashire County, UK* (Case Study #6). Toronto, Canada: ICLEI, 1992.

International Council for Local Environmental Initiatives, (ICLEI). *Community-Based Environmental Management— NewYork City, USA* (Case Study #14). Toronto, Canada: ICLEI, 1993.

Irwin, F. and B. Rodes. Making *Decisions on Cumulative Environmental Impacts: A Conceptual Framework.* Washington, DC: WorldWildlife Fund, 1992.

Jacobs, P. and B. Sadler. *Sustainable Development and Environmental Assessment: Perspectives on Planning for a Common Future*. Ottawa, Canada: Canadian Environmental Assessment Research Council (CEARC), 1990.

Lancashire County Council. *A Green Audit, A First State of the Environment Report.* Lancashire, UK: (Lancashire County Planning Department, P.O. Box 160, East Cliff County Offices, Preston, PR1 3EX),1991.

Leitmann, J. *Rapid Urban Environmental Assessment: Lessons from Cities in the Developing World*(2 Vols.). Washington, DC: United Nations Development Programme, United Nations Centre for Human Settlements (Habitat) and World Bank, Urban Management Programme, 1994.

Maclaren,V. *Sustainable Urban Development in Canada: From Concept to Practice,* 3 Vols. Vol. 1: Summary Report;Vol. 2: Annotated Bibliography;Vol. 3: Compendium of Initiatives. Intergovernmental Committee on Urban and Regional Research (ICURR). Toronto, ON: University of Toronto, 1992.

Maclaren,V, M. Campbell, and W. Dickinson. *Municipal State of the Environment Reporting in Canada: Current Status and Future Needs.* Ottawa, Canada: Environment Canada, 1994.

Mazzucchelli, S.A. "Participatory Methodologies for Rapid Urban Environmental Diagnoses," in *Environment and Urbanization* 7, 2 (1995). Nottingham, UK: Russell Press, International Institute for Environment and Development.

Pearse, T. "Tradition Plus High-Tech: A First Nations Example," in Aberley, D., ed. *Futures by Design:The Practice of Ecological*

Planning,. Gabriola Island, BC, Canada: New Society Publishers, 1994.

Peterson, E.B. et. al. *Cumulative Effects Assessment in Canada: An Agenda for Action and Research.* Ottawa, Ontario: Canadian Environmental Assessment Research Council (CEARC), n.d.

Pires, S.H. et al. "New Aspects of Impact Assessment in the Planning Process: The Case of Amazon Transmission System," in *Impact Assessment,* 11,3 (1993).

Radford, G. "Watershed Planning: Using a GIS to Make Sustainable Decisions," in *Plan Canada,* July, 1993.

Sadar, M.H. and Associates. *Environmental Impact Assessment.* Ottawa, Canada: Carleton University Press, 1994.

Smith, D.B. and M. van der Wansem. *Strengthening EIA Capacity in Asia: Environmental Impact Assessment in the Philippines, Indonesia, and Sri Lanka.* Washington, DC: World Resources Institute, 1995.

Smith, L.G. "Impact Assessment Methods and Methodology," in *Impact Assessment and Sustainable Resource Management.* Essex, UK: Longman Scientific and Technical, 1993.

Sonntag, N.C. et al. *Cumulative Effects Assessment: A Context for Further Research and Development.* Ottawa, Canada: Canadian Environmental Assessment Research Council (CEARC), n.d.

Spaling, H. and B. Smit. "Cumulative Environmental Change: Conceptual Frameworks, Evaluation Approaches, and Institutional Perspectives," in *Environmental Management* 17,5 (1993).

Taylor, D. *Auditing, Action Planning and Monitoring the Local Agenda 21 Process in Lancashire.* Preston, UK: Lancashire County Council, 1995.

Tolba, M., K. Biswas, and Q. Geping, *Environmental Impact Assessment for Developing Countries, Natural Resources and Environmental Series,Vol.* 19. London, UK: United Nations University and Tycooly International, 1987.

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). *Environmental Impact Assessment: Guidelines for Planners and Decision Makers.* Bangkok, Thailand: ESCAP, 1985.

Vizayakumar, K. and P.K.J. Mohapatra. "Environmental Impact Analysis: A Synthetic Approach," in *Long Range Planning,* 24,6 (1991).

Wackernagel, M. et al. *How Big Is Our Ecological Footprint:A Handbook for Estimating A Community's Appropriated Carrying Capacity*. Vancouver, Canada: Task Force on Planning Healthy and Sustainable Communities: University of British Columbia, 1993.

Wackernagel, M.,J. and W.E. Rees. *Our Ecological Footprint, Reducing Human Impact on the Earth.* Cabriola Island, BC, Canada: New Society Publishers,The New Catalyst Bioregional Series, 1996.

World Bank. *Environmental Assessment, Challenges and Good Practice.* Washington, DC: Environment Department,The World Bank, 1995.

World Bank. "Environmental Auditing," in *Environmental Assessment Sourcebook Update,* 11 (1995). Washington DC: The World Bank.

Systems Approach

Atkinson, C.J. and P.B. Checkland. "Extending the Metaphor-System," in *Human Relations,* 41,10 (1988).

Bertalanaffy, L. *General Systems Theory: Foundations, Development, Applications.* New York, USA: G. Braziller, 1968.

Berggrund, Lars. “Ecocycles in the Gothenburg Structure Plan,” in *Ecology-based Planning and Construction in Sweden.* Stockholm, Sweden: Swedish Council for Building Research, 1994.

Brugmann, J. *Managing Human Ecosystems: Principles for Ecological Municipal Management.* Toronto, Canada: ICLEI, 1992.

Goldberg, M. *On Systemic Balance—Flexibility and Stability in Social, Economic and Environmental Systems.* New York, USA: Praeger, 1989.

Hanson, G. *General Systems Theory Beginning with Wholes.* Washington, DGTaylor and Francis, 1995.

Mansson,T., ed. *Eco Cycles: The Basis of Sustainable Urban Development.* Stockholm, Sweden: Environmental Advisory Council and the Swedish Association of Local Authorities, 1992.

Meier, R.L. “Energy and Habitat: Designing a Sustainable Urban Ecosystem,” in *Futures.* August, 1984.

Nielsen, B. “The Nitrogen Cycle in Gothenburg,” in Structure *Plan for Gothenburg.* Gothenburg, Sweden: The City of Gothenburg, 1992.

Newcombe, K.“Nutrient Flow in a Major Urban Settlement: Hong Kong,” in *Human Ecology* 5,3 ((1977): 179–208.

Newcombe, K.,J. D Kalma and A.R. Aston. “The Metabolism of a City:The Case of Hong Kong,” in *Ambio* 7,1 (1978): 3–15.

Odum, E. “The Strategy of Ecosystem Development,” in Science, April 01,1969: 262–70.

Prigogine, I. and I. Stengers. *Order Out of Chaos: Man’s New Dialogue with Nature.* Toronto, Canada: Bantam Books, 1984.

Vester, Frederic. *Cities in Crisis: Understanding and Planning Human Living Spaces—The Biocybernetic Approach.* Munich, Germany: Walter Biering KG, 1976.

Whyte, A. “Ecological Approaches to Urban Systems: Retrospect and Prospect,” in *Nature and Resources* (Unesco), 21,1 (1985): 13–20.

Action Planning

Bryson,J.M. *Strategic Planning for Public and Nonprofit Organizations: A Guide to Strengthening and Sustaining Organizational Achievement.* San Francisco, USA: Jossey-Bass, 1988.

Jagannathan, N.V. and G. Watson. *Participation in Water and Sanitation.* Washington, DC:The World Bank, 1995.

International Council for Local Environmental Initiatives (ICLEI). *Housing Construction—Austin, Texas* (Case Study #5). Toronto, Canada: ICLEI, 1992.

International Council for Local Environmental Initiatives (ICLEI). *Waste Water Management—Stockholm, Sweden* (Case Study # 9). Toronto, Canada: ICLEI, 1992.

International Council for Local Environmental Initiatives (ICLEI). *Green Products Development—Gothenburg, Sweden* (Case Study # 22). Toronto, Canada: ICLEI, 1994.

International Council for Local Environmental Initiatives (ICLEI). *Profiting from Pollution Prevention—Graz, Austria,* (Case Study # 24). Toronto, Canada: ICLEI.

International Council for Local Environmental Initiatives (ICLEI). *Action Planning, Kanagawa Prefecture,Japan* (Case Study # 28). Toronto, Canada: ICLEI, 1995.

International Council for Local Environmental Initiatives (ICLEI). *Connecting Land Use and Energy—Victoria, Australia* (Case Study #32). Toronto, Canada: ICLEI, 1995.

Ohiorhenuan, J. and S. Wunker. *Capacity Building Requirements for Global Environmental Protection.* Washington, DC: Global Environment Facility, 1995.

Rogers, Adam, ed. *Environmental Action: A Community Guide* for a Healthy Earth. Nairobi, Kenya:The United Nations Environment Programme (UNEP), forthcoming.

Smith, F.J. and R.T. Hester. *Community Goal Setting.* Stroudsburg, PA, USA: Hutchinson Ross, 1982.

The Regional Municipality of Hamilton Wentworth. *Implementing Vision 2020: Directions for Creating a Sustainable Region. The* Regional Chairman's Task Force on Sustainable Development (Hamilton-Wentworth Planning and Development Department, 119 King St. West, 14th Floor, Hamilton ON, L8N 3V9), 1993.

Urban Development Through Local Efforts Project (UDLE), Local and Urban Development Training Centre (LUDTC). *Urban Environmental Guidelines for Nepal.* Kathmandu, Nepal: LUDTC, 1992.

Monitoring and Evaluation

City of Ottawa Department of Engineering and Works, Environment Management Branch. City *of Ottawa Municipal Environmental Evaluation Process (MEEP).* Ottawa, Canada: City of Ottawa, 1992.

Costanza, R. "Toward an Operational Definition of Ecosystem Health," in Costanza, R. et al., eds. *Ecosystem Health: New Goals for Environmental Management.* Washington, DC: Island Press, 1992.

Davis-Case, D.F. *Community Forestry: Participatory Assessment, Monitoring and Evaluation.* Rome, Italy: Food and Agriculture Organization of the United Nations (FAO), 1989.

Hardi, P. and L. Pinter. *Models and Methods of Measuring Sustainable Development Performance.* Winnipeg, Canada: International Institute for Sustainable Development, 1995.

Imbach, A. and E. Dudley. A *Methodology to Assess Progress Towards Sustainability* (First Draft). The World Conservation Union (IUCN) and International Development Research Centre (IDRC), 1995.

International Council for Local Environmental Initiatives (ICLEI). *Sustainable Development Indicators, The Regional Municipality of Hamilton- Wentworth,* Canada (Case Study #31). Toronto, Canada: ICLEI, 1995.

Lee-Smith, D. *Notes on Assessment and Use of Indicators at Community Level, Monitoring and Assessment Process: Zimbabwe.* International Monitoring and Assessment Team, the World Conservation Union (IUCN), 1995.

Leitmann, J. "A Global Synthesis of Seven Urban Environmental Profiles," in *Cities,* 12,1 (1995a).

Leitmann, J. *Environmental Management: Approaches and Tools for a Rapidly Urbanizing World.* Dakar, Senegal: Urban Management Programme (UMP), Africa, 1995b.

Local Government Management Board. *A Guide to the Eco-Management and Audit Scheme for UK Local Government.* London, UK: HMSO Books, n.d.

Maclaren,V.W. *Developing Indicators of Sustainable Urban Development: The Canadian Experience.* Prepared for State of the Environment Directorate—Environment Canada, Canada Mortgage and Housing Corporation and the Intergovernmental Committee on Urban and Regional Research (ICURR). Toronto, ON: University of Toronto, 1995.

Ontario Round Table on the Environment and Economy. *Reporting on Sustainability: Human Well-Being Within Ecosystem Well-*

Being. Toronto, Canada: Queen's Printer for Ontario, 1992.

Oregon Press Board. *Oregon Benchmarks: Standards for Measuring Statewide Progress and Institutional Performance.* Report to the 1995 Legislature, 1994.

Organisation for Economic Co-operation and Development (OECD). *Environmental Indicators—A Preliminary Set.* Paris, France: OECD, 1991.

Pinter, L., P. Hardi, and L. McRorie-Harvey. *Performance Measurement for Sustainable Development: Compendium of Experts, Initiatives and Publications.* Winnipeg, Canada: International Institute for Sustainable Development, 1995.

Prescott-Allen, R. *The Barometer of Sustainability. Victoria,* BC, Canada:The World Conservation Union (IUCN) International Assessment Team, Part of the IUCN/International Development Research Centre (IDRC) Project on Monitoring and Assessing Progress Toward Sustainability, 1995.

Rapport, D. "The Stress-response Environmental Statistical System and Its Applicability to the Laurentian Lower Great Lakes," in *The Statistical Journal of the United Nations,* ECE 1,1983.

Rees, W. "Revisiting Carrying Capacity: Area-based Indicators of Sustainability," in *Population and Environment,* 1996.

Rodenburg, E., D. Tunstall, and F. van Bolhuis. *Environmental Indicators for Global Cooperation,* Washington, DC: Global Environment Facility, 1995.

Storksdieck, M. and K. Otto-Zimmerman. *Advanced Environmental Management Tools and Environmental Budgeting at the Local Level.* Freiburg, Germany: First International Expert Seminar, March 14–16, International Council for Local Environmental Initiatives (ICLEI)—European Secretariat, 1994.

Sustainable Cambridge Coalition. *Sustainability Profile for the City of Cambridge, Massachusetts,* 1992.

United Nations Centre for Human Settlements. *Indicators Programme: Monitoring the City,* Vols. 1–3. Nairobi, Kenya: UNCHS, 1995.

York University Centre for Health Studies. *An Annotated Bibliography for Developing Healthy City Indicators.* Toronto, Canada: Second Report to the Healthy City Office, 1990.

Zachary, jill. *Sustainable Community Indicators: Guidepostsfor Local Planning.* Santa Barbara, USA: Community Environmental Council, Inc., 1995.

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