

An «Extended View» of a Human Person as a Social Being: the Health Relevance of Environmental Factors*

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In the paper presented to the 12th World Clean Air and Environmental Congress 2001 in Seoul a new model was proposed for a better understanding of the health relevance of environmental disasters (1, 2): This model is based on the assumption that any being is an «autonomous actor» because of its «potentia». «Potentia» enables to realise self-guided and self-organised effects. It is postulated, that «potentia» has two aspects («potentials») which are in a complementary relationship (acc. to N. Bohr): If an outside observer is observing an effect based on one of the (unobservable) aspects the effects of the other aspect can not be observed. One potential is commonly used in natural science: the potential for activities which can be characterised in terms related to matter or energy (e. g. power etc). The other potential is obviously given too, but — maybe because of extra-scientific reasons as I described in the literature (3, pp 15ff) — there is no term to deal with it in a similar way as we are used to deal with energetical potential (fields, physical and chemical powers etc). Natural scientists use only terms to express the consequence of its use: e.g. to speak of antigens and antibodies, of conditioning etc. This technique is as long adequate, as e.g. the capacity of the potential is available in sufficient amount. If there would not be such a limited potential we should expect changings in the phenomena — not based on a lack of energy. Therefore we have introduced a term for this potential: «Ordnendes Diskriminationspotential» («arranging discrimination potential» — still a working term only). This potential allows the autonomous actor to «make a difference to information», to «deal with information» and to guide its «energetical potentials» e. g. to repair mechanisms. Then we postulated characteristics so that experimental proving is possible: e. g. «Potentia» and therefore both «potentials» are postulated as restricted and restricting. There are different consequences:

a) The «potentials» allow attributing to the «autonomous actors» a process we call «evolution».

— Within this process the qualities of both potentials are modified. Therefore terms are needed to express the level which is reached (e. g. field — physical powers — chemical powers to distinct different levels of the energetical potential). We propose the term «ability to organise» to name the level of living entities to deal with information («Organisationsvermögen»). (More details to this process will be published in this journal soon (4).

b) We should expect changing phenomena in consequence of the assumption that the «ability to organise» is limited: Therefore it was predicted that inadequate capacities to organise should cause causally unspecific health effects independently from the additional specific health effects according to the particular nature of the external stimulus: Assuming that the amount of organisational capacity of an organism is limited, any additional demand on this capacity will negatively influence existing adaptive processes in their attempts to establish — with the consequence of more severe symptoms.

Evidence to support the entire model is available: This model that postulates a deficit in the amount of available capacities to organise under conditions of exposure to environmental stress, helped to explain the previously unexplained deviations of mortality and morbidity distribution from the predicted distribution after different types of environmental disasters, e. g. caused by toxic and radiotoxic burdens, smog episodes, earth quakes, heat and cold waves etc. (see 1, 2).

Like any entity a human person, an algae, but also a crystal has energetical potentials as well as potentials on its own disposition and to any being can be attributed potentials of «ordnender Diskriminationsfähigkeit» («arranging discrimination potential») — but on different levels and always corresponding to the reached morphological level of the entity. So it is proposed to discuss additionally acquired capabilities/abilities in handling information during the evolutionary process. Maybe it would make sense to distinct between «Diskriminationsvermögen» («discrimination ability») on the level of not-living entities and «Organisationsvermögen» («organisational ability») for living processes — again with increasing emergent levels due to the reached evolutionary plane.

Within this short paper we will concentrate on living processes only. For more detailed information please have a look at the cited literature [1, 2, 3].

In the last three years when the work was carried out under the auspices of Nobel laureate Y. T. Lee, the model was extended to form a blueprint of an «extended view of a human person». This view is compatible with the given scientific frames of «natural» and «non-natural sciences». It allows a causal linkage between them. The principles of the «blueprint» will be presented in part 2 of this publication in one of the following numbers of the Herald of the International Academy of Sciences (Russian Section). It allows also predictions for qualitative aspects of the interactions of a person with different types of environments and expectations.

Two Unobservable Abilities/Potentials to Explain Effectiveness

Can you see the young man carrying the picture? Can you explain why he is able to do so? This is easy: We agree about unobservable abilities to cause

observable phenomena: e.g. about chemical and physical powers. This agreement allows him to understand that he can carry and allows us to calculate the speed and the changing in the position of this picture as well as any matter within time and space in an «Euclidian room».

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But now have a look at the picture itself: How many faces can you distinct? Just one, or two, or all three of them? You can not see the face of the old mother? No? Typical for a young man: 72% of them see the young girl, but only 45 % the old mother. We see

what we expect and like to see! (self-orientation) But I can explain where you can find the imagination of the mother:

Have you seen the beard of the father. Yes?! Then you have seen the fur of the collar of the mother, too. Now you can see her (consent-orientation). If not, I give you another hint: I fill in some colour. In a more appropriate environment you will see it (integration of the given):



Now everybody can distinct all three faces even without explanations, colours or underlining. So you see: You were able to create the information: The matter itself did not change! Please look now at the mother! Now change to the father and again back to the mother! All of you followed my orders (We have to integrate consent, self and the «given»). But if I would urge you to see all faces at the same time nobody would be able to do so! This ability is limited. Now we have four characteristics which can be used for experimental proving: limitedness, self-orientation, consent-orientation and integration of the «given» into the guidance (see more detailed explanations in [3]).

What can we learn from this little experiment: We can link information with matter. And we are able to solve the meaning from one matter and link it with a different one. We can discriminate between different parts of the matter, arrange them into a new order and link new information with the created parts and the whole («ordnendes Diskriminationsvermögen»). Everybody of us is able to shift the meaning from the beard to the collar and from the face of the father to the face of the mother. Each of us is able to shift the meaning of the identical matter within his «meaning room» according to his/her level of evolution and experience: Maybe a dog would not be able to deal with terms like «old Lady» and «beard». But all living beings are able to deal with information on their own level. But in opposite to the explanation for a shift of mat-

ter within the Euclidian room natural sciences do not offer an equivalent term to energy or power for the ability to create and shift the meaning of matter.

Both abilities — the energetic and the organisational ability — are not observable by itself (as any ability) but their applications are effective for the relation between the user and the related matter. Both takes place in a generalised way: Any person must link the observed with its valuation net (a posteriori). Therefore any science must accept this as a fact if it is its goal to integrate all generalised aspects about natural objects within its frame.

Assumptions for empirical proving

Therefore it is correct to integrate the term «ability to organise» within the scientific frame. But to introduce a term is only helpful if we postulate characteristics which allow experimental proving: From our experiments we can deduce such characteristics, which can be used like coordinates: self-orientation, consent-orientation and the need to integrate the given. And we have seen: This ability is limited, but modifiable in its use. Like energy! But this is a logic consequence if we understand the relationship between energy and this new quality like the two sides of one coin. There is no coin just with an upper side or just with a bottom side; so no person is alive without energetically and informational, organisational related aspects.

Two directions for experimental proving

These assumptions can be used for predictions for experimental proving:

A) focus on the quantitative aspects of limitedness: This topic was pointed out considering the same aspects in the papers of Seoul: demonstrated on the consequences of environmental disasters with their additional and intensive demand to balance an additional pathophysiological status with the given limited resources to organise.

B) Focus on qualitative — evolution oriented — aspects: The way to link information with matter and to make this to the starting point of activities should depend on the consequences of the evolutionary process, which allows to modify the given possibilities without a principle loss of the former given. Therefore we expect qualitative differences in the intentions of living beings on different levels but between the individual and its organs, tissues and cells, too.

Examples for the Health Consequences of these Characteristics

Ad A: Focus on quantitative aspects: Causally unspecific health effects as consequences of a deficit in available organisational ability:

When the demands on organisational ability are greater than the amount that is available, important needs cannot be fulfilled satisfactorily. The consequence of an excess of demand will appear, where the deficit is

located. One would expect it to appear where an increased need for adaptation arises (for instance as a consequence of given arterial sclerosis). Maybe the additional demand causes the first subjective symptoms! But it is obvious that deficits in adaptive ability do not depend on specific requirements but rather on the initial demands and the amount of additional stress.

Whether the need for additional adaptation has something to do with cold or heat stress, radiation or dioxin-caused stress, the specific effects of smog in London or the specific emotional stress resulting from a failure to kick a penalty goal makes no difference [4]. This means, that in addition to the specific effects of environmentally caused distress, we must take into consideration the consequences of additional demands placed on organisational capacity. Kofler postulated this at the IUAPPA-meeting in 1996 [5]. It has been claimed there that, independent of the nature of environmental disasters, we must expect negative effects on health — also causally unspecific ones — in addition to specific effects according to the physical or chemical nature of the disaster.

In 2001 at the 12th congress of the IUAPPA-meeting in Seoul I presented epidemiological data which led to an empirical proof of my hypothesis. Thanks to this work I have been given the opportunity today to give a lecture within the framework of «Hope for the Future for a Sustainable world» 2004. Based on the data of Stuart & Kneale several of my prognoses could be confirmed by data from longitudinal studies [6]. Stewart & Kneale investigated survivors of Hiroshima and Nagasaki. They challenged the given accepted knowledge that radiation victims that survived more than five years, can be considered as members of the standard population. They suspected a selected collective. The assumption that the survivors can be counted as «normal population» is the prerequisite that the data of these persons can be used as reference values to establish generally valid criteria for dose-response-relationships between radiation stress and cancer.

Stewart and Kneale argued as follows: if the survivors of Hiroshima and Nagasaki represent a standard collective of people, the distribution of different causes for mortality in a random sample must remain the same, independently of which criterion was used to establish the different collective as long as the amount of radiation exposure has been the same in all of them. Stuart & Kneale demonstrated that this was not the case. They put persons who suffered from two or more physical injuries as a consequence of the nuclear bomb into one group and compared this group with those who suffered no physical injuries but were exposed to the same dose of radiation. They found relevant and highly significant differences between these two groups. Those who had suffered physical injuries had a significantly higher risk of death (up to 38 times higher), in particular from cardio-vascular diseases, than the control collective. If we now apply Popper's principles, this would imply that the claim that

health effects of radiation are exclusively damaging in their specific effects has been falsified [6].

However, the conclusion drawn by Stuart & Kneale that these observations prove that survivors form no homogenous standard collective of persons (and therefore it is not possible to draw dose-response-curves in relation to radiation stress) cannot be derived from their investigation. One reason for the observed deviations can be a combination of unspecific effects of physical stress and radiation-caused stress. Till now only those causes of unspecific effects have been taken into consideration that could be founded on a lack of energetically or morphological resources. Data on survivors do not allow to expect a different distribution on such resources.

But the argumentation with causally unspecific effects changes if one assumes that also the ability to organise, for example repair mechanisms, healing processes etc. is limited. This was postulated by me in Jerusalem in 1996 and enforced with different studies about disasters of different kinds in different settings.

It is evident for everyone, and thus also for the standard population, that the same morphological changes must have different health relevance if in the test collective additional demands are placed upon the available organisational ability and no such demands are placed on members of the control collective. Differences in mortality distribution must then appear both — in absolute mortality and in mortality resulting from the classical civilization-associated diseases. And that precisely was, what I found going through numerous of the above mentioned disaster-studies.

The described effect cannot be caused only by radiation stress but by every kind of environment-caused stress which is associated with a high demand for organisational capacity. E.g. consequences such as those seen after disasters in Bhopal, Seveso, cold and heat waves, London smog or even after a lost match by the home football team [1, 8]. This could indeed be verified. In general this means that for assessing the health relevance of environmental stressors, it is not enough to consider only the specific effects. We must also look at the causally unspecific effects.

Ad B) Qualitative Aspects

The human person is at the same time a mammal and a «mind — entity».

a. Therefore the scientist should be able to deal with basic biological processes that allow to explain the paradox, that on one hand the organs and tissues are autonomous: They can grow, reproduce themselves, have their metabolism even outside of the body in special media etc. So they are «autonomous actors» according to our definition. But on the other hand they are used as machines by the individual as «pseudo-autonomous actors» (This will be explained later).

b. The individual as a representative of the biological species Homo Sapiens is obviously an «autonomous

actor» which is able to self-guided and automobile activities — by using «Pseudo-autonomous actors».

For these two levels of organisation of entities Darwin-Morgan's evolutionary theory is a basis for the understanding of their autopoiesis.

c. The scientist should not expect a relevant help by the biological evolutionary principles «genetic mutation» and «selection thanks bodily forces and reproduction» if he is willing to deduce within a consistent autopoietic evolutionary process the activities which are typical and unique for the modern person as a representative of humans as social beings. With respect to the very short period and the given circumstances of these modern burdens we have to accept that the actual living homo sapiens has — more or less — the same body (= the same hardware) as the primeval man during the stone ages — 6000 years ago — maybe as the first Homo sapiens 100.000 — 200.000 years ago. But a person living in the 21st century has to solve brand-new and in principle different problems compared with his ancestors: So he/she can be physically in Australia but legally in London: Thanks to the internet, mobile phones and other technical advances! The focuses of his/her interests are very often no more biological needs but intentions dealing with aspects outside of our real physical world: To receive an academic degree, to handle one's income taxes or to focus on eternal life. But this does not mean that evolution is finished: The evolution of mankind focussing on material and biological diversity is no more the dominating aspect for emergent progresses in human beings. Modern evolution of mankind focusses on the use of abilities to organise and to create emergent on the basis of the ability to manage critical thinking.

It would be very relevant to understand why an individual mammal can use his organs and tissues, which are able to self-guided activities like a machine («pseudo-autonomous actors») in principle and even for purposes which in their biological evolutionary processes can not be foreseen. If we would have a general theory we should be able to predict phenomena which would then be observable in consequence of the special principles of the networking on different levels of organisation. The «extended view» allows such an understanding.

The given phenomena:

Maybe we agree: Our organs do not know our personal wishes and goals. Maybe they have their own intentions. If it is so, then the intentions of organs and tissues have to be — according to the evolutionary theory — on another level than the expectations of a human person or even a dog. So we should presume four in principle different levels of decision-making within a person or individual:

- a) The level of tissues and organs which can be guided by
- b) the intentions of an individual representative of a biological species and the
- c) unique level of the human person as a social being
- d) The level of the unicellular (which will not be discussed in this lecture)

Activities of any living being can be seen in causal connection to the information about its environment (setting) with regards to its (self-oriented and consent-oriented) intentions. Therefore it makes sense to analyse the different situations of an individual representative of a species, of its organs and tissues and the special situation of a human person.

Ad c) The Person deals with perceived stimuli within its value system:

Since Kant we know that the flow of information which can be observed by an individual person is restricted to the special qualities of its sensory organs. The person can observe only these aspects of the existing world for which the individual got specialized organs (or supported by instruments as artificial observers and their given limitations). Kant calls this «a priori».

Sensory organs are organs. All organs and their qualities are determined genetically in humans as well as in other higher animals. The individual has to evaluate the input with his brain according to some inborn categories (e. g. time, space, causality...) and to the individual experiences and the deduced value system (a posteriori).

Ad b) The difference between the person and the biological species Homo sapiens:

The difference between the highest animal in evolution — as which we can understand homo sapiens — and the actually living individuals («homo sapiens socialis») can be defined in the progress of the quality of the network which is used to distinct, relate and evaluate the information coming from outside. Therefore the level of the «a posteriori» is different. The person is integrating assumptions about aspects outside of the existing world: basically in connection with final-oriented goals (e.g. religion and the assumption of an eternal life), applied to more or less all aspects of the modern life: from language to economy and art, from scientific theories to laws and legal persons, from priests and sovereigns to societies and multinational companies, from religious based eternity and heaven to virtual worlds as basis for the employment of hundreds of thousands computer experts etc. The information for this «Wirklichkeit» is created in principle similar to the way we can distinct between father,

¹ There is no English term to translate the difference between «Realität» and «Wirklichkeit», both are integrated into the content of the term «reality». Virtual reality does not cover Wirklichkeit, because of the fact that «virtual reality» includes e.g. the virtual world of a computer, the «Lord of the Rings» and modern economy too. These are manmade creations but on a higher level than the «Wirklichkeit» of a person in daily life e. g. of the 18th century.

mother and daughter. But the connecting chain from (immaterial) constructions to existing material entities can be much longer than between the definition, what is a father, mother or daughter. And the characterisation of a really existing individual as a father and the consequences for energetically based activities can be much longer: There are chains possible without clear materialistic fundamentals: e.g. the agreement about the exchange rate between different money systems, which are agreements about the value of a special type of symbols and powerful with virtual money too. But if we accept that any evaluation in the brain is just an immaterial assumption about the given relevant «outside», then there is an — evolution based — difference between «father» and «exchange rate». But it is not a qualitative difference: Both are «just immaterial assumptions about «effective aspects of the outside». Therefore we should not expect in principle a difference in the linkage between the creations of the brain and the stimulation of bodily function units of a person.

Ad a) Organs, tissues: Janus-headed as «autonomous» and «pseudo-autonomous actors»

Individuals and persons have a selected input of stimuli from their environment. But the situation is different in principle if we think over the relation between the tissues and organs and the given situation they are dealing with. You agree that the most relevant information about the environment will be observed by the cells of sensory organs. They transfer e. g. the electromagnetic waves of light into chemical reactions. The chemical reactions are transformed to electricity. By a system which is guided by the steering centre (brain) the biggest percentage of the interactions between sensory cells and outside stimuli are neglected, some are enforced others suppressed. So modified and highly selected «information» arrives as final information («Matrix-world») other actors. This can but must not interact with stimulations of bodily reactions: again with a cascade of messengers which can be influenced and manipulated in multiple ways. The information which reaches the peripheral function units can be in principle different to the information given to the brain by the sensory cells. So the brain influences the sensory organs as they are linked with afferent and efferent linkages. The brain cells can stimulate the sensory cells to produce the same e. g. chemical reaction as a beam of light would do. Organs and tissues can be understood as «Pseudo autonomous actors» and the centre (brain) defines the type of information which is brought to them. A Matrix-world is created.

Experimental confirmation of the «pseudo-autonomous» nature of the organs:

Think of a nice girl with a red sweater. Assume you would go with her to a night club. The DJ changes his light-show and now he is using a light without red components. In which colour will you see the girls sweater

now? From the theory of physics you should expect «black»: No red frequencies — nothing can be reflected by the surface of the pullover. But you see it red — as it would be outside in daylight. Why? Your brain is foxing you out, but in which way? You can test this in an easy way: The interaction of light with the sensory cell causes a chemical process to consume the chemical for red or for black. Therefore the opposite chemical dominates the so called «after-image». The «after-image» is green (complementary). Therefore the chemical for red was used. In which way can this be done? All sensory organs are linked with nerves to the brain and from the brain (afferent and efferent). So the brain has stimulated the organ in the same way as some red light would have done if red light would have been reflected from the sweater. You see: Organs have only the information from «outside» which is accepted by the brain. If the information from outside is accepted in principle, but not in the given quantity, the brain can actively enforce («active enforcement» or «motivation» according to Anochin) or actively more or less suppress («active suppression» according to Pavlov) the given input. And if the offered stimuli from outside does not fit the (unconscious) assumption of reality, the brain can create the same information as the stimulus from outside would do. In principle the same is to expect with the information coming from inside of the body to the brain: So we can understand the famous «Ames' room» and the phenomena of phantom pain with the same principle.

Conclusion 1: Toxicopy and placebo — special cases of bodily reactions to a subjective view of an individual.

Following the presented conclusions it is a standard case that the «view» of tissues and cells of the given environment is an imagination created by the centre to motivate the peripheral organs.

So it is not a surprise that intellectual, emotional and cognitive stimuli can influence biological processes so effective. From this point of view «placebo» and «toxicopy» are special cases of «imagination about a totally different outside world», they form part of the Matrix-world created by the brain to stimulate the cooperation with organs and tissues.

Conclusion 2: The progress from individual representative of homo sapiens («Linné») to the modern Homo sapiens («finalis») is based on new qualities to deal with information.

Predictions:

The proposed model can explain a lot of phenomena which can not be explained up to now (placebo, toxicopy, phantom pain). According to the characterisation of the difference between person, representative of a biological species and their organs and the model for the evolutionary process we should expect:

a) There are individually different possibilities to link intellectual evaluations with biological functional systems. Therefore it can not be predicted if a special biological function (e.g. an influence on the respiratory tract resistance, on the threshold of pain etc.) must be linked with such an individual valuation. Therefore we have to expect «responder» and «non-responder». This fits with the state of the knowledge for placebo.

b) If an individual links a subjective valuation with a physiological function, the principles which are discovered for these functions will not change: There are no scientific based arguments to explain such an additional change of biological functions by traditional changings based on biological selection mechanisms. Therefore we can expect that combined effects between psychosocial components and a biological function show in principle the same as we have learned from the experiments with combined effects between different biological, chemical and physical stimuli on the influence e.g. of an air pollutant.

Experimental proving:

Basis: Different sensibilities against a toxicological relevant burden in a complex environmental situation.

There is no situation in which a person or an animal is exposed just to one stimulus, e. g. the air pollutant SO₂. We live all the time in a complex setting with many other pollutants, as well as emotional and intellectual informations and evaluations. We can only standardize these variables so that only the tested component varies. The thresholds and the dose-response-curves we can measure and provide are therefore all the time the expression of combined burdens. The given state of knowledge deals with health relevance from two different views: The traditional toxicological view (e. g. Ashford NA, Miller CS, 11) and the view of psychosocial causes (Placebo, Toxicopy, e. g. 11, 12):

Within a normal population we have different sensitivities (e. g. against SO₂). We can calculate the threshold e.g. for the influence on respiratory tract resistance, or pain. If we use the whole sample we get the result «standard». If we select a more sensitive group we get a lower threshold («hyper-sensitive»). Selecting the least sensitive group of participants the threshold for the «hypo sensitive» can be defined. The produced dose-response-curves follow the principle of a «non-completive effect»: The hyposensitive show the smallest angle, the standard-sensitive group a wider angle and the most sensitive an even wider angle.

Persons which show toxicopy effects just based on information, without any relevant pollutant e. g. a massive ozone-load, can show extreme intensive reactions.

An example: According to WHO the hyposensitive group has a threshold against ozone of 250 µg/m³, the normal sensitive of 200µg and the hypersensitive 150 µg/m³. Additional 100 µg (350, 300 or 250 µg O₃/m³) cause in the hyposensitive collective an increase of the

respiratory tract resistance of 1%, in normal sensitive of 3% and in hypersensitive of 12% [13].

There is evidence for an interaction between physiological parameters of pain and information based ones too: Hildebrandt and Pöllmann analysed the placebo effect on tooth pain. The effect of placebo followed the circadian rhythmic [14].

Experimental proving:

There is no accepted theory to explain interactions between chemical, physical and biological stimuli on one hand and psychosocial, emotional and cognitive stimuli on the other hand. The extended view offers such a proposal. From the point of view of information, processing differences in sensibility can be understood as individual differences in the way in which the same external stimulus is assigned with different significance by different people. Subjective evaluations represent organisation in terms of significance which might provide the opportunity to employ biological structures in different functional ways. That a spontaneous change of course is subjectively determined should surprise nobody.

Therefore we should not be surprised if subjective evaluation processes have an influence on other physiological reactions. And so why should there be no influence on changes in every resistance on pain threshold attitudes? To test this hypothesis I carried out a simple experiment in collaboration with the scientists from Austria and Germany working in different disciplines and presented this at the IUAPPA-meeting in Taipei in 1994 [12]. I wanted to test whether a change in the threshold value is dependent upon the information available. I used the pain threshold value against SO₂ as a test case. An olfactometer was used. The test persons were exposed to stress for only 2.2 seconds.

The experiment confirmed the prediction that

a) We have to expect responder and non-responder in situations of «Environmental — Placebo» too. The rate was as expected from clinical placebo experiments with pain: We were able to show that in 50% of healthy volunteers, randomly distributed, there was an influence on the pain threshold depending on whether they believed they were exposed to the more dangerous SO₃ or to the less dangerous SO₂.

b) As expected responders showed twice such a significant difference in relation to non-responders. Responders tolerated a significantly higher level of stress (11.8 ppm SO₂), if they believed they were exposed to SO₂. So did the non-responders (7.5 ppm). Under the assumption of being exposed to the more toxic SO₃ they demonstrated a lower pain threshold value, namely 5.7 ppm. Thus we could demonstrate that a group of persons who had been classified as hyposensitive had to be reclassified as hypersensitive within a matter of hours, simply because of their reactions based on a combined effect of more or less relevant information.

If this assumptions predicted on the basis of the extended view is valid also in the case of changes in respiratory tract resistance in response to ozone it could be expected that about 50% of persons who to not consider emissions as relevant to health, will not show increased respiratory tract resistance if being exposed to 250 µg of ozone. If however these persons come to the conclusion, based on new information made available to them, that they were exposed to a health risk increasing respiratory tract resistance due to the exposure to the same amount of ozone, an increased respiratory tract resistance can be observed in 12% of the sample [15].

Conclusion: Are Multiple Chemical Sensitivity and atopy valid terms to describe special cases of «comprehensive combined effects»?

Following the chain or argumentation of the «extended view» and the given phenomena we should take into consideration that there have to be interactions between intellectual, emotional, cognitive etc. valuations and the actually given mixture of physical, chemical and biological environmental stimuli. We should expect that

the dose-response-curve for any pollutant should follow the physiological principle which is known from the experiments in toxicology: If the shift of the threshold is linked with a non-competitive effect, we should expect the same changing in the relevance of a toxic burden as if the shift is caused by an information based stimulus.

Therefore we should expect not only «pure» toxicopy reactions but toxicopy-associated reactions too. In this situation we should demand neither for an explanation which can be done just with psychosomatic arguments nor such one which can be given just with toxicological arguments. There are a lot of reports about such situations. I remember the discussion about Multiple Chemical Sensitivity and atopy. Maybe they can be understood as special cases of «comprehensive combined effects».

The use for Health promotion

We should not to forget, that all these principles which can be enforced or decreased are not only to be associated with negative effects on health. They can be used as powerful instruments to improve health too.

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