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No Green Cities, No Sustainable Future! - How Wooden Buildings Can Contribute –

Some preliminary remarks

This paper wants to cover a broader background to the above title of my lecture., As a member of The Club of Rome since 1986, from 1998 to 2007 in the position as its Secretary General, coming to Milano, I feel obliged to say some words about The Club of Rome which had been founded 1968 by Aurelio Peccei, as FIAT-manager an impressive and outstanding entrepreneurial personality rooted deeply in humanistic and philosophical convictions – causing his imprisonment during fascism. Also Umberto Colombo should be mentioned. As a chemical engineer with outstanding reputation in Italy and in the scientific community world-wide he contributed substantially to the message of THE CLUB OF ROME. In the seventies he lectured at the University of Milan.

The more so, reference to The Club of Rome is in place as the challenging questions raised by The Club of Rome: how much material load “Mother Earth” can bear, are there “Limits to Growth”, laid ground to a comprehensive concept of sustainability, since then developed further by many contributions of The Club of Rome - reminding us that we always have to be aware of the complexity of the sustainability challenge whenever we try to find and develop solutions in special fields, as in case of the urgent need to de-materialise the “construction-business” by implementing wooden buildings in a sustainable life cycle technology to which promo legno and forum-holzbau are offering convincing and constructive ideas and a viable business model.

“Limits to Growth” – the provoking message of The Club of Rome from 1972

When the “founding fathers” of The Club of Rome, Aurelio Peccei, an Italian industrialist, and Alexander King, a Scottish scientist working for the OECD, gathered an international group of representatives from business and academia 1968 in Rome their common concern was the fact that governments were losing their capability to solve the most serious problems. Their analysis:

- The increasing interdependence of nations and the globalisation of problems pose predicaments beyond the capacity of individual countries and governments. So a global perspective in examining issues is urgently needed in politics,
- as well as holistic thinking and a seeking of a deeper understanding of complexity within contemporary problems – political, social, economic, technological, environmental, psychological and cultural – which The Club of Rome terms the “world problematique”.
- Needed too is an interdisciplinary and long-term perspective focussing on the choices and policies determining the destiny of future generations. This perspective is too often neglected by governments and other decision-makers on account of short-term interests.

The Club from the beginning on saw itself as “a group of world citizens, sharing a common concern for the future of humanity and acting as a catalyst to stimulate public debate, to sponsor investigations

and analyses of the "problematique" and to bring these to the attention of the general public and the decision-makers offering ideas and concepts to a "resolutique".

The Club of Rome today comprises around 80 members from all over the world representing different disciplines of academia, business, international institutions and NGO's. Meanwhile around 30 National Associations of The Club of Rome have been established all over the world disseminating the clubs "message" in the respective country or region as well as stimulating the debates of The Club of Rome by contributing ideas and projects.

In the first Report to The Club of Rome in 1972, "Limits to Growth", implementing the new "art of global modelling", Dennis Meadows and his international team at MIT developed different scenarios of global trends with an outreach to the year 2100. The Report focussed on the crucial question how to reconcile ever-growing material aspirations of an expanding world population with the finiteness of natural resources of "Mother Earth". At that time, when economic growth generally was seen not to be questioned, these scenarios envisaging limits to material growth were extremely provoking, especially to "main-stream economics" setting its trust in the dynamics of markets and the potential of technological progress.

Since then, around 30 Reports to The Club of Rome have been published, many of them trying to elaborate on future developments in almost all fields of the *world problematique* and *resolutique*.

In 2004 Dennis Meadows published his book "Limits to Growth – The 30 Years Update", re-running the - slightly revised but still valid - global model from 1972 fed with the global data of the year 2000, stating that humankind is burdening the natural carrying capacity of "Mother Earth" at least by the factor 1.2! (meanwhile, having reached a factor 1.4). And this "load" stems to 85 % from the wasteful resource-consumption within an "economy of affluence" of one-fifth of world population, mainly in the "rich North" and the emerging societies – whereas the poor masses predominantly in the "South" in their "survival economy" only have 15 % of global GDP at their disposal.

This "over-burdening" or "over-shooting" of excessive and wasteful use of natural resources consequently leads to

- loss of fertile soil by erosion, desertification and urbanisation destroying the potential for the production of biomass;
- the depletion of scarce vital water reserves;
- the pollution and over-fishing of rivers and oceans;
- the destruction of genetic potential due to the accelerated diminishing of the variety of species; and
- growing risks of climate change threatening the capacity of the above mentioned natural resources.

Consequently, this hazardous development already today threatens the life of hundreds of millions of people triggering off destabilising "conflicts for survival" in many regions of the world. In this fight for a minimum of food, drinkable water, hygiene, housing and health care, more or less only allowing a survival from day to day, each day around 25,000 children are victimised. And, in addition to this precarious challenge of mere survival, conflict potentials will increase dramatically, as the growing

demand for raw materials and energy in the prospering mass markets of the new emerging economic “giants”, like China, India, Brazil and others, increasingly puts strain on commodity markets leading to a struggle for raw materials and energy or even to “resource wars”, especially in the field of the strategic rare earth metals. The new Report to THE CLUB OF ROME by Ugo Bardi, Professor of Chemistry at Florence University highlights this challenge: “Plundering the Planet – How to manage the Earth’s limited mineral resources (2013)”. The similar challenge relates meanwhile to arable land as in conjunction with the improving living-standard of the upcoming middle classes in the “South” the demand for more qualitative foodstuff (meat, eggs, milk) is growing rapidly. China today is the main importer of wheat and soybeans – and to safeguard its supply China like others starts to acquire “agrarian overseas exclaves” in a process of “land-grabbing”.

Having in mind that around 2050 the world population will “peak” at around 9 billion people (an increase of ca. 2 billion world citizens from today on) we are facing three closely interrelated and interlinked challenges:

1. *Sustainable economic development*: In the next decades we have to develop a global sustainable economy “de-materialised” by a “factor 5” in order to balance our material aspirations and lifestyles with the finite natural resources.
2. *Social justice*: Simultaneously we have to secure that all human beings get a fair access to the sustainable economic wealth by being included into sustainable employment structures or by being supported within a system of social solidarity – an indispensable precondition for
3. *Peace and political stability* asking for good governance from local to global level.

So, for humankind, there will only be a future in peace and welfare if we succeed in building a *Global Eco-Social Market Economy* within a viable frame-work of *Global Governance*. More or less, since the Rio-Conference in 1992 this demanding task had been acknowledged worldwide and the Millennium Development Goals had been introduced asking for concrete steps to improve living conditions for the poor within a sustainable economic development – till 2015. But, reality tells us today, that we are far away from these ambitious goals. In many fields the situation even has become worse.

Future Markets will be Green! – Resource- Productivity and Sufficiency-Culture needed

It is more than obvious: the finiteness of natural resources will not allow just transferring the consumption patterns and life-styles of the affluent societies - and their respective structures of production and distribution behind - to the emergent mass-markets of societies wanting to catch up. In order to understand the dimension of the socio-economic challenges humanity will have to face, we just have to realise that in the near future two third of the world citizens will live in mega-cities or agglomerations with 30 to 50 millions inhabitants (mainly in the “South”). Offering all human beings in the coming decades a sufficient livelihood asks for a dramatic de-materialisation of economic structures and processes on global level. Hope fully, meanwhile a wide range of designs, concepts and road maps have been developed how to reach this ambitious goal of a “green” post-material economy and society.

Within the Club of Rome Ernst Ulrich von Weizsäcker et al. in a Report to The Club of Rome “Factor Five. Transforming the Global Economy through 80 % Improvements in Resource Productivity” (London 2009) very convincingly demonstrates that we already today have technologies available

enabling us to increase the overall resource-productivity by a factor 5. A similar “message” is sent out by Gunter Pauli with his Report to The Club of Rome “The Blue Economy – 10 Years, 100 Innovations, 100 Million Jobs” (2010) where he presents a broad variety of opportunities to build an almost resource-neutral circular flow economy combined with closed loop recycling management (“cradle to cradle”). Especially bionics tells us that we can learn a lot from processes in nature.

Creating a sustainable “green” economy is not only a matter of introducing new resource-efficient technologies, as we have to consider the ambivalent character of these technologies leading to a rebound or boomerang-effect: increasing resource-efficiency makes products cheaper, stimulating higher demand and production. Thereby, the “mass-effect” outdoing the “efficiency-effect”, is putting additional strain on the resources. Thus, in many fields of modern technology we have to be very careful when implementing them. Also in case of the urgent need to increase food production, it can be doubted whether the technology-dominated “agro-business” going along with many collateral damages is the appropriate option to fight hunger. Why not build on the decentralised grown rural structures and develop a labour-intensive productive agriculture closer to natural cycles in a bottom-up and co-operative approach. Anyhow, being aware of the limits of technology to sustainability, we also need a “sufficiency-culture” aiming at more post-material value-oriented life-styles: less is more! Meanwhile this insight no longer is ignored in the economic debate: “happiness” traditionally linked to income or financial indicators more and more is seen in the context of “moral sentiments” – a dimension of economics already being stressed by Adam Smith.

Also the measurement of prosperity in terms of GDP – summing up all “countable” goods and services - is inadequate and misleading because it does not take the costs of consumption of natural capital and the exploitation of the commons into account – they are not reflected in the market prices. (See: Wouter van Dieren “Taking Nature into Account. A Report to The Club of Rome”. New York 1995). So, in order to enforce the transformation-process to develop “green markets”, based on resource-efficient technologies and a “sufficiency-culture”, we have to implement a global regime of eco-taxing and of binding eco-standards. The highly developed societies should and could take the lead in this process as they have the potential to develop and introduce the new sustainable technologies as well as their high living standard and their considerable purchasing power, especially within the middle and upper classes in conjunction with their environmental awareness, can set the pace for stimulating the needed post-material life-styles.

This “resource-saving” potential is urgently needed in view of the vast “catching-up demand” of the further growing mass-markets in the developing world because it there will offer space for the building of sustainable economic structures. This challenging task anyhow has to be supported by close North-South Co-operation and cross-financing the revenues stemming from taxing resource-consumption, CO₂-emissions and financial transactions. They mainly will have to be paid by the “North” constituting a “solidarity contribution” for the shaping of a global eco-social market economy in order to offer the masses in the “South” a fair opportunity to socio-economic inclusion into the world community. Franz J. Radermacher in his book “Welt mit Zukunft – Überleben im 21. Jahrhundert” (2007) has developed a grand design and a roadmap how to build a global economy which allows economic growth to guarantee a viable prosperous living standard to all human beings - the world population “peaking” around 2050 around 9 billion. www.globalmarshallplan.org.

The Need for an Energy-Turnaround

Of crucial importance for the transformation-process to develop a sustainable economy is the energy-sector, at present contributing half to the “ecological foot-print”, because around 90 % of our global

energy-consumption stems from fossil fuels. In view of the vast “energy-hunger” of the emerging mass markets in the “South” we will have to exploit all potentials to increase energy-efficiency as well as we will have to switch to renewable climate-neutral energies. This transformation process has to happen not only because of the risks of global warming, but also the finiteness of fossil energy reserves, especially of oil and gas - in the last decades being the main energy-supplier for economic prosperity - will force us to react. Fukushima again makes us aware that nuclear power – anyhow, because of limited reserves, only of minor importance to energy supply - with its dangerous mix of risks (meltdown, radiation, burial of waste, nuclear proliferation) - no longer can be taken as a responsible option.

With support of The Club of Rome, especially of the German Association of The Club of Rome, a concept has been developed to exploit the vast and inexhaustible potential of solar energy. In the desert regions all around the world the sun delivers on the surface in average p. a. an energy-equivalent of a layer of 25 cm of crude oil. Transformed by CSP (concentrated solar power) – an available standard technology - solar power plants, using less than 1 % of the global desert area, can cover the total energy demand in the world. And, 90 % of world population can have access to the “power-house desert”, the transmission losses being around 1.5 % per 1,000 km. CSP-plants located at the coast-lines in desert-regions could additionally - in combination with the production of electricity - simultaneously solve the aggravating water-problem by desalination of sea-water. Further details of this project in which The Club of Rome is contributing to the *world resolutique* can be found: www.DESERTEC.

The Need for Sustainable Forestry – CO2-Neutrality and Wooden Buildings

During a transitional period, needed to develop the new Solar Age structures, a Global Re-forestation Programme could offer an important “buffer-function” binding CO₂-emissions (200 billion tons), For this purpose an area of around five million square kilometres (comparable to the size of all Europe) could be available worldwide to reduce the risks of global warming without harming agrarian output. This programme could work within the Kyoto-regime and offer the opportunity to those emitting CO₂ to put themselves climate neutral by paying for reforestation. A worldwide children initiative “Plant for the Planet” supported by the German Association of The Club of Rome meanwhile has been very successful to point to this option in the international public as an instrument of climate justice securing the future of the young generation www.Plant-for-the-Planet.org.

But, in contrast to this need, more than half of all natural forests have been logged since 1950 although we know about their vital importance for the functioning of the natural cycles: they lessen climatic fluctuation, inhibit flooding and soil erosion, store water and act as a remarkable CO₂-sink. More than half of biodiversity is assumed to be located in the tropical forests suffering heavy losses – between 1990 and 2000 comparable in size of Mexico. This ravenous practise has to be stopped urgently, and we generally have to implement methods of sustainable forestry which comply productivity indispensably with biological vitality. This implies the maintenance of top soil contributing substantially to CO₂-storage. The same refers to the upkeep of moor and wetlands, a request widely violated.

In view of the need to de-materialise our economic structures and processes we have to have in mind that two-third of all material flows overburdening and consuming our natural habitat are caused by our housing and mobility demands, more and more concentrated in the growing urban agglomerations preferably in the Third World where three quarter of urban population will live around 2050. The dimension of this challenge tells us that the future of humankind will be decided whether we will be able to develop a revolutionary concept of a “Green Sustainable City” to be implemented in the

coming decades, especially in the “Southern Hemisphere”. In this context the risks of global warming are of special relevance as many urban agglomerations worldwide are located in coastal areas threatened by the rise of sea-level.

There is a growing awareness for these crucial challenges telling us that the future of humankind finally will be decided whether we will succeed in developing coherent systems of new urban planning and construction, of innovative urban infrastructure in communication, utilities, waste management etc. Of special importance is, of course, the shift from conventional constructional engineering to materials and technologies based on “cradle to cradle”- or “Life-Cycle Design”. Wooden building can make a substantial contribution to resource-efficiency and climate-neutrality being vital for the survival of humanity – a message of hope to be spread to the responsible actors of urban development and the general public.

No Stability and Development without Solidarity and Social Justice

The long prevailing hope or even widely assumed certainty that economic growth via a trickle-down effect generally would lead to a more just and equal distribution of income and wealth meanwhile has vanished. When in 1989 the “Socialist Camp” started to break down this process was seen as a clear victory of the capitalist market system over a state-run economy. And it was taken as proof giving reason to strengthen the market forces by deregulation combined with the neo-liberal request for reduced state activities and privatisation of public services and utilities.

Globalisation of markets and the dynamics of new technologies gave substantial stimulation to economic growth but simultaneously the traditional grown economic setup was inflicted causing considerable structural changes in the economy with far-reaching repercussions on employment. Consequently, disparities in society increased, income and property distribution became more unequal. The state - along neo-liberal doctrine: less state is a better state! tax-reductions were introduced, preferably for the rich - no longer could maintain the standards of public services (security, education, science, transport, health) and social support, in the present precarious situation needed more than ever.

In this context a glance at the USA is of special interest: One of the richest countries no longer being able to maintain an appropriate infrastructure and many of its citizens having to fight hunger! - What future for the USA, if "Tea-Party Voodoo-Economics" will dominate the US-Congress, seeing in tax-reductions for the rich an instrument for economic development? "Reaganomics" to remember which already failed in the nineties!

Also European countries, closer to the concept of a social market economy with a stronger public sector and tighter social networks, under these conditions have difficulties to keep their standard of equity and social justice. Generally these increasing social disparities are contributing to political destabilisation and conflicts as well within societies as between states. This relates especially to the Southern hemisphere showing a differentiated picture. We find the successful emerging economies with high growth rates profiting from globalisation. They give way to upcoming middle classes, on top a very rich and influential minority group arises, whereas, compared to these “winners”, the income gap for the majority of the poor may relatively grow.

So, economic growth per se does not lead to social justice guarantying political stability. And in this context, it has to be remembered that growth neither goes along with sustainability: In the case of China with its admired impressive growth-rates around 10 % there are sincere estimates, even within

the Chinese government, that at least two third of GDP-growth is based on non-counted environmental costs.

The case of countries with rich reserves of commodities (foodstuff, raw materials, energy- reserves) thereby gaining impressive financial means very often tells us that socio-economic development does not follow consequently. It even can impede this process because the financial flows allow to maintain traditional social and economic structures, and they very often induce and worsen corruption with endangering a path to socio-economic development and political stability.

Obviously, the decisive key to overcome poverty is the integration of people into the socio-economic process by job-creation, education being the most important factor for that purpose. Education and training comprises a wide range: concerning less developed poor societies we have learned that socio-economic development is very much linked to the opportunity of girls and women to have access to education whereas in the highly developed aging societies lifelong learning is of special relevance. Therefore The Club of Rome always has postulated: “No Limits to Learning!” - In the Report to The Club of Rome “The Employment Dilemma and the Future of Work” (1998) Orio Giarini and Patrick L. Liedtke convey a very inspiring picture of the ongoing transformation process to the mainly non-material and sustainable service economy and society offering ample employment opportunities which ask for new ways of learning and training. The close linkage of education and employment is also highlighted in another Report to The Club of Rome: Orio Giarini, Mircea Malitza “The Double Helix of Learning and Work” (2009).

The Need to overcome the Volatility of Financial Markets

On top of that, governments have to face another dramatic challenge caused by the “Tsunami of Casino- or Turbo-Capitalism” which fully hit the financial markets some years ago with disastrous consequences for the real economy and public finance. Since the nineties of last century there had been many warnings that the liberalisation of the financial markets would entail tremendous risks but the tempting and promising “Casino Game” escalated and could not be stopped. It ended in a catastrophic “Meltdown of Capital”. Governments (indeed the taxpayer), attracted or dragged into a game they did not really understand, now have to pay for the incredible financial load of this dramatic “event”, thereby limiting their capacity to act for a long time-span.

Thus, the most urgent task to be tackled on global level is the need of strict regulation and control of the global financial sector including closing of tax havens, harmonisation of taxes and taxing of global financial transactions – a very ambitious goal. All hitherto efforts have not yet been able to restore a satisfactory climate of trust and stability. On the contrary, there still is sufficient leeway for volatility in the financial markets which does not exclude an aftershock of a second “Tsunami-wave” with disastrous consequences for global economic and political stability.

And, what about Global Governance?

The above mentioned challenges of establishing a global economy complying with the indispensable requirements of social justice and environmental sustainability ask for an effective global governance system. For this purpose the UN and the family of its different institutions are available. Amongst them WTO, IMF, IBRD, ILO, FAO are of special interest. Many other regional organisations in Latin America, Africa, the Near-Middle-East, Asia/Pacific also could be involved, not to forget special power-groups like G 20. Of special interest, too, is the European Union being the most integrated

transnational institution in the world. The results of hitherto efforts to shape a global eco-social economic order – by setting goals and implementing adequate rules or starting a variety of programmes – are far from being satisfactory.

A pessimistic view could present a gloomy perspective: almost no substantial progress has been achieved in international negotiating and bargaining. And, we have to have in mind that we anyhow are living in a manifold conflicting world where in many regions state and government structures are breaking down and disappear, terror and privatisation of warfare is found and proliferation of ABC-weapon systems cannot be excluded. So, a collapse of world order might happen combined with an ecological disaster.

A more optimistic perspective could be based on the assumption that the pressure exerted by the crucial challenges we are facing will force humanity, due to the “one-world-interdependence”, to look for co-existence and co-operation. This especially refers to the new emergent “Super-Powers” like China, India, Brazil being as Global Players utmost interested in political stability and economic prosperity – not to attain without sustainability!

For this global socio-economic and political transformation-process an enlightened “Coalition of the Willing” is urgently needed. NGOs and civil society, empowered substantially, since globally interacting IT-networks are available, can play a constructive and powerful role in creating a global public exchanging information and arguments and co-ordinating and supporting actions. They should be joined by those entrepreneurial pioneers having a clear vision and strategy for developing sustainable “green markets” – to be supported by middle classes being willing and capable on the demand-side to “invest” in sustainable consumption patterns and life-styles.

The New Report to THE CLUB OF ROME: 2052: A Global Forecast for the Next 40 Years

Jürgen Randers, co-author of “Limits to Growth” just published his Report to THE CLUB OF ROME “2052: A Global Forecast for the Next Forty Years” with the pessimistic but very likely message that there will be no “soft landing”. His findings are based on “glimpses” of 34 experts elaborating on a variety of crucial aspects constituting a complex picture of the challenges humanity is facing in the decades ahead – with clear priority addressing the risks and threats of climate change. Jürgen Randers fears and expects that the human response to the challenges of climate change will be to slow because of prevailing short-termism of business interests and political decision-making in democracies. High costs of climate damages in addition to increasing burdens of upcoming social conflicts will have harming impact on living-standards. Today 76 % of World-GDP is available for consumption, around 2050 there will be a decrease to 64 %. This will produce losers (more than 2 billion people will still suffer from poverty) and winners (amongst others China). He identifies 5 regions which will differ dramatically. In many respects this forecast constitutes a gloomy outlook. Jürgen Randers would favour very much when his warning message would help to trigger the needed response to meet the challenges he so impressively presents to the reader.

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