

THE CONCEPT OF OVERDEVELOPMENT:
Theories, Causality and Indicators.

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1. Introduction.

This paper will discuss theories of overdevelopment, what is causing overdevelopment and some of the indicators which may be used to evaluate when and where overdevelopment occurs. Some of this discussion has already been introduced in WIP Paper No. 2 by Johan Galtung et al.,¹ where the basic theoretical understanding of the concept of development has been formulated. Consonant with this, we consider the goal of development to be the development of human beings and not of things, i. e. personal growth. Personal growth can only be assured through the progressive satisfaction of human needs; both material and non-material needs. Material needs may be classified in two groups; the need for security and welfare; while non-material needs are considered to be the need for freedom and identity. Even if we reject the notion of a hierarchy of needs, we admit to the fact that some needs must be satisfied to a minimum for need-satisfaction to take place in other areas. For instance, one has to be alive for feeding to be meaningful, communication is necessary in order to relate to others, etc. But all the four groups of needs are considered to be basic for the development of human beings.²

But having said that personal growth is related to the satisfaction of basic needs, we also should admit to the possibility of supplying an overabundance of means by which these needs are supposed to be satisfied. In such a case, we would say that we experienced a case of overdevelopment, having implications for ourselves, for other or for nature (nature in itself, and future generations). In this paper we shall primarily be concerned with material needs, implicitly arguing for a reduction in the consumption of material needs in overdeveloped societies as a strategy to assure the coverage of all needs, material and non-material, in all parts of the world.

If overconsumption of material goods in the overdeveloped part of the world is seen as a substitute for non-material needs left unsatisfied, another strategy would be to focus on such needs directly and try to do something about the apparent underconsumption of goods/services which relate to non-material needs. But even if this paper does not deal with strategies, both these approaches will be kept in mind, especially when we discuss symptoms of overdevelopment, which manifest themselves in material and non-material ways.

2. Aspects of overdevelopment.

We have said that overdevelopment may have implications for ourselves, for others or for nature. The implications for ourselves may be twofold: First, there may be too much means relative to the goal for which the means is utilized to reach. Take the example of food: If we eat too much, as a general rule, we will gain weight, increase the chances of heart diseases or even become diabetic, and certainly feel less physical well-being than if we had been eating only what we needed. Second, there might be too much means relative to other goals that we are trying to realize. Our need for mobility could for instance, as many of us do, be sought covered by the use of private cars. But the growing probability of being killed or injured in traffic accidents will decrease our sense of security. Since not all people can drive a car, automobiles also induce inequality,² thus negating one of the central values in our program.¹ This is but one example of the negative aspects of overdevelopment which to an increasing extent are being felt in the industrialized part of the world.

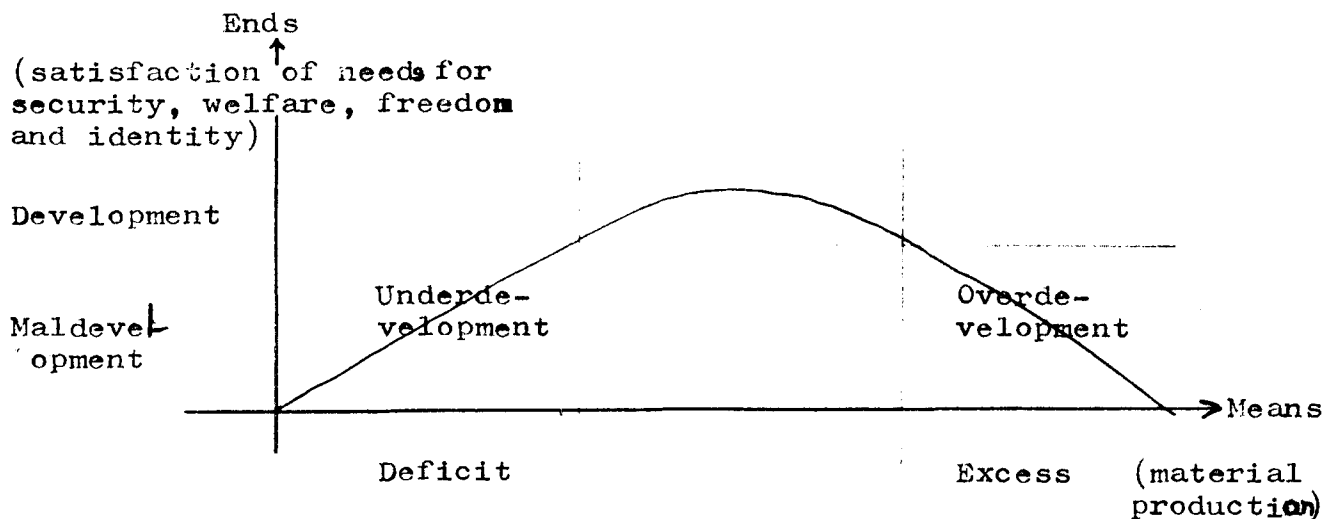
But overuse of resources in our part of the world also has large implications for others, a problem which has two aspects: First, we have the phenomenon of imperialism or pillage of the poor world to secure the material overabundance of the industrialized West. Second, we have the bad habit of overusing instead of sharing, for instance of North American grain supplies. In this paper we shall not try to sort out the excesses which may be attributed to imperialist practices or the overuse of one's own resources, just keep in mind that both approaches may be useful in a strategy to reduce global inequalities. The point here is to stress that overdevelopment may not only prevent personal growth to take place in the overdeveloped group, but also in the underdeveloped one.

Overdevelopment also has consequences for nature. This may be looked at in several ways: First, we have the consequences for nature itself, excluding man. If part of nature is being wrecked because of man's greed, this may be seen as being bad for nature itself, regardless of the effect on man. In this paper, however, we shall not pursue this discussion any further, but rather be concerned with such impacts on nature which have consequences for people. And in

this connection that means the generations to come: If the present generation uses up all the fossil energy and empties the oceans of fish, future generations may be unable to cover their needs for heat, mobility and nutrition. Ecological balance is seen as a necessity for achieving personal growth in the long run - it is not a goal in itself. We shall return to this below under section 3.1. But let us first repeat this research program's theoretical conception of the relationship between need satisfaction and the supply of means.

We have all the time assumed that a minimum of means are necessary to reach needs satisfaction, but that after a certain point, we start experiencing diminishing, and eventually, negative returns. The satisfaction of human needs requires not too little, but not too much either, of material production. This condition may be visualized as follows in Figure 1:

Figure 1: Relationship between need satisfaction and material production (value realization and supply of means).



In WIP 2¹ it was assumed that at least when it comes to basic material needs, it is not too difficult to say something about whether there is enough, too little or too much. Take the case of food: Too little leads to malnutrition and eventually to starvation; too much leads to overweight, obesity and probably to a shortened life span. However, it is clearly preferable to die from too much than too little food. In Norway, too much food could mean dying at 60 instead of 72 - in a poor country lack of food may mean dying at the age of 2 or 4. This fact may explain why it is so hard to mobilize people against overdevelopment: it is simply not percei-

ved as being so bad as underdevelopment, something which still may be true. But if the cause of too little food and the consequent underdevelopment in the poor part of the world lies in the structure which at the same time is producing too much food elsewhere, the problems of underdevelopment might be attacked equally successfully in the overdeveloped world. The task of this paper, therefore, is to present some of the empirical evidence that the industrialized countries to a large extent are overdeveloped and to point out where an excess of means exists. The implicit development strategy is not seen as being unproblematic, neither at the societal nor at the personal level, however, not in the least because we know too little about how human needs are being developed and made conscious over time. Let this be said before we deepen ourselves into the symptoms of consequences of overdevelopment.

3. The consequences of overdevelopment.

Our ultimate interest in this paper is to discuss what overdevelopment does to people; to personal growth. Nevertheless, it might clarify the issue if we look at several components of overdevelopment which, although being closely interrelated, may be discussed under separate headings. The headings reflect a progression in the direct relevance to people in the sense that the consequences are felt as a threat to personal growth, but may also be seen as the order in which the issues have become debated with increasing intensity during the last years: First, the ecological awareness and the escalating intensity in the debate. Second, the discussion of the social break-down of industrial life, and then the discussion on health problems in our parts of the world:

- 1) The ecological component of overdevelopment has led to the discussion of the outer limits to material growth. It reflects the concern for current resource usage, playing havoc with present and future generations because of the simultaneous pollution, depletion and increased vulnerability which present and future imperialism entails.
- 2) The social effects of overdevelopment are manifested in social disorders, increased inequalities, alienation towards material goods and production cycles, increasing centralization of power, bureaucracy and capital. One may here talk about inner limits to growth, reflecting the idea that there is a limit to how much our psyche can absorb.⁴

3) The third effect may have been included in the second, but I have chosen to differentiate the individual health consequences of overdevelopment, because they seem to be so numerous. The sum of these effects we would term social, but we will discuss here the health effects from each individual point of view, in order to get a better understanding for what he or she might go through because of structural inadequacies and try to single out those health effects which have a non-structural component, if any.

3.1. The ecological consequences of overdevelopment.

The ecological consequences of maintaining a high level of resource use are multifaceted, but in order to get a general overview, we can split them in two: short-term and long-term effects. If we combine these two effects of resource use with the geographical extension of the ecological impact, be it the local or the global level, we get the following typology:

Figure 2: A typology of ecological impact.

| | | Space dimension | |
|--------------|------------|------------------------|--------------------------|
| | | Local consequences | Global consequences |
| Time horizon | Long -term | 1) Mining pits | 2) The plutonium economy |
| | Short-term | 3) Landscape littering | 4) The petroleum economy |

As Johan Galtung has pointed out, ecological problems have been severe ever since the beginning of the industrial revolution.⁵ But because the problems mostly were of^a strictly local character, the power elites could easily remove themselves from the polluted areas, while the industrial workers lived in the midst of it all. As the ecological problems^{have} started to become a problem also for the middle and upper classes, great concern has been expressed about ecology. Today, the focus is to a large extent on the long-term ecological consequences of industrial society and in a global context, cell 2.⁶ However, with the increasing awareness of ecological problems in the industrialized part of the world, workers also have started to make demands for a better milieu inside the factories and at the places they work. Accordingly, it is becoming less and less easy to "buy off" the workers so that they may continue to endure intolerable work conditions, a trend which is likely to be reinforced with the increasing material affluence of the working class people.

If we look at the four cells in Figure 2 and relate each cell to the problem of overdevelopment, a few comments should be added. Firstly, even if much of the current debate is centered around the long-term global problems of resource use, present policies of the industrialized countries (which most "developing" countries use as models for development) serve only to aggravate these very problems. Policies have not changed, least of all in the most industrialized countries, which foresee a continuation of past growth in energy use and industrial production well beyond the next decade. It is true that the percentage growth rate has been somewhat reduced in the most recent forecasts, but this reduction is not due to ecological concerns, but rather in an appraisal of what is possible to achieve.⁷ So instead of doing something about cell 2 and 4, power elites are concentrating on cell 1 and 3, at least in this country. Cell 3-type actions are for instance the yearly "Keep the fiord clean" campaign, where boy scouts and school children, together with charitable institutions and local municipalities, take the initiative to pick up all the paper and plastic litter which has accumulated during the winter. Cell 1-type actions are for instance initiatives by the Norwegian Hydro-Electric Board to level out gravel mounds and seed them with grass in order to make hydro-electric power plants less evident in the landscape. It is much the same philosophy behind industrial workers' demands for a better work environment: they demand cleaner air to breathe in, but are less concerned with the global and long-term effects of the industrial operation.⁸

The ecological debate up to this date has not served to reveal much of the underlying structure which is the cause of most local eco-catastrophes.⁹ Therefore, it is essential to tie the individual events together and present a coherent view of that which may be said to be structurally related or not.¹⁰

Overdevelopment does not only give rise to a discussion of a time and space dimension, but also to different types of ecological effects. We shall discuss several of these types below:

1) Overdevelopment leads to resource depletion. For some resources, resource depletion may be a short-term problem if you look at it in a historical perspective.⁴¹ Take the example of oil: Presently, oil is an indispensable source of energy for an industrialized country. As oil reserves dwindle, the process of adapting to alternative sources of energy no doubt will be painful. However, in the history of mankind the use of oil will last only for a short period of time. But the availability of oil today may be crucial for many developing countries if they shall ever be able to cover their populations' basic material needs. Overdevelopment in the use of oil in one part of the world may therefore hamper development in other parts of the world, even if the oil era will be of relatively short duration.

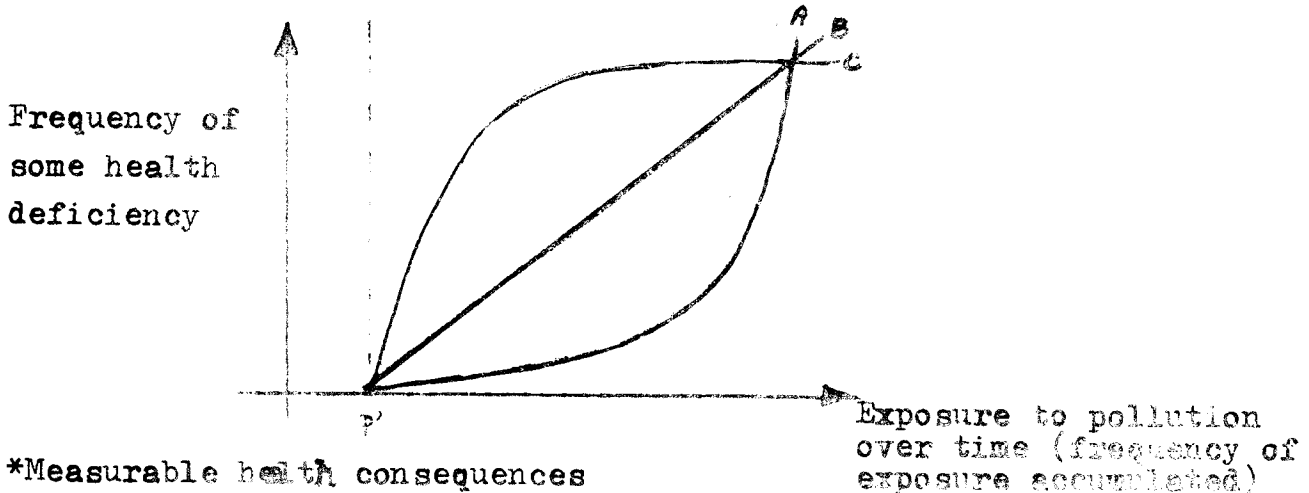
Depletion of other resources may mean long-term problems. A depletion of the world's fish stock or a lasting erosion of agricultural land may for ever reduce the world's carrying capacity. For an overdeveloped country covered with concrete, cement, steel, glass and asphalt there may be no way back in the future/they can buy their food from other countries or, alternatively, if they are able to secure ample amounts of cheap energy.

2) Overdevelopment involves pollution of the environment. To the extent that the pollution in some way or another strikes back on man, it is seen as a problem. One may argue that pollution is bad in itself or that pollution which affects any living creature in nature somehow, represents a problem. However, pollution is not likely to be very mobilizing unless it is a problem for many and when those affected in the end, are people. We also would assume that an aesthetic problem is less disturbing than the health effects of pollution. A big smokestack spewing out fumes may not look very pretty, but there probably would be a difference of degree whether the fumes were simply vapor or if they were noxious gases. Therefore, we would hypothesize that the most significant kind of pollution would be a type which in the long run would cause health effects, either mental or physical, on man. Indicators should reflect this.

The consequences of pollution may be felt today or tomorrow. Smoking is a typical example of this. To some, pollution from even one cigarette in a room may be bothersome, but it is hardly important for one's long-term health. Regular exposure to cigarette smoking, however, inevitably leads to cases of lung cancer etc., the frequency

of which increases with increasing exposure.¹² The same will be the case with for instance noise pollution. Infrequent exposure to bothersome noise below the level which would cause the loss of hearing ability may be coped with, but continuous exposure to noise may be a very serious problem for mental and physical well-being.¹³ These considerations lead us to visualize the following graph:

Figure 3: Health consequences of pollution over time*

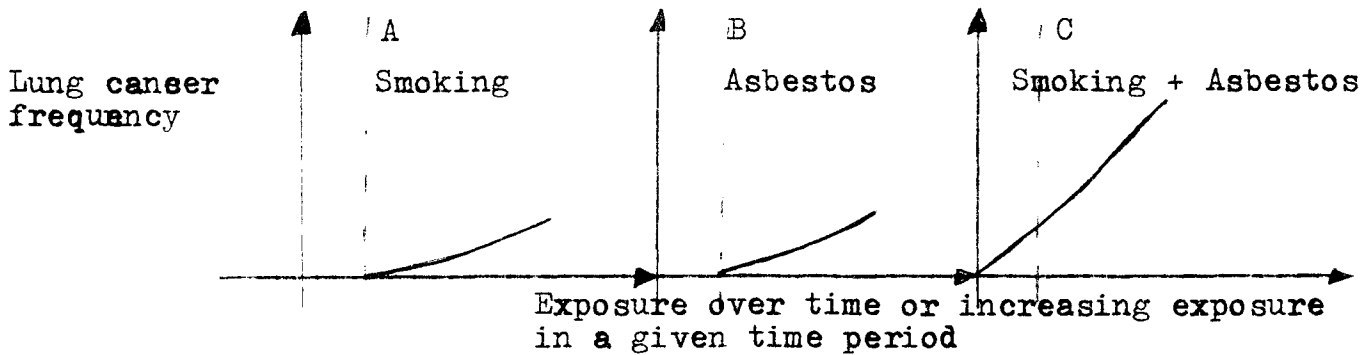


In Figure 3, we have made a hypothetical example of how the frequency of one dimension of health may be affected by increasing exposure to a given pollutant. Below a threshold the health effect may not be measurable. This does not mean that there is no effect, but that we have not yet developed methods for detection below a certain level. Above this level, health consequences show up, either at an increasing frequency (A), at constant increases (B) or with decreasing frequency (C). If frequency of a health effect were given in per cent, the maximum being 100% of the population being affected, these three alternative functions would all approach the 100%-limit and eventually flatten out. In this case, one could visualize an upper limit where any additional increase in pollution is indifferent because we are all dead anyway.

But most of the time it is rather impossible to isolate the effect of one pollutant from all others. Several pollutants may act at the same time, giving a synergistic effect*. The ^{total} effect of two pollutants may in such a case not be the sum, but often far more. A classical example is the combination of smoking and asbestos exposure, as illustrated in the following graph.¹³

*Mutually reinforcing - see next page.

Figure 4: Synergism between smoking and asbestos exposure.



In graph A, the frequency of lung cancer in a given population is correlated with the effect of smoking for instance 20 cigarette per day over one's life span. For several years, no cancer cases will be detected, but after that, an increasing number of people will get cancer. Graph B shows a non-smoking group of asbestos workers, who after a certain number of years start developing lung cancer with increasing frequency. In graph C, we imagine a group of asbestos workers who also are smoking. Here the lung cancer cases start showing up even below the expected number of years^{where}/it was possible to measure any effect from either smoking or asbestos alone, and the total effect is a lot larger than the sum of the two effects over time. This effect is called synergistic and may be a very important effect for many materials, for instance with radioactivity and heat pollution in combination with other pollutants. Therefore, we should not focus the attention too strongly on one pollutant at a time. There is a need to see the total picture, and indicators should reflect this

As a parallel to Figure 2 (p. 5) we shall now look at a typology for pollution, as shown below in Figure 5.

Figure 5: A typology for pollution.

| | | ↑ Non-toxic | Acutely toxic |
|----------------|--|--|--|
| Time dimension | Non-degradable (no enzyme-systems available) | 1) Rock formations, many metals | 2) Chlorinated hydrocarbons (DDT, PCB, etc.), chlorinated fluoride carbons (freon), etc. |
| | Degradable (enzyme-systems available) | 3) Organic wastes from plant/animal origin | 4) Several petroleum fractions |
| | | → Geographic extension | |

Figure 5 is more specific than Figure 2. In this last figure, we also may look at the time and space dimensions, but this time for the consequences of activities based on resource use. It is typical of modern industrial states that the pollution problems have shifted from cells

1 and 3 to cells 2 and 4. Not only has the waste problem from economic activities become a longer-term problem, it has also become a problem of toxicity. Thus, the recyclability of raw materials entering the production cycle is becoming increasingly difficult, although it now seems more necessary than ever before in history. The attempts at "solving" the environmental problems by recycling wastes in an overdeveloped economy **therefore** becomes a contradiction in itself, such as may be demonstrated by the proposed "plutonium economy", which only would reinforce and strengthen the problems of overdevelopment.¹⁴ Short-lived, non-toxic wastes are, on the contrary, easy to recycle with beneficial effects. Such **wastes are normally** the products of activities which are necessary to carry out in order to cover people's basic material needs.¹⁵ In other words, the more we try to surpass basic material needs production with the production of products with increasing sophistication and decreasing relevance for human needs,¹⁶ the more difficult it becomes to integrate and recycle the waste products in the economic cycle. Thus, the ability to maintain ecological balance, a central value in WIP, decreases with increasing technological sophistication.

3) Overdevelopment leads to loss of variability in nature. This loss of variability is important first of all relative to mankind's long-term ability to maintain world population at a high level. In other words, there is a physical component of variability: If pollutants kill plants and animal life, ecosystems become less stable, and food production potentials may decrease. But it is not only pollution which threatens plant and animal life. Too intensive harvesting of the oceans' fish, overgrazing of pastures, monocultures and genetic selection in agriculture, poaching and trophy hunting, intensive use of artificial fertilizers and insect "eradication" programs are all practices which reduce the variability in nature so vital to assure ecological balance.¹⁷ But loss of **variety** may also influence our Psyche. Little is known about the psychological effects on man of making the physical environment more monotonous, especially what happens to people if you remove mountain-tops¹⁸ or relocate mountain-people to the flat-lands. And how is man's creativity and mental health influenced by the degree to which he experiences the richness of nature as contrasted with living in a "dead" city?

4) Finally, there are the micro-ecological consequences of overdevelopment. We are here thinking of several things: First, we have the problem of insects becoming resistant to insecticides. Because insects multiply so fast, the selection process produces new generations of insects which are resistant to almost any insecticide after a prolonged period of use.¹⁹ In practice, "eradication" of particular insects has not proven to be possible. Therefore, in order to be able to kill insects in the long run, there must be a continuous development of ever more toxic insecticides. The problem with such an approach, of course, is that the insecticides also become toxic to animal life at higher stages of development and eventually to man. Therefore, there now are strong efforts under way in many countries to try new approaches in pest management by using nature's own controls, the so-called biological methods. However, due to the power of Big Chemical, this is a slow process.²¹ Second, not only do insects become resistant, but even new types of insects due to mutations may develop. We do not have any basis for judging the seriousness of this problem, which at the insect level may mean more variety and not less. This problem is strongly related to the next micro-level of living things, that of fungus, molds, bacteria and viruses. This third area is even less explored, but it may prove to be of great significance in the future. As the larger mammals and species die out, new strains multiply at the micro-level. In overdeveloped societies, the trend has been to use more and more exterior controls on diseases than letting nature build up its own resistance. A "modern" cow, for instance, gets regular shots of growth hormones and anti-biotics in order to maintain its high productivity,²² just as many people in the industrialized world are medicated on daily in order to function.²³ What the long-term consequences of this may be, is hard to tell. But a likely prediction is that it will become increasingly difficult to cope with immunization problems and that quite new breeds of bacteria and virus may develop in the future. Only then may we realize that the modern industrial state not only turns people into clients, but also his inner micro-life.

3.2. The social consequences of overdevelopment.

An overdeveloped country is characterized by a dialectic relationship between factors of which there is too much, coexisting with other factors of which there is too little. In the "too much-category" we may find such things as specialization, bureaucracy, "advanced" technology, research and development*, and use of capital. We don't deny the usefulness of a certain degree of specialization, and a minimum bureaucracy may be necessary to assure a minimum level of equality in society. But above a certain level of specialization, for instance, the specialist (be it a person or a country) starts losing track of reality outside of the specialty. Let us illustrate this by an example: Say that we have a very small picture, too small for us to discern the details, and that we wish to magnify it in order to reveal the picture's true nature. If we visualize progressively larger pictures, we soon will get to a point where a further enlargement stops providing us any new information, and if we continue to make it bigger, eventually we will end up with only one small dot, making it impossible to interpret that information at all. In this case one might say that there was too much focus on a dot, too little holistic insight. In another case there might be too little equity, equality, autonomy, solidarity or participation. An overdeveloped stage, consequently, is characterized by a rising level of alienation,

The social consequences of overdevelopment are closely related to the ecological consequences of overdevelopment. In order to be able to maintain a high level of energy and resource use, there is a need for a high degree of specialization, for instance in schooling, but also an efficient bureaucracy, accumulation of capital, R & D and advanced technology. But there is a distinct difference, namely that the social problems primarily apply to each society internally, and social problems are not irreversible. In that sense, global contamination from one country's social problems may be less of a problem than its ecological disorders, and alienation, for instance, does not seem to be inheritable. The important similarity between social and ecological consequences, however, remains this: With increasing level of overdevelopment, more and more people become affected; fewer and fewer people are able to escape the negative consequences and live a good life.

*R & D are basically of the wrong kind (military research), too elitist in its orientation and scope (instead of for, by and of the people) - not too much in itself.

And the only people who, in spite of the overdeveloped character of a society, still may find purpose and meaning in life, are those in the "productive age" without any significant mental, physical or social disabilities. Those who are too young, too old, too slow or too different are placed on the sidelines of societal development. They become clients, objects, cases or numbers in an expanding effort at devising specialized treatments for everybody who do not fit the requirements of overdeveloped competition. Let us look at some examples of how a modern welfare state copes with the social problems of overdevelopment:²⁵

When crime rates are increasing, we hire more policemen. More hospital beds, doctors and nurses are seen as the solution to health problems. Unemployed are sent back to the schools. Pacified youth are given "activity centers" and specialists in how to activate them. Overactive youth ("juvenile delinquents") are sent to pacification centers (prisons, camps). When people are too busy to cook, make clothes or mend their own houses, they are offered labor-saving appliances, mass-produced clothing

and Consumer Protection Agencies. Old people are surveilled by electronics so that their corpses do not lie around for weeks after they have passed away in solicitude. Flouride tablets are administered from infant age as the solution to dental decay. When the school system fails to interest the children, children ~~are~~ "with problems" are given "special education". When "development" comes to rural Norway in the form of automating the telephone centrals, the laying off of 5000 (mostly) women operators is not the problem of the State Telegraph Company.^{25a}

Such problems as mentioned above, are "solved" in the following manner: First, the problem is identified. After a sufficient period of stalling, a committee to look into the problem is set up. After several years a report is publicized, and eventually the government produces a White Paper. Finally, a new governmental branch is established; at present, this is done in a district center in accordance with the new guidelines of strengthening the local communities. And this is how many countries are entering the post-industrial stage, which will be characterized by an orientation towards services and less towards industries, an emphasis on schooling, a high level of personal mobility, a revolution in communication technology and electronics, and a high level of energy use.²⁶ Which are the prospects for such a society, will it provide for personal growth for its members, and do we have any empirical evidence which may lay the foundation for some

reasonable predictions about how the post-industrial states will develop relative to our value dimensions? We shall look at some of the studies which may shed light on this below.

First, we have an hypothesis that a society becoming more and more overdeveloped, will exhibit more and more signs of increasing inequality among its members. This hypothesis is supported by Ivan Illich, who has claimed that above a certain degree of energy use, inequality in any society will tend to increase.²⁷ The explanation for that is relatively simple: Because there are ecological and other constraints to how many people in any society can use large amounts of energy, there must become larger and larger difference between the top and the bottom segments of the population. Illich has taken his example from the transportation and found that the maximum speed which can be said to ^{be} democratic, is the speed which can be obtained by bicycle. In other words, you may mix pedestrians and cyclists, but not pedestrians and automobile traffic. Obviously, the difference in speed between a pedestrian and somebody who travels a Concorde is enormously much larger than a pedestrian and a horseman or donkey-rider, who in a poor country would compare with the "capitalist" in speed who travels supersonically. Another important point in this connection is that higher speeds not also will be limiting because of ecological constraints (fuel requirements, lack of ozone), but also on account of the travelers' mental and physical health. Automobile driving (self, but not as a passenger) in most countries is limited to around 60% of the population - the rest are either too old, too young, blind, handicapped or unfit to drive a car in other ways. The requirements for the coming space shuttle passengers, should be even more restricting, especially in terms of fare costs, possibly also in terms of fitness.

Increasing availability of schooling also poses a problem of inequality. In a complex society, not all will succeed in following the rat-race to the top. Those who cannot keep the speed of the rest of society, are taken "care of" by specialists and counted as "unproductive". Because there always are some who cannot cope with schooling, the more schooling you have, the larger the inequality between people. A recent study by Johan Galtung et al.²⁸ confirms this tendency of the school system to perpetuate and accentuate inequality in a society. The "clever" ones (Note: clever at adapting to school requirements) are filtered out, while others become the "drop-outs." These disturbing facts about our "modern" school system have inspired many people

to suggest alternative forms of education,²⁹ and some niches in rich countries have actually tried the alternatives out.³⁰ But on a larger scale, we have to admit that also in this field, we are beaten by the Chinese, who ~~were~~ very conscious of the problems of too much schooling.³¹

Second, overdevelopment is often associated with exploitation. If we look at world food trade, this seems to be a predominant trait.³¹ 25% of world population eats around 50% of world food, often imported from countries where people are starving to death.³² Also, in spite of the much publicized food aid to **famine-stricken** areas, net food trade goes from the poor to the rich world. But exploitation does not automatically have to be associated with overdevelopment. We can imagine four types of resource flows: 1) importing resources from a poor country for overdevelopment; 2) from groups within the country to an overdeveloped group; 3) from a poor country for another country's development; 4) from the overabundant supplies within one's own overdeveloped country. Only the two first of these cases would involve exploitation, but the two latter would, at least in the present word, involve structural violence, and case 3 probably a too low utilization of domestic resources (lack of self-reliance).

Third, an overdeveloped country will be one in which people are lacking autonomy. This follows as a direct consequence of overspecialization and the process of overspecialized people in engaging in practices which tend to restrict the number of people with their special knowledge. This business is usually carried out in professional associations, for instance medical **associations**, dentists' unions, CPA* Clubs or whatever.³³ These associations put pressure on the law makers in order to restrict random entry of "quacks", people who are not trained in the "proper" way. As discussed above, the school system tends to conform to such demands, becoming increasingly specialized. Also, we have the tendency of the state, often motivated by sanitation, health or safety considerations, but may be more to gain control of money flows in society, to produce all kinds of laws and regulations on what you can or cannot do yourself. Norway is an example of a country where such regulations are very impressively detailed. There are rules for how a garage should be equipped in order to fix a car, what kinds of animals you may keep where and how, how much you can do in your own home (of the electric work one is allowed little beyond changing a light-bulb), specifications and requirements for public sewage systems,

* Certified Public Accountant

which rooms in your own house you may sleep in or not, etc. Many of these regulations are no doubt useful, but too many rules quickly become counterproductive, leading to apathy among people (but also to overt obstruction of the laws, eagerly **used** by people of the extreme right to show how much better unrestricted capitalism would be for us all). This trend towards more doing-it-yourself because of the high labor costs for repair has prompted the industry to shortcut the repairman completely. The transition from the local self-employed repairman one may find in an underdeveloped country to the publicly certified plumber or electrician may not seem so large - in spite of all, there may still be local repairmen around in overdeveloped countries. The next step, however, penetrates the consumer directly: He **soon** may buy modules furnished by a giant corporation located in a different part of the world and "repair" the appliance or whatever himself instead of using the expensive local repairman. But the part he is replacing, he may not fix or even open, nor understand how functions. That is for the super-repairman specialist in the large corporation, which now makes even the local TV-repairman or watch-maker superfluous.³⁴ In other words, there will be an increasing loss of self-reliance individually, locally and nationally in an overdeveloped country.

Fourth, solidarity in an overdeveloped society will be low, there will be a high level of fragmentation. When people can be murdered on a busy street in New York and the murderer can escape, solidarity is at a very low level. Considerable evidence shows that as the social units increase, personal contacts become less possible. In an anonymous society it becomes easier to commit a crime, because nobody knows you, and the person you kill will not be close to you. This has been shown in for instance A Blueprint for Survival³⁴ and more recently by Nils Christie³⁵. It is the **same** trend we see in the increasing evidence of police brutality on the rise in the industrialized countries,³⁶ and it is rather obvious that the more detached a policeman becomes from the local community, the less likely it will be that he will feel any empathy for people who engage in social protest movements, criminals or other lawbreakers.³⁷

Fifth, an overdeveloped country is one in which more and more people become marginalized. The complexity of an overdeveloped country, the existence of various "experts" who know best, the fragmentation of people, the high mobility, all add up to a general feeling that "what

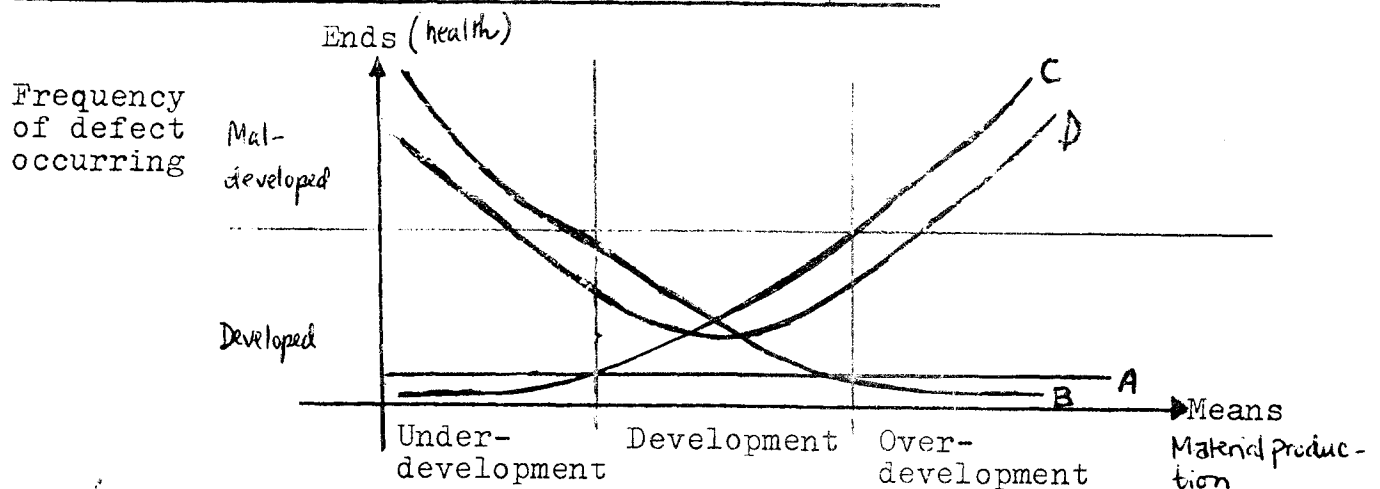
ever little I could do, it won't help anyway." Such attitudes are reflected not only in a very low interest in elections,³⁸ usually a biennial event in our part of the world, but also a low level of participation in the day-to-day political issues.

Summing up: An overdeveloped country is one in which people become more and more alienated - towards things, people, jobs, processes and towards themselves. Personal growth becomes something reserved for the few, not necessarily those that are economically best off, but for those who are able to define their own niches in society, where they find purpose and meaning, friendship, warmth and comfort. In an ever changing world, however, this becomes increasingly difficult. And that, of course, is why so many people have started to engage themselves in a search for a better alternative.

3.3. Health problems in overdeveloped societies.

Peoples's physical and mental health are influenced by a host of different factors. Here we shall not be concerned with health effects which are totally unrelated to the degree of development, that is, effects that have occurred and will occur simply because nature is not perfect.³⁹ In other words, we will imagine a relationship between different kinds of health effects, as depicted on Figure 6 below: and the level of material production

Figure 6: Health effects related to development.



Here we have imagined four theoretical possibilities: For health effect A, the frequency of occurrence is very low and not influenced by how "developed" a country is. In case B, very many people are affected in a stage of underdevelopment, but almost none otherwise. Case C is the opposite of this, few people are affected in an underdeveloped area, but many in an overdeveloped one. Finally, we have imagined

alternative D, where the incidence is high both in the underdeveloped as well as in the overdeveloped stage. An example of that could be the occurrence of lung cancer from smoking: cancer strikes rich as well as poor, provided that the problem of synergistic exposure is eliminated or held constant.⁴⁰

In our case, we are mainly interested in cases C and D from a situation of overdevelopment. But in addition to this, we are interested in health effects that have structural relationships and not individual ones, especially where the structure causing bad health of one type in an overdeveloped country also is causing bad health, even of a different character, in an underdeveloped country. Combining the various types of ailments - over/underdeveloped, structural/individual - with whether they are of physical or mental origin, we may visualize a cubicle consisting of 8 cells:

Table 1: Taxonomy of health problems.

| Cell no. | Stage of development | Type of problem | Cause of problem | Possible example |
|----------|----------------------|-----------------|------------------|--------------------------------------|
| 1 | Underdeveloped | Physical | Structural | Starvation, exhaustion |
| 2 | " | " | Individual | Smoking, some accidents |
| 3 | " | Mental | Structural | Apathy |
| 4 | " | " | Individual | Withdrawal |
| 5 | Overdeveloped | Physical | Structural | Cancer, allergies, traffic accidents |
| 6 | " | " | Individual | Obesity, some accidents |
| 7 | " | Mental | Structural | Stress, schizophrenia |
| 8 | " | " | Individual | Introversion |

This classification is probably very hard to carry through in real life with hard facts, because we know too little about what diseases and ailments are caused by what, which in itself, of course, is a sign of underdevelopment, even in an overdeveloped world. But in this chapter we at least shall try to look into some of the evidence we have which may shed light on Cells 5-8 and 5 and 7 in particular. It is in no way easy to find the origin of ^{health} problems, and very seldomly may ^{they} be attributed solely to structural or individual factors. But we may be able to point out the major cause of a certain ailment or point to structural changes which could remedy problems which seem to be caused by individual action rather than by a certain structure. In such a case we would define the problem as structural: If another structure could have made a significant contribution towards eliminating a certain health problem, whether the present structure is intended or not, we experience structural violence. But at the same

time, there almost always will be an individual element, since it is the sum of individual actions which make up the structure. Furthermore, most health problems will not only be either physical or mental, they will contain elements of both, even if the root of the problem may lie in only one particular type of problem.

We shall not try to develop a new theory of the origin of diseases, but try to distinguish diseases that definitely have structural elements in them from other types of explanations, such as for instance: ~~Transcendental~~ explanations (diseases seen as God's punishment), virus theories, deprived childhood, inheritance, or astrological explanations (constellation of the planets), etc. None of these theories will be excluded, and neither will we reject that some health problems may be found in the "pull-yourself-together"-category. But in this paper we are mainly interested in health problems which are related to overdeveloped societies, health problems which might have been a lot easier to tackle in another structural setting.

If we look at health problems in overdeveloped countries (according to our definition, most western industrial states), we find several common health problems which are practically non-existent in underdeveloped parts of the world: Many forms of cancer, heart diseases, diabetes, obesity, and several ^{forms of} mental ailments. Many of these health problems were practically non-existent some decades ago in the industrialized countries of today, but at the same time, other health problems which then were frequent, have now more or less disappeared.⁴¹ This may be attributed to three factors: 1) Better nutrition, 2) improved hygiene, and, 3) more intensive health care (more efficient medicines, more frequent checkups, more advanced technology, higher-skilled personnel). It is now clear that there may be too much nutrition, too much hygiene and too intensive health care and that this is exactly what has happened or is about to happen in many industrialized countries today. In addition, new man-made substances introduced in the environment have caused a number of health problems that today are ^{incompletely} known, but are likely to be found responsible for many more problems (or contribute to problems) when we gain further knowledge of how they work in biological systems. On top of all this, we have the problem of too little physical exercise for large groups of people. We shall discuss these five factors that we now know are responsible for many health problems in the overdeveloped world, and where possible, tie them to the structural component.

1) The problem of too much food. This problem has been discussed in general terms above (page 3). Here we shall look at some of the empirical evidence that a large number of people in the industrialized part of the world really are overnourished and discuss the implications for people's health. First, the Nordic countries: Estimates by medical experts are that approximately 50-60% of Nordic women are overweight and about 30% of the men, while 30-35% of all children weigh more than is recommendable. The trend points towards more problems of this kind in the future.⁴² In the US, one estimate calculates with 3 million adolescents and 30-40% of all adults as being either overweight or obese,⁴³ while in West Germany the estimate for overweight adults is approximately 50% and 20% for children.⁴⁴ The disconcerting thing about overweight children is that 80% of them may be expected to remain overweight during their adult lives, as compared to about 42,5% of the remaining 80% with normal or too low weight.⁴⁵ But overweight problems are not restricted to the West: According to official statistics, almost half of all women, one fifth of all men and 15% of all children in East Germany are too heavy.⁴⁶

The main problem of overeating is not one of getting too much of things that the body needs for its growth and/or maintenance, but rather of getting too much of things that are not needed at all: refined sugar, fats and alcohol.^{22,43} Besides, overweight or obesity has the effects of too much of these high-caloric "foods" are now known to be detrimental to health in many different ways. First of all, a too high intake of fats and sugar leads to an increased incidence of heart ailments. In Norway, cardiovascular diseases^{are} the most important cause of death through illness, accounting for about 55% of all cases.⁴⁷ A too high intake of fats and sugar now also seems to be linked with several forms of cancer, for instance stomach and breast cancer.⁴⁸ Cancer is now in Norway the second cause of death through illness, but the most important cause in other countries.⁴⁹ In third place of the "welfare" diseases comes diabetes, now afflicting at least 2-3% of the population in Western Europa and around 5% of US citizens.⁴⁹ The incidence of diabetes is highly correlated with the average intake of sugar, the use of which has exploded in most industrialized countries throughout this century, from a few kilos by the beginning of 1900 to the present level of 40 kilos or more.⁵⁰ At the same time, diabetes frequencies have gone up more than tenfold from a level of 0.2% 40 years ago in for instance West Germany.⁴⁹

So far, one has been able to connect overweight problems with up to 15 different diseases, the most important of which are increased fat accumulation in the blood and high blood pressure.⁴⁹ Diabetes has been linked with blindness, and this is only one of many problems with which a high sugar intake is connected with.⁵¹ But eating too much sugar and fats is not only bad in itself, these "foods" often suppress the intake of essential nutrients, and it is therefore not uncommon to see overweight and vitamin deficiency occurring together. Also, industrial food is deficient in fibers, leading to constipation, cancer of the colon and many other problems,⁵² adding to the problem of dental decay caused by too much sweets and refined foods.

Even if one may call overeating a "self-inflicted" problem,⁵³ it also clearly has a structural element: Industrial food promotes overeating, and a stressing life-style gives people little time in reflecting over what is good or bad to eat. Also, there is clearly a class problem⁵⁴ involved in diet composition - the higher educated are more prone to considering advice from doctors and nutritionist and also have better economic possibilities in securing good food and having it prepared and stored properly.

2) The problem of too much hygiene. This may not be a very large global problem yet, in fact, deficient hygiene is one of the main health problems in many poor countries today. However, there may even be too much washing and sterilization of human beings at least, giving rise to physical as well as mental problems. Physically, too much washing may lead to a removal of the bacterial flora of the skin, thus making it more sensitive towards allergies or more receptive towards infections. Also, a too meticulous attitude towards all kinds of possible "contagious" things in our environment may actually reduce the body's ability to produce anti-bodies, it may make us less able to resist infections and contagions when they do show up. The over-emphasis on cleanliness has lead industrial man to abhor any kind of human smell, thus excluding anybody from social interaction who does carry bodily smells, however slight. This factor has been utilized by the industry, which promotes human uncertainty by pushing tooth-pastes, deodorants and anti-perspirants, vaginal sprays etc. with increasing fervour.⁵⁵ In fact, our overdeveloped society has come so far that non-human smells, even if proven to be dangerous to health, such as smoke from cigarettes, are accepted, while human smells are not.

3) Health care may become too intensive. This is the argument put forth by Ivan Illich in Medical Nemesis:⁵⁵ The health system in industrialized countries is causing more diseases than it cures, it covers up the political reasons for the increasing sickness of society, and it destroys people's ability healing themselves. After this book the discussion and awareness concerning health problems have taken new dimensions, and at least in the Nordic countries, many of Illich's arguments have been partly substantiated. People have become more aware of the side effects of the use of drugs,⁵⁶ and the problem of large hospitals in terms of spreading infections has been debated.⁵⁷ A very serious case of over-use of injections has been reported from Japan: Because doctors are rewarded for giving injections and are given large quantities of free samples from the industry, an average Japanese receives 20 to 40 times as many injections in his life-time as an average American. But in one case a medical doctor has gone so far as to give children injections for almost everything from a common cold to more serious diseases, thus cutting their veins, muscles and skin so badly that many of them now have problems in walking or sitting, or their growth has been inhibited. An total, as many as 14.000 children have been involved, many of whom ~~have been~~ crippled for life.⁵⁸ The same source also questions the mandatory vaccination in Japan against diphtheria and smallpox etc. ^{since 1950} having lead not only to the prevention of these diseases, but also to 2500 invalid persons and 50 deaths, cases of paralyse^{as} mental illness.

It is quite clear that the overspecialized western medical system has neglected a big bulk of available medical wisdom in other parts of the world, such as acupuncture, sone therapy and herbal medicine. Although a discussion has started on this topic,⁵⁹ structural factors will make the road towards a developed medical system, which includes people's ability to cure themselves, long, steep and full of obstacles.

And these obstacles are mainly due to the structure of capitalist economic production, which in no way excludes pharmaceuticals from the drive for increasing profits. On the contrary, if big capital shall be able to benefit from people's need for health, it is only by suppressing self-healing practices, herbal medicine and the like, and by introducing "advanced" medicines instead, so that monopoly control may be retained.

4) The lack of physical exercise. It is quite obvious that someone who works in the rice paddy 10 hours a day does not worry too much about getting enough exercise. On the contrary, people with very strenuous work have very good reasons for worrying about too much physical toil. The picture we have of slave labor, where people died by the millions because of ^{physical} exhaustion combined with deficient nutrition, is by no means a rosy one. However, industrial man has gone too far on this point, building structures that almost completely eliminate the need for motion: Drive-in shopping centers, banks, churches (!) and housing (motels, apartments, villas), elevators, moving sidewalks and escalators all contribute towards **this end**. In fact, the problem of too much nutrition is closely connected with the amount of exercise one gets. People today do not eat more than their ancestors did, on the contrary. But the mass-production of automobiles, labor-saving devices for industry and for the home is the factor behind overweight.⁶⁰ This does not mean that industrial food is good food, but that the problem of too large caloric intakes leading to overweight and obesity ^{Probably} would not have existed, had people lived in a structure where exercise was inevitable. The manner in which the problem of lack of exercise is attempted "solved" also is symptomatic of overdevelopment. Next to campaigns for special "diet foods" which hardly deserve their name but earn a profit,⁶¹ overdevelopment includes a large assortment of "repair shops" also for overweight people, the so-called health centers. Here one may engage in "scientifically studied" weight training programs monitored by experts in the field - if one can afford it. It is unfortunately a fact that it is the best educated, most highly salaried persons in the overdeveloped world who best are able to avoid the consequences of overdevelopment, and this is particularly true of when it comes to personal health. When it comes to the field of exercise, the trend has been to remove those structures which included exercise for all **but** the very few, and toil for the many, and include structures which deprive the masses of the natural and cheap ways of exercising. Instead, the elites engage in sports and leisure activities that not only require good revenues, but also time and access: Golfing, tennis, downhill skiing, water skiing, sailing, etc. - in other words, activities one wouldn't expect to be able to carry through in a downtown slum.

In the overdeveloped world, the population has a bad mix of physical exercise: some do too much (the top athletes), while others do too little (the spectators). Probably, there is only one group of people left where many still are able to get enough exercise on a regular basis: the housewives. But also this group is rapidly becoming smaller - and it is not being replaced by househusbands.

5) The problem of man-made substances. This area is closely related to the problems encountered when we pollute the environment. The difference is, however, that pollutants are by-products of something else, for instance of industrial production, while a number of man-made products are produced because we want them (or at least somebody wants them) to be produced. An example may clarify the difference: The radioactive by-products of the fission process in an atomic reactor are not desired, neither is the extra heat needed to cool the reactor core.⁶³ What is wanted, is electricity, the inevitable production of radioactive wastes and the excess heat are pollution, unintended, but inextricably linked with nuclear fission. As a contrast to this, a food additive is not produced as a by-product of something else, it is a product in its own right. The problem, however, is that many man-made substances that are produced for some specific purpose have proved to give unintended side-effects. To clarify the distinction between the different types of man-made substances and their effect on health, we shall look at Figure 7 below:

Figure 7: A typology for man-made substances and the effect on health.

| | | Effect on health | | |
|---------------------------------|---|------------------------------------|---|--|
| Negative Neutral Positive | ↑ | 1) | 2) Agricultural chemicals, tobacco smoke (passive smoking) | 3) Carcinogenic food additives, tobacco smoke (active) |
| | | 4) | 5) Aluminum from pots/packaging, some plastics, CO ₂ | 6) Vitamin supplements |
| | | 7) Toxic substances or carcinogens | 8) Iron from iron pots | 9) Some preservatives |
| | | <u>Not</u> ingested by humans | Unintentionally ingested by humans | Intentionally ingested by humans |

It should be said at once that we do not have enough information to fill in all the 9 cells one may visualize in Figure 7. Accordingly, the examples shown should not be conceived of as dogma, but rather some suggestions. Cell 1 and 4 are hard to conceive of even theoretically, but cell 7 may be a possibility, if we imagine that some substances that used to be ingested by humans unintentionally, now have become controllable, for instance in closed circuits, thereby improving people's health. But here we shall focus especially on cell 2 and 3, assuming that these cells will contain an increasing number of man-made substances as our knowledge of the environment

is increasing.⁶⁴ Therefore, a good indicator of overdevelopment might be the number of man-made substances in use and the parallel indicator of underdevelopment the lack of knowledge of the importance of such substances for our health. But let us look at some evidence, based on cell 2 and 3, indicating that in the overdeveloped part of the world, these cells are large and growing.

There are two classes of additives in food, those that occur unintentionally or indirectly, and those that are added for a particular purpose. In the first group (cell 2) we find such substances as pesticides, solvents, environmental chemicals, etc., with which the food becomes contaminated during cultivation, processing and storage. The intentional additives include such things as nutrients, flavors, flavor enhancers, preservatives, anti-oxidants, emulsifiers, stabilizers, thickeners, coloring agents, bleaching agents and others.⁶⁵ The disturbing fact about cell 3-type problems is that as methods to detect possible cancer hazards or other health problems improve, more and more of the food additives are discovered to be a threat to health. In other words, what we thought could be put in cell 9 as "positive" to our health or in cell 6 as "neutral" have a long-run negative effect that we were unable to foresee. Virginia L. Zaratian⁶⁵ emphasizes how little we know about possible health problems induced by environmental chemicals in food, both because adequate testing methods are lacking and because it is impossible to test all chemicals alone or in combination with others for their carcinogenic (causing genetic damage) and/or their teratogenic effect (causing abnormalities in the offspring, f. inst. as in the thalidomide-case). But as an example of how serious the problem of chemicals in food may be she refers to a study conducted a few years ago on over 100 pesticides, where it proved that only 3 of those that had been adequately tested were not carcinogenic. 13 other chemicals were found to be carcinogenic, 28 others were known to increase tumor incidence, 37 were tested on only one species with negative results, and the remainder had not been tested with appropriate procedures at all. It therefore sounds likely that most man-made substances put to use in agriculture or added to food may be detrimental to health in the long run, and that between 50 and 90% of cancer may be prevented by avoiding the offending chemical agents.⁶⁵ On this point there of course is disagreement. There are those that state that chemicals in food are not too problematic, because they help preventing naturally occurring carcinogens or bacterias which otherwise would be dangerous to health, and as long

the evidence of carcinogenesis is so weak, the benefits outweigh the risks.⁶⁶ However, it is our view that there is some mix of man-made substances and naturally occurring substances (that may cause health problems) which is "ideal" in the sense that health problems are minimized, and that mix is not the present one.⁶⁷ This mix probably excludes a number of the chemicals now in use⁶⁸ and would also mean a stop in the development of new chemicals until the long-term effects of the present ones are better understood.

It is important to stress that the occurrence of cancer is not random among the population. According to Barry Commoner,⁶⁹

A recent National Cancer Institute survey of cancer deaths in all the counties of the United States showed that death rates from lung, liver and bladder cancer are highest in areas that have a heavy concentration of chemical plants and refineries.

A table shown by Newsweek⁷⁰ gives us an overview of structurally related cancer:

Table 2: Cancer and the environment: Ten top suspects.

| Substances | Where found | Cancer they may cause |
|--------------------------|---|---|
| Arsenic | Mining, smelting ind. | Skin, lung, liver |
| Asbestos | Brake linings, construction sites, insulations, powerhouses | Lung, pleura, peritoneum |
| Benzene | Solvents, oil refineries, insecticides | Bone marrow |
| Benzidine | Rubber making, dyestuffs | Bladder |
| Coal-combustion products | Steel-mills, petrochemical industry, asphalt, coal tar | Lung, bladder, scrotum |
| Radiation | Metal industry, alloys Ultraviolet rays from the sun, medical therapy, atomic power use* | Lung, nasal sinuses Bone marrow, skin, thyroid |
| Synthetic estrogens | Drugs | Vagina, Cervix, uterus |
| Tobacco smoke | Cigarettes, pipes, cigars (active and passive)* | Lung, bladder, mouth, esophagus, pharynx, larynx |
| Vinyl chloride | Plastics industry | Liver, brain |

*Additions to the table made by the author

Besides the fact that industrial workers are more exposed to carcinogenic substances in their environment, there also seems to be a general difference in cancer rates between cities and countryside, not only due to industrial pollution, but also to air pollution etc. caused by automobile traffic, from oil-fired heating systems etc.⁷⁰ In other words, all social classes are to an increasing extent becoming exposed to substances which are bad to our health,

4. Discussion.

In the following we will try to digest and summarize some of the empirical evidence and theories presented so far. First of all, we have been concerned with three different aspects of overdevelopment, those with consequences for the ecology, the social system and people's health. These aspects are all interrelated, and it may not always be possible to differentiate between them. Also, signs of overdevelopment does not exclude the simultaneous occurrence of underdevelopment. In fact, the existence of overdevelopment in itself may even be a sign of underdevelopment of the ability to make a good society for all.

We have defined overdevelopment to mean that our central values, the end goal being personal growth, are not fulfilled because of the existence of too much means, the wrong kind of means, or the right kind of means in the wrong place. We basically have been concerned with material goods: Food, drugs, raw materials used to produce clothes and housing, means of transportation and communication, etc. Does that mean that overdevelopment has followed a period of development, that the countries which today may be considered to be overdeveloped have gone through the phases of being underdeveloped at first, then more and more developed, to finally end up as being overdeveloped? Or could it be that a society started out being developed, but then went through a period of underdevelopedness (a dark age), for then to proceed to overdevelopment? Or is overdevelopment an inherent trait in Western Civilization, a trait which has manifested itself in different ways throughout history?⁷²

Without being historians, we would speculate that an ideally developed society never has existed during the last few thousand years, but the ten value dimensions chosen as basic concerns for this program²⁴ may have been unfulfilled in different ways than at present. For instance, there may have been overdeveloped classes relative to most people within each country, just like at present, but exploitation was not an international problem, but rather an internal one. Also, ecological problems may have occurred because of lack of knowledge of how nature works, but the consequences would be more limited in extension.

Today, we know more about the consequences of exploiting the eco-system, but since exploitation of the eco-system is inextricably linked with our present form of industrialization and the use of "advanced" technology,⁷³ regardless of whether it is used within a capitalist or a "socialist" framework, we^{still} are unable to avoid ecological imbalance. This is why we would say that we are using too much energy, we are producing too many material goods, often of the wrong kind, or even the right kinds of things but in the wrong place, and that this is a sign of overdevelopment as well as of underdevelopment. A developed society would know how to produce the goods that were needed without polluting the environment or depleting its resources, it would know how to make industries and technologies that fit the social system, all for the purpose of developing people and not things.

Understanding the deep and underlying causes of overdevelopment is not the task of this paper - here we will only scratch the surface in that respect.

In other words, if we identify overdevelopment with capitalism in our part of the world, we do not mean to say that all centrally planned economies can avoid the pitfalls of overdevelopment. Overdevelopment may be an inevitable state of affairs in a capitalist economy because the capital system does not have any built-in mechanism preventing material growth from going too far. While a planned economy could avoid this pitfall, given that the philosophy of what development means is a different one than what is implied in a capitalist system, overdevelopment could be avoided. In the East European states, however, the central planning is pursuing more or less the same goals as the capitalists in the West in that what really counts, is to fulfill production plans. In order to do this, the same means are put to use as in the West: Industrial growth, rapid technological change, research and development intensive industry, increasing specialization, etc. Suffice therefore to say, that it is "modern" industrial growth with an ever increasing technical complexity which lies at the root cause of overdevelopment, be it in a capitalist or a centrally planned economy.

But let us get down to indicators: Here we would be particularly interested in indicators which may express a relationship between over- and underdevelopment. This relationship does not necessarily have to imply bad intention, but rather that the structure is such

that some groups of people get too much, while others get too little. In such a case there would have to be a transfer of resources from one group of people (or **countries**) to another. But we also would be interested in an overuse of resources which could have been used to cover other people's underuse, even if the resources are not taken from the under-users by the over-users. In other words, not sharing your abundance if you can and if those less fortunate do not have their own means for overcoming their deficient needs coverage, will be seen as just as objectionable as taking away from someone who had enough to produce too much one place and too little where it is taken from. Let us call these two cases of overdevelopment for Type 1 and Type 2 and proceed to our list of needs and material goods presented in Table 3 below.

Table 3: Needs and material goods.

| <u>Need:</u> | <u>Material good/service:</u> |
|-----------------------------|--|
| Nutrition | Food |
| Wellbeing/health | Balanced diet, hygiene, medicines, etc. |
| Privacy/protection | Clothing, housing |
| Knowledge/education | Human contact, school system |
| Meaningful occupation/work | Farms, households, factories, etc. |
| Mobility/transportation | Bikes, buses, trams, cars, airplanes, .. |
| Communication/human contact | Telephones, radios, televisions, drums, smoke signals, light signals, etc. |

If we go down the list of goods/services and relate the overconsumption on each of these to Type 1 and 2 problems, we should be able to develop some indicators of overdevelopment. Let us take some examples, starting out with food:

If a country is importing food from a country where people are getting too little food, we are facing a Type 1 problem. An indicator of the extent of overdevelopment could for instance be the per capita acreage which an overdeveloped country's average citizen occupied in poor countries and which could have been used to cover the poor country's food needs. This would be a very complicated indicator to develop on a per country basis, because many agricultural products **are** sent from one country to another, and it is often very difficult to assign the origin of each product consumed to particular producers. A further complication would be involved if we should ^{calculate} the acreage occupied by different classes of people in rich countries. Therefore, indicators reflecting an overconsumption of food would be a lot simpler to develop if they igno-

red the differentiation between Type 1 and Type 2 and just incorporated overdevelopment per se. This argument may also be used when we go down the list of basic material needs. Some suggestions of indicators are presented in the Table below.

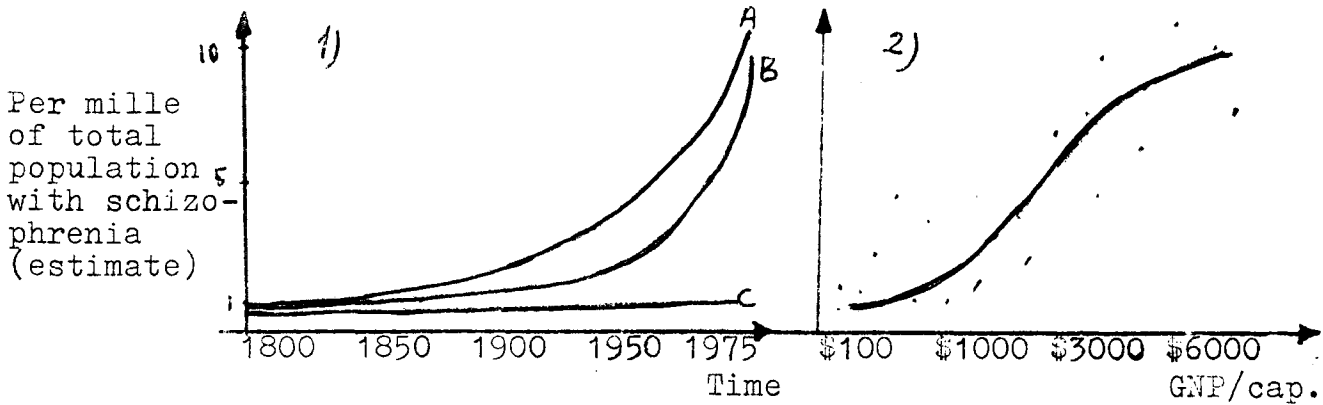
Table 4: Some suggested overdevelopment-indicators.

| <u>Need/goods:</u> | <u>Indicator:</u> | <u>Possible examples*:</u> | | |
|--------------------|--|---|---------------------------|---------|
| Food | Primary calories consumed per person per day divided by average caloric need (fodder fit for human consumption included) | USA | 4-5 | |
| | | Norway | 2 | |
| | | OECD area | 3 | |
| | | E. Europe | 2,5-3 | |
| | | (Third World | 0,8-1) | |
| | | Caloric input/output ration | USA (corn) | 5:1 |
| | | | (China (wet-rice) | 1:50) |
| | | Chemical fertilizer as a percentage of total fertilizer use | OECD | 90% |
| | | | (China | 10-20%) |
| | | | Food wasted by households | |
| | Food stocks deliberately wrecked relative to total food production | | | |
| | Cosmetic food additives in use (number, percentage of consumed food with additives) | | | |
| | Per capita consumption of refined foods and non-foods (white flour, sugar) | | | |
| Clothing | Percentage of cloths made from synthetic fibers | | | |
| Shelter | Percentage of building space unoccupied | | | |
| | Energy use per housing unit | | | |
| Health | Number of drugs in use (duplicates, etc.) | | | |
| | Reported side-effects from drug use in number of cases per year per 1000 | | | |
| | Frequency of cancer, heart diseases, diabetes, obesity/overweight, schizophrenia in the population | | | |
| Transportation | % of passenger-kilometers by car and airplane | Norway | 125 | |
| | | USA | 200 | |
| | Number of people killed in traffic accidents per year per mill. inhabitants | | | |
| | Energy use in transportation per passenger-kilometer | | | |

*Authors guesses meant as illustrations

The table is not meant to be exhaustive, but rather to indicate a way of thinking about indicators. Such indicators should always be developed for a prolonged period of **time** for different socio-economic classes and for different countries. As such, they do not need to be numerical, but may be presented in forms of graphs or other illustrations which may be understandable to an average person with no more than elementary schooling, following a brief explanation. ⁷⁴ An example of this would be the two graphs presented below, showing the estimated relationship between the frequency of schizophrenia and material production (GNP/capita used here) and the time series of schizophrenia in different countries: ⁷⁵

Figure 8: Schizophrenia related to GNP/capita and time.



In graph 1 we could imagine that we had three countries, A, B and C, the two former two typical cases of overdevelopment, and the latter an underdeveloped country for ^{the} sake of comparison. In this case, we see that the occurrence of schizophrenia in the population went faster in A than in B, but that B at the end of the period is closing the gap very fast. In graph 2 we see that countries with a low level of material production have few cases of schizophrenia, while those with a high GNP/capita also have a corresponding increase in schizophrenia rates. It is important here to indicate the general trends and tendencies and not let us ^{be} confused by the fact that there are some exceptions to all general pictures. ⁷⁶ Therefore, let us summarize our general picture of an overdeveloped country with the following characteristics:

An overdeveloped country is oriented towards material growth. The use of natural resources is increasing or has been stabilized at a very high level in spite of the fact that resources are poorly used, thus making it necessary not only to exploit other countries, but also their own future generations.

The emphasis on material growth in overdeveloped countries has led to an increasing disintegration of the social structures. People cluster in overcrowded cities, family life tends to break apart, and those who are not productive (the old, young, handicapped, etc.) are placed outside the mainstream of social and material life. Consequently, the mental health of the total population tends to become increasingly poor and the growth rate of mental diseases alarmingly high. But the individual disease pattern also becomes characteristic: Tuberculosis and typhoid have given way to cancer, diabetes and heart ailments, diseases which in overdeveloped societies afflict an increasing number of people at all socio-economic levels. Overdeveloped societies have ridded themselves with physical toil and poor hygienic conditions, but are instead faced with too little built-in exercise and an over-concern with hygiene and "good looks". These societies have become so specialized that each individual no longer can see the totality of the system. People become alienated from their job, the products they produce and consume, and they become dependent on a highly centralized, professional planning system as the major center for societal control. People become passive clients in the hands of planners, bureaucrats, technocrats, specialists in every imaginable field, and capital-owners, who in an overdeveloped society have managed to reduce class conflicts by pushing the exploited periphery outside of their own society - but the inequalities remain. An overdeveloped country is a hard case for forces of societal change, and in such a society change is only likely to come about when at least two factors occur: First, the exploited periphery refuses to let itself be exploited, second, the symptoms of overdevelopment start afflicting also those who still are able to make the best of overdevelopment, the social, economic and intellectual elites, at the same time as the problems of overdevelopment become visible to the overdeveloped world. And it is exactly this latter point which has been the purpose of this paper: to contribute towards a holistic view of overdeveloped societies, thus preparing the ground for those who want to see their level of development in a new and more critical light.

NOTES:

- 1) Johan Galtung et al.: "Measuring World Development." WIP Paper No. 2, autumn 1975. Chair in Conflict and Peace Research, University of Oslo. See page 21-25 for the discussion of concepts used in Figure 1.
- 2) Johan Galtung and Anders Wirak: "Human Needs, Human Rights and the Theory of Development." WIP Paper No. 10, January 20, 1976.
- 3) Ivan Illich: Energy and Equity. Ideas in Progress, Calder & Boyars, London 1975.
- 4) The inner and outer limits to material growth are closely related to social and cultural factors, reflected in the level of technological development and our insight into the biological systems which surround us. With a continuation of past growth rates, we would speculate that these limits will be reached in the near future in many industrialized countries. For a further discussion of these issues, see WIP 10, p. 5.
- 5) See Johan Galtung: "'The Limits to Growth' and Class Politics", Journal of Peace Research, No. 1/2, 1973.
- 6) For a discussion of the geographical extension of different environmental problems, see Dag Poleszynski: "Ecology, Energy and Resources: Some Problems of Indicator Formation." WIP Paper No. 8, Chair in Conflict and Peace Research (p. 4).
- 7) See "World Energy Outlook" by OECD, Paris, January 1977. This is a typical example of the non-normative approach that industrialized countries use when they estimate future "needs" for energy.
- 8) An example of this in Norway would be the aluminum industry, where there is an increasing pressure from the workers and the Labor Union for having the work-conditions improved inside the factories, at the same time as environmentalists mainly have complained about the exterior pollution and the large power-consumption of the smelters. At the same time as the workers' demands are about to be met to a considerable extent, the Norwegian aluminum industry moves into Brazil in an international consortium in order to secure cheap bauxite. One reason why the ecological and human tragedies which inevitably follow in the footsteps of large strip-mining projects in tropical areas do not cause much debate in Norway is that workers are not familiar with the total production cycle. See Dag Poleszynski: "Norsk nyimperialisme i Brasil," Samtiden, June 1977.
- 9) Besides the factor of too large production cycles, there also is the factor of the elites taking initiative on harmless issues, such as the yearly anti-littering campaign, and the Norwegian Crown Prince becoming the chairman of the Norwegian branch of World Wildlife Fund.
- 10) Also see the discussion in WIP No. 8 & 9 by Dag Poleszynski: "Ecology, Energy and Resources: Some Problems of Indicator Formation," and "Waste Production and Overdevelopment. An Approach to Ecological Indicators."
- 11) Gösta Ehrenswärd: Før og Etter. En bok om menneskehetens fremtid (Before and After. A Book on the Future of Mankind). U80, Cappelen, Oslo 1972.
- 12) Research has shown that smoking is a decisive factor in 80 to 90% of all deaths from lung cancer. In Norway in 1974, about 700 persons died from lung cancer, while in comparison about 500 people were killed in traffic accidents, according to Arbeiderbladet, October 20, 1976.

According to American statistics, if one starts smoking 20 cigarettes **daily** from the age of 20, the life-span will, on the average, be shortened by 5 years. Smoking 40 cigarettes a day will shorten the life-span some 8.3 years. Also, the earlier one starts, the more serious: Someone who starts smoking 20 cigarettes per day at the age of only 15, may look forward to a $6\frac{1}{2}$ years reduction in the life-span. The study is summarized in Arbeiderbladet, February 25, 1975.

13) In Norway the problem of noise as a factor in people's well-being has now caught public recognition. The Norwegian Miljøvern-departement has recently published a white paper on the causes of noise and the implication for health, but also an action-plan to alleviate the problem. According to this report, Stortingsmelding nr. 50(1976-77), approximately 10% of the Norwegian population is exposed to a noise level which is thought to be detrimental to health. Also see editorial in Dagbladet, March 4, 1977.

14) See Journal of the American Medical Association, vol. 204, 1968, p. 106-112 for a discussion of the synergistic effect of cigarette smoking and asbestos. Synergism also comes into effect when combining smoking and alcohol, giving rise to a much enlarged frequency of different types of cancer of the mouth and throat. See New Scientist, January 26, 1976. Another combination which now is regarded to be even more significant in terms of the synergistic effects, according to the Norwegian Radium Hospital, is smoking and nickel inhalation, a problem afflicting many of the workers at the Falconbridge Nickel works by Kristiansand.

15) In the "plutonium economy" the Pu-239 that now is produced in thermal reactors would be recycled and would create the basis for a new generation of nuclear reactors, the so-called fast breeder reactors, which "breed" new Pu-239 from U-238 by using the extra neutrons produced in the Pu-239 fission process. The global stock of plutonium in 1975 was estimated at approximately 100 tons, enough for more than 10.000 bombs in the Nagasaki class, growing to 300 tons by 1980, 870 tons by 1985 and 1700 tons by 1990, according to estimates made by SIPRI: The nuclear age, Stockholm International Peace Research Institute, Almqvist & Wicksell, Stockholm, 1974.

16) For a discussion of how much of the total production in industrial states relates to basic material needs, see Dag Poleszynski: "Waste Production and Overdevelopment: An Approach to Ecological Indicators," WIP Paper No. 9.

17) In the U.S., which we would consider to be the world's most overdeveloped country, government expert now have a total of 170 endangered species on their list for the U.S. Of these 35 are mammals, including the prairie dog and all the big whales; 65 are birds, such as the California condor, a hawk, a prairie chicken and the big whooping crane; 30 species of fish, 22 of clams, 12 reptiles and frogs and 6 insects. See U.S. News and World Report, November 8, 1976. Another major threat to live animals and birds is international trade: In one case, 28,000 birds were imported to New York from Colombia, and it is estimated that ten times that number died in captivity before shipment. For an instructive documentation of this problem, see Uniterra, Vol. 2, No. 2, February 1977, published by the United Nations Environment Programme, Nairobi, Kenya.

- 18) The Chinese do not seem to have **any** scruples about removing mountain-tops, if they feel this is necessary in order to increase food production. In spite of their very high awareness of what the social environment may mean **for** people's psyche, they do not seem to have developed any understanding for how the natural environment may affect them. For a discussion of the Chinese way of thinking, see Johan Galtung and Fumiko Nishimura: Kan vi lære av kineserne? Gyldendal, Oslo 1975.
- 19) The first major blow to "eradication" programs and to chemical insecticides in general came with the book by Rachel Carson: Silent Spring, A Fawcett Crest Book, Fawcett Publications, Inc., Conn., USA, 1962. Also see Frank Graham, Jr.; Since Silent Spring, A Fawcett Crest Book, USA, 1970.
- 20) DDT, an organochlorine compound, is an example of this. As tiny plants and organisms are eaten in turn by higher numbers on the nutrition chain, concentration levels of DDT up to 10,000 times the background concentration can be reached. See Lucy T. Pryde: Environmental Chemistry. An Introduction, Cummings Publishing Company, Menlo Park, California, USA, 1973, p. 241.
- 21) The major oil companies are heavily involved in the production of agricultural chemicals, directly through subsidiaries or indirectly through the sales of petroleum fractions to the chemical companies. For an overview of the international agro-business and the chemical companies and an assessment of their economic and political power, see A. W. Krebs: "Directory of major US Corporations involved in Agri-Business," Agri-Business Accountability Project, West Coast Office, San Francisco Study Center, USA, 1976.
- 22) See Ross Hume Hall: Food for Nought. The Decline in Nutrition, Vintage Books, Random House, New York, 1976, especially Chapter 5: "Animal as machine."
- 23) According to U.S. News & World Report, June 16, 1975, Americans spent an estimated 10 billion dollars on drugs of all kinds that year. Also see Ivan Illich: Medical Nemesis - The Expropriation of health, Calder & Boyars, London, 1975.
- 24) See WIP No. 2 for the discussion of the program's ten value-dimensions with antonyms, listed on page 31.
- 25) Not all these examples are products of overdevelopment. It therefore might be more correct to say that such problems occur in any maldeveloped society. However, it is our view that the manner in which one copes with such social problems reflects the state of society. In an overdeveloped country, health problems may have its roots founded in too much modern medicine, as argued by Illich, but this is not perceived. In an underdeveloped country, malnourishment and inadequate hygiene are obvious areas for attacking poor health, but it can hardly be wrong to increase the number of hospital beds, doctors and nurses.
- 25a) The recent debate on the policies of the Norwegian Telegraph and Telephone Company and the current automation of rural telephone centrals is captured in Håkon Gundersen's Televerket - med knute på tråden, Pax Forlag A/S, Oslo 1976.

26) In order to reduce employment in the primary and the secondary sectors of the economy for the benefit of increased employment in the tertiary sector, large capital investments with an accompanying increase in energy use will inevitably have to take place, at least in the short-run. In the long-term perspective, it is conceivable that electronics, micro-components and automatic processes will enable us to utilize energy vastly more efficient than today.

27) Energy and Equity.⁴

28) Johan Galtung, Christian Beck and Johannes Jaastad: "Educational Growth and educational disparity." Current surveys and research in statistics, CSR-E-S, Unesco, Geneva, 1973.

29) See for instance Ivan Illich: Deschooling Society, Harper & Row, USA, 1971.

30) Like for instance the famous Summerhill school. For the philosophy behind Summerhill, see A. S. Neill: Summerhill: A Radical Approach to Child Rearing. Hart Publishing Company, New York 1960.

31) What they presently are, is hard to say, but it seems that the post-Mao period will mean a change in the emphasis on schooling and specialization. At present, however, too little is known that we may give any value judgement on how these changes will affect the Chinese way of life.

32) See "Matproduksjon og ernæring i u-land" by Håvard Johnsen, Arve Ofstad, S. Anathakrishnan, Tord Høivik, Dag Poleszynski and Ola Storeng, PRIO Publication No. S-26/76, for a discussion of world food problems and possible remedies against world hunger.

33) In Capitalism & Freedom, Milton Freedman argues that these professional organizations very effectively are to keep non-members or non-certified persons from entering the trades, thus serving to raise the members' incomes and create a deficiency in the number of practitioners. Published by The University of Chicago Press, Chicago, 1962.

34) For a discussion of the evidence of this taking place in Norway and the theoretical background for the inevitability of this to come about in the capitalist world, see Dag Poleszynski: "Tendenser i produktutviklingen. En forstudie." PRIO Publ. S-22/76, mimeo in draft form.

35) Written by Goldsmith et al., special edition of The Ecologist, Wadebridge, England, 1972.

36) Nils Christie: Hvor tett et samfunn? 1 & 2, Universitetsforlaget, Oslo, 1975.

37) Police brutality become an issue after the students demonstrations in 1968 in most of the major industrialized countries in the West. After the end of the Viet Nam war, there was a quiet phase, now about to end because of the ever-increasing resistance against the construction of environmentally offensive technology, especially nuclear power plants. See for instance Der Spiegel, March 21, 1977.

38) Most presidents in the U.S. have been elected by a small minority of its population, as a rule by less than 1/3 of the voting-age population, which constitutes some 70% of the total population. For an overview of the voting tendencies during the last 4 US elections, see U.S. News & World Report, May 16, 1977, p. 65, showing a steady decline in the percentage of persons voting.

39) Ultraviolet radiation from outer space is causing skin cancer, and naturally occurring radiation from radioactive metals on earth, such as uranium or thorium, also contribute to cancer and genetic changes. At present, there does not seem to be much we can do to prevent this from happening.

40) Many diseases are class-related in industrial societies, even smoking, because people in industrial jobs are exposed to all kinds of fumes or particles which may act synergistically in connection with cigarette smoking.¹⁴ Also, many more people in the lower socio-economic classes smoke^{more} than in the higher, and the recent public debate concerning the hazards of cigarette smoking has had the most affect on the best educated and highest salaried. The relationship between different social classes and the chances of dying of different specified causes has been documented in New Internationalist, No. 50, April 1977, which is entirely devoted to health problems in under- and overdeveloped societies.

41) According to Peter Stalker: "Doctoring Evidence" in New Internationalist,⁴⁰ over the last century or so death rates in the UK have been reduced by about 75%, the credit for which may be ascribed to the reduction of death from diseases such as tuberculosis, bronchitis, pneumonia, cholera, typhoid, typhus, diphtheria and scarlet fever. Even leprosy, which today afflicts about 20 million people in Asia and Africa, used to be endemic in Norway, but disappeared with the rising levels of affluence several decades ago.

42) The estimate refers to Finland, but is assumed to be valid as a rough approximation of the magnitude of the overweight problem in all Nordic countries. A large statistical sample from Sweden shows that overweight increases with age in the following manner:

| Age group | % distribution of women with minimum overweight | | % distribution of men with minimum overweight | |
|--------------|--|--------|--|--------|
| | of 10% | of 20% | of 10% | of 20% |
| less than 30 | 25-30 | 8 | 5-10 | 2 |
| 30-40 | 30-50 | 10-20 | 20 | 5-10 |
| 40-50 | 50 | 20-30 | 30 | 10 |
| more than 50 | 50 | 30 | 30 | 15 |

The "ideal" weight is here calculated as follows: Take a person's height in centimetres, deduct 100 cm and subtract 10% of the remaining for men and 15% for women (and you get the Broca-Index normal weight). Source: Nordisk Medicin, vol. 90, 5/75, "Rundabordsamtal om fetma."

43) "Hearing before the Select Committee on Nutrition and Human Needs of the U.S. Senate, 93rd Congress. Part 2: Sugar in Diet, Diabetes and Heart Diseases." Washington, D.C., April 30 and May 1 and 2, 1973.

44) Der Spiegel, Nr. 43/1976: "Fettverliebt aus tiefer Seele."

45) Calculated on basis of figures quoted in Der Spiegel.⁴⁴

46) Arbeiderbladet, March 2, 1977.

47) Aftenposten, August 22, 1975.

48) See Arbeiderbladet, July 30, and August 4, 1975, where it is referred to an estimate made by WHO showing that 250,000 women die of breast cancer every year. Also see Arbeiderbladet, October 29, 1976.

49) Der Spiegel, Nr. 44/1976: "Diabetes: Grösste Epidemie der Menschheit," puts cancer first, heart diseases second and diabetes third.

50) In 1975 the East Germans each ate about 77 kilos of meat, 38⁴⁶ kilos of sugar and 268 eggs, twice as much as only 20 years ago. The intake of sugar in the US was about 126 lbs per person (56 kilos) in 1970.⁴⁹

51) In animal experiments, one has been able to compare the effect of substituting sugar for starch in the diet with animals given a natural diet. Some of the conclusions from these experiments are the following:⁴³

....sugar reduces the growth rate of animals in spite of them taking the same number of calories. It shortens the lifespan. It also accelerates the production of protein deficiency, since it interferes with protein utilization. It changes the body composition...increases the deposition of fat...increases the concentration of cholesterol and triglyceride in the blood...reduces glucose tolerance and so produces the diabetic condition...sometimes increases and sometimes decreases the blood concentration of insulin; increases the blood concentration of another potent hormone of the adrenal cortex-corticosteroid. ...increases the size of the liver... by making the liver cells divide. ..increases the kidney size. .. In pigs, we have found that it reduces the size of the pancreas by about 30 percent; and, of course, sugar induces dental decay. (See p. 19-20 for the full text).

52) Arbeiderbladet, February 21, 1977.

53) The Danish M. D. Tage Egsmose has estimated that at least 50% of all deaths in Denmark are caused by people's lifestyle, that is, from accidents (12,5%), blood clots in the heart (25%), and lung diseases (12,5%). Arbeiderbladet, September 3, 1975.

54) In the study referred to above,⁴² it was quite clearly found that women in socio-economic group 4 were much leaner than those in group 3. In many countries, for instance in poor Latin America, obesity may even be a status symbol for the very poor, who in general are unable to overeat.

55) In the Nordic countries, where the general level of education is rather high and food budgets in general are large enough that nutritious food very easily may be obtained by practically everyone, diets still leave much to be desired. According to Dagens Nyheter, October 21, 1976, the average Swede uses about 25% of the food budget (or 4600 kroner per year) for non-foods, such as candies, rolls, sweets, sugar, coffee, tea, etc.

56) The Colgate "Ring of self-confidence" commercial is an example of this, the obsessive focussing on the whiteness of sheets another. In Norway, soap manufacturers lament the fact that Norwegians use

- 57) In 1975 there was recorded 114 deaths and 4380 side-effects from the use of drugs in Norway, Finland, Denmark and Sweden. Arbeiderbladet, October 8, 1976..
- 58) See a series of articles on infections in hospitals in Norway, estimated to cost 100 million kroner (19 mill. US\$) per year, in Arbeiderbladet, December 10, 11, 12 and 16, 1975.
- 59) Dagbladet, December 31, 1976.
- 60) More than discussions are actually taking place: Recently, research teams from all over the world have started studies of herbal medicine in Africa and Latin America. A team from a U.S. University found that 70% of the medicines used by the Aztecs actually worked. In 1976, a Russian institute for herbal medicine reported that they had discovered 400 plants with until then unknown pharmacological properties. See Arbeiderbladet, September 30, 1976.
- 61) See U.S. News & World Report, August 9, 1976, interview with Dr. Jean Mayer, "top authority on nutrition": "How to eat right and live longer."
- 62) The fact that many so-called diet foods contain at least as many calories as regular food on a weight basis may have been a factor behind the industry's latest "gimmick": the production of indigestible foods. See International Herald Tribune, November 29, 1976, ~~for~~ a small article on this: "Boon for U.S. weight-watchers: Intentionally Indigestible Food."
- 63) Only about 1/3 of the energy released by fission is converted to electricity in a thermal reactor - the remaining 2/3 of the energy represents waste heat. For a qualified study of the environmental problems associated with nuclear power, see D. F. Ford, H. W. Kendall et al.: The Nuclear Fuel Cycle. A survey of the public Health, Environmental, and National Security Effects of Nuclear Power. Union of Concerned Scientists, Cambridge; Friends of the Earth, San Francisco, London, Paris, Stockholm. 1974.
- 64) As a growing number of dubious additives and synthetics are banned from use, industry will develop substitutes which eventually may prove to be carcinogenic or bad to our health in other ways. The ultimate solution to this problem, therefore, is not to expand the "black-listing-bureaucracy", but to change the underlying structure producing an ever-increasing number of such materials without ever analyzing what we really need.
- 65) Virginia L. Zaratzian: "Cancer Hazards in Food," published in The Ecologist, Vol. 7, No. 1, 1977. This article is highly recommendable.
- 66) See for instance the article "Chemicals in food is not so disastrous, nutritional experts claim", in The German Tribune, January 4, 1977, No. 716.
- 67) At a UN-sponsored meeting in Manila, a group of experts on the causes of cancer estimated that approximately 75% of all cancer cases could be prevented by avoiding the use of man-made carcinogens and by avoiding the use of carcinogens naturally occurring in the environment. Arbeiderbladet, April 1976. According to Newsweek, January 26, WHO estimates these effects to be responsible for 85% of all cancer cases.

68) Chemicals that very easily could be outlawed without any negative health effects include such things as coloring agents, non-nutritive sweeteners, many agricultural chemicals and pesticides, feed additives, chemicals migrating from food packaging materials, texturizers, flavors and flavor enhancers, bleaching agents, etc. This would mean banning all chemicals which either could be substituted with harmless, natural substances or that one could do completely without (cosmetic additives). For a classification of different kinds of food additives, see Zaratzin.⁶⁵

69) Barry Commoner: The Poverty of Power. Energy and the Economic Crisis, Alfred A. Knopf, New York, 1976, p. 74.

70) Newsweek, January 26, 1976, p. 43.

71) Dagbladet, March 28, 1977.

72) For a deeper discussion of the underlying causes of capitalism and material growth, see current publications from the project "Trends in Western Civilization", especially the recent publication by Johan Galtung, Tore Heiestad and Erik Audeng: "The last 2500 years of Western History and som remarks on the coming 500 years." Forthcoming in The New Modern History, Vol 13, 1978, Cambridge University Press, Cambridge, England.

73) It might be more correct to call a technology "erude" if it is not compatible with the social and ecological environment in which we all belong.

74) According to WIP 2, page 29, "...the output from social indicators programs, the data, their presentation and synthesis should be made in such a way that it is accessible to anyone with primary education who wants to know. For this to happen indicators should be simple, it should be possible to explain how they are made in a couple of minutes to somebody who knows how to add, subtract, multiply and divide (thus ruling out all more complex forms of mathematics)."

75) According to the Oxford Dictionary, schizophrenia is a "mental disease marked by disconnexion between thoughts, feelings, & actions." This disease seems to afflict approximately 1% of the population in overdeveloped countries, while the underdeveloped world more commonly have schizophrenia rates of 1%. In Norway, the figure is around 1/4%, but with the increase in yearly cases now being registered, estimates are that 1% of the population will develop schizophrenia during their lifetime. See Jarl Jørstad and Endre Ugelstad (editors): Psychotherapy, family studies research, Universitetsforlaget 1976.

76) According to Johan Galtung, for instance, suicide is closely related to depression, on the average in 2/3 of all cases. There are, however, striking exceptions to this general rule, for instance in South India and Afghanistan, where suicide rates are extremely high but depressions no more frequent than in other underdeveloped areas of the world.