

## **Balance or Destruction: A Global Ecosocial Market Economy as a Key to Sustainable Development<sup>1</sup>**

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In the 21st century, sustainable growth for all countries in the world is possible. At the same time, living conditions for billions of people can be improved. A model for how to proceed are the extension processes of the EU. But the situation is extremely difficult.

The alarm signals cannot be ignored: population explosion, famine, clear-cut rain forests, exploited mineral deposits, global warming. As it stands, the current world economic system is driving mankind into ruin - through overexploitation of nature and raw materials, and the lack of social and cultural balances between the countries of the world. Within the framework of an unleashed globalized economy we are in the process of assaulting the social, cultural, and ecological capital. The globalization of economy, triggered above all by the incredible new possibilities of information technology, leads into the wrong direction due to inadequate worldwide rules. The body of rules governing world trade as represented mainly by the World Trade Organization (WTO), together with the worldwide closely linked financial systems, increasingly determines economy around the globe. Questions concerning environment and society are rarely asked. The result is uncoordinated growth and increasing social divisions in nearly all countries. The pressure on economically weaker cultures is increasing. Herein lies one of the main reasons for the conflicts between the West and the Islamic world.

To stem this development, the transformation of the global order systems into a global eco-social market economy, based on the continental European consent-model, is necessary. The way in which the markets in Europe and many Asian countries are organized is exemplary for what would be offered on a global scale. The ongoing extension of the EU - as a small form of globalization - can also be taken as an example. Agreements between economically stronger and weaker partners on the alignment of standards within a society are crucial. With the help of co-financing the more developed EU-countries open the way

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<sup>1</sup> Translation of the German publication „10→4:34: Die Formel für Wachstum und Gerechtigkeit“ by the author in the scientific magazine *bild der wissenschaft* 4/2002, p. 78-86

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for the newly added partners enabling them to accept a higher standard - even if that means losing part of their competitiveness, which in fact was achieved through the subversion of for instance environmental standards. The extension of that approach to the globe is discussed, including the establishment of global instruments of co-financing, such as a Tobin Tax on financial transactions, a world kerosine tax and a fair trade of pollution rights in the context of the Kyoto contract. Models and simulations are used to show the sustainability of this approach, while for other possible futures (turbo capitalism and a security-oriented eco-dictatorship), it is shown that disaster is at hand.

On a global scale co-financing is problematic. The rich countries - most of all the USA - are not yet willing to substantially support the financing of developmental programs. Therefore, it is necessary to establish a **Global Governance System** which centers on the question of co-financing. In that way, developmental programs that are geared towards a transformation of standards could be implemented. They would be financed through the taxation of world trade and financial transactions, or through international taxes on mobility and energy consumption, as for example in the form of a global kerosene tax. Naturally, people cannot be expected to voluntarily want to relinquish their acquired material standards. Even the rich countries of the North require further growth as a forming element of future political processes. And the countries of the South are eager to catch up. At the same time, in many areas environmental deterioration is already too high. The crucial instrument in solving this dilemma is further technical-social progress in the form of dematerialization. This means a significant drop in the consumption of raw materials during production and a higher eco-efficiency, for example in form of improved recycling technologies. Such concepts were developed by Ernst-Ulrich von Weizsäcker and Friedrich Schmidt-Bleek at the Wuppertal Institute for Climate, Environment and Energy. They propagate a fourfold (Weizsäcker model) to a tenfold increase (Schmidt-Bleek model) of eco-efficiency over the next 20 to 40 years, or 50 to 100 years, respectively. The goal is to secure current quality of life standards with the help of new technical and organizational advances, with only one fourth, or one tenth, respectively, of today's consumption of resources and today's environmental deterioration per unit of added value. The new future formula will be based on a double factor 10. Two goals for the next 50 to 100 years emerge: a tenfold increase of the global gross national product and a simultaneous tenfold increase of eco-efficiency. Worldwide, we would have ten times as many goods and services at our disposal than we do today. However, environmental deterioration and the consumption of resources would remain constant. According to this concept and by taking into consideration the varied social, cultural, and ecological concerns, technological progress opens up the possibility of all

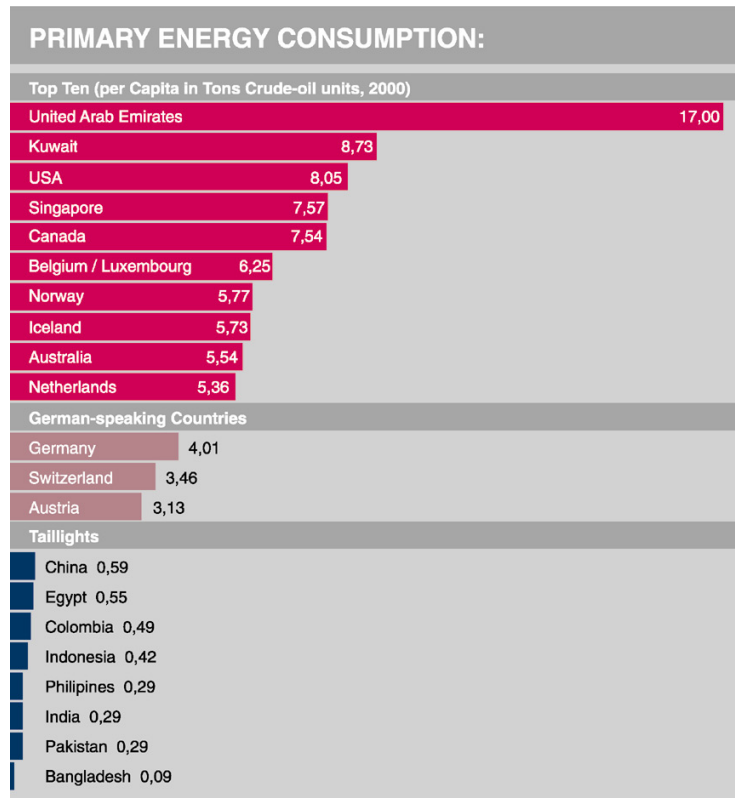
people leading a meaningful life in dignity, and free of need and poverty. The biggest challenge in realizing this concept is not the increase of the eco-efficiency in the described extent, but the need to still prevent further increases in the consumption of resources and of pollution.

Global agreements for a sustained development are essential - it is indeed the biggest challenge lying before us. Global environmental protection initiatives aimed at a decisive leveling of social conditions are essential. This is also necessary because it is the only way to keep the global population explosion in check. Over the course of 250 years, mankind could regress from currently 10 billion people to just a few billion. In this way, the per capita income could be increased, without putting more strain on nature. In addition, a more equitable social balance would in the span of a few decades slow the speed of today's exuberant processes of innovation and lead the world to a more controlled and significantly more sustained condition. Dematerialization and an increase of eco-efficiency are not new concepts. They have occurred time and again - almost as if on their own and especially so under market conditions. They are normal markers of technical progress. It is wrong however to believe that new technologies which increase eco-efficiency automatically cause sustained global conditions. On the contrary: the so-called **rebound effect** works against that. The solution of one problem is often followed by new and even bigger problems. Examples of this are the growing piles of electronic waste despite ever smaller microchips, the rising heaps of paper in times of a supposedly paperless office or the increase of travel in times of telecommunication and mobile phones. In particular, under the current world trade conditions, which are determined by the free trade logic of the WTO, further growth would always bring about a higher use of resources and more environmental deterioration in spite of increased eco-efficiency. Technical progress alone is therefore not sufficient to reach sustainability.

There is an additional problem. Growth is usually defined by the gross national product and its changes. It is problematic that accidents and devastations as well as their undoing are often counted as positive contributions to the gross national product, and consequently are rated as growth. The most serious problem however, is that the consumption of important social, cultural and ecological resources without alternatives to replace them is also rated positively. Examples are the firm grasp of the North on well trained people of the threshold countries, the destruction of traditionally self-sufficient regional and agricultural structures through corporate supply structures and finally the destruction of soil and atmosphere by the international practice of providing agricultural products of comparatively lower added value (monocultures etc.) all around the globe.

In the future, we will have to agree on a definition of growth that is compatible with the idea of sustainable development. This means that all important ethical considerations have to be integrated into the world economy in form of specific rules and restrictions.

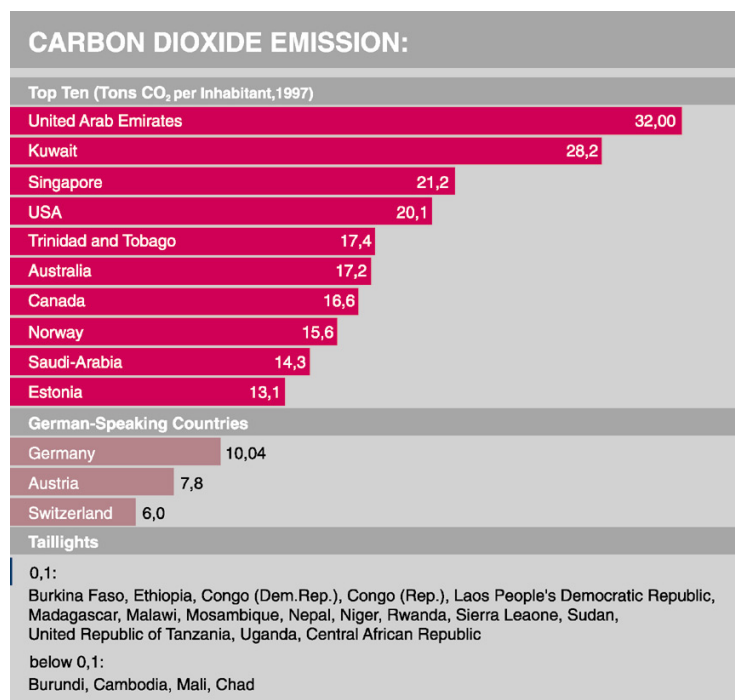
The growth rates, at least in the short or mid-term, will be lower than they are today. In return, the numbers will be more honest. The only source for more added value will be technical and social innovations - and not increased destruction and exploitation.

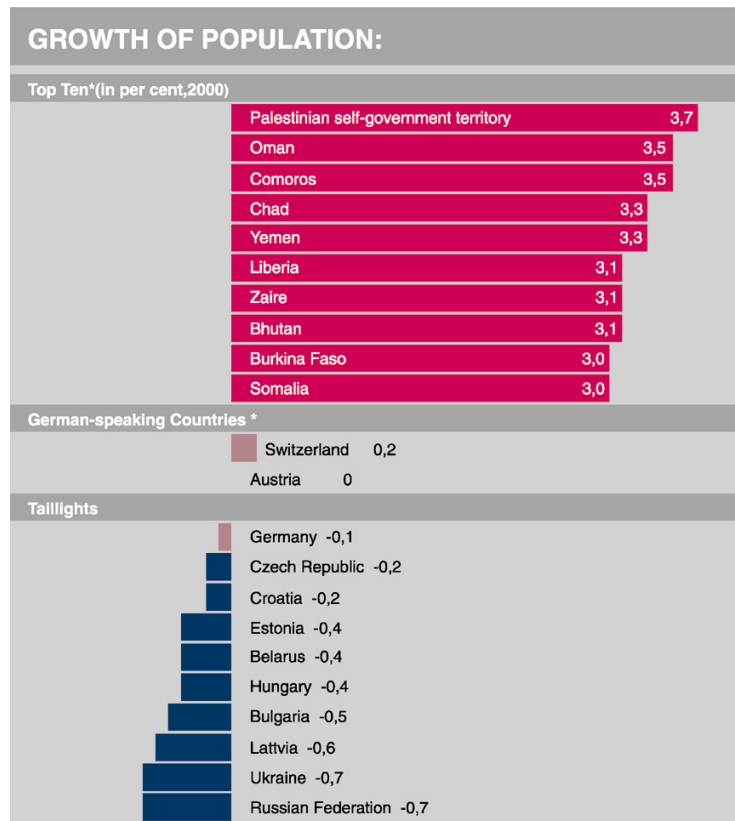


The attachment of ecological restrictions including socio-cultural requirements to the economic system can in the present political order be achieved only by a consensus, which the WTO in particular has to be a part of. In order for this to occur, the richer North as well as the poorer South must be willing to rescind further growth achieved through cannibalist methods. In addition, with the help of super-structural co-financing programs that aim for greater social justice, the North would have to win the South for such a course. In light of their economic difficulties the poorer countries can only consent to tougher ecological and social standards, if the rich North in return also Co-

finances their development - as is always the case within the EU extension process. The question of social balance is therefore the paramount criteria for the future of a sustainable development.

Social inequality can be described mathematically by the so-called Lorenz-Distribution. It shows the percentage of the total income the poorest of society have at their disposal. As an example, in a state of total balance (an **Ideal Communism**) the poorest 10 per cent would also hold 10 per cent of the total income. In a market economy that share is always lower, although in the context of a commonly higher total level. On a social level it is of interest to examine how distant the lowest incomes are from the average income. In that way we determine the economic potential of the socially weaker within a given society. In case of too high an inequality many people are





deprived of a sufficiently high **Added Value Capability**. These underprivileged do not have sufficient financial resources to participate in education and infrastructure. Instead of well-educated experts there are masses of servants and unskilled laborers. Societies with high social inequality remain poor, as do those with an equality that is too high. A new mathematical **Equity-Theory** sums up the inequality of a society in a formula: it is based on the comparison of the lowest with the average incomes over a variety of populations segments. The grade of social balance is described by an equity factor  $\varepsilon$  which is basically defined by the following equation:

$$\text{lowest income} = \varepsilon * \text{average income}$$

Gross National Product:	
Top Ten (US-Dollar, 2000)	
Luxembourg	44 340
Liechtenstein	*
Switzerland	38 120
Bermuda	*
USA	34 260
Japan	34 210
Norway	33 650
Denmark	32 020
Iceland	31 090
Cayman-Ilands	*
German-speaking Countries	
Austria	25 220
Germany	25 050
Taillights	
Chad	200
Guinea-Bissau	180
Niger	180
Eritrea	170
Malawi	170
Tajikistan	170
Sierra Leone	130
Burundi	110
Ethiopia	100
Congo (Rep.)	100

This approach is directly based upon the EU definition of poverty. According to this, people are considered poor when they have less than half of the average income of their respective countries at their disposal. This is equal to an equity factor of 50 %. In Europe, the equity factors in Austria, Scandinavia, Italy, and Germany lie in a range between 65 % to 59 %. Somewhat rougher circumstances in the Netherlands, France, and Switzerland result in an equity factor of 54 %. In Great Britain, the factor is considerably lower at 50 % and points in the direction of US conditions. There, the state of inequality is even more pronounced (47 %), the only well developed country with an equity factor less than 50 % . Russia stands at 37 %, and old colonial and apartheid regimes with a clear class distinction like Mexico, South Africa and Brazil come in at 33 %, 28 %, and 27 %. The extremes become apparent when we take a look at the condition of the globe as a whole. The world equity factor lies (as far as the available data allows for a precise

statement) below 12,5 %. This means, that the world as a whole is socially far more divided as any given country. Today, we de facto live under a system of global apartheid, a condition which is not only a far cry from promoting world peace but is also not sustainable. It constitutes the biggest obstacle to a sustained development and ultimately is one of the deeper root causes for the incidents of September 11, 2001.

The definition of poverty by the EU views social balance as a relative concept. The relation between incomes is important, not simply what the poor claim as their total disposable income. This perspective clearly differs from that of many thinkers in the US as well as from economists worldwide who are euphoric about deregulation and efficiency. They try to argue with considerable effort why it is good and just for the top of society, whose incomes are already far above average, to again benefit disproportionately from further growth. Supporting the European definition of poverty, however, is the experience that in a given society strong differences in income lead to unbalanced conditions which can endanger democracy and human dignity of the poorer part of the population. The USA has chosen a socially unbalanced economic system. By more strongly rewarding top performers and the willingness to take risks and by putting more pressure on "refuseniks" the US system achieves slightly higher growth rates compared for example to European countries - however, at the price of distinct social inequalities and resulting tension within society. One of the results is that the US spends more money on prisons per capita than any other developed country. Also, average life expectancy is comparatively low. In addition, it appears that the US can only maintain this level of inequality because up to now it has been able to buffer many potential conflicts with the help of the continual and cost-effective immigration of people with specialized skills from other countries (green card). As the biggest beneficiary of the global economic system it significantly helped to put in place, the USA also profits from cash flow to the dollar as the world currency reserve. Thus, the US strategy in part puts a burden on others and is therefore not a transferable model for the rest of the world.

Today, the rich North faces a choice: will it spend even more resources to hole itself in and thwart conflicts and in these efforts go so far as to limit individual freedoms, and next, resort to eco-dictatorial solutions to protect both environment and resources - or will it tackle the political challenge to overcome the global division. In the long run, it will be impossible to benefit peacefully from globalization without addressing its global social consequences at the same time. Social questions have to become an issue of world politics and of domestic world affairs. The lack of a willingness to resolutely take on social challenges constitutes for now the biggest failure of the rich countries and their elites. A significant factor herein is the demeanor of the United States - since the end of World War II the "Ruler" of the world order systems which it largely helped establish. So far and more often than not with the support of all the other rich nations, the US has



built up fortresses against the integration of eco-social solutions into the world order. On no other single issue has the US shown itself less willing to forge a compromise.

A higher worldwide social justice can be achieved if a factor 10 on worldwide growth - with an unaltered use of resources - is applied to order systems and co-financing. Today, the North with only 20 % of the population has 80% of the world income. The question is how world income should be distributed according to another factor 10 developmental step. If the goal is a high social balance like in Europe, with a world equity factor of about 50 %, then a division of 4:34 is most helpful. This would mean that the North once again quadruples its consumption over the next 50 to 100 years up to a share of then 32 % (320 from then 1000 units). It would allow the South to multiply its share 34 fold from today's 20/100 units (20 %) to 680/ 1000 units (68 %). In that way the North-South share of the world economy would be aligned. Today's ratio of 80:20 between North and South would, with the help of the above described development, turn into a ratio of 320:680. This use of a double factor 10 within a world treaty for a sustainable development directly leads to the future formula of  $10 \rightarrow 4:34$ . Even when taking into consideration the further population growth in the North to an estimated 1,75 billion people, and in the South to 7,25 billion people by 2050, the North would still be twice as rich per person as the South. Compared to the present difference of an average factor 16 this would constitute a huge step in the direction of a more just system. Through this development a worldwide equity factor of 49 % could be achieved, which is a higher degree of social balance than is currently the case either in the EU as a whole or in the US. This would constitute the defeat of global apartheid, the realization of a worldwide eco-social market economy and an adequate basis for a world-wide democratic system.

A factor 10 of economic growth would mean an average annual worldwide growth rate of 4,71% over a fifty year period and of 2,33% over a one hundred year period. At a distribution rate of 4:34, the North could still count on a growth rate compatible with substantial and sustained development, at an average of 2,81% annually (fifty-year perspective), or 1,39% annually for the one hundred-year perspective. The South could reach an annual growth rate of 7,31% or 3,59%, respectively. To fuel this development between two and three per cent of the world gross national product will have to be redistributed as is already being practiced to a certain degree in the EU extension process. These funds would be used for specific developmental processes, for improved nutrition and education, for the strengthening of the position of women, for health- and pension plans and according to the logic of a social market economy.

The responsibility for achieving the goal of a just socio-ecological system lies heavily on Europe. On the one hand, Europeans have to persuade the US to become more actively involved in agreements of a global nature, as for example the World Court, the Kyoto convention for the reduction of greenhouse gases and the ongoing development of

the World Trade Organization. On the other hand, with the looming incorporation of Turkey and the former Yugoslavia into the EU, Europeans for the first time will have to enter into a fair cultural contract between the Christian and the Islamic worlds. This contract may very well become a model on how to reduce cultural tensions in the world for the benefit of all mankind. Applying a wise, socio-ecologically based design to the world economic system a globally satisfactory growth rate is possible and would assure a faster equalization of worldwide welfare conditions than is possible under current conditions.

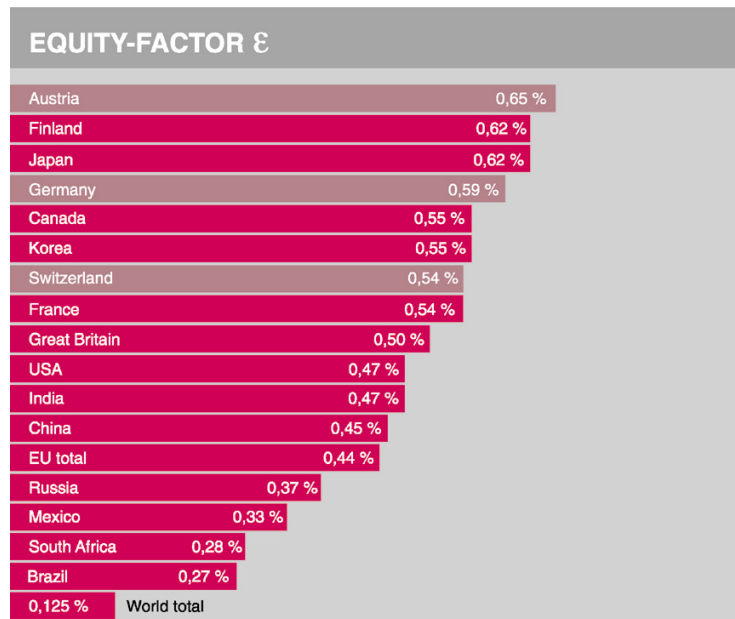
The equity parameter  $\varepsilon$  characterizes the situation of equality or inequality of a country. The closer the value comes to 1, the smaller are the differences between poor and rich. An example:  $F_{0,65}(0,3) = 0,207$  and  $F_{0,27}(0,3) = 0,092$ . The poorest 30 % in Austria have 20,7 % of the total income of their country at their disposal; the poorest 30 % in Brazil only have 9,2 %.

#### **The Theory of (In-)Equity**

The new mathematical theory of social equity (T. Kämpke, R. Pestel, F.J. Radermacher: "A computational concept for normative equity", European Journal of Law and Economics 15, 2002, accepted) is based on the fact, that the factor  $\varepsilon$  is not only set for society as a whole, but also for the  $x$  per cent of the richest for any value  $x$ . So it is also assumed that within the  $x$  per cent richest the poorest of them have an income constituted of  $\varepsilon$  times the average income of the  $x$  per cent richest. This leads to a linear, inhomogeneous differential equation

depending on  $\varepsilon$ :  $F'(x) = \varepsilon \frac{1 - F(x)}{1 - x}$ ,  $0 < \varepsilon \leq 1$ , whose solution

is given by the following Lorenz function:  $F_\varepsilon(x) = 1 - (1-x)^\varepsilon$ . If one wants to determine the equity factor of a country, then one selects the  $\varepsilon$  that comes closest to the known distribution values of that country (according to World Bank distribution statistics). This way the following values were determined, even though the available data is less than ideal.



### The potential

In 50 to 100 years, with the aid of technological progress, we can achieve a tenfold increase in the amount of goods and services available to us without putting more strain on the environment and without higher use of resources.

### The concept

A world order that combines environmental protection with social balance is necessary. Within the framework of such a fair contract the wealth of rich countries could increase once more by the factor 4, the wealth of poor countries by the factor 34.

### The transformation

This development can be facilitated by using the EU extension as a model for the larger task ahead: the integration of the world as a whole in times of economic globalization.

Further information on the author, available material, multi-media products and connected institutions and functions can be found on the homepage of the Forschungsinstitut für anwendungsorientierte Wissensverarbeitung (FAW) in Ulm: [www.faw.uni-ulm.de](http://www.faw.uni-ulm.de)

Various articles on topics concerning globalization:

[www.bpb.de/info-franzis/info\\_263/body\\_i\\_263.html](http://www.bpb.de/info-franzis/info_263/body_i_263.html)

Homepage of the Enquete-Commission of the German Parliament (Deutscher Bundestag)  
"Globalisierung der Weltwirtschaft - Herausforderungen und Antworten". („Globalization of world economy – challenges and answers.”)

[www.bundestag.de/gremien/welt/](http://www.bundestag.de/gremien/welt/)

Survey on the projects of the Wuppertal Institut für Klima, Umwelt und Energie (Institute for Climate, Environment and Energy), in addition extensive list of books to themes on sustainability, environmental protection and careful use of resources:

[www.wupperinst.org](http://www.wupperinst.org)

European Commission (ed.): Visions and Roadmaps for Sustainable Development in a Networked Knowledge Society. See

[http://europa.eu.int/information\\_society/themes/index\\_en.htm](http://europa.eu.int/information_society/themes/index_en.htm)

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Franz Josef Radermacher (2002): Balance or Destruction - An Ecosocial Market Economy as A Key to Sustainable Development. Ecosocial Forum Austria, Franz-Josefs-Kai 13, A-1010 Wien, Tel. +43 1 533 07 97-0, to be printed in 2002