



RURAL SUSTAINABILITY: AN EXAMINATION OF THE PRACTICE OF SUSTAINABLE DEVELOPMENT PRINCIPLES IN A RURAL COMMUNITY IN MALAYSIA

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Abstract

This paper examines the extent to which sustainable development principles are practiced in rural life in Malaysia. The first part of the paper defines the concept and principles of rural sustainability. The second part highlights the findings of a case study on rural sustainability practice of a rural community in Malaysia. These include the practice of recycling and reuse of materials, utilization of electricity, water and chemical substances, mode of transport, diversification of economic activities and social cohesion. The study indicates that the level of awareness and the practice of sustainability principles are still low among rural people. Few measures are suggested to promote greater awareness and the practice of rural sustainability in rural areas.

Keywords: Sustainable Development, Quality of Life, Rural Sustainability, Community.

INTRODUCTION

Sustainable development is a concept, which encompasses a wide area of concerns, integrating environmental, social and economic dimensions. Table 1 provides some of the definitions on sustainable development. A simple conception of sustainable and unsustainable development is illustrated in Figure 1 and 2. Unsustainable development is inequitable development that depletes non-renewable resources, consumes renewable resources at a rate faster than the ecosystem can regenerate them, and undermines the productive and reproductive capacities of the natural environment through pollution (Leman and Cox, 1991). On the contrary, sustainable development is the process of equitable economic, social, cultural and technological betterment in a way that does not pollute ecosystems and deplete natural resources.

TABLE 1:
Definitions of Sustainable Development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (*World Commission on Environment and Development*);

Something which must improve the quality of life, improve the living and working environment of all people, provide adequate shelter for all, create sustainable energy, transport and construction activities and stimulate human resources development and capacity building required to achieve the goals (*Rio Earth Summit 1992*);

Development that meet the criteria of affordability, accountability and reliability. It relates on improving and maintaining health and social status, standards and levels of living as well as equity (e.g. more equitable distribution of income, enhanced quality of life and social justice) (*The World Bank, Washington 1994*);

Sustainable development involves the simultaneous pursuit of economic prosperity, environmental quality and social equity (*World Business Council on Sustainable Development*);

RURAL SUSTAINABILITY

Although sustainability has become a major theme of current development efforts, the sustainability of the rural areas has not been given much attention compared to urban areas. Rural sustainability is a concept which falls within the general principles of sustainability, but which emphasizes certain elements, issues and goals for rural development, particularly with regard to the utilization and conservation of rural resources and enhancement of rural communities. The concerns of rural sustainability may also differ from one region to another due to differences of the problems experienced by the society as well as level of development. At global level the production of food and food security are the major issues of rural development in which Chapter 14 of the Agenda 21 provide guidelines for actions in addressing the issues. A report on "Planning for Sustainable Environment" of the Town & Country Planning Association, UK (1993), also provides some guidelines on achieving environmental sustainability in the rural areas (see Tables in the appendix for various indicators/guidelines on sustainable rural development).

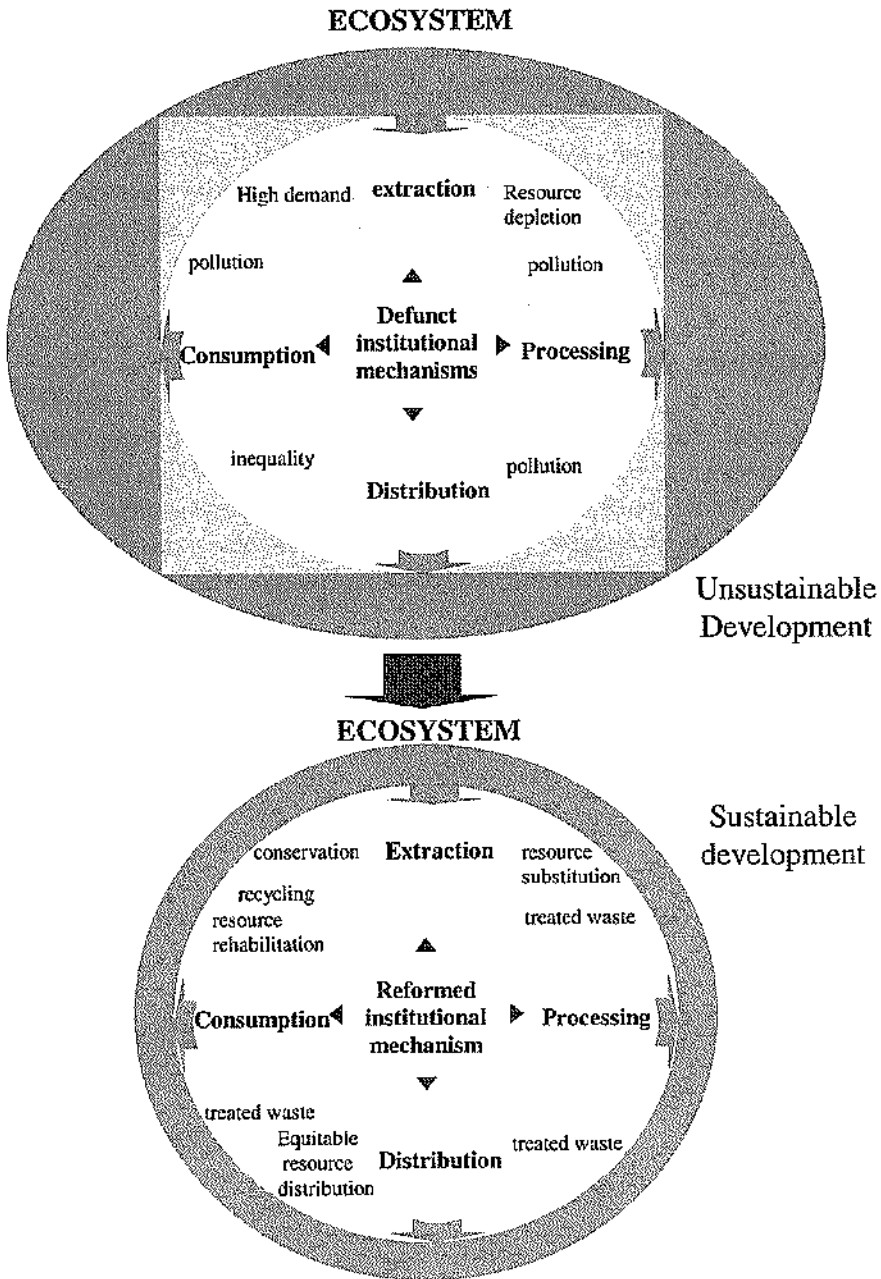


FIGURE 1: Conception of sustainable and unsustainable development.
Source: Adapted from Leman & Cox (1991).

This paper, however, is more concerned with sustainability of the rural households based on examination of the practice of principles of sustainable development among rural households in a village. Understanding sustainability at the level of household is important since sustainability is very much rooted in people themselves. It is the values, behaviors and conduct of the people that actually determine outcome of development whether sustainable or not. To achieve sustainability means to change the values of the people, their behaviors and conduct towards adherence to the principles of sustainability.

THE PRINCIPLES AND CRITERIA

The principles and criteria of rural sustainability used in this study were adapted from various literatures on sustainable development. Figure 2 lists some of the general principles under social, economic and ecological components. The principles of 5R (Reuse, Recycle, Reduce, Rethink and Repair) were also considered. Other elements on knowledge and awareness were also considered as important principles to achieve rural sustainability (See Table 2).

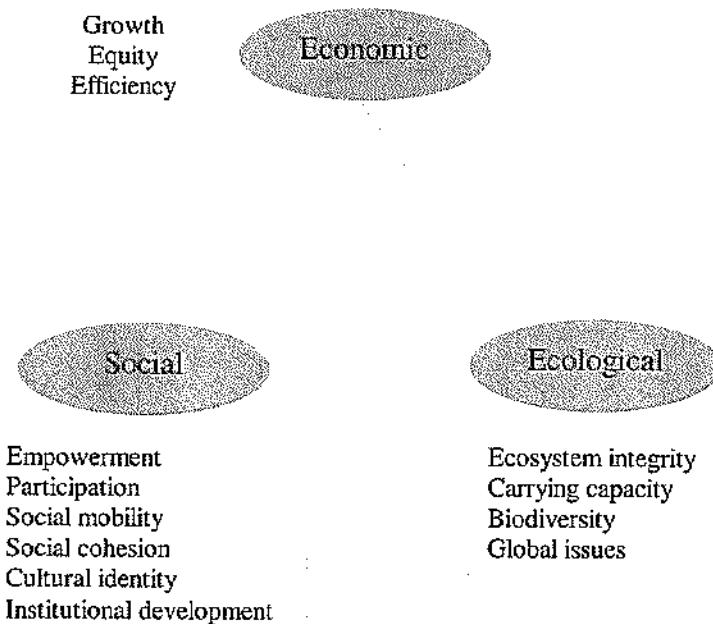


FIGURE 2: General Principles of Sustainable Development
Source: Adapted from Seragelden Ismail, pp.2.

TABLE 2:
Principles and Criteria of Rural Sustainability Used in the Study

Principles	Criteria	Measurement of sustainability
Reuse/recycle	Reuse/recycle of various household materials such as wrapping materials, newspaper, old clothing etc.	Percentage of households who reuse/ recycle materials
Reduce use of resources	Reduce use of electricity, water, fuel, and chemical	Percentage of households who practice methods of reducing use of resources
Rethink/behaving in sustainable manner	Method of waste disposal, mode of transport	Percentage household/respondents behaving in sustainable manner
Social cohesion	Mutual help, trustworthiness, tolerance, contact, adherence to traditional value/culture	Percentage of respondents practice the traits
Economic sustainability	Reduce spending, diversify source of income, part-time job	Percentage of households who practice
Knowledge on sustainability	Environmental vocabulary, knowledge on environmental/sustainability programs	Percentage of respondents who understand/aware the programs

THE CASE STUDY

The present study was done by an undergraduate student, supervised by the author. A survey was carried out in January 2001 in which 100 respondents among the head of households in a village were interviewed using structured questionnaires.

Background of the study area

The village selected for the study is Kampung Kanchong Darat which is situated in Kuala Langat District, Selangor about 1.6 km from Banting and 5 km from Morib beach (see Figure 3). It covers an area of 1,500 hectares, largely under agriculture.

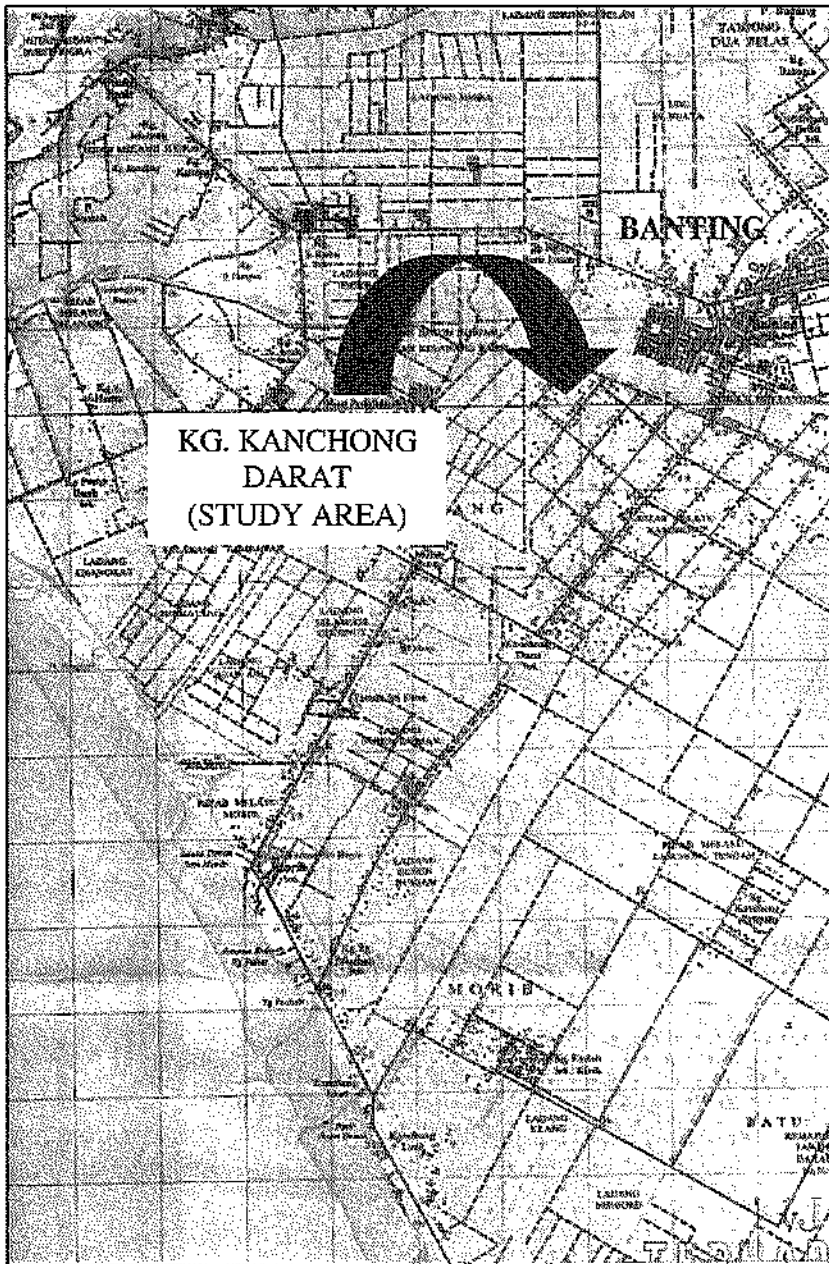


FIGURE 3: Location of the study area (in Kuala Langat district, Selangor)

Land-use with oil palm, coconut, coffee and orchard is the main form of cultivation. The village was opened around 1904 by migrants from Java. In 1911, there were about 15 families settled in the village, consisting largely of Javanese and Banjar descent. The population gradually increased from year to year and currently there are 1,767 houses with about 7,800 inhabitants.

The administration of land and development of village as a whole is under the jurisdiction of Kuala Langat Land and District Office. However at community level, the village is administered by a *Jawatankuasa Kemajuan dan Keselamatan Kampung* (Village Development and Security Committee) or better known as JKKK, headed by a Village Head, appointed by the Government. Since the land area of the village is quite big, the Kanchong Darat Village is divided into 14 sections and each section has a representative appointed in the JKKK. The JKKK is basically the machinery in which information or directives from the top (State Government and District Office) are channeled to the village people and vice versa, a means by which the Government can obtain feedback from the people. The JKKK also plays an important role in planning and implementing certain development programs, projects and solving societal problems as they arise.

The village is well equipped with social facilities comparable to urban settlements. All houses are supplied with electricity and piped water.

FINDINGS OF THE STUDY

The Practice of Reuse and Recycle

Table 3 shows the percentage of respondents who practiced the principle of reuse. Generally the percentage of respondents who reuse the materials was quite low except for bottles for which 27 percent sold to dealers and old clothing donated to either family members or others in need. Majority of the respondents throw away, burn or buried the materials after using them (except clothing in which majority kept them when no longer in use).

Reduced Use of Resources

The respondents were also asked on whether they practice any methods of reducing the consumption of electricity, water and fuel.

Majority of household used 101-130 KW of electricity per month. Of this 47% did practice ways to reduce the consumption of electricity such as switching on light only when required and switching off while sleeping at night.

TABLE 3:
Reuse of Household Materials

Materials	Ways of re-use	Percentage of respondents
Bottle	Store water	5%
	Decorate garden	1%
	Sell to dealers	27%
Tin container	Decorate garden	1%
	Planting	1%
	Sell to dealers	1%
Plastic bags	Packing rubbish	10%
	Use again for shopping	1%
	Packing food	1%
Polystyrene	Container for serving food to animal	1%
Newspaper	Wrapping food	4%
	Wrapping rubbish"	1%
	Food mat/cover"	2%
	Sell to dealers	10%
Old Clothing	For cleaning	8%
	Reuse by other members of family	8%
	Give to others	11%

On the utilizing of water, about half of the respondents practiced some methods for reducing use of water through reuse of water from cleaning to water plants, storing rain water and constructing small pond (*kolah*). This finding concurs with the figure recorded by *Jabatan Bekalan Air Selangor* which indicated that about 75% of the dwelling units in the rural areas consumed less than the standard figure set by the department.

Of the respondents 89% used gas, 10.5% used electricity and 0.5% used gasoline for cooking. The majority of the respondents did not practice any method for reducing the use of fuel; only 12 percent practiced reducing fuel by cooking less number of times per day and using bigger pot or kettle for boiling water.

Use of Chemical Substances

The situation is more sustainable if households use less chemical substances. From the survey 19 percent of the respondents used inorganic fertilizer for gardening, only 11 percent used organic fertilizer and the rest used both organic and inorganic fertilizer.

The study also found that 90 percent of the respondents used chemical substances to abate mosquitoes, flies and cockroaches.

Solid Waste disposal

The number of households who practiced sustainable ways of waste disposal i.e. disposing them at rubbish bins to be collected by the authority is still low. Many burned the rubbish at their house compounds, which is less sustainable since it contaminates the atmosphere (see Table 4).

TABLE 4:
Method of Waste Disposal

Method of waste disposal	Percentage
Burn	62%
Bury	7%
Public rubbish bin	26%
Unused pond/bush	5%
Total:	100%

Mode of Transport

The survey shows that private motor vehicles such as motorcycle and car were most common mode of transport for journey to work and shopping. The use of private motor transport tends to be a less sustainable means of traveling (see Table 5).

TABLE 5:
Mode of Transport

Type of Journey	Mode of transport	Percentage
Place of work	Bus	9%
	Car	26%
	Lorry	4%
	Van	5%
	Motorcycle	43%
	Bicycle	13%
	Walking	0%
Journey to School	Bus	18%
	Car	14%
	Lorry	1%
	Van	8%
	Motorcycle	33%
	Bicycle	20%
	Walking	6%

Shopping (in village shops and nearby towns)	Bus	0%
	Car	46%
	Lorry	0%
	Van	2%
	Motorcycle	43%
	Bicycle	1%
	Walking	8%

Social Cohesion and Cultural Identity

Table 6 indicates the prevalence of strong social cohesion and identity within the community.

TABLE 6:
Indicators on Social Cohesion and Cultural Identity

Indicators		Percentage
Willingness to contribute to community	Material means	74%
	Manpower	20%
	Material + manpower	5%
	Not willing to contribute	1%
Trustworthiness of neighbors	Very trustworthy	21%
	Trustworthy	58%
	Less Trustworthy	12%
	Not trustworthy	9%
Social visit (friends/neighbor)	Always	41%
	Seldom	46%
	Never	13%
Practice of traditional culture (dress, language, food, norms)	Regularly practice	38%
	Partially practice	61%
	Never practice	1%

Economic Sustainability

Diversification of economic activities or sources of income and reduced spending are among criteria of economic sustainability. The practice of the principles was quite encouraging by the respondents particularly on reducing spending.

**TABLE 7:
Indicators on Economic Sustainability**

Activities	Involvement	Percentage
Part-time Job	None	80%
	Business	5%
	Village labor	12%
	Others	3%
Supplementary economic activities to increase income (other members of the household)	None	70%
	Farming	7%
	Selling food	5%
	Tailoring	6%
	Baby sitter	5%
	Others	7%
Practicing method of reducing spending	None	49%
	Planned budget	6%
	Buy things only when needed	9%
	Restrain from purchasing	35%
	Saving	1%
	Others	1%
Economic activities in housing compound	Planting fruit trees/vegetables	15%
	Rearing animals/poultry	5%
	Others	4%

Knowledge and Awareness

The level of understanding of the terminology related to sustainable development concept was still low among village people in the study area.

**TABLE 8:
Knowledge and Awareness**

Aspects	Items	Percentage
Awareness/heard about the following terminology	Environment	95%
	Ecology	43%
	Green House effect	34%
	Sustainable development	40%
	Pollution	100%

Aspects	Items	Percentage
Understanding the meaning of the terminology	Environment	88%
	Ecology	15%
	Green House effect	15%
	Sustainable development	14%
	Pollution	99%
Awareness on the environmental programs/ campaigns	Love our rivers	8%
	Love our environment	6%
	Millennium planting	6%
	Recycling	7%
	Gotong Royong	15%

CONCLUSION

Sustainable development is a multi-dimensional concept encompassing social, economic and ecological components. Although the concept had been propagated widely throughout the world, it has not reached or is poorly understood by many people particularly in rural areas as revealed by the case study in a village in Malaysia. The practice of the principles of sustainability among rural households in the study area is not so apparent, except on social cohesion, although the culture and tradition of the Malays, rooted from the teaching of Islam, uphold the principles of sustainability and encourage its followers to practice them. The concept of rural sustainability has to be propagated and channeled properly through the existing village institutions such as the mosques, schools, the Village Development and Security Committee (JKKK), and various social groups in villages. Agencies involved with implementing the concept should work closely with the rural people in a 'trans-active manner' so that all parties could share the knowledge and experience in overcoming problems in implementing the concept.

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APPENDIX

TABLE A1:
Conditions for Sustainable Agriculture and Rural Development as
outlined in Chapter 14 of Agenda 21

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|---|
| <ol style="list-style-type: none">a. Agricultural policy review, planning and integrated programmes in the light of multifunctional aspects of agriculture, particularly with regard to food security and sustainable development;b. Ensuring people's participation and promoting human resource development for sustainable agriculture;c. Improving farm production and farming system through diversification of farm and non-farm employment and infrastructure development;d. Land-resource planning, information and education for agriculture;e. Land conservation and rehabilitation;f. Water for sustainable food production and sustainable rural development;g. Conservation and sustainable utilization of plant genetic resources for food and sustainable agriculture;h. Conservation and sustainable utilization of animal genetic resources for sustainable agriculture;i. Integrated pest management and control in agriculture;j. Sustainable plant nutrition to increase food production;k. Rural energy transition to enhance productivity;l. Evaluation of the effects of ultraviolet radiation on plants and animal caused by the depletion of the stratospheric ozone layer. |
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**TABLE A2:
Sustainability Indicators for Land-Based Rural Activities**

1. The project has a management plan which demonstrate how the site will contribute towards the occupiers' livelihoods;
2. The projects provide affordable access to land and/or housing;
3. The projects provide public access to the countryside;
4. The project can demonstrate how it will be integrated into the local economy and community;
5. The project can demonstrate that no activities pursued on the site shall cause undue nuisance;
6. The project has a strategy for the minimization of motor vehicle use;
7. The development and any buildings associated with it are appropriately sited in relation to local landscape, natural resources and settlement patterns;
8. New buildings and dwellings are not visually intrusive and are constructed from materials with low environmental impact and preferably from locally sourced materials;
9. The project is reversible, in so far as new buildings can be easily dismantled and the land easily restored to its former condition;
10. The project plans to minimize the creation of waste and reuse and recycle as much as possible on site;
11. The project has a strategy for energy conservation and the reduction, over time, of dependence on non-renewable energy sources;
12. The project aims over time for the autonomous provision of water, energy and sewage disposal and shall make no demands upon the existing infrastructure;
13. Agricultural, forestry and similar land-based activities are carried out according to sustainable principles;
14. The project has strategies and programmes for the ecological management of the site, including:
 - a. the improvement of soil structure;
 - b. the conservation or enhancement of semi-natural habitat;
 - c. the efficient use and re-use of water; and
 - d. the planting of trees and hedges.
15. The project can show that affordability and sustainability are secured, for example, by the involvement of a housing association, co-operative, trust or other social body.

Source: Simon Fairlie, *Defining Rural Sustainability*, Town and Country Planning, March 1999.

**TABLE A3:
Remote Rural Areas: Changes Needed for Future Sustainability**

1. Expansion of total biomass through increasing forests, tree planting along field boundaries and roadside verges, and protection of areas of natural vegetation;
2. Increasing biological diversity, including avoidance of monocultures and protection of wildlife habitats;
3. Growth of groundwater reserve, protection of watersheds;
4. Reduced pollution of streams and ground-water;
5. Increased composting of organic wastes and reduce use of artificial fertilizers;
6. Increasing production of energy from renewable sources: wind, wave, tide, geothermal;
7. Reduced consumption of fossil fuels;
8. Progressive upgrading of all buildings to meet new sustainability standards for energy efficiency;
9. Improved public transport in terms of frequency and convenience, improved accessibility, more attractive traveling conditions;
10. Reducing in long-distance commuting;
11. Growing self-sufficiency of local economy in terms of the capacity of the sub-region to provide a greater variety of job opportunities and to supply daily goods and services from local sources;
12. Better telecommunications to aid homeworking;
13. Publication of regular audits on waste, pollution, energy and water;
14. Regularly updated plans for integrating land management, settlements, transport, and resource development.

Source: Andrew Blowers ed. 1993. *Planning for a Sustainable Environment: A report by the Town and Country Planning Association.* UK pp.182.
