The North: *The New European Frontier with Global Warming*

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Abstract

This paper explores what global warming will mean for European and international planning in terms of opening a new Northern Frontier. The main findings are:

First: The North and the passage between Iceland and Norway will become more important as the site of future shipping lanes between Europe and the North Pacific area.

Second: With a warmer climate and the receding of glaciers, the Arctic, Greenland, Iceland and Northern Scandinavia will become an important new European area of development, with important resources in the clean air, water, soil.

Third: The average temperature is projected to rise 4 – 7°C over the land area in the Arctic by 2100, by ca. 2°C in Iceland and northern Scandinavia, and by ca. 1°C in southern Europe. Accordingly the bio- and climate zones of all Europe will shift northward. An increase of 1°C in southern Europe would be considerable as summer temperatures there are already close to what some people, plants and animals can tolerate. Lack of water and desertification will add to the problems.

Fourth: Because of the EU's open borders southern Europeans will have the option of moving north to a more benign climate, but this option of moving north (or south in the southern hemisphere) will hardly be open to many peoples in the equatorial regions of the Earth unless special agreements can be reached.

Fifth: Because the new development areas in the Arctic are so close to northern and central Europe, some of the resources in the Arctic areas – most of all the oil and gas – will become invaluable, not least because these resources by ca. 2020, will start to dwindle markedly in traditional oil areas. The resources and the shipping lanes will increase the strategic importance of these northern areas, both economically and eventually militarily.

Sixth: On the global scene a new spatial centre of the most active areas on Earth will develop in the northern hemisphere as sea routes across the Arctic Ocean open and as the Arctic regions become habitable. What follows is that today's linear centre around the globe, about 30° north of the Equator, will lose importance, not least because of increased heat that will make some of these areas, in due time, almost uninhabitable.

Seventh: The paper recommends that the EU should seek to include Iceland, Norway and Russia (because of Siberia) in the Union, because the importance of these areas in the future, economically, militarily and as a future living space for the European community.

1. Introduction

With the entrance of ten Eastern European countries into the EU on May 1, 2004 a giant step was taken to make the theme of the 05 Aesop Congress – "The Dream of Greater Europe" – become reality. The implications will be studied by speakers at this congress. It is very likely that this expansion to the east will continue.

This paper studies the implications of the possible extension of the EU to *The North*, an area that will grow enormously in importance in the next few decades with the warming of earth's climate, a change affecting the Arctic more than elsewhere. An increase of 4 – 7°C is projected over land areas in the Arctic by 2100 (ACIA, 2004).

The EU was established in 1957 by central European countries and Italy, and in 1973; sixteen years later, its extension to the north started as Ireland, the UK and Denmark became members. An extension to the south occurred with Greece in 1981, and Portugal and Spain in 1986. Preparation for expansion to the east came with Austrian membership in 1995. That same year saw an important event in the extension to the north as Sweden and Finland entered the Union. (See Fig. 1).

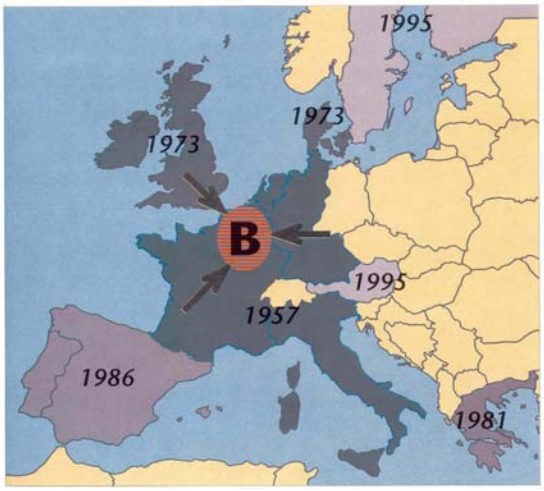

Fig. 1: The years when the first EU countries entered the Union

In 1994 Iceland and Norway joined the *European Economic Agreement (EEA)* with the EU. Though not actually members of the EU, many EU regulations apply to them. Because of the growing importance of northern regions in the future the EU should offer Iceland, Norway, and most importantly Russia, membership in order to help it develop Earth's most important living space of the future in Siberia. Fig. 2 shows how large some of these areas are and how few inhabitants live there now (Norden, 2005). The figure barely includes Greenland, which is 2.2 million sq km in area or approximately the size of Central Europe.

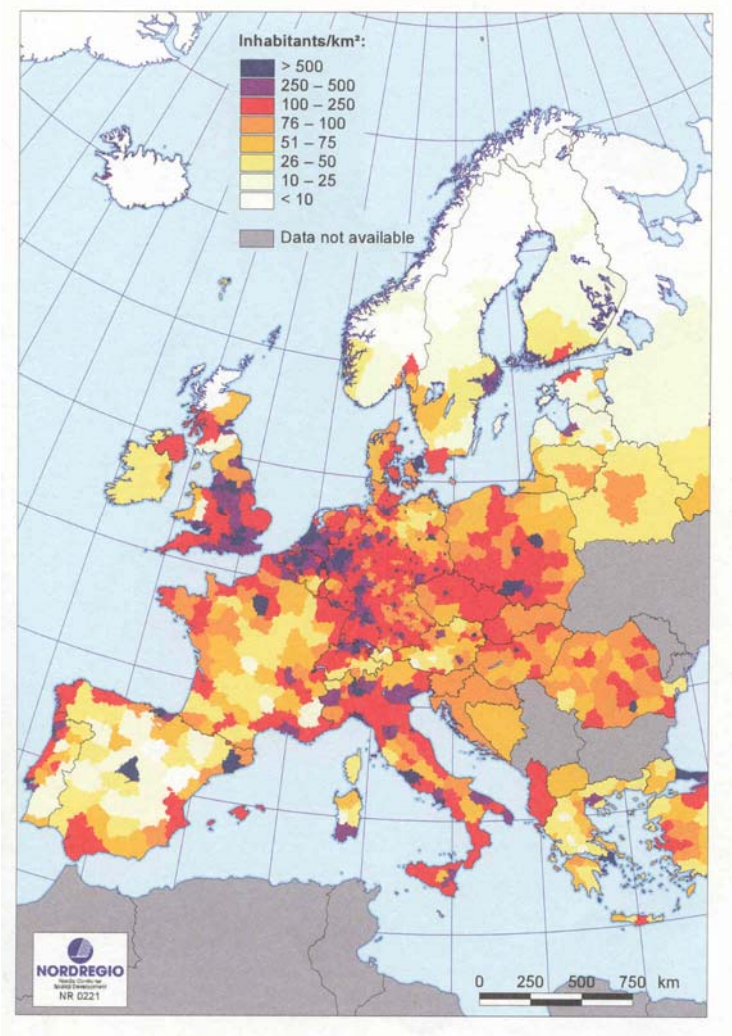

Fig. 2: Population density in European regions (Norden, 2005)

It is, however, not the new area for habitation – freed from snow and ice – that will be of most importance for Europe but rather the huge resources – most importantly oil and gas – that will become available. (See Fig. 3).

Fig. 3: Oil and gas areas in the Arctic (www.amap.no)

This opening of new, huge oil fields will be very important for Europe and the World as a whole, as the resources of the Middle East and elsewhere will have started to decline markedly by 2020.

2. The activity of the Arctic Council

As the thawing of the Cold War had started in the 1980's the eight nations bordering the Arctic started a dialogue about the area. This dialogue led to the establishing of the *Arctic Council (AC)* in 1996. In 2004 the AC issued an *Arctic Climate Impact Assessment* (ACIA, 2004). This report finds that global warming is happening much faster in the Arctic than the earlier IPCC reports had assumed. A clear sign of the warming is the retreating of the polar ice that already has led to much increased shipping along Siberia in the summer (Ostreng, 2002). The ACIA report predicts that the polar ice cap will have shrunk by 40% by 2050 and also, on the average, have thinned by 30% (ACIA, 2004). (See Fig. 4).

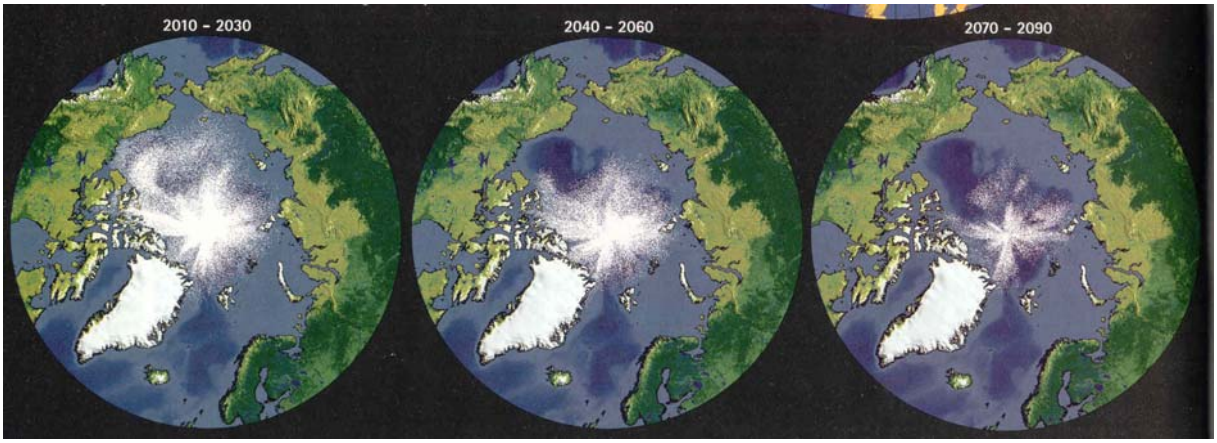

Fig. 4: The retreat of the polar ice cap. (Status of the ice in September). (ACIA, 2004)

The retreat of the polar ice will not only open vast ocean areas for oil drilling but will also open a short shipping route between the North Atlantic and North Pacific regions, first along the coast of Siberia and later through the north of Canada and north of Alaska. The opening of the *Arctic sea routes* will make international shipping much less dependent on shipping through the Suez and Panama canals, which are both placed in politically instable areas. A further consideration is that these two canals today cannot allow passage to the large, new container ships because of their limitations in size.

Each of the eight AC member states are now in the process of assessing the implications of global warming for their countries, their two years of rotating chairmanship giving a special impetus to do so. Iceland held the chair in 2003-´04 (Palsson, 2005; Valsson, 2003), Russia holds the chair in 2005-´06, followed by Norway in 2007-´08, i.e., during the *International Polar Year 2007-´08.* The Norwegian government has already issued a policy paper on Arctic matters (NMofFA, 2004).

3. How the bio- and climate zones will move north

Within the time span of today's projections, i.e. to 2100, Arctic land areas are expected to experience a 4 –7°C increase in temperature. Scandinavia will experience about a 2°C increase and southern Europe "only" about a 1°C increase in mean temperature. What follows is that bio- and climate zones will move northwards faster in the northern areas than in the southern areas of Europe. This means that the pressure on people to move from southern Europe to northern Europe will not be strongly felt until after some decades have passed. If the global warming continues after that period, the excessive heat, shortage of water, and increased desertification in the south will start to push people north.

The *migration of peoples* driven by shifting bio- and climate zones in response to the cooling or warming of earth's climate has often happened, both in prehistoric and historical times. The current elimination of national borders in Europe that has gradually taken place with the enlargement of the EU in the last 50 years allows Europeans to move about freely. The option of moving north (or south in the southern hemisphere) will, on the other hand, probably not be open in many other regions of the world as, for instance, in the Middle East, in the Indian Subcontinent and in Central America.

4. The change from the linear centre of Earth to a geographical centre

The northernmost parts of Europe have not only suffered from cold but also from their isolation on the periphery of the habitable spaces of the globe. This obviously means that very few people live in the high north and the area was, until the 20th century, almost totally outside of the sphere of access and transportation in Europe. The advent of motorized ocean-going ships and trans-global air routes has, however, recently meant huge advancements in the accessibility of these northern areas.

In early ages, as connections from Europe to other continents had not been developed, the "Medi-terranian-Ocean" was literally the "Middle-of-the-Earth-Ocean" for the civilized world of southern Europe and northern Africa. As the continents became connected by shipping, the centre of the Earth, topologically, became *a line* or *a ribbon around the globe*, about 30° north of the Equator – and the inhabited areas of Earth a belt of some 3000 km north and 7000 km south of that linear centre. (See Fig. 5).

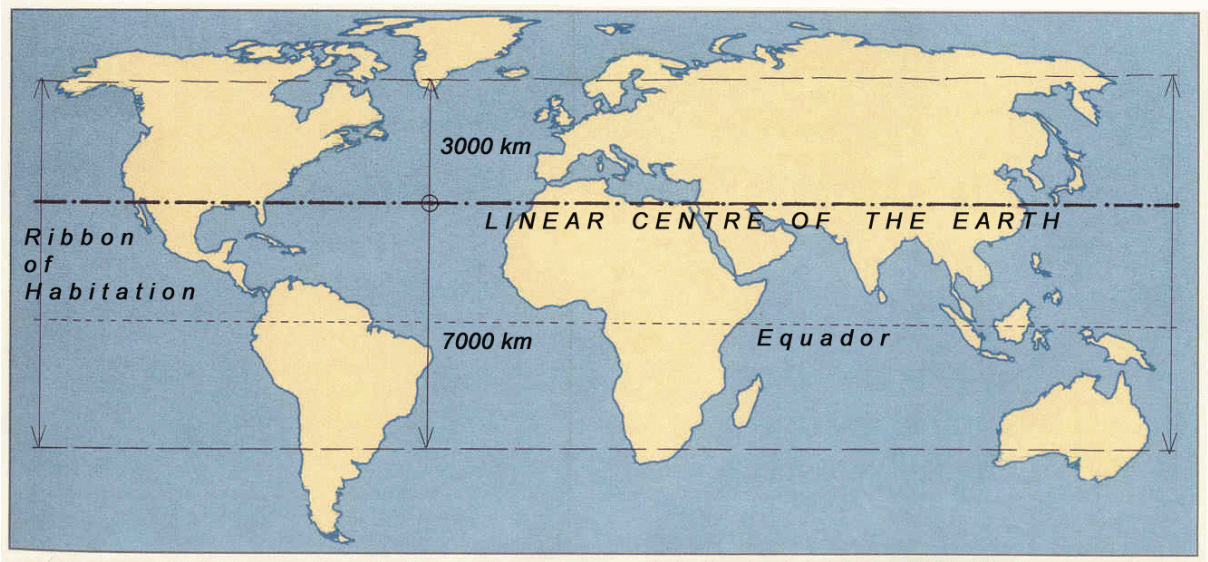

Fig. 5: Earth's linear centre and its Ribbon of Habitation

Even though the Earth is a sphere, the hostile climate of the polar zones has meant that very few people lived there and all transportation on Earth only took place within the *Ribbon of Habitation.* This status of spatial no-importance of the Arctic started to change in the 1970's with flights across the North Pole, taking advantage of the shortest distance between continents. The opening of Arctic areas for development, as well as the opening of major shipping lanes in and across the Arctic Ocean, will start to change the shape of the habitable world from a ribbon with a linear centre, to a new spatial centre of the huge circular land mass of the northern regions of the globe as these northern areas will become more activated. (See Fig. 6).

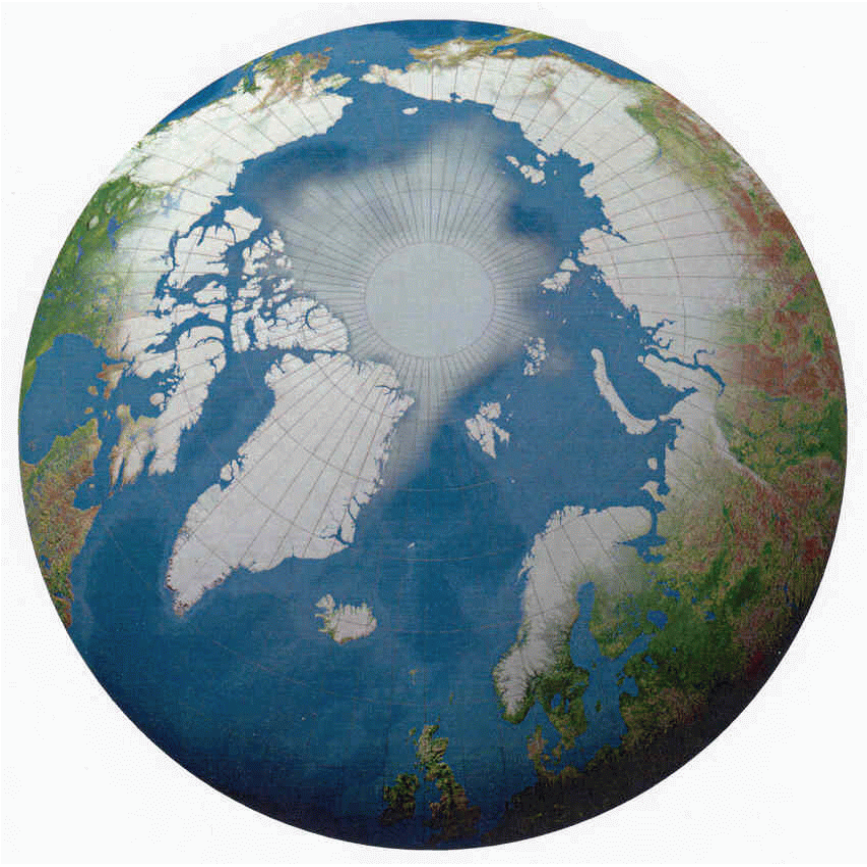

Fig. 6: The Circular World in the northern hemisphere. White: Future settlement areas (ACIA, 2004)

5. How a geographical centre in the Urals could gain importance

As the Northern and Arctic areas, in due time, will have become more active in terms of fishing, mining, oil drilling, transportation etc., *the circular area of the land mass of Earth* will get a geographical centre that has a meaning as a part of the most active areas and transportation lanes on the globe. This *geographical* or *spatial centre* of the land mass of Earth is possibly at the southern end of the *Ural Mountain range.*

In terms of *the traditional East-West, North-South orientation system*, it is advantageous to define the new, spatial *Earth Centre* there. In doing so the areas west of the Urals would be seen to be "West" and areas east of Urals as "East". What are defined as "Northern areas" and "Southern areas" would follow accordingly from this definition of the Earth Centre in the Urals. (See Fig. 7).

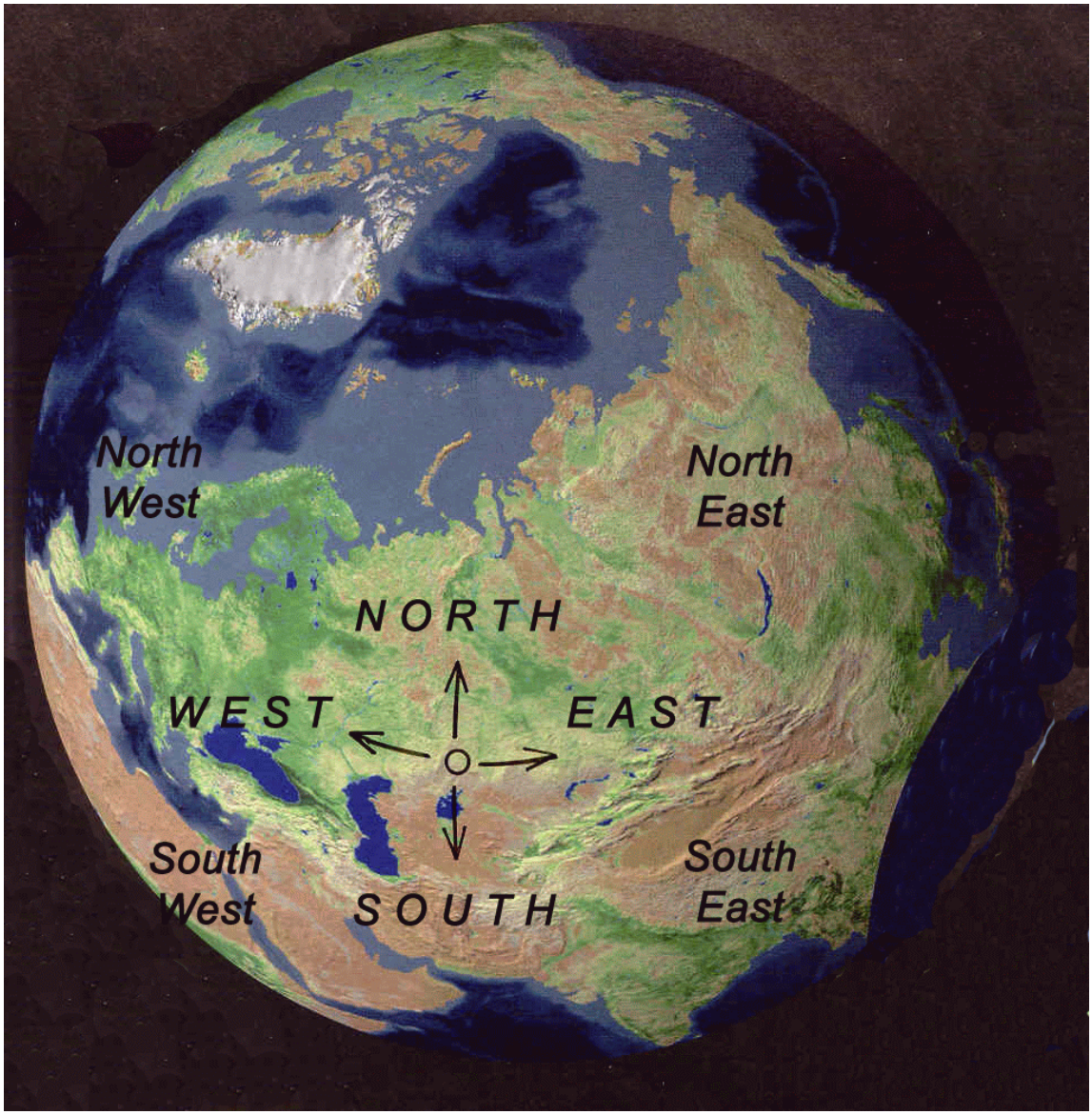

Fig. 7: A Centre for the Traditional Orientation System in the Ural Mountains

The activation of northern areas and transportation lanes across the Arctic Ocean, following global warming, gradually – over a very long time – would lend meaning to the geographical centre of the land mass of the northern hemisphere. One could imagine that this could start to happen markedly in about 100 years.

Eventually there will be two competing – but coexisting – centres of the world: Today's linear centre or ribbon around the globe and the northern regions of the world with a geographical centre of Earth's land mass in the Ural Mountains. If the warming trend on Earth continues beyond 2100, this will lead to the diminished importance of Earth's linear centre because many areas around the Equator would become almost uninhabitable – and which would split settlements in the southern hemisphere from settlements in the northern hemisphere. (See Fig. 8).

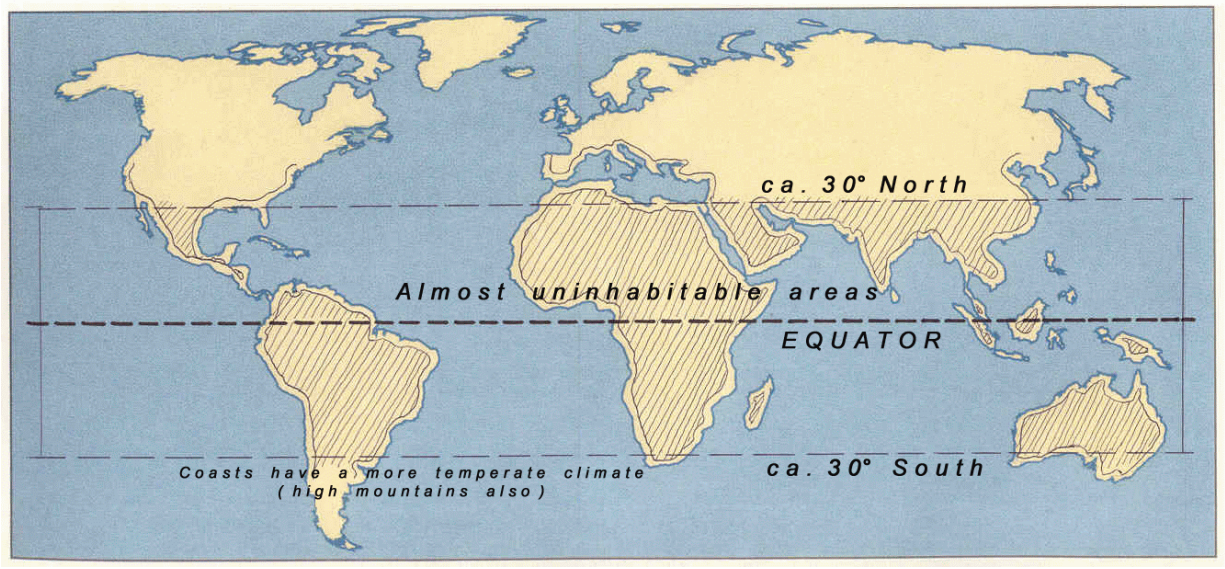

Fig. 8: An almost uninhabitable ribbon at the Equator and up to 30° north and south of it

Fig. 8 shows, in a very schematic way, the areas of the world that will suffer most from the warming of Earth's climate in terms of excessive heat, desertification, lack of water etc. The coast in these areas have a more temperate climate, so people will move to there. The rise in sea-level, however, will make this migration very problematic. High terrains and mountains are the safest places to escape to.

If large central areas of the globe become uninhabitable, the resulting separation of the settlements in the southern hemisphere from the ones in the northern hemisphere will lead to the reduction in the importance of today's linear centre around the globe north of the Equator, which will, logically, mean the strengthening of the gravity centre in the Urals, as well as other centrally located spaces in the northern hemisphere.

6. How the spatial standing of European areas could change

This paper has studied the question of how global warming may activate the northern areas of Europe and the globe. The vastness and the enormous resources of these areas, as well as the opening of shipping lanes between the North Atlantic and the Pacific, will mean that these areas will become of huge importance for the countries that own land in these – now "dormant" – northern areas.

The countries in Europe that will gain most from this development are Russia (because of Siberia), Denmark (because of Greenland) and Sweden, Norway, Finland and Iceland because of their northern regions that will become available for greatly increased commercial activity because of the warmer climate, lessened ice cover, and because, in due time, the Arctic sea routes, along their coasts, will become some of the most important global shipping lanes and will link them to other activity centres of the world.

In sum: This opening of this new northern frontier for Europe will have many benefits for the European community: Oil and gas resources will open up and other vast resources of Northern Scandinavia, Siberia, Greenland, Northern Canada and Alaska, will be readily available. In addition, the shorter and more secure transportation routes from Europe across the Arctic Ocean to south-eastern Asia and north-western Canada and the USA will be of huge benefit for Europe. Finally – if global warming continues beyond today's projections – people from southern and central European areas will have the cooler northern areas to escape to, if excessive heat, lack of water and desertification makes some of the southern areas difficult or unfit for human habitation.

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