

**"Climate will change everything"
- Climate change and ecosystem destruction make disaster prevention even more important!"-**

key-note address by Anders Wijkman, member of the European Parliament, at the International Disaster Reduction Conference IDRC Davos, august 30 2006.

1. Natural disasters are on the increase. Statistics are always problematic; not least when dealing with comparisons over time. But there is ample evidence that both the frequency and the scope of recorded disasters have risen markedly over time. A summary of natural disasters compiled by Munich Re points to a significant increase over the past 50 years. Figures from the UN and the International Red Cross corroborate this trend.

When looking at developments after 1990 the trend is even clearer. According to the International Red Cross, the number of disasters reported during the period 1994-1998 amounted to an average of 428 per year. During the period 1999-2003, that number had increased by two thirds – reaching 707. The biggest increase by far – 142%- occurred in less developed nations.

Natural disasters have claimed the lives of more than two million people over the past 20 years. An estimated 98% of the casualties occurred in low-income countries. And yet, as we know, the number of dead people is only the tip of the iceberg. For every dead person in a disaster in a low-income country there are thousands of people seriously affected, often losing everything they have. Decades of development efforts are literally swept away.

Weather-related disasters by far outnumber the geo-physical ones – by nine to one over the past decade! According to data from Munich Re, disasters caused by heavy storms and floods have increased six-fold since the 1950's!

2. The costs of disaster damage have been exploding as well. According to the World Bank, the economic costs of major disasters in constant dollars are now estimated to be 15 times higher than they were in the 1950's. Part of the reason, of course, has to do with wealth

generation and that the value of property in risk-prone areas has increased. But the increase in the number of disasters is as important.

3. As already mentioned, low-income countries are particularly vulnerable to natural disasters. According to studies by UNDP an estimated 130 million people reside in areas at high risk of earthquakes. Residents of Iran, Afghanistan and India are particularly vulnerable.

120 million are at living in areas prone to yearly hurricanes or cyclones, mainly in Bangladesh, Honduras, Nicaragua, Vietnam, the Philippines, India and several islands in the Indian Ocean, the Pacific Ocean and the Caribbean.

Nearly 200 million live in areas frequently hit by severe flooding, such as India, Vietnam and Bangladesh. Countries like Venezuela, Yemen and Morocco are also at high risk.

While drought is a recurring phenomenon in major parts of Africa, it also frequently affects other continents.

4. It is a common perception that we cannot do much about natural disasters. They are looked upon by too many people as "acts of God" or strong forces of Nature, against which we are helpless. Nothing could be further from the truth. First, we have to distinguish between natural hazards - like earthquakes and heavy storms - and disasters. We can do a lot to prevent the hazards from turning into major disasters. The disaster risks faced by people must be seen as a combination of hazard and vulnerability and disasters, as we all know, are a result of the interaction between the two.

If I would have given this address some years ago - before we knew much about the likely effects of climate change - I would have suggested that practically all natural disasters are unnecessary. I would have said that people's vulnerability to disasters could be eliminated through a combination of prevention and risk reduction measures.

I believe as strongly in prevention today as I did in the past. But the message can no longer be the same, it has to be modified as a consequence of climate change. Climate change is reshaping our risk landscape in two important aspects:

- *weather conditions become more extreme and*
- *the geographical distribution changes.*

This statement is true for storms and floods but for droughts as well. What it means is that to a large extent our "risk experience" - the basis for decisions on how to manage risks and on safety norms and standards - will be increasingly outdated, resulting in more damages and more catastrophes due to this mismatch. If efforts to mitigate Climate change are not forceful enough - and, regretful as it is, we have reason to be doubtful - the resulting consequences in terms of major disasters may become almost impossible to cope with - both from them point of view of prevention and preparedness and relief. So climate change has changed the overall picture considerably and made the risk panorama increasingly difficult.

5. When looking for the causes behind the rapid increase in the number of natural disasters, we are confronted with a complex reality. Climate change has already been mentioned. In the 1990's, about three-quarters of all natural disasters were triggered by weather-related events. But there are others as well:

** Disaster Prevention neglected*

Although disasters are no longer viewed as extreme events created by natural forces alone, there is still a long way until disaster prevention and risk reduction is given sufficient priority. This comment goes both for national governments and development agencies. Out of 59 PRSP:s prepared to date, only 9 have incorporated aspects of hazard risk management. The best examples are from Honduras, Nicaragua, Vietnam, Bangladesh and Mocambique. But for most of the PRSP:s, disaster risk reduction is not a priority, in most cases not even mentioned.

** Poverty*

The global proportion of people living in abject poverty has decreased in recent decades.

However, in real numbers, almost three billion people are still trying to survive on less than two dollars a day. The extensive poverty inevitably leads to *increased vulnerability* in the face of various natural hazards. People are forced to settle down or remain in highly risk-prone areas.

Geography

Poverty is important but certainly not the only determinant of vulnerability. As has been shown both by and World Bank reports, certain regions are more exposed to natural hazards than others. Geography matters a lot.

** Population growth*

Demographics is an important element in explaining the increase in the number of natural disasters and disaster victims. While fertility rates have decreased in most countries over the past decades, the growth in numbers is bigger than ever before – on average eighty million people per year – and 95% of that increase occurs in less developed countries. A large proportion of the new inhabitants end up in risk-prone areas

** Rapid urbanisation*

Furthermore, the rapid urbanization has led to a dramatic change in vulnerability.

While the global population has doubled over the past forty years, the number of people living in urban areas has increased five-fold. And this trend is continuing. Most of the new citizens in urban environments end up in various slums, more often than not areas most prone to the devastation caused by natural hazards such as earthquakes, flooding and tropical storms.

** Environment degradation*

When forests are indiscriminately logged, soils eroded and wetlands are diked, future natural disasters may well be in the making. When forests disappear, the natural water cycle in an area changes and there will be no protection against storms or heavy rains. When soils are eroded, the ability to retain water and moisture diminishes.

The irony is that while disasters are triggered by natural phenomena, a healthy natural environment is very often the best possible protection against storms, heavy rains or droughts turning into disasters. The sad fact is that so relatively few decisions-makers are conscious about this.

** Competition for scarce funds*

There is always competition for funds. I know from own experience that fund-raising campaigns for prevention attracts limited attention.

6. *Environmental factors are key.* There is growing evidence around the world that

a rapidly growing share of the devastation triggered by natural disasters stems from ecologically destructive practices. Many ecosystems have been degraded to the point where they are no longer resilient and able to withstand natural disturbances, setting the stage for ‘unnatural disasters’ – i.e. disasters that are made more frequent or more severe due to human actions. By degrading forests, engineering rivers, filling in wetlands, eroding soils, overgrazing and destabilizing the climate we are unraveling the strands of a complex ecological safety net. The same goes, of course, for the damage we inflict on coral reefs and the destruction of mangrove forests.

Despite the environmental implications of disaster risk and vulnerability and the long-term consequences for sustainable development, the links between environmental degradation and natural disasters were long ignored. The role of environmental managers in disaster reduction, response and recovery has been limited. Similarly, disaster managers have given little attention to the environmental aspects of their work.

But change is under way. Many reports have been published recently – by the UN, by the Red Cross as well as by other humanitarian organizations – stressing the importance of addressing environmental factors in the overall efforts to reduce disaster risks, not least in the context of climate change.

As a consequence, increasing efforts have been made to integrate the challenges of both environmental degradation and disaster risk reduction. The International Decade of Natural Disaster Reduction (IDNDR) concluded in a statement in 2002 that “environmental protection, as a component of sustainable development and consistent with poverty alleviation, is imperative in the prevention and mitigation of natural disasters” (ISDR 2002). Similarly, in the same year, a group of experts from the global change and disaster management communities met in Berlin and prepared a declaration for the World Summit on Sustainable Development in Johannesburg. The declaration pointed to increasing evidence that global environmental change and natural disasters are linked.

7. In spite of the increased awareness about the importance of environmental degradation in explaining the rapid increase in both the number of so called natural disasters and disaster victims, *risk reduction efforts have so far been few and far between*, both in general

terms and with regard to environmental protection, in particular in developing countries.

In this field – as in many others - we seem to suffer from the disease of verticalitis. Experts in different sectors hardly speak to each other, let alone work together. Being an environmentalist myself, I am not surprised. This is a pattern that repeats itself. Mankind, no doubt, is facing a series of difficult problems in the field of environment and natural resources management. Most of the problems are directly related to the way the economy is organized and the way our production and consumption systems have developed. Yet, when trying to tackle these problems we seldom start by analyzing the shortcomings of the economic system as such. The market system is sacrosanct. Instead we tackle pollution and ecosystem destruction as if they were isolated sector problems. The success is, as we all know, limited.

At the beginning of the industrial revolution, skilled labour as well as financial capital were relatively scarce, while global stocks of natural capital were abundant and little exploited. Today the situation is radically changed and Nature is becoming alarmingly scarce. The main problem is not that we will run out of finite materials, like minerals or oil. No, the problem is the potential loss of living systems, on which we all ultimately depend. Many of the services we receive from these living systems have no known substitutes at any price. No matter how much money we have in the bank, there is no way we can compensate for the loss of fisheries, the loss of a stable atmosphere or water scarcity.

The market system, as practised, has so far been financially profitable. But it is not sustainable, the main reason being its neglect to assign a correct value to the largest stocks of capital it employs – the natural resources and living systems. Besides climate change, the changes in the biosphere are widespread. In the past fifty years the world has lost an estimated fourth of its topsoil and a third of its forest cover. We are losing fresh water ecosystems at the rate of 6% a year and marine eco-systems by 4% a year. Moreover, as a result of prevailing production and consumption patterns, a gradual build-up in nature of potentially hazardous substances is taking place.

9. Last year a major international study was presented, emphasizing the important links between the health of ecosystems and human well-being. The Millennium Ecosystem Assessment is the most comprehensive assessment so far undertaken on the state of the world's ecosystems, involving more than 1.300 scientists all over the world.

The report concludes that humans have changed the ecosystems more rapidly and more extensively over the last 50 years than during any other period. The conclusions of the assessment provide a stark warning about the ways in which human behavior frequently has had disastrous effects on the ability of ecosystems to provide essential services to people around the world. 2/3 of the most important ecosystems – or life-supporting systems – are being degraded or used unsustainably, including fisheries, water supply, waste treatment and water purification. Effective responses lie within our power, if significant changes are made in policy and institutions. Protecting forests, for example, conserves wildlife but also supplies fresh water and reduces carbon emissions. One might add, reduces the risks for flooding.

Although this report was published widely – with press seminars all over the world – it has so far had very limited impact on decision-making. Most legislators in different parts of the world have not even heard about the study. Yet, its message is very important and ought to be at the center stage of decision-making.

10. As already stressed, climate change is a major challenge facing mankind.

For centuries people have learnt, mostly by trial and error, to cope with extreme weather events. Climatic as well as hydrological data were scarce and countries had to develop infrastructure and legislation based on past patterns more than anything else.

Protective measures differ widely between regions – as do the risks. In densely populated parts of the Netherlands, for instance, the standards of flood defence are the highest in the world; dykes protect vast delta regions from a flood event expected to occur every 10,000 years. In regions less advanced, and with less economic activity, prevention measures are - as we have seen – few and far between.

Climate change will mean that key climate and hydrological variables will change. Weather systems in the future can no longer be predicted on the basis of patterns in the past. As we know, disaster risks are expected to grow significantly. According to reports both by Tearfund and the Earth Institute more than half the people living in developing countries will be at risk for storms and floods in 2025.

Water shortages are projected to worsen in many regions of the world, and threats to human health are likely to increase, particularly in tropical and subtropical countries. One aspect of the risk for water shortages that is not much noticed so far is the important role of glaciers in many regions in regulating water supplies. Glaciers are a crucial source of water, storing snow in the winters and releasing water in hot dry summers. Because of global warming, two-thirds of China's glaciers have started to melt. By 2050, as many as two thirds of China's glaciers may be gone, putting 300 million people at risk in China alone.

In some regions a drier climate will lead to food production losses. An estimated 10-15% of the world's grain production may be lost, according to a FAO report. Other regions in the South will be seriously affected by rising sea levels.

Taken together, this means that certain regions may become untenable for human habitation – some because of sea level rise, others because of a shift to a drier climate where rainfall is the exception.

Africa will be particularly hit. A recent report by NGO:s about the implications of climate change for Africa has the striking title "Up in smoke". Small-scale farming accounts for most of the food produced in Africa. Most farming depends on rainfall, making Africa particularly vulnerable to the weather extremes of climate change. Climate data for the last 30-40 years shows that global warming has taken a firm hold on Africa. If current trends continue, climate models predict that by 2050 sub-Saharan Africa will be warmer by 0.5 – 2 degrees C, and drier, with 10-20 per cent less rainfall in the interior and with water loss exacerbated by higher evaporation rates, i e that soils will dry out.

As populations increases, people are being pushed onto less productive land which are even more susceptible to drought. A recent report from Christian Aid ("The climate of poverty") emphasizes that

the small-scale subsistence farmers are the most vulnerable to the weather hazards associated with climate change.

The conflict in Darfur is a drastic example of what the implications are when people are pushed off their land because of prolonged drought. A desperate struggle has developed in this region over increasingly scarce water and grazing rights in an area that has been repeatedly hit by drought.

Also regions elsewhere in the world run the risk of prolonged droughts. In the American West, which suffered megadroughts in the past, there are clear signs that rainfall is becoming more scarce. Large areas in Southern Europe have been repeatedly hit by forest fires. Spain, Portugal and Italy have all suffered from severe droughts in recent years, with significant losses in agricultural production.

More than half of the world's population is dependent on the Asian monsoon to bring much needed moisture for agriculture and basic human needs. Some scientists have reported the monsoon has been growing in strength recently, presumably because of rising global temperatures. The stronger monsoon may be the major reason recently behind some of the heaviest rains in history in India.

More research is needed about the relationship between climate change and the Asian monsoon. What is particularly important to understand better is the effect on the monsoon in both China and India because of massive air pollution in some regions of both countries. The brown haze has a significant cooling effect and further leads to changes in rainfall patterns. The monsoon rains have become more intense in the traditionally wetter south of India, where the haze is less strong. But the rains have diminished in the north where the haze is the thickest.

The pattern is more or less the same in China. In the south of the country, the monsoon rains are becoming stronger, with flooding in the great Yangtze river; whereas further north, where water already is scarce, there is now less rainfall.

11. One disaster event that by many have been seen as somewhat of a precursor of what seems to be in the making in terms of climate change was hurricane Mitch. The year 1998 was the warmest of the last century. It was also a year of exceptional weather events. Besides the storms, it was the year when many rainforests got no rain.

On the night of 28 October 1998, the countries of Central America were hit by the most vicious hurricane in 200 years. The wind and the rains washed away whole villages in just a few hours, and left more than ten thousand Hondurans dead and two million homeless. Many experts believed that Mitch was the result of global warming. Other experts claimed that it was not possible to argue that a single disaster event was the product of climate change. Strong hurricanes have happened before and natural hurricane cycles have to be taken into account. But, as Fred Pearce comments in his important new book "The last generation": "The question is not: can we prove that events like Mitch are caused by climate change? It is: can we afford not to take the chance that they are?"

It is interesting to note that a recent climate workshop, organized jointly by Munich Re and the University of Colorado, seems to have resolved most of the controversy between scientists in this field. Broad agreement was reached at the workshop in Hohenkammer, Germany that climate change has an influence on disaster trends, and indeed on hurricanes. The sentiments at the workshop were summed up by professor Paul R Epstein; Harvard Medical School: "Continued warming of the ocean, melting ice and increased water vapour in the atmosphere all suggest that more intense storms are to be expected, compounding the impacts of 20-30 year natural cycles in the Pacific and Atlantic Oceans."

12. These are just a few examples of what is in the making because of climate change. Current development patterns, in particular in developing countries, result in more and more people and assets being concentrated in areas that are already prone to natural hazards - such as flood plains, unstable slopes, coastal cities and river deltas. The accelerated growth of populations, environment degradation, poverty and global warming will make many societies extremely vulnerable to the forces of nature, in particular a more instable climate.

The big challenge with regard to climate change is that here we face a problem, that even the most ambitious prevention and risk reduction policies may not be able to master. Adaptation to climate change – which in real life means risk reduction – must indeed be a top priority in all those countries that will be adversely affected by a more instable climate. The new funds established within the Climate Convention to

support adaptation in low-income countries is a step in the right direction. But the financial resources so far committed - approx 450 million US dollars per year is totally inadequate. The World Bank has made a preliminary estimate with regard to the costs of adaptation in developing countries - an estimated 11 to 40 Billion US dollars per annum.

I don't know how much cooperation there is between the disaster community and the Climate Convention. But I urge you to work hard to raise awareness within the Convention about the adverse affects on poor communities because of climate change. The funding for adaptation must be multiplied and the national adaptation strategies foreseen ought to be integrated with disaster risk reduction efforts in general.

But adaptation will have limited meaning if it is not balanced by vigorous efforts to curb GHG emissions. Otherwise the consequences of climate change may become intolerable, may become impossible to deal with. If that happens, the whole notion of disaster prevention and risk reduction will have lost its meaning. The notion of "unnecessary disasters" would then lose all meaning and many disasters would indeed become inevitable.

14. So what could be done to address more forcefully the disaster risks that are directly related to environmental degradation?

The *first* prerequisite would be for the disaster community, backed up by developing country governments and the donor community, to turn risk reduction into a *major* priority within its work. Build on the good examples that do exist on risk reduction and disaster prevention. Produce convincing presentation material, focussing on the cost-effectiveness and the value-added. Western countries spend billions of dollars at home in reducing the risks associated with floods, heavy storms and earth-quakes. Yet far too little is done to help reduce vulnerability among the billions of poor people who live in areas prone to natural hazards.

It is a mystery to me for instance that, so far, disaster risk reduction is almost nowhere to be seen in the work on the Millenium Development Goals.

The separation of development activities from humanitarian operations has to be reconsidered. Risk reduction must be seen as a development concern and not, which is the case today, as primarily a humanitarian concern. One important step would be to undertake disaster risk mapping in all developing countries, in the context of the PRSP:s. Once vulnerability is being assessed, countries can start integrate risk reduction into development planning and programming and, indeed, into all poverty reduction strategies.

Second, the disaster community has to engage environmental experts much more fully into its work. Part of the challenge will be to identify – preferably in monetary terms – the prevention dividend, i e present a cost-benefit analysis of proposed investments in preventive measures – like the protection of forests and mangroves, soil conservation programs, coral reef protection etc. Prevention activities often run the risk of being neglected because the benefits are not well understood.

To establish the benefits of prevention of environment-related prevention activities will require something of a revolution within economics. The true value of ecosystem services has to be recognized within decision-making at different levels. This represents a huge challenge. Presently the value of logging a forest can be easily calculated. The same goes for establishing a hotel or a shrimp farm at a pristine beach. The value of keeping the forest and/or the mangroves – and who is benefiting from these vales - is more difficult to establish.

Third, and probably most important, will be for the disaster community to become fully engaged in the international debate on everything from climate change to ecosystem destruction. By demonstrating how problems like these can and will lead to major disasters and the collapse of millions of livelihoods, the readiness among decision-makers to more vigorously address both the problems of climate change and the Millenium Ecosystem Assessment will hopefully be enhanced.

Fourth: A specific challenge will be to enhance understanding about the importance of sound management of the natural resources base in the PRSP process. Economists as well as social development

practitioners have a tendency to overlook such issues – a mistake we are paying for dearly all over the world. We seem to forget that the economic system is part of the natural system and not the other way around. The rural poor are totally dependent on healthy forests and healthy soils for their livelihoods. To quote Anil Agarwal: "The poor in India are more dependent on the Gross Biomass Product than on the GDP." Deforestation, the destruction of mangroves and coral reefs, soil erosion, the draining of wetlands as well as poor management of fresh-water resources – all these phenomena aggravate poverty as well as increase the risks of natural hazards.

Fifth: Use reconstruction and rehabilitation after major disasters for risk reduction. Unfortunately this simple message is seldom adhered to. It is perhaps too early to make a judgment with regard to the post-tsunami reconstruction. But information so far gives the impression that the follow-up to the slogan adopted after the disaster – "to build better societies" – leaves a lot to be desired. One distressing piece of news is that the number of fishing vessels today are many more than before the tsunami - and this in a region that was already characterized by over-fishing.

Sixth: Involve decisions-makers much more fully in disaster risk reduction. Most politicians are enormously stressed for time. Exposure to scientific studies, e.g. on environmental degradation or disaster risks, is rare. This is a good reason why it is so difficult to change perceptions about disasters, about the link to development and the the MDG:s and the need to make prevention and risk reduction priorities for action. We therefore have to rethink how research and analytical work in relation to these problems is organised. My advice would be to involve policymakers in the future in important task forces and studies, expose them fully to the problems and enable them to experience "aha-experiences". That to me would be a constructive way of ensuring "buy-in" into the problems and their recommended solutions.

Seventh: Arrange as well high-level seminars for media representatives to raise awareness about the importance of risk

reduction and the need to focus more attention on disaster causes and prevention.

Eight: Policies for funding have to be reviewed. It is much easier for a developing country government to obtain support for an emergency appeal as compared to a risk reduction programme. This has to change. Funding mechanisms must be significantly broadened to enable donors as well as recipient governments to address disaster risks and risk reduction as a long-term development priority.

Ninth - and final point: Consider setting up an international panel, similar to the IPCC (Intergovernmental Panel on Climate Change) - composed of scientists, government representatives, international organizations and NGO:s to address the issue of climate change, disasters and development. The purpose would be to come up with concrete suggestions for prevention, risk reduction and adaptation. There are already efforts within the climate convention and IPCC to address issues of adaptation. However, I don't think that process will be sufficient. These issues must be pursued from the broadest possible angle and will require the active involvement of more than climate experts.