Differences in environmental consumption and perception between different social groups

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1 - ABSTRACT

Environmental policy could be more effective if it would be socially differentiated. This is the starting hypothesis of the EPSECC project. This could only be true if environmental concern and behaviour of socially excluded groups varies from that of the population as a whole. Based on a secondary analysis of already existing surveys it was assessed whether socially excluded groups although a) they do have a lower environmental concern they b) do consume less environmental sensitive resources, but c) with a lower environmental efficiency. This paper gives some evidence that the first two working hypotheses do hold for most of the considered groups and for the policy fields (transport and energy) but not in all countries whereas the latter hypothesis for reasons of inadequate data could not be finally treated.

2 - INTRODUCTION

The project on Environmental Policy, Social Exclusion and Climate Change (EPSECC) goes back to the main hypothesis that current environmental policy is socially not differentiated and that the efficiency of environmental policy or climate policy could be increased by a socially differentiated policy approach.

One key issue for the assessment of this hypothesis is the question whether the environmental attitudes and environmental behaviour of socially excluded groups is different from socially integrated groups. To examine this question we developed three work hypotheses:

1. Environmental awareness, concern for the environment and readiness to make a personal contribution of the socially excluded was expected to be weaker than that of the integrated citizens. The socially excluded are less likely to take part in environmental effort and activities.
2. Because of the disposable income available to them, socially excluded groups will consume less environmentally sensitive resources than the population at large and in that sense their behaviour is more environmentally friendly.
3. The consumption efficiency of the socially excluded will be in general lower than that of the socially integrated citizens.

To test these hypotheses we carried out a comprehensive data research and secondary analysis in the four EPSECC countries (Germany, Great Britain, Greece, Switzerland).

We did not look at every socially excluded[1] group. For example, we did not study the disabled or the homeless. However, the five groups we studied are important either in numerical terms or social significance:

- The elderly (ELD) are a heterogeneous group and in our analysis we are paying particular attention to the very elderly and the poor elderly. In an ageing society like that of Europe, they clearly demand careful attention.
- The long term unemployed (LTUE) are a group who particularly concern policy makers when they focus on problems of social exclusion.
- The working poor (WPOR) are another group which concern policy makers in EPSECC countries.

- Ethnic minorities and migrant groups (EFM). Even more than the elderly, they are a heterogeneous group and the available data are often inadequate or unreliable. We shall therefore rely to quite an extent on detailed case study work, particularly in Switzerland.
- The single parents (SPAR) - although just as heterogeneous - are considered as a socially excluded group with increasing importance.

Although the EPSECC project is addressing a socially differentiated environmental policy in general we focused the analysis on three policy fields which we regarded as representative for environmental policy as a whole. The three considered policy fields are:

- Transport,
- Energy,
- Waste.

Figure 1 gives a graphic impression of the EPSECC research dimensions.

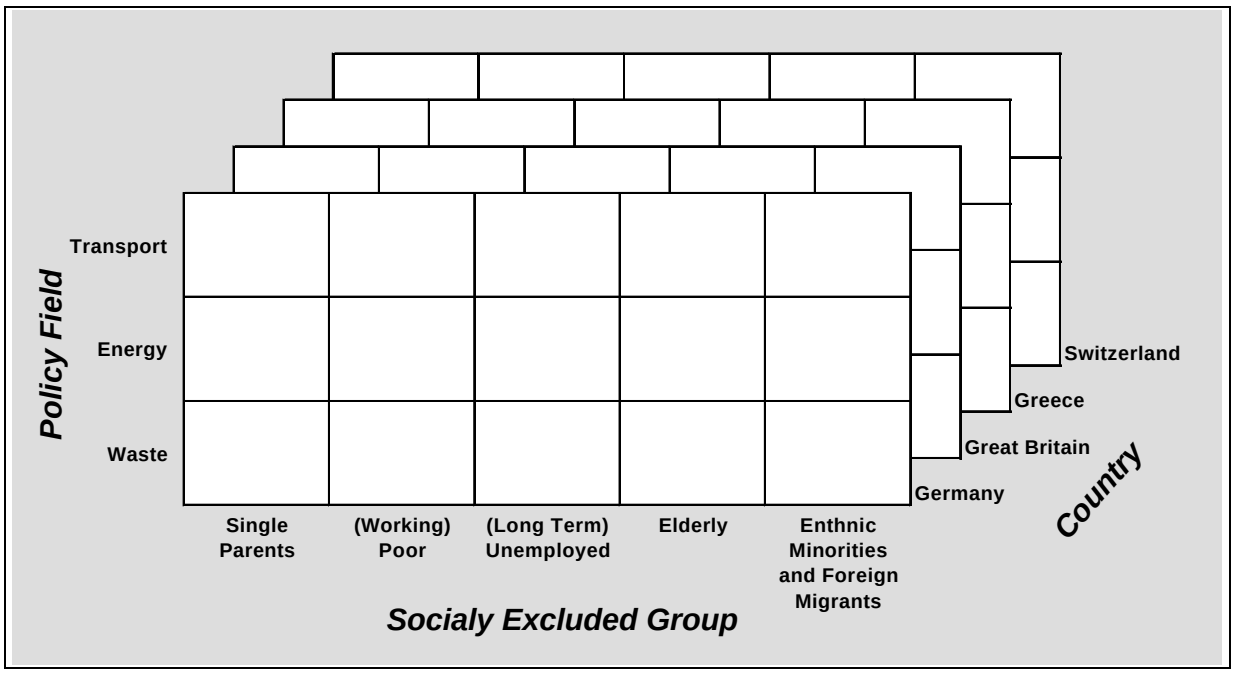

Figure 1:*The EPSECC Dimensions*

During the data research and analysis we had to cope with several problems regarding availability of adequate data:

- Survey data on environmental attitudes and behaviour of ethnic minorities and foreign migrants are almost not available in all EPSECC countries. Hence this group is mostly not considered in the comparison with the other EPSECC groups.[2]
- The availability of data differs largely in the four EPSECC countries. While in Germany and Switzerland the availability is more or less satisfactory, the British team to some extend had more difficulties to acquire adequate data. In contrast to this the Greek team had massive problems to get any survey data about environmental attitudes and behaviour of Greek people.
- Although in Germany, Switzerland and in Britain survey data basically was available, the design and the focus of each survey was quite different. Thus several problems emerged for the comparison of the national results.[3]

In spite of all these problems it was possible to derive some common patterns and differences in the environmental attitudes and behaviour of the EPSECC groups. Following I will present some key findings of the data research and analysis and draw first tentative conclusions that have to be tested in the further research process of the EPSECC project.

3 - ENVIRONMENTAL CONCERN

According to hypothesis 1 environmental awareness and concern for the environment of socially excluded is expected to be weaker than that of integrated citizens. To test this hypothesis we first had to solve the problem how to identify environmental concern.

There are some questions in the surveys that address environmental concern or awareness. However, either these questions are not available in all EPSECC countries or the questions are not fully comparable. Regarding this we assume that the below cited questions (Table 1) are at least partially an indicator for environmental concern in general.

Table 1: Environmental concern

Environmental concern in Germany

	Total	ELD	pELD	WOPO	(LT)UE	SPAR
	- share of all respondents respondents answering 'important (8-10 of 11) in % -					
In your opinion, how important are ...						
... environmental protection measures	81,0	92,7	84,3	84,1	89,6	80,0
... avoiding waste	73,4	87,2	75,7	79,3	83,3	60,0
... disposing waste gently	72,5	81,7	76,5	74,6	74,0	62,0
... energy saving	73,5	79,8	77,4	74,8	76,0	68,0

Notes: Total: all respondents; ELD: person aged 65 and above; pELD: person aged 65 and above and household income below 1.600 DM/month; WOPO: person is working, household income below 2.600 DM/month; (LT)UE: person ist unemployed; SPAR: parent with at least one child (UBA 1996)

Environmental concern in Switzerland

		class			age				economic partic.			
	allR	WC	MC	UC	<50	50-59	60-74	>75	wr	nw	um	sp
	- % responding important -											
How important is for you ...												
... the environmental protection	93,0	91,4	93,8	94,7	94,0	91,8	90,4	92,1	93,5	92,3	88,5	90,0
... the reduction of waste quantity	94,5	93,0	94,9	95,7	95,3	94,2	92,1	92,1	95,5	92,7	88,5	86,7
... the promotion of environmetally friendly ways of energy production	91,7	87,1	93,1	96,5	92,9	93,2	87,2	76,3	93,8	88,0	76,9	80,0

Notes: allR: all respondents; WC: working class; MC: middle class; UC: upper class; wr: working full or part time; nw: not working and unemployed; um: unemployed; sp: single parents;
Source: Swiss Environmetal Survey 1994 as cited in Arend (1997:7)

Future environmental concern in Britain

	All	Social class V	IV	III	I/II	Age grouping 18-24	25-44	45- 64	> 64
	- % -								
Environmental issues which would cause most concern in twenty years time:									
Traffic	36,0	30,0	32,0	37,0	41,0	31,0	33,0	42,0	36,0
Air Pollution	29,0	28,0	27,0	29,0	30,0	29,0	31,0	31,0	24,0
Global Warming	27,0	22,0	23,0	26,0	30,0	42,0	32,0	31,0	16,0

Notes: All: all respondents; V: lowest social class, I: highest social class;
Source: Department of the Environment 1993 as cited in Grant (1997:8)

Source: Arend 1997:7, Grant 1998:8, UBA 1996

From the comparison of the different national surveys we can draw several conclusions:

- The environmental concern of the elderly and partly of the unemployed seems to be higher in Germany than the one of the population in general whereas the environmental concern of the single parents is below the average. The environmental concern of the poor elderly and working poor does not deviate from the population as a whole.
- In Switzerland environmental concern is in general very high. Although the questions for Germany and Switzerland are strongly not comparable it seems to be evident, that environmental concern in Switzerland is substantially higher than in Germany.
- Concern about the environment is in Switzerland obviously not influenced by social exclusion. Only the question regarding environmentally friendly ways of energy production shows a slightly weaker environmental concern for the very elderly, the unemployed and the single parents.

- In contrast to the German and Swiss survey the British survey addresses future environmental concerns. For this reason the level of affirmative answers deviates very strongly from the German and Swiss levels.
- In contrast to Switzerland environmental concern depends in Britain on social categories: the lower the social class the weaker the environmental concern. The middle class does not deviate from the average. The upper class' (I and II) environmental concern is well above the average whereas the lower classes (IV and V) are clearly below national averages.
- In Britain environmental concern seems to be also determined by age. But here the picture is more complex. Global warming threatens young people whereas the elderly nearly do not bother about that issue. For traffic the pattern is opposite: it seems to be an upcoming problem for future elderly (now 45 to 64) but not for young people.

Regarding hypothesis 1 we conclude that there is some significance that environmental awareness is weaker in EPSECC groups in Britain and with less significance in Germany. Groups that are excluded by income, age or by cultural differences are more likely to show less environmental concern than the population in general in these two countries. But hypothesis 1 does not hold for Switzerland. Therefor hypothesis 1 has to be rejected in the general form it is cited in the introduction. However, hypothesis 1 holds for at least for some countries.

4 - CONSUMPTION OF ENVIRONMENTAL RESOURCES

As the data on Waste is weaker then the data regarding the policy fields *transport* and *energy* I will focus my considerations only on the two latter issues.

4.1. Transport

In hypothesis two it was stated that the consumption of environmental resources of the EPSECC target groups is systematically lower than in average. To test this hypothesis we have to identify adequate indicators. Therefore we assessed the car purchases and fuel consumption of the excluded groups. The result of the comparison is shown in the next picture.

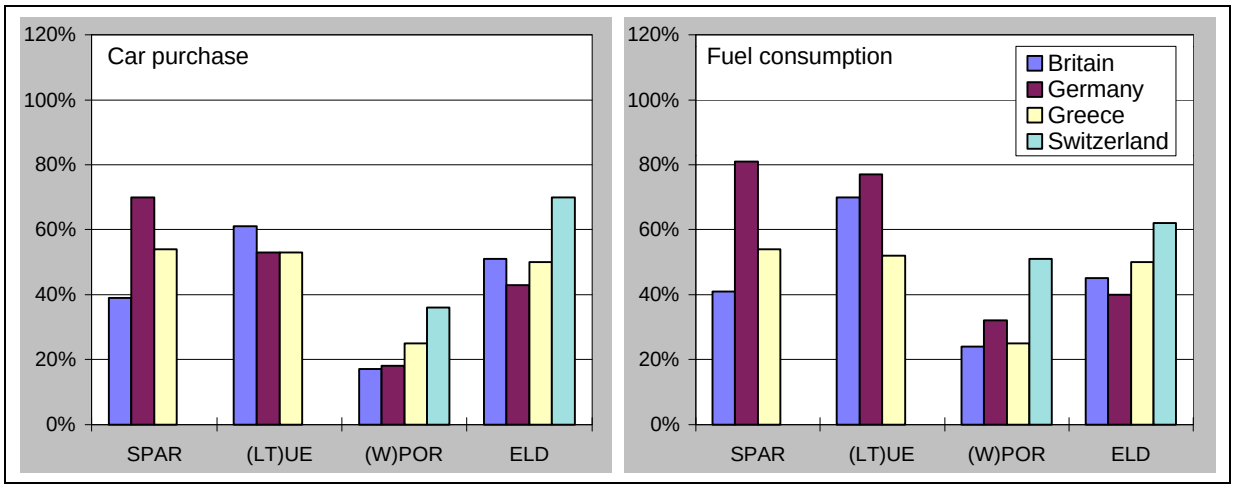

Figure 2: *Absolute expenditure on cars purchase and fuels of socially excluded groups in relation to the average absolute expenditure of the population as a whole (Grant 1998:12)*

Although the data is not collected in a strictly comparable way in the four EPSECC countries[4] the relative magnitude is such that it cannot be explained by deficiencies of the data. As the most striking findings we can state:

- It is evident that all excluded groups regarded in this project have a lower level of access to cars and consume less fuel. The level of access to cars resp. fuel consumption varies in the different excluded groups. Their expenditure on cars resp. fuel is between 20% and about 80% below national averages.
- In relative terms country differences seem to be rather low. Car purchases and expenditure on fuel seems to be more determined by the social group than by nationality.
- In all countries the working poor are the group with both, the lowest level of access to cars and the lowest level of expenditure on fuel.
- Both, the car purchase and the expenditure on fuel are most varying for single parents. While this group shows the highest results in Germany and Greece in Britain the result of single parents is well below the unemployed and slightly below the level of the elderly. This suggests that the single parents are more socially deprived in Britain than in Germany.
- Compared to the expenditure on fuel the unemployed spend relatively less money for car purchases whereas the results for the elderly show the opposite pattern. Apparently the unemployed tend more to maintain their level of mobility that they developed before they got unemployed. Consequently they have to compensate their relative high level in fuel consumption through a reduced expenditure for car purchases.

The consumption of environmentally sensitive resources which is caused by transport and mobility of EPSECC groups is well below the average. Although we made several simplifying assumptions we think that it is justified to conclude that hypothesis 2 is verified for the policy field *transport*. But do the results of the policy field *transport* also apply to *energy*?

4.2. Energy

Up to 80% of total energy demand of private households in Britain, Switzerland and Germany is due to heating of the homes and warm water. The rest of the total energy demand in household sector derives from electricity demand for appliances, lightning and other electrical equipment. Hence expenditure resp. demand on heating and electricity probably are good indicators for the consumption of environmental sensitive resources in the policy field *energy*.

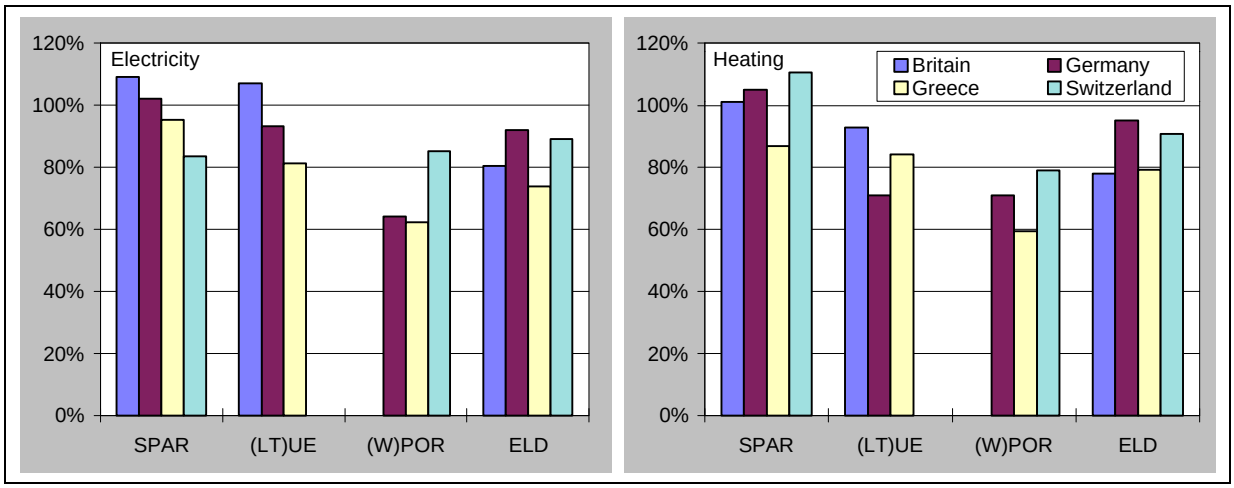

Figure 3: *Absolute expenditure on energy of socially excluded groups in relation to the average absolute expenditure of the population as a whole*
(Arend 1997:14, Grant 1997:15, Sakiotis 1997:7, StBA 1994, 1997, Calculations and recalculations by Öko-Institut)
Notes: Due to the lack of data for Britain electricity and gas consumption was used instead of expenditure on electricity and on heating

Figure 3 shows a comparison of the deviation of EPSECC groups from average expenditure on electricity and heating. Some remarkable patterns can be identified from the comparison in this picture:

- In all EPSECC countries deviation from average consumption on both electricity and heating is clearly lower than in the mobility case.
- Except from Greece expenditure of single parents exceeds the average expenditure on heating. Single parents which have younger children might wish to have warmer homes for them. And as they - due to their children - stay at home probably more time than other people they will lower the heating less often when they are leaving.
- The relative consumption compared to other EPSECC groups is similar in all EPSECC countries. Single parents spend most on energy consumption of all EPSECC groups whereas the expenditure of the working poor is the lowest. This applies to electricity as well as to heating.
- Country differences are - like in the case of mobility - the highest for single parents. In contrast to car purchase and fuel consumption there is no clear pattern: the electricity consumption relative to the average consumption of single parents in Britain is highest while in Switzerland the relative expenditure on heating of single parents is the highest of the EPSECC countries.

Consumption of environmental sensitive energy resources of EPSECC households is lower than resource consumption of the population as a whole.[5] Thus - we tentatively conclude - also for the policy field *energy* hypothesis 2 is true although the result seems to be less significant than in the transport sector.

Altogether the analysis regarding hypothesis 2 shows that the consumption of environmental sensitive resources of socially excluded groups seems to be really lower than the consumption of the population at large. In that sense social groups' behaviour is more environmental friendly. The analysis shows also that the working poor for all indicators and for all countries do have the lowest consumption. This points to the conclusion that social exclusion through economic terms (disposable income) seems to be the most important factor for environmental friendly behaviour of socially excluded groups. I will now turn to hypothesis 3.

5 - CONSUMPTION EFFICIENCY OF EPSECC GROUPS

To test hypothesis 3 it is important to assess whether consumption efficiency[6] of EPSECC groups is lower than in population as a whole or not. As with hypothesis 2 the discussion will be organised around the policy fields *transport* and *energy* before coming to some general conclusions about the validity of the hypothesis.

5.1. Transport

To identify whether the EPSECC groups are less efficient in their environmental consumption as the average population or not is very difficult. For Britain and Germany we identified some indices, which may give an answer to that question (Figure 4).

Figure 4: *Car purchase and upkeep index of EPSECC groups in Great Britain and Germany (West) (Grant 1997:22, StBA 1997, calculations of Öko-Institut)*
Notes: The indices for Britain and Germany are not constructed in the same way. Hence a comparison of individual results is not possible.

The car purchase index in Britain is an approximate index of purchases of newer versus older cars. It "is based on an addition of the index scores for financed and outright purchase of cars" (Grant 1998:22). A positive score indicates that newer cars are being bought. Assumed that newer cars are more efficient than older ones the car purchase index also points to the 'transport efficiency' of socially excluded groups.

The car purchase index in Germany is built by the ratio of expenditure on cars to the expenditure on fuel purchases. The lower the index the less people spend on cars, among others because they purchase preferably less expensive second hand cars which are in average older and thus less efficient.

The upkeep index is build by the ratio of expenditure on car repairs and servicing to expenditure on fuels. A high percentage score indicates a high expenditure on maintenance relative to mileage. Low expenditure on maintenance results in bad adjusted cars and hence increase fuel consumption and thus lead to a low upkeep index.

The upkeep index is probably the best measurement for consumption efficiency in the sphere of transport. A high index points at high level of car maintenance expenditure and thus on a low level of specific emissions (per miles travelled). [7] Hence the discussion will be concentrated on the upkeep index although the car purchase index may give helpful additional information.

The results of Britain and Germany should be first discussed individually.

Britain
- "The Groups fall into three categories: the elderly with high level of maintenance expenditure, the unemployed and working poor with median levels (relative to other socially excluded groups); and the lone parents with low levels." (Grant 1998:22)
- Hypothesis three does not hold for the elderly. They show a very high upkeep index. Hence their consumption efficiency in the sphere of transport probably is relatively high.
- The hypothesis holds for the working poor and for the unemployed for both indices.
- Lone parents are the group in Britain with the lowest upkeep index. According to this their consumption efficiency is low. Their specific CO_2 emissions induced by individual car transport are relatively high compared to miles travelled.

Germany
- Single parents do not deviate from the average population (This is true for both indices).
- The upkeep index of the elderly is higher than the average index. This points to better maintained cars and thus lower CO_2 emission per miles travelled.

- Both Long term unemployed and working poor show similar patterns: their car purchase index is low and deviates seriously from the average index; their upkeep lower and deviates slightly from the average.

The comparison of both countries reveals the following patterns:
- Hypothesis 3 does not hold for the elderly. They show a high upkeep index in both countries.
- Regarding the single parents the results are more differentiated: in Britain their upkeep index is the lowest of all compared groups whereas the upkeep index of the single parents in Germany does not deviate from the population in average.
- The hypothesis generally holds for both, long term unemployed and working poor.

These results are supported by the analysis of the Swiss data, that are somewhat limited in relation to consumption efficiency: the car fleet of the elderly is newer than that of the average population; unemployed and single parents show a lower frequency of use of energy efficient and clean cars (Grant 1998:23).

As hypothesis 3 does not hold for all EPSECC groups it has to be rejected for the sphere of transport: consumption efficiency of socially excluded groups is not in *general* lower than that of the integrated citizens. However, the analysis shows some evidence that consumption efficiency is influenced by the disposable income: groups with lower incomes (unemployed, working poor) are less efficient than the population as a whole. This points to the conclusion, that consumption efficiency in the sphere of *transport* is not influenced by social exclusion in general but by social exclusion that is based on economic mechanisms of exclusion.

5.2. Energy

In this area it is useful to consider first whether socially excluded groups are more or less predisposed to energy efficient behaviour than the general population. The survey on environmental awareness in Germany (UBA 1996) gives some helpful information (Table 2):

Table 2: Predisposition to energy efficient behaviour in Germany

	Total	SPAR	(LT)UE	WOPO	ELD	pELD
	- share of all respondents in % -					
In winter, do you lower or turn off heating in your home when your are out for more than four hours? (Yes, I do.)	49,7	56,0	44,8	53,0	35,8	60,0
Why don't you lower or turn off heating? Which of the following applies to you?						
Think it's foolish	15,4	16,0	17,7	10,8	15,6	7,8
Requires to much time and effort	7,3	10,0	4,2	4,9	5,5	3,5
Flat would cool down	22,1	14,0	29,2	22,5	39,4	15,7
Flat never stands empty for more than four hours	8,4	0,0	16,7	9,2	20,2	8,7
Other reasons	7,6	8,0	1,0	5,7	0,0	1,7
In winter, do you lower heating at night? (Yes, I do.)	50,9	52,0	39,6	51,9	39,4	56,5
Why not?						
Think it's foolish	3,9	6,0	5,2	4,7	7,3	2,6
Requires too much time and effort	1,3	4,0	1,0	0,8	0,0	0,9
Flat would cool down	7,5	6,0	17,7	11,4	22,9	12,2
Do you use energy-saving bulbs in your home? (Yes, exclusively or partly)	54,7	40,0	51,0	50,1	45,0	46,1

Source: UBA 1996, calculations of Öko-Institut

First some remarks on the issue *lowering or turning off heating when out*:
- The elderly lower their heating both when out and at night less often than the general population. This is because the flat never stands empty for more than four hours or because they fear the flat would cool down.
- This reason seems to be overcompensated by economic reasons. Poor elderly do also think the flat would cool down but for the lack of disposable income they have to lower heating at night. Hence they agree to that question reasonable more frequently than the population in general.

- The unemployed lower their heating less often than the population in average both when out for more than four hours and at night whereas the working poor do it more often in both cases.

These considerations show that with respect to the heating behaviour there is no clear pattern in the predisposition to energy efficient behaviour of EPSECC groups in Germany. This is also true for Britain. Regarding turning off heating the only significant social differentiation was in relation to age (Grant 1998:24).

But the application of energy saving bulbs in EPSECC groups varies in Germany clearly from the population as a whole. All EPSECC groups apply energy saving bulbs less often than an average household. The same applies to Switzerland: the use of energy saving bulbs increases with social class and decreases with age. The unemployed and the single parents are also well below national average (Arend 1997:14). This points to a lower consumption efficiency of EPSECC groups at least for lighting. To transfer this result to consumption efficiency of EPSECC groups in general seems to be an overinterpretation of this issue.

An assessment of the energy efficiency of EPSECC groups based on the German housing survey (StBA 1996) and the income and expenditure survey (StBA 1994, 1997) reveals also no clear pattern: both, electricity consumption and energy consumption for heating and hot water measured in kWh/m² (kilowatt hours per square meter) of single parents are above national averages whereas the working poor are well below the national average. The elderly nearly do not deviate from the average figures (Bergmann et. al. 1997:38). But as the surveys do not address energy efficiency directly several assumptions had to be made for the recalculations. Hence this result may be caused by data deficiencies. It is not possible to decide whether the consumption efficiency in the sphere of space heating of socially excluded groups is lower than that of integrated citizen in Germany or not.

The comparison of the predisposition of EPSECC groups and the considerations about heating efficiency show that there is few evidence for a correlation between social exclusion and consumption efficiency in the sphere of space heating. Consumption efficiency in this sphere seems to be determined by factors that could not be directly influenced by the households (e.g. housing stock). However, there is some indication for less application of energy saving bulbs in EPSECC groups in Germany and Switzerland.

The considerations about energy efficiency in the sphere of space heating show no specific pattern for EPSECC groups. But this may be caused by inadequate data and does not necessarily indicate that there is no correlation in this sphere. The results regarding the application of energy saving bulbs could be interpreted as a confirmation of hypothesis 3. Taking into account both aspects we could conclude that there is a weak confirmation of hypothesis 3. However, due to the lack of data it is not possible to accept this hypothesis for the policy field *energy* in general.

6 - CONCLUSIONS

Regarding the three main hypotheses we tentatively could conclude:

On the one hand the analysis has shown that both, hypothesis 1 and hypothesis 2 hold for the considered groups and policy fields (transport and energy) but not in all countries:

- There is some evidence, that the environmental awareness of EPSECC groups in Britain and to a smaller extend in Germany is weaker than that of the population in general.
- The consumption of environmental sensitive resources of EPSECC groups in the spheres of *transport* and *energy* seems to be in all countries really lower than that of the population at large.

Assumed that socially differentiation is stronger in Britain than in Switzerland or Germany these results may lead to the conclusion that environmental concern and the consumption of environmental sensitive resources of socially excluded groups deviates more from the population in general the more a society is differentiated. Thus socially differentiated environmental policy might be more important and probably more effective in countries with strong social differences than in countries with a socially more balanced society.

On the other hand there is up to now only weak evidence for hypothesis 3 as it is mentioned at the beginning. But this may be mainly caused by data deficiencies. Hence there is also no evidence that hypothesis 3 does not hold at all. However, there is some indication that consumption efficiency correlates in the sphere of *transport* to social exclusion through economic mechanisms. Besides there is some evidence for a lower consumption efficiency in the sphere of *energy* regarding specific applications (energy saving bulbs).

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8 - ENDNOTES

[1] In general we regarded four categories of social exclusion: 1) material exclusion i.e. economic poverty; 2) cultural discrimination; 3) outside lifestyle positions; 4) physical and mental handicaps or illnesses (Arend 1997:12).

[2] Even though there is nearly no survey data on ethnic minorities and foreign migrants this group is not ignored in the political debate and the research of social sciences. There do exist several detailed, qualitative studies on this groups regarding some of the EPSECC policy fields. The findings of these studies are considered in the data research and analysis although they could not be integrated in the quantitative comparison of the survey data (see Table 1).

[3] The REAP resp. ISSP data try to cope with this problem. Based on a common design for the questionnaire the survey is carried out in several European countries. But as only Germany and Great Britain are covered by this project and as some very interesting items (questions) are not indicated in both countries the ISSP data were less helpful than initially expected.

[4] In the case of Greece, it has been necessary to use overall household expenditure on cars in both tables.

[5] This result applies to households not to individual household members. As household size in EPSECC groups deviates form the average household size the consumption patterns per individual household member would also be different. The lower expenditure of ELD for electricity and heating may be caused by the lower average household size of this group. Due to data deficiency this analysis could not be carried out. However, there is no evidence that household size of (LT)UE and (W)POR is up to 40% lower than in average. More likely the average

household size in these groups is above the national averages. Hence the mentioned conclusion holds - at least for (LT)UE and (W)POR - also with regard to individual household members.

[6] The consumption efficiency is the use of environmental resources per transport or energy service unit, e.g. l fuel per miles travelled, kWh heat per m² heated. The data necessary to calculate such indicators for socially excluded groups is not available. However, other indicators that give an idea of consumption efficiency could be identified: consumption efficiency of socially excluded groups is lower than the average efficiency if EPSECC groups apply substantially more old, inefficient cars that consume more petrol and cause higher emissions or if they live in poorly insulated houses with higher specific heat consumption or apply less energy saving bulbs etc.

[7] The expenditure on car maintenance depends on various factors like national standards, ability of do-it-yourself, size and power of cars etc. Besides it depends on the age of the car: the older a car, the higher the necessity of maintenance. Out of two household with identical upkeep indexes but different aged cars is the household with the older car less efficient. Assumed that most EPSECC groups do have in average older cars the upkeep index would overestimate the consumption efficiency, i.e. a consumption efficiency lower than the average efficiency may be even lower than estimated.