ESPON project 3.4.1.

Europe in the World

Final Report – Vol.2
Integrated tools & thematic studies

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Integrated tools & thematic studies

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1 INTRODUCTION

The first part of this second volume of the final report of the ESPON project 3.4.1. Europe in the World is dedicated to the presentation of the methods used by the project partners and the tools they produce (new map templates, world databases…) to achieve it. It first focus on what it is at stake when one introduce the World as a new dimension in European spatial studies especially concerning the necessity to broaden the time scale. The enlargement of space and time focuses induces technical adaptations that are described in the chapters about map templates and database building. The methodological framework for the analysis of structures and flows are then shortly presented. This part finally contain dictionary of concepts that detail the main concepts used in this project.

The second part of the volume proposes the thematic analysis that did not find their way to the first volume, because they are very much detailed, too much for the synthetic presentations of the first volume. Those analyses are grouped according the main packages that organised the second work package of the project: demography, economy, accessibility, environment, neighbourhood, mental maps…

PART A

INTEGRATED TOOLS

2 SCALE, SCALE, SCALE…

> On se croit naturellement bien plus capable d'arriver au centre des choses que d'embrasser leur circonférence. L'étendue visible du monde nous surpasse visiblement ; mais comme c'est nous qui surpassons les petites choses, nous nous croyons plus capables de les posséder ; et cependant il ne faut pas moins de capacité pour aller jusqu'au néant que jusqu'au tout. […]
> Connaissons donc notre portée: nous sommes quelque chose et ne sommes pas tout. Ce que nous avons d'être nous dérobe la connaissance des premiers principes qui naissent du néant, et le peu que nous avons d'être nous cache la vue de l'infini.
> **B. Pascal (1671), Les Pensées, art. XVII, Connaissance générale de l'homme**

System analysis offers a good theoretical framework for the analysis of the situation of Europe in the World but this general method has to be adapted to the specific problems of an analysis which has to focus on the territorial dimension of political action. The introduction of a fourth dimension in European Spatial Planning has many consequences which can be classified into four interrelated problems: geographical dimension, time dimension, thematic dimension and political dimension. This notion of "dimension" is indeed not very clear and can easily be confused with the systemic concepts of "sub-system" or "hierarchical level" which has been defined in previous section. To clarify the problem, we propose to introduce the concept of "scale" which is easier to formalise from mathematical point of view.

2.1 Scales and Levels

The geographical dimension is firstly analysed because it offers a clear and useful distinction between the notions of spatial scale and territorial levels. To illustrate this point, we have established a table which displays selected geographical, demographic and economic characteristics of heterogeneous territorial units (table 2-1).

Table 2-1 : Basic information on selected territorial units in 1999

TERRITORIAL UNITS	Political Level	AREA km2	Pop. 1999 x. 1000	GDP 1999 x. Mio. $ pps
WORLD	Global	133 828 960	5 976 504	24 987 088
NAFTA	Supranational	21 557 900	409 059	8 994 767
Canada	National	9 970 610	30 957	664 021
Mexico	National	1 958 200	98 807	679 523
USA	National	9 629 090	279 295	7 651 223
UE15	Supranational	3 339 370	378 029	6 897 641
Germany	National	357 030	82 075	1 483 607
Netherlands	National	41 530	15 800	331 670
Greece	National	131 960	10 579	122 405
Luxembourg	National	3 000	433	14 595
Malta	National	300	390	4 356
France	National	647 300	60 825	1 196 613
Western France	Infranational	86 987	7 854	130 801
Bretagne	Infranational	27 811	2 937	48 526
Finistère	Infranational	6 882	860	14 773
Ile de France	Infranational	12 279	11 060	337 434
Hauts de Seine	Infranational	179	1 445	65 240
Paris	Local authority	108	2 144	120 643

Source: WDI, Eurostat, Maddisson database.

If we examine this table from political point of view, we can notice that territorial units belong to at least five different categories which are associated to different levels of analysis.

- Global level (0) is represented by a single territorial unit which is the world as a whole.
- Supranational level (1) is represented here by NAFTA and UE15 which are world regions based on group of states associated by treaties.
- National level (2) is represented by various states (Canada, Mexico, Germany, Malta…) which are very different in size but display the same characteristics of political autonomy, existence of independent statistical system, etc.
- Infranational level (3) is represented by the various levels of administrative division of states according to national or supranational criteria. For example, France has official territorial divisions with partial autonomy and political representation (regions, departments, communes), but also technical divisions related to supranational organisation of European Union (definition of NUTS1 regions called ZEAT).
- Local level (4) is represented by Paris which is at the same time a regional division (from level NUTS 3) and a local authority (from level NUTS 5) defined as smallest level of administrative organisation or political representation.

If we examine the table from the thematic point of view, we can consider that the comparison of territorial units of the same political level is not necessarily relevant and that, in many cases, empirical comparison would be more relevant through a combination of territorial units of different political levels because the scales of territorial units are completely different.

- From a geographical point of view, does it really make sense to compare two states like Malta (300 km2) and Canada (9 970 610 km2) or two NUTS 3 regions like Hauts-de-Seine (179 km2) and Finistère (6882 km2)?
- From a demographic point of view, is it relevant to compare Luxembourg (0.4 millions of inhabitant) to Germany (82.1 millions of inhabitant) or is it better to decide – as done by Eurostat - that Luxembourg can also be described as a NUTS3 region which can be more easily compared to Finistère (0.9 millions of inhabitant) or Hauts-de-Seine (1.4 millions of inhabitants)?
- From an economic point of view, is it interesting to compare the Netherlands (332 billions of $ pps) to a small Mediterranean island like Malta (4 billions of $ pps) or a continental economy like United States of America (7651 billions of $ pps) and isn't it more interesting to establish comparison with another metropolitan area of comparable size like Ile-de-France (337 billions of $ pps), despite the fact that it does not belong to the same political level?

The answer to such questions is not obvious because, according to the target of the analysis, we can either decide to focus on political criteria or thematic criteria when we select the basic territorial units which will be the basis of the analysis. A thematic harmonisation of the territorial units presents many advantages for the description of spatial trends and helps to avoid many traps in the interpretation of results. But at the same time, the introduction of heterogeneous political levels makes the elaboration of policy recommendations more difficult because territorial units of different political levels have not the same degree of autonomy in political action.

2.2 Geographical Scale (G-Scale)

The proper solution to the previous problem is not to oppose the political approach (levels) and the thematic approach (scales), but to find a coherent and clear way for their combination in the framework of ESPON project "Europe in the World". One important milestone for an objective approach is the concept of G-Scale proposed by Hagget (1965). When he introduced the concept of G-Scale, the initial idea of P. Haggett was to find an homogeneous mathematical solution

for the measure of surfaces which was expressed in different statistical units (spare kilometres, square miles, acres, hectares…). Therefore, the purpose of G-scale was to establish a universal measure of "Geographical scale" based on the decimal logarithm of the area of the Earth's surface divided by the area of the target portion of space according to equation (1)

$$G(AREAi) = \log_{10}(AREAEarth / AREAi) \quad (1)$$

As an application of initial Hagget's proposal, we can try to evaluate the G-Scales value of the area covered by NAFTA (21.6 millions of km2). As the total area of the earth is approximately equal to 510.1 millions of km2 (including both land and oceans), NAFTA represents 21.6/510.1= 4.22% of earth surface which correspond to G=1.37. In the case of Mexico (1.96 millions of km2), the share of earth surface is only 0.38% which corresponds to G=2.41. At first glance, these figures seem rather abstract, especially because of logarithmic transformation, but they offer very interesting properties:

- The G-scale is based on a natural referential (the whole Earth surface) which is equal to the reference value G= 0
- The interpretation of the values of G is very easy if we notice that they are related to the power of 10: G=1 represents 10%, G=2 represents 1%, G=3 represents 0.1 %, etc…
- The change of a referential to another one is obtained by simple difference of the value of G. For example, if we want to compare the area of Mexico's to the referential of NAFTA, we just have to subtract their respective G-values: 2.47-1.31 = 1.13 which indicates immediately that the area of Mexico is more or less equal to 10% of the area of NAFTA.

Of course, we can also address some criticism to Haggett's initial proposal and propose some adaptation. For example, we can estimate that the good referential for the estimation of the surface of NAFTA is not the whole area of the Earth but only the land area (148.8 billions of km2) without oceans (361.3 millions of km2). In this case, NAFTA represents 14.5% of the land areas and obtains a better score with G= 0.84. We could also develop a more political approach and decide to exclude Antarctica from the definition of land area, because it is a common property of mankind and not the property of a given sovereign states. In this case, the "political area" of the World is reduced to 133.8 millions of km2, from which NAFTA represents 16.1% with a value G=0.79.

The reader has probably noticed that in the last proposed measure of the scale of NAFTA, we have replaced the term "Earth" by the term "World". Indeed, the term "Earth" is related to the natural subsystem of Universe which is our Blue

Planet whereas "World" is related to the global system of mankind which, as far as we know, is not included actually in a social system of upper level. This crucial distinction between Earth (natural system) and World (social system) leads us to propose another version of Hagget's scale which will keep the initial name of G-Scale but with another meaning where G will be the abbreviation of "Global" and not "Geographical". This new version of Hagget's scale can now be applied to any kind of phenomena distributed across the world, not only area but also population, wealth, water resources, carbon dioxide emission, etc… Each phenomena which is defined as a raw count variable (X) can indeed be measured on the Global scale of the World according to equation (2):

$$GWorld(Xi) = \log10 (XWorld/ Xi) \qquad (2)$$

As an example, we have transformed all initial information of table 2-1 into their equivalent on the Global Scale of the World (table 2-2).

Table 2-2 : Example of G-Scale transformation

	% World			G-scale		
TERRITORIAL UNITS	AREA	POP	GDP	AREA	POP	GDP
WORLD	100%	100%	100%	0	0	0
NAFTA	16.11%	6.84%	36.00%	0.79	1.16	0.44
Canada	7.45%	0.52%	2.66%	1.13	2.29	1.58
Mexico	1.46%	1.65%	2.72%	1.83	1.78	1.57
USA	7.20%	4.67%	30.62%	1.14	1.33	0.51
UE15	2.50%	6.33%	27.60%	1.60	1.20	0.56
Germany	0.27%	1.37%	5.94%	2.57	1.86	1.23
Netherlands	0.03%	0.26%	1.33%	3.51	2.58	1.88
Greece	0.10%	0.18%	0.49%	3.01	2.75	2.31
Luxembourg	0.00%	0.01%	0.06%	4.65	4.14	3.23
Cyprus	0.00%	0.01%	0.02%	5.65	4.19	3.76
France	0.48%	1.02%	4.79%	2.32	1.99	1.32
Western France	0.06%	0.13%	0.52%	3.19	2.88	2.28
Bretagne	0.02%	0.05%	0.19%	3.68	3.31	2.71
Finistère	0.01%	0.01%	0.06%	4.29	3.84	3.23
Ile de France	0.01%	0.19%	1.35%	4.04	2.73	1.87
Hauts de Seine	0.00%	0.04%	0.48%	6.09	3.45	2.32
Paris	0.00%	0.02%	0.26%	5.87	3.62	2.58

The comparison of table 2-1 and table 2-2 proves that the transformation of initial information into standardised value (share of the world and Global World Scale) presents many advantages for the analysis to be developed in the project Europe in the World:

- Immediate evaluation of the size of territorial units at the world scale: with table 2-1, it was not easy to define the size of a territorial unit at the world scale and the reader was obliged to make really complicated arithmetic operations to perform this evaluation. For example, the demographic size of Netherlands (15.8 millions of inhabitants) had to be compared to the world population (6 billions of inhabitant) when the results is immediately obtained in Table 2-2 (0.26 % of world population, G=2.58).
- Immediate comparison of the size of a territorial units for different criteria: with table 2-1, it was not easy to compare the geographic, demographic and economic size of territorial units at the world scale, because they were measured in different units (km2, inhabitants, $ pps) and the total sum of the World was not the same. With table 2-2, we can see immediately that the size of France dramatically varies according to the criteria and is the most important for economy (4.8% / G=1.32), then demography (1.02% / G=1.99), then geographical area (0.48% / G=2.32).
- Immediate building of objective typologies for size criteria: due to the standardisation of criteria and the proprieties of logarithmic scale, it is very easy to build typologies according to size criteria when using G-Scale. We can for example consider as "Very Large" the units situated between 10% and 100% of the World (G comprise between 0 and 1), as "Large" the units between 1% and 10 % of the World (G comprise between 1 and 2), as "Medium" the units between 0.1% and 1% of the World (G comprise between 2 and 3), as "Small" the units between 0.01% and 0.1% of the World (G comprise between 3 and 4) and finally as "Very small" the units under 0.01% of the world (G lower than 4) and can be neglected in the analysis as their contribution to the result is less than 1/10 000e of the target phenomena. The fact that the size of a unit is decreasing when the value of G increase appears at first glance something difficult for the reader. But we can notice that the form of scale is in fact consistent with the notion of "level" which has been presented in previous section. G scale is also consistent with natural language when we say, for example, that from a demographic point of view USA is a state of "first level" (G≈1), France "second level" state (G≈2) and Greece a "third level" state (G≈3).
- Easy transformation of scale according to a hierarchy of levels: As noticed previously about initial formulation of Haggett's scale, it is easy to change the referential of any measure based on G-scale by simple computation of arithmetic differences between the G-scale of a territorial and the G-scale of any territorial unit of upper level. For example, the demographic size of Paris is "Small" at the world scale (GWorld= 3.62), but "Medium" at the EU15 scale (GEU15 = 3.62-1.20 = 2.42), "Large" at the national scale (GFrance = 3.62-1.99 = 1.63) and "Very Large" at the regional scale (GIle de France= 3.62 – 2.73 = 0.89).

- Easy computation of standardised ratio and distribution indexes: Last but not least, the normalisation of raw count variables according to the world total makes very easy the computation of all derived ratio and all related indexes of unequal economic allocation of resources to population or unequal geographic distribution of population. For example, the fact that USA represents 4.7% of world population and 30.6% of world GDP (pps) indicates immediately that their GDP (pps) per inhabitant is equal to (30.6/4.7) = 6.6 times higher than the average value of GDP/inh of the world. We can also immediately deduce that their population density is a bit lower than world population density because the ratio of their share of population and area is equal to (4.6/7.2) = 0.65.
- Opportunity to distribute statistical results with limited copyright problems?: The fact that we do not use initial raw count variables or ratio but share of world population and standardised index could be an opportunity to distribute the results of ESPON project "Europe in the World" without being obliged to face a huge number of copyright. It is a point to check from a legal point of view, but if the transformation or raw count variables into share of the world and G-scale can be considered as an intellectual added value, ESPON can probably be allowed to distribute more easily related tables and maps1.

2.3 Time Scale (T-Scale)

The previous proposals on geographical scale of analysis of phenomena (G-Scale) is not independent from another discussion related to the choice of time scale (T-Scale) to be chosen in the analysis about the situation of Europe in the World. The link between space and time scales is related to the general empirical rule according to which systems of large size offers a higher level of stability through time than systems of smaller size. There are of course many exceptions to this heuristic observation but it remains generally true and suggests that the analysis of spatial trends at the world scale should necessary be based on longer time periods than other analysis realised at regional scale in the framework of the ESPON program.

Another argument in favour of the use of longer time scales in the framework of project ESPON 3.4.1 is the fact that it is easier to obtain long term time-series

[1] G-Scale transformation can be considered as a very basic system of cryptography. For example, the G-scale value of the population of USA in 1999 (1.16) is the encrypted value of the real figure of population (279.3 millions of inhabitant) through the application of the cryptographic formula $G(X) = \log_{10} (Key/X)$, where the key of the code is the total population of the world in 1999 (5976.5 millions of inhabitants). Without this key value, it is not possible to obtain the real figure which was in the initial database. The legal problem is to evaluate if the cryptographic system is sufficient to protect initial information and if the added value of the G-scale transformation is sufficient to consider that it is an intellectual creation.

when basic territorial units are states than when it is NUTS2 or NUTS3 regions. During the last lead partner meeting of the ESPON project (March 2005), the panel group on ESPON core indicators noticed that only 4 indicators on an amount of 110 was dynamics, 2 of them related to past trends and 2 others to estimated future trends. This strong limitation of dynamic indicators is obviously related to the difficulty to elaborate complete statistical databases at NUTS2 or NUTS 3 levels for the 29 different states of the ESPON project and also to the many changes of administrative territorial divisions which took place in Europe during the period 1989-1995 (see. SIR of ESPON Project 3.2 on long term database). But it is a crucial problem for a spatial planning program like ESPON which can not elaborate long or mid-term scenarios without information on past trends.

Even if the spatial resolution is lower, the database elaborated by the ESPON project 3.4.1 should enlarge the time focus to longer period in past (1960-2000) and future (2000-2030) in order to provide this information to other ESPON TPG, especially project 3.2 which has to elaborate a long term database for the quantitative evolution of political scenarios. The time series elaborated at the state level by ESPON 3.4.1 will indeed be transformed into regional estimations according to various procedures of desegregation. But in the case of other projects like ESPON 3.3. Lisbon Strategy, the time series elaborated at state level by ESPON 3.4.1 can also contribute to the development of a historical perspective of benchmarking of economic growth and competitiveness between Europe and other parts of the World.

The introduction of a historical perspective for the analysis of the situation of Europe in the World is something which can dramatically modify the approach of European Spatial Planning because it implies a multiscalar evolution of trends not only in space but also in time. To illustrate this notion of time scale, we propose, as we have done for G-Scale, to analyse an empirical example which is the comparison of economic and demographic trends in southern and eastern neighbourhood of Europe (figure 2-1 & table 2-3)

Table 2-3 : Economic and demographic trends in SE Mediterranean and East Central Europe according to various time-scales

T-scale			South and East Mediterranea		East Central Europe	
			Pop	GDP	Pop	GDP
0	Very Short	1999/2000	1.8%	5.1%	-0.2%	4.4%
1	Short	1993*/1998*	2.0%	4.2%	-0.3%	-0.2%
2	Medium	1988*/1998*	2.2%	3.8%	0.0%	-3.0%
3	Long	1978*/1998*	2.4%	3.9%	0.2%	-0.9%
4	Very Long	1958*/1998*	2.5%	4.9%	0.6%	1.7%

(*) indicate five year mean. For example, 1993* is the mean value of the period 1991-1995
Source: Maddisson database.

The aim of this example is not to discuss the interest of a benchmarking between eastern and southern part of the western European neighbourhood but to introduce the interest of a multiscalar analysis of trends in time and to propose simple rules for the definition of T-scale in future research of project developed by ESPON project "Europe in the World".

- Very short term evolution (T-scale=0) will be defined as all trends which are based on a time span lower than 5 years. Between 1999 and 2000 the countries of East Central Europe (ECO) have a rate of economic growth which is very high and approximately equivalent to that of countries of South and East Mediterranea (SEM). But this information is of low interest because it is based on the evolution of a single year.
- Short term evolution (T-Scale=1) is related to evolutions observed on a period of 5 years 2 which can be considered as the minimum period of time for the observation of significant trends at world scale. According to this criteria, we can say that countries from SEM have experimented positive trends from a demographic (+2.0 %/year) and economic point of view (+4.0%/year) over the recent period, when countries from ECO were characterised by slightly negative rates on both criteria (-0.3% and -0.2% / year
- Medium term evolution (T-scale=2) is related to evolution on a period of 10-15 years. They are related to more structural evolution and, in the case of ECO, this time scale characterises typically the evolution since the fall of the iron curtain in 1989. The change of T-Scale has little effect on the measure of trends in SEM countries but produce an important change in the appreciation of economic trends in East Central Europe which appears

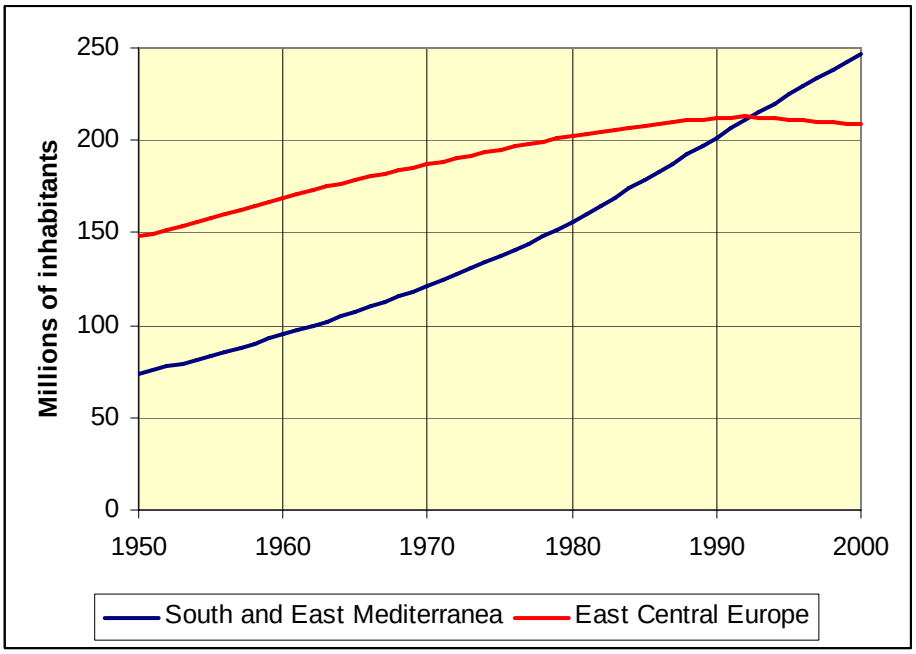
[2] Which means not only the evolution between two different years separated by 5 years (1995/2000) but the evolution between two period of five years (1991-1995 and 1996-2000) for which we have computed the average value before calculating the mean (average?) rate of evolution (1993*/1998*). We could also use a regression model of linear (X=a.t+b) or exponential (logX=exp(a.t+b)) form for the estimation of trends at various time-scales.

very negative (-3.0%) when they were just slightly negative in a short term (-0.2%) and highly positive (+4.4%) in a very short term.

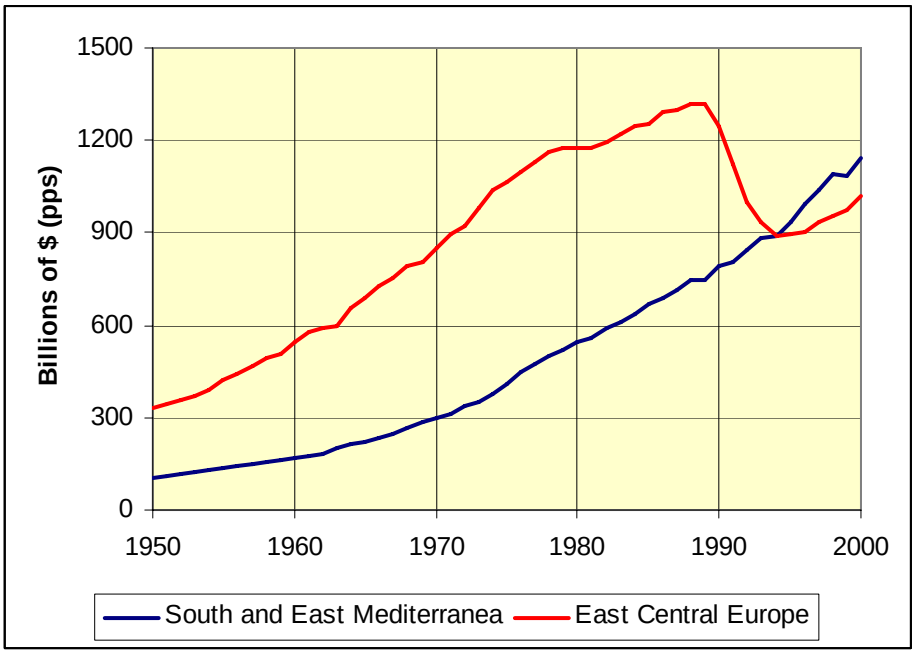
- Long term evolution (T-Scale=3) is related to evolution on a period of 20-25 years, which begins to be mainly related to structural factors but can be influenced by cyclic factors. At this scale of time, the situation of countries from ECO is not as negative as previously, at least from a demographic point of view (+0.2%/year).
- Very long term evolution (T-Scale=4) is related to evolutions observed on a period of 40-50 years which is in fact very short from a historical point of view but can be considered as the maximum time for most political decisions. In our example, it is clear that the economic and demographic growth of SEM countries has been much higher than that of ECO countries during the last 50 years. In 1950, the population and economic size of SEM countries was 50% of the size of ECO countries, but they have become equal for both criteria at the beginning of the 1990's and we can suppose that the situation will be reversed around 2020-2030.

Figure 2-1 : Comparative demographic and economic evolution of countries from South and East Mediterranean and East Central Europe

(a) Population 1950-2000



(b) GDP (pps) 1950-2000



Source: Maddisson database

East Central Europe: Albania, Armenia, Azerbaijan, Bulgaria, Bosnia, Belarus, Czech Republic, Estonia, Georgia, Croatia, Hungary, Lithuania, Moldova, Macedonia, Poland, Romania, Serbia/Montenegro, Slovakia, Slovenia, Ukraine.
South and East Mediterranean Sea: Cyprus, Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Latvia, Malta, Syria, Tunisia, Turkey, Morocco, West Bank &Gaza stripe.

2.4 Political levels (P-levels) and political scale (P-Scale)

The previous technical discussion on G-Scale and T-Scale was necessary to define the ground basis of political scales (P-scale) to be used in the framework of project Europe in the World for the elaboration of the 4th dimension of political action. As explained in the beginning of this section, we have to face a difficult problem of definition in order to distinguish between political levels and political scales. Political levels can be defined as a hierarchy of systems and subsystems with alternative clear and unclear territorial definitions (table 2-4).

Table 2-4 : Definition of political levels

Political LEVELS	basic TERRITORIAL units	Examples	SPATIAL definition
0	World	World	Clear (at least for land areas but not necessary for oceans)
1	World regions	NAFTA, Western Europe, EU25, ESPON29, Asia, …	Unclear (cross-cuting divisions according to criteria)
2	States	USA, Germany, Liechtenstein, Southern Korea, ...	Clear (with some exceptions like Western Sahara, Tai-Wan)
3	Administrative regions & Metropolitan areas	Bayern, Arkansas, Basel-Stadt, Wallonia, Greater London, ...	Unclear (because various possible levels of administrative divisions)
4	Local authority	London, Ixelles, Paris, Sucy-en Brie,…	Rather Clear (when defined on an administrative basis)
5	Local neighbourhood	Paris XIIIe, Manhattan, Ramblas, Mala Strana , ...	Unclear (not necessary based on fixed administrative division,)

The clearest definitions are related to political levels 0, 2 and 4. The level of the World (0) is the global level of political organisation of mankind considered as a whole. Local authority (4) can be defined in a symmetric way as the first level of political organisation. State level (2) is the central level of political organisation which defines the system of international relation. But between each of this relatively clear levels of political organisation, we can find an intermediate system (1,3,5) which has gained growing importance over the last twenty years but without clear definition in most cases. In the case of world regions (1), the problem relies on the great variety of criteria that can be employed for the divisions of regions (juridical, economical, demographical, mental maps, flows, …), producing cross-cutting divisions of the world without clear solutions for the definition of a "best partition" (see Key Question 1). In the case of administrative regions (4), the problem is not related to the fact that administrative division are fuzzy but to the fact that there is a great number of regional divisions in each state according to geographical scale and to functional criteria. The

administrative division of each state are the result of national culture and history, which means that they are generally not comparable from one state to another (Cf. the MAUP problem for NUTS2/NUTS3 divisions in Europe). Another problem is related to the fact that towns which are major functional realities generally do not fit perfectly to administrative units. In the case of local neighbourhood (5) the problem is related to the fact that social groups have various representations, various mental maps of the place where they live which can not necessary be taken into account by local administrative authorities. But at the same time, these local neighbourhoods ("my street", "mon quartier") are perceived as a major reality by citizens and are often the crucial level of democratic organisation of society.

The notion of political scale is different from the notion of political level because political scale is not based on the political definition of territorial units but on their functional capacity to influence the evolution of the rest of the World. The political level can contribute to the definition of the political scale (e.g. an increase political integration of European Union can increase its capacity of action at world scale) but the notions are fundamentally different. The definition of political scale (P-Scale) is clearly related to the previous defined geographical scale and time scale, which can be illustrated by a draft version of political scales presented in table 2-5.

Table 2-5 : Draft version of political scales

Political scale	Power level	Exemple	G-scale	T-scale
0	Global	USA (?)	0.5<	> 4
1	Macro-regional	EU25, Japan-China	0.5 to 1	> 3
2	Regional	Russia, India	1 to 1.5	> 2
3	Micro-regional	Sweden, Benelux	> 1.5	variable

As a very preliminary proposal, we propose to distinguish between 4 different levels of political scale, which are presented here in a general way but should be adapted to different criteria (economic, demographic, environmental, social, cultural …) with different results in terms of classification of territorial units.

- Global political scale (0) characterises states or international organisation which have the power to influence the evolution of the rest of the World and which are subject to no limitations in their political decisions. This situation implies a situation of global domination (G-Scale) for a set of criteria which corresponds to an important share of world resources for these criteria. In practical terms, a share of 30% of the world resources (G<0.5) is generally sufficient if any other potential challenger has a share of resource greater than 10-15%. This situation is actually typically observed for the United States for a great number of criteria (economy,

military power, cultural influence …). From the point of view of time, the global domination implies the development of long term strategies on at least half a century (T-scale > 4) both for the establishment of the global power and for its reproduction in the future. Once more, the situation of the United States is typical with very powerful think-thanks (private or public) which provide analysis, visions and scenarios for the realisation of long term objectives.

- Macroregional political scale (1) characterises states or international organisations which can influence the evolution of the rest of the world but at a less degree than before and with a higher level of dependency to the evolutions observed in the rest of the world. In territorial terms, this situation is generally associated to a dominant influence on a limited part of the world and a less important capacity of actions in the rest of the world. European Union on the one hand, China and Japan on the other hands are typically representative of this category of political scale. But with the important difference that European Union is an emerging political level when China and Japan are rather engaged in a competition for political and economic domination in eastern Asia. In both cases, the G-Scale is comprised between 0.5 and 1.0, which means that these entities account for 10 to 30% of world share on several criteria. In terms of T-Scale, the strategies developed by these entities are generally shorter 20-25 years but are based on important administrative bodies (European Commission, Japan minister of industry and economy …) linked with research institutes and expert groups.
- Regional political scale (2) corresponds to a lower level of states or international organisations which is submitted to world trends and has a limited influence on them or only for certain criteria or functions. Their territorial influence is generally limited to the states with which they have common border but which can represent an important part of the world in geographic or demographic terms. Good examples of this situation are provided by India, Russia and Brazil, but with very different situations according to the nature of their relations with neighbouring states (conflict, common history, economic treaties …). Once more, the political scale defines potentialities which are more or less used and can be negatively or positively influenced by the evolution of political levels. The G-Scale of regional political construction is limited from 3 to 10% of the world share and the associated T-Scale is limited to evolutions which are generally not planned or predictable on time periods greater than 10 years.
- Micro-regional political scale (3) can be applied to the case of states or international organisations of large to medium size but which benefit from the lack of powerful challengers in their immediate neighbourhood, which offers them a local area of influence. The regional influences of Sweden in

the Baltic Sea, or Vietnam in former colonial region of Indochina, are good examples of such situation. In both cases, the micro-regional area of political influence is included in a wider political area at regional or macro-regional scale which indicates that they can be analysed as sub-systems more or less integrated to systems of upper level. The G-Scale of such micro-regional political organisation can be very different but does not represent generally more than 3% of world share. In terms of T-scale, the situation is not simple because such micro-regional construction can be very solid and based on long term period of historical existence. The fact that micro-regional scale is based on relations between a limited number of states can make easier a strong integration, as in the case of Benelux which still exists as an important political reality inside the European Union. We can assume that a good knowledge of the micro-regional political scale is a crucial topic for the understanding of political constructions of upper level to which they provide elementary bricks.

The definition of a political scale is a useful tool for the analysis of the situation of Europe in the World and for the analysis of the consequences of globalisation on the development of the European territory. But we have to be aware that this very hierarchical approach of international relations (mainly based on the geopolitical concept of power) is not always relevant and that many other aspects of globalisation are based on transnational flows and networks which can not be captured by these classical concepts. For example, transnational firms developed territorial strategies which are not necessary the same than those of states or international political organisations to which they belong originally and in many cases it is difficult to define their nationality. The economic size of biggest world firms can be equivalent to the size of states of medium and large size (G-Scale between 2 and 3) but their strategies are often developed on shorter periods of time (T-scale lower than 2) and they can introduce a very high level of uncertainty in spatial planning. The same is true for World Cities like New-York, London or Tokyo which are parts of a global network of communication which is partly independent from the political territorial division of the world and can not be analysed through the classical geopolitical grid of levels of power. World is definitively complicated …

2.5 Conclusion

> Is this the Region, this the Soil, the Clime,
> Said then the lost Arch Angel, this the seat
> That we must change for Heav'n […]
> Hail horrours, hail
> Infernal world, and thou profoundest Hell
> Receive thy new Possessor: One who brings
> A mind not to be chang'd by Place and Time
>
> **J. Milton (1674), Paradise Lost, I, 242-254**

Some reader of these pages has probably been disappointed by the huge number of theoretical and methodological considerations which has been introduced as preliminary to the research. But the clarification of concepts and tools is, in the author's opinion, the necessary condition for the development of good empirical results related to relevant policy recommendations. The introduction of a fourth dimension in the actual practice of European Spatial Planners is not a trivial question and it is necessary to obtain a good agreement on concepts and methods, from both scientific and political points of view, before to develop intensive research on the subject. The time which is apparently wasted on theoretical boring consideration can be in fact a gain for future research in a longer term perspective like the one of ESPON II (T-Scale > 1 ….).

As a form of apologize to the reader which accepted to follow the authors in this difficult introduction to the project, we propose a simple political application which, we hope, demonstrates the interest of the way we propose to follow in future development of project 3.4.1. We have chosen for this the example of the application of Kyoto's protocol on the reduction of carbon dioxide emission.

The classical approach of the problem is the international approach which is based on the negotiation between independent states which agree or disagree to sign the protocol of Kyoto, with a minimum number of states requested for the application of the international treaty. As we can see on figure 2-2 it is possible and interesting to transpose at world scale the multiscalar territorial approach which was used in the ESPON program for the analysis of regional situations. The basic territorial level of analysis is the distribution of world population and CO2 emission by states (Figure 2-2-c) where we can easily compare the share for both criteria (application of G-Scale). According to the fact that CO2 emission are not limited to the territory of a given states but produce a global change of the climate of the earth, it is logical to consider that it is a common responsibility and that, in a situation of international justice, each state should not produce a share of CO2 greater than its share of population without prejudice for the rest of mankind. From this point of view, the map indicates clearly that all states of the

ESPON area in a situation of excess of CO2 emission according to their population3. At this level of analysis, it is very difficult to obtain an international consensus, especially if we take into account the historical dimension of the phenomena (T-scale>4) and the fact that a major part of the actual stock of the CO2 has been produced by industrial countries from Europe and Northern America in XIXth and XXth centuries. Emerging countries have full right to invoke this historical responsibility of most developed countries and to suspect them to use sustainable development as a way to limit their actual economic growth.

To analyse the phenomena at different territorial scales like division of the world in 17 regions or 3 macro-regions (figure 2-2-b) is especially interesting because it introduces alternative political approaches of the solution to the global problem of climate change. At regional level (figure 2-2-b), we can for example notice that the fusion of China, Japan and Korea into a single unit produces equilibrium between the share of population and CO2 emission. It means that the objective of global equilibrium could be achieved in this case by a technical cooperation between the states of the region instead of separate actions at national level. Japan has indeed proposed to obtain delays for the reduction of its own emission of CO2 but to help China to develop industrial technologies producing less CO2. This is typically a pragmatic win-win political solution if it is correctly applied. The European Union has also proposed to fix a global objective for all members States in order to have more smoothness in the application of Kyoto's protocol. But in this case the solution is not sufficient to obtain equilibrium because all members States have excess of CO2. It is only at the upper level of world divided in 3 macro-regions (figure 2-2-a) that Europe can eventually develop the same strategy as Japan. In this scenario, Europe should develop partnerships with all states of Africa, middle-east and former Soviet Union in order to really fulfil its obligation at the world level. A unilateral reduction of CO2 emission in UE25 would probably be economically difficult to support for European industry and it would not necessary be efficient at the world scale because industries producing CO2 would certainly decide to relocate in neighbouring eastern and southern periphery of Europe. It is typically a lose-lose solution, derived from the fact that the geographical scales of political action is not the good one. To complete the picture, we can notice that USA are not able to develop an equivalent strategy of macro-regional cooperation because, even if they involve Northern and Southern America in a common project, there would remain a strong excess of CO2 as compared to population of Americas. It is only through cooperation with major States of Asia, such as India, that USA could achieve the same political objective as EU or Japan.

[3] The so-called « economic ecological efficiency » which is based on the comparison between share of emissions of CO2 and share of world GDP (expressed in $ and not pps) is a real moral failure which is nevertheless used by many states to justify their actual excess of CO2 emission. If European policy makers have a minimum sense of responsibility, they should not use such argument in negotiations!

Of course the approach developed above is strongly influenced by the choice of territorial divisions which has been used for the delineation of world regions and macro-regions. We can suspect that another definition of the ESPON regions would have produced another political result. Therefore it is necessary to complete the analysis by another cartographic approach which computes the global potential of CO2 emission in a neighbourhood of 1000 km without considering political boundaries (figure 2-3). This map of CO2 potential which was presented in the preliminary report of ESPON 3.1 on "Europe in the World" displays a perfect representation of the "Economic Triad" and is strongly correlated with the map of GDP potential established with the same parameter. It indicates clearly that it is impossible to build a world policy of reductions of CO2 without an international policy at macro-regional level, with at least three big agencies of objective in northern part of the earth and eventually three smaller agencies in southern part (because of equivalent small peaks of CO2 emission in southern Africa, southern America and Oceania).

This small example demonstrates that it is not possible to build new policy without building new tools of analysis and representation: "the limits of my language mean the limits of my world" (L. Wittgenstein).

Figure 2-2 : A multiscalar Territorial Analysis of Kyoto's Protocol

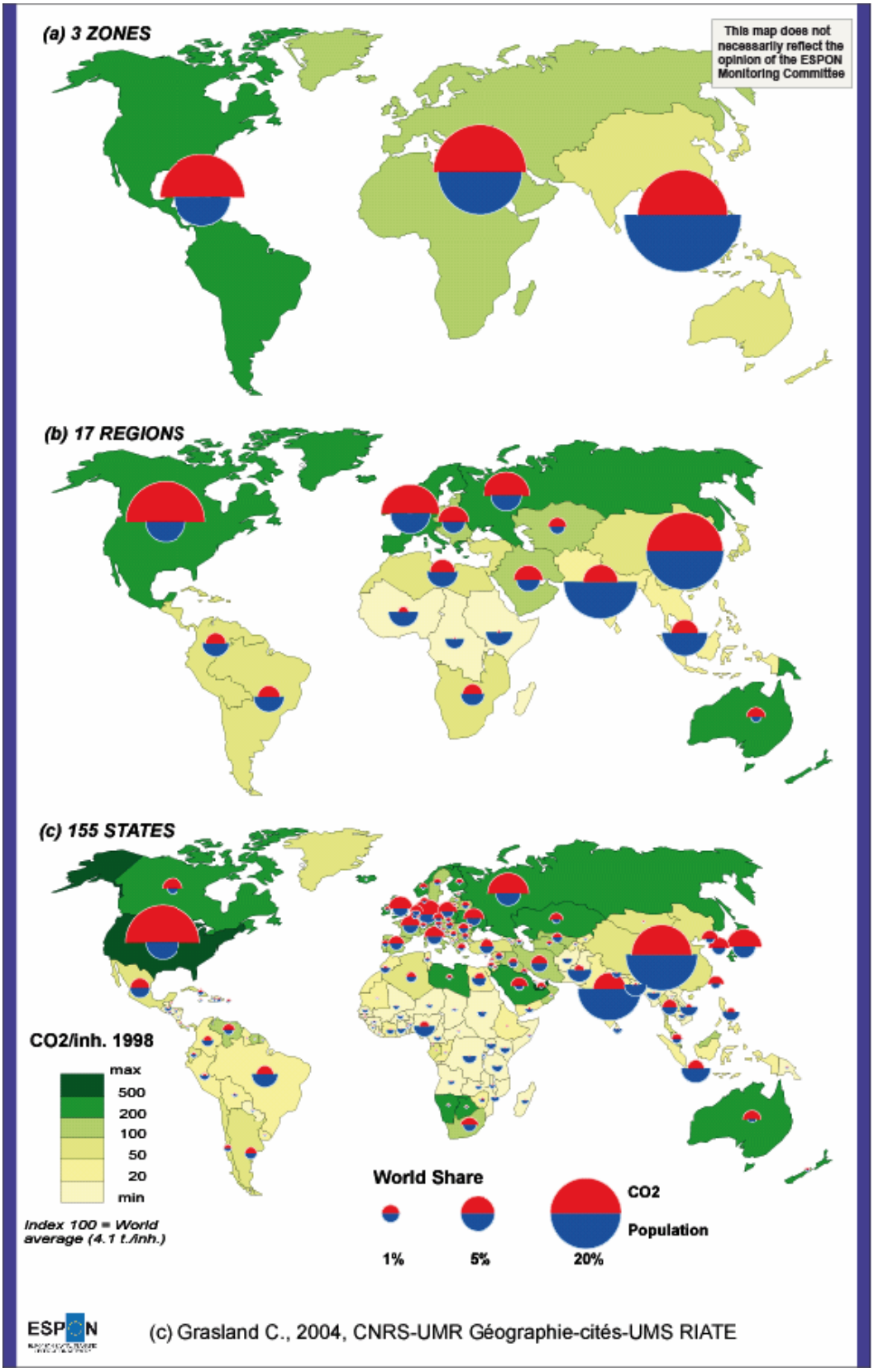
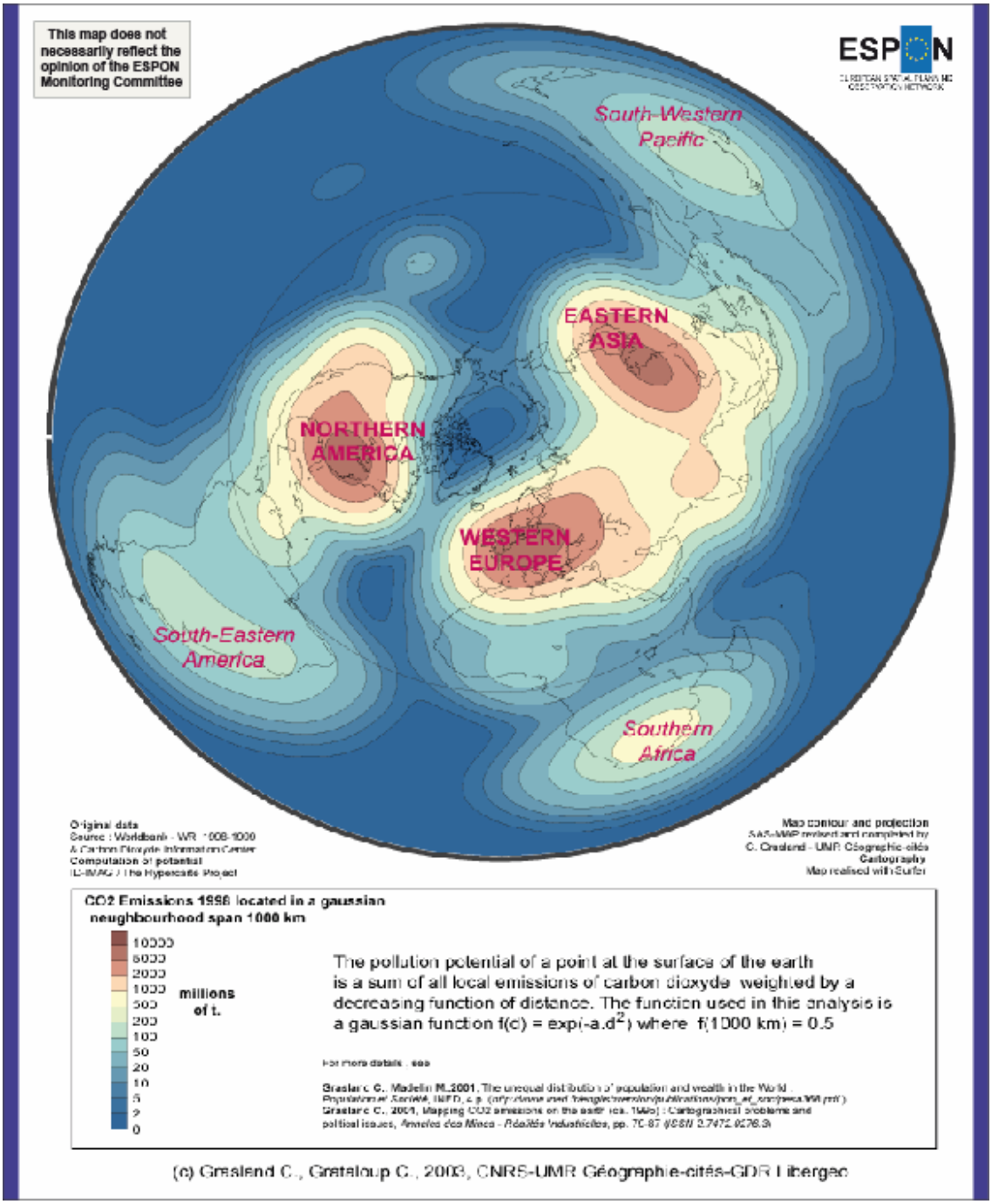


Figure 2-3 : A global spatial vision of Kyoto's Protocol



3 MAP TEMPLATES AND GRAPHIC HARMONISATION

The objective of the work package on databases and maps is to make « proposal for an effective statistical and cartographical framework for the needs of the research, in particular in relation to the questions of geographical projection and by adapting the level of aggregation to the specific needs European policy ». This work package is more generally responsible from the harmonization of maps produced by the partners. The thoughts for maps harmonization will be present here with the template proposed to partners for each scale /theme of analyse.

One of the tasks for the ESPON Project 3.1 was to develop new cartographic and spatial analysis tools that could be used by all other TPGs of the ESPON Programme, and at a later stage also by end-users. ESPON is not a single institution. Instead, it is a research project network. Every project includes a team of partners from different European countries. It was sensed from the outset that ESPON needed some common base and means to steer the various TPGs so as to achieve coherence and identity in the ESPON outcome. The TPG 3.1 proposed a few templates for the design of European territory maps (projection, shape, design …).

As ESPON is above all about spatial patterns and trends, it was clear that most of the outcomes would be shown on maps. Therefore, a common ESPON map layout, for all separate TPGs, was essential. Project 3.1 designed a first draft for map layout. The design of maps showing the European situation in the world entails many technical questions (projection, framework, aggregation level …) of crucial importance from scientific and political viewpoints. The third Interim Report (annexe-b) brought to the fore a map projection which gives the opportunity of a polycentric, but universal representation. This polycentric projection had been justified: "none of the world economic centres is stressed, as far as it can be used in any direction. This implicit message is essential for the analysis of a polycentric Europe in a polycentric world".

All those thoughts were very useful but now, we need to settle down our choices for map presentation. It ensures coverage of all regional levels for the ESPON countries (an EU29, a pan European and a world templates). For a complete cartographic presentation, adjacent parts of the surrounding countries were added (the "non ESPON space"), including the map background, borders, and coasts. The Remote Areas and islands are included as insets.

Thus, the ESPON TPGs obtained a unique tool to generate based thematic maps. The standard ESPON map is already used in the cartographic representations in

all Interim Reports. Now it is necessary to offer similar rules for the design of maps of Europe in the world, which implies many possible choices.

3.1 Which Cartographic Projection?

The ESPON program decided to harmonize the maps that are produced in the network and the TPG 3.1 has proposed specific templates for the design of map of the European territory (projection, shape, design …) (Templates 1).

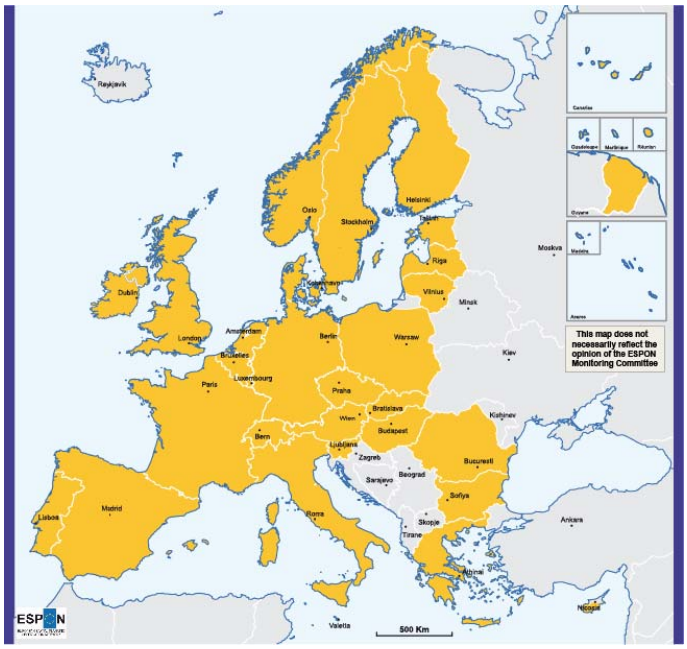
3.1.1 Template 1 « EU29 »

3.1.1.1 Projection

The map is projected in Lambert azimuthal equal area with the centre of 50°N and 15°E

3.1.1.2 Geographical influence

Figure 3-1 : ESPON Space



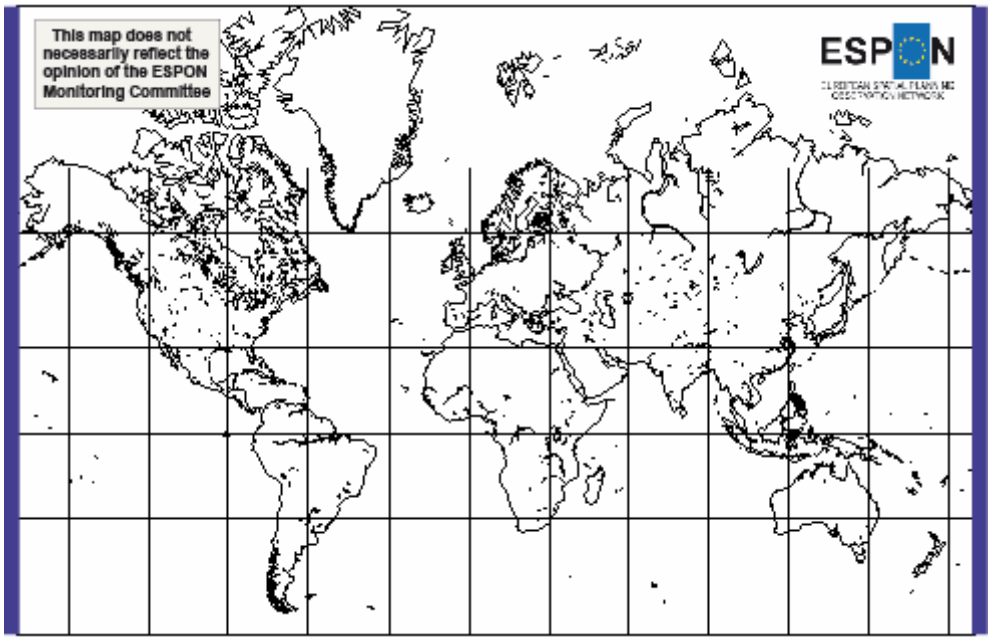
For the representation of world data and comparisons and as Claude Grasland and Christian Grataloup explained in Annex B of the third interim report, the right planisphere does not exist. The transformation from sphere to plan implies

necessarily an undesirable bending of areas and/or angles and/or global shapes. Furthermore, a map of the World can be unsatisfactory because the global world is economically organized as a ring around the earth while a map is a plane representation with edges defining a single centre. The more traditional projections (projections 1 and 2), like Mercator or Winkel projections directed toward the north and centred on Europe, show an acceptable world organization of the XIXth century at the time when the Old Continent ruled the other regions of the Earth.

Today we live in a polycentric world. And pictures that try to provide evidence of multiple centralities and competitive influence areas should not induce biases related to false polarization introduced by the choice of map projections. It is the reason why C. Grasland and C. Grataloup proposed ESPON to choose a polar projection, setting Northern Hemisphere at the centre, simply because it is the place where 90% of the human beings are living. Such a map can easily be underlined in order to emphasize the various centralities (Template 2).

3.1.2 Projection 1: The Mercator projection

Figure 3-2 : Mercator projection

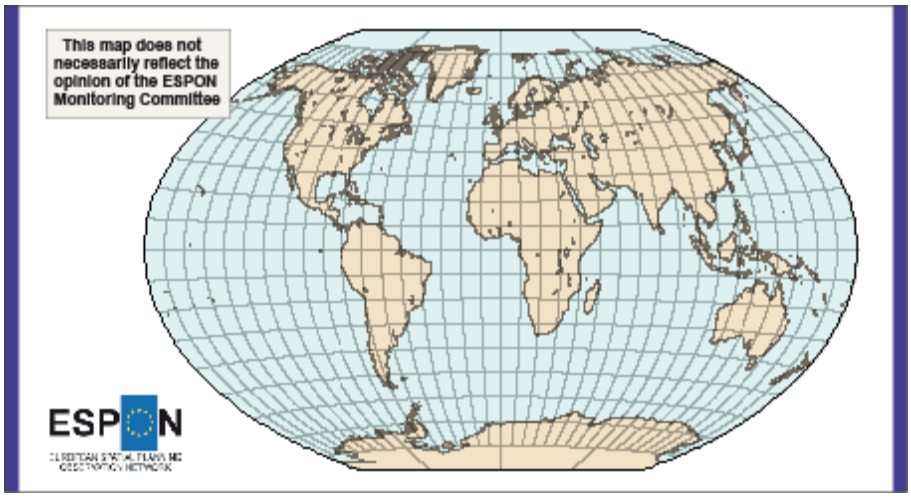


While Mercator maps do not have a grid (except in latitude and longitude), there is an implicit grid, and since this is how they are constructed. The Easting and Northing values shown here are for a 1:1 scale chart, and also note that these values are measured on the chart, not on the earth! Mercator's projection preserves exactly what sailors needed: shapes and directions. On a globe, the lines of longitude (measuring east-west position) converge at the poles and the lines of latitudes (measuring north-south position) are unvarying distant apart. In a Mercator projection, the lines of longitude are straight vertical lines equal

distance apart all latitudes, and horizontal distances are stretched above and below the equator this stretching is exaggerated near the poles.

3.1.3 Projection 2: The Winkel projection

Figure 3-3 : Winkel Projection



In true azimuthal projections, all directions are preserved from the reference point, usually tangent at the centre of the map. The third and best known of Oswald Winkel's hybrid projections is defined by a simple arithmetic mean including the equidistant cylindrical projection, using an arbitrary value for standard parallels (the author preferred approximately 50°28"N/S; another common value is 40°N/S); Winkel's Triple projection is peculiarly irregular: it is neither equal-area nor conformal; parallels are straight at Equator and poles, curved elsewhere; scales are constant (but not equal) only at the Equator and central meridian. Nevertheless, it manages to present a pleasant and balanced view of the world, which led to its choice by several popular atlases.

3.1.4 Template n°2 « World »

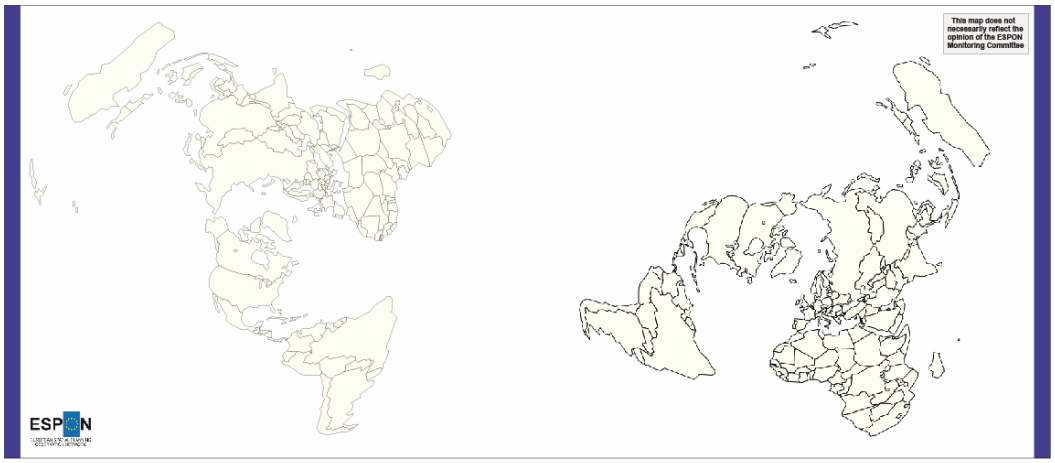
3.1.4.1 Projection

The map is projected in North Pole Azimutal Equidistant with the centre of 90°N and 0°E.

3.1.4.2 Geographical influence

None of the world economic centres is advantaged; the map can be turned in any directions. This implicit message is essential for the analysis of a polycentric Europe in a polycentric world.

Figure 3-4 : World North Pole Azimutal Equidistant projections



In the ESPON context, it is important to bring to the fore a map projection which gives the opportunity of a polycentric, but also universal, representation. Of course, Southern Hemisphere is badly treated (the disappearance of Antarctica), which proves that any planisphere introduces an implicit subjectivity. With this polar projection none of the world economic centres is stressed, as far as of such map can be used in any direction. This implicit message is essential for the analysis of a "polycentric Europe in a polycentric world".

3.1.5 Template 3 « World 2 »

Some flows Europe/ World are not always well represented with this polar projection. In order to improve these representations we offer an additional template (template 3a and 3b): a polycentric projection projection with a zoom on Europe and a Hammer-Aïtof projection. This projection allows a pleasant and balanced view of the world and to puts forward the particular relations between Europe and the world in terms of the directions shown. This template is still under preparation.

Figure 3-5 : Template for Flows between Europe and the world

The Hammer-Aitoff equal-area projection, also called the Hammer projection, is a map projection that is a modification of the Lambert azimuthal equal-area projection. It consists of halving the vertical coordinates of the equatorial aspect of one hemisphere and doubling the values of the meridians from the center. Like the Lambert azimuthal equal-area projection, it is equal area, but it is no longer azimuthal. This projection is often used for thematic maps of the world and very effective to represent flows between Europe and the rest of the world. It's the one we choose as an alternative to the North Pole Azimuthal Equidistant projection

Figure 3-6 : Hammer-Aïtof Template for Flows between Europe and the world

Another template has to be produced so as to have a European vision in its wider context, a pan European vision (Template 4). The strategic vision of ESPON 29 territory can also be approached in a large Europe. A pan-European template has been build. We have chosen a relatively large definition of the European neighbourhood, both in eastern and southern direction, in order to have a European vision in its wider context. European widening eastward and southward is based on objective criteria. This is why, considering southern and eastern countries of Europe becomes so important. Middle East and Persian Gulf, not within Europe, are in fact, a competitive area. Such a template allows for a systemic view point.

The fact of limiting ESPON research program to EU27 or EU29 can generate illusions and induce mistakes in the analysis of main trends shaping the European territory. In many cases, the perception of inequalities, potentialities, polarizations …will be fully transformed according to the geographical shape and the basic territorial units used by observers. It is obvious that the situation of Europe would appear very different if the future scenarios included peripheral areas which are strongly related to Europe like S.E. Mediterranean countries, Africa. This special projection allows for showing all the features about Europe and his close neighbours. The projection is centred on EU29 and is enlarged to the South by the North African countries (some of the analyses show a special limit formed by the Sahara borders) and to the East by the Balkans countries plus Turkey, Russia, Azerbaijan and Kazakhstan. The South and east limits are not actually precisely defined. It will depend on subjects and research results. Besides the previous ESPON report had shown that the ESPON view was certainly the most interesting one in a short term perspective. But the pan-European view and the global view should be taken into account when European policy makers try to elaborate strategies in a long-term perspective.

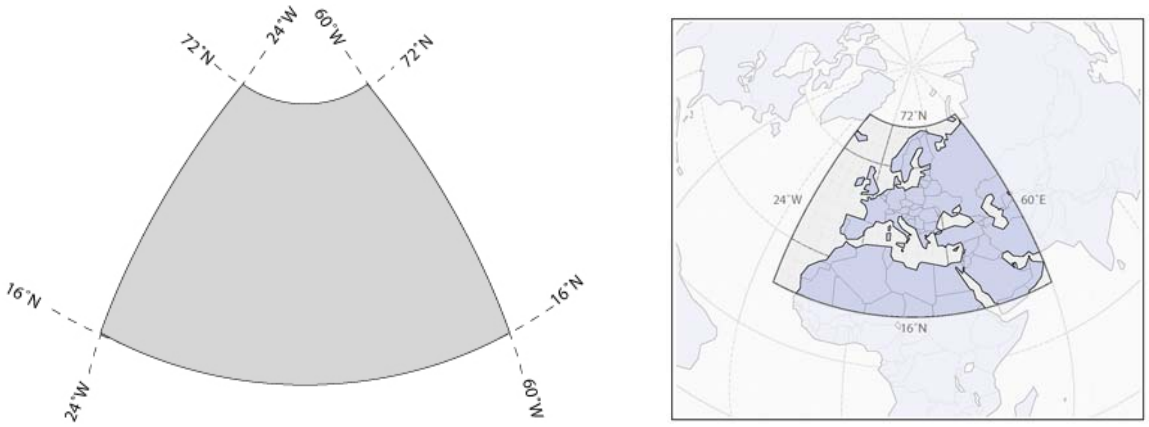
3.1.6 Template 4 « Pan European »

3.1.6.1 Projection

The map is projected in Lambert Azimuthal Equal Areas with the centre of 50°N and 18°E.

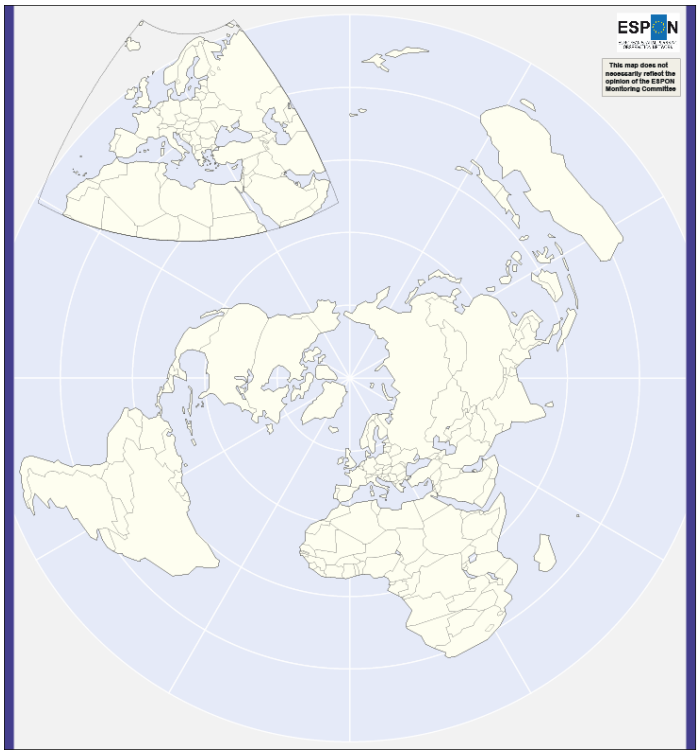
3.1.6.2 Geographical influence

Figure 3-7: Europe Lambert Azimuthal Equal Areas projection



3.1.7 Template 5: « World and regional MIX »

Figure 3-8 : World and regional Template



3.2 Which divisions?

For a better comparison of maps, different levels of divisions have been defined so as to provide enough layouts for all ESPON projects and data levels. The European Union as any international organization should produce geographical divisions of the world adapted to their statistical, scientific, and political needs.

3.2.1 The national level

The list of States that should be included in the ESPON database "Europe in the world" is not a trivial question. For example, it is well known that Taiwan is never present in the statistical databases of the United Nations because China does not recognize its existence as an independent State. But, on the other hand, the CIA has introduced Taiwan in its "World Fact book" 2 which presents the official position of US Government. An ESPON Atlas of the world would necessarily lead to difficult political questions because, as in the case of the World Fact book, it could be considered as a form of official position of the European Union.

More complicated but more important is the question of the delineation of "regions" of the world because it implies necessarily a mixture of ideological, scientific and political constraints. Likewise Nuts divisions, we create special "world-regions" divisions in order to be able to analyse phenomena in different visions the WUTS

Figure 3-9 : « WUTS »

WUTS 0	WUTS 1
	
WUTS 2	WUTS 3
	
WUTS 4	WUTS 5
	

The list of States that should be included in the pan European database depends on the subject matter. The South and East limits would be chosen by authors. Choices of the national level are presented in figure 3-10, 3-11 and 3-12.

Figure 3-10 : « ESPON Europe divisions »

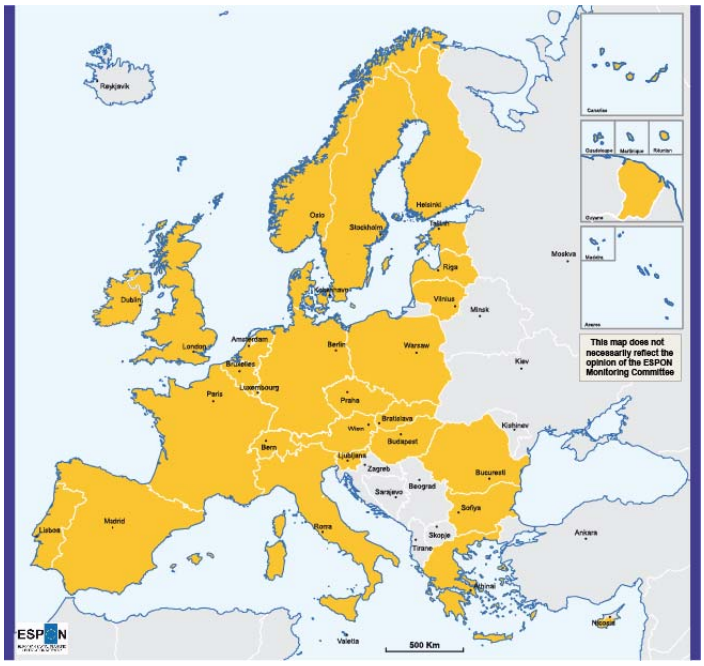


Figure 3-11 : « WORLD divisions »

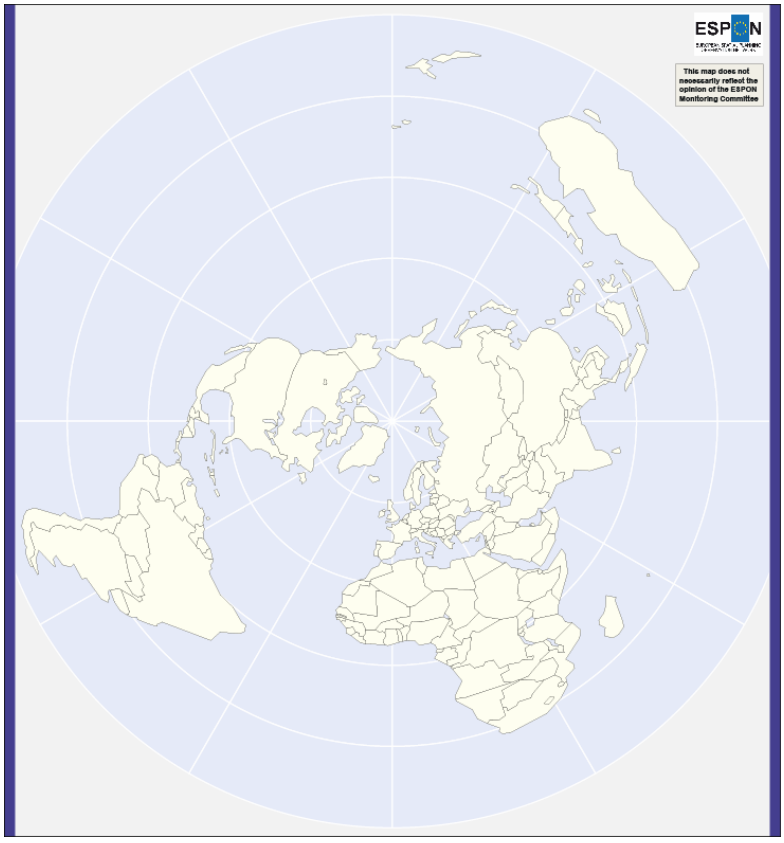
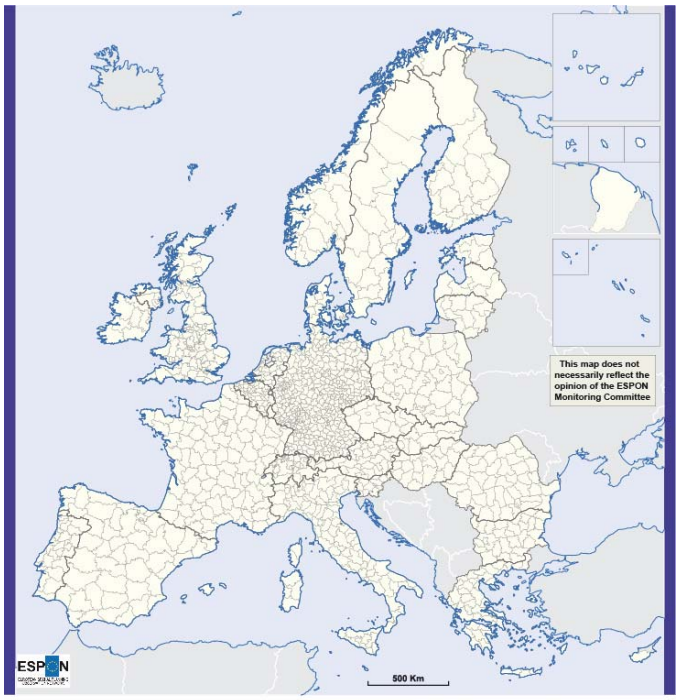


Figure 3-12: « Pan European » divisions.

3.2.2 The "regional" level

Figure 3-13 shows the regional delineation of European ESPON countries. We choose NUTS 2 or 3 according to the statistic information.

Figure 3-13 : Regional delimitations of European ESPON countries

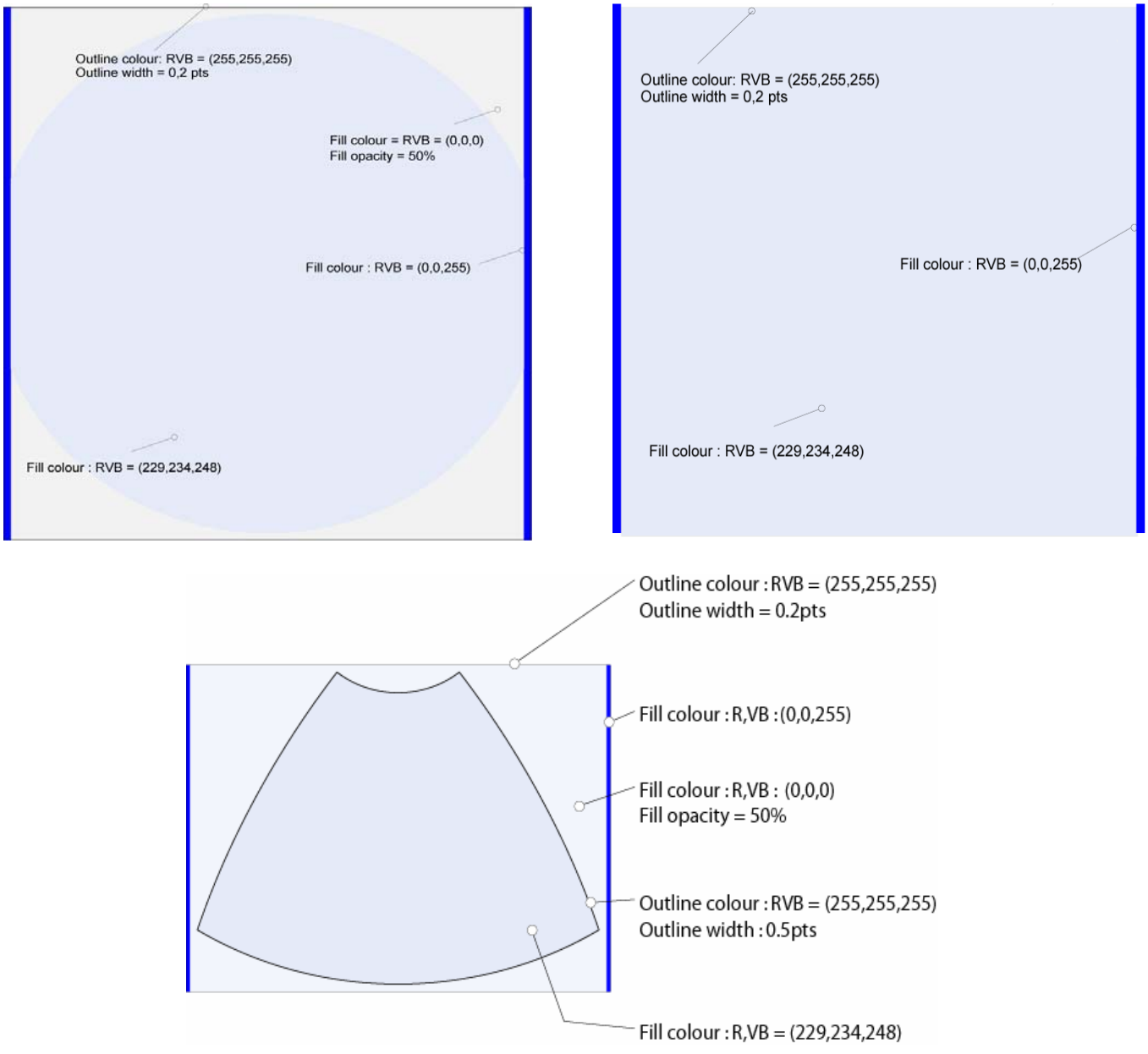


3.3 Which message?

The maps are very powerful tools of communication and they can convey implicit or explicit political message. These different templates have been discussed and approved in a scientific and political sense. You can read more details on Volume 1 Part A of this report.

3.4 Map background and countries

Figure 3-14: Map backgrounds



3.4.1 Countries

Fill colour: R,G,B = (255,255,240)
Outline colour: R,G,B = (255,255,255)
Outline width: 0.2pts

3.4.2 Countries and regions out of UE29

Fill colour: R,G,B = (251,247,242)
Outline colour: R,G,B = (255,255,255)
Outline width: 0.2pts

3.4.3 Legends

The previous choices have to be completed by colours and graphic representations. The discussions focused mainly on choropleth and proportional maps, selection of class intervals and tonal shadings. In fact it is very important to avoid the failure resulting not from different graphical traditions, but from theoretical uncertainties concerning the general principles of the graphical language. Graphical signs are assimilated to a discourse that could be read, understood and criticized on grounds of efficiency, and not simply for reasons of personal preference or style.

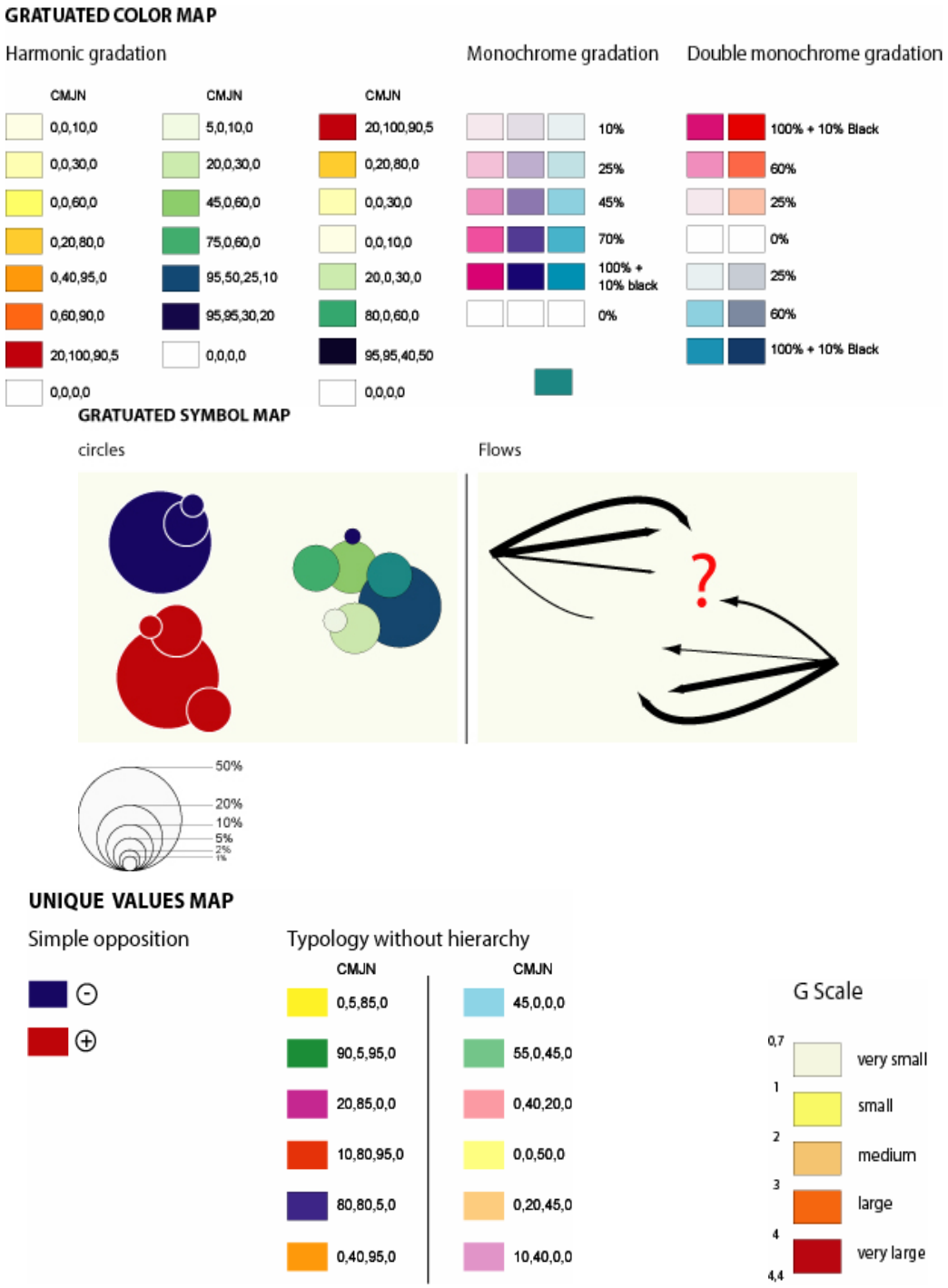
In order to obtain comparable maps, a precise protocol is proposed at each step. We propose a monochromatic system, gradual shading of two tones, graduated symbols, qualitative shadows, typology with or without hierarchy. We tried to explore each possibility, every alternative for cartographic keys and every possible graphic treatment of information. A few examples of layout are offered so as the whole of ESPON members' maps are homogeneous in presentation while adhering to graphic semiology rules.

Quantitative figures for rates are often given as sorted data. It is possible to use up to 8 categories when gradation is simple and up to 3 categories both sides, when gradation is double. These gradations must be monochrome or a matching gradation (rainbow gradation).
A G scale is proposed. It allows to get a data presentation based on a weighted index in accordance with size and order of what is shown. Such a scale is a proxy for a rainbow gradation in 5 categories (beyond this, it would be difficult to grasp any information).

Qualitative data or typologies exclude any particular order. When what is at stake, is an opposition between two elements, one should select red and blue

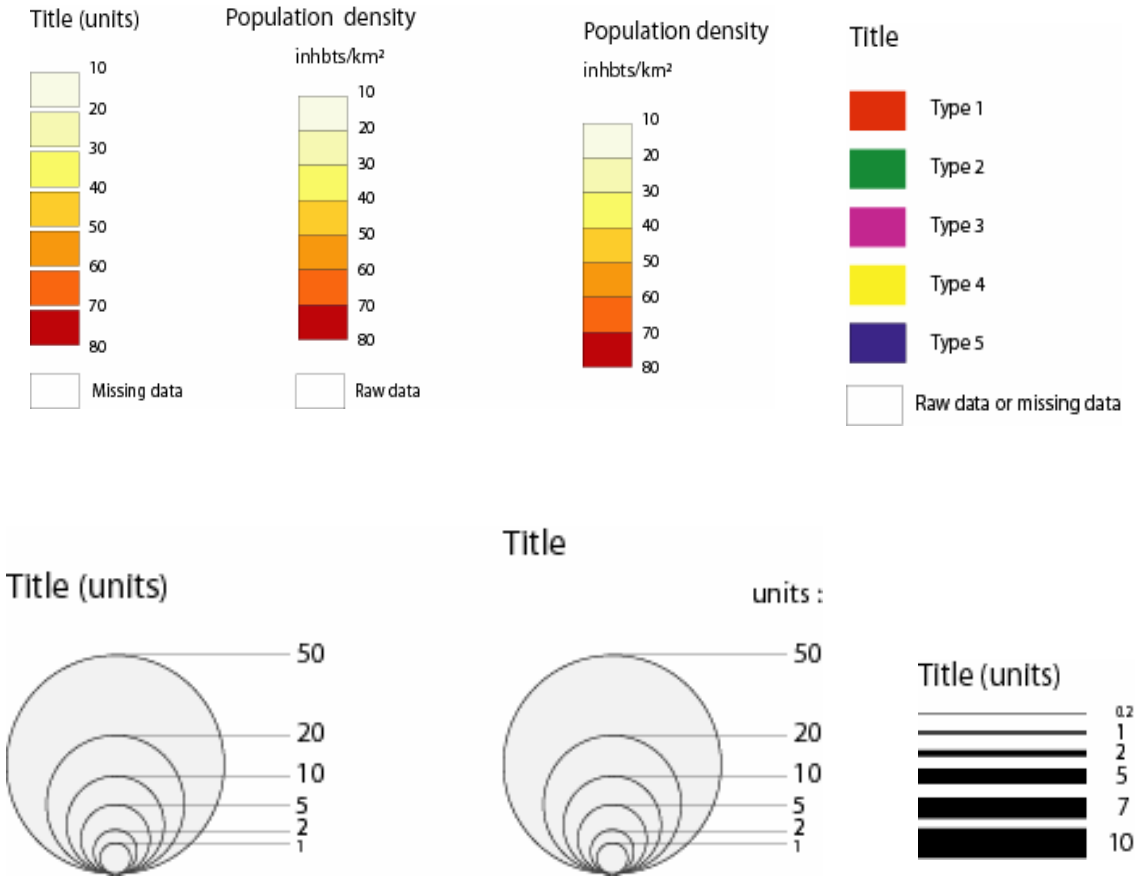
colours. Conversely, when many meanings must be shown together at the same time, several colours should be selected with same graphical weighting. Finally, gross quantitative data should be shown in accordance with different sizes: circles for fixed geographical data and arrows for flows. For any additional information, a colour can be added to circles in accordance with above-described principles.

Figure 3-15 : legend propositions



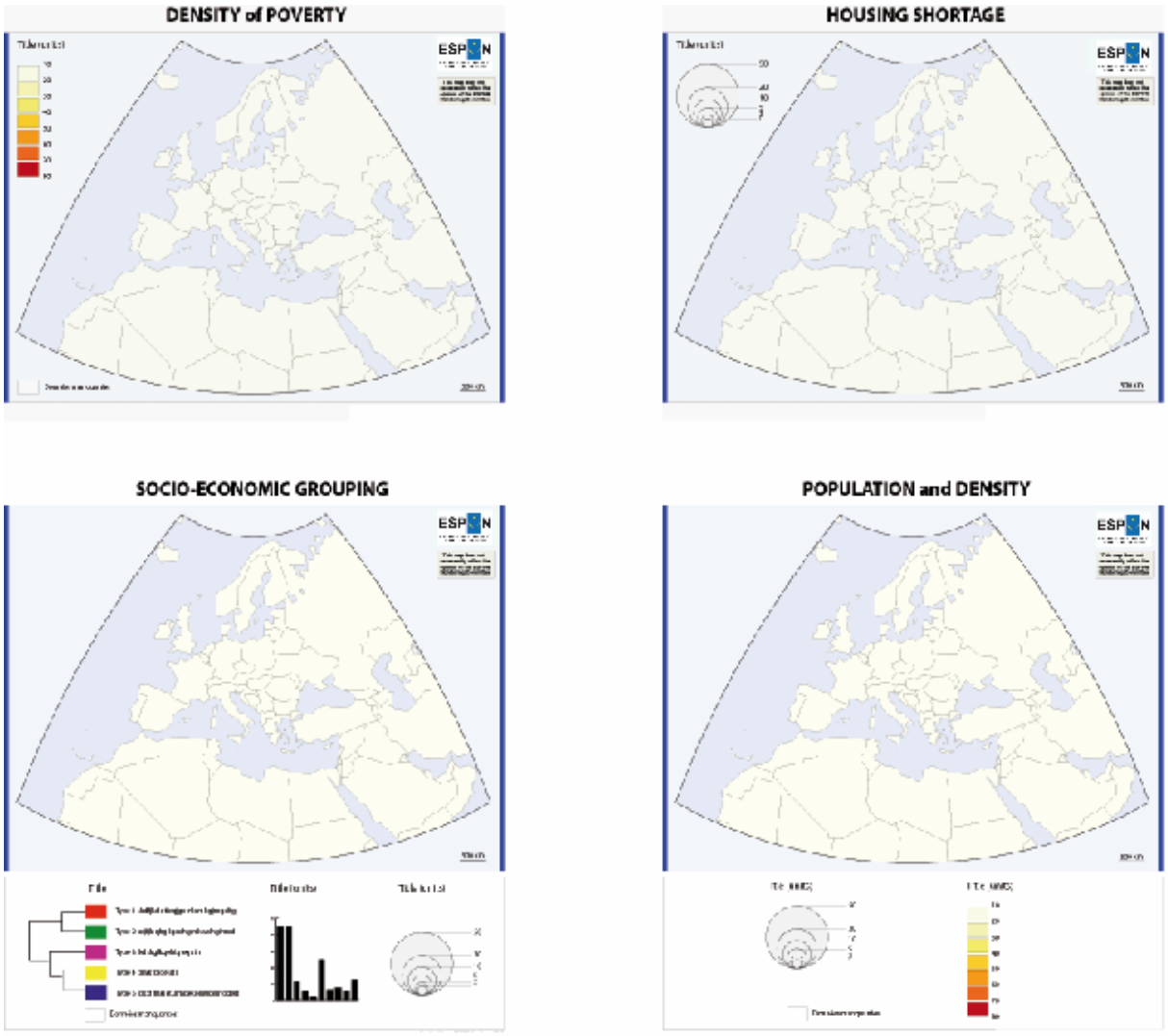
Some examples:

Figure 3-16: Minimum and maximum values have always to be written clearly.



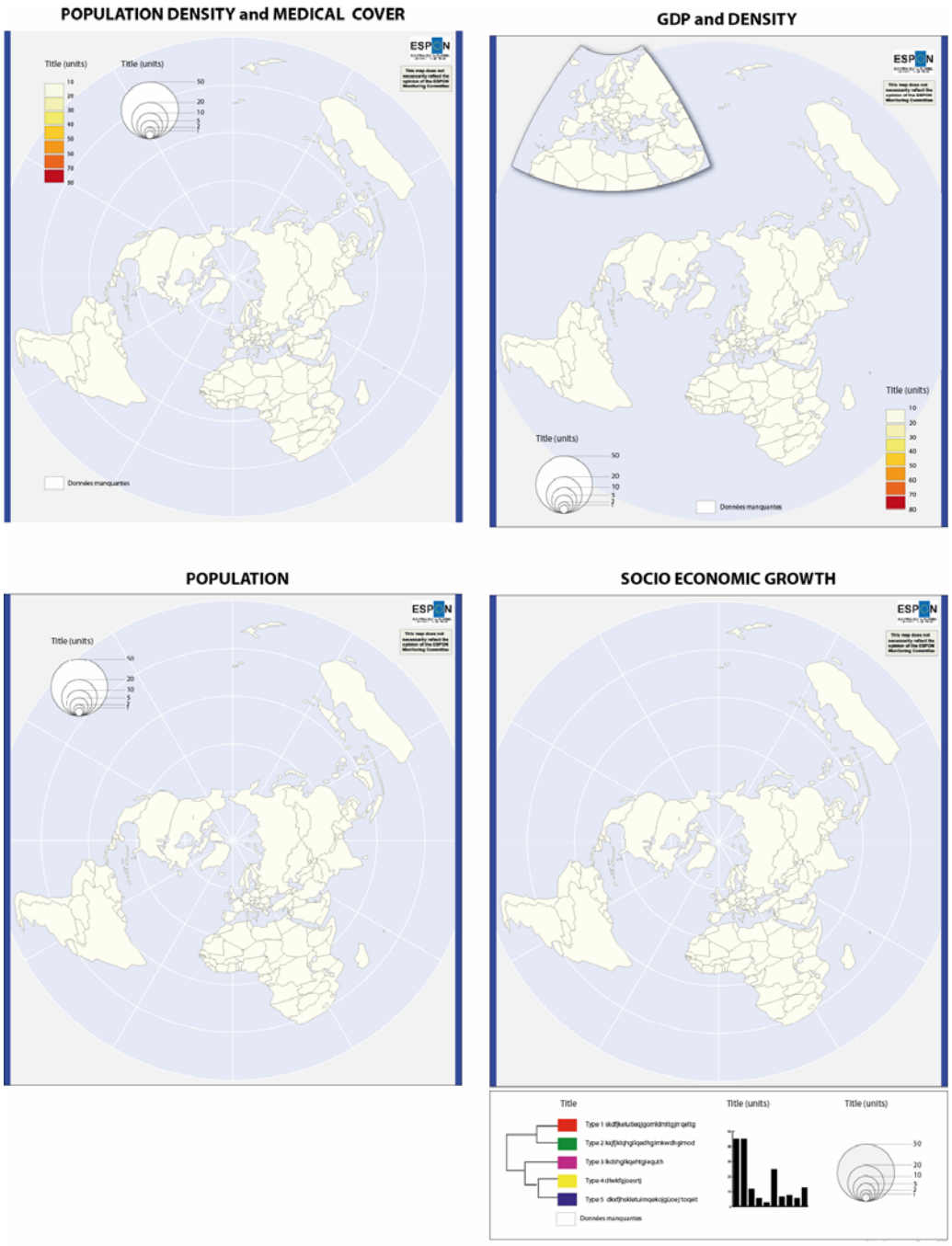
Pan European Layout

Figure 3-17 : 4 examples of Pan European layout



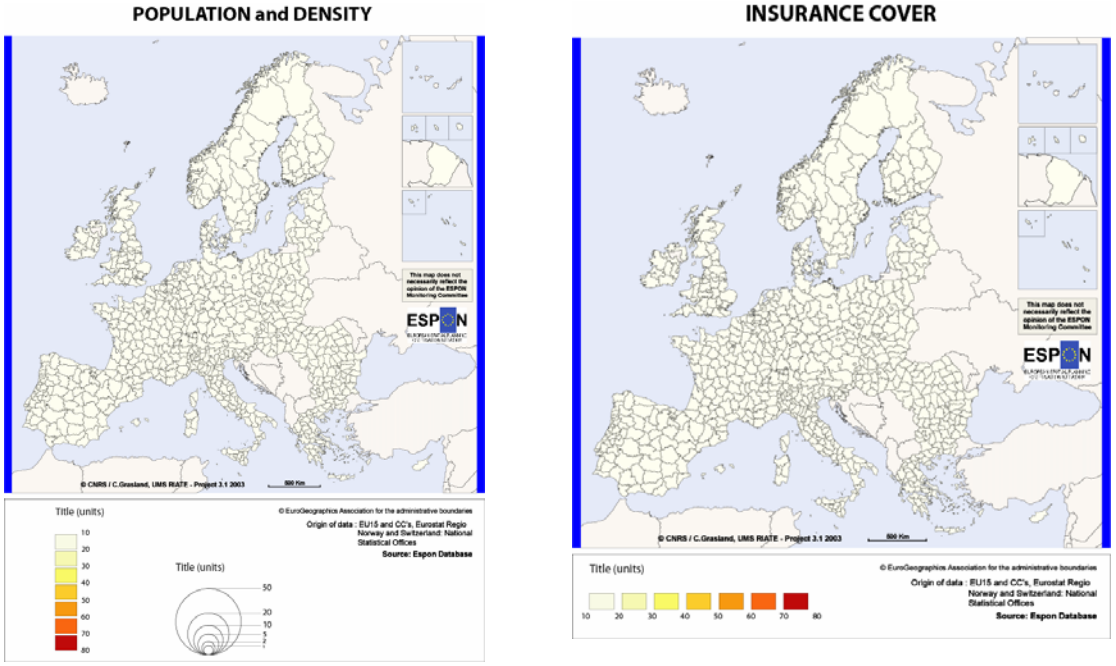
World Layout

Figure 3-18 : 4 examples of world Layout



Espon EU29 Layout

Figure 3-19 : 2 examples of ESPON layout



3.5 Graphic templates

Graphics templates are realised in order to insure strong harmonisation of further production and opportunity to present coherent graphics collection at the end of the project.

Figure 3-20 : Graphics layout

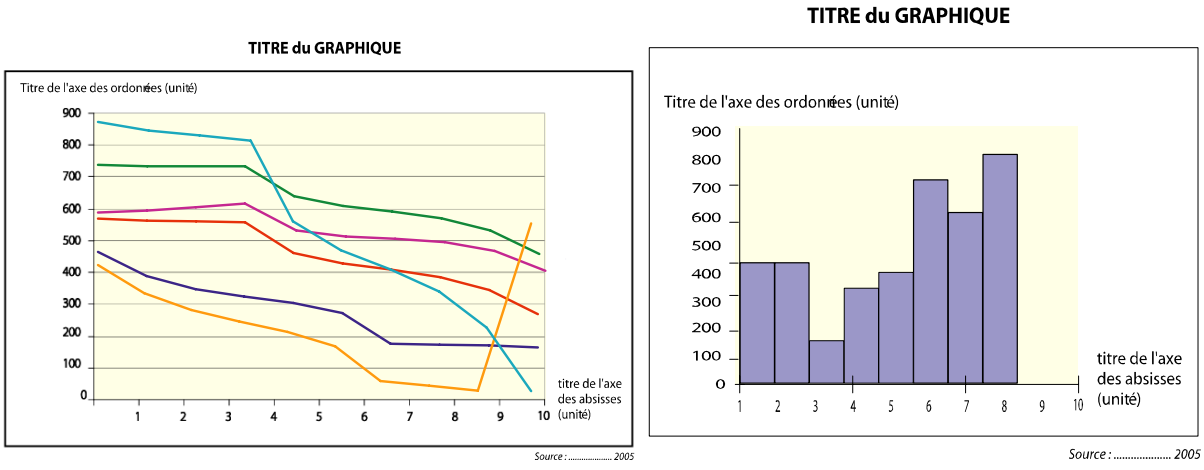
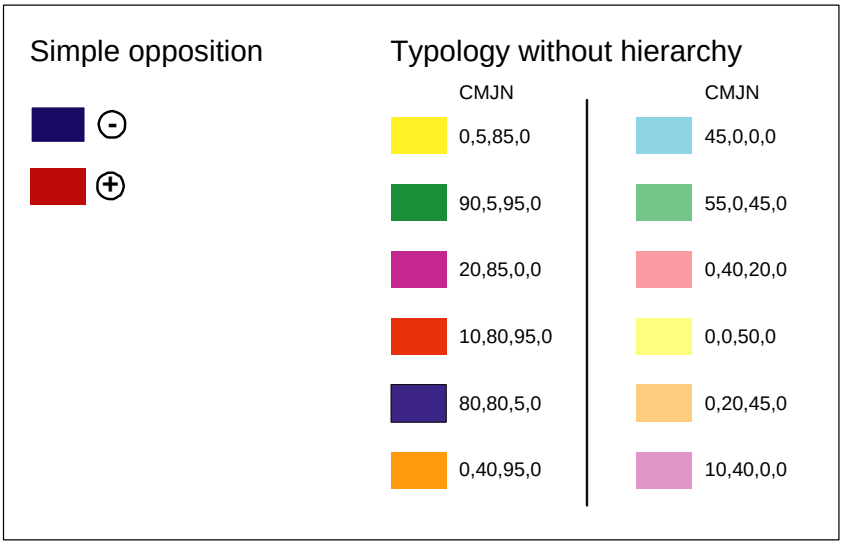


Figure 3-21 : Colours chart



4 DATA MINING AND DATABASE BUILDING

4.1 Data mining and database building

One of the objectives of the project Europe in the World is to provide the ESPON program with datasets that will allow to conduct future analyses on the position of ESPON area in the World and/or ESPON countries relations with the World. It is then compulsory to build standardised databases in order to allow the comparison of analyses, the common use of the results in cross thematic questions and to allow the reproduction of statistical analyse step in the future, for example if we could get some updated data on our subject in next few years. What is quite new for the project 3.4.1. "Europe in the World, the World in Europe," in comparison with other projects, is that we aimed to build databases related to the world i.e. at State scale and that we did not use very often databases at larger scales like NUTS2 or NUTS3, except in the part related to the influence of the World in ESPON area (Internal differentiation of European territory, FR – Vol.1 – part 6). More, we aimed to build, whenever it was possible, databases taking into account long time period in order to introduce dynamic analysis of ESPON in the World. The list of variable and indicators used in the project change over time according to the discovery of new databases that match with our concerns, the rise of new issues on which we focus our attention and most of all, the quality and availability of the datasets.

The following part is a synthetic presentation of the databases used (Data and main sources used) and finally describes the building and harmonisation of the databases that have been used in the project (Harmonisation of database).

4.1.1 Data and Main Sources:

The ESPON program gathered a vast amount of data and indicators, either in each TPG either provided by Eurostat. The table 8 of the Nijmegen Guidance paper provide a helpful list of all the indicators gathered in the ESPON program. However in the framework of our project it was quite difficult to use them intensively. First because those indicators have not been collected on a long term basis, but above all because, most of them have been gathered at a NUTS2 or NUTS3 level and are only available for European or ESPON countries. Some parts of the projects (WP 3.4 internal differentiation of European territory) fruitfully used the indicators provided by other TPG but it will not be the case for most of our work package related to the world. As a consequence a specific database has been built and that have been done mainly by RIATE and Géographie-cité with an active collaboration of the ESPON project 3.2 on scenarios.

4.1.1.1 Structural databases

Concerning population and GDP we mainly used the Maddison databases. This database is published by the OECD and freely available on Mr Maddison website (http://www.ggdc.net/~Maddison/). However due to copyright matter and in order to provide those data to the ESPON database the C.U. has to buy the rights to Mr Angus Maddison. This dataset provide the populations and GDP of all national territorial units of the world from the first year after J.C. to 2001. Concerning far past time a lot of data are missing. From 1900 to 1950 all the African continent and some parts of Asia are missing. After 1950 there are very few missing data. All the data are derived from "The World Economy: Historical Statistics", OECD Development Centre, Paris 2003. GDP figures are in millions of 1990 US$ (converted at Geary Khamis PPPs). This database providing long term data on population and GDP have been very useful for our exploratory analysis.

The UNCTAD Handbook of Statistics On-line, (http://www.unctad.org/), provides numbers of development indicators for the most recent years for more than 220 countries but a lot of data are missing. Some trade data (value of exportations / importations by countries) are available from 1950. This website provide too the Foreign Direct Investments from 1970. The World Development Indicators, 2003, a World Bank publication provide also a large number of indicators (575), describing about 210 countries. Indicators are related to demography, environment, economy, state and market, and global links. Available periods range from 1960 to 2001. UMS RIATE owns the DVD-ROM providing the data, but they can be used only by the transnational project group while the project is going.

Some demographic databases at the World and ESPON level have been built from the United Nation World Population Prospect 2004 by the project 3.2. at ESPON level and at the World level conjointly with the project 3.4.1. This source provides estimates of demographic data (fertility, mortality, median age, migrations…) from 1950 to 2005 for all World countries. It also provides prospective according four scenarios (low, medium, high and constant) from 2005 to 2050. This database can be used among participating partners in the EU Project "European Spatial Planning Observation Network" (ESPON), but however they have to stay within the boundaries of the ESPON network and they must be cited as follow when used: "*United Nations (2005). World Population Prospects: The 2004 Revision. CD-ROM Edition - Extended Dataset. New York, NY: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat*".

Finally we also used the CEPII database (Centre d'Etudes Prospectives et d'Informations Internationales) that provides data on countries and their main city or agglomeration. Variables, which applied to 238 territorial units, describe languages, historical links (like the colonizer country), the belonging to one continent, or the fact that the territorial unit is landlocked or not. It is available on the CEPII website at the following address:
(http://www.cepii.fr/anglaisgraph/bdd/distances.htm).

4.1.1.2 Flows databases

The program ESPON 3.4.1 Europe in the Word will use two distinct kinds of flows databases. The first ones concern the flows between cities, the second ones between countries.

The Europe in its network key question takes into account world inter-city air flows database at two different periods during the last ten years. While air flows are among the worldwide data that are the easiest to obtain, the different sources are not compatible the ones with the others and it is not evident to harmonize them. In addition, one should, from the begin, be also aware that a database that collect data on flows between the airports/cities gives different figures from a database that collect data on the traffic of each airport/city. This difference comes, in particular, from the through traffic.

Working on air flows for more than ten years, and having tested different sources from different international institutes and organization, the responsible team of this question has chosen, for the flows figures, two major databases : from OACI and from ITA. Several reasons can explain this choice. In particular: the OACI database is quite the only one to provide a database that is comparable for a long period of time. While the ITA database is for a few international linkages more accurate and could constitute a complementary source of information.

The other main difficulty of this key question relates to the air freight figures. While main analysis and conclusions will be drawn from the number of air passengers that travel all over the world, one cannot avoid taking into account the tons of freight that are carried between the cities. Indeed, for the last ten years, the air cargo recorded considerable increases taking into account the fall in the costs in air transports. But at that stage the collection of such data is not guaranteed partly because of the reliability of the sources.

Some figures and databases have already been tested and used in Nadine Cattan's previous researches and in particular in ESPON 1.1.1.

Other Flows databases. The program ESPON 3.4.1 Europe in the Word will also use flows databases describing bilateral relations between countries. Here we could use trade flows between countries like the International Trade Centre database (UNCTAD/WTO United Nations Statistics Division) about export and imports flows.
The DG trade (http://europa.eu.int/comm/trade/index_en.htm) provide also a database on trade flows for extra European countries quoting for each of them the 20 first importing and exporting partners. The files provide also data on imports and exports by 21 kinds of products (like vegetable products, wood and article in wood, textiles and textiles articles, miscellaneous manufactured articles). Relation for a country is describing for Europe as a whole and not detailing all European countries. 127 countries and groups of countries are described than mean it is not a exhaustive database. More, data are available only for the year 2004.
Flows databases seem to be more difficult to obtain, particularly concerning subjects like migration flows and long term databases are scarce.

Proximity databases. In order to analyse the relation between the flows intensity between two countries and their proximity is useful to have a distance database between each countries. The CEPII bilateral file provide different kind of distances between 28 224 pairs of countries (168 * 168). Two kind of simple distances are provided one between the most important cities or agglomeration in term of population and one between the capitals cities. Some weighted distances (by to population) are also proposed. This database describes also some common cultural or historical facts as a common official and ethnic language, a common colonizer between two countries. This database provides also a very precious variable describing the fact that two countries were part of a same administrative entity for a long period in the past. This is especially useful to take into account the common past between territorial units that formerly belonged to the same Empire as Austria and Hungary, and countries that have been split in two or more parts as the former Czechoslovakia or Yugoslavia.

4.1.1.3 Specific databases

A specific database will be built by the UMS RIATE based on a survey on the ESPON community members, i.e. researcher, administrative and politicians of the ESPON program. The questionnaire is now in a test phase and the survey will be held during the ESPON meeting in May in Luxembourg. Apart from description data (sex, age, activity in the ESPON program), the survey is about, first, the delimitation of Europe, second the delimitation of world regions. The Europe

database describes for each country its belonging of Europe or not. The World Regions database is build in the same way than a matrix of flows, describing the belonging of two territorial units to the same region.
Another specific database on mental maps will be built. It aims to gather the divisions of the world proposed on maps by big firms, non governmental organizations and international organisations websites.

4.1.1.4 databases for the neighbourhood studies

OECD: Official development Assistance data base (http://www.oecd.org/). The DAC statistics measure the flows of aid and other financial resources to developing countries and countries in transition, broken down by major category of expenditure. Such historical series make possible useful comparisons between major donors whether they are countries (22 donors among which EU 15 members…) or multilateral organizations and international institutions such as European Commission, Arab development agencies or regional banks. DAC Statistics are collected annually since 1960 from the Members of the OECDs Development Assistance Committee (DAC). The data cover aid loans and grants, other official flows, private market transactions and assistance from non-governmental organisations to each recipient country and recipient countries combined. The data make a useful distinction between the commitments of the official assistance and the really observed disbursements. Other useful data concern the destination of Private Direct Investment and Other Private Capital. The aid flows are measured in constant 2003 dollars, which make possible comparisons of long periods of time.

OECD: SOPEMI. For several years, the team SOPEMI (*système d'observation permanente de migrations internationales*) has been analysing trends in international migration - flows or stocks - and policies in all OECD member countries and in selected non-member economies. Its publications provide the researchers with detailed descriptions and useful tables of the flows, the different channels of immigration and the diversity of nationalities involved. The SOPEMI database releases useful tables (by country) about a broad range of topics related to international migrations: origin and category of migrants, inflows and stocks of foreign populations by nationality and country of origin, geographical breakdowns of foreign labour force… A significant part of the data, which the yearly publication of the SOPEMI is based on, is available on the website of the OECD, at the following address:
http://www.oecd.org/document/36/0,2340,en_2649_33931_2515108_1_1_1_1,00.html

FMI: International trade Statistics Yearbook. This annual publication, released since 1996 by the Direction of Trade Statistics of the International Monetary Fund, provides data on the country and area distribution of countries' exports and imports as reported by themselves or by their partners. Thanks to this yearbook, one knows the geographical breakdown of the international trade of good of about 186 countries: the destination of their exports and the origin of their exports, in value (millions of current dollars). These data are available for seven years in each annual volume. This publication allows the researchers to build an o/d matrix of international trade. More detailed data, in the DOTS quarterly issues, are available for each quarter of the current and of the previous years for about 156 countries, and for ten quarters and five years for the world and area tables. The yearbook is not available on the web. Some data are missing but gaps are very few.

World Tourism Organization. The *Compendium of Tourism Statistics* provides a short quick-reference guide on the major tourism statistical indicators in 209 countries and various territories around the world from 2000 to 2004. Data are provided about the following topics: inbound tourism, domestic tourism, outbound tourism, tourism industries. The *Yearbook of Tourism Statistics* contains useful information and data for the analysis of the economic impacts and of the geographical distribution of tourism in most countries around the world (206 countries in the two volumes of the 2006 issue), especially the total arrivals and overnight stays associated to inbound tourism and the breakdown by country of origin for the period 2000-2004: statistics about the arrivals of tourists or visitors at the national borders, statistics on accommodation establishments, statistics about the overnight stays. Such a publication allows the researchers to know the destination of tourist from each ESPON country and the origin of tourists who go to the neighbour countries of EU.

World Bank. The World Bank's Data Group provides data on all aspects of social and economic development. For example, the **World Development Indicators** includes more than 900 indicators in over 80 tables related to many topics: agriculture, environment, finance, infrastructures, purchasing power, GDP, demography, etc. Data are available for 208 large and small economies. Every registered user has a total access to an extensive online database which provides statistics about hundreds of indicators on long time series, from 1960 up to 2005. The data base is updated each year. Nevertheless, it shows significant gaps for many countries before 1990, especially for former Soviet Republics and East Asia countries. In such case, data must be extracted form other sources and harmonized with those of the World Bank as much as possible. For the period after 1990, the database is much more complete.

Statistical offices in the Baltic States. The *Central Statistical Office of Estonia* is based in Tallinn. A large part of its statistics is available on its web site (http://pub.stat.ee/px-web.2001/dialog/statfileri.asp), sorted in two major categories: a general statistical database and a regional development database. The second one is divided into six major chapters: economy, environment, population, social life, population census of 2000 and agricultural census of 2001. Inside each topic, it is possible enter an interactive database which allows the researchers to build their own datasheets and to download them as excel files. A majority of these statistics are available for the period running from 1990 to 2005. The *Central Statistical Bureau of Latvia* also has a website in which the database is built on a same pattern. The address is: (http://data.csb.lv/EN/dialog/statfile1.asp?xu=&yp=&lang=1). Many useful data are not available on this website and have to be purchased directly in Riga and Tallinn.

4.1.2 Harmonization of datasets

In order to allow the cross thematic analysis of results elaborated by each partner teams in WP2, the statistical harmonisation is of great importance.

4.1.2.1 World databases: 168 countries

We established a minimum list of territorial units that necessarily have to be covered by data collection. First, we use, as a criteria, the share of the world surface, population and GDP of each territorial unit. If a territorial unit count less than one millionth of the world surface OR the population OR the world GDP, we decided to consider it as being a part of the rest of the world.

Before using any statistical criteria of selection, the choice of territorial unit is first of all drive by the question of their sovereignty. First we included the full sovereign territorial units with their main parts and overseas part (i.e. France + Martinique, Guadeloupe, Guyana and Reunion). Then there the question of associated territories has to be considered (In the case of France: Mayotte, Saint-Pierre & Miquelon…). They have not been added to the database. The remaining territorial units are more problematic between States that are not fully sovereign (Puerto Rico) and those States that are not recognised by all the other (Taiwan, Western Sahara, West Bank & Gaza…).

The following table gives the list of the 168 countries kept in our analyses (Table 4-1).

As shown in the table, each territorial unit is represented by a code in three letters (ISO) that is the first column of all the databases we build to allow to cross the databases (for multivariate analysis for example). In the second interim report, the native codification used by statistical organisation or project partners will be systematically compiled in a dictionary of territorial unit. More, we'll build a table of correspondence for territorial units which has been subject to modifications in order to establish coherent time series in a medium or long term perspective).

4.1.2.2 Euromed database

For the specific analyses undertaken under the following Work-Packages, WP 2.5 (European Neighbourhood) & WP 3.3 (Delimitation of European territory), we decide to build intermediate databases that would provide a shorter list than the all world but larger than those related to the conventional ESPON space. This intermediate space should be able to provide a framework for the analysis of the influence area of Europe and the main discontinuities (in term of demography, wealth etc…) between the European space and the neighbours.

During the project 3.4.1. kick-off meeting, discussions were on the meaning of neighbourhood. They are two different kinds of neighbour countries: those that are very close to Europe (spatial neighbourhood) and those that have very strong links with one (or more) European country (networking neighbourhood). According to the fact that, in this field, our objective is related to the delimitation of European influence area Europe limits, it seems more relevant to choose the spatial neighbourhood. (More, the networking neighbourhood should be analysed in the WP3.2 networking the world, at the world scale.

The choice to make analysis in an intermediate space implied to build a specific map template whose construction is detailed in the following part: Standards for cartography.

The table (Table 4-2) gives the list of the 82 Euromed countries kept in our analyses.

Table 4-1 : countries for Europe in the World

ISO	Name	ISO	Name	ISO	Name
AFG	Afghanistan	GHA	Ghana	NIC	Nicaragua
AGO	Angola	GIN	Guinea	NLD	Netherlands
ALB	Albania	GMB	Gambia	NOR	Norway
ARE	United Arab Emirates	GNB	Guinea Bissau	NPL	Nepal
ARG	Argentina	GNQ	Equatorial Guinea	NZL	New Zealand
ARM	Armenia	GRC	Greece	OMN	Oman
AUS	Australia	GRL	Greenland	PAK	Pakistan
AUT	Austria	GTM	Guatemala	PAN	Panama
AZE	Azerbaijan	GUY	Guyana	PER	Peru
BDI	Burundi	HND	Honduras	PHL	Philippines
BEL	Belgium	HRV	Croatia	PNG	Papua New Guinea
BEN	Benin	HTI	Haïti	POL	Poland
BFA	Burkina Faso	HUN	Hungary	PRI	Puerto Rico
BGD	Bangladesh	IDN	Indonesia	PRK	North Korea
BGR	Bulgaria	IND	India	PRT	Portugal
BHR	Bahrain	IRL	Ireland	PRY	Paraguay
BHS	Bahamas	IRN	Iran	QAT	Qatar
BIH	Bosnia	IRQ	Iraq	ROU	Romania
BLR	Belarus	ISL	Iceland	RUS	Russian Federation
BLZ	Belize	ISR	Israel	RWA	Rwanda
BOL	Bolivia	ITA	Italy	SAU	Saudi Arabia
BRA	Brazil	JAM	Jamaica	SCG	Serbia/Montenegro
BTN	Bhutan	JOR	Jordan	SDN	Sudan
BWA	Botswana	JPN	Japan	SEN	Senegal
CAF	Central African Republic	KAZ	Kazakhstan	SGP	Singapore
CAN	Canada	KEN	Kenya	SLE	Sierra Leone
CHE	Switzerand	KGZ	Kyrgyzstan	SLV	El Salvador
CHL	Chile	KHM	Cambodia	SOM	Somalia
CHN	China	KOR	South Korea	SUR	Suriname
CIV	Côte d'Ivoire	KWT	Kuwait	SVK	Slovakia
CMR	Cameroon	LAO	Laos	SVN	Slovenia
COD	Zaire (Congo DRC)	LBN	Lebanon	SWE	Sweden
COG	Congo	LBR	Liberia	SWZ	Swaziland
COL	Colombia	LBY	Libya	SYR	Syria
CRI	Costa Rica	LKA	Sri Lanka	TCD	Chad
CUB	Cuba	LSO	Lesotho	TGO	Togo
CYP	Cyprus	LTU	Lithuania	THA	Thailand
CZE	Czech Republic	LUX	Luxembourg	TJK	Tajikistan
DEU	Germany	LVA	Latvia	TKM	Turkmenistan
DJI	Djibouti	MAR	Morocco	TTO	Trinidad and Tobago
DNK	Denmark	MDA	Moldova	TUN	Tunisia
DOM	Dominican Republic	MDG	Madagascar	TUR	Turkey
DZA	Algeria	MEX	Mexico	TWN	Taiwan
ECU	Ecuador	MKD	Macedonia	TZA	Tanzania
EGY	Egypt	MLI	Mali	UGA	Uganda
ERI	Eritrea	MLT	Malta	UKR	Ukraine
ESH	West Sahara	MMR	Burma (Myanmar)	URY	Uruguay
ESP	Spain	MNG	Mongolia	USA	United States
EST	Estonia	MOZ	Mozambique	UZB	Uzbekistan
ETH	Ethiopia	MRT	Mauritania	VEN	Venezuela
FIN	Finland	MUS	Mauritius	VNM	Vietnam
FJI	Fiji	MWI	Malawi	WBG	West-Bank and Gaza
FRA	France	MYS	Malaysia	YEM	Yemen
GAB	Gabon	NAM	Namibia	ZAF	South Africa
GBR	United Kingdom	NER	Niger	ZMB	Zambia
GEO	Georgia	NGA	Nigeria	ZWE	Zimbabwe

Table 4-2 : Euromed list of countries

ISO	Name	ISO	Name
ALB	Albania	KWT	Kuwait
AND	Andorra	LBN	Lebanon
ARE	United Arab Emirates	LBY	Libya
ARM	Armenia	LIE	Liechtenstein
AUT	Austria	LTU	Lithuania
AZE	Azerbaijan	LUX	Luxembourg
BEL	Belgium	LVA	Latvia
BGR	Bulgaria	MAR	Morocco
BHR	Bahrain	MCO	Monaco
BIH	Bosnia	MDA	Moldova
BLR	Belarus	MKD	Macedonia
CHE	Switzerland	MLI	Mali
CYP	Cyprus	MLT	Malta
CZE	Czech republic	MRT	Mauritania
DEU	Germany	NER	Niger
DNK	Denmark	NLD	Netherlands
DZA	Algeria	NOR	Norway
EGY	Egypt	OMN	Oman
ERI	Eritrea	POL	Poland
ESH	West Sahara	PRT	Portugal
ESP	Spain	QAT	Qatar
EST	Estonia	ROU	Romania
FIN	Finland	RUS	Russian Federation
FRA	France	SAU	Saudi Arabia
FRO	Fareo Islands	SCG	Serbia/Montenegro
GBR	United Kingdom	SDN	Sudan
GEO	Georgia	SEN	Senegal
GIB	Gibraltar	SJM	Jan Mayen
GRC	Greece	SMR	San Marino
GRL	Greenland	SVK	Slovakia
HRV	Croatia	SVN	Slovenia
HUN	Hungary	SWE	Sweden
IMY	Isle of man	SYR	Syria
IRL	Ireland	TCD	Chad
IRN	Iran	TKM	Turkmenistan
IRQ	Iraq	TUN	Tunisia
ISL	Iceland	TUR	Turkey
ISR	Israel	UKR	Ukraine
ITA	Italy	UZB	Uzbekistan
JOR	Jordan	WBG	West-Bank and Gaza
KAZ	Kazakhstan	YEM	Yemen

4.1.2.3 Espon database

For projects that will analyse more in detail the European space according to the world influence, (W.P. 3.4 Internal differentiation of the European territory, and some cases studies). In those cases the databases and indicators built by other ESPON projects (at NUTS2 or NUTS3 level) will have to be used. The following Table 4-3 reminds the ESPON countries.

Table 4-3 : ESPON list of countries

ISO	NAME
AUT	Austria
BEL	Belgium
CYP	Cyprus
CZE	Czech republic
DNK	Denmark
EST	Estonia
FIN	Finland
FRA	France
DEU	Germany
GRC	Greece
HUN	Hungary
IRL	Ireland
ITA	Italy
LVA	Latvia
LTU	Lithuania
LUX	Luxembourg
MLT	Malta
NLD	Netherlands
POL	Poland
PRT	Portugal
SVK	Slovakia
SVN	Slovenia
ESP	Spain
SWE	Sweden
GBR	United Kingdom
BGR	Bulgaria
NOR	Norway
ROU	Romania
CHE	Switzerland

5 METHODOLOGICAL FRAMEWORK FOR THE ANALYSIS OF FLOWS AND STRUCTURES

The aim of this part (based on an annex of answer to the tender) is to illustrate the methodology which will be developed in WP6. To make the reading of this part easier, we have systematically take example of simple datasets of flows and structure related to 7 western Mediterranean countries (France, Spain, Italy, Morocco, Algeria, Tunisia and Libya).

5.1 Preliminary sample of methods for flows analysis

It is not the place to define all possible methods which can be applied to the analysis of flows but it is important to give a first overview of the different interpretations and applications which can be derived from matrix flows in conceptual terms. To illustrate this, we will analyse a very simple sample matrix of trade flows between selected states from Northern and Southern Mediterranean that will be considered for simplicity as an isolated system. Normally, the rows define the origin of flows and the column their destination as in table 5-1 where, for example the figure located in 1st row, 2nd column indicate that the average annual value of exportation from France to Italy was 27.6 billions of dollars during the time period 1996-2000.

Table 5-1 : Mean annual value of trade flows 1996-2000 (millions of US $)

Fij	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA	0	27626	24224	2145	2322	297	2103	58717
ITA	27446	0	12873	830	561	977	1564	44251
ESP	19739	9525	0	664	966	162	334	31391
ALG	1878	2137	1665	0	124	1	79	5884
MAR	2533	427	739	14	0	107	53	3873
LBY	467	4269	1199	2	58	0	241	6235
TUN	1640	1209	276	35	40	225	0	3425
Total	53703	45193	40976	3689	4071	1770	4374	153775

5.1.1 Absolute level of flows and hierarchy

The hierarchy of flows in absolute terms is the first information to consider in the analysis. It is of course related to the size of territorial units which send (push factor) and receive (pull factor) but it has also a specific significance and can help to define a hierarchy of relations between territorial units. In the example of table 5-1, this analysis of the magnitude of flows reveals a clear typology of relations of high magnitude between northern Mediterranean countries (10-30 billions of dollars), low magnitude between southern Mediterranean countries

(less than 0.3 billions of dollars) and medium magnitude between northern and southern countries (0.5-5 billions of dollars).

The symmetry/asymmetry of flows is a topic of crucial importance for the political analysis of relation between territories. For this reason, the geographer W. Tobler has propose to transform systematically the initial matrix of flows F into a symmetric component F+ which describe the sum of flows in both directions (Fij+Fji) and an asymmetric component F- which describe the difference between flows in both directions (Fij-Fji).

The volume of relation is described by Tobler's symmetric component of flows F+ and defines the global level of connexion between both territorial units, under the consideration that, whatever the direction, a flow create a non-oriented linkage. In our example the most important volume of relation is observed between France and Italy and the less important between Algeria and Libya.

F+ij	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA	0	55072	43963	4023	4855	764	3743	112420
ITA	55072	0	22398	2967	988	5246	2773	89444
ESP	43963	22398	0	2329	1705	1361	610	72367
ALG	4023	2967	2329	0	138	3	114	9573
MAR	4855	988	1705	138	0	165	93	7944
LBY	764	5246	1361	3	165	0	466	8005
TUN	3743	2773	610	114	93	466	0	7799
Total	112420	89444	72367	9573	7944	8005	7799	307550

The balance of relations is described by Tobler's asymmetric component of flows F- and defines the gains and loses of a territorial unit in relation with another territorial unit. The matrix present symmetric values with opposite signs and create an oriented linkage. In our example, the most important differential in the commercial balance is observed between France and Spain, in favour of France (+4.9 Billions of dollars).

F-	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA	0	180	4485	267	-211	-170	463	5014
ITA	-180	0	3348	-1307	134	-3292	355	-942
ESP	-4485	-3348	0	-1001	227	-1037	58	-9585
ALG	-267	1307	1001	0	110	-1	44	2195
MAR	211	-134	-227	-110	0	49	13	-198
LBY	170	3292	1037	1	-49	0	16	4465
TUN	-463	-355	-58	-44	-13	-16	0	-949
Total	-5014	942	9585	-2195	198	-4465	949	0

The directional asymmetry of relations can be also described in relative terms by the index F-/F+ which is strictly comprise between -1 and +1. A negative value

indicates that a territorial unit receive much more than he receives (as Morocco toward Algeria) and a positive value indicates the reverse situation (as Algeria toward Morocco). An index value equal or near to 0 indicates that the relations are more or less equal in both direction. The exchange between France and Spain which had the highest balance in previous analysis (±4.5 Billions of $) are in fact characterised by a low level of directional asymmetry (±0.10) as compare to the balance of exchanges between Morocco and Algeria which has a lower absolute value (±0.11 billions of $) but with a very high level of directional asymmetry (±0.76)

F+/F-	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA		0.003	0.102	0.066	-0.043	-0.223	0.124	0.045
ITA	-0.003		0.149	-0.441	0.136	-0.628	0.128	-0.011
ESP	-0.102	-0.149		-0.430	0.133	-0.762	0.095	-0.132
ALG	-0.066	0.441	0.430		0.797	-0.333	0.386	0.229
MAR	0.043	-0.136	-0.133	-0.797		0.297	0.140	-0.025
LBY	0.223	0.628	0.762	0.333	-0.297		0.034	0.558
TUN	-0.124	-0.128	-0.095	-0.386	-0.140	-0.034		-0.122
Total	-0.045	0.011	0.132	-0.229	0.025	-0.558	0.122	0.000

5.1.2 Relative level of flows and influence

The analysis of flows in relative terms introduces a completely different type of analysis because the importance of flows is not evaluated from an external point of view but from the internal point of view of origins and destinations. The transformation which is applied consist in the division of each line (or column) of the matrix by the marginal sum. As an example, we will consider the analyse of the volume of relations between two states (F+) which is normally a symmetric linkage in absolute terms but which can produce very important asymmetry when it is analysed in relative terms.

The structural asymmetry of relation is related to the difference of size (capacity of import and export of units) which is fundamental for the definition of influence areas. In our isolated system, Morocco account for 4% of France's volume of trade which is mainly linked with Italy (47%) and Spain (41%). But in the same time, France account for 65% of Morocco's trade relation which has also secondary important relations with Spain (19%) and Italy (11%). This asymmetry is not related to the direction of flows (we have taken the example of the matrix F+) but to the structural difference of size between the partners of the relation. This structural asymmetry introduces a relation of power and dependency between the territorial units. Indeed, in the case of a commercial conflict between the two partners of the relation, one of them will be much more

vulnerable than the other (respectively 4% and 65% of the trade relation to be reoriented toward other partners).

codei	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA		47%	41%	4%	4%	1%	4%	100%
ITA	62%		29%	2%	1%	2%	4%	100%
ESP	63%	30%		2%	3%	1%	1%	100%
ALG	32%	36%	28%		2%	0%	1%	100%
MAR	65%	11%	19%	0%		3%	1%	100%
LBY	7%	68%	19%	0%	1%		4%	100%
TUN	48%	35%	8%	1%	1%	7%		100%

The structural asymmetry of relations is strongly dependant from the spatial framework used for its computation. In previous example, we have neglected the relations between our isolated system and the rest of the World, which can produce false conclusions on the real level of dependency between the selected countries. For example, the structural influence of France on Tunisia is divided by 2 (48% to 27%) if we take into account the trade relations between Tunisia and the rest of the World. But we can notice that at the same time the small influence of Tunisia on France is divided by 5 (3.6% to 0.7%) because the northern Mediterranean countries like France are much more connected the rest of the World (70-80% of their trade relations) than the southern Mediterranean countries (40-60% of their trade relations).

codei	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Rest of the world	Total
FRA	0%	10%	8%	1%	1%	0%	1%	79%	100%
ITA	13%	0%	5%	1%	0%	1%	1%	79%	100%
ESP	19%	10%	0%	1%	1%	1%	0%	69%	100%
ALG	17%	13%	10%	0%	1%	0%	0%	59%	100%
MAR	28%	6%	10%	1%	0%	1%	1%	54%	100%
LBY	5%	36%	9%	0%	1%	0%	3%	45%	100%
TUN	27%	20%	4%	1%	1%	3%	0%	43%	100%

5.1.3 Other measures of flows intensity

Measures of flows intensity can be produced by adding structural information out of the flow matrix. This topic is of special importance when the diagonal of the matrix of flows is not filled i.e. when the internal movement inside each territorial unit are not taken into account4. Many measures of flows intensity can be produced according to the nature of the flow and the assumption made by the

[4] Many mistakes in the interpretation of flows are related to this problem of lack of information on the internal moves of territorial units. For example, an analysis of *international* air flows can give the false impression that Europe plays a major role in air traffic at world scale, simply because the internal air traffic of United States is not taken into account

observer of the relations. It is not possible to specify a general solution as it depends strongly on the type of flows which are analysed. For example the intensity of migratory flows can be divided by the population of territorial units (in- and out- migration rates) when the intensity of economic flows can be better related to the GDP of the territorial unit (dependency to external trends).
Modelling of flows according to various assumptions on structural factor determining the relations between states are certainly the most important topic as its aim is to go behind the simple description of relations toward their explanation and their simulation. A classical solution is the family of the gravity model of spatial interaction which propose to explain the flow Fij between two territorial units i and j by structural factors characterizing the origins, the destination and the distance between origin and destination. Many other variables can be added, as it will discuss in the following part on the concept of structure and the linkage approach.

5.2 Preliminary sample of methods for structure analysis

As in the case of flows, we will not try here to define all possible methods which can be applied to the analysis of structures but it is important to give a first overview of the different interpretations and applications which can be derived from structural information in conceptual terms and how it can be linked to the analysis of flows. To illustrate this, we will analyse a very simple sample matrix of attributes of the previous sample of states from Northern and Southern Mediterranean. As in previous case, we consider for simplicity the 7 selected states as an isolated system.

Table 5-2 : Structural characteristics of selected Mediterranean countries (1999)

Name	SUP	AGR	POP	BIR	GNP	GDP	CO2
France	552	195	59.1	709	1550	1130	391
Italy	301	109	57.7	519	1160	1040	436
Spain	506	192	39.4	355	571	555	251
Algeria	2382	80	30.8	924	46	91	102
Libya	1760	21	5.0	140	10	24	44
Morocco	447	96	28.2	649	36	102	30
Tunisia	164	49	9.5	209	20	50	17
Total	6112	742	229.7	3505	3393	2992	1271

Definition of variables

SUP	Area in 1999 (thousands of km2)
AGR	Agriculture area in 1999 (thousands of km2)
POP	Population in 1999 (millions of inh.)
BIR	Birth Rate in 1999 (thousands of births)
GNP	Gross National Product in 1999 (in billions of US $)
GDP	Gross Domestic Product in 1999 (in billions of US $ p.p.a)
CO2	Carbon Dioxide Emission in 1998 (millions of tons)

5.2.1 Size and hierarchy

The hierarchy of sizes of territorial units is the first dimension to introduce in structural analysis, whatever the family of criteria under consideration (economic, demographic and environmental). Size is defined by raw count variables ("stocks" of population, area, GDP…) which can be added and transformed into a proportion or rank of the system which is analysed for better comparability. Sizes define the potential influence of a given element in the system under consideration and are directly related to their ability to establish flows with the other elements of the system (push and pull factors). The choice of the size criteria should be made very carefully and clearly related to the problem to be analysed. For example, if we are interested on agricultural matters, the potential of states should be evaluated by agricultural area (where France and Italy represent 52% of the total) and not simple area (where Algeria and Libya represent 68% of the total). When several criteria are considered to be important for the elaboration of a synthetic index of size is a very complicated question because it is related to the selection of variables, to their possible transformation (rank, proportions, standardised values, …) and to the methodology used for the elaboration of the synthesis (arithmetic mean, weighted mean, factorial analysis, …).

For example, the size of Libya appears greater than the size of Tunisia when we use the methodology of the mean proportion on all criteria (because Libya has a very larger area) but the situation is reversed when we consider the mean rank on all criteria (because Tunisia has better ranks on most criteria).

Table 5-3 : Size as proportion of the whole system

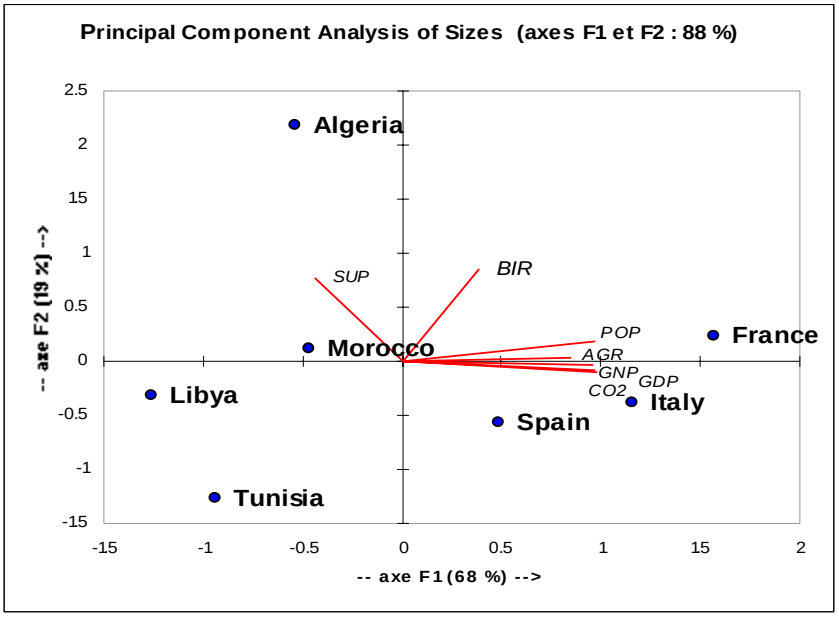
Name	SUP	AGR	POP	BIR	GNP	GDP	CO2	mean
France	9%	26%	26%	20%	46%	38%	31%	28%
Italy	5%	15%	25%	15%	34%	35%	34%	23%
Spain	8%	26%	17%	10%	17%	19%	20%	17%
Algeria	39%	11%	13%	26%	1%	3%	8%	15%
Libya	29%	3%	2%	4%	0%	1%	3%	6%
Morocco	7%	13%	12%	19%	1%	3%	2%	8%
Tunisia	3%	7%	4%	6%	1%	2%	1%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Table 5-4 : Size as rank of elementary spatial units

Name	SUP	AGR	POP	BIR	GNP	GDP	CO2	mean
France	3	1	1	2	1	1	2	1.6
Italy	6	3	2	4	2	2	1	2.9
Spain	4	2	3	5	3	3	3	3.3
Algeria	1	5	4	1	4	5	4	3.4
Libya	2	7	7	7	7	7	5	6.0
Morocco	5	4	5	3	5	4	6	4.6
Tunisia	7	6	6	6	6	6	7	6.3

It is of crucial importance to notice that size can not always been reduced to a single dimension when several criteria are taken into consideration. In many cases, it is necessary to consider size in a multidimensional way according to the groups of correlation between attributes defining the size of the units. In our example, the 1st factor of a Principal Component analysis define a global size of states on the criteria of Population, GDP, GNP, Agriculture area and CO2 emissions. But this factor account only for 68% of the initial information and a second factor define a secondary component of size which is rather related to birth rate and area of states and ads complements for 19% of the initial information. Typically, Algeria has a medium score on the first dimension but a very high level on the second one.

Figure 5-1 : Size as multivariate dimension



5.2.2 Dissimilarity and identity

The analysis of similarities/dissimilarities between economic, social and environmental structures of the territorial units defines a second field of investigation where the attributes are not necessary related to size and will rather focus on the relative intensity of the factors, all things being equal with the size of the territorial units5. As an example, we will consider a set of variables which are ratio between initial variables describing the size of territorial units and where the initial size effect has been formally removed. The variables which have been selected in various fields normally result from the work of an expert which will choose the most relevant index, according to the phenomena under consideration and the political demand to be addressed. In our example, a specialist of demography can consider that simple population density (DEN1) is not sufficient because many states like Libya and Algeria has whole part of their territory with desert areas. Therefore, the expert could provide an additional index which is a proxy of net density based on the ratio between population and agricultural area (DEN2). The same is true in the case of economics where the expert can consider that two different measures of wealth per inhabitant introduce complementary information (ECO1, ECO2). And finally, the environmental expert can propose two different measures of the consumption of CO2 according to the fact that one focus on a social approach (ENV1) or an economic approach (ENV2) of the problem of pollution.

[5] But it is not an absolute rule and, in certain cases, factors related to size and relative intensity of phenomena can be combined together in the same analysis.

Table 5-5 : Selected demographic, economic and environmental characteristic ratios

Name	DEM1	DEM2	DEM3	ECO1	ECO2	ENV1	ENV2
France	107	303	12	26200	19100	6.6	0.35
Italy	192	529	9	20100	18000	7.6	0.42
Spain	78	205	9	14500	14100	6.4	0.45
Algeria	13	385	30	1500	3000	3.3	1.12
Libya	3	238	28	2000	4800	8.8	1.83
Morocco	63	294	23	1300	3600	1.1	0.29
Tunisia	58	194	22	2100	5300	1.8	0.34
West. Medit.	38	310	15	14800	13000	5.5	0.42

Definition of variables	
DEM1	Gross population density in inh/km2 (POP/SUP)
DEM2	Net population density in inh/km2 (POP/AGR)
DEM3	Birth rate (BIR/POP)
ECO1	GNP in $ per inhabitant (GNP/POP)
ECO2	GDP in p.p.a per inhabitant (GDP/POP)
ENV1	CO2 in tons per inhabitant (CO2/POP)
ENV2	CO2 in kg per $ of GDP (CO2/GDP)

As in the case of the analysis of size, it is possible to introduce many transformations in the initial table (rank, standardisation…) and we do not further develop the crucial importance of this step but insist on the fact that it can heavily modify the following results of the analysis. We would rather insist on the fact that they are two complementary ways for the analysis of such a table, according to the fact that the focus is made on the variables (correlation) or the territorial units (similarities). Each type of analysis produces different output which has different applications for political decision in the ESPON program.

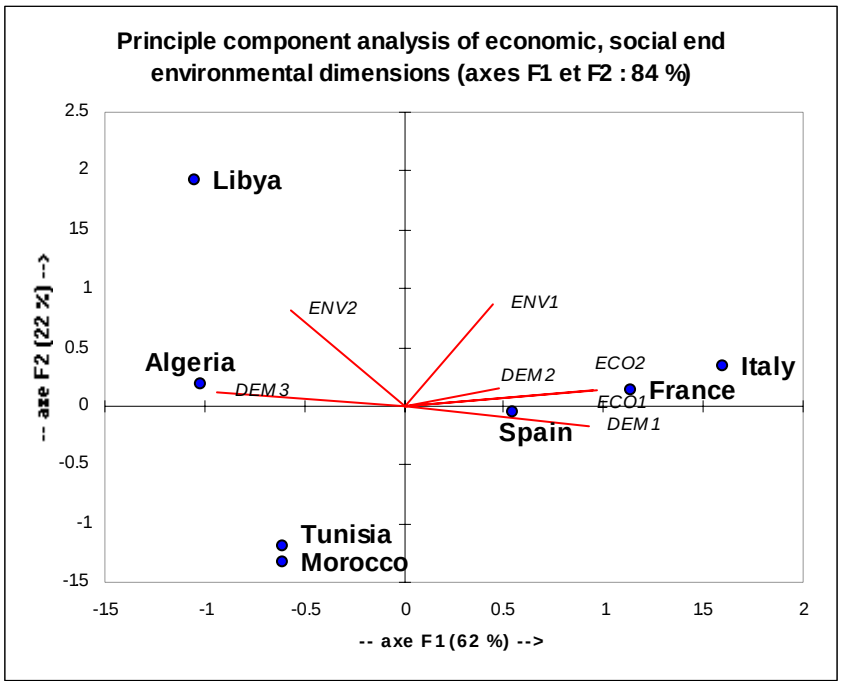
Correlation analysis focuses on the analysis of dependencies between variables describing the territorial units in order to propose more synthetic parameters like factors which summarise the initial formation in a more synthetic way. In the sample of data on Mediterranean countries it is possible to identify more or less trivial relations: it is obvious that the two measures of GDP/inhabitants are highly positively correlated (+0.99) and has a negative correlation with the birth rate (-0.86 and –0.92); but less trivial relations can be noticed as in the case of gross population density which is correlated with the previous variable which is not the case of net population density. The lack of significant relation between the environmental variables and the economic and demographic parameters is also interesting, even if it is partly related to the small size of the sample.

	DEM1	DEM2	DEM3	ECO1	ECO2	ENV1	ENV2
DEM1	1	0.618	**-0.841**	**0.765**	**0.815**	0.251	-0.643
DEM2	0.618	1	-0.212	0.353	0.349	0.209	-0.085
DEM3	**-0.841**	-0.212	1	**-0.864**	**-0.919**	-0.376	0.641
ECO1	**0.765**	0.353	**-0.864**	1	**0.986**	0.540	-0.438
ECO2	**0.815**	0.349	**-0.919**	**0.986**	1	0.573	-0.448
ENV1	0.251	0.209	-0.376	0.540	0.573	1	0.452
ENV2	-0.643	-0.085	0.641	-0.438	-0.448	0.452	1

in black, values significant at level alpha=0.05 (bilateral test)

As in the previous case of the analysis of the size variables, the factorial analysis is very helpful for summarizing the correlation matrix in order to propose more global factors of spatial differentiation. In our example, a first factor is defined by the combination of economic and demographic variables with a clear opposition between northern and southern Mediterranean countries. But the environmental dimension (emissions of CO2 per inhabitants or $) reveals another opposition between southern Mediterranean countries with an economy based on oil resources (Libya, Algeria) and countries with a different industrial basis (Tunisia, Morocco).

Figure 5-2 : principle component analysis of economic, social and environmental dimendations

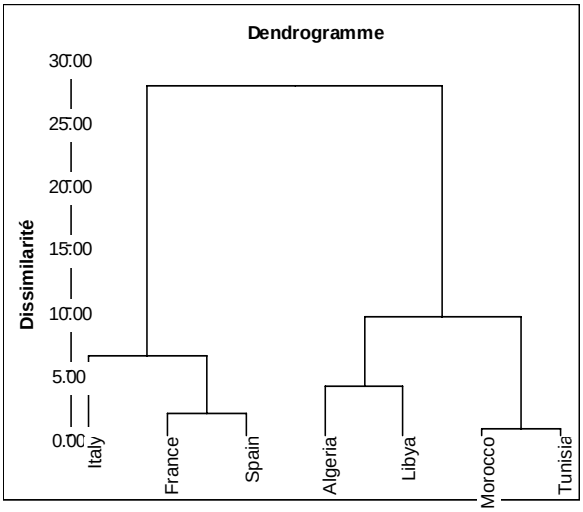


Similarity analysis focus on the differences between state which can be expressed by a typology (cluster analysis) but can also provide a very previous information on linkage between states through the elaboration of a similarity matrix between states which can be directly connected to other linkage matrixes, as we will see in next section. In our example, the dissimilarity matrix6 reveals a very strong pattern of opposition between two groups of states located in North and South of the Mediterranean See. But they are some exceptions, like in the case of Spain which has a higher level of dissimilarity with Italy (3.68) than with Morocco (3.43) or Tunisia (2.97). Libya is also very different from Morocco (4.20) and Tunisia (3.96) but difference are also very strong with northern countries. The related classification tree7 confirms the strong opposition between the two groups of states and introduces some minor differences inside northern group (Italy / France & Spain) and southern group (Algeria & Libya / Morocco and Tunisia).

Table 5-6 : Dissimilarity matrix

	Frau	Ita	Spa	Alg	Lib	Mor	Tun
France	0.00	2.66	1.81	4.89	5.15	4.30	4.10
Italy	2.66	0.00	3.66	5.52	6.12	5.14	5.35
Spain	1.81	3.66	0.00	4.22	4.25	3.43	2.97
Algeria	4.89	5.52	4.22	0.00	2.76	2.28	2.67
Libya	5.15	6.12	4.25	2.76	0.00	4.20	3.96
Morocco	4.30	5.14	3.43	2.28	4.20	0.00	1.00
Tunisia	4.10	5.35	2.97	2.67	3.96	1.00	0.00

Figure 5-3 : Classification tree



[6] Based on the classical Euclidean distance between standardised variables.
[7] Based *on Ward's criteria applied to Euclidean distance between standardised values*

5.2.3 Differences and complementarity

The analysis of differences (or gradient) is statistically very near from the previous topic of dissimilarities but is conceptually very different because it introduces an asymmetric dimension in the analysis of the structural relations between states. As we have seen before, the dissimilarity is a symmetric linkage where the value which describe the link between 2 territorial units i and j is equal to the value which define the link between j and i. In the case of differences, the relation is asymmetric and the relation between i and j is the opposite (or the inverse) of the relation between j and i. This crucial difference can be explained through the simple example of the differences of GNP/inhabitants between the sample of Mediterranean countries.

The absolute differences can be measure in a very simple way as the arithmetic difference between the territorial units. For this criteria, the difference of GNP/inh between France and Italy (±6100 $/inh.) is considered as much more important than the difference between Tunisia and Algeria (±600 $/inh).

Xi-Xj	Fra	Ita	Spa	Alg	Lib	Mor	Tun
France	0	6100	11700	24700	24200	24900	24100
Italy	-6100	0	5600	18600	18100	18800	18000
Spain	-11700	-5600	0	13000	12500	13200	12400
Algeria	-24700	-18600	-13000	0	-500	200	-600
Libya	-24200	-18100	-12500	500	0	700	-100
Morocco	-24900	-18800	-13200	-200	-700	0	-800
Tunisia	-24100	-18000	-12400	600	100	800	0

The relative differences take into account the relative level of GNP/inh. or the couple of state and can be measure in a very simple way as the ratio of the value of the indicator for each couple of territorial units. For this criteria, the difference of GNP/inh between France and Italy (1.3.) is considered as much more important than the difference between Tunisia and Algeria (±600 $/inh).

Whatever their method of evaluation, matrix of differences are a crucial structural component for the analysis of flows because they define opportunities of relation related to the concept of complementarity. It is conceptually very different from the matrix of dissimilarities which can also have an effect on flows but are rather related to the concept of identity.

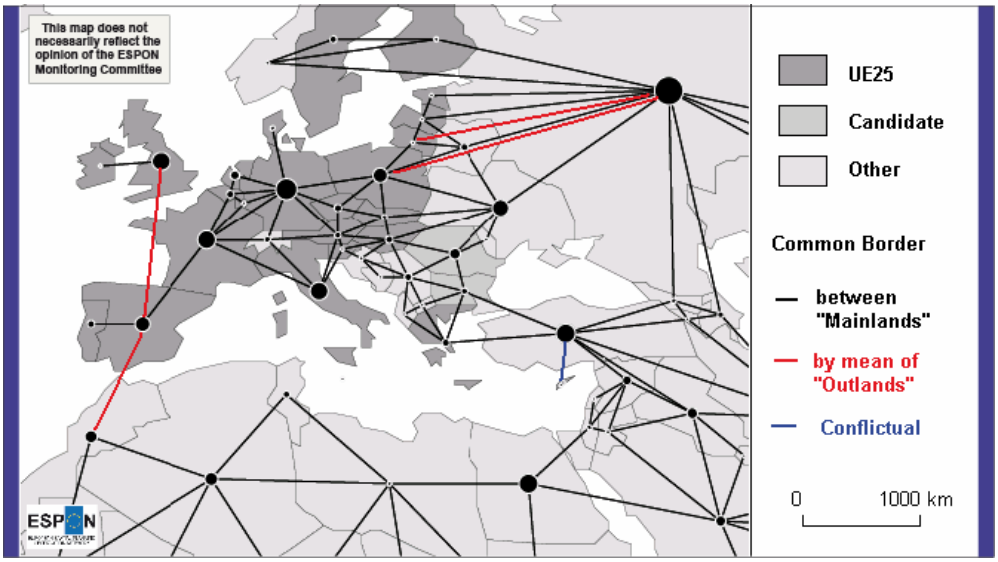
5.2.4 Spatial proximity: geographical neighbourhood and network accessibility

The various measure of spatial proximity can also be considered as structure as far as they determine in several ways the possibility of flows between territorial

units according to time or cost of relation. It is not the place to develop in detail the various measure of spatial proximity which can be introduced in the analysis of the position of Europe in the World but it is important to make a clear distinction between two very different forms of structural links according to the fact that they define a continuous (geographical neighbourhood) or discontinuous (network accessibility) approach of space.

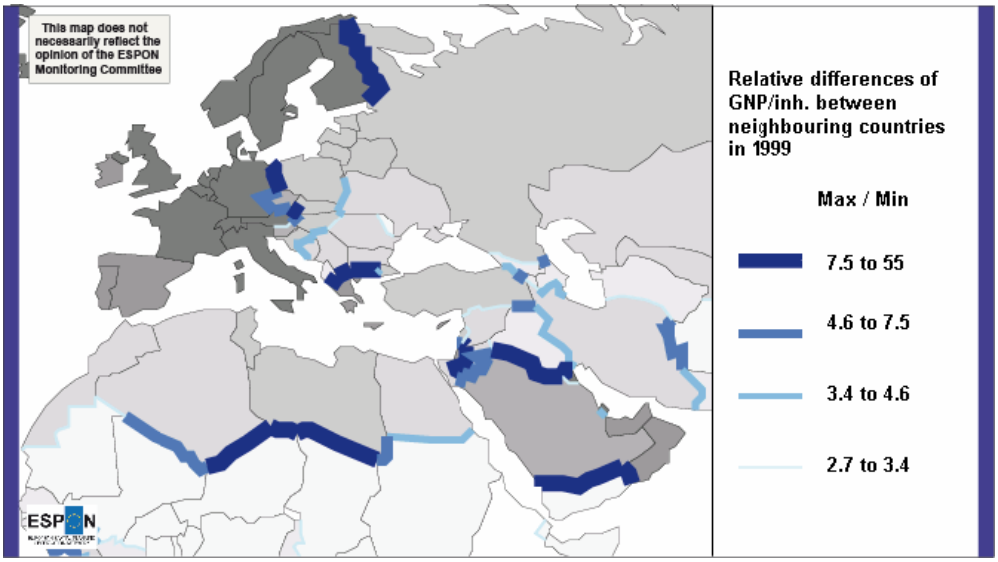
Geographical neighbourhood can be defined as information which is mainly related to the geometry of spatial units and based on the existence of common borders (contiguity) or the physical distance in kilometres between various points of the area of each territorial unit. The geographic definition of European neighbours under geographical criteria is not trivial as it can be seen on the example proposed in figure 5-4. If we use a map with a low level of spatial resolution –indicating only the main area without small islands or territories located out of the main territorial body of each state – we will eliminate many case of contiguity between territorial units. For example the common border between Spain and Morocco through Ceuta and Melilla or the common border between Russia and Poland or Lithuania through the district of Kaliningrad. In certain cases, the question is not only technical but also political as in the case of the definition of contiguity between Cyprus and Turkey which would be, de facto, recognition of the occupation of the northern part of the island… The existence of a common border between two states is a very fundamental topic for many types of flows (e.g. juridical consequence of unofficial migrations toward the territories of Ceuta and Melilla) but it is also very symbolic information which modifies the representations of people and policymakers. We have limited here our example to the case of the pan-European area but it is obvious that the question should be analysed in a world wide perspective in ESPON 341 because many states of Europe (in particular France and UK) has remote territories which create geographical neighbourhood between EU and many other continents (e.g. contiguity between France and south American countries through the French department of Guyana).

Figure 5-4 : Common border between states in pan-European area



The question of the definition of contiguities has also important consequences on the cartography of structure. If we decide, for example, to produce a map of relative discontinuities of GNP/inh. at international level (Figure 5-5) we will produce a map where important discontinuities can be pointed in central and eastern part of Europe (e.g. between Finland and Russia) but we will not provide any information on the discontinuities which exist between northern and southern coast of the Mediterranean See and are of comparable importance, as we have seen in the previous section. We will neither sea the discontinuities of wealth between European Union and the Balkan countries, despite the high level of flows which are related to this structure (e.g. migrations between Albania and Italy).

Figure 5-5 : Discontinuities of GNP/inh. between states along terrestrial borders



In this situation it is of utmost importance to propose other measures of geographical proximity, based for example on the minimum distance between the borders of states separated by sea and to consider that the neighbourhood exist if the minimum distance is lower than a given threshold (e.g. 50 or 100 km) and if the sea can be crossed easily. But we see that, in this situation, the geographical neighbourhood is not based only on geometry and take into account other information on the possibility for migratory flows to cross channels which mean that we are in fact introducing a proxy of the concept of network accessibility.

Network accessibility is not based on a hypothetical effect of physical distance but introduce explicit assumptions on the technical or practical solutions which contribute to the realisation of flows between territories. According to the nature of flows which are considered of interest, various form of network accessibility can be defined related for example to different modes of transportation (air, rail, road…) and their possible connexion in multimodal networks. In the framework of the limited budget of ESPON project 3.4.1, it will probably not be possible to analyse this point in too much details but it is important to keep in mind that network accessibility does not exist without consideration of the flows which can be related to a particular infrastructure of communication. It is also of utmost importance to introduce a social dimension in the measure of network accessibility because all types of networks can not be used by all social groups according to their resource or knowledge (e.g. internet).

From conceptual point of view, network accessibility is fundamentally different from geographical neighbourhood because it is often related to connexion between nodes which are located in a discontinuous space (e.g. gateway cities). It is related to difficult questions concerning the scale of analysis, the basic territorial units of the study. Indeed, the fact that a state has a good airport connexion in a given point of his territory does not mean that all other parts of the territory of this state can benefit from this infrastructure, depending on internal networks which connect secondary centres to the main Hub. Reversely, a State which does not have a good airport on his own territory can benefit from the infrastructure of other neighbouring states, at less in the border area.

Geographical neighbourhood and network accessibility are complementary structure which should both be taken into account if we want to get a sound interpretation of flows between Europe and the rest of the World

5.3 Preliminary sample of methods for synthetic analysis

We will now briefly explain how the various types of synthesis can be made, without going in too many details.

5.3.1 Thematic synthesis

Thematic synthesis on a particular field will be based on the use of models who integrates flows and structure in a systemic way. As a very simple example, we will illustrate the methodology of gravity model of spatial interaction applied to the economic exchanges between northern and southern Mediterranean states which has been previously analysed.

We propose to estimate the trade flows (Fij) between two states as a function of the economic capacity described by the GNP of the country of origin (GNPi) and the GNP of the country of destination (GNPj). We introduce also an assumption on the role of geographical distance (Dij) and geographical neighbourhood described by the presence of a common border (Cij). The structure of the model is a classical gravity assumption that:

$$Fij = \alpha . (GNPi)^{\beta 1} . (GNPj)^{\beta 2} . (Dij)^{\gamma} . \delta^{(Cij)}$$

The parameters are estimated by linear regression after logarithmic transformation:

$$\log(Fij) = a0 + a1.\log(GNPi) + a2 \log(GNPj) + a3 \log(Dij) + a4.Cij$$
$$\Rightarrow \text{With } \alpha = \exp(a0) ; \beta 1 = a1 ; \beta 2 = a2 ; \gamma = a3 ; \delta = \exp(a4)$$

The analysis of the results of multiple regression indicates that both push and pull factors (GNPi and GNPj) has significant positive effect on the level of trade flows between partner state but not the geographical distance (Dij) and the geographical neighbourhood (Cij) which do not appears to have a significant influence of trade flows between the set of countries which has been selected. The value of geographical parameter indicate that the presence of a common border has a slow positive effect on trade flows (+36%) but it is not significant has it is not a regular result. More surprisingly, distance appears to have a small positive effect, which means that trade increase when distance increases, which is very unusual but can be explained by the relative homogeneity of distance and the fact that we have use a very rough definition of proximity (Euclidean distance

between geometrical centres of states). As we will see later, this contradiction is related to a bad specification of distance.

The proposed model explains 72% of the variation of flows between states but let unexplained 28% of the initial information on trade flows. The analysis of the residuals of the model is therefore a very interesting way for the discovery of other explanatory variables which has been introduced in the initial formulation of the model. Absolute residuals are computed as the difference between observed and predicted flows and relative residuals as the ratio between observed and predicted flows (see. below)

Table 5-7 : Observed trade flows

Fij	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA		27626	24224	2145	2322	297	2103	58717
ITA	27446		12873	830	561	977	1564	44251
ESP	19739	9525		664	966	162	334	31390
ALG	1878	2137	1665		124	1	79	5884
MAR	2533	427	739	14		107	53	3873
LBY	467	4269	1199	2	58		241	6236
TUN	1640	1209	276	35	40	225		3425
Total	53703	45193	40976	3690	4071	1769	4374	153776

Table 5-8 : Expected trade flows

F*ij	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA		36728	20346	1479	431	1255	725	60964
ITA	37274		8682	1173	355	956	546	48986
ESP	21409	9001		666	379	589	338	32382
ALG	1769	1383	757		57	83	98	4147
MAR	558	452	465	62		28	17	1582
LBY	1520	1141	678	84	26		83	3532
TUN	905	672	401	102	16	86		2182
Total	63435	49377	31329	3566	1264	2997	1807	153775

Table 5-9 : Absolute residuals (Fij – F*ij)

F*ij	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA		-9102	3878	666	1891	-958	1378	-2247
ITA	-9828		4191	-343	206	21	1018	-4735
ESP	-1670	524		-2	587	-427	-4	-992
ALG	109	754	908		67	-82	-19	1737
MAR	1975	-25	274	-48		79	36	2291
LBY	-1053	3128	521	-82	32		158	2704
TUN	735	537	-125	-67	24	139		1243
Total	-9732	-4184	9647	124	2807	-1228	2567	0

Table 5-10 : Relative residuals (Fij/F*ij)

Fij	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA		0.75	1.19	1.45	5.39	0.24	2.90	0.96
ITA	0.74		1.48	0.71	1.58	1.02	2.86	0.90
ESP	0.92	1.06		1.00	2.55	0.28	0.99	0.97
ALG	1.06	1.55	2.20		2.18	0.01	0.81	1.42
MAR	4.54	0.94	1.59	0.23		3.82	3.12	2.45
LBY	0.31	3.74	1.77	0.02	2.23		2.90	1.77
TUN	1.81	1.80	0.69	0.34	2.50	2.62		1.57
Total	0.85	0.92	1.31	1.03	3.22	0.59	2.42	1.00

The analysis of the margin of the matrix of residual indicates firstly that some states are more involved in the trade of the area than other. For example, we can notice that northern Mediterranean countries export less than expected with other countries selected when southern countries export much more than expected. The situation is not exactly the same for importation where we can notice exception to the previous rule (Spain, Libya).

The analysis of the internal part of the matrix of residuals reveals specific linkages between couples of states which have significant positive or negative residuals, indicating preferences or barriers effects according to the variables introduced in the model. For example, if we focus on north-south trade relations, we can observe that France has significant positive residuals in both directions with Morocco, Tunisia and at a less degree Algeria (only for exportation) but negative residuals with Libya. Italy has significant positive residuals in both direction with Tunisia and at a less degree with Libya and Algeria (only for importation) and Morocco (only for exportation). Spain has positive residuals with Morocco in both directions and at a less degree with Algeria and Libya (only for importations). The analysis of residuals suggest very clearly missing variables in the model like historical heritage related to colonisation (France with Maghreb and Italia with Libya) or common language (France and Maghreb). It can also reveals some misspecification in the parameter introduced in the model like geographical distance which has been measured as distance between gravity centre of area but would be better described by minimum distance between external borders (explaining therefore the intensity of relations between Italy and Tunisia or Spain and Morocco).

This example indicate clearly how the step of joint modelling of flows and structure help to discover hidden factors and suggest connexion with other thematic fields of interest for a better estimation of the model which can be improved and calibrated in a hypothetico-deductive process.

5.3.2 Structural synthesis

This point will not be developed as most methods for joint analysis of several thematic structures are similar to the methods which have been presented for the analysis of a single structure (see. B.2). Multivariate analysis (factorial analysis, classification, similarity, discontinuity can be either applied to a homogeneous table of economic variables or to a table combining social, economical, demographical and environmental data.

The only point to precise is the mathematical type of variables introduced in the analysis (quantitative, qualitative, ordinal…) because it can modify the choice of the most relevant statistical tools to be applied to structural analysis. For example, if we want to analyse the correlation between the qualitative variable "Belonging to EU" and other quantitative variables we will not use classical correlation or regression model but variance analysis. For example, the variance analysis indicates clearly the existence of a very significant opposition between and northern and southern Mediterranean countries on the criteria of economic development measured by GNP/inh (90% of variance explained, significant at level 0.001). But this opposition is not systematic and, for example, it is not possible to define a significant north-south opposition on the criteria of ecological efficiency measured by CO2 per $ of GNP (20% of variance explained, non statistically significant). In this case, the real opposition is rather between countries with oil production (Libya, Algeria) with emission of CO2 per $ and all other countries of the area.

Table 5-11 : Relation between economic development (GNP/inh.) and belonging to EU.

Source	ddl	SSQ	Mean Square	F - Fisher	Pr > F
Model	1.000	589360119	589360119	42.748	0.001
Residual	5.000	68934167	13786833		
Total	6.000	658294286			

r2 = 90%

Table 5-12 : Relation between Ecological efficiency (CO2/GNP) and belonging to EU.

Source	ddl	SSQ	Mean Square	F - Fisher	Pr > F
Model	1.000	0.409	0.409	1.274	0.310
Residual	5.000	1.604	0.321		
Total	6.000	2.013			

r2 = 20%

Many ideas for structural synthesis are related to the research on synthetic indexes of human or sustainable development which are actually analysed in ESPON 3.2 in the work packages related to the construction of a European Territorial Cohesion Index. Therefore, the TPG ESPON 3.4.1 will take benefit from this existing material in order to gain complementarity between the different parts of the whole ESPON program.

5.3.3 Flows synthesis

As it was explained in part B.1, the various type of flows are not independent from each other and correlation or causal relation can be established between

various types of flows which link states together. The synthesis of various types of flows is not necessary difficult if the methodology used by the different partners in charge of the various thematic flows is made similar and coherent at the very beginning. As they are many solutions for the transformation of initial matrix of flows (see B.1), it is crucial to introduce common methodology and common indexes in all work packages, even if some adding methodologies and variables should be applied on particular types of flows (like air connexion). It is obvious that the elaboration of a cross-thematic database of flows, which is a main concern of project ESPON 3.4.1. will introduce a sensible reduction of the initial information because, for example, the territorial units available in each matrix of flows will not be exactly the same and because the elaboration of a common territorial breakdowns will oblige to reduce the spatial resolution of the analysis.

As an example, the analysis of air connexions should normally be realised at city or airport level in a first step, but data will be further aggregated at national level in order to be combined with economic or migratory flows which can not be obtained at city level.

The same problem will appear in the case of introduction of an historical dimension in the analysis of a given type of flow. As limits of states are changing through time and that many states has been broken in several others after 1989 (Soviet Union, Yugoslavia, Czechoslovakia…) it will not be possible to introduce any historical dimension in the analysis of flows without geographical aggregation of territorial units. In certain cases, it is possible to try a reconstitution of past flows in new borders but is very expensive and impossible as regard to the limited resources available in ESPON 3.4.1. In certain cases, it is only between very big aggregates of world region that it is possible to proceed to such evaluation of flows through time.

In many cases, due to lack of information (holes in matrixes of flows) and difficulty to harmonise various types of criteria, will we limit our synthesis to the comparison of qualitative variables indicating if flows are, for example "High", "Medium" or "Low". Those typologies introduce a dramatic reduction of initial information but are probably the most efficient solution for cross-thematic synthesis of flows in the context of our project.

In our Mediterranean example, we have seen that it was relatively easy to distinguish three levels of trade flows, because of strong discontinuities in the statistical distribution[8]. According to the level of bilateral commercial exchanges (Trade), we can associate to each couple of origin and destination a qualitative

[8] Many statistical methods like Jenk's algorithm can help in the objective determination of typologies of quantitative variables, but it is also important to take into account the expert advices on each subject.

value according to level of flows. We do the same for two other matrixes of flows describing the number of air passengers between states (Air1) and the number of couples of cities connected by a minimum number of passengers (Air2)9. As variables are strongly correlated, it is relatively easy to define a global synthesis, except in particular case where we can observe a heterogeneous combination of high and low flows (e.g. France and Libya with low level of commercial trade but high level of air connexions).

Table 5-13 : Synthesis of three types of flows between Mediterranean countries

Origin/Dest.		Quantitative flows			Qualitative flows			Flows
I	j	Trade	Air1	Air2	Trade	Air1	Air2	Synthesis
FRA	ITA	55072	5494041	284	3	3	3	3
FRA	ESP	43963	5052059	288	3	3	3	3
FRA	ALG	4023	1448096	42	2	3	3	3
FRA	MAR	4855	3144	4	2	1	2	2
FRA	LBY	764	2121522	79	1	3	3	2*
FRA	TUN	3743	2656246	67	2	3	3	3
ITA	FRA	55072	5494041	284	3	3	3	3
…	…	…	…	…	…	…	…	…
…	…	…	…	…	…	…	…	…
LBY	TUN	466	53002	2	1	1	1	1
TUN	FRA	3743	2656246	67	2	3	3	3
TUN	ITA	2773	105502	10	2	2	2	2
TUN	ESP	610	213556	24	1	2	2	2
TUN	ALG	114	0	0	1	1	1	1
TUN	MAR	93	0	0	1	1	1	1
TUN	LBY	466	53002	2	1	1	1	1

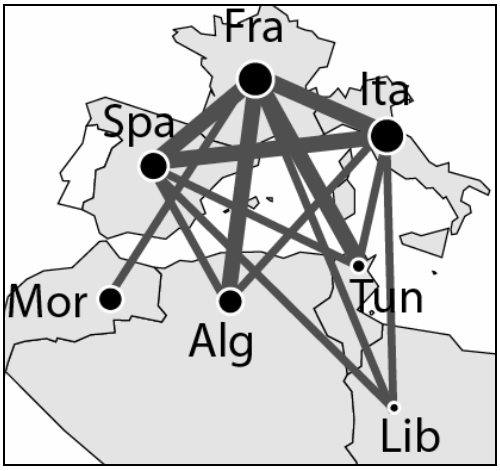
Trade = bilateral commercial flows; Air1 = number of passengers; Air2 = number of city connexions
3 = Main flows; 2= Medium Flows; 1 = Small Flows; * indicate a mixture of high and low flows.
Qualitative transformation is based on statistical discontinuities in the distribution of each type of flow

It is now easy to propose a synthetic analysis of flows between Mediterranean countries which can be represent in matrix or graphic form.

[9] Notice that the introduction of this variable help to limit the lose of information introduced by the aggregation of flows between airport at state level.

Figure 5-6 : Synthesis of air and trade flows between selected western Mediterranean countries

nt.	FRA	ITA	ESP	ALG	MAR	LBY	TUN	Total
FRA		3	3	3	2	2	3	16
ITA	3		3	2	1	2	2	13
ESP	3	3		2	1	2	2	13
ALG	3	2	2		1	1	1	10
MAR	2	1	1	1		1	1	7
LBY	2	2	2	1	1		1	9
TUN	3	2	2	1	1	1		10
Total	16	13	13	10	7	9	10	78



The synthetic pattern of flows which is derived from the synthesis demonstrate clearly a high level of integration between northern Mediterranean countries which are connected by high level of flows on all criteria and, reversely, the lack of integration between southern Mediterranean countries which has always low level of flows in their relation to each other. Concerning north-south relations, the major role is played by France which has high level of flows with Algeria and Tunisia and medium level of flows with Morocco and Libya. Italy and Spain has a medium level of relation with all southern Mediterranean countries, except Morocco which appears as the less connected to the rest of the area for the selected criteria of flows (trade and air connexions). Those results are not surprising but they illustrate the way we propose to deliver relatively simple and synthetic messages, useful for political decisions.

6 DICTIONNAIRE OF CONCEPTS

6.1 Integration Zones

The geographical integration is a process by which places become clearly linked with other ones and eventually become interdependent. They can constitute a new space or a new territory. The integration can involve either equally or unequally developed territories. The places constituting that new territory become then distinct from other places, with which they constituted before another geographical unit. One has to distinguish between spatial integration and territorial integration and take into account the different levels at which the process occurs.

In the case of spatial integration, places are connected by functional economical, demographical, informational, cultural links eventually without any institutional support. This kind of integration involves contiguous portions of space belonging to different countries. What P. Mehlbye (2000) defined as European Global Integration Zones (GIZs) can be included in this first definition. The GIZs are clusters of metropolitan urban areas linked by strategic cooperation programs. This kind of zone offers "high quality global economic functions and services, which enable a high-income level and a well-developed infrastructure". The core area is characterized by "a more dense and dynamic territorial structure both in term of its node (metropolitan regions, cities and towns) and links (external and internal communication network)". Nevertheless, the process of integration is not necessarily based on voluntary programs of cooperation in such domains as policy, spatial planning, regional development, economics, etc…

The territorial integration implies several countries in a project set up in order to face the process of globalisation. This process can be understood as the gradual integration of all societies in the highest geographical level: the World. In order to face globalization which is more or less perceived as a constraint, the necessity to reach the relevant size (that of United States or China) encourages numerous countries to be part of regional integration zones. This project can be based on an institutional basis for which European Union is seen as a model. In such case, the idea of a common belonging or future is promoted. However, EU integration zone, in which the different member states become step by step economically interdependent, remains an exception. The process of integration can also be based on lighter ties and fewer cooperation programs, involving only a few domains, economic and financial for instance, like trade agreements or customs unions (Viner, 1950).

There are also connexions between the general concept of integration zone and that of optimal monetary or commercial zone, first defined by economists among which Mundell (Mundell, 1961 & 1969). Optimal monetary zones are large, and eventually multinational, groupings of territories. They are homogeneous enough

to allow the mobility of the factors of production at a reasonable cost (money and labour force for instance), economies of scale, implementation of well balanced public policies and finally good governance.
The process of integration which gives way to the emergence of integration zones has evident connexions with the process of regionalization because each integration zone, spontaneous or politically planned, whatever its size is, is always a subset of a wider ensemble (see Regionalization).

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6.2 Centre / Periphery

The geometrical metaphor of the centre and the periphery is often used in order to describe the opposition between two basic types of places in a spatial system in the frame of hierarchical and dissymmetrical relations. In this spatial system, the centre benefits from peripheral zone and controls it; the peripheries are subjected to the centre. This conceptual couple has been lasting since at least Werner Sombart (1909), if not since Marx, and has been used by the theoreticians of the imperialism (Luxemburg, 1972; Boukharine, 1977). The economists who work on the development disparities gave it its current meaning (Samin Amin, 1973). Alain Reynaud (1988) extended the use of the notion to the field of geography. According to him, the centre is a place of concentration of population, wealth, information, innovation capacity and decision power and the periphery is the contrary.
The concept can be applied to all geographical levels (village, town and region). However it has been mainly used at the global level as an equivalent to developed/developing worlds or North/South. The couple centre/periphery allows

to describe the opposition between two spaces but above all it suggests an explanation of this differentiation: the periphery is dominated because the centre dominates. As a consequence, this concept has been mainly used in third-worldism thoughts more or less as a way to give bad conscience to the people of western countries. This usage is very restrictive and the concept is more efficient. Indeed asymmetric relations do not necessarily mean that the centre exploits the periphery. To think about centre and peripheries makes possible thoughts about the interaction between places in the World: mutual dependence links in which the disparities are the norm.

Without relation between those two kinds of spaces, and therefore flows (of people, goods, capitals, information, decisions) the couple has no meaning. But more, the relations have to be asymmetric (unbalanced flows, power relations hierarchy). The centre is central only because it benefits from this difference and peripheries undergo a deficit that maintains its dominated situation. This system is thus self-regulated: the centre reproduces the conditions for its centrality. Because it is based on unbalanced exchanges, the system is dynamic. If some peripheries can become blind spots (they are then so called neglected) others can benefit from their situation: interface with places located outside the spatial system, final comparative advantages that are in line with the principle of international division of labour. That can lead to polarity inversion within the same scheme or to changes of system. The possibilities for action toward changing the position of peripheries involve of work of continuous positioning inside different networks and creation of new networks (Castells, 2001).

The centre/periphery model has therefore a strong heuristic capacity if it is not too much simplified. The model is not obviously dual: in theoretical level the semi-periphery has already existed, but in the empirical research some other categories can appear: core area, dynamic side, inner periphery and external periphery. To overpass the schematic representation of domination of peripheries by centres it can be useful to introduce the concept of urban or metropolitan archipelago (Veltz, 2005).

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6.3 Regionalisation

A region is a subset of a geographical entity whatever its scale is. Using the word "region" is always done with a scalar perspective: the upper level is implied. For classical geography as for French administrative terminology a region is the first level of subdivision of the national territory (as the Lander in Germany). Today the word "region" is frequently used to refer to parts of the World grouping together several countries.

The regionalisation is therefore the subdivision, spontaneous or intentional, of a geographical entity. Part of the debate on the impacts of Europeanization uses the term "regionalisation" in reference to processes of subdivision of the national state into regional sub-authorities. These processes manifest themselves into the (partial) decentralisation of national governments functions to the regions and to the increasing demand for more regional autonomy of self-government. In European states where the regional level (institutional, geographical or cultural) was not defined, there is an arbitrary definition of "paper regions" which are often an artificial set up for the purpose of finding a suitable institutional level for the targeting of EU structural aids. The latter phenomenon is particularly evident in the new member states (Poland, Slovenia) and in some older ones as well (Portugal). The implication of this subdivision is the "coming to life" of new actors and therefore of new powers in the decisional and implementation networks of important European policies, a structural change whose implications are still undefined.

The economic literature uses the word "regionalisation" in an original meaning referring more to grouping than to division. It was already the case in the French political vocabulary, where "regionalisation" referred to the grouping of departments in a wider set that could remind the former provinces. Nowadays, "regionalisation" refers to the voluntary construction of a supranational and sub-global entity by contiguous countries. The European Union construction is the archetype of this process. The subdivision of the World justifies the use of this word. However that should not hide the fact that a non negligible number of World countries are not concerned by any regionalisation or are very weakly involved. That makes any thought on world "region" difficult. If some subset can

be clearly identified (for example large States and their peripheries like USA or China, or advanced regionalisation construction like European Union), for the rest of the World every thing is confusing. According this viewpoint, it is not that obvious to consider the regionalisation as a functional subset of the globalisation process. That would imply that the world system needs large subdivision and not an anomy of isolated countries nor the coexistence of large and small groups and nor badly structured places. With such a viewpoint the regionalisation of some part of the world appears as an effort of construction of concurrent poles, even if their hierarchy is strong, in a polycentric world where a large part of the humankind is still in the periphery.

Theoretical debates about regionalization.

In the field of economic research, several theories have been proposed about the process of integration since the works of F. List. According to him, the formation of a common economic territory (such as the Zollverein) was the best way to protect recent industries. The classical and neoclassical approaches are market based theories: then, the process of regional integration is criticized because it hampers the development multilateral free-trade. According to other economic theories, regional protectionism is considered as a highly relevant solution for small and large countries in the context of increasing competition between firms of all countries. The commercial integration may provide many advantages. For example, Mundell showed that a process of integration involving poor countries can enhance the mobility of capital towards them (Mundell, 1968). The inward flow of investments in these countries makes possible the convergence of capital endowments between small and large countries. The formation of a customs union by small and poor countries is then a relevant solution to create the conditions of a greater competitiveness at the international level. In a static approach, other economists have proposed various theories about the customs unions (Viner, 1950; Tinbergen, 1954; Meade, 1955; Scitovsky, 1958). These unions mean that a group of countries decide to turn down every barrier and obstacle in order to support the trade flows between them. In the same time, they establish a common external tariff for their imports. Therefore, a customs union can have two possible effects:
- the replacement of imports previously coming from non member countries by an internal flow coming from a member country of the union, even if this internal flow is more costly (trade diverting).
- a production made in a member country can be replaced by a new one, made by another member state of the union but less costly.
In a more dynamic approach, some economists emphasize the idea that a customs union is likely to affect the conditions of the economic growth. They underline the following effects of the establishment of such unions: creation of economies of scales (the productivity increases and the production costs

decrease, see Krugman, 1995); increase of the competition between firms of member countries (diminution of prices); diminution transaction costs (market extension)…

Another subject of discussion about the process and the forms of regionalization is its connections with that of globalization. The question is then: multilateralism versus regionalization? Or multilateralism going along with regionalization? Economists usually think that multilateralism (i.e. the extension of the most favoured nation status to every country in the world) is the best way to increase the level of well being at the global level. But this idea is relevant only in the context of a "concurrence parfaite" on a totally transparent market, which is actually not the case (trade barriers, fluctuation of exchange rates…). In this frame, economists have discussion about the following topics: does the increase of intraregional trade cause a decrease of interregional trade flows? Can the formation of a regional market have any consequence on the level of well being of non member countries (Viner, 1950)? To the second question at least, it is hard to give any definitive answer: to have a clear idea of the effects of regionalization on the rest of the World, one must be able to identify many variables. But some economists, such as P. Krugman, have tried to estimate the number of market zones which would make the level of well being of the World decrease (Krugman, 1991). These debates are based on the idea that these unions are politically planned. But, in some cases, the process of regionalization is more spontaneous and is not based on any external common tariff barrier (Eastern Asia). The effects of such process may be different.

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6.4 Polycentrism

"Polycentricity" is used as a self-explanatory concept, characterising something that is opposite to monocentricity on the one hand and dispersal and sprawl on the other. It is supposed to contribute to *balanced* regional development, European *competitiveness* and *sustainable* development, and to facilitate new urban-rural *partnerships*.

Two structural aspects are of particular relevance to polycentricity.
The morphological aspect. The urban pattern may be either strongly or weakly hierarchical. Two extreme patterns can be identified: *Mono-nuclear pattern* where dominant city and several peripheral/dependant cities or *poly-nuclear pattern* where cities are quite similar in size and where there is no dominant city.
The relational aspect. Polycentricity is based on the networks of flows and co-operation between urban areas at different scales that may be oriented in different ways between centres. Two extreme patterns can be identified. *Mono-oriented* relations are preferentially oriented towards one centre whereas *multi-directional* relations have no obvious orientation.

The development of synergies of cities implies the development of significant mutual connections between cities, and not just linking up with a main node. Accordingly, a mono-oriented relational pattern is therefore incompatible with polycentricity. Thus, in general it is supposed that polycentric urban relations are most likely to develop in systems of even-sized cities that could see an opportunity in achieving the advantages of one larger "city" by establishing binding political relations and co-operation across complementary urban functions. However, urban relations based on urban specialisation might also occur between cities of different size. Polycentricity is facilitated by a poly-nuclear pattern, but polycentric policies may still be successfully implemented within a hierarchical spatial configuration without necessarily remodelling the balance between the concerned nodes.

Urban relations of polycentric systems may be identified as follows:

Institutional, based on voluntary co-operation; Institutional or political polycentricity relies on co-constructions, co-operation, and on the willingness of territorial agencies to work together on joint projects and strategies. The cities may, or may not, be complementary with regard to urban functions. The functional complementarity is not a pre-condition for cooperation. What is important here is that two or more cities develop common projects in order to build thematic and joint projects, actions and strategies, to exchange knowledge, best practices etc. and to share equipment and upgrade infrastructure (cultural, social, transport, etc.).

Structural, resulting from "spontaneous" spatial development. Structural polycentricity is related to the organisation of a territory via spatial patterns of economic or functional relations and flows. Structural relations and flows are not necessarily nested in urban strategies. Rather, they are "spontaneous" products of overlapping housing or labour markets, of specialised networking between urban located actors or simply historically established cultural, economic or social relations. Thus, structural polycentricity may be identified as road, rail and air traffic, financial flows, information flows, etc.

Different kinds of polycentricity are related to different spatial levels. Distant urban areas may be connected through various types of relations such as market-based flows or exchanges, or co-operation directed towards the sharing of experiences, methods, or information, or by participating in a development project, etc. These relations are characterised by connectivity rather than proximity.

Spatial proximity between urban areas potentially allows other forms of co-operation and integration: economies of scale through shared infrastructure, such as universities and hospitals; common strategies to manage flows and exchanges generated by commuters, telephone calls, etc… The most frequently used indicator for economic integration is travel-to-work intensity between cities. A situation with intense commuter flows in both directions would be a sign of integration and of polycentricity. Examples of institutional polycentricity are co-operation in spatial planning, common visions, shared functions etc. The EU has encouraged cooperation in cross-border regions through Interreg IIIA programmes.

6.5 Gateway (cities)

ESPON 1.1.1 definition of Gateway city

Basic definition

The geographical concept of *gateway*, in the current framework of economic globalization, refers to the capability of some territories to attract flows and to built up relations with actors operating at different geographical scales. Basically, gateway territories represent *transversal* geographical entities operating at different scales in the local-global dialectic (Conti, 1997).
In case of cities, gateways are poles in a system of relationships of which the distinctive feature is that all flows pass through them. On the one side, they attract flows of all kinds – material or informational – from abroad, re-disseminating flows on the continent. On the other side, gateway cities are nested in local network spaces, connecting low-level local cities that have not direct access to supra-level networks, assuming the function, in this sense, of connecting regional economies to the global space (Camagni, 2002). Moreover, this "gate"-like function is in favour of both the development of interface activities, which, in a highly competitive environment, must challenge a greater free flow, and the development of activities enhancing those flows.
Nevertheless, the concept of gateway may be applied at larger geographical scales, for example the national ones. In some cases, many peripheral regions or states have not the capability to fully interact with global flows, and therefore they relate to other transversal regions acting as gateways: this is the case of many peripheral territories whose economic activities are linked to relations with semi-peripheral states, according to Wallerstein's terminology: this is the case of some African countries, leaning on Northern African countries in order to built up economic flows with Europe (*Società Geografica Italiana*, 2005). Even more important, the concept should not be considered in a strictly hierarchical way (central regions connecting peripheral ones), and it has to be considered how spatial proximity still plays a fundamental role in shaping economic flows, favouring or hampering the penetration of products, investments, commercial flows, the movement of workers, etc.(see Dunning, 1993; Shatz and Venables, 2000). In this sense, for example, Mexico (and particularly the territories next to the US border) constitutes an important *gateway* for European and Asian multinational enterprise willing to penetrate the US market (without paying the high costs of an US location; de la Martínez and Ramírez, 2002). In a different sense, Japanese enterprises historically developed some export functions in semi-peripheral Asian newly industrialized countries, in order to use these regions as cheap gateways for the exportation of goods in the Pacific area (Le Heron and Park, 1995).

Links with other concepts

The presence of gateway territories is strictly connected to the construction of a more *polycentric* space: not every territory has the possibility to interact with every geographical level, and the presence of gateways allows an ampler participation of the regions in the global economic dynamics. Obviously, the presence of gateways does not imply, per se, the presence of a more balanced territorial structure, since every gateway is basically *selective* in its connection, reflecting different spatial structures of power, connecting some territories and not others. For example, the situation of a country strongly polarized by the national capital (acting as a gateway) is quite different from a more balanced territorial system.
At urban level, gateway-cities enjoy the most favourable situations for the formation of poles of development. It is assumed that as regards the expansion of such poles, the diversification and the increasing complexity of their functions have everything to gain from the reinforcement of this inter- and intra-continental polarisation.

Territorial impact

Harbour-cities, so as some border cities, have often been great gateways of national and continental territories. Following the development of air transport and the fast and massive flow of non-material commodities on the new networks, the models of gateway-cities have diversified and now new continentally based locations can fulfil this traditional role. These indisputable advantages for the development of a greater territorial polycentricity are not definitely secured. With the improvement of the speed of circulation, the extension of the distances of commerce, the gradual elimination of national borders, these gateway functions have become extremely competitive. The towns concerned – or liable to become concerned – must attempt to diversify these functions and gain other activities that, in a very unstable context, can position them in a favourably competitive situation. These particularly demanding conditions appear to be more in favour of the development of large metropolises, which themselves enjoy a relatively more advantageous position.

Development strategies

The attention given by the SDEC to the European "gateway-cities" is related to their potential development. In a polycentric territorial system, the Hubs, multi-modal platforms are among many of the assets inevitably associated with the development of real gateway-cities. However, they (the hubs and multi-modal platforms) do not guarantee the development of gateway-cities. This development requests that the advantages offered by the new gateway-cities be

enhanced further than those strictly resulting from well-organised transport infrastructures, for example by furnishing competitive functions, high-skilled and knowledge intensive services; in this sense, Malecki (2002) ironically assessed that "both *clicks* and *bricks* are required", emphasizing the importance of traditional material infrastructures and "new" economic functions.

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6.6 Area of influence

The expression "area of influence" supposes a centre which polarises a portion of space. This concept can be implemented a different levels. It was first defined in urban geography and referred thus to cities whose areas of influence are more or less wide according to their level in the urban hierarchy (W. Christaller; G. Chabot, 1952). To make an evaluation of their influence, geographers use various criteria such as the commercial attraction, the number and the frequency of flows of commuters working in the centre, flows of persons seeking services

not available in their towns of residence and provided only by the centre. The areas of influence vanish progressively with the distance from the centre. The concept of area of influence has thus much to do with the couple centre / periphery, the latter being to a certain extent subjected to the former.

The expression "area of influence" has also a (geo)political meaning. It refers to the capacity of a country to exert its authority by the mean of a more or less strong pressure on other countries. These "influenced countries", whether they are contiguous or not, form the area of influence. In that sense, it was commonplace to talk about the area of influence of the United States and of USSR during the cold war. The influence of a country is based on asymmetric relations and can be exerted through various means: the force of the arms, the economic power (for instance the production of oil, gas and rare natural products), the official development aid, the food aid and agricultural exports… The influence can also be based on a soft power which designates the capacity of a country, or a group of countries, to convince other countries without the usage of any direct explicit constraint.

But the word influence must be used with precautions. On one hand, its meaning in the organization of geographical space is quite vague. The limits of an area of influence are generally fuzzy. They may be overlapped by other areas of influence. And areas of influence often happen to be constituted by not contiguous countries. On the other hand, the word influence is relevant to the action of a person on another person. Is it then possible to extend its meaning to cities, to states or groups of states?

When one tries to apply this concept to EU, it becomes even more confusing and tricky. The area of influence of EU would be constituted either by a set of countries located in its neighbourhood or by all the countries functionally linked to it through trade or investment flows and official aid. This first definition is very problematic because the word "neighbourhood" can be defined in several ways: geographical proximity, functional integration, connectivity?

The area of influence of EU would be composed by countries economically dependent to it. It would be thus more efficient to use the expression "attraction area" than "area of influence". Which criteria can be used to estimate the level of economic influence or the economic power exerted by EU?

What about the political influence of EU? Some countries belonging to EU have a real political influence but EU as a whole do not have any, excepted on the official or unofficial candidate countries such as Rumania, Bulgaria, Turkey, Croatia, FYROM, eventually Ukraine… in so far as these countries are or will be soon obliged to implement various reform to enter EU. As a consequence, the

economic influence of EU spreads over a much wider part of space than its political one. According to the domain concerned (migrations, trade, investments, remittances…), the influence area of EU is more or less wide and its shape is different. Consequently, its limits can not be clearly determined.

The cultural influence of EU at last is even more uneasy to define and to determine in space. Every one knows the cultural influence of the United States. But even in this case, one can wonder if there is a area of US cultural influence. As far as Europe and EU are concerned, they are culturally so fragmented that it would be more relevant to seek the cultural influence of its members (Great Britain, France, Spain, Germany…). In the case of France, the limits of the "francophonie", that is to say the countries where French has the status of official language are a kind of cultural influence. In the case of Great Britain, is it still possible to take the English language as a mean of cultural influence? This language is now associated to the cultural leadership of the USA.

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6.7 Barrier Effect

The border effect is a methodology, initiated by McCallum (1995), in order to estimate the negative impact of crossing a border on trade flows. It allows to measure the degree of economic integration among several countries or the degree of fragmentation of great markets such as NAFTA or EU. To measure the border effect between two territories, it is necessary to use a gravity model. The gravity model predicts that the exportations from a country (or a region) *i* to two other countries *j* and *k*, characterized by the same population and located at the same distance from the country *i*, should be equivalent. When the exportations are lower than the predictions of the gravity model, there is a border effect.

The conclusions of all the studies dedicated to this effect are the same. Notwithstanding the formation of multinational regions in the context of the globalization, the political borders still have an impact on the international flows.
In spite of all the agreements signed and implemented by EU and the neighbour countries, the border effect can be a way to measure the level of integration or fragmentation inside the great Euro-Mediterranean region.
The border effect may not reach the same intensity at every level. An international border can hamper the increase of goods and commuters flows for instance at the local level, and the local cross border cooperation maybe unsuccessful, while trade and migration flows can increase rapidly at the national or macro regional level (country to country level).

This concept, which can be used in various domains such as migratory flows, trade flows, investments flows, is weak and should be used only in a heuristic way. It is not able to make any distinction between two things:
What is relevant to the level of interaction between two territories separated by a border (international border, external border of a custom union, free trade agreement zone or common market)…
What is relevant to the preference of social and economic agents for exchanges with other agents in the same territory (Community preference in the EU).

The concept of barrier effect can be used in other contexts. It is relevant as far as cross border and transnational cooperations are concerned. In many border regions, the implementation of genuine joint project of local development is hampered by administrative, economic or cultural differences. In that case, the barrier or border effect can not be estimated by statistics methods any more. It is only a fact that can be overtaken by administrative of economic reforms.

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6.8 Neighbourhood

The concept of neighbourhood is quite vague. In a current and empirical meaning, the word designates a localised group of persons living near one's own place of residence. For example, the persons that are living in the same building. But even at this very simple level, one has to face up with confusion. Where does the neighbourhood start? Where does it end? Is it limited to the persons living only on the same floor of one's building? Or does it encompass the totality of the residents of the building what ever its size is? One can also wonder if the people living in the building located on the opposite side of the street are also neighbours. The confusion can also come from the context in which the word is used: urban or rural context for example. In a rural area featured by low densities of population and scattered human settlements, the distances between neighbours may cover several kilometres. This idea is well illustrated by an aerial photography of the agricultural Middle West in the United States or in Canada, where each farm is isolated.

In spatial analysis, the word neighbourhood is used as a real concept firmly defined. It designates places which are next to each other and eventually form a contiguous ensemble. One can consider that two places are neighbours when they are adjoining. They can be considered also as neighbours when they are close to each other, but not necessarily adjoining, if interactions exist between them. In that sense, the neighbourhood of a place (a country, a town, an ensemble such as EU) involve more or less wide portion of space which interacts with that place. The neighbourhood ends when one reaches a certain distance (a threshold or limit). Between the place and the limits of its neighbourhood, the interactions between them progressively decrease and then vanish. This decrease of interaction with the distance is a gradient. In another way, the limit of the neighbourhood can correspond with a discontinuity which is a rapid variation of one or several statistic indicators.

European Neighbourhood Policy, functional neighbourhoods, « Euromed »: definitions

Since the declaration of the Commission in March 2003, a new term has appeared in the European spatial analysis: the term of « Neighbourhood ». The European Neighbourhood Policy was launched in 2004. from 2007 onward, the European Neighbourhood Partnership Instrument will replace the former Meda and Tacis funds, for the following « ENP » countries:

- the previous « Euromed » partners of the Barcelona process launched in 1995 minus Cyprus and Malta of course and minus Turkey (since it has become an formal applicant for UE), that's is: Morocco, Algeria, Tunisia, Egypt, Palestinian Authority, Jordan, Syria, Lebanon, plus Libya now on;

- the western NIS: Armenia, Georgia, Azerbaijan, Moldova, Ukraine, Belarus.

Russia will benefit from a special policy, with the same main objectives than that of the ENP (the four spaces of free trade, services, capital and persons: « everything but institutions ») but in the framework of a specific partnership.

This institutional definition of the « Neighbourhood » has two limits. The first one is geographic. The large region that encompasses Europe entails other countries than that of the official list (Espon + European Balkans + ENP countries). For instance, Western Kazakhstan is clearly a part of this region due to the growing importance of the Caspian's oil for European procurements; the whole Middle East including Irak, Saudi Arabia and partly the Persian Gulf too; for Europe's sake, all these countries are characterized by a risk of political and social instability, important flows of migrants transiting or departing from a country or a group of countries, presence of highly strategic natural resources, etc. It is of utmost importance to have a broader view of the European region, because this large regional issue is becoming a relevant scale of the global competition that Europe tackles. See the role of the East Asian integration in the economic success of Japan, Tigers and China; see the importance of the integration of Mexico in the North American economy and the growing integration of other Latin American economies. Thus, it is necessary to distinguish two different categories:

- The official list of countries that are concerned by the ENP (« ENP countries » in the report when it comes to an institutional definition) form what can be called the "political neighbourhood". Of course this list is firmly defined;
- The countries that belong to the large European region form the « functional neighbourhoods » in the report when it comes to a functional definition). This functional definition cannot be delimitated precisely and for eternity, since it varies according to variables and periods. For instance as far as migration flows are concerned, and given historical and linguistic links, a part of Western Africa happens to be a part of this region.

The second limit of the word « Neighbourhood » is political, because it stresses on the asymmetry of the relationship between Europe and surrounding countries. This was already a problem for the previous term « Euromed », because it implicitly meant the association between Europe and… a sea, the Mediterranean (whose southern shore would be not even named). The failure of the last Barcelona summit in November 2005, where only two Arab leaders joined, shows that an efficient method should be based on symmetry. It is true that, up to now, the region that encompasses Europe has been very much polarised by the European countries. But for both historical (colonisation) and actual political

reasons, it is obvious that its governance on the long run can not be based on such an asymmetry.

6.9 Territorial cooperation / competition

For the dictionary of concepts, the expression "territorial competition" is not relevant because it refers explicitly to animal behaviour. Competition can not be compared to animals or individuals struggling to conquer and dominate a single territory so that they can ensure their preservation. It is much better to talk about "competition of territories". This expression refers to different territories which are competing in order to attract investments, eventually foreign investments, and other economic factors (firms, high skilled labour force, etc…).

There is already a huge amount of economic literature dedicated to the topics such as competitiveness, process of agglomeration of economic activities and so on. But the question of the competition has been largely neglected either by economists, geographers or spatial planners. This conceptual black hole is due to several causes:
- Policy makers have been really aware only recently of the heterogeneity of territories.
- In the seventies, policy makers and scientists became aware of the fact that a territory might be attractive for a firm, not only because of its geographical and physical features but thanks to the social, economic and legal environment that is given to economic agents.
- The clear conscience of this economic phenomena was later fostered by the implementation of the European regional policy, through the process of allocation of structural funds. This allocation has always been achieved on a regional basis, in order to reach socio economic convergence between the eligible territorial units.
- Later, anyone who was involved in the regional policy could notice that the process of convergence was moving on more rapidly at the national level and more slowly at the regional level with regional disparities rapidly increasing inside each country.
- Last, because of the decentralization which is now moving forward in many European states, local authorities are trying to set up incentives in order to attract firms and investments. They are trying not only to be more competitive than before but also more competitive than other regions. To remain attractive, the territories are condemned to underline their differences. These differences can be classical comparative advantages, but it is no more enough.

The word "competition" is confusing:

- can we speak of a competition of territories and compare them to firms which are competing to dominate a market?
- does it simply deal with territories which compete to attract more investments and value producers than others, by offering what the others do not offer?
- the term supposes that these territories are no more some passive pieces of the Earth surface which offers comparative advantages such as natural resources, good geographical locations or cheap labour force and so on. The territories have become real actors having into their hands the factors of their own development. They must send to firms and investors explicit signs that they are ready go along with them in a mutually advantaging association for long periods. They must show that they are able to offer them a high quality environment based on elements which are not delivered anywhere else.

The word "territory" is also confusing:
- does it refer to the states? We know that in the context of commercial and financial globalization, the states are engaged in a competition for the attraction of investments made by firms. This competition is now more visible through the process of relocation of industrial activities and services.
- does it refer to the institutional regions? Because of the decentralisation, which has gone very far in many countries, regions are progressively becoming economic agents.
- does it refer to smaller territorial units and local productive systems, such as industrial districts which are based on networks of small and medium size firms and networks of social relations, without any institutional basis?

In order to overrun these conceptual difficulties, we can propose a large definition of the word territories which does not refer to only one type of territorial unit:
- A territory is a piece of space organized and handled by political, economical and social actors who are able to set out non explicit or explicit rules, legally based or not, in order to support their relations. That means that a territory does not have only a geographical base. It can be defined as a mixture of certain kinds of relations between actors.
- Each territory is based on widely shared rules and on its own rules. These rules may be totally different in different territories.
- These rules are a subject of competition between territories in order to attract economic actors, in order to reach a status as high as possible in the value chains and to guarantee to their inhabitants a high level of well being.

Many authors have recently reminded that we do not have a clear representation of all the pull factors taken into account by firms and investors when they make decision for the location of their activities (Veltz). There is no absolute factor, which would be efficient every where and every time. It depends a lot on the

type of activity and on the size of the firm concerned. The word « competition » must not let us think that every thing is politically planned by these territories. As we said above, some of these territories are not institutionally based. And even in the case of real political regions, many pull factors are not explicitly related to institutions. The problem is that non institutional factors are quite uneasy to identify and eventually to implement. Moreover, one factor may be efficient only for a certain period of time but not for ever. And the economy is less and less based on the territorial frames such as regions and States. Economical relations are more and more unstable and flexible, whereas regions and states are necessarily engaged in long run processes. To be efficient, every political or institutional response proposed by territories must be based on "Taylor-made adjustments". It is a necessary condition to make local conditions and global economy meet.

What kinds of advantages are researched by firms and all economic actors?
- A large consumption market as close as possible which is a kind of insurance against the variations of the consumption levels and economic contingence.
- Low costs of production.
- High quality of infrastructures and presence of many externalities.
- High quality of environment (that is to say high standards and quality of life for inhabitants) and possibility of a high level of well being for the labour force (with high employment rates).
- High quality of local social relations, well adapted to the flexibility of modern economy.
- Institutional partners which are able to offer them a long term beneficial association. The firms need to receive insurances that the territories (that is to say local institutions) where they decide to settle down show a firm commitment in a process of exchanges in various domains, for long periods of time: training of labour force, exchange of useful information.

The firms need to feel that that can rely on a territory which can eventually become an insurance against possible commercial and economic risks.

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6.10 Territorial Cohesion

Territorial cohesion is more a political agenda than a scientific concept. Recently, it has been used frequently in the European spatial policies debate and the definition given here will be mainly based on the European institutions approach.

Classically the term "cohesion" was used concerning the "economic and social cohesion" that is to say the aim of a balanced development throughout the EU. It refers both to the idea of balanced growth and the idea of supplying a minimum of essential services to every inhabitant of the European territory.

According to the history of the concept, (ESPON 3.2 Report), the idea appears for the first time in the Single European Act (1986) with the idea of reducing disparities of development of the various regions. However, at this moment the disparities were measured only in terms of economic level (GDP/inh). Later, the concept "territorial cohesion" appears in the Amsterdam Treaty (1997) related to the services of general economic interest. Recently, the territorial cohesion is integrated more clearly to the political objectives of the European Union, notably in the Treaty establishing a Constitution for Europe (2004): "The Union shall promote economic, social and territorial cohesion, and solidarity among Member States" and its meaning is more detailed in the Third Report on Cohesion.
As the Third Cohesion Report expresses: "The concept of territorial cohesion extends beyond the notion of economic and social cohesion by both adding to this and reinforcing it". In policy terms, the additional objectives are to make more coherent sectional policies (which have spatial impacts) and regional policies. The concern is also to improve territorial integration and encourage cooperation between regions.

According to the European orientations, the territorial cohesion is multi-dimensional taking into account the reduction of economic disparities, the cohesion between regions and the social and environmental perspectives. A central idea is that citizens must have access to any essential services and basic facilities, wherever they live in the European Union. The article 16 of the Treaty "recognises that citizens should have access to essential services, basic infrastructure and knowledge by highlighting the significance of services of general economic interest for promoting social and territorial cohesion."

Another pattern of the concept is the multi-scale approach: problems are seen firstly at the European level with the disparities between European regions, then at each national scale, with the differences between metropolitan areas and the less favoured regions, until the local scale with the question of intra-urban discontinuities and the ghetto issues.

Adding the "territorial cohesion" objective is crucial to take into account all the problems that might concern Europe in terms of spatial planning. Promoting this objective implies to measure it. The classical economic aspect of the cohesion is easy to measure with indexes of distribution (Gini index). But the data concerning environmental and social perspectives do not exist for the moment (ESPON 3.2).

6.11 International Division of Labour

Definition

The international division of labour (IDL) means that countries specialise in certain productions and exchanges. This concept can be seen as the implementation of the idea of division of labour but at the scale of the international economic relations. The idea of social division of labour, notably developed by Adam Smith in economics, is based on the interest of individuals of specialising and exchange the output of their work, in particular on the level of the productivity.

The concept of spatial division of work also exists. It is a more general concept and refers to the fact that the generalisation of trade has developed a spatial division of labour, in the form of relative or absolute specialisations of places and regions. In this sense, international division of labour is one form of the spatial division of labour which includes it.

Theoretic base and stakes

The IDL has direct links with the Ricardo theory of comparative advantage which explains that a country must specialise in the production (and exportation) of goods for which its comparative advantage (the production cost relative to others products) is the best relatively to the other countries. This theory pushes countries to specialise in certain productions, stimulate international trade and IDL, because, according to this theory, it is necessary beneficial for any countries to specialise and participating to the international trade.

However some economists explain that the way the IDL is distributed has very significant implications. In theory, this distribution is based on the comparative advantages of the various countries: the country equipped well in factor work will produce goods containing much of this factor, while the country having capital and engineers will produce goods of high technology. However these various

choices will not lead in the long term to the same advantages, in particular because the world demand does not grow in the same way for all the products. The developing countries which export especially one or two basic commodities will clearly be the losers of the IDL which marginalise them rather than integrate them. The Marxist economists claim that, by the existing IDL, the capitalist countries do exploit the developing countries in an "unequal exchange". The theory of comparative advantages has been questioned by P. Krugman.
When discussing the international division of labour there are two key concepts: the **principle of comparative advantage (absolute or relative)** and **specialisation**. To understand the principle of comparative advantage it can be useful to look at the simpler **principle of absolute advantage**.
A country (or region or individual) has an *absolute advantage* in the production of goods or services if it can produce those goods or services with fewer resources than other countries (or regions or individuals). The opportunity cost is the alternative foregone. If two individuals (or regions or countries) have different opportunity costs of producing goods and services, the individual (or region or country) with the lower opportunity cost has the *comparative advantage* in that good or service. The country (or region or individual) will *specialise* in the production of the good or service in which they have the comparative advantage. A specialisation means that productivity will increase, but a specialisation requires exchange i.e. trade. If this system is going to be profitable for all countries (or regions or individuals) specialisation and trade are needed.

The historic mutation of the IDL
The IDL is not fixed at all and has changed considerably since the 1970's.
A classical type of IDL, arisen from the colonial period, has prevailed for a long time: the one in which poor countries export their raw materials in exchange of manufactured goods coming from Northern countries. This distribution of work between countries can be regarded as being an IDL of complementarity since the exchanged goods are not of the same nature. This is what we call an "inter-branch" trade.
Thereafter, there was a change in this traditional IDL. Firstly, an IDL of competition appeared between industrialized countries, with a great growth of the "intra-branch" trade; in addition, some developing countries, mainly from the Southeast Asia, having become new industrialized countries entered the market of the manufactured goods, first of all basic goods, then technological goods also.
For measuring the international division of labour, one has to study the trade structure of countries or zones. An analysis of the trade between European countries shows for example a very intra-branch pattern, which comes notably from the differences of taste of the consumers.

However there is another type of intra-branch trade which exist between countries having great different levels of development and which is organised by transnational firms in their production process. One product is made by processes taking place in different countries. A great part of the actual trade of manufactured goods is now organised by transnational firms which split their production spatially according to each implantation's advantages. That explains why the trade of intermediary goods reaches roughly 40% of the value of total international trade. There is obviously a direct link to the concept of value chain since more and more, the different stage of the production processes are split between different countries. Consequently that kind of strategy implemented by transnational firms it's a powerful factor of regional integration.

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6.12 Territorial / Spatial differentiation

The concept of spatial differentiation is the central object of geography, which aims to understand any form of spatial inequality.

Space has a complex and dialectical relation with the social reality as a whole. On the one hand, space is always building on the existing space, and emerging social systems remodel permanently the spatial "material" on which they act. On

the other hand, the space itself plays a major role in the social novelty and in the emergence of new social systems, since they always appear in a more or less definite territory, diffuse and rebuilds as they advance.

The emergence of the nation-state gives a perfect illustration of this dialectical relation between the social and spatial reality. The modern state has shaped in a given space, with specific historical paths but which all end up at the correspondence between nation and territory with a political entity: this political construction is thus eminently spatial. In return, the political delimitation of the territory, or territorial delimitation of the politics, will produce spectacular homogenizing effects on the space: cultural homogenization by the mean of education or mass media, socio-economic homogenization by the mean of social transfers, political and ideological standardization. These effects are so powerful that actual boundaries often correspond to clear spatial splits about politics, languages or landscape, including inside the European space.

This dialectical relation has also to be found in the field of social and spatial inequalities. As it is argued in the "Words of geography": "the fact of being here or elsewhere is a creator of social difference, taking into account the geographical oppositions of systems, of accessibility; membership of class involves differentiations in the settlement, the choice and the frequentation of the places, and in the end true segregations"

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PART B

THEMATIC ANALYSIS

7 DEMOGRAPHIC THEMATIC ANALYSIS

7.1 Demographic flows towards Europe

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7.1.1 A background sketch

During the past decades Europe (WUTS1111- WUTS1122) has experienced an aggregate immigration surplus form other parts of the world. Europe is – together with North America, Oceania and the Arab Oil Countries – an immigration region. This fact hides, however, that not all European countries are immigration countries - and even some redistribution of people have been a central ingredient in the population development within Europe.

The big problem in analyses of migratory movements between nations and regions is the shortage of data with regard to origin and destination. One consequence is that gross flows are difficult to estimate and this has impact on analyses of convergence and divergence, of integration and disintegration, of symmetrical and asymmetrical migration patterns. This also means that much of the analysis must be hypothetical and theoretical based on available data. In a project like "Europe in the World" this means that existing data over net-migration – both total number of people and net-migration rates - will be the point of departure for description and analyses. More detailed analysis is possible only for selected states and is presented in case studies.

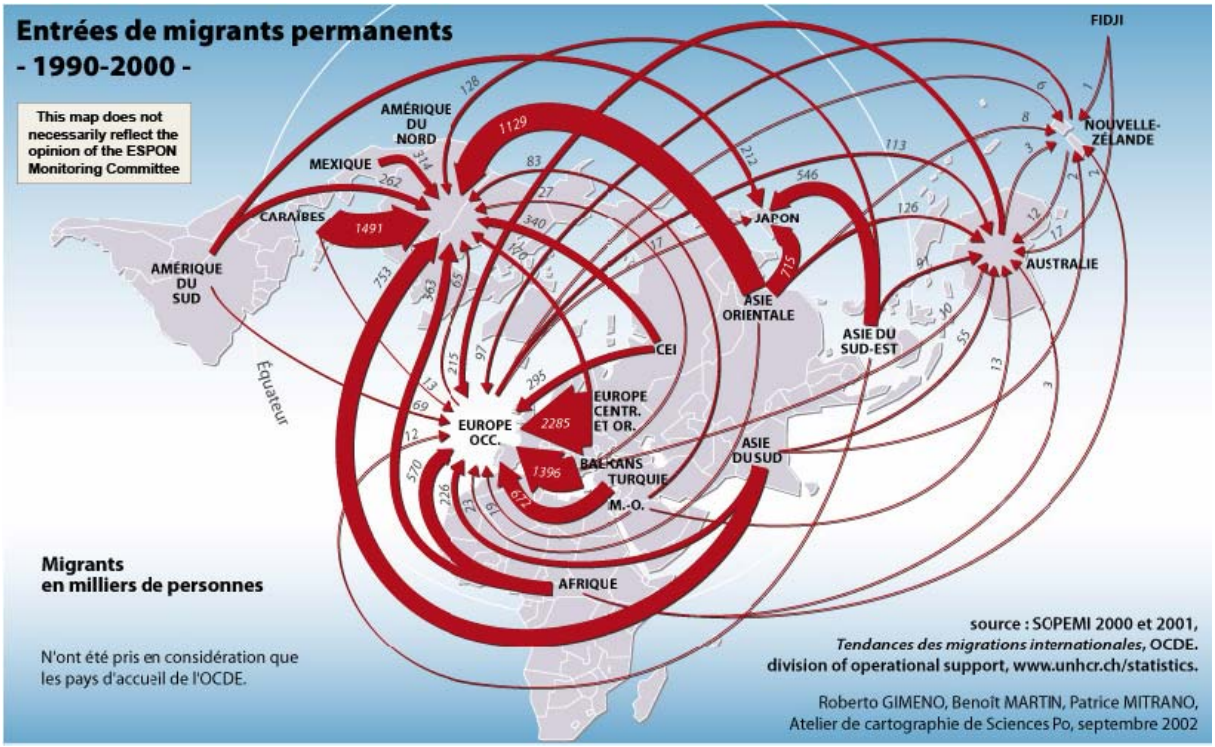
The migration pattern within Europe and even the migratory flows towards Europe can be divided in four phases after WWII. The fist phase was characterised by "forced migration" as a consequence of the war. The second was more of a redistribution phase of people as a consequence of differing labour market conditions and especially then from the Southern to the Northwestern countries in Europe. The slow-down of the European economy resulted also in a slow-down in the demand for labour import and the labour market related migratory movements began to decrease. Instead refugee migration got an increased importance and in the middle of the 1980s the labour market related immigration almost disappeared even if family reunion migration continue to grow. The fourth period was characterised by the migratory effects of the collapse of the Soviet Bloc and the upheaval of the former Yugoslavia. Both cases resulted in huge migratory movements with impact on the demographic

development and the demographic structure in the origin as well as the destination countries.

The figure below gets a hint about the migratory movements during the 1990s. It confirms the observation mentioned above that North America, Europe (excluding the eastern part and Balkan), Japan, Australia and New Zeeland were the immigration areas at world level and that South America (including Mexico), Asia (excluding Japan), Africa were the large emigration areas.

7.1.2 Demographic flows towards Europe – a selective process

Figure 7-1 : Permanent migrant flows



From the map above it seems obvious that the redistribution of people is a selective process. North America is a net-immigration region from all other parts of the world including Europe. The latter is also an immigration country with regard to all other parts of the world with the exception of North America, Australia and Japan during the 1990s. The most accentuated migration pattern is instead the huge flows – and then redistribution of people – within Europe that seems to have huge impact on the population development and the polarisation process. From other studies it seems obvious that West Central Europe was the winner and the peripheral areas were losers.10

[10] See e.g. ESPON 1.1.4, "Spatial effects of demographic trends and migration"

These migratory flows from the peripheral areas to the central ones were more characterised by asymmetrical flows than of symmetrical. This is valid both concerning the amount of people and the structure of the migrants. There are signs that many of the immigrants to Europe from other parts of the world contributed to the polarisation process and then also eroded many regions of highly qualified people.

It must, however, be kept in mind that the 1990s was en exceptional decade concerning upheavals, wars and other catastrophic situations that had impact on the migratory movements. The collapse of the Soviet Bloc, the war and turmoil on Balkan with the dissolution of Yugoslavia were only some events that shaken the and resulted in both human catastrophes and increased refugee migration. That this had impact on the population development and structure in Europe is of course not surprising. Housing segregation and problems to get a foothold on the labour market were only some of the problems that were accentuated during the 1990s in Europe with the result that new "populist" parties were taken place on the political agenda. The immigration policy became "hot potatoes" in many European countries.

It was, however, not only the turmoil in the former Yugoslavia and the breakdown of the Soviet Bloc that contributed to selective migratory movements. Colonial ties still had impact of the origin and destination of the migrants. This was not a new phenomenon but together with the new migration pattern it accentuated probably the immigration to Europe. These migrants are, however, not in the same situation as refuges as they often have relatives and friends in their new home countries.

7.1.3 Migration – the prime driver behind population change

As a consequence of the slow down in fertility rates – for most of the European countries below the reproduction rate today – migratory movements and then inflows of people have been even more important for the population development than before. Many European countries should have had a negative population development without immigration surplus. Even in this case the pattern is quite different between differing European countries – some countries with a low fertility rates may still have a natural population development as a consequence of the age structure. Many countries with a sharp drop in the total fertility rates may still have a young population as a consequence of earlier high fertility rates and low life expectancies. It must, thus, be kept in mind that natural population development is a consequence of a combination of fertility rates and the share of women in fertile ages.

Foreign-born people contribute to the population development in two broad ways – one by immigration and the other by natural population increase. The second can then be divided in two other parts – higher fertility rates among foreign-born women and a more positive age structure from a reproduction point of view. Without migratory flows towards Europe the 'population crisis' would be even worse than it is today.

The continuously rising share of females among the migrants ought also have positive effects on the population development. There seems, however, to have been a change in the motives among the female migrants – from being "passive players" accompanying their husbands they are now more or less migrants on their own "premises". Increased family unification has contributed to the rise in the female share in the developed countries and the social and economic situation for women with access to a lot of educational and employment opportunities have also stimulated female migration to especially Europe and Northern America.11 The higher share among the female labour migrants may perhaps counteract the effects of family reunification but the rising female share ought to have positive effects on the natural population change. So, in this case the increased immigration may possibly result in higher fertility rates and a rising population.

7.1.4 Differing factor endowments and factor mobility

The point of departure for the following theoretical reasoning is that there exist two regions at different stages of economic development. Region A - e.g. Europe and especially then EU15 - is in transition from an industrial to a post-industrial society while region B - e.g. developing countries - is in transformation from a society dominated by self-employment and an old industrial structure. There also exist varying "vintages" of both capital (K) and labour (L). Substitutability is limited - instead there exists complementarity between the different vintages of capital and labour. According to this there exist the following relations and connections:

K1: capital with old technology
K2: capital with new technology.

L1: unskilled labour
L2: highly educated labour.

Between regions at same development stages, there are only small differences in factor endowments – differences, which in much are effects of differences in

[11] Zlotnik, 2005

natural resources. Between regions at differing development stages, there are, at least according to the theory of "revealed comparative advantages", large differences in factor endowments. This results in the following inequalities with regard to factor endowments:

K2A>K2B
L2A>L2B

The different economic structures in the two regions have also led to an income gap:

WL1A>WL1B
WL2A>WL2B

However, there is not only the wage gap within the same categories. Instead the following wage relation is valid:
WL1A>WL2B

Capital intensity is also differing:
K2A/L2A>K2B/L2B
K1A/L1A>K1B/L1B.

7.1.5 Implications for Capital Mobility

Different regions have differently composed capital and labour markets, which implies that the development possibilities are not equal regarding choices of technology available for adoption. Since there exists a mutual dependence between the labour force's competence structure and the introduction of new technology, a lack of competence is a restriction to innovative activities and technology renewal. This relationship applies especially in old industrial regions or rural areas characterised by economic backwardness. In these regions, there is often a surplus of labour, but the "wrong" type of labour from the employer's point of view. A labour force such as this constitutes an obstacle to economic change as the technology which is suited to it tends to maintain the structure of the periphery or the backward regions, which develop an obsolete industrial structure based on old investment patterns, where the only location factor is cheap labour.

Even if capital moves to labour, this type of investment pattern is not post-industrial. Instead, it is a defensive investment pattern, which to a great extent characterises the early phases of the industrial society in some regions at the same time as it is a sign of the development of a post-industrial investment

pattern in other regions - in regions where these types of investments are beginning to be history and standardised cheap labour is no longer a competitive advantage. Such technology may be socially desirable, but the risk exists that regional segmentation and polarisation are reinforced leading to knowledge-based production in the centre and standardised production in the periphery. This polarisation will thus be accentuated by a post-industrial investment pattern where highly-educated labour will increasingly be a location factor for mobile capital in the knowledge-based sectors.

On the other side, this investment pattern will stimulate the growth of the purchasing power in these countries with an expansion of the home market of both consumer and capital goods. Besides exporting agriculture and cheap industrial goods these countries and regions are turning into a large market themselves.

According to the economies outside Europe there are signs of foreign penetration of the economies that are very apparent. The location factor here is cheap labour in standardised production - knowledge-intensive activities are still located in areas where highly educated labour and good infrastructure are the dominating location factors. This development will surely reach the countries in the neighbourhood of the EU too, where the labour costs are still low. However, the purchasing power is also lower in these countries, which will be a restriction on investment in more sophisticated goods production and direct investment towards more standardised labour-intensive production

To summarise, the composition of the labour force affects the industrial and post-industrial location patterns in differing parts of the world. Post-industrial activities like knowledge-based industries are most frequent in regions with a high share of highly educated labour. Traditional labour-intensive industrial activities are concentrated in areas with low labour costs and a surplus of low educated labour. These differences in factor endowments and labour markets accentuate both regional segmentation and polarisation in the transition from an industrial to a post-industrial society.

7.1.6 Implications for Labour Mobility

If there are some hindrances with regard to capital mobility, these are even more obvious with regard to labour mobility. There is no common labour market at world level today – not even in Europe and its neighbourhood - and there is still a long way to go before this point is reached. This implies, thus, that the following reasoning will be very hypothetical.

According to traditional push-pull theories, these economic disparities should, in a free labour market, give rise to high migration from the low-income countries to high income regions and countries. This implies that labour surplus and low wages in the developing countries will be one of the determinant factors behind the migration decisions. Even the high wages in the developed part of the world will, however, give some hopes about the future, which will further stimulate the labour mobility process. (For simplicity's sake, in the following, capital mobility has been excluded from the discussion on labour mobility across the borders.)

However, according to the segmented labour market theories, this should result in those workers who are released in the continually structural transition of the economies not being in demand in either the private or the public sectors in the EU. The more far-reaching transformation of the European economy in a post-industrial direction has reduced the demand for traditional blue-collar workers. Instead, there has been rapid employment growth in the service sectors - both private and public. Especially the upper segments in the private service sector have, in recent years, been associated with the transformation of the economy in a knowledge-intensive direction. One result of this transformation process is the looser connection between the business cycles and labour force migration from the second half of the 1970s and 1980s. During these years, migration has rather been a function of political events in other parts of the and, since the beginning of the 1970s, the majority of the immigrants have been refugees working in the lower segments of the private service sector where the educational level is low.

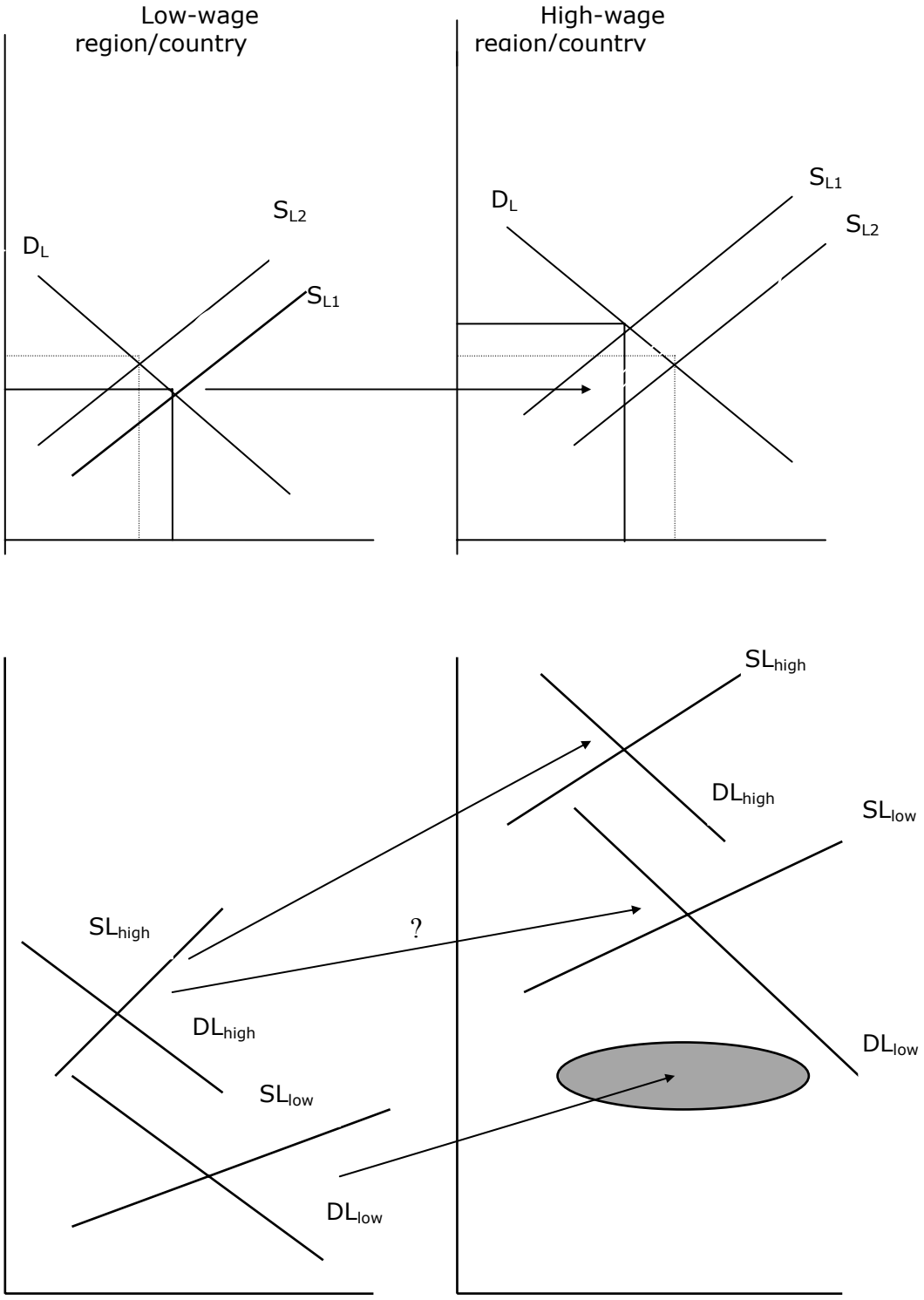
The structural transformation of the European economy, with a great increase in employment in the service sector, has also changed the picture with regard to employment opportunities for the immigrants. Instead of blue-collar work in the goods-producing sector, immigrants are nowadays predominantly employed in the lower segments of the service sector. As a consequence of the structural transformation of the European economy, the push factors are now stronger than the pull factors concerning the immigrants. This has also resulted in a changed employment structure, with a large share of the immigrants working in jobs refused by the domestic labour force – the 3D jobs, "dirty, dangerous and degrading".

The economic transformations in the developing countries will not only has implications on the international migration - even the internal migration will be affected. When the unemployment increase and the regional unemployment levels and living standard diverge, the internal migration pattern will be changed in a way more alike the migration pattern in developed countries. This will result in an out-migration from rural areas to larger towns and metro areas, where the labour market is more diversified. From a human capital approach this is rational

even if there are no jobs directly in the destination areas. The more diversified labour market in these areas will give the migrants a better chance to find a job compared to staying home. Many of the potential jobs will, however, be found in the lower segments of the private service sector and many of the migrants will be self-employed in these kind of jobs.

When discussing migration, mobility and labour shortage it is of utmost important to distinguish between short and long term. In a short-term perspective increased immigration can reduce negative effects of bottlenecks in production while in a long-term perspective it can hamper structural transformation and competitiveness. Labour shortage stimulates substitution between labour and capital but also between different segments of labour. History can also witness about that structural transformation of the economies has been one of the most important factors behind higher productivity and increased incomes and well-being. If migration shall be a central ingredient to obtain the "Millennium Development Goals" there is still a long way to go and to hamper migratory movements is not a way out of the population problems in the and especially not for Europe.

Figure 7-2: A schematic view of migration pattern between regions with differing economic structure according to a traditional push-pull approach and according to an SLM-approach



8 ECONOMIC THEMATIC ANALYSIS

8.1 Structural evolution of population and GDP PPS of World States (1952-1998)

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UMS RIATE – Géographie-cités

8.1.1 Introduction

The aim of this preliminary study on demographic and economic evolutions at the world scale is not to provide final results on thematic topics which will be analysed in depth by specialised research teams (IGEAT for Economy and ITPS for Demography) during the development of the project ESPON 3.4.1 with much more detailed indicators and interpretation. It is rather to explore basic exploratory tools related to cartography and statistical analysis and to propose a validation of the methodology which will be applied in the future.

To provide such an experiment, we have decided to focus on a long term database realised by Angus Maddisson on the economic and demographic situation of World States from 1950 to 2000, available on his personal website and published in 2003 by OECD. This database has been completed by estimation for some missing values but initial information established by A. Maddisson has been fully respected when available.

The most important modification introduced in our analysis was the application of a five-year smoothing on all figures of population in order to reduce the influence of exceptional fluctuations and to focus the analysis on main trends of evolution during the whole period. Due to this five-year smoothing, the time span is reduced from 1950-2000 to 1952-1998 because 1952 represents in fact the mean value of 1950-54 and 1998 the mean value of 1996-2000.

Another important modification of the initial information was the transformation of each absolute count of population or GDP into a frequency of the world sum. For example the population of France in 1998 (60 Millions of inhabitant) is divided by the population of the World (6 Billions) in order to obtain a frequency of world population (1%) which can be easily compared to the frequency of GDP of France at the same time or the frequency of population of France from another year.

It is finally important to keep in mind that the table of GDP proposed by Maddisson is expressed in PPPs which has an important influence on all results which would have been strongly different if we had chosen to measure the economic size of world States in current US $. Concerning population, the figures proposed by Maddisson are very similar to those proposed by other international sources (UN, CIA) and using another type of source would not modify the results except in some very specific cases.

Last, we decide not to take into account in our analysis States of whose population, GDP or surface represent less than 1 millionth of the world. Those very small states could have introduced bias in our results as they often have very specific evolution of GDP or population.

8.1.2 Demographic evolution of world states 1952-1998

8.1.2.1 The evolution of the demographic sizes of European States at the world level

The distribution of demographic size of States during the whole period is characterised by a strong concentration in a very limited number of States. The European territory is characterised by the lack of very large States and the great heterogeneity of demographic size, from very small to medium or large (map 8-1)

Very large States (G>1: more than 10% of world population)
From 1950 to 2000, China and India are the only States which can be considered as "very large" (G<1: more than 10% of world share) and they always represent together at least the third of the World population.

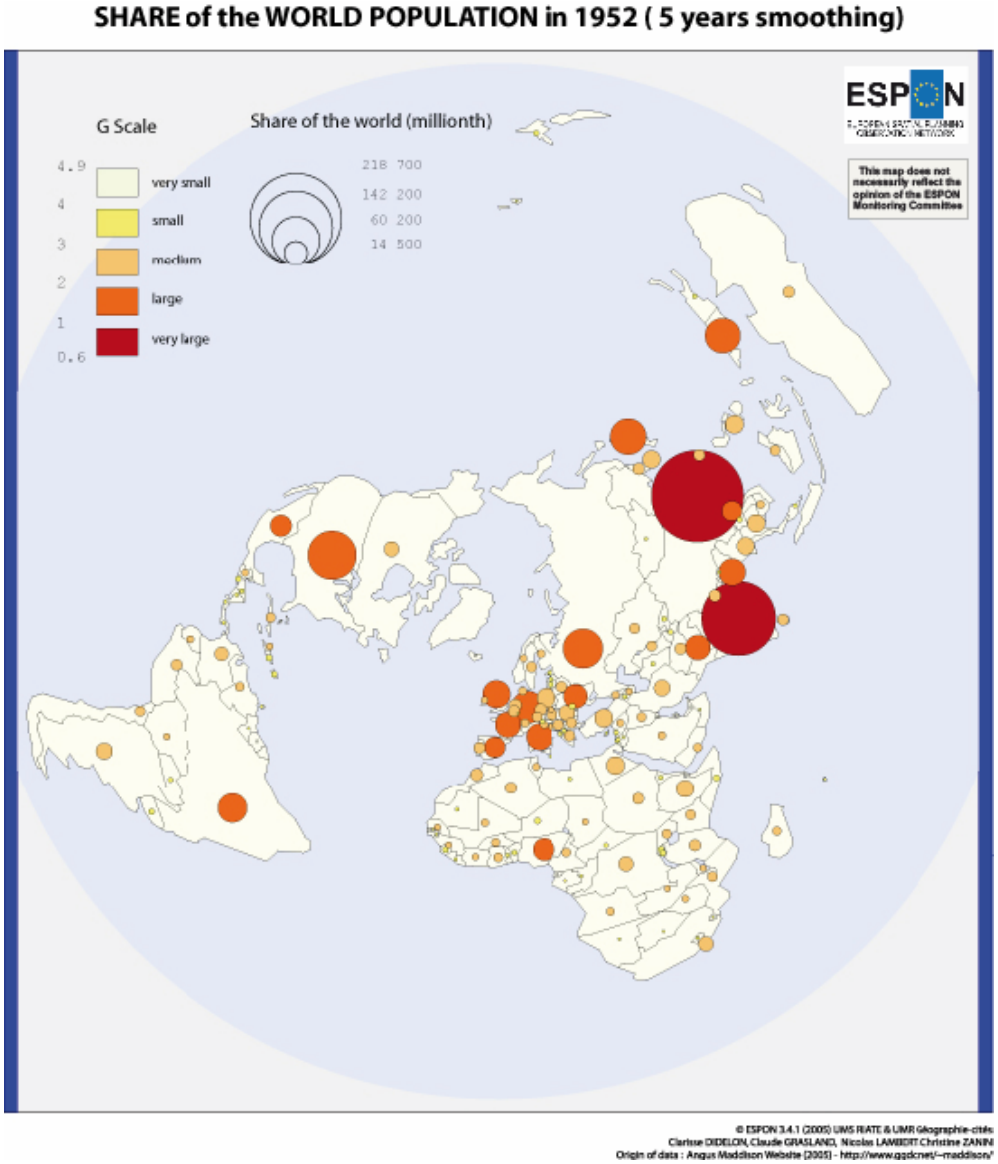
Large States (1<G<2: between 1% and 10% of world population)
In the 1950's, the ESPON area accounted for 5 States which could be considered as "large" from a demographic point of view at the world scale: Germany[12], U.K., Italy, France and Spain. But actually, only France and Germany remain in this category and still represent more than 1% of the world population, and probably not for a long time in the case of France. In the particular case of Eastern Europe, the former USSR which could be considered as a "large State" in the 1950's has been replaced by new States among which two can be considered as "large" actually (Russia and Ukraine). In the rest of the World – and considering actual political boundaries - some States remain demographically "large" on the whole period (USA, Mexico, Brazil, Japan, Indonesia, Nigeria, Pakistan, Bangladesh and Vietnam) and some others are moving from "medium" to large. This last category is particularly interesting because it concerns at least 3 States located in the neighbourhood of Europe: Turkey, Egypt and Iran.

[12] Even if we take into account the geopolitical division of this period, western Germany represented more than 1% of world population in 1952 and could be considered as « large ».

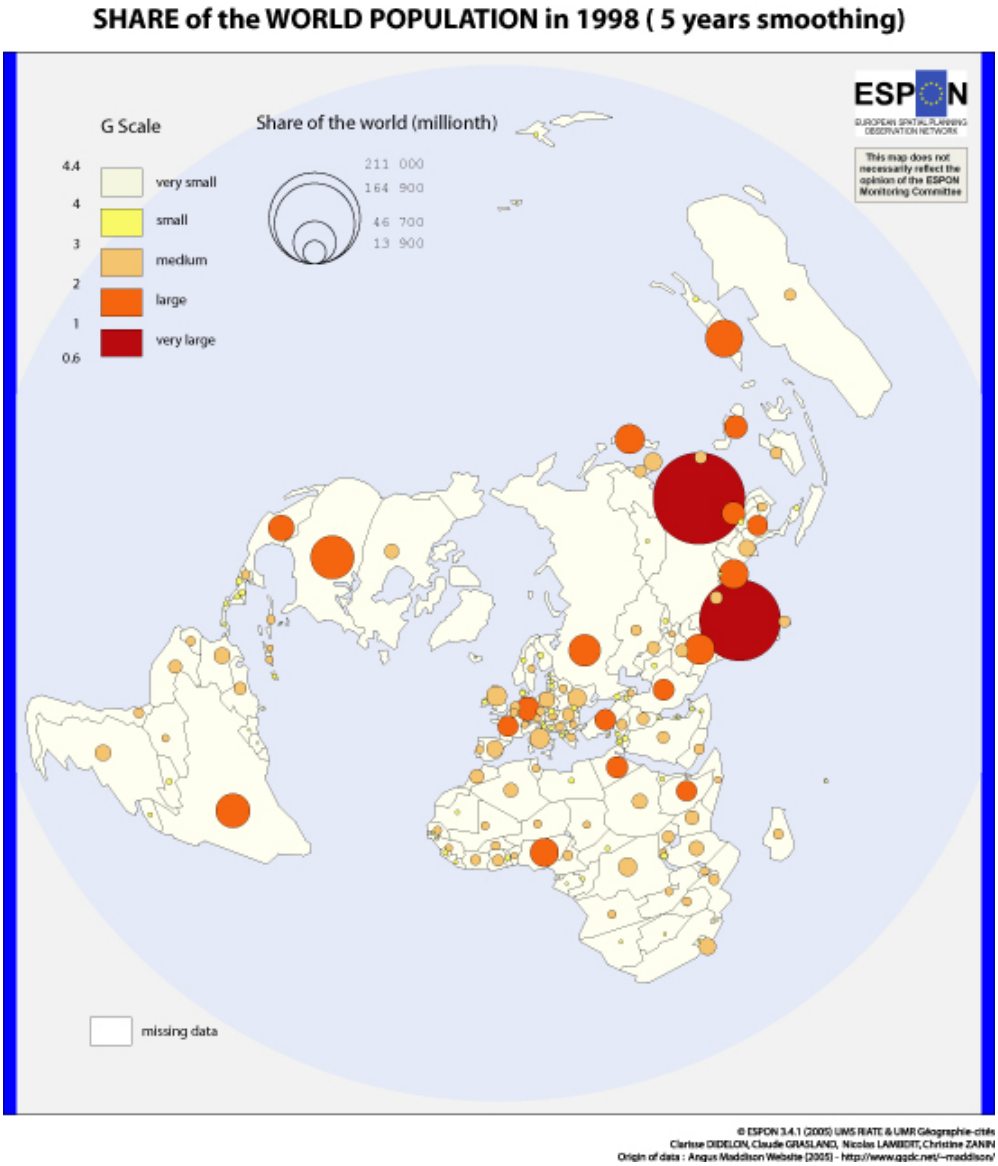
Medium States (2<G<3: between 0.1% and 1% of world population)
The third level of demographic size defines the medium situation which is characteristic of the majority of the ESPON States in the 1950's as in 2000. But with a double movement of former "large States" becoming "medium" (UK, Italy, Spain) and former "medium States" becoming "small" at the world level (Denmark, Norway, Finland, Austria…).

Small States (G>3: less than 0.1% of world population)
As described above, an increasing number of ESPON states are becoming member of the category of "small" or "very small" States at world level, from a demographic point of view. The political division of former federations (Yugoslavia, USSR, Czechoslovakia) has enhanced this trend which was basically related to slower demographic growth in Europe than in the rest of the World.

Map 8-1 : Share of the world population in 1952



Map 8-2 : Share of the world population in 1998



8.1.2.2 The evolution of the European population in absolute and relative terms

Evolution of world population in absolute terms

The annual average growth rate of population of ESPON States over the period 1950-2000 is clearly among the lowest at the world scale but we do not observe any case of negative evolution of population. The lowest rates of population increase at the world scale (less than 0.4% /year) are observed in central Europe (Austria, Czech republic, Hungary, Bulgaria, Portugal) but the majority of ESPON States are rather characterised by a small increase of population growth

(between 0.4% and 1.2% / year), which is comparable to the situation observed in Japan and former republics of Soviet Union (except central Asia). ESPON area is a part of a continuous area of low population increase (the "yellow banana"?) which covers all States located between Tokyo and Lisbon. Out of this central area of demographic weakness, we can identify a group of States with medium evolution of population at the world level (between 1.2 and 2.1% / year) which combines non-European industrialised States (USA, Canada, Australia, New Zealand, Chile, Argentina, Southern Korea, …) and the biggest countries of the Third World (China, India, Indonesia) which have developed policies of birth control. The highest levels of population growth concern the rest of the World and associate both emerging and underdeveloped countries which have experimented with some difference in timetable the demographic transition during the period 1950-2000.

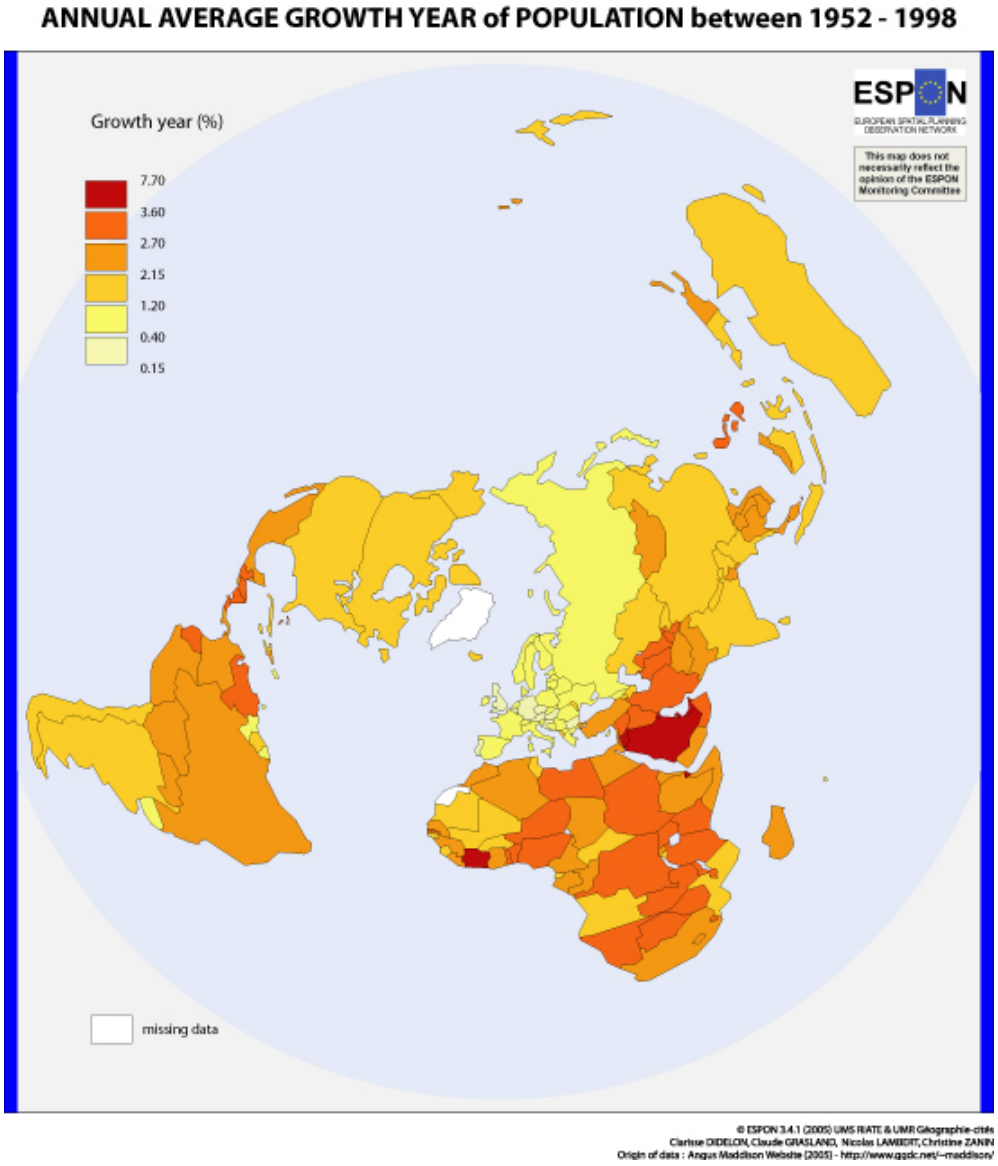
Evolution of world population in relative terms

The evolution of the share of world population represented by each State in 1952 and 1998 provide a very different picture of the demographic recombination of the World during the last 50 years (map 8-3). Indeed, States which have increase their population in absolute terms but with a rate of increase lower than the world trend will necessarily experiment a reduction of their share at the world scale. For example, the share of France in world population has declined from 1.66% of world population in 1952 to 1.02% in 1998, which means a reduction of –0.64 pts, in terms of world demographic share (blue circle). In the same time, Turkey moved from 0.85% to 1.08% of the world population, which represents an increase of +0.23 pts in terms of world demographic share (red circle).

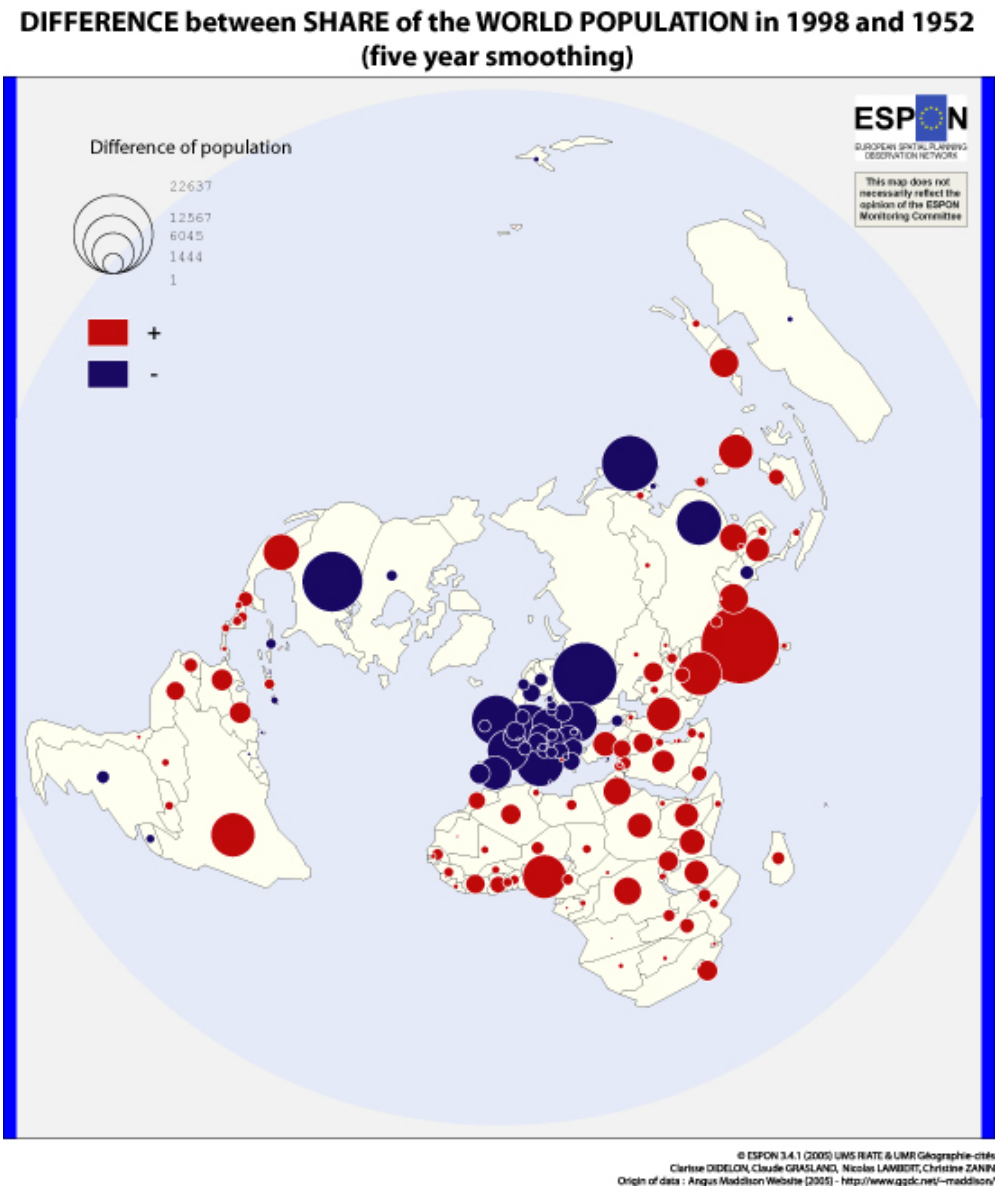
Looking at the map 8-4 it is very clear that all States located in the ESPON territory are characterised by a dramatic reduction of their share of world population, but we can notice that it is also the case of Japan, Russia and China which are all characterised by a strong reduction of their share of world population during the period 1952-1998. The most important gains of world population share are firstly observed in India (where birth control was not as much strictly applied as in China) and more generally all States of southern Asia, Africa and Latin America (except for the southern part).

This translation of the world gravity centre of population from north to south is a major feature with very important political and economical implications for Europe, especially if (as we will see in the next section) it is not followed by an equivalent translation of world economy.

Map 8-3 : Annual average growth rate of population 1952-1998



Map 8-4 : Difference between share of world population in 1952 and 1998



8.1.2.3 Typology of demographic evolution of world States (1952-1998)

The aim of the synthetic typology presented in map 8-5**Erreur ! Source du renvoi introuvable.** is to take into account the specificity of the demographic evolution of each State with a cluster analysis which takes into account all years of the period and not only the situation at the beginning and the end13.

[13] The methodology used for this cluster analysis is euclidean distance weighted by population of states after transformation values of population in index 100=1952

Type A: Regular increase

States from type A are characterised by a regular increase of their demographic weight in the World during the period 1950-2000. This situation is mainly determined by the fact that States of this category are at the core of their demographic transition, at the moment when mortality has strongly declined but fertility remains temporary at a high level, causing a very strong natural increase. In certain cases, this natural increase is reinforced by migratory attractiveness, producing cumulative effects as in the case of States with oil resources (Persian Gulf, Venezuela, Libya …). In the detail, it is possible to distinguish subtypes with exceptional increase (A.1), important increase (A.2) and medium increase with reduction of growth rate in the 1980's (A.3).

Type B: Global stability

States from type B are characterised by a rate of population increase which is more or less equal to the world trend of the period 1950-2000, even if their demographic curve can be slightly different (with periods of lower or higher increase than the World). This situation is typical of new industrialised countries (Australia, Canada, Argentina, Southern Korea) which can balance their relative low level of natural increase by strong level of immigration. It can also be observed in the biggest countries of Third World which have developed a policy of birth control (India, China, Indonesia). And finally in some countries where a high level of natural increase is balanced by strong flows of out-migration toward other countries and peaks of mortality due to political or economic crisis (Angola, Ethiopia, Chad, Afghanistan, Argentina). In the detail, it is possible to distinguish a subtype B.1 more dynamic than subtype B.2.

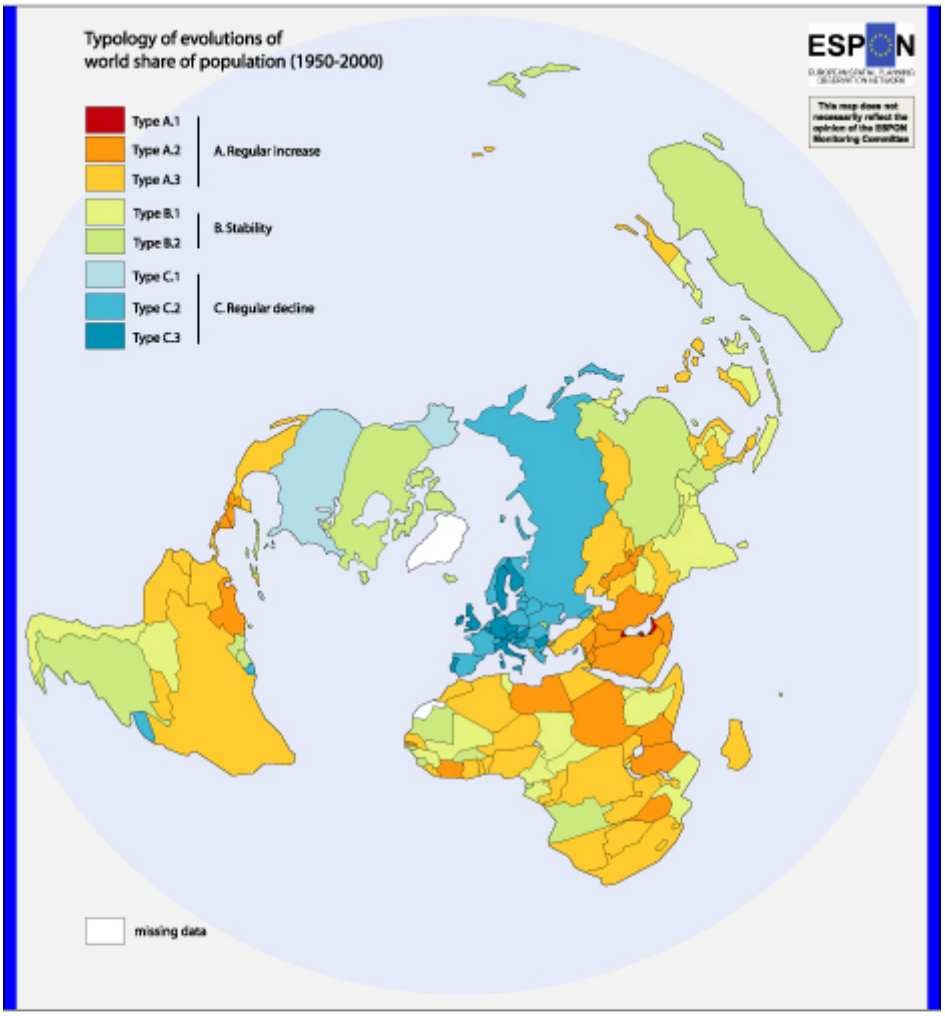
Type C: Regular decrease

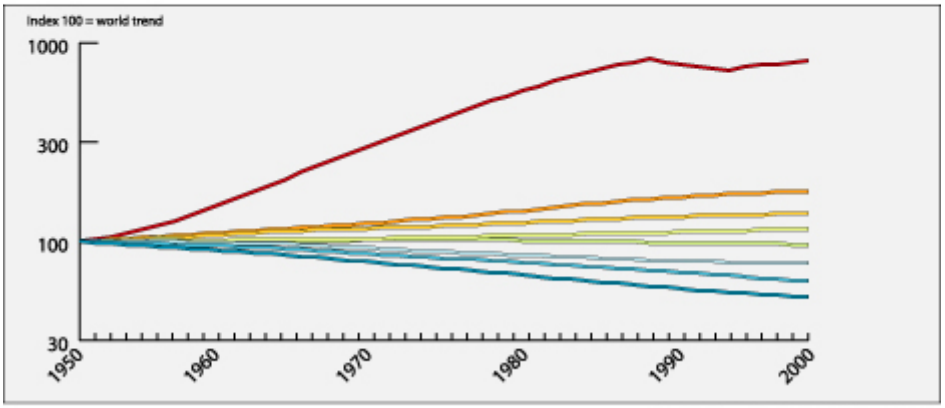
States from type C are characterised by the regular decline of their share in the world population, mainly due to their situation of post demographic transition (low fertility and low mortality) with ageing population and low proportion of young adults. According to this structural demographic situation, States from this category are not able to reach important rates of population, even if they are subjects to flows of in-migration. In the case of United States (type C.1), the demographic decline is relatively limited because the ageing of population is balanced by important and regular flows of young in-migrants. But in the case of European countries, Russia and Japan, the mean age of population is higher and the in-migration flows are able to balance the structural evolution. In this group, one can distinguish between countries with medium decrease of their share of world population (C.2) like France, Russia and Japan and countries with more important decrease. This last subtype (C.3) is characteristic from northern and

central part of Europe (Sweden, Finland, Germany, Italy, Hungary, Austria, Czech Republic, Bulgaria) and also from UK and Portugal.

Map 8-5 : Typology of demographic evolutions 1952-1998

EVOLUTION of the SHARE of the WORLD POPULATION 1950-54 to 1996-2000





Origin of data : Angus Maddison Website (2005) - http://www.ggdc.net/~maddison/

8.1.3 Economic evolution of world states 1952-1998

8.1.3.1 The evolution of the economic sizes of European States at world level

The distribution of the economic size of States during the period 1952-1998 appears more stable than the evolution of demographic size, even if some important changes can be pointed (Map 8-6 & 8-7)

Very large States (G<1: more than 10% of world GDP ppps)
The only State which remains "very large" during the whole period is United States of America which represents 27% (G=0.6) of world GDP in 1952 and 22% (G=0.7) in 1998. China which represented only 5% (G=1.3) of world GDP in 1952 has started to increase very quickly its share of world GDP after 1975 and can be considered actually as very large with 12% of world GDP (G=0.9).

Large States (1<G<2: between 1% and 10% of world GDP ppps)
In the 1950's, the ESPON area accounted for 7 States which could be considered as "large" from economic point of view at world scale: Germany14, U.K., Italy, France, Spain, Netherlands and Poland. Despite a general reduction of their share of world economy, (except in the case of Spain), most of these States can always be considered as "large" at the world scale but Poland and Netherlands (around 1980) have decreased under the level of 1% of world GDP and have moved to the category of "medium" economic size. In Eastern Europe, the former Soviet Republics of Russia and Ukraine could be considered as economically "large" in the 1950's but it remains true only for Russia. In the rest of the World, the list of economically "large States" has remained very stable (Japan, India, Indonesia, Australia, Mexico, Canada, Brazil), the only exceptions being Argentina (which left the group of "large" States at the beginning of the 1980's), Turkey and Thailand (which joined the group of "large" States at the end of the 1980's).

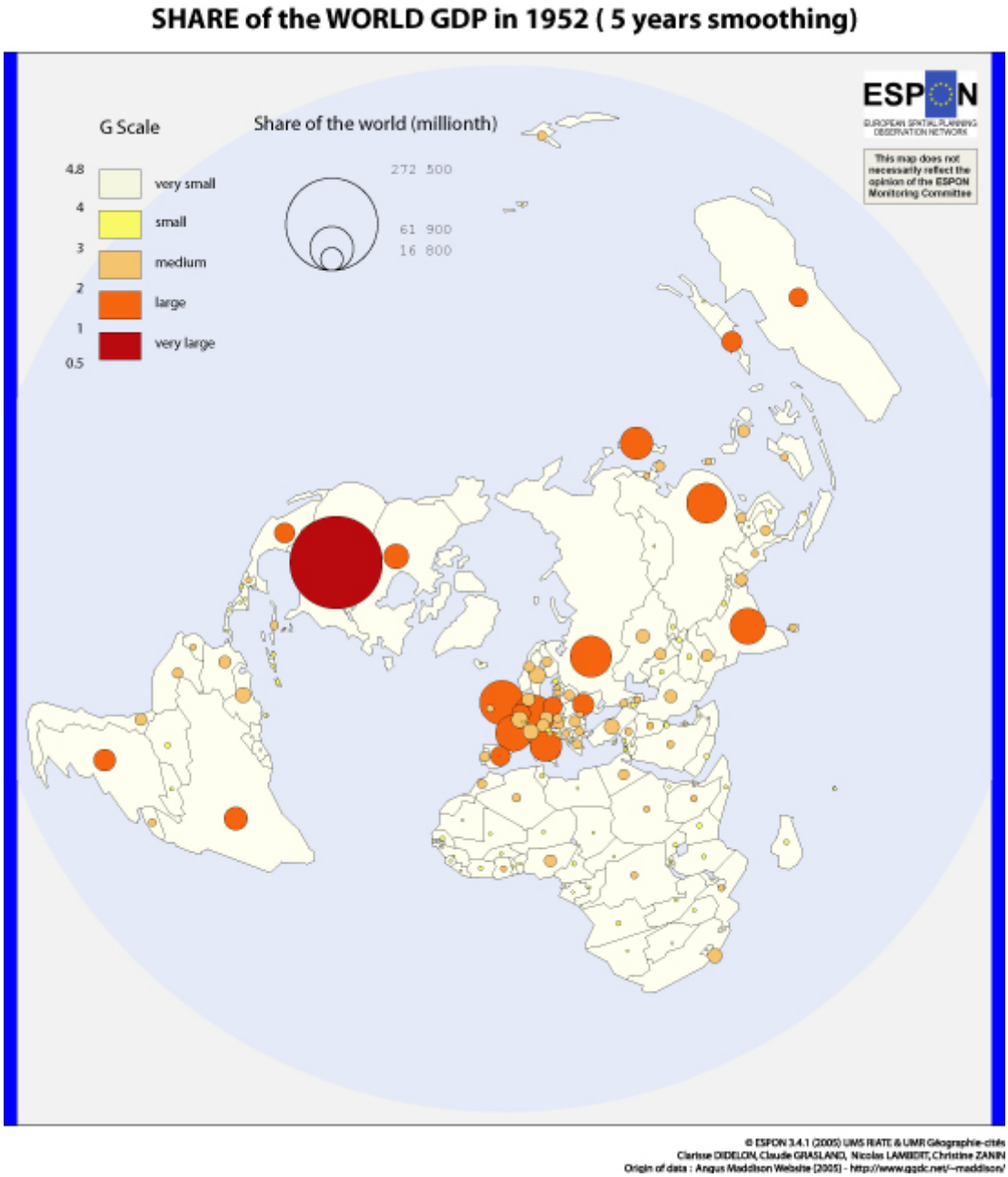
Medium States (2<G<3: between 0.1% and 1% of world GDP ppps)
The members of the European Union and the candidate or associated countries of the ESPON program are generally classified in the category of "medium" economic size at the world scale during the whole period 1952-1998. We do not observe the move towards the category of "small" States that was noticed for the demographic criteria.

[14] Even if we take into account the geopolitical division of this period, western Germany represented more than 1% of world population in 1952 and could be considered as « large ».

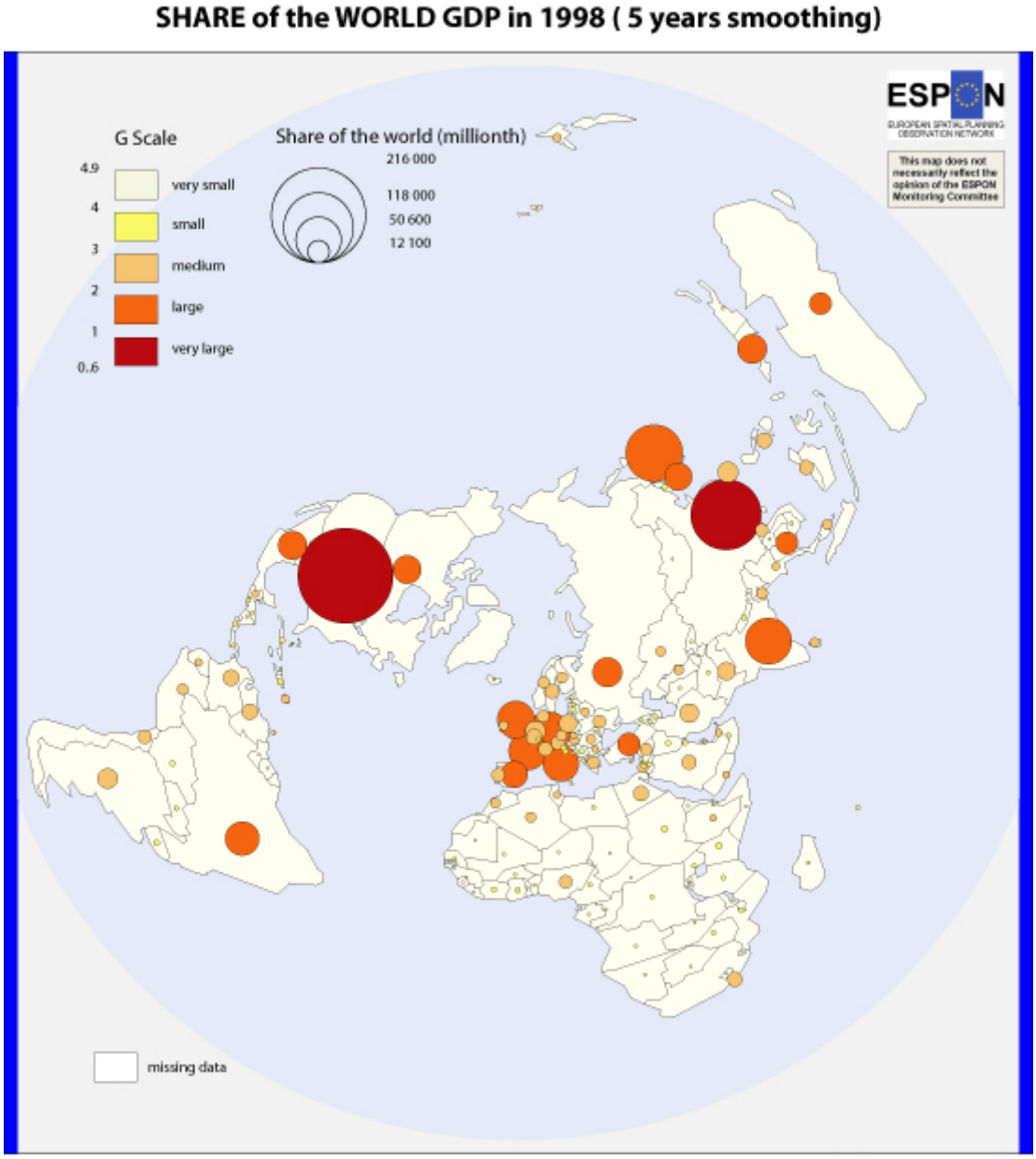
Small States (G>3: less than 0.1% of world GDP ppps)

In 1998, 7 States from the ESPON area belongs to the category of ”small” economic size (Estonia, Latvia, Lithuania, Cyprus, Malta, Luxembourg, Slovenia) which is more or less the symmetric of the number of “large” States. The great diversity of economic and demographic sizes of neighbouring States is a major characteristic of the European territory which can not be observed at such degree in other parts of the World.

Map 8-6 : Share of the world GDP (ppp) in 1952



Map 8-7 : Share of the world GDP (ppp) in 1998



8.1.3.2 The evolution of the world GDP (ppps) in absolute and relative terms

Evolution of world GDP (ppps) in absolute terms

According to the figures of Maddisson database the GDP expressed in constant US $ of 1990 (Geary-Khamis PPPs), has experimented a positive variation in all selected 168 countries of the World without exceptions during the period 1952-1998. To avoid any misunderstanding of Map 8-8, it is important to pay attention to the fact that:

- the evolution of the volume of GDP is not necessarily correlated to the evolution of the ratio of GDP per capita. If the growth of population is higher than the growth of GDP, the result is a decrease of economic well being.
- the evolution of GDP expressed in PPPs reflects the internal situation of States (corrected by level of prices) but not necessarily their international situation (i.e. their economic power on the global market) which is better described by GDP in current US $.
- the evolution of the GDP at the State level does not provide any information on potential inequalities in the social or territorial distribution inside each State .

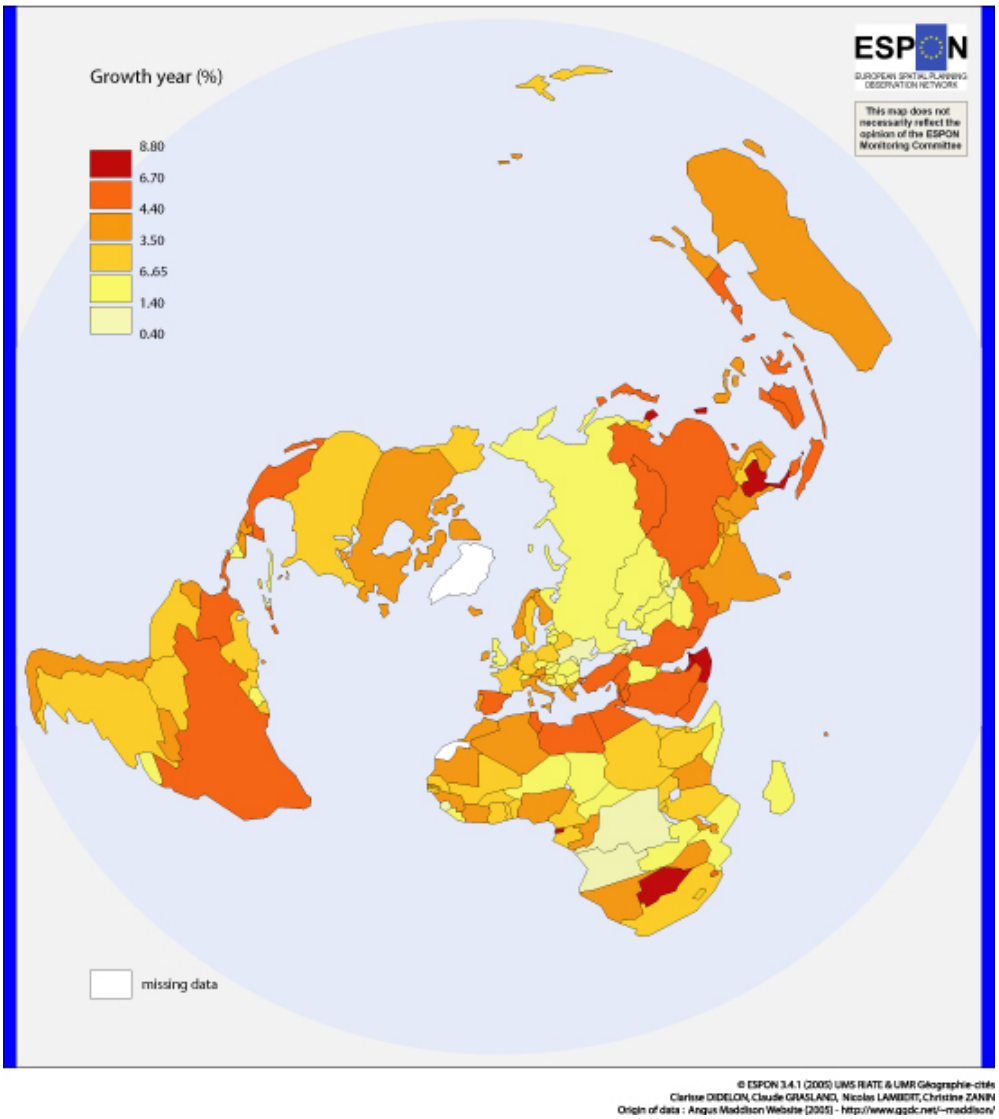
Having this in mind, we can notice the high level of heterogeneity of the variation of GDP PPPs both at the world level and inside the subgroup of States belonging to the ESPON area. If we exclude the small States with exceptional increase (multiplication by 15 for Malta), the most positive variations in the ESPON area are observed for Mediterranean countries like Spain, Portugal or Greece and the less favourable for UK, Switzerland and new member countries or candidate countries of East-Central Europe (Czech and Slovak republic, Bulgaria, Romania, Hungary, …)

Evolution of world GDP (ppps) in relative terms

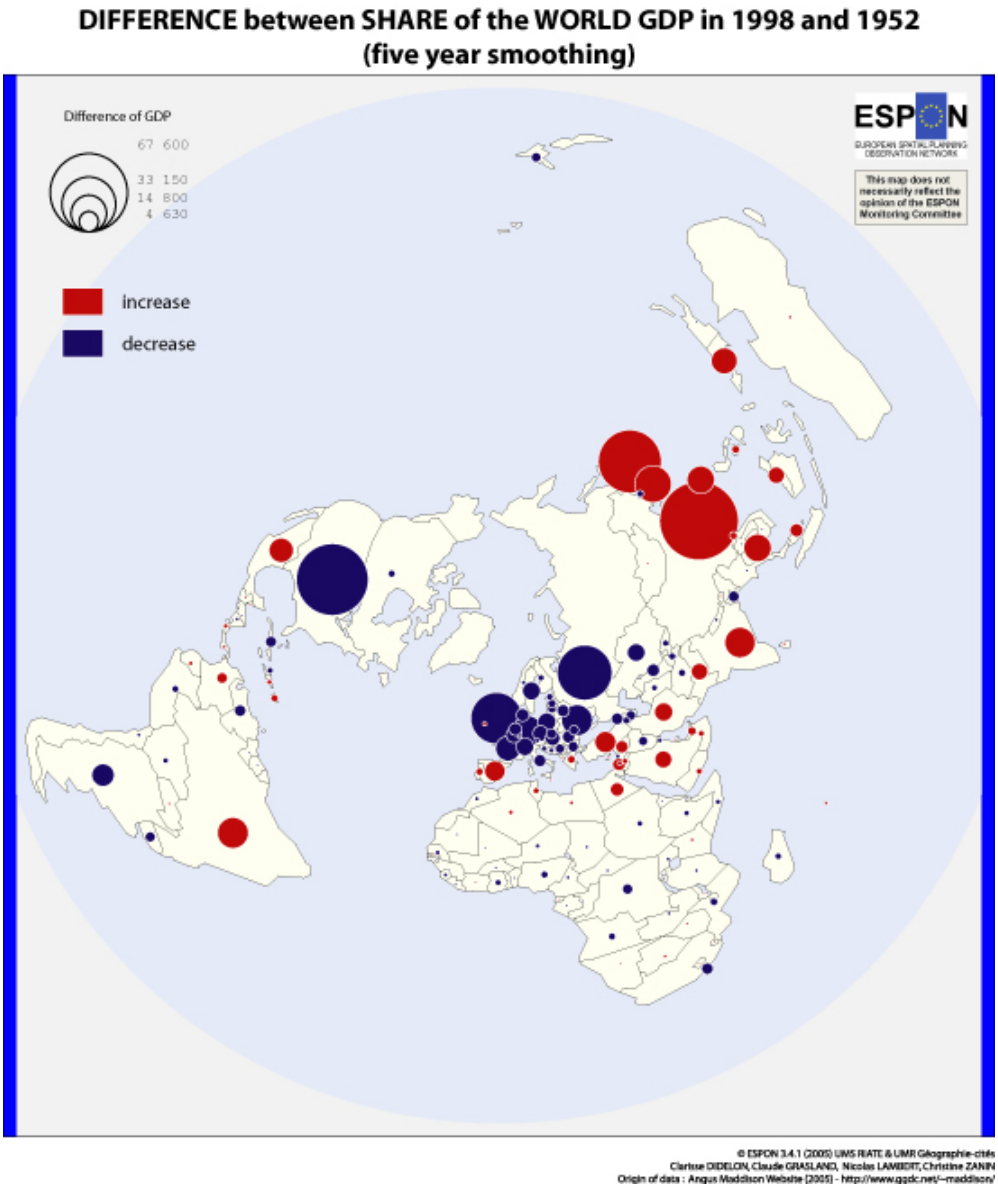
Looking at the map 8-9 it is clear that most States located in the ESPON territory (except above mentioned Mediterranean countries and Ireland) are characterised by a more or less important reduction of their share of world GDP PPPs. This reduction is generally less important than that observed for demographic criteria which means that, in practical terms, the level of GDP per capita has increased during the period 1952-1988 (see next section). The most important reduction of world economic share is observed for United Kingdom but should be cautiously interpreted because it is related at the same time to the long historical trend of decline of the British Empire and to the specific situation of world economy in the 1950's. The economic situation of United Kingdom and United States of America at the end of the Second World War remained more favourable than that of

Germany, France or Japan which had to rebuild a large part of their economic infrastructure destroyed by the war. This initial situation explains why reduction of the economic share is more important for these countries and also for States which did not participate to war like Switzerland and Sweden. In the case of Soviet Union and former socialist countries, the explanation is different and the strong reduction of world share of GDP took place mainly after 1989 during the economic collapse which was produced by the transition towards market economy. Economic crisis explains also the reduction of world share of GDP in Argentina. The States which benefit from the most important increase of their share of world GDP PPPs are concentrated in Eastern Asia (especially Japan, China and South Korea) but can be described more generally as a "golden ring" which involves all States located southern from Europe, United States and Russia: Mexico, Brazil, S.E Mediterranean, Middle East, south and east Asia, north of Oceania).

Map 8-8 : Annual average growth rate of GDP 1952-1998



Map 8-9 : Difference between world share of GDP (ppps) in 1952 and 1998



8.1.3.3 Typology of economic evolutionS of world States (1952-1998)

As in the previous case of demography, the aim of this synthetic typology is to evaluate the specificity of the economic evolutions of each State with a cluster analysis. To take into account all years of the period 1952-1998 appears very important because the economic evolutions are more complex than the demographic ones (Map 8-10).

Type A: Growth followed by stability

States from type A are characterised by a very important increase of their economy during a first period (1950-1975) where their rate of increase of GDP is much higher than the world trend. After the increase of oil prices and the beginning of world economic crisis, a first subgroup (A.1) was able to maintain a rate of economic development higher than the world trend, either because they benefit from the increase of oil prices (Libya, Saudi Arabia, …) or because they were able to adapt to a new economic situation (Japan, Thailand, Tai-Wan, South Korea). A second subgroup (A.2) suffers much more from economic crisis and, after an important increase in the 1970's, turned to simple stabilisation of their world share of GDP: Brazil, Mexico, Spain, Turkey …

Type B: Stability followed by growth

States from type B are characterised by an opposite situation where the first period 1950-1975 was characterised by chaotic evolution of their economy, due to many political perturbations causing a rate of economic increase lower or equal to world trend. A first subgroup (type B.1) began to experiment an exponential economic growth since the 1970's and reached the highest rate of growth at world scale in the 1990's (China, Indonesia, Pakistan, Egypt). In another subgroup (type B.2), the same movement took place but ten years later and it is only after 1980 that they turned from decline to increase of their share of world economy (India, Vietnam, Chile, …).

Type C: Regular decline

States from type C are characterised by the regular decline of their share in the world economy, whatever their initial situation of economic development was. This group can combine very industrialised States where the relative decline of the share of world GDP is a simple consequence of the low rate of population increase. But it can also be observed in underdeveloped countries with a lack of any significant economic take-off. The subgroup C.1 concerns a group of States of Western Europe (France, Germany, Italy …) where a slow increase of world share of GDP was followed by a slow decline after economic crisis of 1975. The subgroup C.2 is rather characteristic from countries of Central Europe (Poland, Hungary, Sweden …) which followed a regular trend of economic growth lower

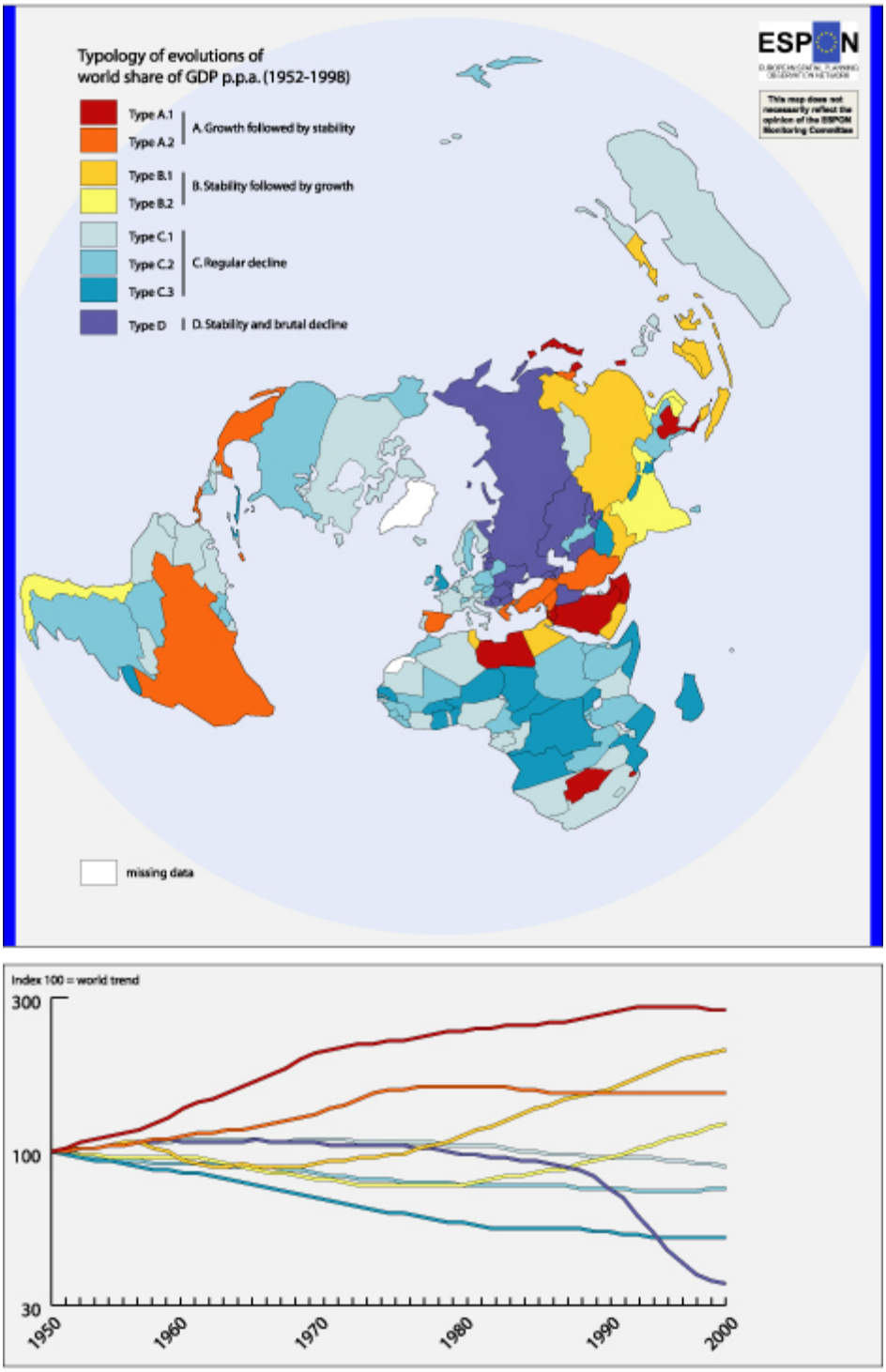
than world trend. The subgroup C.3 is similar but with lower rate of increase and an important reduction of world economic share: it is observed only for United Kingdom in Europe.

Type D: Stability and brutal decline after 1989

States from type D are mainly former republics of Soviet Union, or States which experimented war at the beginning of the 1990's (Yugoslavia, Iraq). They are characterised by a relative stability of their world share of GDP until 1980 and a beginning of slow decline during the period 1980-1990, which is very similar to the evolution of previous type C.1. Their main characteristic is the exceptional decline of their GDP between 1990 and 1998, due either to economic collapse (consequence of market liberalisation) or to political crisis (war).

Map 8-10 : Typology of economic evolution 1952-1998

EVOLUTION of the SHARE of the WORLD GDP 1950-54 to 1996-2000



8.1.4 Synthetic typology of joint demographic and economic evolutions of world states 1952-1998

The separated analysis of demographic and economic dynamics which has been realised in previous sections did not take into account the joint effects of both criteria which combines at the same time the evolution of social cohesion (if we suppose that GDP/inh. is an approximate measure of the welfare of inhabitants) and the evolution of economic attractiveness (positive or negative evolution of GDP and population). As in previous sections, we use the global economic and demographic trend of the World between 1952 and 1998 as reference which means that we focus on relative situation and not on absolute situations of countries (map 8-11).

8.1.4.1 Group A: Positive divergence

The most favourable situation according to our criteria is the situation of States which have simultaneously increased their share of population and GDP at world scale but with a higher rate of increase for GDP than for population. The States belonging to this group (A) have simultaneously increased their demographic and economic sizes which make them attractive from an economic point of view because they represent a potential market of growing size. At the same time, they have increased the GDP/inh. at a higher level than in the rest of the World, which means that social welfare have potentially been improved. But this improvement of social welfare is only a potentiality and depends also strongly on the equal or unequal repartition of the benefits of economic growth between social groups and regions of the States belonging to this category. Two different types can be distinguished in this group A.

Type A.1: Very strong economic growth associated with important demographic growth

The group A is characteristic of States of small or medium economic and demographic size which have developed exceptional comparative advantage in the global market during the whole period 1952-1998, generally associated with a strong level of specialisation. This specialisation can be related either to the presence of precious mineral resources (Libya, Saudi Arabia, Qatar, Botswana) or to high level of foreign direct investments and industrial relocation in an initial context of low wages (Southern Korea, Taiwan, Thailand), or to the massive support of the economy by diasporas and allied countries (Israel). Most countries of this group are characterised by very high level of social inequalities and the existence of minorities or foreign workers excluded from the redistribution process. This type of exceptional growth concerns 13 States but a rather limited

amount of world population (2.3% in 1952 and 3.0% in 1998) and world economy (1.2% in 1952 and 5.2% in 1998).

Type A.2: Very strong economic growth after 1975

The group B is limited to 5 countries. It involves two demographic giants (China and Indonesia) and 3 very small States or territories (Mauritius, Equatorial Guinea, West Bank and Gaza). The main characteristic of this group is the very high level of economic growth after 1975, associated with a stabilisation or at least a reduction of the rate of demographic growth. The combination of both effects is a very important increase of GDP/inh during the 1980's and the 1990's. This group B represents more or less for a quarter of the world population during the whole period (25.1% in 1952 and 24.7% in 1998) but its share of world GDP has been multiplicated by two (6.4% in 1952 and 13.9% in 1998). Actually, the GDP/inh. of the States of this group is more or less half of the mean of the World.

8.1.4.2 Group B: Positive equilibrium

The group B is composed by States which have experienced a significant growth of their share of world population and GDP but without advantage for one criteria. It means that the ratio of GDP/inh. of these States has more or less followed the world trend. Accordingly, the States of this group are economically attractive because the size of their market is increasing and the social welfare of their inhabitants has followed the "mean" evolution of the World which means that their "social attractivity" has not changed positively or negatively during the period. This group of 34 countries is mainly located in the "golden ring" of countries located in southern periphery of the triad. It associates States of large size (Mexico, Brazil, Egypt, Turkey, Iran, Pakistan, Philippines or Malaysia) with small and medium States (Ecuador, Colombia, Algeria, Tunisia, Syria, Mongolia …). It can be noticed than some countries of equatorial Africa also belong of this group (Côte d'Ivoire, Kenya, Congo …). Between 1952 and 1998, this group of emerging and new industrialised countries has increased its share of world population from 11.3% to 16.2% and its share of world GDP from 7.4% to 11.3%.

8.1.4.3 Group C: « Golden decline »

The group C is characterised in the same time by a strong demographic decline and an increase or relative stability of GDP. We propose to call this very original situation "golden decline" because it characterises States where declining

population are becoming more and more rich as compared to the world trend of GDP/inh.

Type C.1: Japan's variant of golden decline

The most extreme example of this model of "golden decline" is provided by Japan which has multiplied by two its share of world GDP (3.4% in 1952 and 7.7% in 1998) while its share of world population was strongly reduced (3.3% in 1952 and 2.1% in 1998). As a result, the GDP/inh of Japan which was more or less equal to the world average in 1952 is actually 3.7 times greater!

Type C.2: Europe's variant of golden decline

Another variant of the model of "golden decline" can be found in Europe where many States has experimented an important decline of their share of world population associated with a stability or very small decline of their share of world GDP. This situation is very frequent in western part of Europe (Spain, Portugal, Netherlands, Germany, Italy, Norway, Austria) but also in Balkans (Romania, Bulgaria, Greece…). This type C.2 is not observed out of Europe, except in the very particular case of Puerto Rico. The population of the 20 States of this type has experimented a severe decline at the world scale (10.5% in 1952 and 6.0% in 1998) but their GDP has been very few reduced (17.9% in 1952 and 15.9% in 1998). As a result, the GDP/inh of these States which was more or less the double of world average in 1952 is actually the triple.

8.1.4.4 Group D: Negative equilibrium

The group D defines States which have experienced a significant decline of their share of world population and GDP but without advantage for one criterion. It means that the ratio of GDP/inh. of these States has more or less followed the world trend as in the case of previous group B, but for opposite reasons. Accordingly, the States of this group D are less and less attractive because the size of their market is decreasing demographically and economically at the world scale. The States of this group are firstly United States, United Kingdom and former republics of soviet Union (Russia, Ukraine, Belarus …) and Warsaw Pact (Poland, Hungary, Czech and Slovak republics, …) for which one possible explanation of the low level of increase of GDP could be the expenses of armies (nuclear weapon, ships, …) during the cold war. This situation is also characteristic of States which did not participated to the Second World War and took benefit from their neutrality (Switzerland, Sweden) which explains their very high level of GDP in 1952 and their relative more important decline later. Despite its decline, this group of 20 States still represents a very significant part

of the world GDP (46.7% in 1952 and 31.2% in 1998) and the world population (17.1% in 1952 and 11.2% in 1998).

8.1.4.5 Group E: Negative divergence

States from group E are characterised by the most critical situation which is an increase of their share of world population associated with a decrease of their share of world GDP, which implies that their GDP/inh. is growing more slowly than the world trend or eventually becomes negative. Two different types can be defined according to the level of divergence between economic and demographic trends.

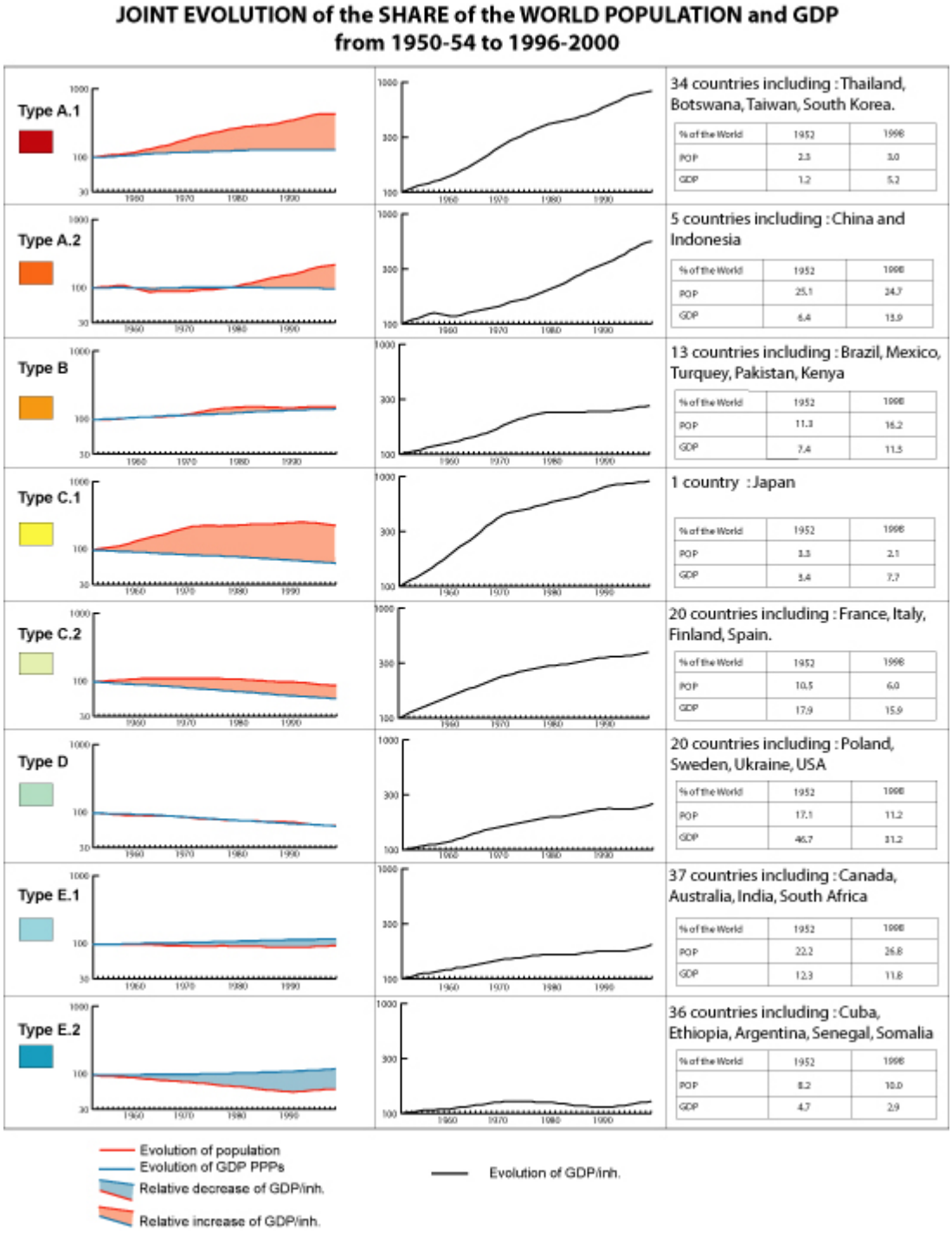
Type E.1: Small negative divergence or global stability

An important group of States of medium and large size (Canada, India, Australia, Southern Africa, Nigeria, Peru, Vietnam, Bangladesh …) and some States of smaller size (Cameroon, Gabon, Venezuela…) presents the characteristics of small negative divergence which can recover in certain cases a perfect stability of the share of world population and GDP in other cases, small oscillations during the period 1952-1998. The 37 States of this group which has more or less followed the world trends is a significant part of world population (22.2% in 1952 and 26.8% in 1998) and world economy (12.3% in 1952 and 11.8% in 1998).

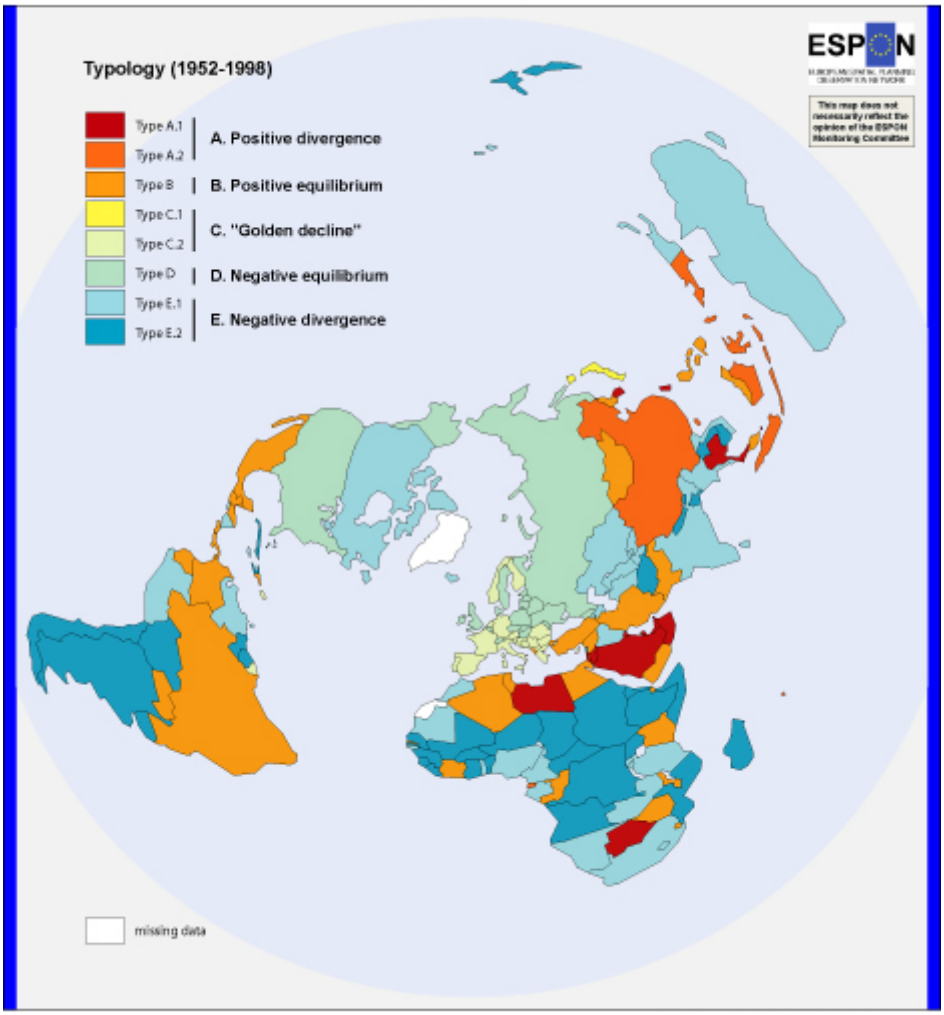
Type E.2: High negative divergence with increasing poverty

With this group of 36 States of small and medium size, except for some cases, we explore the most negative scenario of evolution which is exactly the contrary of the situation of "Golden decline" observed in group C. For many States from group E.2, the diverging evolution of GDP and population produces not only a lower rate of increase of GDP/inh. than in the rest of the World but and absolute and effective decline of economic conditions in absolute terms. In many cases the economic problems are reinforced by political crisis and wars (Afghanistan, Congo R.D., Sudan, Laos …) or by the action of international organisation which claim for structural reforms producing growing social poverty (Argentina, Chile …). The small size of most States of this group make very difficult any action of State and any policy of economic or political independency. In 1998, the 36 States from type E.2 counts for 10.0% of the world population (8.2% in 1952) with only 2.9% of world GDP (4.7% in 1952).

Map 8-11 : Synthetic typology of demographic and economic evolution (1952-1998)



JOINT EVOLUTION of the SHARE of the WORLD POPULATION and GDP PPPs from 1950-54 to 1996-2000



Origin of data : Angus Maddison Website (2005) - http://www.ggdc.net/~maddison/

8.1.5 Conclusion: the effect of political enlargement on the economic and demographic dynamic of the european union

In conclusion, we would like to underline that the fact to use the division of World between States for the analysis of territorial evolution of Europe is a strong limitation because it doesn't take into account the regional dimension of the phenomena (region is understood here has division of the World) and the dynamic of political divisions. The evolution of population or GDP of the European Union between 1950 and 2004 is a very fascinating example of dynamic of political division because during the whole period we observe a structural trend of demographic and economical decline (figures 1 and 2) which is always balanced by a political dynamic of enlargement.

- **The population** of EU6 in 1950 was more or less equal to 6% of the World but would have declined to 3% in 2000 without enlargement. On the contrary, the share of world population located in the European Union has remained very stable around 6% when EU enlarged to 9, 10, 12 and 15 members. With the enlargement to 25 members in 2004, the share of world population located in the EU has reached an historical record of 7% and could jump to 8% with the adhesion of Romania, Bulgaria and Turkey between 2007 and 2015. In other words, demographic decline is not a fatality for European Union from a political point of view.

- **The GDP** of EU6 in 1950 was more or less equal to 15% but would have declined to 10% in 2010 without further enlargement of the political union. The membership of United Kingdom in 1973 has produced a decisive increase of this share which reached 20% and remained very stable around this level when Europe enlarged to 10, 12, 15 or 25 members. But the trend to economic decline of the area remains important and it is only with further enlargement to countries like Turkey in 2015 that European Union can eventually maintain this share of 20% of world economy in the future.

Figure 8-1 : Evolution of the share of world population of the European Union (1950-2020)

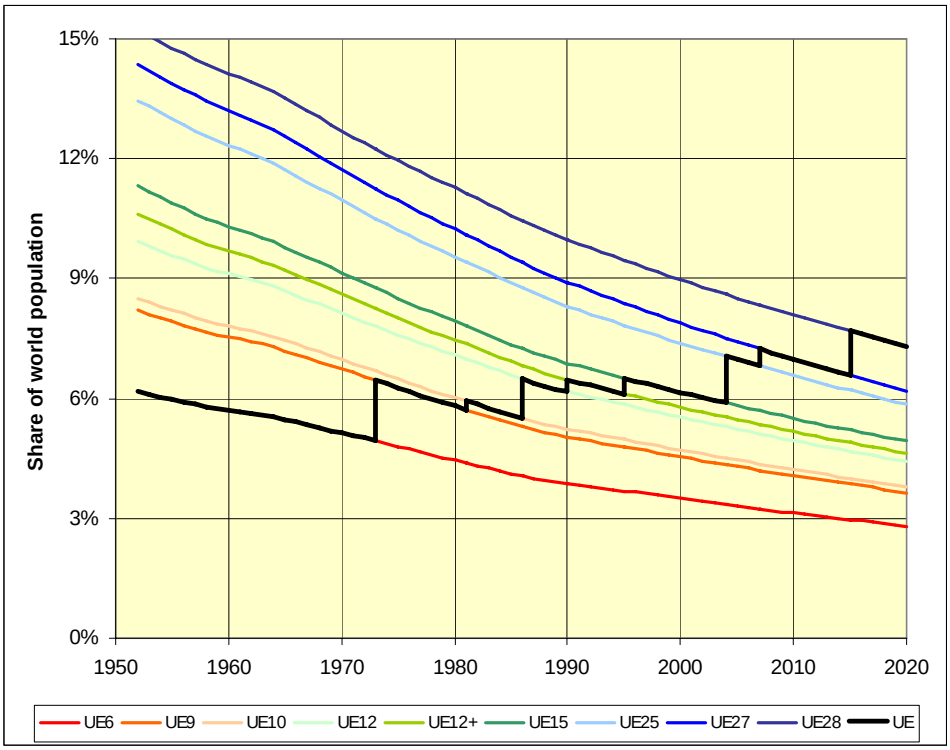
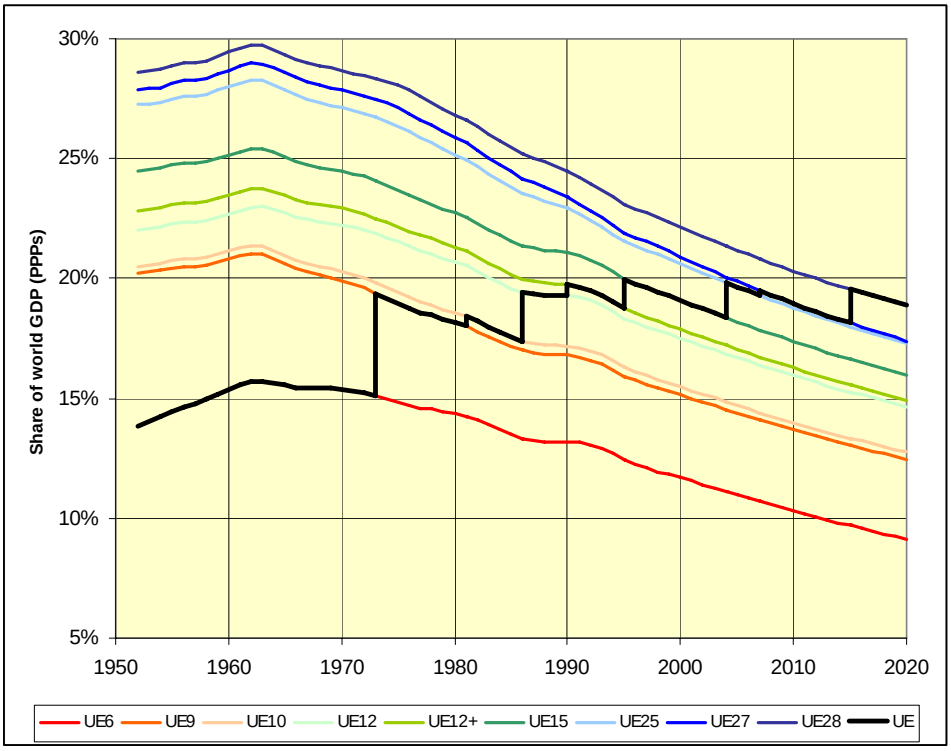


Figure 8-2 : Evolution of the share of world GDP (ppps) of the European Union (1950-2020)



8.2 Benchmarking of WUTS Regions and Macroregions.

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Alberto Vanolo, Grupo Soges

Every comparison of regions in the world, i.e. clusters of states, should be embedded in a homogeneous statistical frame and should be based on an homogeneous method. The WUT system offers such an opportunity in providing the ESPON TPG with a unique and flexible territorial framework. In this part, this statistical tool will be largely used for the following indicators:

GDP in constant US dollars (2000 prices) in value term and in percentage of the World Gross Product.
GDP growth.
GDP per capita (see Final Report – Volume 1 – Part A) and GDP per capita growth.
Net FDI inflows in current US dollars (see Final Report – Volume 1 – Part A).

These indicators are almost all related to economics. They have been chosen because they are among the most relevant ones to show the place and role of EU and ESPON 29 in the global space and in the globalisation process, which is mainly an economical process. Besides, thanks to the World Bank database, it was possible to base the following tables on historical series (from 1980 up to 2004 or 2003). Therefore, each region (each WUT) of the world can be replaced in an global, macroregional or regional context, but it can also be situated in relatively long tendencies. Taking into account the historical evolution is useful to bring more light and meaning to the actual hierarchies at different levels.

For all these indicators, each table presented below is based on the World Bank database, which is entirely built on the same methodology. In almost all cases, the number of states taken into account is roughly the same that is between 162 and 167, in order to match roughly the number of 168 which was proposed in the second interim report (see SIR - Volume 1 – page 42). The number is always inferior to 168, which is due to inevitable data gaps. Some States (Myanmar, Cuba, North Korea…) do not regularly provide the World Bank with data, such as GDP, GDP per capita, FDI inflows etc… In some tables, it may happen that historical series are not complete for several states. At last, as all these data are extracted from the World Bank database, they never take into account Taiwan. This situation is explained by the fact that there is still no official acknowledgement of Taiwan by the United Nations.

The globalization process is tightly combined with another one, which is called "regionalization" or "regional economic integration" at macro or regional levels (see Final Report – Volume 1 - Part C – Introduction). These expressions put the stress on increase of trade and financial flows between states all situated in the same region (clusters of states). This process can develop itself on a legal basis (free trade agreements, union customs, common markets…), or without any legal basis as it is the case in Eastern Asia where there is no such agreement at macro regional level yet (between Japan and China for instance). This process, largely described in the part C dedicated to the ensemble composed by ESPON and neighbourhood, must be taken into account when one makes comparisons between Europe and other regions in the world. ESPON is not only a territory for spatial planners. It is also an economic region where states are more and more interrelated. It must therefore be compared to other economic regions, which do not totally match the WUTS framework, except for NAFTA which perfectly corresponds to the WUTS 21 and 210. That is why this benchmarking part is divided into two subparts. The first one is based on the WUTS framework. It aims to complete the synthetic analysis provided in the first volume of the final report (part A). The second one is based on other clusters of states which will be defined and justified below.

8.2.1 Benchmarking the World on the WUTS base

Concerning the distribution of GDP, the hierarchy between upper level WUTS brings no surprise, showing a clear domination of Americas, followed by Eurafrica and Asiapacifica (table 8-1). This hierarchy has been the same for several decades but it is likely to change in the nearest future. The surprise comes from the contrasts inside WUTS 1, 2 and 3. The gap between rich countries and poor ones is much more visible in the WUTS 1, especially between WUTS 11 and WUTS 13, than in other ones. One can see for example that the geographical distribution of production is much better balanced in Asiapacifica between WUTS 31 and 32. The gap is wider between WUTS 21 and 22, but the GDP of Latin America is much higher that that of WUTS 12 and 13.

Table 8-1 : Distribution of GDP

Average annual GDP distributed in periods of five years (billions of constant US 2000 dollars)
Source : World Bank

World unified territorial system		Size					
Code	Name	States	1980-84	1985-89	1990-94	1995-99	2000-04
W 0	WORLD	162	21636	24452	25382	28932	32338
W 1	EURAFRICA	110	6995	7998	9587	10605	11549
W11	Europe & Northern Asia	43	5633	6518	7798	8478	9479
W111	Western Europe	19	5406	6108	6901	7622	8488
W112	Eastern Europe & Northern Asia	24	226	410	896	856	990
W 12	Western Asia & Northern Africa	23	467	499	631	763	890
W 121	South & East Mediterranea	10	186	219	264	341	419
W 122	Middle East & Central Asia	13	280	279	367	422	471
W 13	Subsaharian Africa	44	213	239	263	299	344
W 131	Central Africa	7	21	25	22	23	26
W 132	Eastern Africa	11	23	29	34	41	50
W 133	Western Africa	15	47	52	61	71	82
W 134	Southern Africa	11	120	133	144	163	185
W 2	AMERICAS	29	7958	9378	10584	12509	14143
W 21	Northern America	3	6122	7330	8307	9783	11313
W 210	Northern America	3	6122	7330	8307	9783	11313
W 22	Latin America	26	917	1023	1138	1363	1415
W 221	Central America & Caribean	21	289	317	367	428	430
W 222	Southern America	5	627	700	724	934	984
W 3	ASIAPACIFICA	23	3506	4260	6237	7348	8279
W 31	Southern & Eastern Asia	13	-	-	1027	1532	2034
W 311	Eastern Asia	2	-	-	525	865	1219
W 312	Southern Asia	7	-	-	389	515	644
W 313	South-East Asia	4	-	-	113	150	170
W 32	Western Pacifica	10	3506	4260	5210	5816	6245
W 321	Western Pacifica	2	3084	3756	4586	5024	5334
W 322	South-Western Pacifica	5	172	208	294	391	444
W 323	Oceania	3	248	294	330	400	466

This hierarchy is not new. Things were roughly the same in the 1980s. What has changed is the size of discontinuities between WUTS. The gaps between WUTS have undergone significant evolutions. The contrasts between WUTS 1 and 2 and between WUTS 2 and 3 are wider than 25 years before. The evolution is the same between WUTS 1 and 3 is not the same. The increase of GDP has been more rapid in Asiapacifica than in Eurafrica since the 1980s. The former is much

likely to overtake the latter in the current decade if this tendency goes on this way. This is due to a rapid and steady economic development in Eastern Asia.

Comparisons at the lowest WUTS level show that Western Europe (WUTS 11) has maintained its second rank in the world production. But this positive assumption must be qualified.
1. The gap between Western Europe and other regions of Africa and Western or Central Asia has increased a lot. One can wonder if EU and ESPON can foster their own economic development on such a situation, being surrounded by poor or eventually extremely poor countries.
2. The gap between Western Europe and Northern America is wider the 25 years before. Whereas the average difference was only 500 billion dollars in the first period (1980-84), it has reached a 2.825 billion dollars level in the last period (2000-04). This shows that the economic growth has been much steadier in America than in Europe.

All these conclusions are confirmed by the table which presents the share of each region in the World Gross Product (WGP) in percentage terms (table 8-2). This indicator is even more appropriate to show the tendencies followed by each WUTS. One can see the relative decline of Eurafrica and Americas in the global production, whereas the share of Asiapacifica is nothing less than spectacular. But the decline of Eurafrica is more dramatic than that of Americas. These geographical differences are more obvious at the third WUTS level (WUTS 11, 12 and so on). The decline of Northern America is not that dramatic (from 33,21% to 32,94%) and it is largely due to the fact that the countries of the WUTS 31 are not taken into account before 1990 (due to data gaps). On the contrary, the decline of WUTS 11 is more significant (from 30,57% to 27,92%), whereas WUTS 31 has gone up from 3,89% in 1990-94 to 5,44% in 2000-04.

Table 8-2 : Distribution of GDP (in percentage of the world total). Average annual percentage distributed in periods of five years

World unified territorial system		Size	1980-84	1985-89	1990-94	1995-99	2000-04
Code	Name	States					
W 0	WORLD	162	100	100	100	100	100
W 1	EURAFRICA	110	37,9	36,95	36,34	34,86	35,03
W11	Europe & Northern Asia	43	30,57	30,16	29,61	27,92	27,92
W111	Western Europe	19	29,34	28,3	26,2	25,09	25,08
W112	Eastern Europe & Northern Asia	24	1,23	1,87	3,42	2,82	2,83
W 12	Western Asia & Northern Africa	23	2,54	2,32	2,39	2,51	2,57
W 121	South & East Mediterranea	10	1,01	1,02	1	1,12	1,2
W 122	Middle East & Central Asia	13	1,53	1,3	1,39	1,39	1,38
W 13	Subsaharian Africa	44	1,12	1,07	0,97	0,96	0,98
W 131	Central Africa	7	0,12	0,12	0,09	0,08	0,08
W 132	Eastern Africa	11	0,13	0,14	0,13	0,14	0,14
W 133	Western Africa	15	0,26	0,24	0,23	0,24	0,24
W 134	Southern Africa	11	0,62	0,58	0,52	0,51	0,52
W 2	AMERICAS	29	43,21	43,48	40,17	41,18	41,37
W 21	Northern America	3	33,21	33,96	31,51	32,17	32,94
W 210	Northern America	3	33,21	33,96	31,51	32,17	32,94
W 22	Latin America	26	5	4,76	4,33	4,5	4,21
W 221	Central America & Caribean	21	1,59	1,49	1,39	1,43	1,3
W 222	Southern America	5	3,41	3,28	2,94	3,08	2,91
W 3	ASIAPACIFICA	23	18,89	19,57	23,48	23,96	23,6
W 31	Southern & Eastern Asia	13	-	-	3,89	5,03	5,44
W 311	Eastern Asia	2	-	-	1,98	2,84	3,24
W 312	Southern Asia	7	-	-	1,48	1,69	1,74
W 313	South-East Asia	4	-	-	0,43	0,5	0,46
W 32	Western Pacifica	10	18,89	19,57	19,59	18,93	18,16
W 321	Western Pacifica	2	16,73	17,38	17,41	16,55	15,79
W 322	South-Western Pacifica	5	0,8	0,81	0,92	1,04	1,01
W 323	Oceania	3	1,36	1,38	1,27	1,33	1,36

Source: World Bank

What happens at the lowest WUTS level? Western Europe has lost more than 4 points of percentage whereas Northern America has almost maintained its share in the WGP. Only a few regions have significantly increased their part in the World total: Eastern Europe and Northern Europe (WUTS 112) and Eastern Asia (WUTS 311 that is to say mainly China). In the same time, some contrasts between WUTS of third and fourth levels have been reduced. In Eurafrica for

example, the gaps between WUTS 111 and 112 is less wide than in 1980, but the situation of subsaharian Africa remains disastrous. Whereas Eastern Europe has apparently taken advantage from the outbreak of economic structural reforms, the situation of Africa does not show steady signs of improvements.

The analysis of the average annual evolution of GDP partly confirms what is said above. The rhythm of the economic growth has been superior to the World average in Eurafrica only in the last period, and it has been always lower before: 2.39 % per year in WUTS 1 in 1980-2004, and 3.4 % for the World average. The conclusions are the same at lower levels, for WUTS 11 (only 2.16 %, due to the economic crisis which followed the collapse of the soviet and socialist block in Central and Eastern Europe) and WUTS 12 (1.83 %). In the same time, the regions composing Americas have shown a more regular growth without any negative evolution throughout the whole period. The most rapid rhythm is the privilege of Southern and Eastern Asia, where average economic growth has been systematically superior to the world average: 4.8 % for the WUTS 3 and 5.7 % for WUTS 31.

8.2.2 What about ESPON and other economic macroregions

In order to match the so-called process of regionalization, the WUTS framework is not sufficient and ESPON, considered as an economic integrated whole, must be compared to other economic regions. These regions have already reached a high level of integration, based on various patterns. Others are on their way to higher and higher integration. The delimitation of these clusters of states is based on the level of intraregional trade, or its evolution, and on the importance of intraregional FDI flows. In some cases, the existence of legal base (free trade agreement etc) has been taken into account but not necessarily. For example:
Eastern Asia and ASEAN have been included in the same whole: there is not such agreement involving all the states of this region yet, but the intraregional trade and financial flows are growing fast.
In almost all graphs, Latin America (without Mexico and Caribbean) has been chosen and not Mercosur. Such a choice is based on the increase of intraregional trade at all Latin American level and on a step by step process of enlargement of Mecosur: almost all the countries of South America are nowadays more or less directly linked to Mercosur with various status.

The graphs below show a process of relative decline of EU 15 and ESPON compared to other economic macroregions. The increase of GDP in NAFTA has always been more rapid than in ESPON, EU 15 and even in the Monetary Union. Besides, nothing less than alarming, it appears that ESPON and EU 15 were already overtaken by the macroregion composed by Eastern Asia and ASEAN in 1987! This confirms the idea of a shift of the centre of gravity of the World

economy from the Atlantic region to the Pacific Rim. In addition, it is clear that ESPON has not only been overtaken in absolute terms, but also in relative terms, losing almost 5 points of percentage. Over the same period, NAFTA has slightly increased its share and Eastern Asia (that is to says Eastern Asia + ASEAN) has gained a bit more than 5 points.

Figure 8-3 : Evolution of GDP

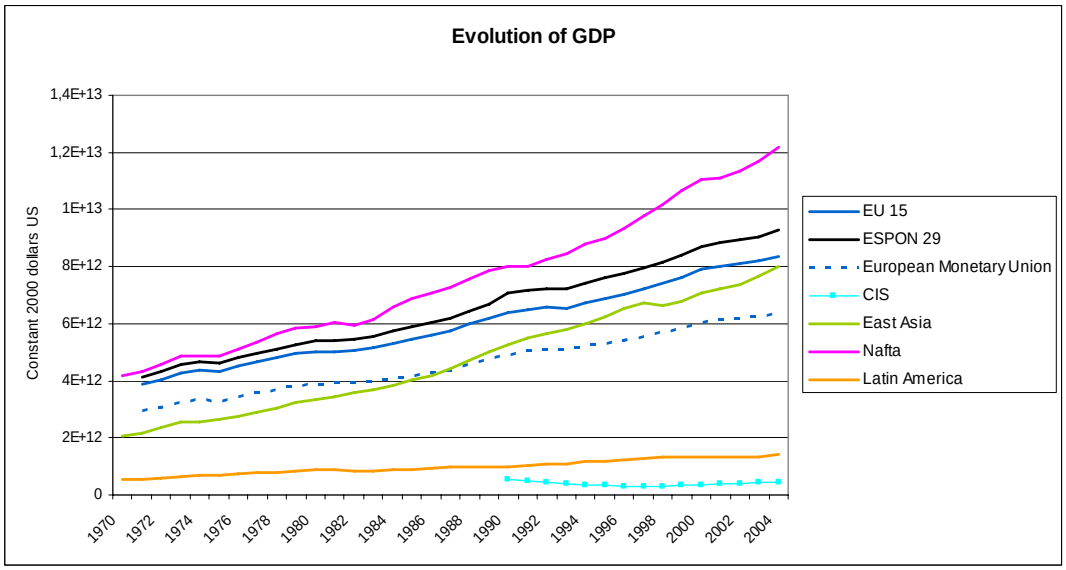
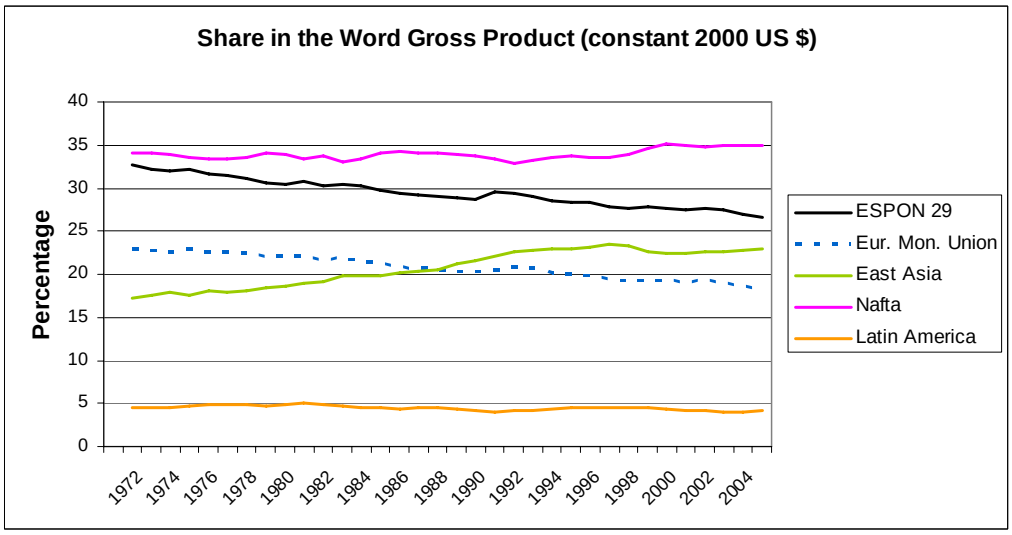


Figure 8-4 : Share in the World Gross Product (constant 2000 US$)



As far as the GDP per capita is concerned, the evolution is somewhat different, due to a slower demographic increase in EU and ESPON than in Asia. The gap between ESPON and Eastern Asia is roughly the same in 2004 as in the 1970s, while the gap with NAFTA has dramatically widened, because of two brutal falls in the 1970s and the 1990s. The evolution of the European Monetary Union is not

the same, almost keeping the contact with the performances of NAFTA and widening the gap with Eastern Asia.

This process is partly due to the lack of demographic vitality of Europe. This idea is confirmed by the fourth graph. It shows than the annual growth of GDP in ESPON and Euro Monetary Union has always been dramatically inferior to that of Eastern Asia since the 1970s. Nonetheless, the gap between both regions has widened.

Figure 8-5 : Evolution of GDP per capita

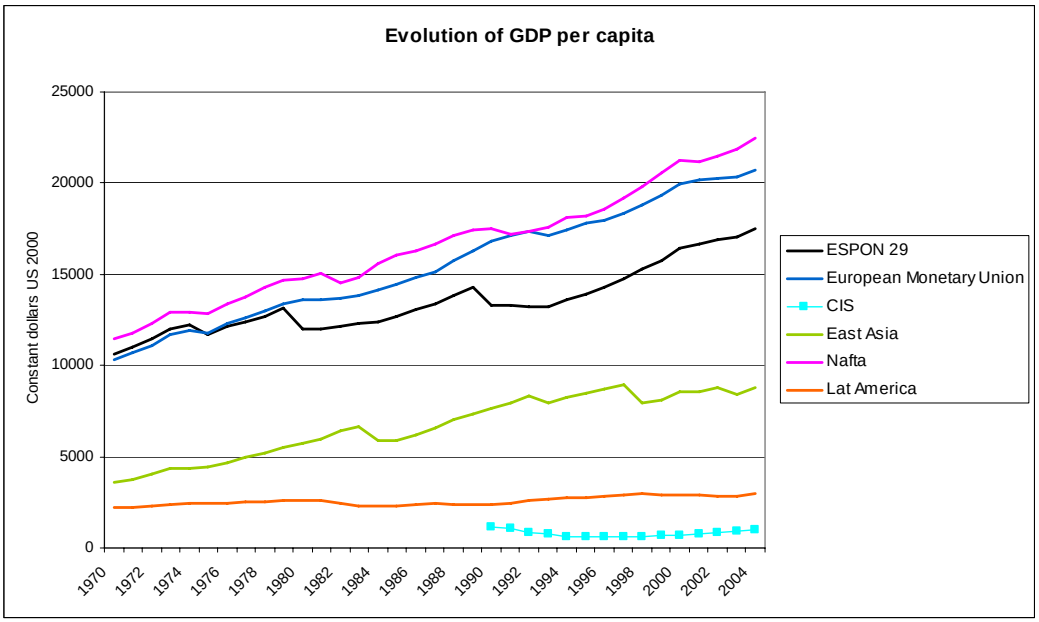
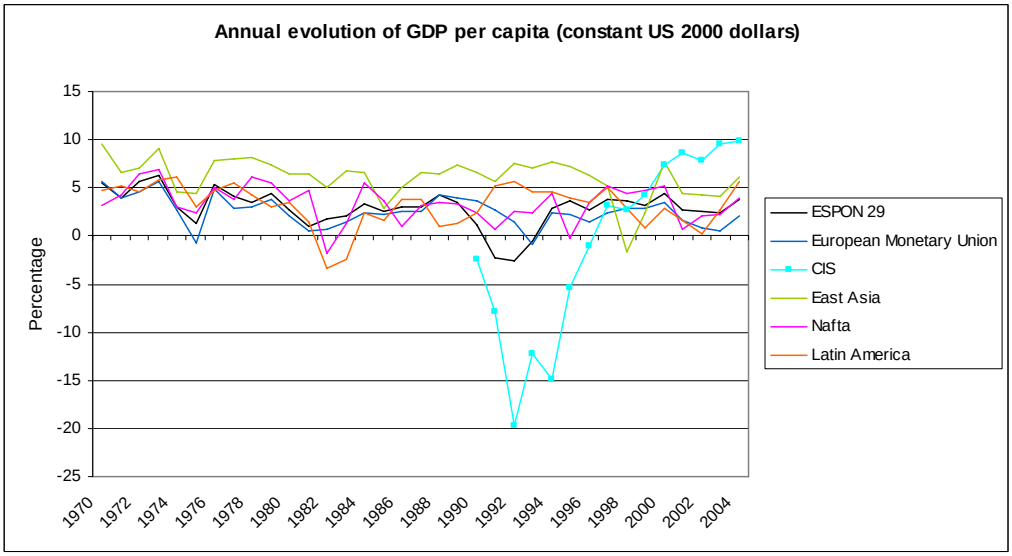


Figure 8-6 : Annual evolution of GDP per capita (constant 2000 US$)



On the contrary, the place of EU 15 and ESPON at first location of FDI stock in the world has been more than confirmed since the 1980, either in absolute or in relative terms. The gap between EU and other regions has been widening more and more rapidly since the 1990s. This confirms several ideas. The attractiveness of EU for investors is still very high. The economies of EU and ESPON are much more engaged in the financial globalization than others, even if a large part of this FDI stock comes from Western Europe. These graphs confirm what is said in the first volume of the final report about the geography of foreign investment flows. Reversely, graphs dedicated to the FDI outward stock would show that EU is definitely the first investor in the World, far before the United States and Asian countries.

Figure 8-7 : Evolution of inward FDI stock in various regions

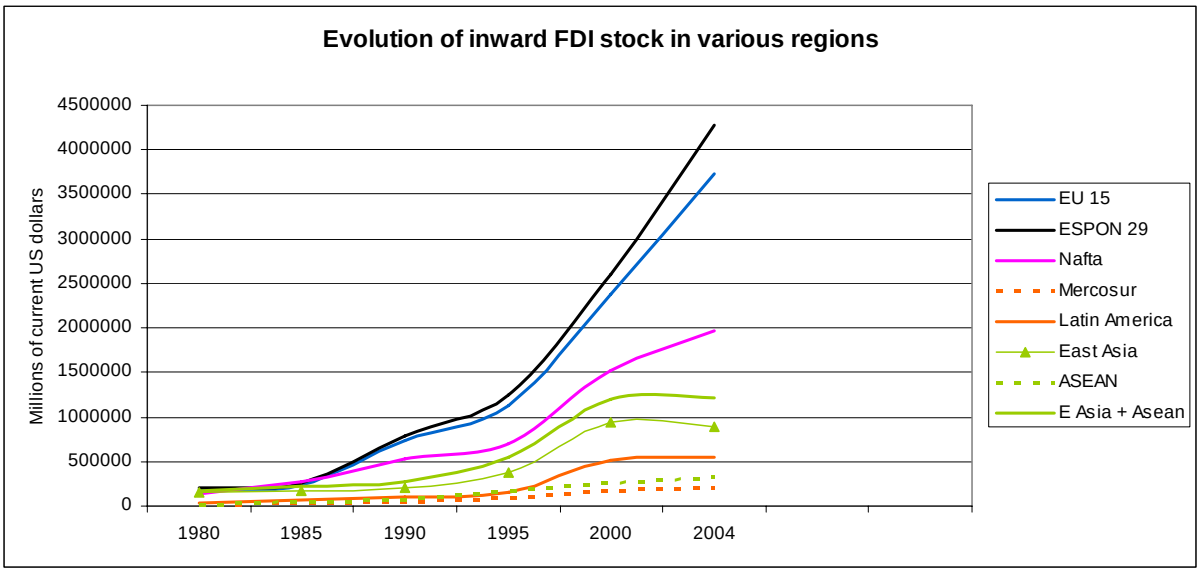
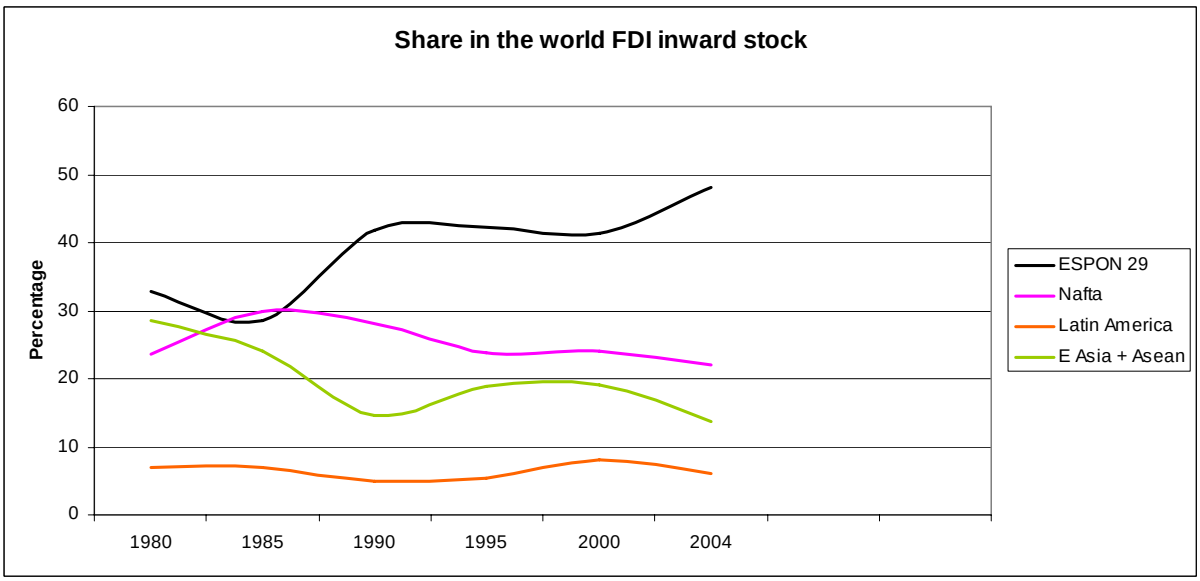


Figure 8-8 : Share in the World FDI inward stock



9 ACCESSIBILITY THEMATIC ANALYSIS

9.1 Distance proximity to ESPON 29

The attempt to delimitate a so-called ”ESPON Influence Area” can be based on a first group of indicators which are related to the general concept of ”proximity”. What we try to identify here is not the actual flows but the various factors which can make easier the relations between the countries of the World and the 29 countries of the ESPON. In other words, we focus of potentialities of relations based on ”hard facts” which are not likely to change in a near future and which are strategic realities for long term political decisions.

The most obvious reality is the physical distance between each country of the World and ESPON 29. Whatever the mode of transportation, physical distance is necessarily related to a time or a cost which limits the interactions and the flows. Of course, the correlation is never perfect and it can happen that the cost or time for a travel at 6.000 km is lower than the cost or time for a travel at 2.000 km, but the technical and economic conditions can change and, on the long term, physical distance remains always strongly correlated with functional distances. Furthermore, many crucial phenomena are really related to physical distance and not to network distance: it is sufficient to keep in mind the accident of Chernobyl or the actual diffusion of new virus of H5N1 bird's flu to be convinced that many diffusion process are directly related to ”bird fly distance” and not to networks . Last but not least, we can notice that physical distance is not only a material reality but also a mental one, as it is associated to visual proximity on the maps which are observed and learned by students all around the world.

The measure of physical distance between states is based on the database of CEPII15 which propose an estimation of distance between main urban centres of each couple of states, weighted by their population. This measure is much more precise than the usual distance between capitals or conventional centroïds of territories and can be considered as a good approximation or mean distance between inhabitants of different states. Notice that this distance is not equal to 0 inside a state but is a measure of mean internal distance between inhabitants of the country.

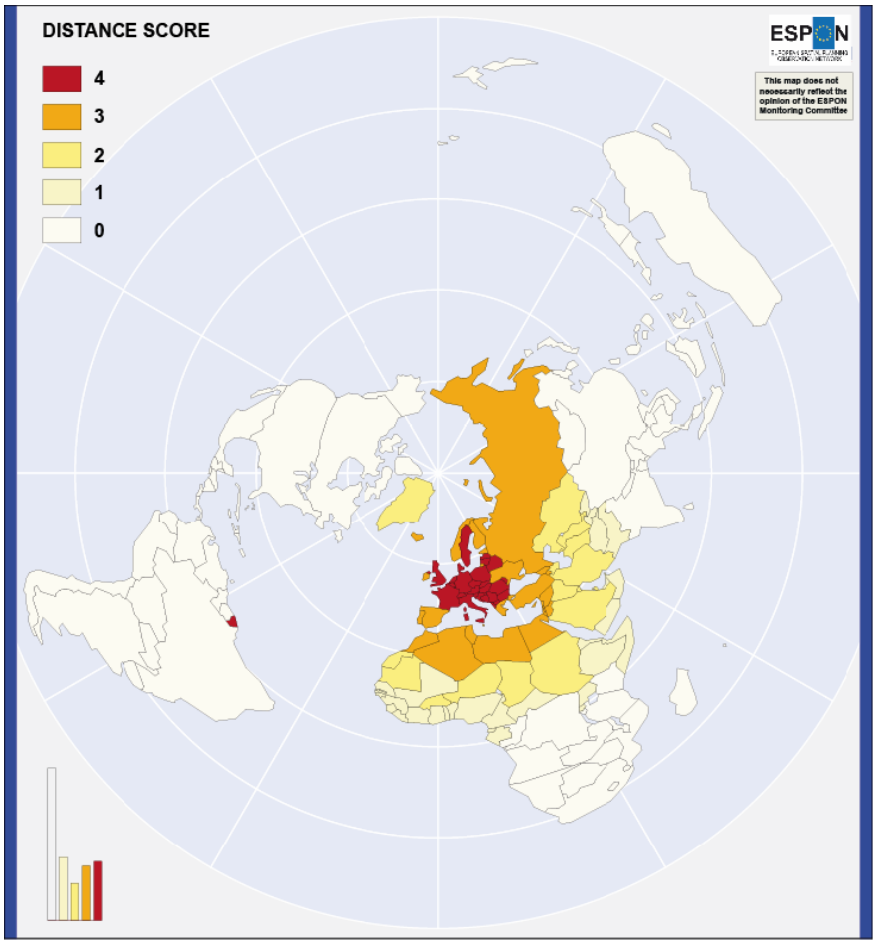
To obtain a measure of distance to ESPON29, we have computed for each state of the world the mean of its 29 distance to the ESPON members. We did not weight results (by population or GDP of the ESPON countries) as we had no

[15] http://www.cepii.fr/anglaisgraph/bdd/distances.htm

reason to choose a particular criterion. Among the 168 countries of our database, the largest distance to ESPON29 are obtained by New Zealand (18.000 km), Fiji (16.200 km) and Australia (15.700km) and the minimal distance by Czech Republic (990 km), Austria (1.010 km) and Germany (1.030 km). It is interesting to notice that this distance can be higher for ESPON countries like Portugal (2.260 km) or Cyprus (2.400 km) than for non ESPON countries like Turkey (2.020 km), Moldova (1.490 km) or Tunisia (1.800 km).

As our purpose is to combined various criteria of proximity which are both qualitative and quantitative, it is necessary to transform all of them in dummy variables (0/1) which can be further associated in an homogeneous table for statistical synthesis. In the case of distance, we decided therefore to establish four dummy variables indicating if the mean distance to ESPON 29 is lower than 1.500, 3.000, 4.500 and 6.000 km. We obtain therefore an implicit distance score which is ranking from 4 (for states located at less than 1.500 km from ESPON 29) to 0 (for states locate at more than 6.000 km from ESPON29).

Map 9-1 : Distance score

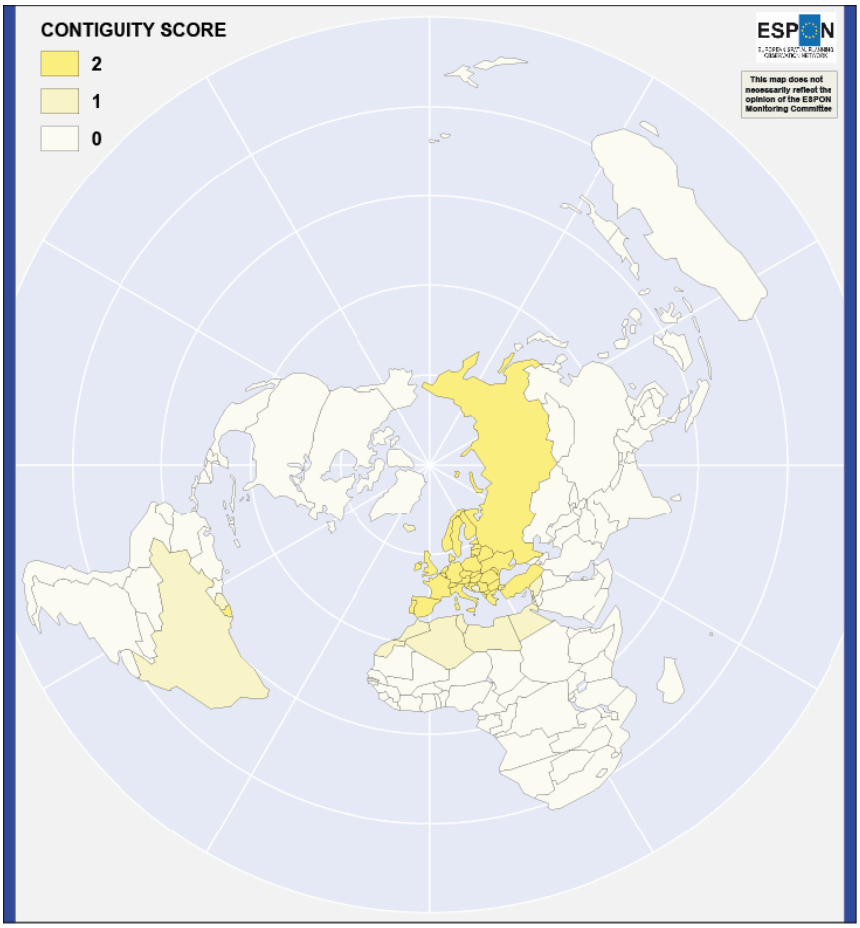


The statistical breakdowns have been chosen in order to fit as much as possible with concrete facts. We can see on Map 9-1 that the maximum distance score defines the geographical core of ESPON29 area, excluding only most peripheral ESPON countries (Ireland, Spain, Portugal, Greece, …) but including some non ESPON members (Balkans, Moldavia, Belarus). The distance score 3 defines clearly the European Neighbourhood, including both eastern and western peripheries of ESPON area. Lower distance scores (1 and 2) are associated to most remote regions of Sahara and Central Asia which are clearly located on the margins of the ESPON space but can nevertheless remain important for political action on many subjects (migrations, security…). We considered as not necessary to distinguish further classes of distance after 6.000 km and we can notices that this threshold of distance is often related to major barriers like Atlantic Ocean or Himalaya mountains.

9.1.1 Common borders and maritim neighbourhood with ESPON 29

The countries which are located at a short distance from ESPON can be differentiated according to the fact that they share or do not share a common terrestrial or maritime border with ESPON countries. For example, Bosnia and Herzegovina is very near from all ESPON countries according to distance (1.190 km) but do not have any common terrestrial border with ESPON member states. On the contrary, Brazil is located in average at a very long distance from ESPON countries (9.500 km) but shares a long terrestrial common border with French Guyana which is a piece of France and therefore of European Union and ESPON. Common borders are strong material and symbolic realities which can not be confused with distance, even if it is partly correlated. The problem with this criterion of contiguity is the difficulty to measure it because different solutions are possible. Concerning the existence of terrestrial borders, the database from CEPII which has been used here does not mention some borders like the very symbolic one between Morocco and Spain around Ceuta and Melilla. This omission could probably be explained by the small length of this terrestrial border, but it is a full reality from juridical point of view. The poor migrants who risk their life to cross this golden curtain are perfectly aware of the fact that it is a limit of European Union which provides rights to the happy few which succeed in their attempt. The borders of ESPON should be considered as potential or active political interface and not only as barriers dedicated to the control of external flows. That is the reason why we decided to extend the concept of terrestrial contiguity proposed by the CEPII to the case of states separated by a short maritime distance which can be easily crossed by official or non-official flows. We obtain therefore a differentiated score of contiguity equal to 2 for common terrestrial borders and to 1 for short maritime distance borders (Map 9-2).

Map 9-2 : Contiguity score

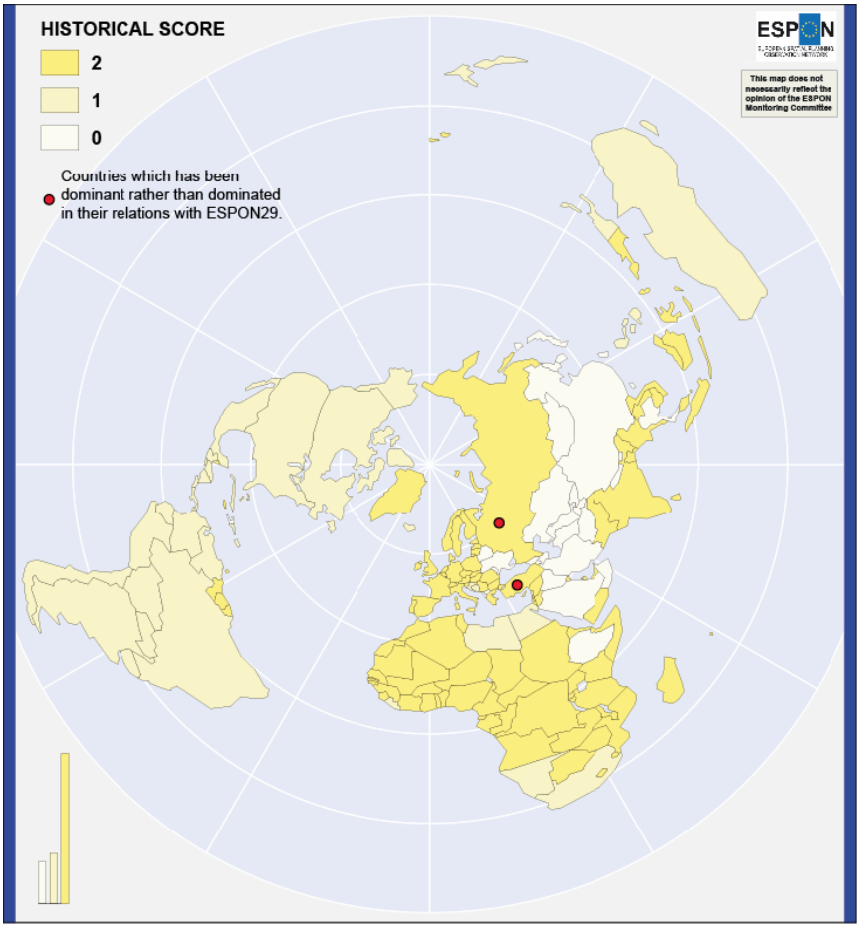


9.1.2 Colonial relations as factor of proximity with ESPON 29

The analysis of borders completes nicely the measure of proximity based on distance. But it has to be completed by an historical dimension because borders are changing through time. In the case of Europe, it is especially important to take into account this historical dimension as European people has dominated, at less for a while, most part of the World during the period of great expansion of the 15th-19th centuries. Thanks to the CEPII database, it is possible to measure for each couple of states in the world if they have been in historical relationships (mainly colonial) during the last 4 centuries and/or if they were always in colonial relationship in the more recent period (1945). An aggregation of the matrix of colonial relationships of the CEPII has been realised in order to measure for each state of the world if they have been in colonial relationships with at less one of the 29 states of ESPON, both in the long term and in the recent period. We obtain therefore a score of colonial proximity which can reach the values 0, 1 or 2 according to the fact that: the state was never in colonial relation with Europe (0); the state has been in colonial relation with Europe in the past but obtained its independency before 1945 (1); the state was still in colonial relation with

Europe in 1945 (2). Note that colonial relations are not always directed from ESPON states to the rest of the world and that, in the case of Russia and Turkey, it is precisely the reverse situation which explains their high scores of historical proximity. The resulting map 9-3 indicates clearly that this historical factor remains an important factor of ESPON influence in the world, even if – according to CEPII – we can observe an important group of states located on a diagonal from Ethiopia and Arabia to China and Japan which has never been colonial relation with ESPON countries. This result should be considered as preliminary and probably questionable as colonial relations are not the only modality of historical contact between countries. We can for example be surprised that the CEPII database does not mention any relations between Belarus and Ukraine on the one hand, and Poland or Lithuania on the other hand as they belong to common political construction in modern age. We can more generally consider that the focus on colonial relations is not sufficient to provide a perfect picture of relations between states in the past. If we have considered former commercial relation like "Silk road" we would probably not have obtained such lack of relations between Europe and central and eastern Asia.

Map 9-3 : Colonial score

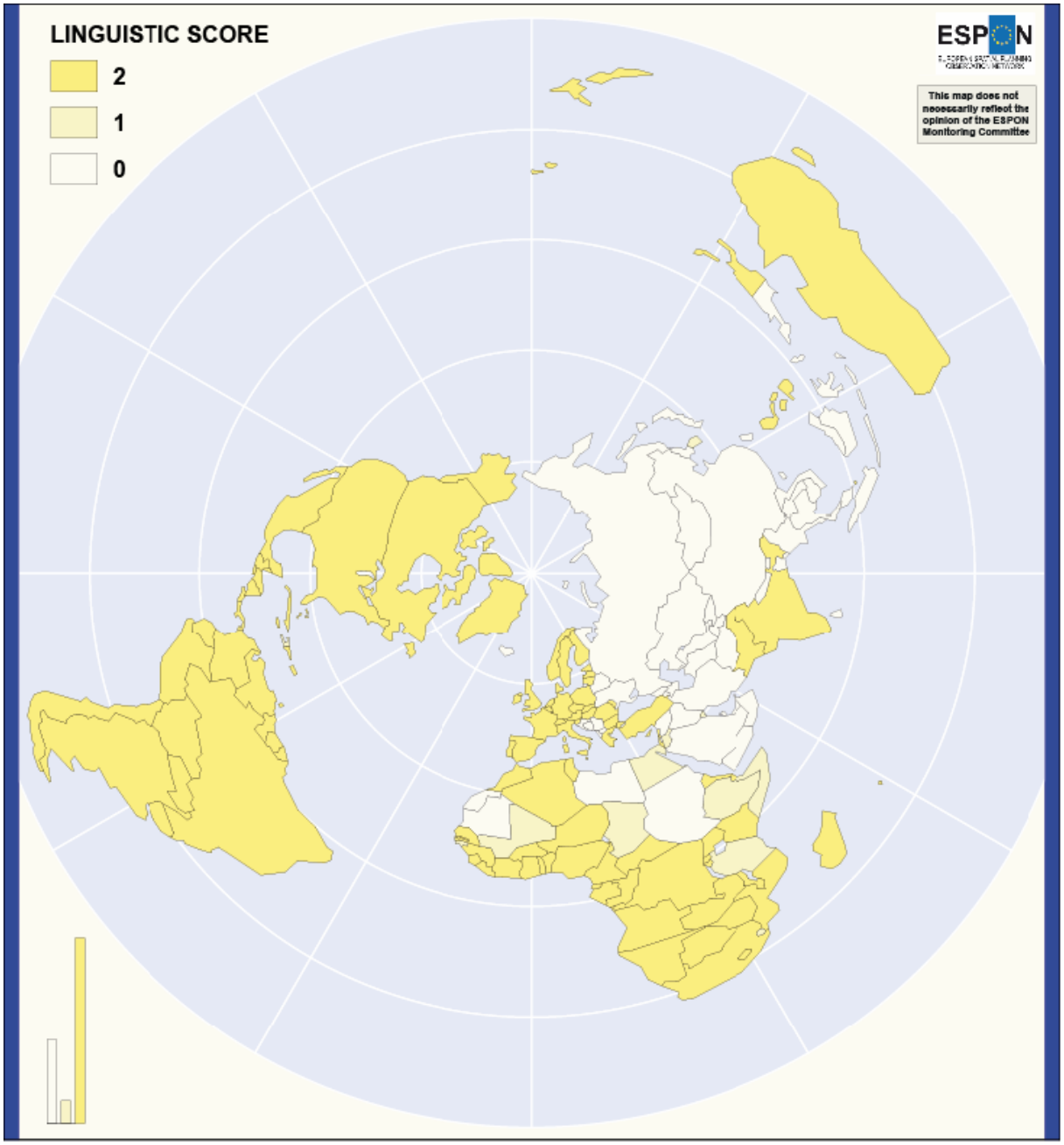


9.1.3 Common language as factor of potential interactions with ESPON 29

One major output of colonial relations developed between European countries and the rest of the world has been the diffusion of European languages, especially English, French, Spanish and Portuguese, in many other countries of the world where these languages can be the official ones or, at least, can remain spoken by an important part of the population. Whatever the criteria of interaction between states (migration, trade, culture…) is, a common language is a very precious advantage in international competition or, simply, for the development of partnerships and better understanding. Thanks one more time to the CEPII database which has established two matrixes of linguistic proximity between states of the world. The first one is based on the existence of a common official language which can produce multiple links as some states has several official language. For example, Cameroon has two official languages (French and English) which means potential connexions with 7 ESPON states which are officially speaking French (France, Belgium, Luxembourg, Switzerland) or English (UK, Ireland, Malta). The second criterion is based on common communication languages, official or not, which are identified by CEPII on the criteria to be spoken by at less 20% of the population. The CEPII consider here that two countries are potentially able to interact as long as they share at least one communication language. By aggregating the CEPII matrix, we have established a matrix of linguistic proximity between all countries of the world and ESPON members, following the same principle as for historical relations and ranking from 0 (no common language, official or not, with ESPON countries) to 2 (existence of at least one common official language and one communication language with ESPON countries). The resulting map is interesting as it reveals a large diffusion of European language all above the world except in Asia and Middle-East. But one more time, the results should be cautiously interpreted and some limits of the database should be pointed. For example, the language identified in Belarus and Ukraine are considered as different from language spoken in other ESPON countries but this result underestimate the great proximity between slave language and the fact that people from Poland or Slovakia can generally easily understand the dialects spoken in western parts of Belarus or Ukraine. We can also ask – despite the fact that it is not a politically correct question – if Russian language is really not spoken by minimum 20% of population in some new member states, especially Baltic countries. We could also consider that the aggregation of China, Hong-Kong and Macau in the same political units lead to a false conclusion concerning the lack of common language with Europe. It is certainly true that less than 20% of Chinese are speaking English. But it is certainly also true that more than 50% are speaking English in

Hong-Kong or Macau and that this language is commonly used in western cities like Chang-Haï.

Map 9-4 : linguistic score



9.2 Typology of ESPON countries, according to the air and trade flows

9.2.1 Methodology

Both typologies have been realized on the basis of a similar methodology. The data basis of the classification is a flow matrix of 29 ESPON countries x 168 countries of the world. Since it is difficult to classify countries on a so disparate basis, we transform this matrix into a 29 ESPON countries x 17 WUTS3 world regions matrix, which gives a more stable result. However, it is true to say that the geographical divisions we choose a priori does have a significant impact on our classification.

Our indicator is the share of each WUTS 3 region in the trade or airflow of each ESPON country, excluding the relations inside the ESPON area. We thus only evaluate the geographical orientation outside the ESPON space. However, the interpretation of such a classification is different whether the ESPON space represents a very high share of the air and trade flows: for some countries, extra-ESPON flows are so weak that the geographical orientation is not very significant.

The classification has been realized with a hierarchical ascendant cluster analysis with the Ward method. This method allows to avoid the classical problem of these kinds of cluster analysis, that is to say the formation of a very big group with an average profile. The number of types is a compromise between readability and richness of the information, since the loss of variance for each grouping does not present big gaps that could allow to choose on a more objective basis.

9.2.2 The typology of ESPON countries on the trade flows

The typology on the geographical orientation of trade flows of ESPON countries includes six types. The point of departure is a seven groups typology, where Malta forms a group in itself. This peculiarity is related to strong relations with Singapore. This is anecdotic and we opted to include Malta in the nearest group, that is to say, the south-western type (type 4).

The type 1 is the more American-oriented one, if we exclude the very marginal type 3. It includes United Kingdom, Netherlands, Germany, Sweden, Switzerland and Austria. The trade with Eastern Asia is also specific of this type.

Slightly less important, the type 4 groups south-western countries and Belgium. We find here a strong specificity of the trade with Africa, Middle-East and Southern America. On the other side, eastern Europe and Eastern Asia does not count much for this type.

Types 5 and 6 group new member states of central and Eastern Europe, which distinguish by the weight Eastern Europe in their trade (non ESPON Eastern

Europe, that is to say mainly Russia). For the type 6, the share of Eastern Europe is twice than for the type 5 : it includes Bulgaria, Slovakia, Lithuania, and Latvia still very linked to ex-USSR, as well as Slovenia, which keeps links with the rest of ex-Yugoslavia.

Type 2 only includes Greece and Finland, whose trade with Eastern Europe is still more than 20 % (less than types 5 and 6) : the second one with Russia, while Greece has strong relations with neighbouring countries (Albania, Yugoslavia).

Type 3 only includes Ireland, Norway and Luxemburg, whose trade is very northern-America-oriented : Ireland has become a workshop country which attract high US investments, while Norway exports a significant part of its oil to USA.

9.2.3 The typology of ESPON countries on the airflows

This typology gives a different picture of the geographical orientation of the relations between ESPON countries and the rest of the world.

We underline first that Luxemburg and Slovakia have not been considered, since all their airflows are oriented inside the ESPON space.

We also begin with a seven group's typology, and we then choose to put malta and Cyprus in the same group than Greece and Czech Republic, all countries characterized by the importance of relations with Middle-East and Northern Africa.

Type 1 includes United Kingdom, France, Belgium, Italy, Netherlands and Poland. They distinguish by the weight of their relations with Northern America. Only type 3 (Ireland and Norway) has a higher proportion of relations with Northern America, but with a very weak volume.

Type 2 is the second major type: it includes Germany, Sweden, Finland, Switzerland and Austria. Relations with Eastern Europe are the most specific ones, with a similar share to the links with Northern America.

Type 4 groups both countries of Iberia peninsula, which have strong relations with Latin America.

Finally, type 6 has nearly sole relations with the rest of Eastern Europe, mainly Russia and ex-Yugoslavia: it includes Bulgaria, Romania, Baltic countries and Slovenia.

9.2.4 Conclusion

We find in both classifications strong similarities: Eastern ESPON countries which keep strong relations with ex-USSR and ex-Yugoslavia; inside these Eastern countries, central eastern countries distinguish by the lower weight of the ex big soviet brother; the Iberia peninsula keeps strong relations with Latin America; some countries are characterized by the importance of the relations with Northern America (United Kingdom, Ireland, Norway).

Map 9-5 : typology of European countries on the basis of airflows

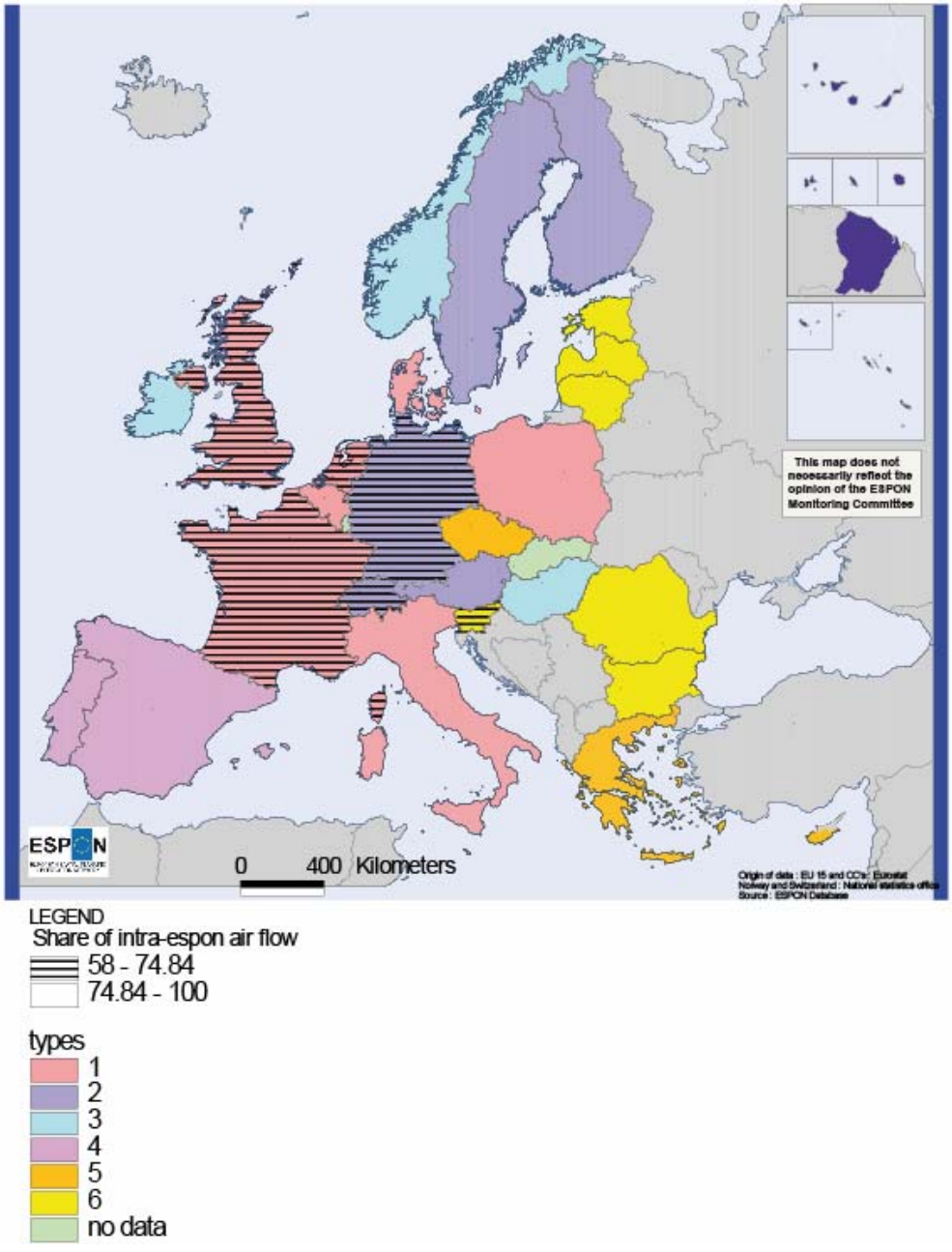
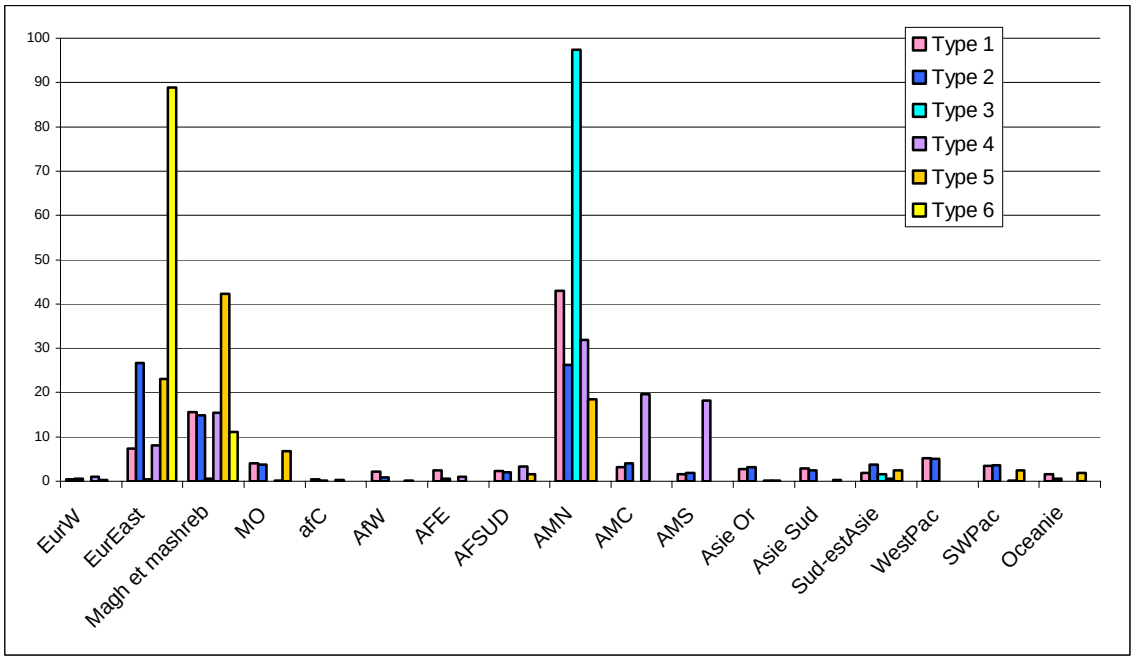


Figure 9-1 : Share of different WUTS in the extra-espon airflows of the groups of country



Map 9-6 : Typology of European countries based on the trade flows

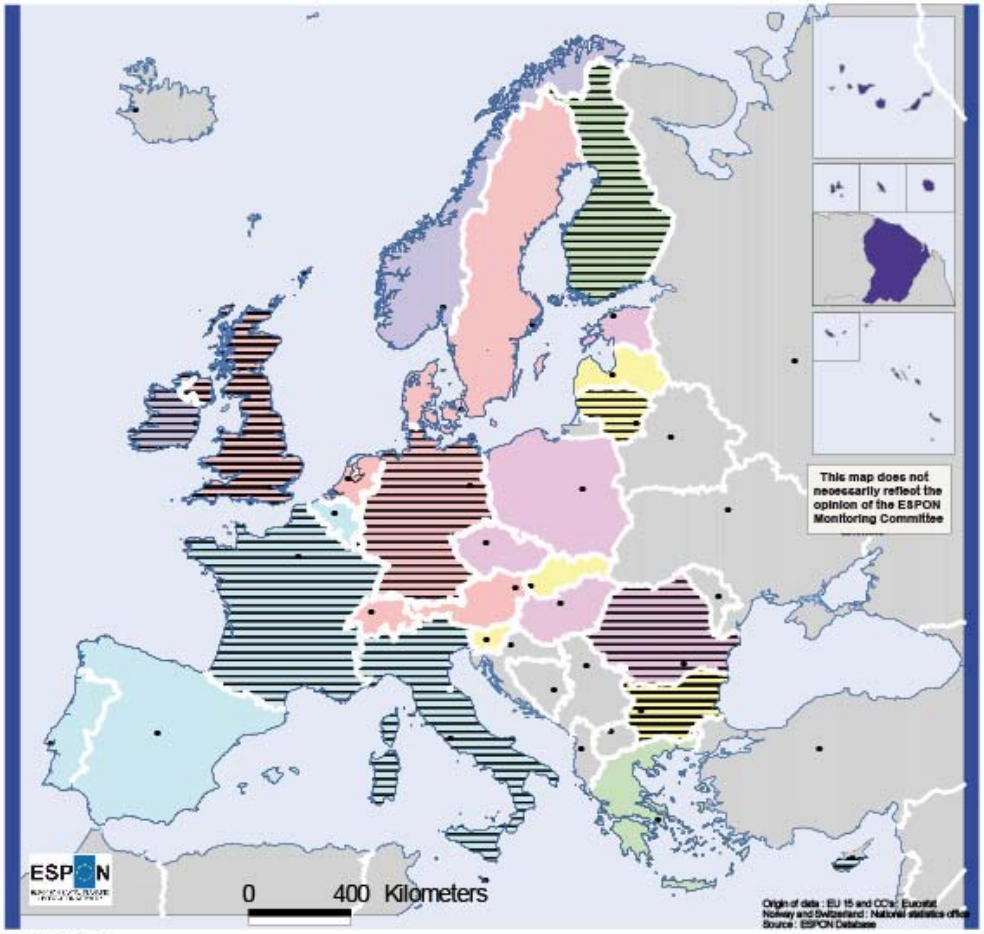
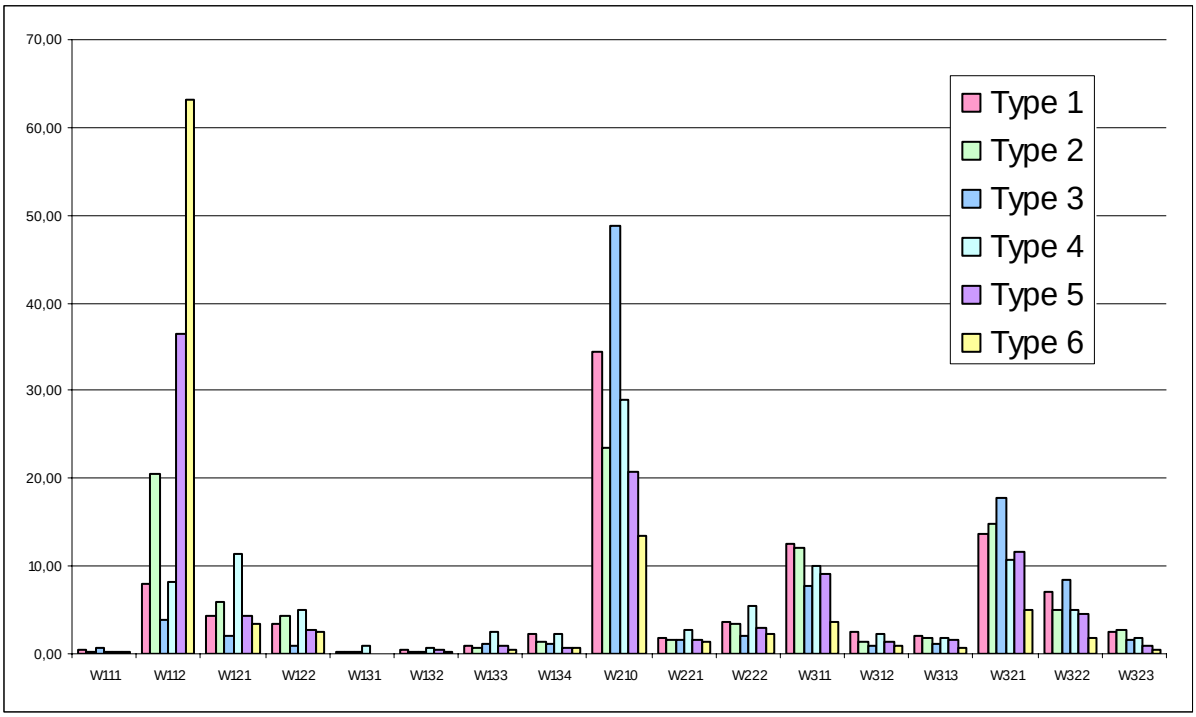


Figure 9-2 : Share of different WUTS in the extra-espon trade of the groups of country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Type 1
Type 2
Type 3
Type 4
Type 5
Type 6

10 ENVIRONMENT THEMATIC ANALYSIS

10.1 Romania : future eastern EU border environmental Challenges

Danel CONDORACHI
TIGRIS

The attempt to make a brief presentation of these challenges can make one overpass aspects that may be important later, when we envisage these problems from a systemic point of view. However, as far as we can foresee, we will sketch the most important ones. There is no specific order or classification, just a mere presentation of them.

10.1.1 EU's border security.

This is a major issue because the migration pressure may increase from eastern European countries (Moldova, Ukraine, all other European countries of former USSR) and from Middle East and Asia. The causes are mostly economic (income opportunities, illegal work, generous asylum system, etc) but also political. The Romanian EU future border is presently under an elaborate reform but still has to undergo enhancements regarding technical infrastructure, policies and regulations for reducing human smuggling and illegal immigration which tend to be more and more ingenious.

This study outlines some examples of routes frequently used for people smuggling. Migrants from Asia mainly use the route via Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan to Russia and from there, via Ukraine, Slovakia and the Czech Republic, to western European countries or even further to the United States and Canada. At the same time, the Balkan route from Asian countries via Iran and Turkey and from there, via Balkan states, to Western Europe is used for the smuggling of migrants as well as illegal goods such as drugs, firearms, etc.

It is currently estimated that at least 10% of all the migrants who arrive in the member States do so through the Balkans. This extensive use of many of the Balkan countries to enter the European Union is an issue that should be monitored very closely, particularly in light of the fact that some of these countries will become part of the European Union in a near future (EUROPOL).

On the other hand, it is necessary to develop specific measures for checking and banning "official" hazardous transports viewed as "harmless" exports from or into EU (nuclear or chemical wastes, precursors, byproducts, biological materials, narcotics, other goods etc) that may lead to import or export insecurity, public annoyance etc.

10.1.2 Air quality.

European regulations for air quality have been improved. The newcomers in EU and their eastern neighbors have to respect these regulations and directives for a longer period of time due to their need of industrial facilities modernization, energy efficient technologies implementation, etc. Former soviet European countries are largely dependant from Russian Federation for their fossil fuels imports and for their attempt to overcome their last decades' economic decline will continue to stick for some time to their inherited technologies. Switching to cleaner fuels like natural gas will increase their dependence from Russia. Alternate energy sources will be delayed due to their financial problems (or difficulties in acceding international credits or funds) in order to make huge investments like in nuclear energy or ecological solutions (hydroelectric, solar, wind, hydrogen, etc).

Thus, the pollution of the air is still worrying, especially in urban areas and industrial platforms. Industrial decline has caused a substantial reduction in emissions of chemicals in many European countries of former Soviet Union. But air quality has not improved that much in most cities. The main reasons are the very sharp growth of private cars (in Moscow, for example, the number has doubled in the last few years) and the poor quality of the domestically produced petrol they use. Enterprises also pay practically no attention to environmental protection measures in the current economic hardships. Their purification equipment is often obsolete and they often cannot afford to replace it.

10.1.3 Pesticides.

The production and use of pesticides in Eastern European countries increased since the 1960s and their use peaked in the second half of the 1980s. They became too expensive in practically all countries of the region with the onset of economic reforms. But fortunately, their use is now gradually decreasing.

Nevertheless, pesticide concentrations in soils remain high in many places. A selective review of soils in the spring of 1994 by Russia's State Committee on Land Resources showed that about 9.4 % of samples were polluted with pesticides above safety levels. The situation in the Aral Sea basin is very serious:

the Uzbek Ministry of Nature Protection reports that concentrations of pesticides in this area's surface fresh waters on average exceed safety norms more than five times.

Socialist, collective agriculture required large, homogeneous fields which could be cultivated by large machines. Pesticides were mainly applied from the air, which often meant they were widely spread. Soil in the fields of Uzbekistan, for example, was quite commonly contaminated by DDT and other chlorine-containing pesticides at levels 100 to 300 times the MPC. The maximum, in the Termez region, was 4,800 times the MPC. Concentrations in soil in fields used for agricultural planes exceeded the MPC level by 25,000 to 30,000 times. Recently these concentrations have gradually decreased.

In Moldova, also in Ukraine noteworthy is that, in the recent years, chemical fertilizers use has been substantially reduced. There is little monitoring of large-scale ecosystem impacts of pesticides in the Republic of Moldova and recently a special monitoring program was set up, which needs financial and technical assistance.

Specialized places for storing and processing pesticides on collective farms were very rare. Often, they did not even have a primitive roof. In many countries old pesticides present a very serious problem. The Ministry of Environmental Protection of Ukraine says there are about 10,700 tons of them on farms, while Russia has about 40,000 tons spread throughout the country (an amount roughly equal to the chemical weapons stored there) and there are thousands of tons in Azerbaijan, the Central Asian Republics, Moldova and elsewhere. They are usually stored in very poor conditions. There are simply no facilities to transport or use them safely and they often penetrate to groundwater, causing serious contamination.

10.1.4 Wastes.

The mountains of solid wastes and lakes of liquid ones, near most heavy industrial plants in Moldova, Ukraine, Russia, Kazakhstan and other countries are probably the most visible environmental legacy of the former system. Storing wastes in open ponds or on the ground (with practically no protection against percolation) was common.

Ukraine's extremely serious problems exemplify the situation for every country of the former Soviet Union. Its Ministry of Environmental Protection reports that about 4 billion tons of toxic wastes - containing high concentrations of mercury, cadmium, lead, copper, nickel, vanadium and other heavy metals - have already

been accumulated there. They are often stored in absolutely inadequate conditions. In many places, especially in the east of the country, aquifers are already contaminated and inadequate for water supply.

The country produces about 100 million tons of toxic waste a year. Although the output of metallurgical and chemical industries was cut by about a half between 1992 and 1994, their generation of toxic waste fell by only 25 to 30 per cent. As industry declined, the recycling of toxic wastes also fell down: in 1994 it reached only 41.3 per cent of its 1990 level.

The Azerbaijan Government reports that 97 % of waste goes to dumping sites with practically no groundwater protection. Often toxic wastes are dumped at sites designed for domestic rubbish. There is practically no control. Meanwhile in Uzbekistan, its Government adds that more than 2 billion tons of wastes have been accumulated in dumping sites (1.3 billion tons from the mining industry). These wastes often contain high concentrations of heavy metals, such as lead, mercury, cadmium, arsenic, nickel, zinc and copper amongst many others. Practically none of these sites are ecologically safe: leakages and the percolation of pollutants are observed everywhere.

The list could be endless, including all countries of the region. The situation is very serious in many parts of Russia (Urals, the Moscow region, Kuzbass, to name just a few), Kazakhstan, and practically everywhere throughout Eastern Europe (after Ruben Mnatsakanian, Budapest).

10.1.5 Radioactive waste.

There is an 11 ha radioactive waste disposal site at the special Centre for Radioactive Waste in the eastern part of Chisinau (Republic of Moldova). Only low and medium-level wastes need to be decommissioned, causing no special problems. A significant increase in waste generation appears between 1980 and 1985 for Co-60 (factor of 7) and C-14 (factor of 5). Between 1985 and 1990, a significant increase was registered: by a factor of 3 for Sr-90, by a factor of 6 for Cs-137 and by a factor of 8 for Pu-239. There is a gradual significant decrease over the whole period only for Ra-228 and Tl-204 (Source: UNDP Moldova 1993 - Studies carried out by Moldavian consultants).

Nuclear power is an important part of the energy complex of Ukraine. At present, nuclear energy output equals 75,239 million kilowatt-hours, which is more than 43 % of the total energy production. 14 energy units are in use in 5 nuclear power stations (NPS). 4 units at Rivenska NP and Khmelnitska NPS are under construction. 2 energy units at Chernobyl NPS (units n° 1 and n° 2) are being

prepared for shutdown. Chernobyl NPS ('Ukrittia'), uranium or mining and processing enterprises close to Zhovti Vody and research reactors in Kyiv and Sevastopol are under constant surveillance.

Ukraine does not have any national or regional storage for spent nuclear fuel, except one storage place near the Chernobyl NPS. Spent nuclear fuel from an NPs with VVER-type reactors is transported to Russia for recycling and burial. Work for the construction of storage facilities for spent nuclear fuel has begun at Zaporizhska NPS. A complex program of solving Ukrainian NPS nuclear fuel cycle problems is being prepared. A major part of this program is dedicated to RW problems (source: UNEP).

For Ukraine, the nuclear accident in Chernobyl (1986) and its effects throughout Europe are already famous and need no further comment. Financial aid for Ukraine for non-nuclear energy alternative is also well-known as well as logistics for neutralizing the damaged facility.

There is no organized disposal site for hazardous industrial and chemical waste. Most toxic industrial wastes are stored on industrial sites while awaiting a solution. Currently, only 5% of the industrial wastes generated annually are sent to proper disposal sites. Three quarters are dumped informally on communal tips, mixed with municipal wastes. Surface water and groundwater have been polluted to an unknown level. There are many concerns over illegal and uncontrolled dumping of both municipal solid waste and industrial wastes at numerous locations (R. of Moldova, Department for Statistics, 1997).

10.1.6 Oil.

Pollution by oil and its products by the Soviet/Russian oil industry is a permanent disaster. The majority of pipelines were built in the 1970s and 1980s, in a great rush, in permafrost or acid peat soils in east Siberia, and they very frequently corrode and discharge oil. Only major incidents (like last year's disaster in the Komi Republic) attract international attention, but smaller leakages are very common. There are about 60,000 minor leaks from Russian pipelines every year, and the annual loss of oil and oil products is estimated to reach at least 3.5 per cent of total extraction. In eastern Siberia alone, according to the estimates of the Security Council of the Russian Federation, the leaks reach between 3 and 10 million tons of crude oil each year. Arctic ecosystems have very little ability to purify themselves; so oil, heavy metals, radionuclides and other pollutants remain for decades if not centuries.

Oil pollution of the seas, especially in the Arctic, also reaches high levels. The Barents and Kara seas are heavily polluted as a result of many violations of technical rules during extraction and transport. As an example, 10 % of the bottom sediments of the Ob estuary, where sturgeons used to winter, are now made up of heavy fractions of oil. The situation is not much better in Azerbaijan: bottom sediments in Baku Bay, its Government reports, are extremely polluted.

10.1.7 Chemical weapons.

Appalling facts on the production and storage of chemical weapons in Russia (kept absolutely secret during Soviet times) have recently become known. Seven factories produced chemical weapons in five cities - Berezniki, Chapaevsk, Dzherzhinsk, Volgograd and Novocheboksarsk. The last four are located on the banks of the Volga river which is Europe's largest river and the source of drinking water for millions of persons. Production, testing and storage of chemical weapons were accompanied by numerous violations of safety rules. In 1990-1992 - before it signed the International Convention on Chemical Weapons - Russia announced that it had 40,000 tons of poisonous substances, including 32,000 tons of phosphorous-organic compounds.

The problem of how to destroy the weapons is still unresolved because public protests have blocked the use of a specially designed factory at Shikhany, near Saratov, also located on the banks of the Volga. In the past, large quantities were commonly dumped in the sea. Data collected by L. A. Fedorov, in his 1995 book (Undeclared Chemical War in Russia: Politics against Ecology), shows that the dumping took place in hundreds of locations in the Baltic Sea, Black Sea, Barents Sea, Kara Sea, White Sea, Sea of Japan, Sea of Okhotsk, and probably others to. He also produced some evidence that chemical weapons were buried in rivers and peat bogs throughout Russia.

10.1.8 Rocket fuel.

The Soviet and Russian industries produce an extremely toxic substance - non-symmetric methylhydrazine – to be used as a liquid rocket fuel. Like chemical weapons, this substance belongs to the first class of toxicity. During the course of a launch, unspent fuel enters the atmosphere with discarded sections of rocket. Considering that there were thousands of launches in the former USSR and Russia, pollution of vast territories in the Archangelsk region, in Gorny Altai and in Yakutia is now a serious problem, according to Prof. Alexei Yablokov, head of the Interagency Committee on Ecological Security of Russia.

At present, there are about 200,000 tons of rocket fuel in store in different facilities in Russia, that is five times the amount of chemical weapons. Production, storage, transportation and utilization of fuel may have serious ecological consequences, as yet barely known to the public. For example, according to an unofficial source, the mysterious death of more than 2 million starfish and thousands of other species in the White Sea in 1990 is linked with an unsuccessful rocket launch from a submarine. The rocket was destroyed and fuel entered the sea with devastating ecological consequences. The official commission that investigated the case immediately after the incident said that the causes of the deaths were 'not known'.

In addition, we can notice the presence in Transnistria of the 10th Russian army which can be viewed as an instability factor in the area which makes a political and maybe ecological pressure on Moldova and Ukraine.

10.1.9 Nature, forest and biodiversity.

The natural steppe ecosystems are dominant in Ukraine. The scattered and small remains of virgin and old fallow steppes on the slopes of river valleys, ravines, high banks and sea limons continue gradually to degrade under the impact of various anthropogenic factors (cattle grazing, construction, recreation, pollution, destruction of vegetation sites, etc.). This tendency has been somewhat reduced since cattle grazing has become less intensive because herds have considerably diminished in the agricultural enterprises. However, large natural pasture zones in the steppe strips are in the third and fourth stages of degradation. If the isolated steppe remains in this condition for a prolonged period of time, the result will be an irreversible loss of biodiversity. More and more botanists express concern that species and regional specificity of the steppe flora might be in decline, and worry about the introduction of species related to human activity into the local flora. Evidently, these phenomena are most clearly pronounced in the southern and eastern parts of Ukraine.

In terms of forest areas and timber stands, Ukraine is experiencing a shortage of forests (on 1 January 1996, the forest resource area in Ukraine is 10.8 million hectares, 9.4 million hectares of which were covered with forest vegetation and percentage of forest area is 15.6%).

In Moldova forests cover 9.6% of the territory, 86% of these are planted and the rest are steppe formations generally transformed in arable land. Natural formations represent only 4% of the total cover. The largest forests are located in central and western regions (Codri). Forest cover is low everywhere else. Moldovan forests have the highest proportion of broadleaved species of any

temperate zone country (over 99% of the growing stock of 35.3 million m3). Oak (Quercus robur, Q. petraea and Q. rubescens) is the predominant species (52% of area). The second most common species (26%), namely robinia (Robinia pseudoacacia), has been introduced to stabilize poor soils. The rest covers a wide range of other indigenous species, such as ash, beech, lime, maple, hornbeam, birch, and poplar. The 1995 survey undertaken under the Convention of Long-range Transboundary Air Pollution showed that 25.6% of trees were healthy, 40.4% were damaged (classes 2-4), and 1.0% were dead. 43.0 % of oaks and 27.6% of sessile oaks were affected. In comparison with 1994, the percentage of trees showing over 25% defoliation increased. This situation can be explained by excessive drought during the past 15 years and the effects of air pollution. Moldovan forests are also vulnerable to insects and fungi. (Source: DEP, National Strategic Action Programme (1995) and the Red Book for Moldova).

The human pressure upon natural resources is high and requires large funds to protect, to make a sustainable development and to make eastern countries' economies more efficient. Synanthropization in the Republic of Moldova and the extensive anthropogenic activity challenged the invasion of anthropophyle (synanthropogenic) species in degraded agrarian and natural ecosystems and brakes the processes of natural development and restoration of natural biocenosis.

On the other hand, over 12,000 species of plants and trees were introduced on the territory of the Republic of Moldova. Flora of the republic's forests is characterized by a high proportion of introduced species (38.7%) from other floristic regions.

Concerning wildlife we can appreciate that, especially for birds in transit, the migration channels represented by the big rivers like Prut (Romania-Moldova border), Danube with Danube Delta, Dniestr, Dniepr, Volga, etc. may be natural highways to spread recent biological threat of the bird flu inside the continent.

10.1.10 Water.

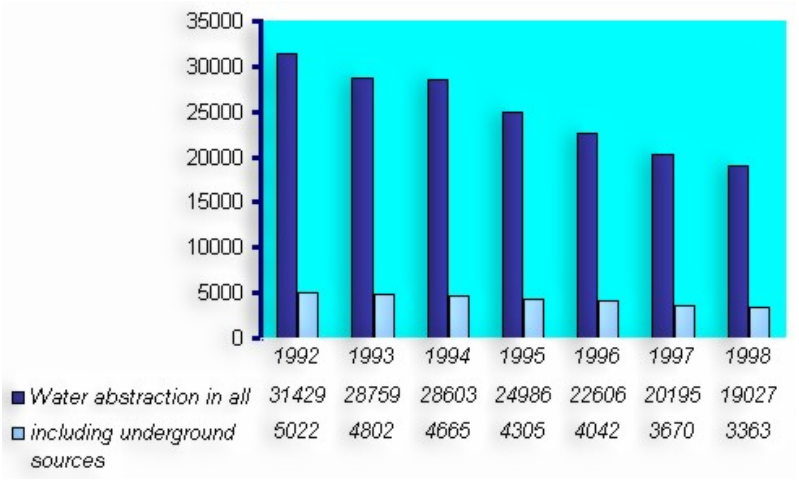
The Republic of Moldova as well as most of Ukraine is located in a region of insufficient precipitation with a torrential regime and has limited water resources. For Moldova medium and moderate droughts (respectively 70% and 90% of normal rainfall) have been reported 40% of the time over the past 50 years; severe droughts (less than 45% normal rainfalls) 4% of the time only (for Moldova).

The available overall aquatic resources in Moldova represent 6.3 billion m3 in a typical year, 4.9 billion m3 in a dry year and 3.4 billion m3 in an extremely droughty year. About 3.2 billion m3 of water are needed annually for all national economic sectors and for the supply of drinking water - of which about 2 billion m3 are used at the Moldovan Thermal Power Plant. The rest (1.2 billion m3) is used as follows: 63% for agriculture, 15% for household water supply, 14% for industry and 8% for building, transport and other uses. The Republic draws 56% of its water from the Dniestr River, 16% from the Prut River, 8% from small rivers and 20% from underground resources (these data do not include phreatic water sources from rural regions).

Likewise, for Ukraine the retrieval from water bodies comprised 19,027 million m3 of water in 1998, which is 6% less than in 1997. The withdrawal of underground water was 9% less and reached 3,363 million m3.

The intake of sea water was over 790 million m3. On the whole, the share of irreversible water use in Ukraine was 6,946 million m3 or 36% of the total intake. From this quantity of water, 4,635 million m3 are lost in the process of its use.

Figure 10-1 : Dynamics of water abstraction from surface and ground water systems (1992-1998) (1,000,000 m3)



In 1998, 13,044 million m3 of water were used, which is 1,685 million m3 (11.4%) less than in 1997. The main reason of this decrease in water retrieval and use volumes is the decline of productive activities in Ukraine. Introduction of payment for special use of fresh water resources was one of the factors influencing the volumes of water abstracted and used (GRID-UNEP – 1999).

10.1.11 Land resources.

For the best part of European former Soviet countries, land is an important asset. Due to improper exploitation during communism different types of land degradations are extensive.

As is shown by data released by the State Committee for Statistics of Ukraine, the land resources of Ukraine amounted to 60.4 million hectares at the beginning of 1999. Agricultural land covers 72% of the country's surface, out of which 69% is arable land, including 54.4% of tillage, 0.4% of virgin land, 1.6% of perennial plantations, 3.8% of hayfields and 9.1% of pasturelands. A large area – that is 159,000 hectares - is occupied by radioactively contaminated arable lands, which are not used for agricultural production, plus 161,400 hectares of deteriorated land.

In Moldova, torrential rain affects about 85% of agricultural land, i.e. that located on slopes, covering roughly 2 million ha. According to data from 1993, 886,000 ha, or about 25.8% of the total land area including agricultural land, have been affected by different forms of primarily water erosion. More than 310,000 ha are considered to be eroded to a medium to high degree. The rapid soil erosion has serious implications for the long-term sustainability of agricultural production in Moldova, as the natural regenerative capacity of soils on slopes is low. Moldova's soil has also some unusual chemical features, with a high level of fluoride in the north-west, an iodine deficit in the north, and a manganese deficit in other regions. Reportedly, these characteristics, combined with the heavy application of mineral fertilizers including traces of heavy metals, have led to special reactions and conditions. As a result, the humus content of the soils in question has dropped sharply, leading to a negative balance of nitrogen and phosphorus. Additionally, a recent study from the Centre for Hygiene and Epidemiology shows that 1.4% out of 660 soil samples did not meet the standards because of high nitrate (5 samples) or metal content.

10.1.12 Black Sea and Sea of Azov.

The Sea of Azov and the Black Sea are the most distant Seas from the ocean in the world, and the surface of their catchment basin largely exceeds their own areas. This has conditioned their extreme sensitivity to the effects of human activity. What is more, during the last decades, there took place an explosive development of the eutrophication processes, pollution of the sea shelf by toxic agents, sea shore abrasion, loss of biological diversity and fish resources, together with a considerable waste of recreational resources.

The Azov – Black Sea Basin includes 98% of Ukrainian and Moldovan drainage network. The catchment basin of the Sea of Azov and Black Sea covers 2.4 million km3. The coast of the Black Sea and the Sea of Azov constitutes a considerable part of the southern borders of Ukraine. The total length of the coastline is more than 3,000 km. The total length of the Ukrainian coastline within the limits of the Sea of Azov and Black Sea is nearly 3,000 km, while Romania has only 245 km.

Intensive economic development has led to considerable ecological pressure on the ecological systems of the Black Sea and Sea of Azov. A pollution level of the above seas exceeding the assimilating capacities of the seas' ecological systems, introduction of alien biological species, utilization of the natural sea resources in a volume exceeding their potential, implementation of ecologically hazardous technologies of sea resource development, transportation and reloading of sea cargoes, etc., have brought about great changes in the natural conditions during the last thirty years. Microbiological pollution of the coastal waters by the waste of municipal enterprises often makes this water unfit for recreational use. Wave abrasion aggravates the dangerous geological processes along the entire seashore. One example of negative effects upon the sea environment is the dredging and hydro-mechanical works, which are conducted in the territorial waters and on the Black Sea shelf.

For Romania and international ecological organizations, the recent proposed construction of the Bystroe channel in the Danube Delta is of great concern. That may have important ecological implications. The proposed project could damage the unique Danube Biosphere Reserve, which received UNESCO status in 1991 and is part of RAMSAR convention. Experts estimate that, if this project is completed, the Danube Biosphere Reserve will be partially cut off. Over 1,500 hectares of land may be lost together with some forested areas.

In Ukraine another important problem of the sea coast zone is seashore erosion. According to estimates, about 2,600 km of the coastline has experienced the effects of erosion and washing-away of soil. Around 100 hectares of land are washed away annually, which prevents its useful utilization. That causes a shrinkage of territory available for town planning and tourism development and, in some cases, negatively affects the coastline's ecological system. The measures to protect the seashore are fragmented and do not create a joint protection system all along the entire Ukrainian coastline. Following the adoption of several decrees of the government, about 150 km of the shore have been reinforced.

Same problems can be identified on Romanian shore. Also most remarkable are the beach erosion, cliffs degradation by abrasion and even Constanţa city area instability.

The most sensitive area to the anthropogenic pressure is the coastal zone of the Black Sea and Sea of Azov, especially the port areas and river estuaries along with the large metropolitan areas located close to the sea. A considerable contribution to the pollution of the coastal zone of the Black Sea is made by the industrial enterprises situated on the coast, which discharge the sewage into the seas.

The state of the Black Sea biological resources does not show any tendency towards an improvement. The poor economic situation in the country not only makes any improvement impossible, but also the maintenance on a necessary level of scientific research activities, which could monitor and forecast the development of the state of the biological resources, and make possible the development of new approaches in artificial sea-farming of various species of fish in the sea industry.

10.1.13 References

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11 EUROPEAN NEIGHBOURHOOD THEMATIC ANALYSIS

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LADYSS

11.1 The Neighbourhoods question in the EIW programme. Triad, Globalisation, Regionalisation

How is the Neighbourhoods question related to the Europe-In-The-World concern? In order to make it clear (even if a little too simple maybe), we can assume that, from a geographical point of view, the world economy is going three territorial paths. The first one is the well-known Triad, which is ongoing for numerous decades. It is based on the long run dominance of Europe and then Northern America, caught up by Japan and more recently by the Asian Tigers. This view focuses on the leading transnational corporates and especially TNC of the northern leading countries, linked by a mix of both competition and cooperation. This view emphasizes the gap between the North and the South – except a few Tigers.

The second one is the Globalisation view, driven by the revolution of transports and communication and the general surrender of tariffs. In this highly accessible world, the key-word is networks, the main territories are gateway cities. This view emphasizes the actual or potential connection of emerging countries in the South.

The third one is Regionalisation, due to the advantages of proximity (especially since the rise of oil price and – maybe – the end of decreasing travel costs trend). This view focuses on the need for re-regulate a world economy that has been developing during the two last decades through a huge deregulation pattern. The regional scale (i.e. Europe, Northern America, Latin America, South Asia, Eastern Asia etc) could be a relevant scale for new public policies, due to complementarities of concerned national economies, common environmental stakes, shared cultural values, historical links, migratory links, and any other assets for win-win co-development. In several of these Regional cases, a leading economy pulls the developing countries of its neighbourhoods. The "North-South regionalism" notion means complementarity between rich countries with a great deal of capital, technology and know how on the one hand, and on the other hand developing countries with large – and more and more educated – labour forces (which are dramatically lacking in Japan or Europe for instance) and rapidly growing markets.

Of course these three paths are relevant, and certainly intermingled. The goal of this chapter is to show that the third one – Regionalisation and Neighbourhoods – is certainly the less known but the surging one.

Table 11-1 : The three territorial paths of the world economy

	Triad	Globalisation	Regionalisation
time	long run chronology (2 centuries)	modern background (1/2 century)	rising issue (1 decade)
driving idea	power	openness, accessibility	Need for re-regulation of the world economy. New (possible) scale of public policies
driving forces	leadership succession in time: Europe; USA ; Eastern Asia	-revolution of mobility, 'synchronisation' of world economy diffusion of development	valorisation of proximity for both economic development and policy making
principles of organisation	space shaped by large firms (mix of competition and cooperation)	networks	polycentrism
relevant territories	North integration vs. South marginalisation	gateway cities	Neighbourhoods, North-South regionalism

The table 11-2 highlights the way one can assess Regionalisation. One can use economic, cultural, environmental and political index. These index show:
-the convergence or divergence of structures (for instance does the level of economic development of the Northern and the Southern shore of the Mediterranean, converge / or diverge?)
- the links between the countries that make up a Region. Here the question is: do exchanges within the Region grow quicker or slower than exchanges between this Region and the rest of the world?

In the case of the European region (Espon space + surrounding countries, including Russia and Caucasian states, Mediterranean states and Middle East), we address here two questions: does EU economically and socially integrate its neighbourhoods more and more, or on the contrary are we experiencing a growing divide? Is the answer the same of the eastern and on the southern sides of Europe?

Table 11-2 : The index of regionalisation

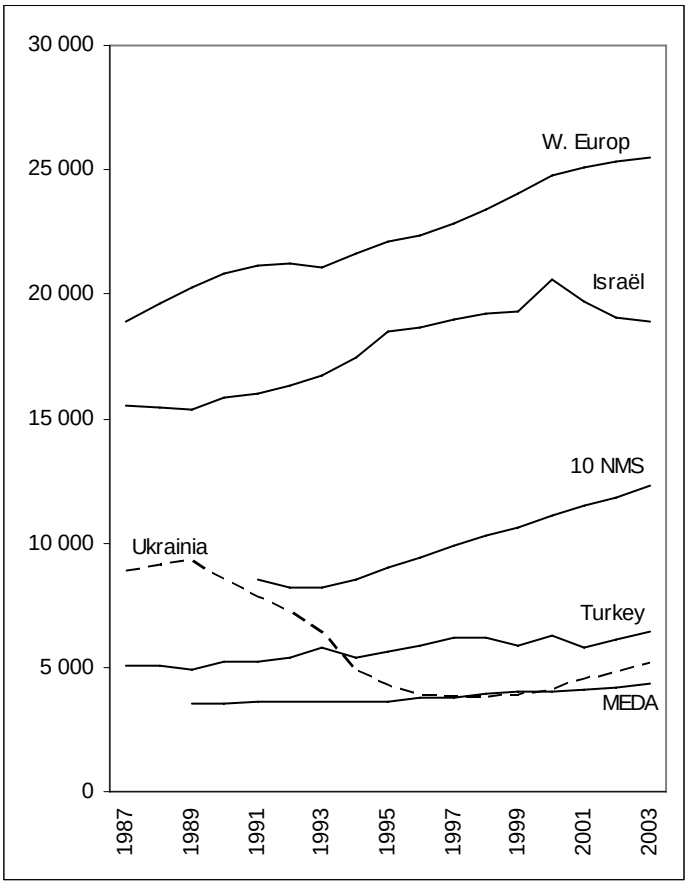
	STRUCTURES	FLOWS
economy	. Level of development: continuity rather than discontinuity . Evolution of development : convergence rather than divergence . Complementarity rather than competition	. Quicker increase of economic regional exchanges (intra-zone) than at global scale (inter-zones) . Important intra-industrial exchanges, rather than international division of labour (inter-industrial exchanges) . "North-South regionalism": South = increasing labour forces & markets, lack of capital and technology; North = shortage in labour forces and markets, lot of capital and technology
culture	. Presence of regional foreign people of the Region among local population	. Workers; students ; tourism ; retirements : Regional migrations bigger than global migrations . Diffusion of press and TV programs
environment	. Common threats	. Interaction of pollutions
policies	. Common values . General agreements (e.g. Free Trade Areas) . Common architecture of education & diplomas mutual recognition (e.g. "LMD"-Bologna process) . Common institutions and common representation	Coordinated management of Regional public goods : . justice and security . transports and planning . education exchanges . gestion of environmental crisis, etc.

11.2 The Regional economy. West-East integration, North-South divide

11.2.1 Structures – GDP

On the long run (half a century), disparities have not increased between the European economy and the southern Mediterranean one. But the economic development of this southern shore has gone badly in the very last decade. The recent evolution of GDP – were it currant dollars or PPP – shows that the region is experiencing a North-South divergence rather than a convergence. The 10 new member states (NMS) are (slightly) filling the gap with Western Europe, whereas the MEDA countries are clearly experiencing an increasing gap. The other Mediterranean countries, that is Turkey and Israel, are in between. After a terrible decline since the end of the 19980ies, NIS countries such as Ukraine have been recovering a little for a couple of years. In a word, during these recent years, the worst figures concern the MEDA countries.

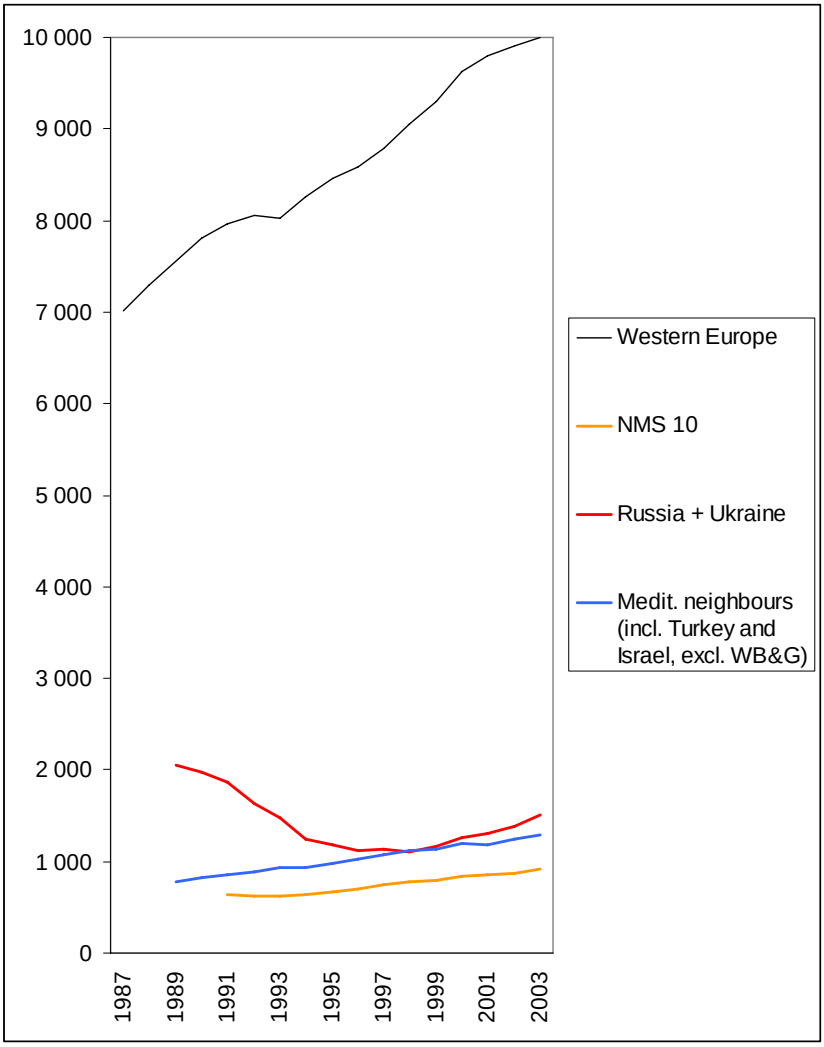
Table 11-3 : GDP per inhab. (PPP, constant 2000 US$)



Note. « Western Europe » : UE15 plus Switzerland and Norway. « 10 NMS » : new EU member states (2004). « MEDA » (excl. West Bank and Gaza) : Morocco, Algeria, Tunisia, Egypt, Jordan, Lebanon, Syria. Source : World Bank

Nevertheless, Southern neighbourhoods should not be considered as a derelict area for Europe. Consolidated as one general sub-region, the Mediterranean neighbours (i.e. Meda countries + Turkey and Israel) represent a bigger economy than NMS's, and almost as big as western NIS including Russia and Ukraine (figure 11-1). This means that, in the framework of the actual and potential North-South regionalism, the Mediterranean neighbourhoods has to be considered as a very relevant potential economic partners for the EU.

Figure 11-1 : GDP (constant 2000 b US$)



Source : World Bank

11.2.2 Flows - Trade

11.2.2.1 Links grow eastward and decline southward

During the last fifteen years the conditions of economic integration in the region have considerably increased: end of Comecon, recovery after the end of the Yugoslavian war, Barcelona Process and Association Agreements, generalisation of economic strategy based on international exchanges rather than on autarchy (even in Syria). Still, is the UE commercially rather linked to its close neighbours, or is it more and more related to remote industrial and emerging countries? Do we really experience the consolidation of a Euromediterranean Region from Morocco to Russia polarised by Western Europe? Or rather a commercial geography lead by remote networks connecting the poles of the Triad?

The answer is both. Table 11-4 deals with EU15's trade of goods since 1980. It shows that almost a half of the EU15's trade is made with "neighbours" – "neighbours" in a wide sense, CEEC included. CEEC are more and more linked to the Western Europe: they represented 3% of UE's trade in the 1980s, they represent today more than 11%. Should we add Switzerland and Norway and Russia (since commercial partnership between EU and Russia has risen during the last decade), what could be called the European continental integration is clearly on the way.

Despite intense deregulation and international opening – not less than in the central or eastern part of Europe – the southern neighbours do not show such integration. Taken altogether (Meda countries, Middle East and Arab peninsula, Turkey and Israel), they represent 12% of EU15's trade today, which is not little; but their relative weight was twice as big 25 years ago. These figures show that, as a whole, the Region trading integration has been reducing during the 1980ies, and has been recovering somewhat during the last decade thanks to the commercial integration of the CEEC only.

Table 11-4 : Consolidated EU15's trade of goods (%)

	----------exportation-------			---------importation-------			-------export+import----		
	1980	1995	2003	1980	1995	2003	1980	1995	2003
CEEC (a)	3,4	7,4	11,8	2,5	6,4	10,9	2,9	6,9	11,3
European Balkans (b)	3,7	2,9	3,9	1,8	2,2	2,7	2,6	2,6	3,3
-of which Bulgaria	0,4	0,4	0,5	0,2	0,3	0,4	0,3	0,3	0,4
-of which Romania	0,9	0,7	1,3	0,7	0,6	1,1	0,8	0,6	1,2
-of which Croatia	0,0	0,7	0,7	0,0	0,3	0,3	0,0	0,5	0,5
Other Europe (c)	16,6	13,2	10,9	10,3	13,2	11,2	13,0	13,2	11,1
Σ .Europe stricto sensu (=a+b+c)	23,7	23,4	26,7	14,6	21,9	24,8	18,5	22,7	25,7
Russia (d)	4,8	2,8	3,4	5,3	3,9	5,3	5,1	3,4	4,4
Ukraine		0,4	0,6		0,3	0,4		0,3	0,5
Turkey	1,0	2,3	2,9	0,4	1,7	2,4	0,6	2,0	2,7
Near & Middle East(e)	12,8	6,9	6,9	20,8	4,3	4,1	17,4	5,6	5,5
-of which Israël	0,9	1,7	1,2	0,6	0,9	0,8	0,7	1,3	1,0
-of which Lebanon, Syria & Jordan (f)	1,5	0,9	0,7	0,4	0,4	0,3	0,9	0,6	0,5
North Africa (g)	8,1	4,5	3,4	6,3	3,9	4,2	7,1	4,2	3,8
Total Meda (=f+g)	9,7	5,4	4,1	6,6	4,3	4,5	7,9	4,8	4,3
Σ Eastern and South. Neighbours (h)	approx. 27,0	16,9	17,2	approx. 33,0	14,1	16,4	approx . 30,5	15,5	16,9
North. America	15,9	19,9	24,8	20,5	21,2	16,8	18,5	20,5	20,8
Latin Am. & Antilles	8,0	7,0	5,2	7,3	6,1	5,4	7,6	6,6	5,3
Eastern Asia	8,3	21,4	16,7	11,9	25,2	27,8	10,3	23,3	22,3
-of which Japan	2,5	5,7	4,1	5,5	10,0	6,7	4,2	7,8	5,4
-of which China (i)	2,0	5,3	6,0	2,2	6,1	10,6	2,1	5,7	8,3
Other Asia	2,1	2,5	2,2	1,2	3,9	2,7	1,6	3,2	2,5
Oceania	0,2	2,4	2,2	1,6	1,4	1,3	1,0	1,9	1,8
Africa (except North Africa)	10,5	4,5	3,7	9,3	4,7	4,1	9,8	4,6	3,9
Grand Total	100	100	100	100	100	100	100	100	100

(a) Poland, Slovakia, Czech Rep., Hungary, Baltic States. (b) Former Yugoslavia (excl. Slovenia), Albania, Bulgaria, Romania. (c) Switzerland, Norway, Cyprus, Malta… (d) USSR before 1995. (e) Near East (excluding Turkey), Arabic peninsula, Iraq, Iran. (g) From Morocco to Egypt. (h) Russia, Ukraine, Turkey, Near and Middle East (including Iraq and Arab Peninsula), North Africa. (i) including Hong Kong.
(NB: no data on Belarus and Caucasian countries in this table)
Source: Eurostat Statistical Yearbook, UE Trade 1958-2003.

Southward, the sole exception is Turkey; in particular Turkish exports to UE are rapidly growing. For decades, Turkey has developed a true productive system of small and medium sized firms, run by an active middle class. The severe economical and financial crisis of 2000-01 has lowered the internal market. But Turkish economy could counterbalance this difficulty by enhancing exportation world wide, including Europe - the half of its exportation. Another positive step is that those exportations are less and less primary agricultural or rough clothing exportations. A decade ago, textiles, clothes and food products were the bulk of Turkish exports to EU; today textile-clothes is still in first rank but the share of transport equipment and automotive production items is rapidly growing. These quite advanced industrial products are dominating EU's exports to Turkey too; this means that EU and Turkey have entered an intra-industrial trade that resembles developed countries trade or "north-South regionalism" (like US/Mexico trade for instance), rather than classical trade between developed and developing countries.

Since 2000 (table 11-3), and except Israel of course, no other Mediterranean country – not even Tunisia – shows such trading features. The Turkish commercial dynamism is the only one that copes with commercial integration between EU and its continental neighbours eastward: European Balkans and namely Bulgaria and Romania – where a rising trade with EU seem to anticipate the UE membership; Russia and NIS both western and Caucasian. As a whole, Eastern neighbours have suddenly become bigger commercial partners for UE than Southern – even including Turkey.

Figure 11-2 : Goods trade (a) between consolidated EU25 and its neighbours, 2000-04

	2004 (values, M €)	2004 (% total)	2004/2000 evol (%), values
Island	3 612	0,2	5
Norway	86 642	4,4	18
Switzerland	136 369	6,9	1
Σ Western Europe (out of EU)	226 623	11,4	7
Bulgaria	10 709	0,5	56
Romania	32 051	1,6	76
Σ Bulgaria + Romania	42 760	2,1	71
Turkey	68 931	3,5	41
Macedonia FYR	1 721	0,1	-28
Serbia & Mont.	6 635	0,3	103
Croatia	13 688	0,7	56
Bosnia-Herz.	3 325	0,2	35
Albania	1 610	0,1	44
Σ Western Balkans	26 979	1,4	50
Russie	126 203	6,3	51
Belarus	5 287	0,3	77
Ukrainia	17 675	0,9	82
Moldavia	1 184	0,1	79
Σ Western NIS	24 146	1,2	81
Armenia	564	0,0	43
Azerbaidjan	2 404	0,1	78
Georgia	794	0,0	59
Σ Caucasian countries	3 762	0,2	68
Syria	4 884	0,2	-10
Jordan	2 209	0,1	20
Lebanon	3 435	0,2	8
Palestine	38	0,0	-53
Egypt	11 557	0,6	-1
Libya	17 073	0,9	9
Tunisia	14 298	0,7	11
Algeria	24 580	1,2	8
Morocco	15 394	0,8	10
Σ MEDA countries	93 468	4,7	7
Israel	21 334	1,1	-20
Iran	20 044	1,0	44
Iraq	3 925	0,2	-47
Seoud. Arabia	28 659	1,4	2
Kuweït	5 487	0,3	-7
Σ Middle East	58 115	2,9	5
TOTAL Europ & East. Neighbourhoods	450 473	22,6	27
TOTAL MEDA, Israel & Middle East	172 917	8,7	2
Turkey	68 931	3,5	41
World	1 990 541	100,0	7

(a) Imports + exports. Source : Eurostat

Is this continental integration symmetric? Western Europe trades more and more with European Balkans and CEEC, do the latter trade more and more with Western Europe? The answer is yes. See figure 11-4: trade with EU increases faster than with the rest of the world in the case of Romania, and nowadays for Bulgaria. Eurostat says the same concerning the western Balkan countries (former Yugoslavia and namely Croatia): 1999-2003 trade growth rate has been higher with the EU than with the rest of the world; those countries now make 84% of their trade with the EU (Eurostat 2005). The evolution is more balanced in the case of Turkey, which opens world wide – but all the same much more towards EU than towards USA or even towards the Meda countries: local sub-regionalisation is weak compared to the polarisation of the whole region by Western Europe.

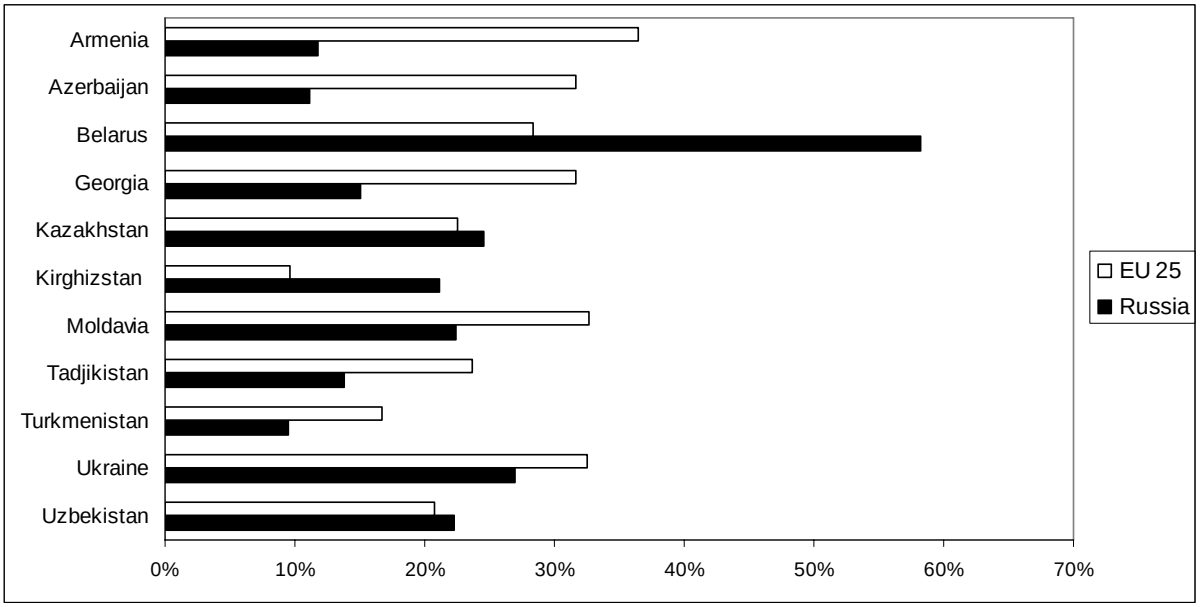
Balkans countries and CEEC have experienced a very rapid westernisation of their trade since the end of the soviet era. They trade more and more with EU (even though with a strong trade deficit, see fig. 5 which proves that the regional trade integration is a positive process for European economy!), and clearly less and less with Russia.

Meda countries have been very much polarised by Western Europe for a long time. They still are, even if less and less in the Near East. Especially Maghreb, these countries continue to be enormously dependant upon European markets, with strong trade deficit and dissymmetry: MEDA countries provide EU with 7% of its imports – but this represent more than the half of MEDA countries exportations. EU provides these countries with 58% of their importations – but this represent only 7% of our exportations. The Mediterranean most dependent country upon European markets is Tunisia, which makes the three quarters of its exportations there. Tunisia's exportations depend more upon European markets… than France or Germany do! In a way, one could say that Tunisia is a "European Puerto Rico" but without the political link.

As far as the eastern neighbourhood of EU concerned, almost all the states that belong to CIS are progressively shifting their foreign trade from an intra regional CIS pattern to a western oriented pattern. It is obvious for the three Caucasian countries: EU has become by far their first trade partner. Although Russia is still a major trade partner for each one of them, its share in their external trade has regularly decreased since the 1990s. Obviously, the progressive enlargement of the European economic region eastward involves not only Russia but CIS as a whole. This process is largely due to the recent enlargement of EU to the 10 new member states which have kept economic relations with Russia and former USSR despite their own strong commercial reorientation from East to West. Only the

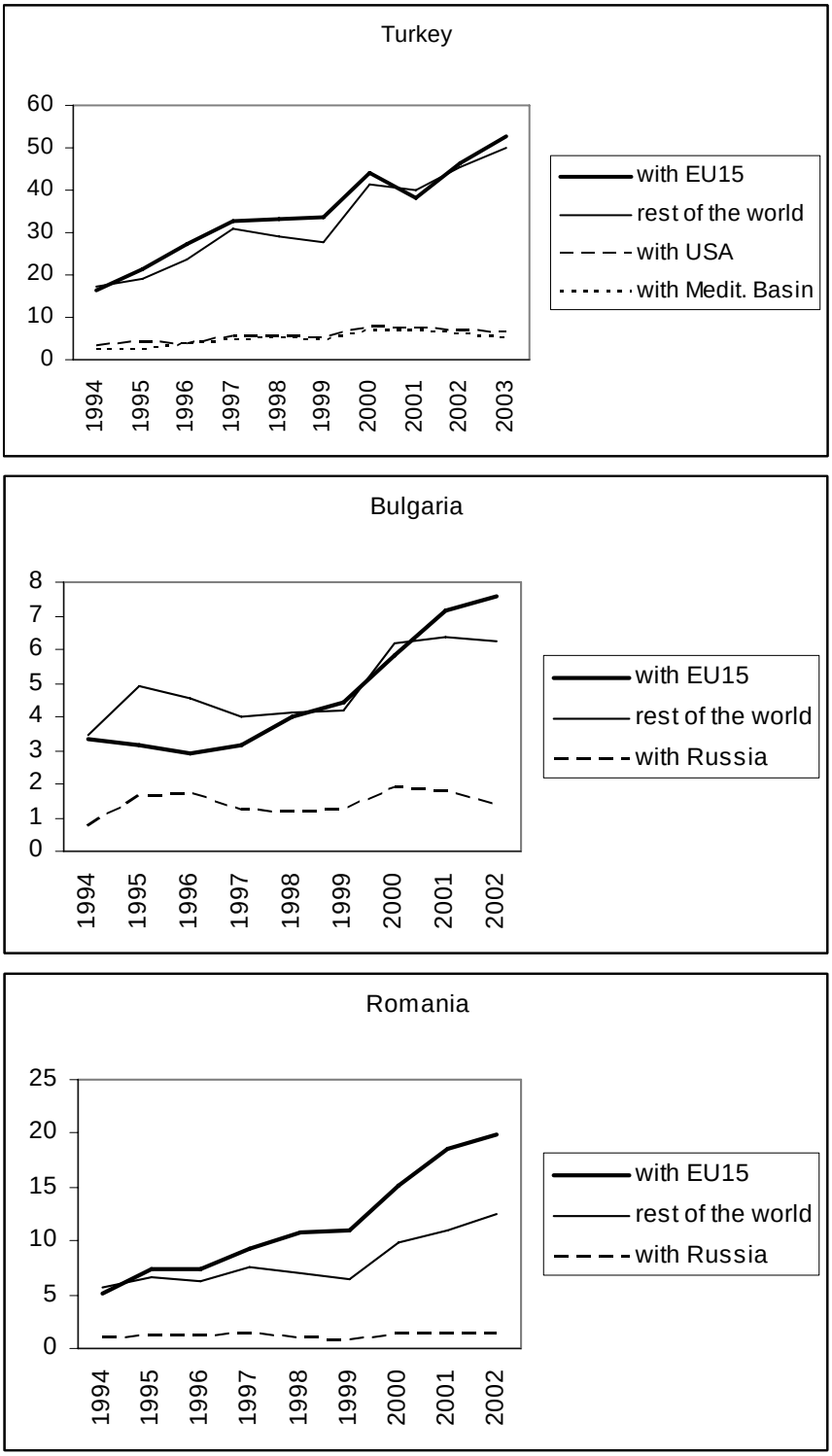
countries of Central Asia are still keeping Russia as their first commercial partner before EU 25 – but not all of them and certainly less and less.

Figure 11-3 : Share of EU25 and of Russia in the goods trade of the CIS (2003)



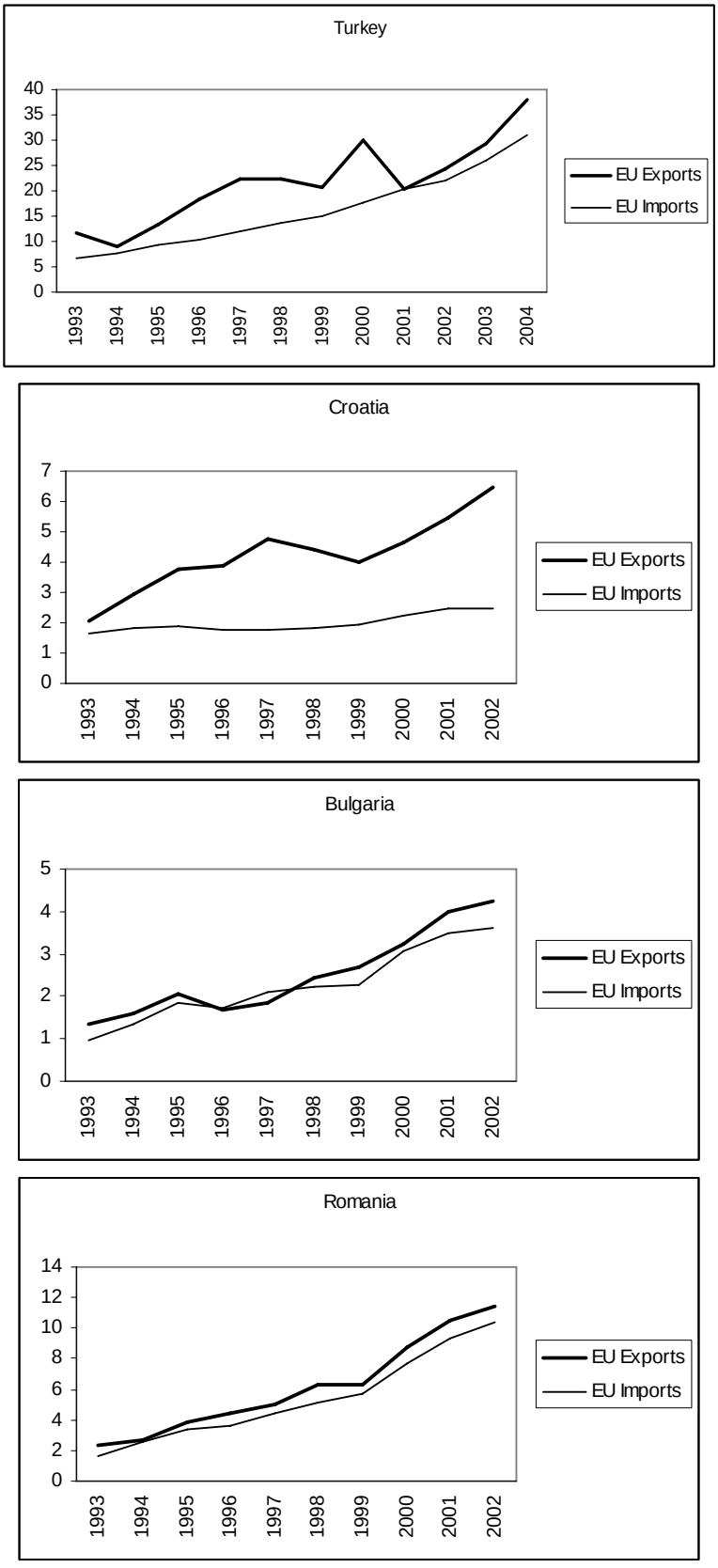
Source : Eurostat

Figure 11-4 : Goods trade (imports + exports), b €



Source : Eurostat

Figure 11-5 : EU Exports and imports (billion €) with :



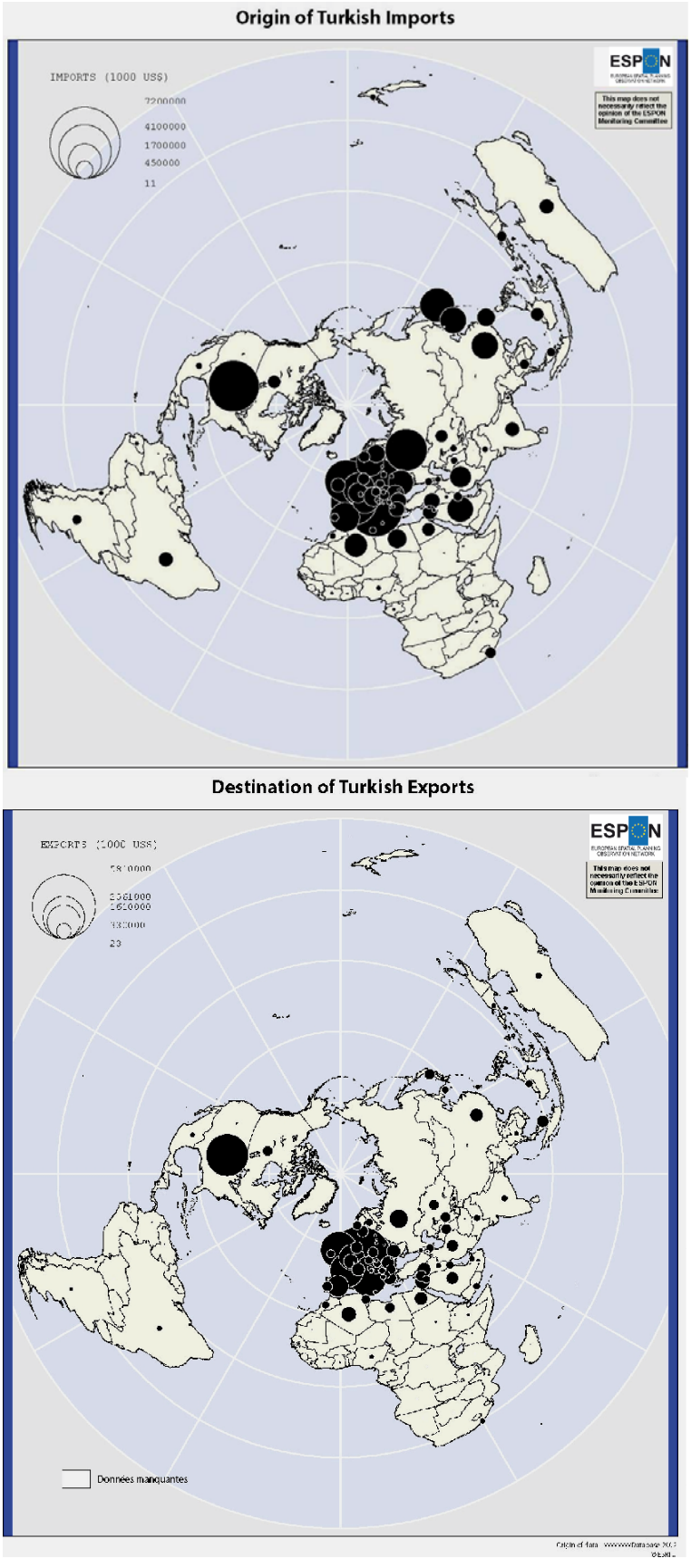
Source : Eurostat

Figure 11-6 : Goods trade partners of central Europe countries and Turkey, 1993-2001

	------central Europe (b) countries----				----------Turkey----------			
	Importations		**Exportations**		**Importations**		**Exportations**	
Trading partners:	**1993-1994**	**1999-2000-01**	**1993-1994**	**1999-2000-01**	**1993-1994**	**1999-2000-01**	**1993-1994**	**1999-2000-01**
Western Europe (a)	59,6	62,4	59,9	71,5	49,5	51,2	50,1	53,7
Central Europe (b)	8,3	9,2	10,5	11,3	1,3	1,0	2,2	1,6
Baltic States	0,4	0,3	0,5	1,1	0,1	0,2	0,1	0,2
European Balkans (c)	1,1	1,2	2,2	3,2	2,1	2,2	2,5	3,3
Russia	9,8	7,8	5,4	1,8	4,9	7,1	4,0	2,5
West. & North. NIS (d)	1,4	1,1	1,7	1,7	2,2	2,3	1,3	2,3
Maghreb (e)	0,2	0,2	0,6	0,2	1,5	4,0	3,0	2,9
Near East (f) & Turkey	0,5	0,7	1,8	1,0	1,3	2,3	5,7	6,4
Middle East (g)	0,5	0,0	0,5	0,2	8,1	3,6	7,0	2,7
Σ region	81,8	83,1	83,2	92,2	70,9	74,0	75,8	75,6
North. America	3,8	4,2	3,1	3,7	11,6	8,0	8,0	10,9
Latin America	1,2	1,0	0,9	0,6	1,6	1,1	0,6	1,0
Africa (others)	0,8	0,4	0,9	0,3	1,1	1,1	0,7	1,1
Asia (others)	6,2	10,5	4,1	2,5	13,0	12,5	13,2	6,3
Oceania	0,1	0,1	0,2	0,1	1,1	0,5	0,2	0,4
World	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

How to read this table : at the beginning of the 1990ies (average of 1993 and 1994), 49,5% of Turkey's imports came from western Europe; at the beginning of this century (average 1999-2000-2001), the number was 51,2%.
(a) UE15 plus Switzerland and Norway
(b) Czech Republic, Slovakia, Hungary, Poland
(c) Albania, former Yugoslavia, Romania, Bulgaria
(d) Belarus, Ukraine, Moldavia, Caucasian countries
(e) Morocco, Algeria, Tunisia, Libya, Malta
(f) Cyprus, Lebanon, Syria, Jordan, Israel, Palestine, Egypt
(g) Iran, Iraq, Saudi Arabia, Kuwait.
Source : OECD

Map 11-1 : Geography of Turkish goods trade: a strong euromediterranean feature



11.2.2.2 Mapping the bilateral intensity of trade

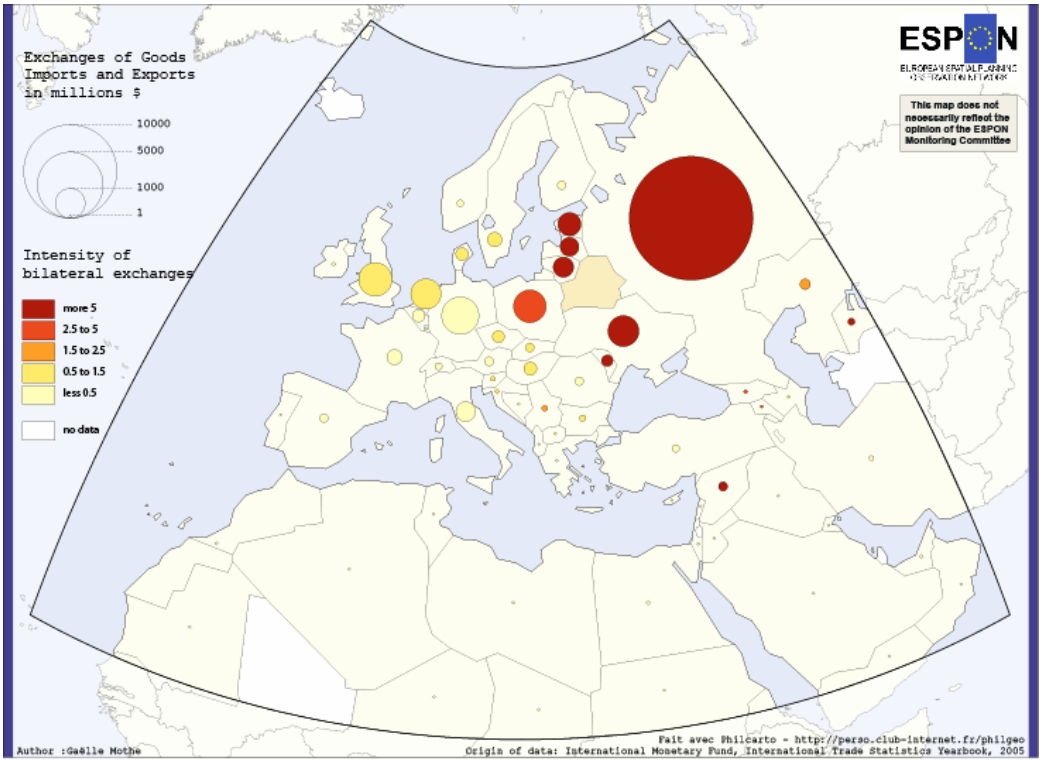
The value of the external trade of goods is not sufficient to draw a comprehensive picture of economic regionalization, because it is biased by parameters such as the economic (the GDP) or the demographic size of commercial partners. The bigger the partners, the more their trade exchanges are likely to be massive. It is empirically easy to understand that Russia makes more trade, in absolute terms, with Germany than with Estonia or Slovakia.

The coefficient of relative bilateral intensity of trade is a relevant way to measure the real trade proximity between two commercial partners. It compares the observed bilateral flows between them with the theoretical flows that reflect their overall capacity of trade (Freudenberg 2005). It is not per se better than the value of exchanges; it must be combined with it to have a more detailed view of what goes on between EU and its neighbours. The maps give a representation of trade between 11 countries located in the neighbourhood of EU. Each map combines two variables: the volume of observed trade flows in absolute terms in 2004, and the coefficient of relative bilateral intensity of trade.

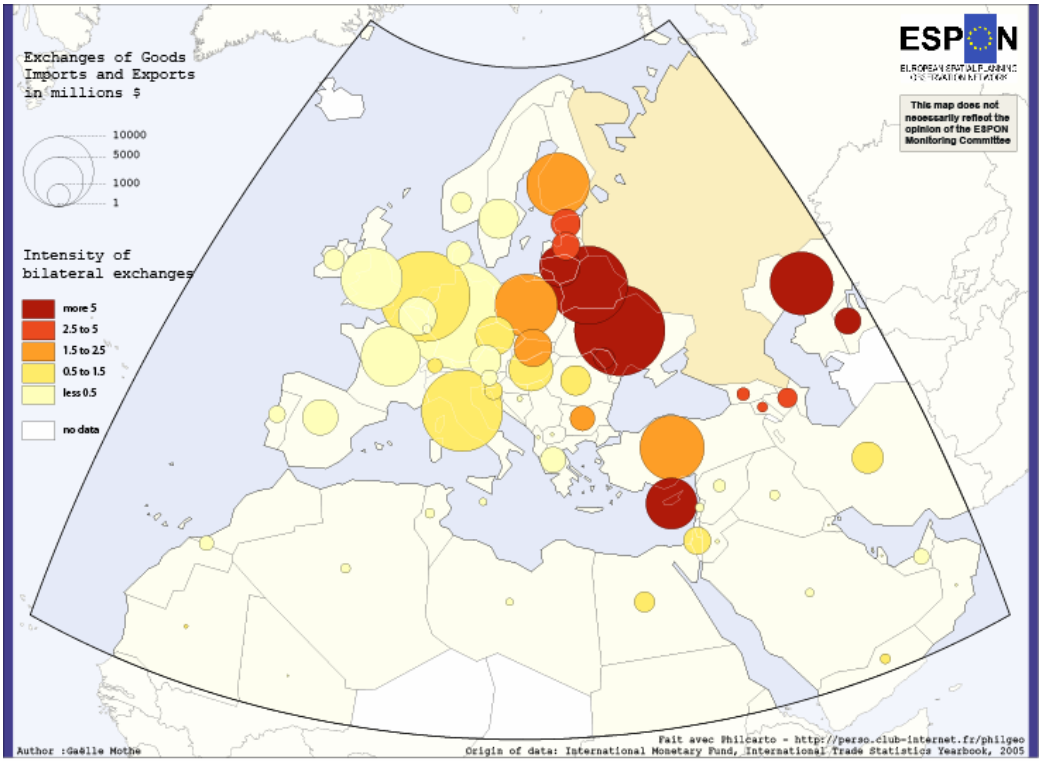
These maps show a clear sub-regional phenomenon: the neighbouring countries are often commercially linked to the close parts of the Espon territory. They highlight a Russian-East European area, a Western Mediterranean regional area - but in the Eastern Mediterranean, trade intensity does not really link neighbours to the Espon territory. Despite the decrease of transport costs which has made possible a strong process of globalization, the distance between countries still plays a major role in the geography of trade flows. Other factors such as economic structures (and consequently economic specializations) and differences in levels of economic development also play their part in this geography of trade intensity. At last, the legacy of former colonial ties is still visible between France and Maghreb, Russia and former Soviet Republics, etc.

The CIS countries have a high intensity of exchanges with other CIS countries and secondarily with CEE Countries. Despite the outbreak of the Soviet Union and of the Socialist bloc and despite a strong process of commercial polarization by Western Europe, CIS can still be considered as a commercial region based on a relatively high trade bilateral intensity between its members. Besides, Russia, Ukraine and Belarus have a higher trade bilateral intensity with CEE Countries than with Western Europe.

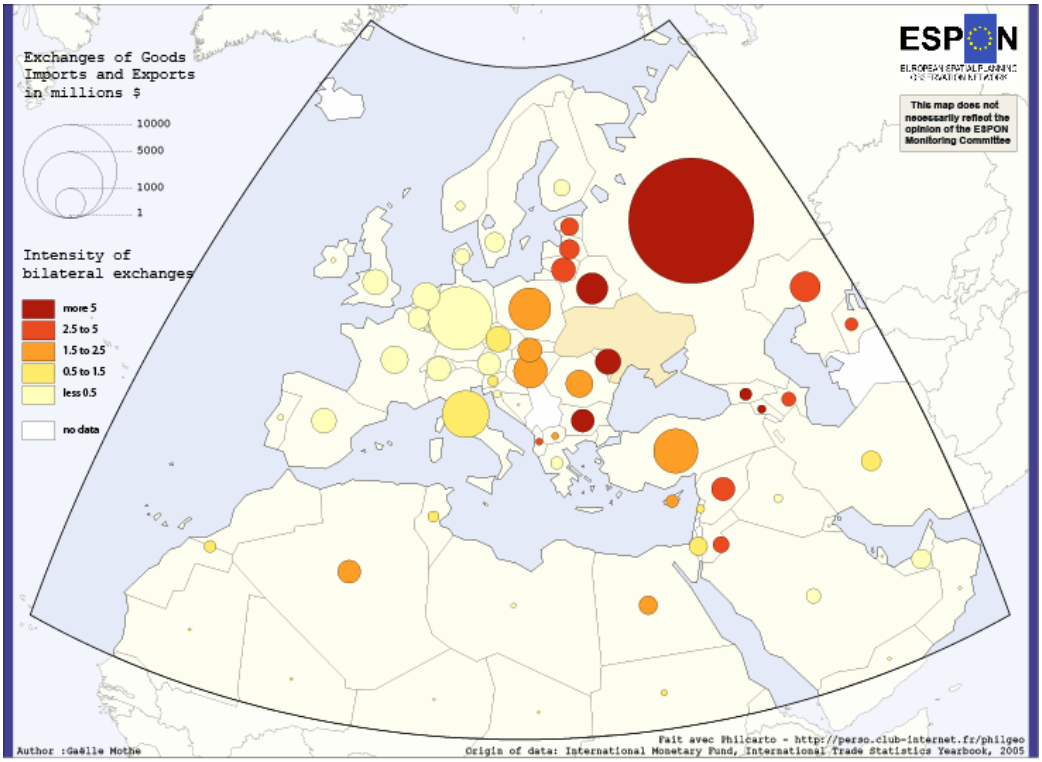
Map 11-2 : Exchanges of goods and bilateral intensity of trade of Belarus with the Euromed region in 2004.



Map 11-3 : Exchanges of goods and bilateral intensity of trade of Russia with the Euromed region in 2004

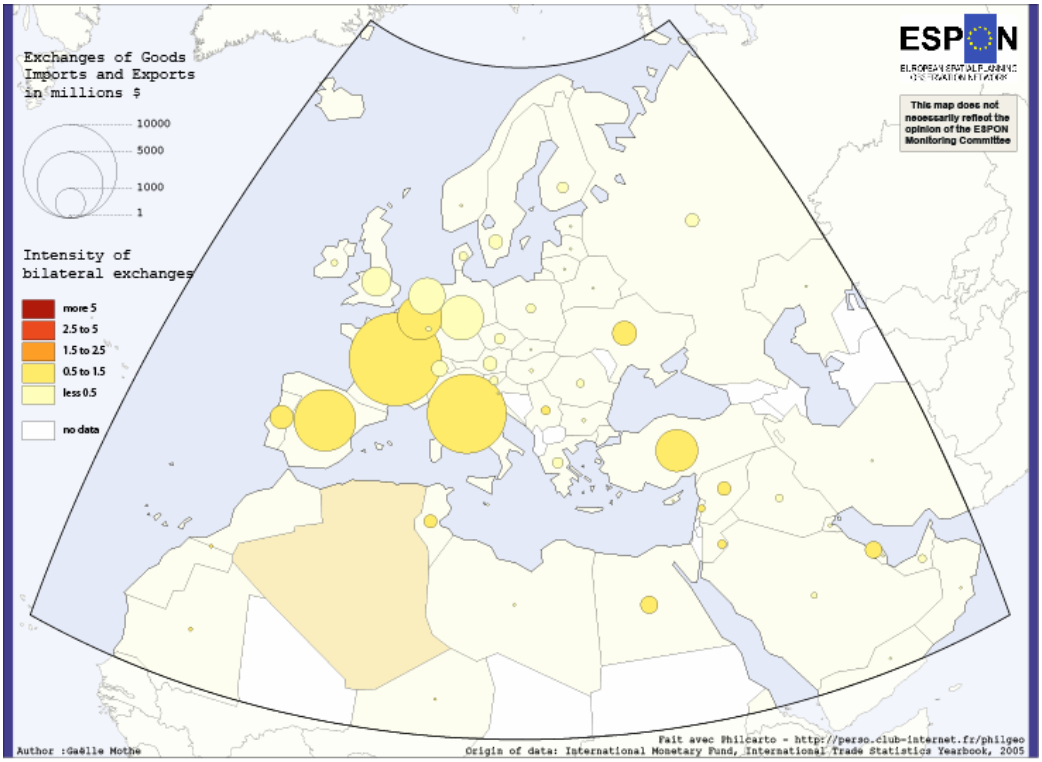


Map 11-4 : Exchanges of goods and bilateral intensity of trade of Ukraine with the Euromed region in 2004.

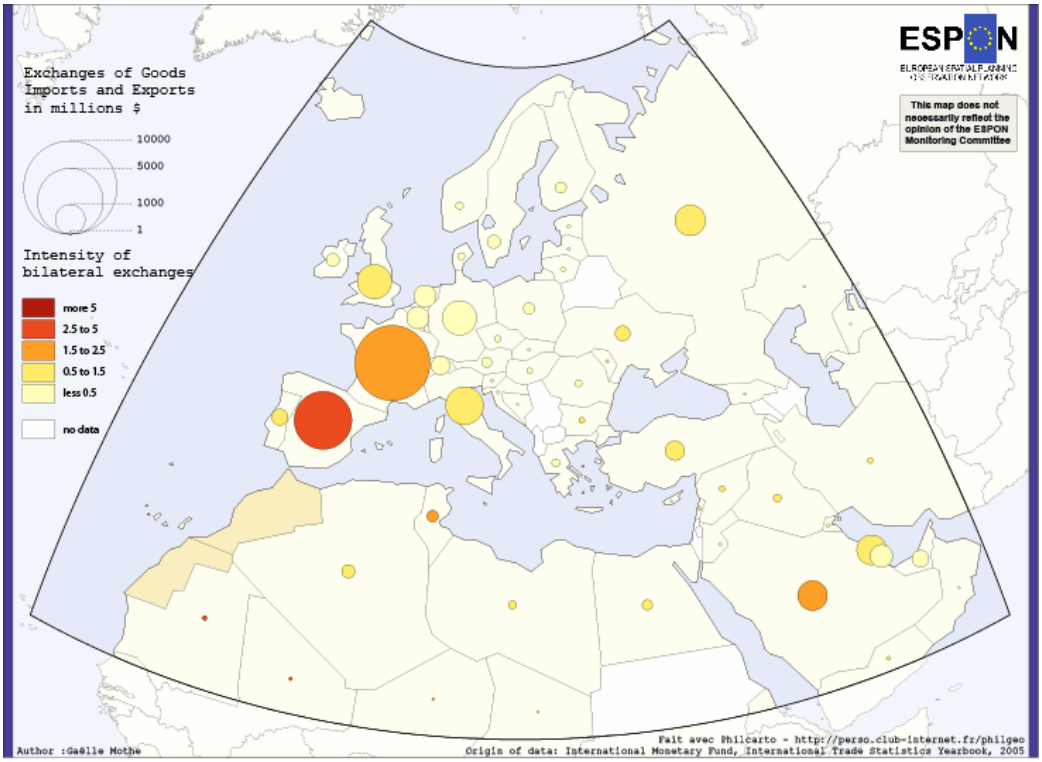


The Maghreb countries have a high intensity of exchange with the Mediterranean members of EU (France, Spain, Italy).

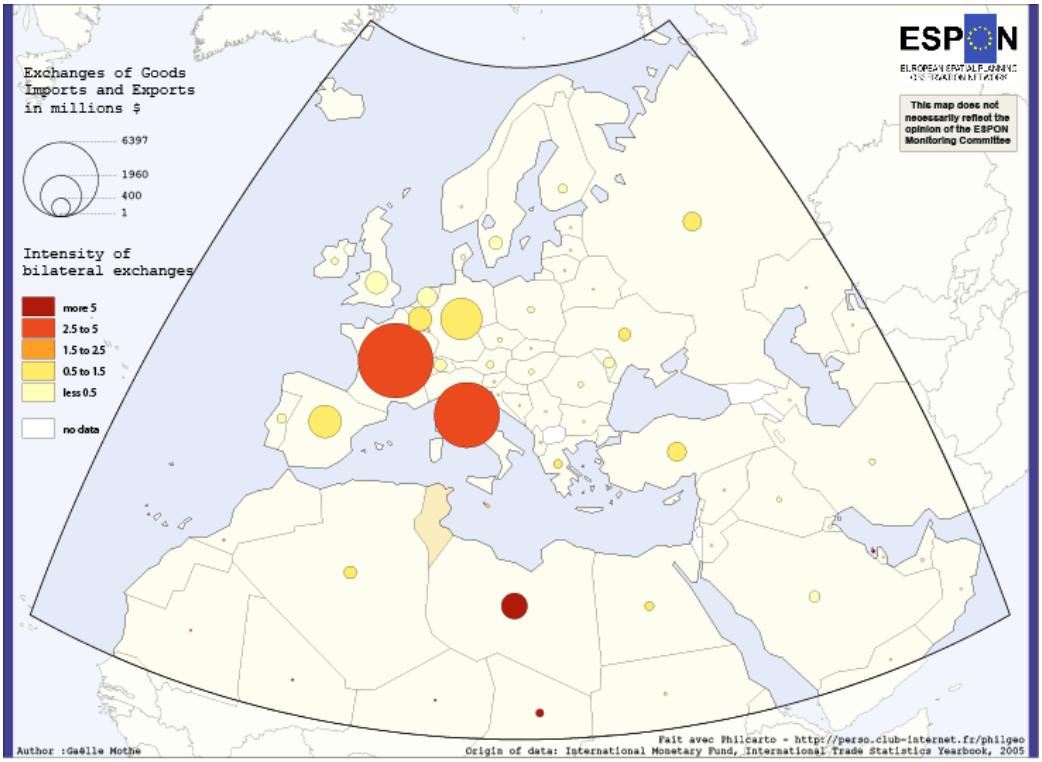
Map 11-5 : Exchanges of goods and bilateral intensity of trade of Algeria with the Euromed region in 2004.



Map 11-6 : Exchanges of goods and bilateral intensity of trade of Morocco with the Euromed region in 2004.

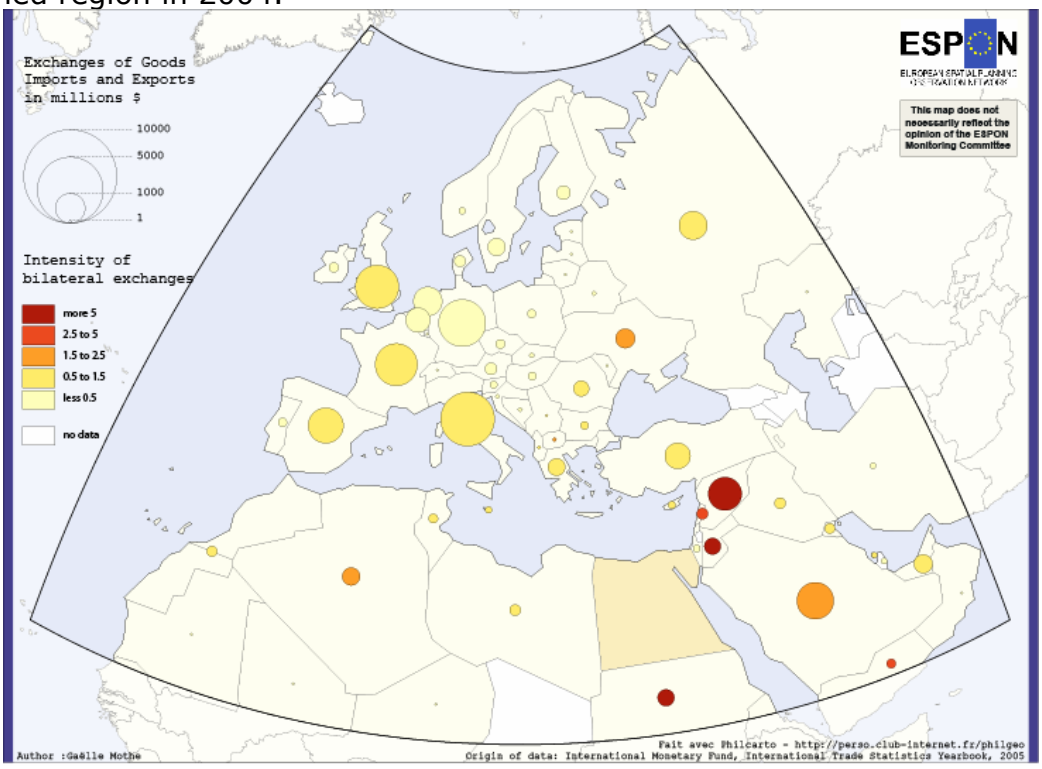


Map 11-7 : Exchanges of goods and bilateral intensity of trade of Tunisia with the Euromed region in 2004.

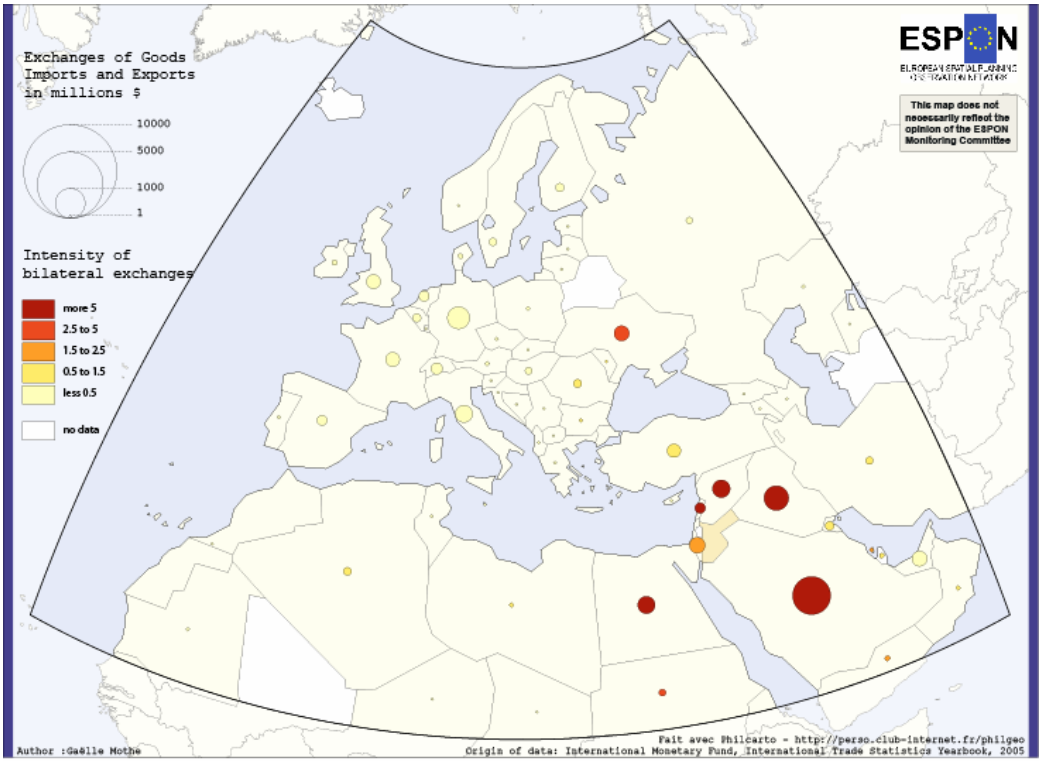


The South East Mediterranean countries have a relatively low intensity of exchanges with EU and a high intensity with the countries which belong to the

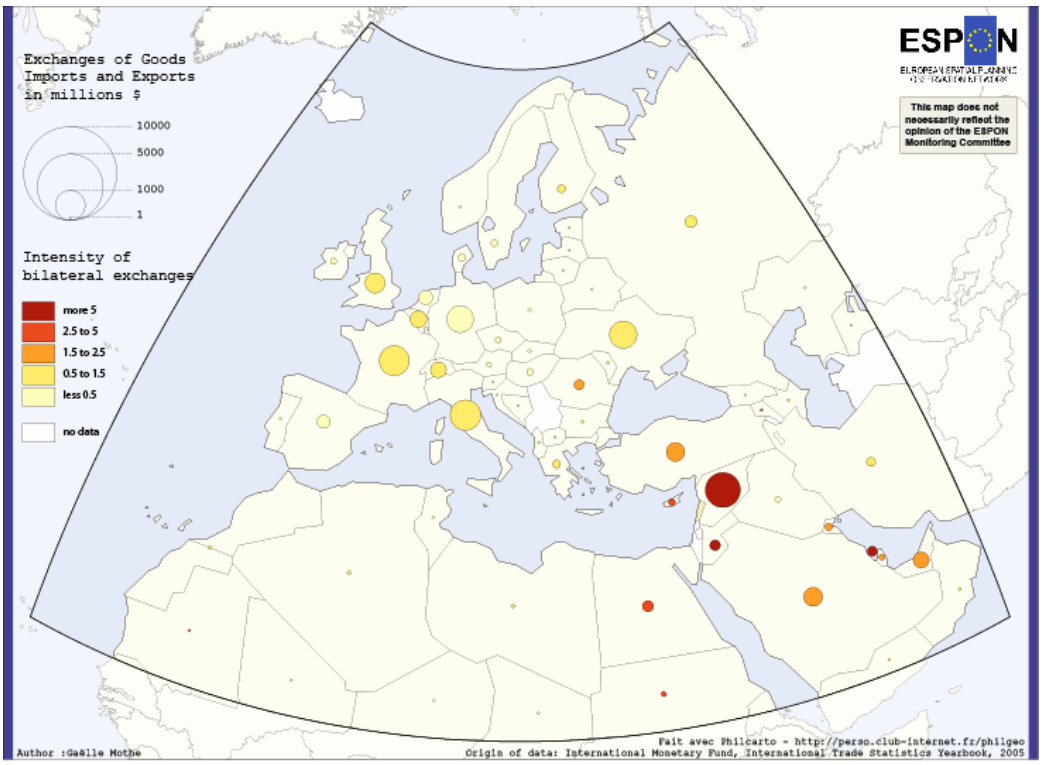
Near and the Middle East. Even Turkey has a higher intensity of exchanges with East Mediterranean and Central Asian countries than with Western Europe.
Map 11-8 : Exchanges of goods and bilateral intensity of trade of Egypt with the Euromed region in 2004.



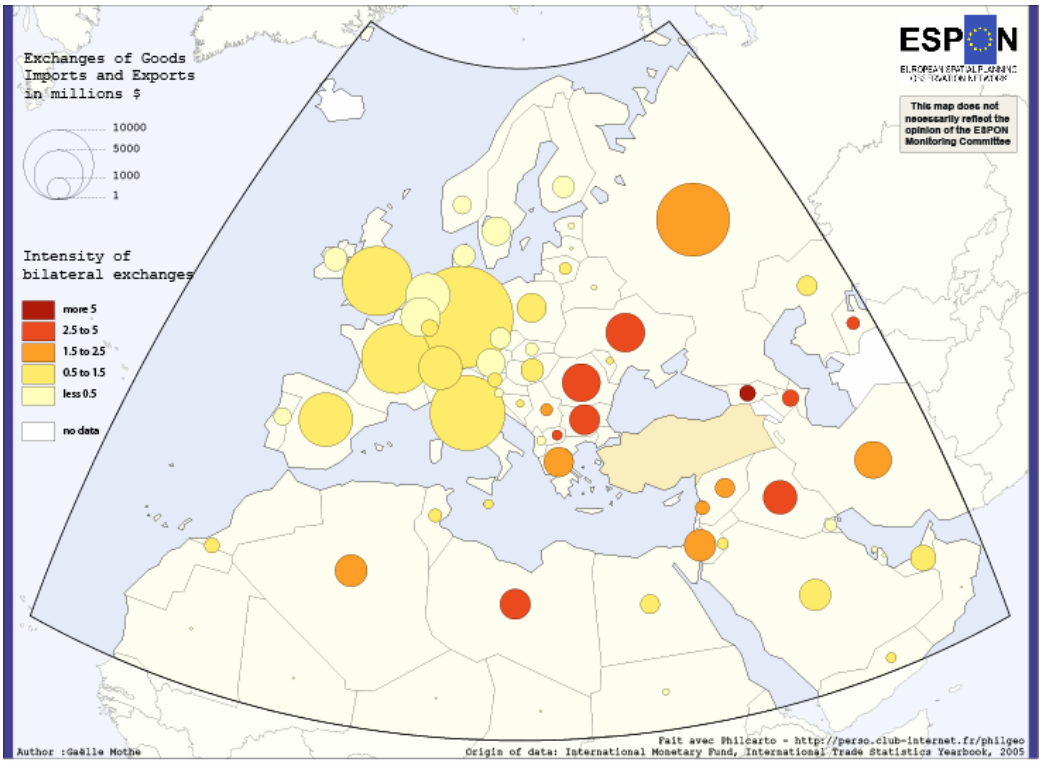
Map 11-9 : Exchanges of goods and bilateral intensity of trade of Jordan with the Euromed region in 2004.



Map 11-10 : Exchanges of goods and bilateral intensity of trade of Lebanon with the Euromed region in 2004.



Map 11-11 : Exchanges of goods and bilateral intensity of trade of Turkey with the Euromed region in 2004.



Contrarily to what happens inside the CIS region, the Mediterranean neighbours often show a surprisingly low intensity of exchanges between them, especially between those of the western and those of the eastern Mediterranean basin. To this respect, the case of Turkey is rather exceptional because it shows a relatively high coefficient with a majority of South and East Mediterranean countries.

Thanks to these maps, one can also distinguish three types of countries inside the ESPON space. European Mediterranean countries have a relatively high intensity of exchanges with Mediterranean neighbours. Maps of trade bilateral intensity of France, Italy and Spain would certainly show higher coefficients with Maghreb countries than with other EU members. CEE Countries and Finland show a high intensity of exchanges with one or several CIS countries. Northern and Scandinavian countries have a relatively low intensity of exchanges with both East and South neighbour countries.

11.2.2.3 Flows - FDI

FDI draw the same geography of integration eastward and divide southward. During the last decade (1993-2003), Maghreb, Egypt, Syria, Lebanon and Jordan altogether did not receive more foreign direct investments than the sole Israel ; CEEC received for times as much as them16. Syria, Algeria and Egypt got particularly few FDI. It is a fact that the Mediterranean attracts more foreign capital since the mid 1990s and the first Association Agreements, but much less than Eastern Europe. Furthermore, investors now reach new eastern countries in the region: Croatia, Macedonia FYR and Bulgaria, because the cost of labour is cheaper than in NMS and because they will be one day member of the EU; also Georgia and Azerbaijan (because of oil of course in the latter); even Ukraine attracts proportionally more FDI than the Mediterranean neighbours – but it is true that the country remains unstable and that a important part of the FDI comes from Russia or from Ukrainian oligarchs who use international network as a laundering tool. Last, investors say that former Yugoslavia (Serbia and Bosnia) will be a relevant target when stabilised. EU has already spent a great deal of money for this stabilisation, with no doubt this part of Europe will quite soon be in the influence of western European investors.

[16] In some cases this foreign investment might be considered as *too* high. In Hungary for instance, 45% of industrial jobs, the three quarters of exports and of R&D expenditures are made by local subsidies of foreign companies. On the other hand, it is well known that Ireland, which has been hosting a great deal of FDI, has also managed to develop its economy (infrastructures, training…).

The annual average FDI during the years 2002-2003-2004 in Meda countries was 9 billions dollars, whereas it was 18 in the CEEC, and 18 in the sole Mexico (mainly from United States and Canada)! Many criteria (role of EU markets for the Mediterranean economies, migrations of workers, students or tourists, cultural links through TV programs, common environmental threats) show the strong integration of the two shores of the Mediterranean, but indeed the key figure about FDI attraction hampers this view. There is not yet a trans-Mediterranean productive system.

It has to be added though, that the very recent years show a growing attraction of Meda countries for foreign investors. The ANIMA report (Saint Laurent 2006) says that the FDI there would have jumped to 40 billions dollars in 2005. But (i) the bulk of these investors come form the Gulf oil countries, and (ii) the sectors in which they invest still belong to the classical rent economy sectors such as real estates, tourism, or privatised public services. Of course the ongoing surge of Algerian financial resources thanks to the booming oil price, could contribute to this new Meda FDI feature; but until today, one can say that the Meda countries are highly dependent upon western European markets and investors, but are not significant partners for European exports and investments.

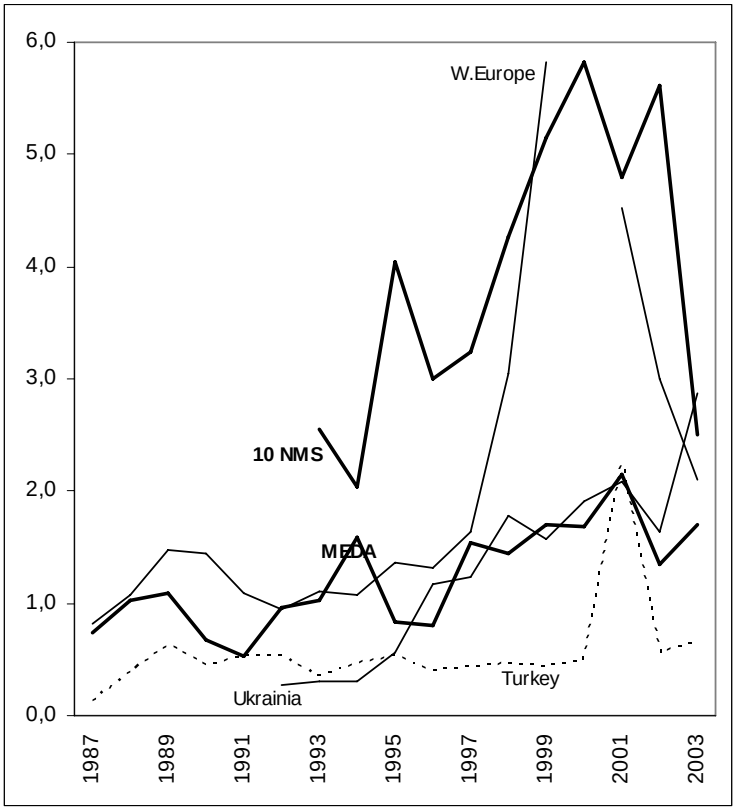
The figure 11-8 draws the geography of several Espon countries' investment abroad. What is striking in the case of Spain, is that this Mediterranean country invests a very low amount of FDI in Meda countries (the pattern would be the same for France or Italy). In the Spanish case, the share of Latin America is high, although the crise of the Argentine economy has considerably reduced the huge Spanish invesment there since 2000. Like in all the other Espon examples showned here, the bulk of FDI are made in other Espon countries, especially in Western Europe. The Spanish invest more in CEEC than in the close Meda countries, despite a very recent rush to Morocco.

Germans invest essentially in other European countries and in Northern America (including Mexico: as it is well known now, since the Alena Agreement investors regard Mexico as a "North American country"). The part of CEEC in the German FDI is quite relevant, especially for the central European countries which depend quite a lot on German investments. Meda countries are insignificant.

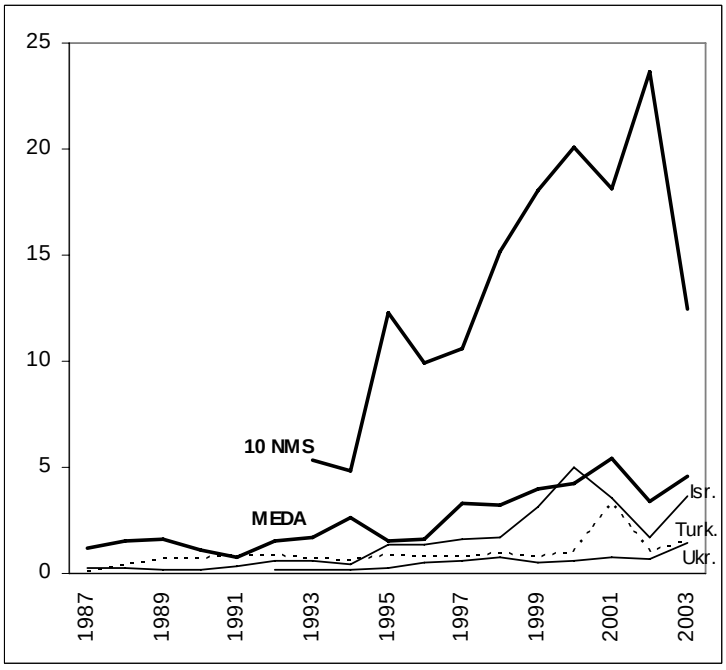
The feature is quite alike for Dutch, Swedish and Finish investment. For all these countries, CEEC are quite significant, although much less than Western Europe or North America. For all these countries, Meda is insignificant. In a word, the CEE Countries benefit from the investments abroad of both close EU15 countries (Germany, Sweden, Finland) and remote EU15 countries (Spain, but also France, Italy...). The Southern neighbours benefit from neither. This make a striking difference with the American region and with the East Asian region: whereas

United States and Canada invest very significantly in the developing countries of their region (Central, Caribbean and South America); whereas Japan and nowadays South Korea and Taiwan invest in China and in the ASEAN countries, the European countries do not invest in the developing countries of their regional neighbourhood.

Figure 11-7 : Foreign Direct Investment (inflows) % GDP



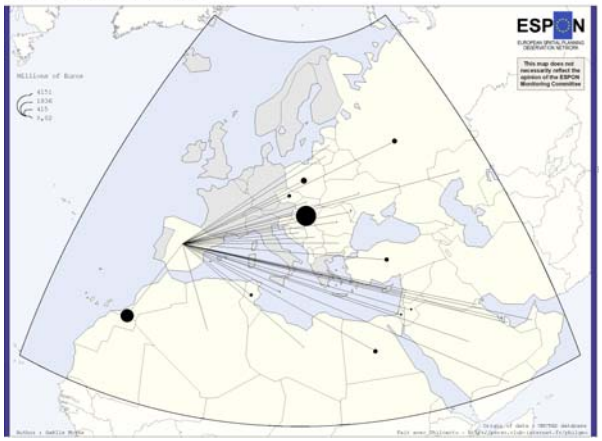
b $:



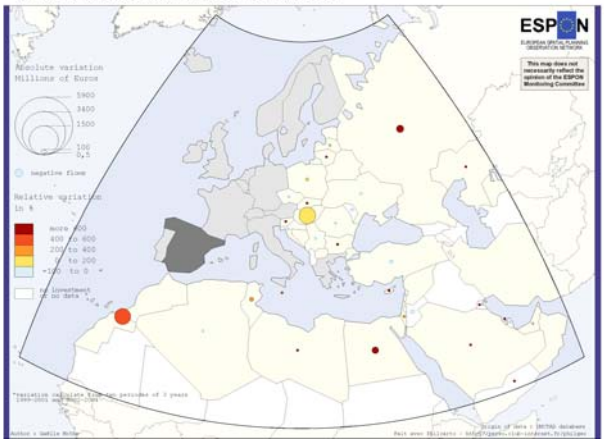
Note. « W. Europe » : UE15 + Switzerland & Norway (Luxembourg excluded); « 10 NMS » : ten new member states, Malta excluded. « MEDA » (excl. Gaza & West Bank) : Morocco, Algeria, Tunisia, Egypt, Jordan, Lebanon, Syria. Source : World Bank.

Figure 11-8 : Geography of FDI of ESPON countries in the neighbourhood Spanish investments in the neighbourhood (flows)

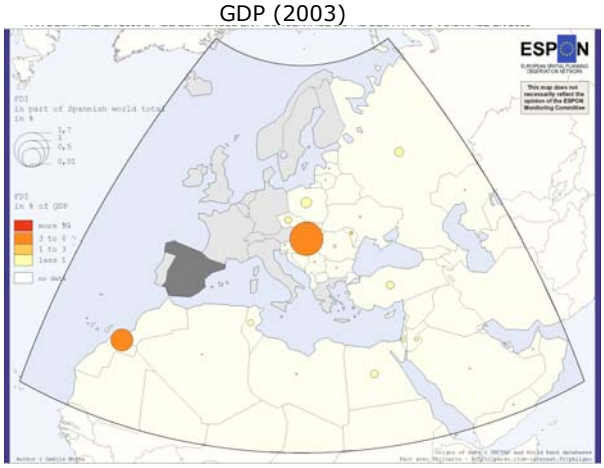
Destination of Spanish FDI outward flows (Σ 1999-2004)



Variation of Spanish FDI outward flows (1999-2004*)



% of Spanish FDI, & % of the receiving countries' GDP (2003)



% of total Spanish FDI, and € per receiving countries' inhab. (2003)

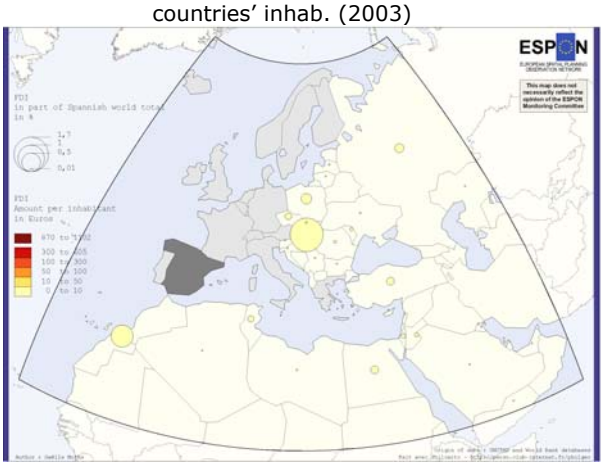


Table 11-5 : Spanish FDI flows abroad, by geographical destination (1999-2004)

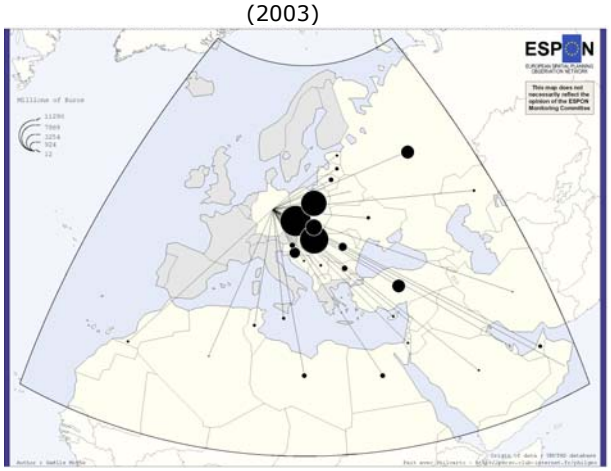
	----------total amounts----------			----------weight in the world total----------		
	b €, years 1999-2000-01	b €, years 2002-03-04		%, period 1999-00-01	%, period 2002-03-04	
Regions	(a)	(b)	evol (%) (b)/(a)	(a)	(b)	evol (pts), (b)-(a)
Western Europe	72,2	81,4	13	45,6	66,3	20,8
CEE Countries	1,7	3,1	85	1,1	2,6	1,5
New Independent States	0,1	0,3	355	0,0	0,2	0,2
Turkey	0,1	0,1	-40	0,1	0,1	0,0
MED Countries	0,4	2,0	440	0,2	1,6	1,4
Middle East Countries	0,0	0,0	ns	0,0	0,0	0,0
Subsaharian Africa	0,1	0,5	333	0,1	0,4	0,4
North America, Mexico	18,0	13,3	-26	11,4	10,9	-0,5
Latin America	61,3	17,8	-71	38,7	14,5	-24,2
Southern Asia	0,0	0,1	191	0,0	0,1	0,1
Eastern Asia	2,1	1,7	-16	1,3	1,4	0,1
Oceania	0,2	1,3	711	0,1	1,1	1,0
Offshore places	2,2	0,9	-57	1,4	0,8	-0,6
World	158,3	122,7	-23	100,0	100,0	0,0

Source : Unctad.

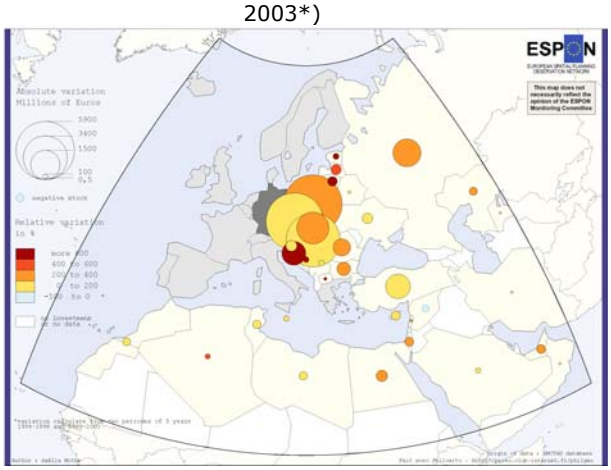
Notes. CEE Countries : Bosnia, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Roumania, Serbia and Montenegro, Slovakia, Slovenia. Med Countries : Algeria, Cyprus, Egypt, Israel, Lebanon, Libya, Malta, Morocco, Syria, Tunisia. Middle East: Bahrain, Iran, Koweït, Oman, Qatar, Saudi Arabia, United Arab Emirates.

Figure 11-9 : Geography of FDI of ESPON countries in the neighbourhood German investments in the neighbourhood (stock)

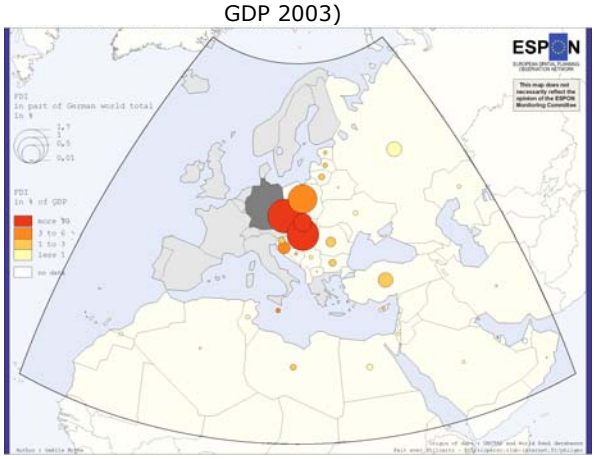
Destination of German FDI outward stock (2003)



Variation of German FDI outward stock (1994-2003*)



% of German FDI, & % of the receiving countries' GDP 2003)



% of total German FDI, and € per receiving countries' inhab. (2003)

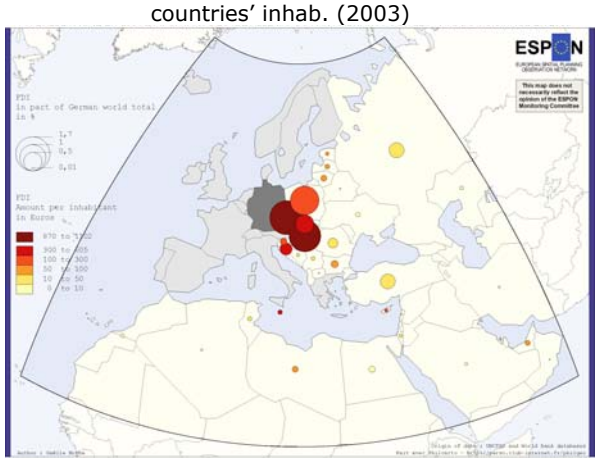


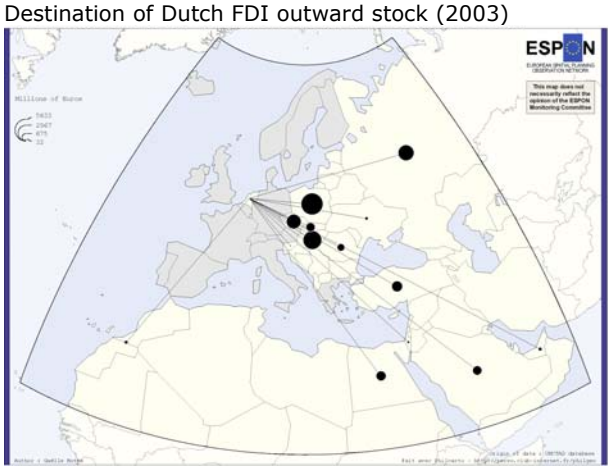
Table 11-6 : German FDI stock abroad, by geographical destination (1994-2003)

	---annual average (b €)---			weight in the world total	
Regions:	1994-1998 (a)	1999-2003 (b)	evol (%) (b) / (a)	% (b)	evol (points) (b) - (a)
Western Europe	133,1	273,4	105	45,2	-9,9
CEE Countries	9,1	30,1	229	5,0	1,2
Med Countries	0,8	1,7	103	0,3	-0,1
Turkey	0,6	1,7	164	0,3	0,0
New Independent States	0,6	2,3	267	0,4	0,1
Middle East Countries	0,2	0,4	120	0,1	0,0
Subsaharian Africa	1,8	3,1	70	0,5	-0,2
North America, Mexico	67,3	233,1	246	38,5	10,7
Latin America	11,1	11,7	5	1,9	-2,7
Southern Asia	2,4	6,6	179	1,1	0,1
Eastern Asia	9,2	26,3	187	4,3	0,6
Oceania	2,7	6,7	152	1,1	0,0
Offshore Places	2,7	6,4	136	1,1	-0,1
World	241,7	604,8	150	100,0	0,0

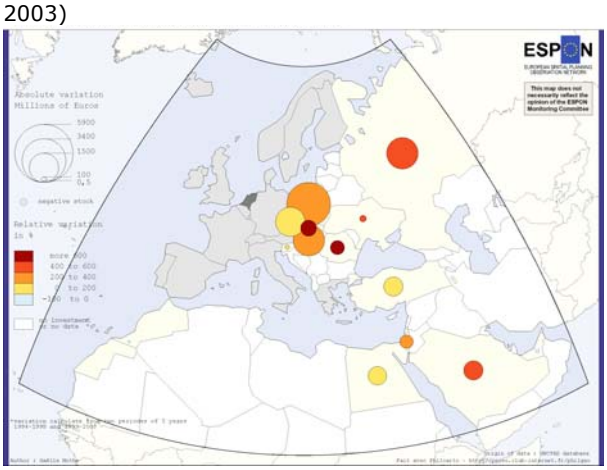
Source: Unctad. Notes: see table 11-5

Figure 11-10 : Geography of FDI of ESPON countries in the neighbourhood. Dutch investments in the neighbourhood (stock)

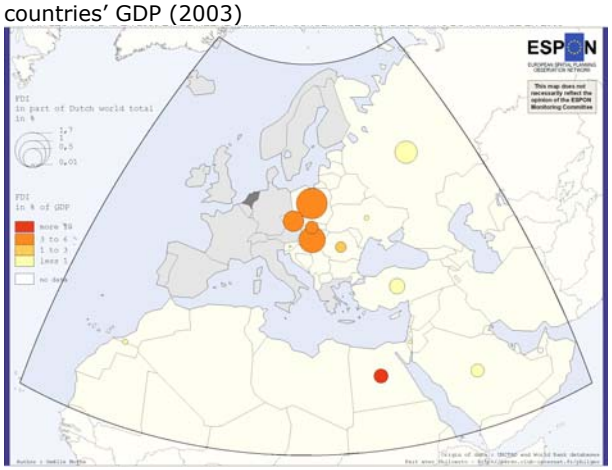
Destination of Dutch FDI outward stock (2003)



Variation of Dutch FDI outward stock (1994-2003)



% of total Dutch FDI, and % of the receiving countries' GDP (2003)



% of total Dutch FDI, and € per receiving countries' (2003) inhab.

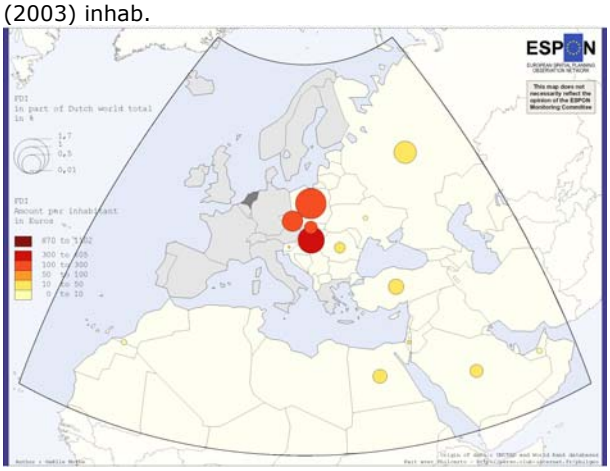


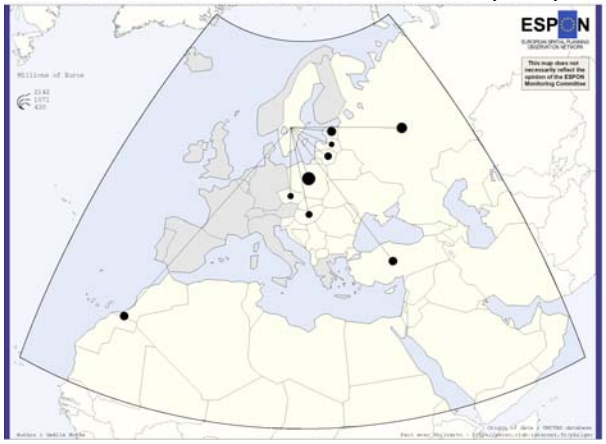
Figure 11-11 : Dutch FDI stock abroad, by geographical destination (1994-2003)

	--- annual average (b €) ---			weight out of world total	
Regions:	1994-1998 (a)	1999-2003 (b)	evol (%) (b) / (a)	% (b)	evol (points) (b) - (a)
Western Europe	84,0	207,3	147	58,3	3,7
CEE Countries	2,8	10,2	262	2,9	1,0
Med Countries	0,6	1,5	138	0,4	0,0
Turkey	0,4	1,1	146	0,3	0,0
New Independent States	0,3	2,1	534	0,6	0,4
Middle East Countries	0,4	1,0	170	0,3	0,0
Subsaharian Africa	1,1	2,8	154	0,8	0,1
North America, Mexico	41,4	89,6	116	25,2	-1,7
Latin America	4,7	8,6	82	2,4	-0,6
Southern Asia	1,8	4,0	114	1,1	-0,1
Eastern Asia	7,0	13,6	94	3,8	-0,7
Oceania	1,6	4,9	212	1,4	0,4
Offshore Places	5,4	3,0	-45	0,8	-2,7
World	154,0	355,8	131	100,0	0,0

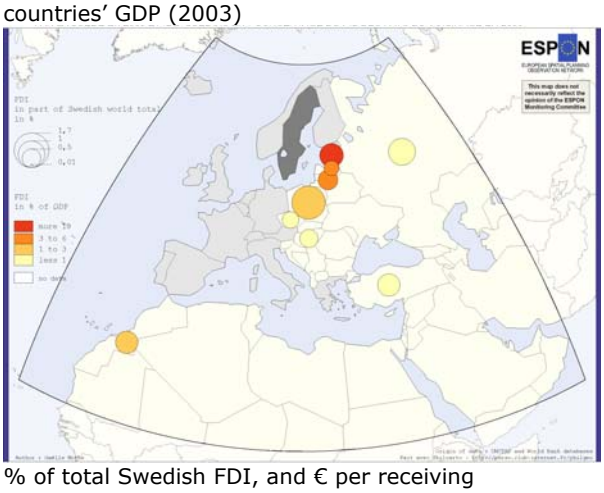
Source: Unctad. Notes: see table 11-5

Figure 11-12 : Geography of FDI of ESPON countries in the neighbourhood Swedish investments in the neighbourhood (stock)

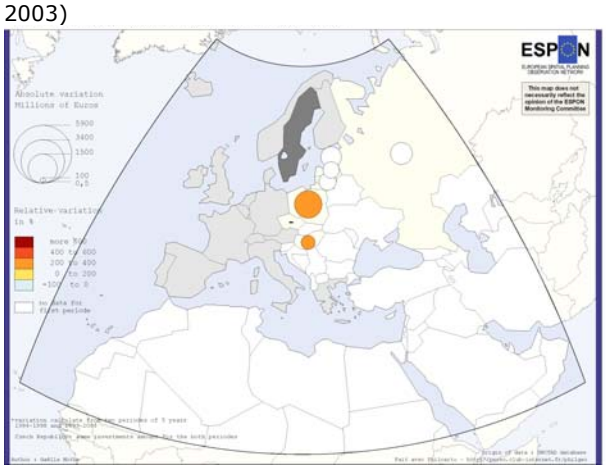
Destination of Swedish FDI outward stock (2003)



% of total Swedish FDI, & % of the receiving countries' GDP (2003)



Variation of Swedish FDI outward stock (1994-2003)



% of total Swedish FDI, and € per receiving countries' inhab. (2003)

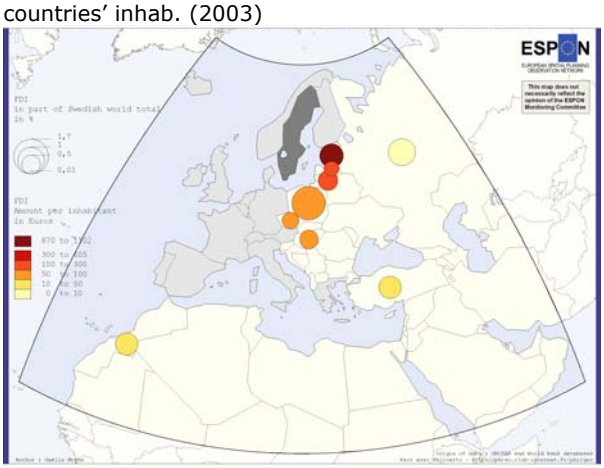


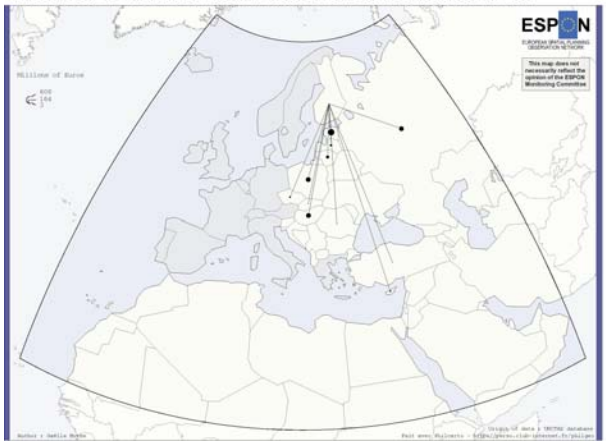
Table 11-7 : Swedish FDI stock abroad, by geographical destination (1994-2003)

	--- annual average (b €) ---			weight out of world total	
	1994-1998	1999-2003	evol (%)	%	evol (points)
Regions:	(a)	(b)	(b) / (a)	(b)	(b) - (a)
Western Europe	40,9	87,2	113	69,6	0,2
CEE Countries	0,6	4,2	592	3,4	2,3
Med Countries	…	1,0	..	0,2	..
Turkey	…	1,0	..	0,2	..
New Independent States	0,0	0,8	..	0,7	0,7
Middle East Countries	…	…	..	..	..
Subsaharian Africa	…	…	..	..	..
North America, Mexico	10,0	24,9	150	19,9	2,9
Latin America	1,6	2,3	38	1,8	-1,0
Southern Asia	0,6	0,5	-21	0,4	-0,7
Eastern Asia	0,8	1,3	69	1,1	-0,3
Oceania	0,5	0,8	40	0,6	-0,3
Offshore Places	0,5	0,7	46	0,6	-0,3
World	58,9	125,3	113	100,0	0,0

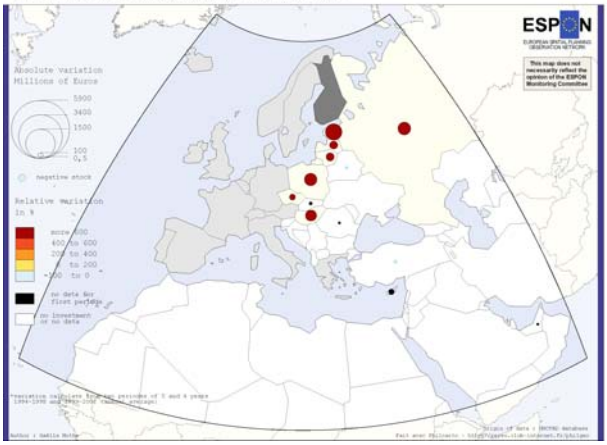
Source: Unctad. Notes: see table 11-5

Figure 11-13 : Geography of FDI of ESPON countries in the neighbourhood. Finish investments in the neighbourhood (stock)

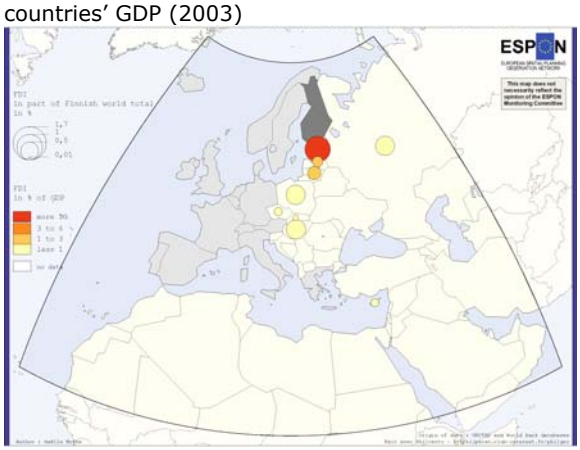
Destination of Finish FDI outward stock (2002)



Variation of Finish FDI outward stock (1994-2002 *)



% of total Finish FDI, and % of the receiving countries' GDP (2003)



% of total Finish FDI, and € per receiving countries' inhab.(2003)

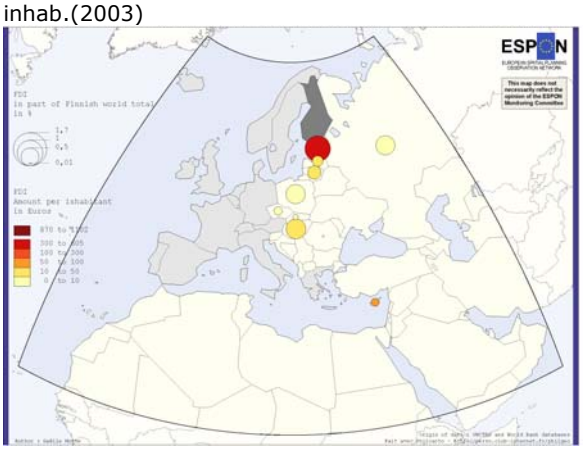


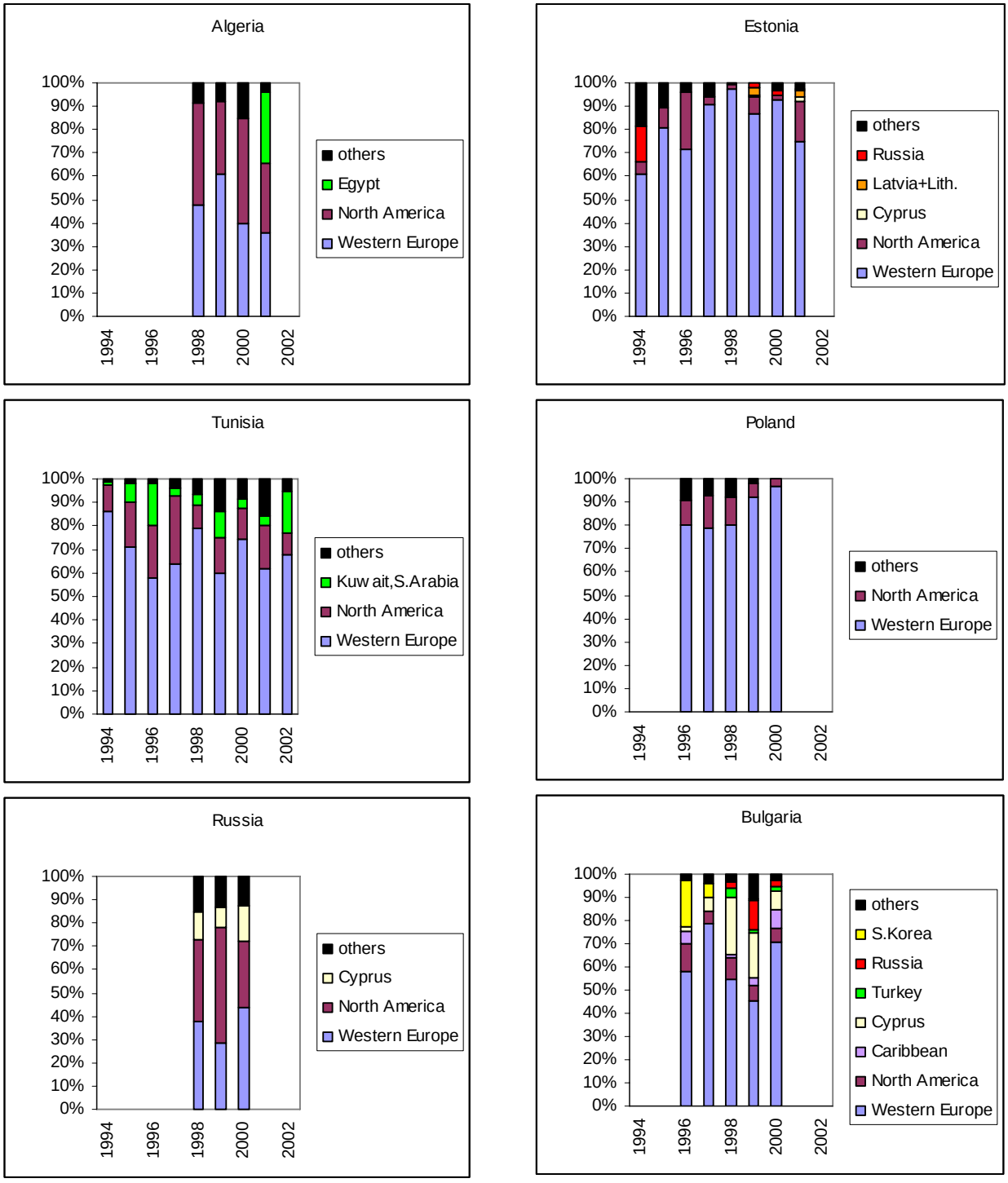
Table 11-8 : Finish FDI stock abroad, by geographical destination (1994-2002)

	annual average (b €)			weight out of world total	
	1994-1998	1999-2002	evol (%)		evol (points)
Regions:	(a)	(b)	(b) / (a)	% (b)	(b) - (a)
Western Europe	11,77	41,66	254	79,4	4,4
CEE Countries	0,08	1,34	ns	2,6	2,1
Med Countries	..	0,07	..	0,1	..
Turkey	0,02	0,01	-51	0,0	-0,1
New Independent States	0,04	0,33	ns	0,6	0,3
Middle East Countries	..	0,01		0,0	..
Subsaharian Africa	0,01	0,04	ns	0,1	0,0
North America, Mexico	2,81	6,87	145	13,1	-4,8
Latin America	0,22	0,48	115	0,9	-0,5
Southern Asia	0,08	0,19	ns	0,4	-0,1
Eastern Asia	0,20	1,14	474	2,2	0,9
Oceania	0,07	0,22	207	0,4	0,0
Offshore Places	..	..	..	..	..
World	15,70	52,48	234	100,0	0,0

Source: Unctad. Notes : see table 11-5

The figure 11-15 shows how highly European neighbours depend on western European FDI. The two-thirds of FDI in Tunisia, Estonia or Bulgaria, three-quarters in Poland or Slovenia come from Western Europe. It is less true in Russia and Algeria where the US investors play a bigger role (in oil industry can one imagine, but in both case inflows of FDI remains very low). As a whole, our neighbours depend incomparably more on European investors than on American. Another outcome of these figures is the noticeable emerging role of regional or sub-regional investors who are not western European: Cyprus financial place is a quite important investor in Bulgaria or Russia, Egyptian, Saudi and Kuwait (which numbers would much higher for 2005 data) investors in Tunisia and Algeria. A last striking thing is the very small and declining role of Russia among investors in Estonia as well as in all the other countries of Central and Eastern Europe. The only European countries where Russian plays a significant role among foreign investors are Belarus and Ukraine.

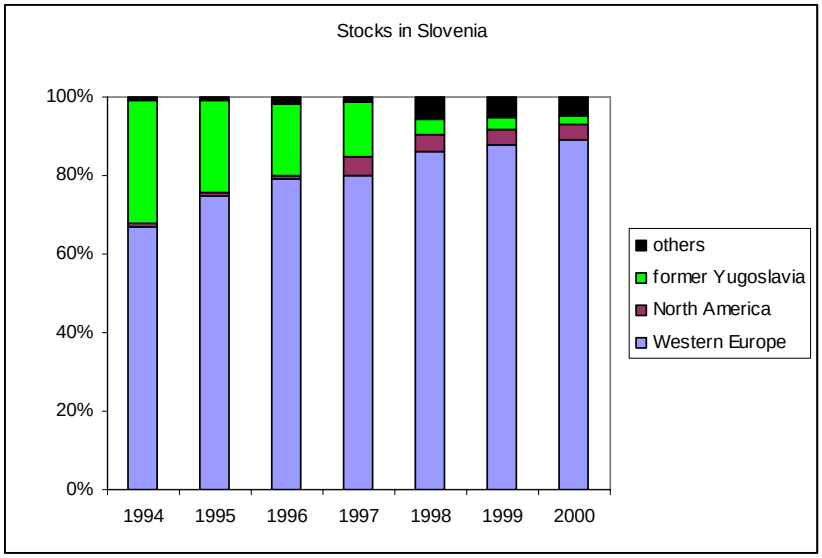
Figure 11-14 : Inflows of FDI, breakdown by geographical origin

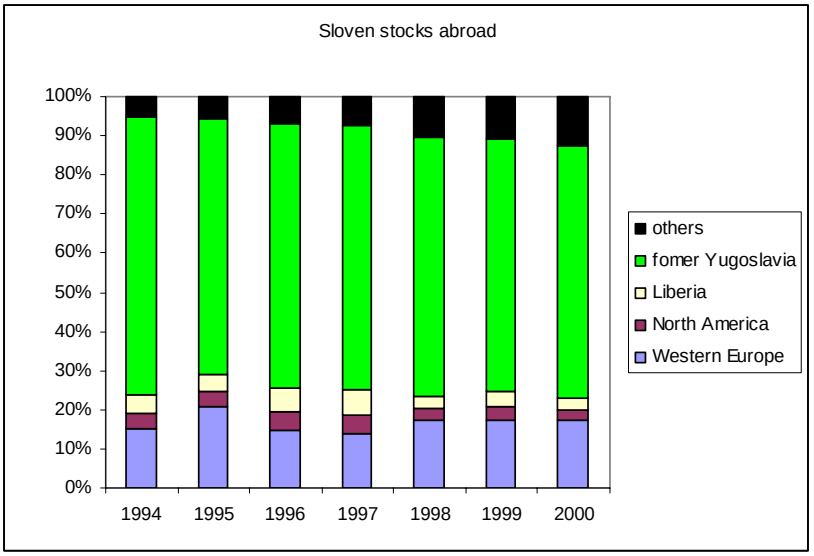


Source : Unctad

Figure 11-16 shows another process of sub-regional integration: Slovenia has recovered as a financial place for the whole former Yugoslavian space, where it invests the bulk of its FDI abroad.

Figure 11-15 : Stocks of FDI in and out of Slovenia



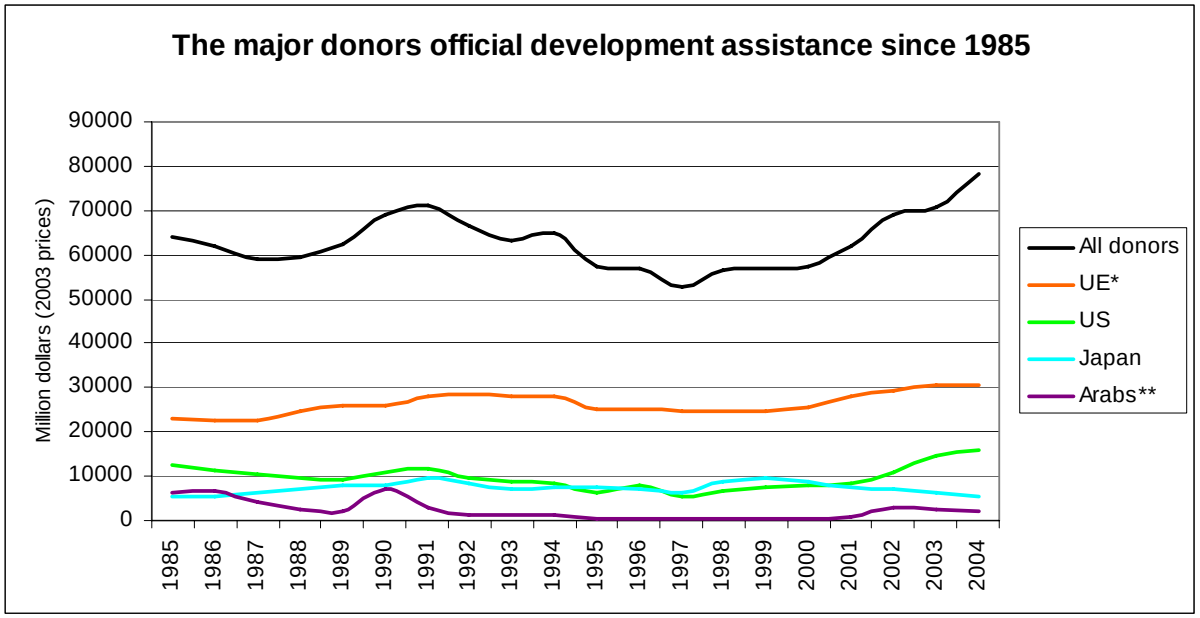


Source : Unctad

11.2.3 Flows – Public aid

11.2.3.1 Where does the European official development assistance go?

EU, that is to say European Union members together with the European Commission, is the first donor of Official Development Assistance to developing countries. The aid delivered by the EU 15 members almost matched the aid distributed by the United States in the 1960 and the beginning of he 1970s. Since then, the gap between these two donors has widened. In 2004, the aid really disbursed by the EU 15 members and the European Commission together represented more than 42 % of the total aid disbursed by all the donors in the world, 43 % in 2003, 42.5 % in 2002, 45 % in 2001 and 44 % in 2000. This – slight – decrease in relative terms, is counterbalanced by the absolute terms, since the total amount of the aid flows disbursed have grown up from 53.300 billion dollars in 2000 to 72 million in 2004.



Although EU is by far the first donor, its official aid is not harmoniously distributed. The table 11-9 shows the share of each important OECD member in the total aid disbursed in six developing regions. This document can be interpreted in two different ways. It shows where EU (EU 15 members + European Commission) is the more important donor in percentage terms. EU is the first donor in almost all the receiving regions, except in Oceania and Eastern Asia, where Japan is the first one. The status of EU as first donor is mostly obvious in sub-Saharan Africa, in Eastern Europe (CEE, NIS and Balkan countries together) and secondarily in Latin America. It also shows that EU gives the most important amount of aid in absolute terms in sub-Saharan Africa, and secondarily

in Central and Southern Asia and in Northern Africa and in Near and Middle East. The aid sent to the neighbourhood (clusters 1 and 2) represented only 23.5 % of the total aid disbursed in 2002 and 2003.

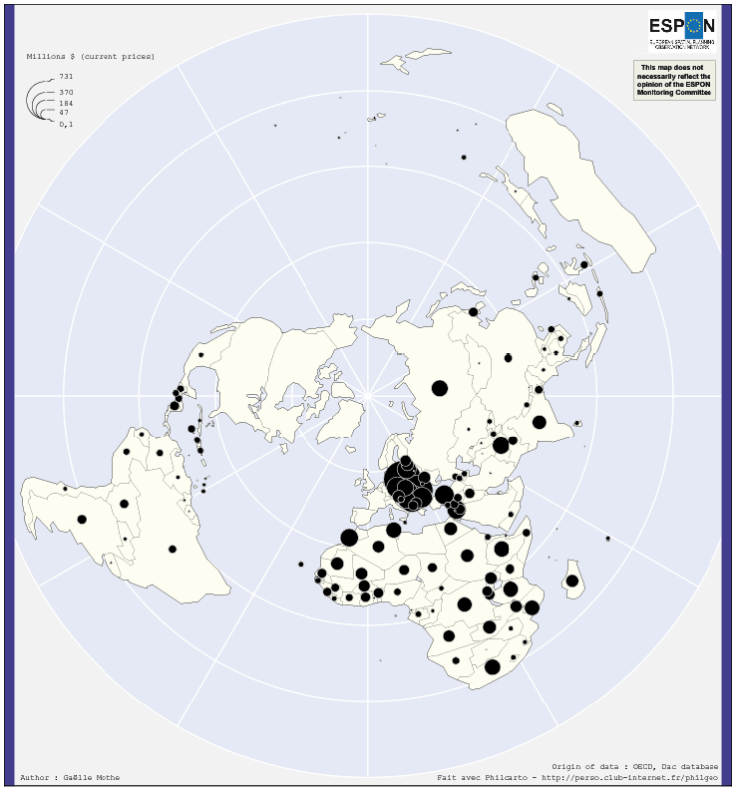
Table 11-9 : The official development assistance disbursed by the main donors in the world (2002-03, Million constant US dollar, 2003 prices)

	1	2	3	4	5	6
Japan	252	630	932,4	118,4	3011,4	6615
Etats-Unis	1213,8	3559,82	5048,4	2410,9	2831,6	1100,3
Eur Commission	1153,7	1048,28	2900,92	540,62	613,14	336,24
EU 15 membres	3338,28	3465,37	17986,63	4180,39	4756,71	3560,96
Other OECD countries	657,7	463	222	643,8	1000,3	1544

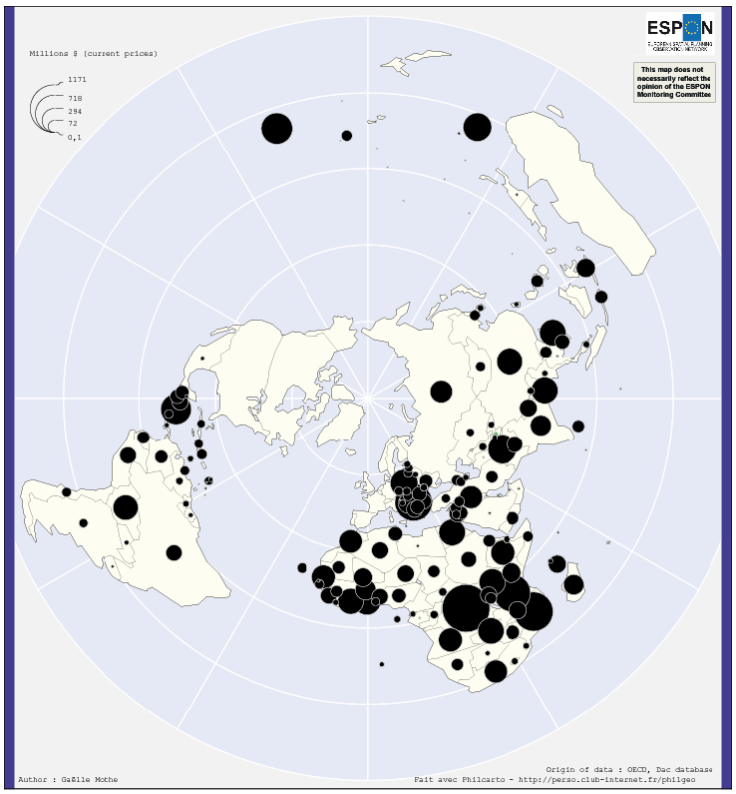
Source: OECD, DAC base.

The maps (11-12 to 11-15) show dramatic difference in the distribution of aid disbursed by the main donors. The two first maps show surprising differences between the geography of aid delivered by the European Commission and the one delivered by the EU members, the latter being largely higher than the former (roughly 7.2 and 23.3 million dollars in 2004). The official aid of the **European commission** is very much focused on certain regions. It is clearly oriented towards the CEE Countries, Turkey and Palestinian Territories. It shows that the European Commission makes special efforts towards the neighbourhood, and secondarily to sub-Saharan Africa. The aid disbursed by the **EU members** does not show the same patterns at all. The CEE Countries also receive huge amounts of aid. But the aid is geographically better balanced than in the previous case, although some countries of southern Africa received significantly more during the last period. Contrarily to the aid of the European Commission, the neighbourhood is not particularly pointed by the aid of the EU members. Among other factors, this situation is mainly due to the existence of strong relations between certain European countries and their former colonies (Latin America for Spain, Africa for UK, Belgium and France…). The geographical pattern of the aid disbursed by the **United States** is quite different. This map highlights the concentration of the US aid on a few regions: Central America and the northern part of Southern America, Near and Middle East, Southern Asia, Eastern and Central Africa. The importance of Middle East is reinforced on the map by the aid disbursed in Iraq consequently to the war against Saddam Hussein. It shows to which extent the United States are involved in the aid towards Mediterranean countries such as Jordan, Palestinian Authority, Lebanon, Egypt and so on. The aid delivered by **Japan** is more oriented to countries of South, South-Eastern and Eastern Asia. In this case, the regional pattern is much more obvious than in the cases of USA and EU members: Africa and Latin America are clearly left to other donors.

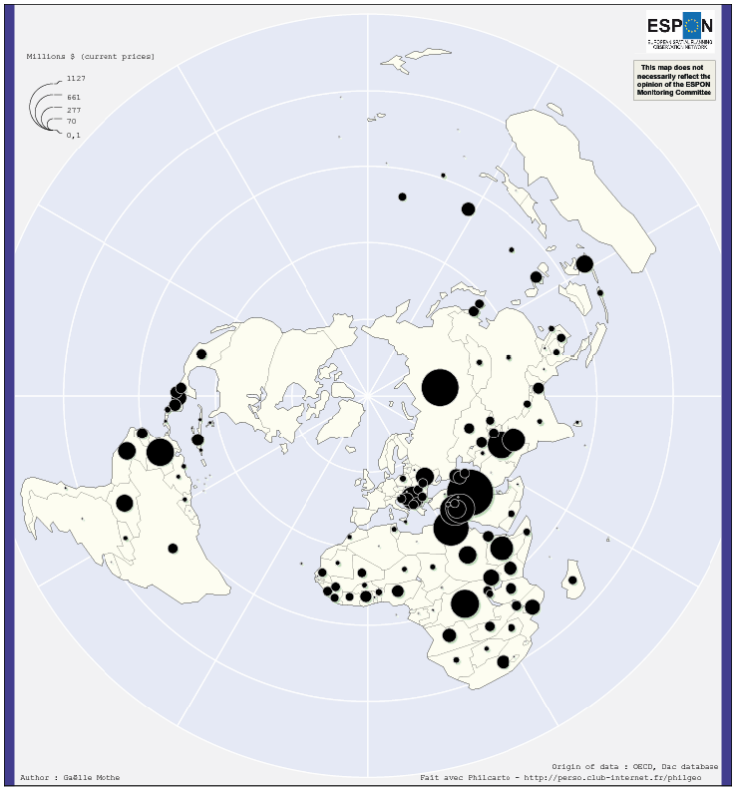
Map 11-12 : Geographical breakdown of European Commission's official development assistance from 2001 to 2004.



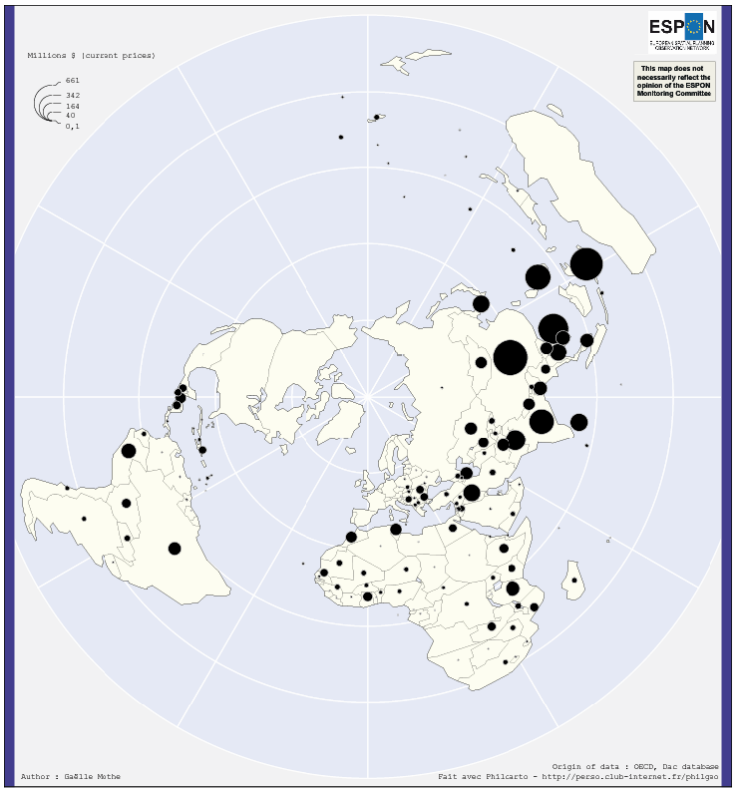
Map 11-13 : Geographical breakdown of EU 15 members' official development assistance from 2001 to 2004.



Map 11-14 : Geographical breakdown of United States' official development assistance from 2001 to 2004.



Map 11-15 : Geographical breakdown of Japan's official development assistance from 2001 to 2004.



11.2.3.2 What is the evolution of the European aid in the neighbourhood?

In the neighbourhood, the breakdown of EU's official assistance has undergone dramatic evolutions since the 1990s. The graph in the volume 1 (graph n°XX, volume 1, page XX) shows a rapid increase of the aid disbursed in the CEE Countries by the European Commission. This increase is due to the implementation of various development financial programs such as Phare, Ispa, Sapard. All these programs aimed at facilitating the structural reforms of post socialist countries in order to help them on their way to reach the EU member status. These programs still exist nowadays, although those countries are already or will soon be members, but they are gradually stopped and replaced by structural funds.

The graph shows that the growing importance given to CEE Countries by the European Commission, whose official aid reaches the same amount of money as in the rest of the world, is unique. The other neighbours of EU have not enjoyed such an aid increase, except for the Western Balkans. This growing gap between the CEE Countries and the South and East Mediterranean neighbours is worrying because, in the same time, the flows of foreign direct investment have remained tragically low. Such a lack of international financial flows is not that harmful for oil and gas producers such as Algeria, but it is harmful to other countries without such resources. The financial base of the MEDA program is not sufficient at all. Besides, the aid flows sent to CIS countries have also stayed very low despite the implementation of the TACIS program. Such aid is not that vital for the Russian Federation, thanks to oil and gas exports, but it is a major subject of concern for other countries such as Ukraine, Moldova, Armenia or Georgia which do not export such primary resources.

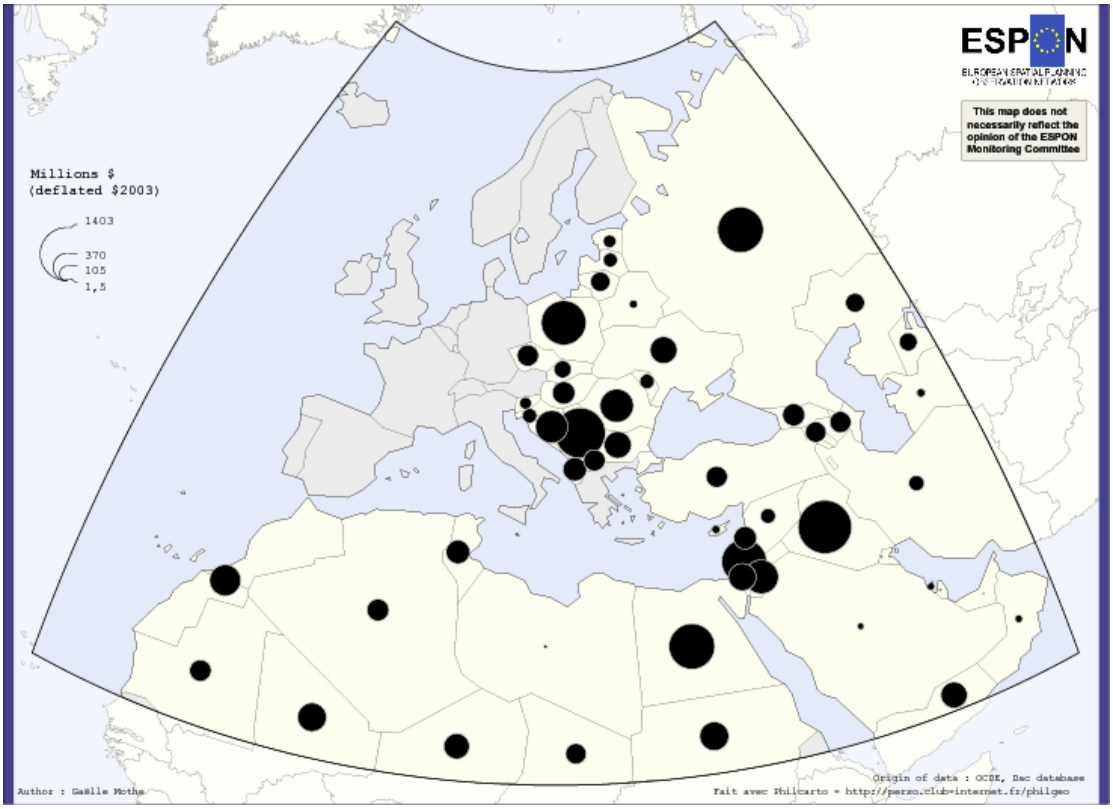
The aid disbursed by the EU members does not show the same pattern. Although EU members give more money than the Commission to the neighbour countries in absolute terms, the share of the neighbourhood in the total aid disbursed by them in the world is much weaker than in the Commission's case.

11.2.3.3 What is the weight of Europe as an assistance donor in the neighbourhood, in comparison with other donors?

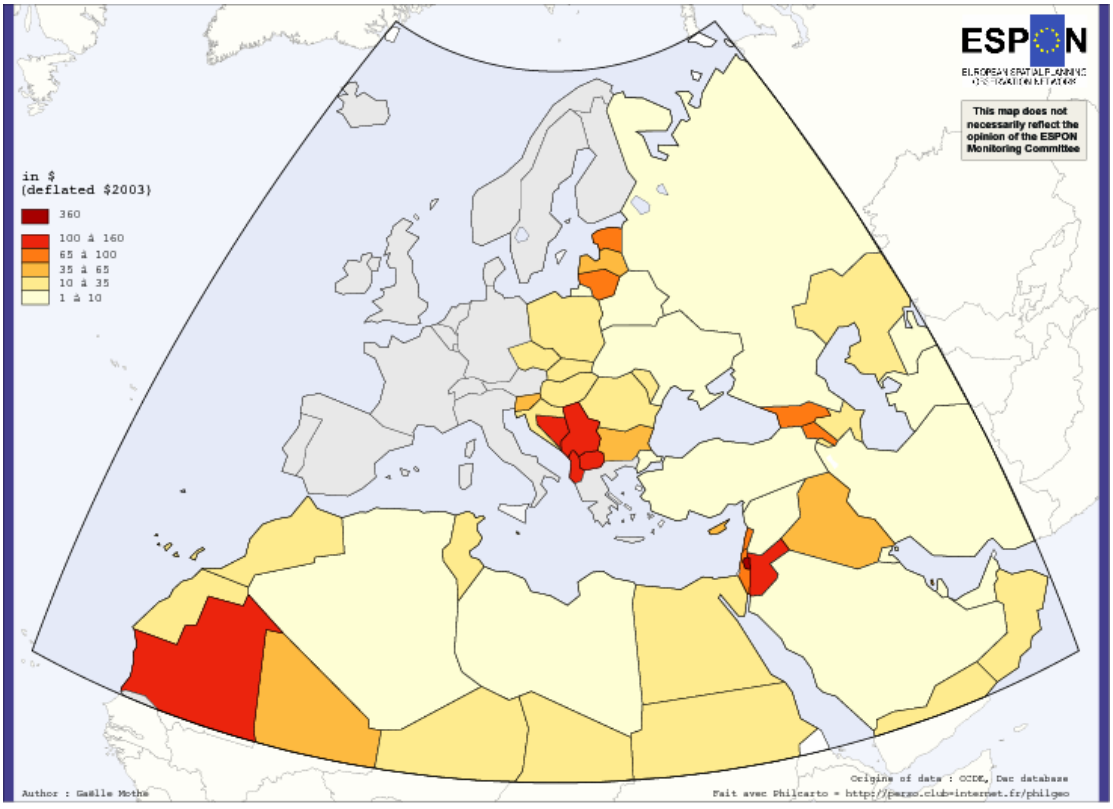
There are two methods to present the geographical distribution of aid flows in the neighbourhood: in absolute terms and in dollars per inhabitant. In absolute terms, the list of major receivers of aid development has changed since the beginning of the 1990s (map 11-16). The countries of the Balkans and of Central and Eastern Europe received small amounts of assistance in the first half of the 1990s. Their share has even sharply increased throughout the whole period up to 2004. The amounts received by CIS countries have either increased (Caucasian countries) or decreased (Russian Federation, Ukraine, Central Asia). Apart from Iraq the amounts received by Middle East (Egypt, Palestinian Authority, etc.) and North Africa have also decreased. In the same time, those received by Sahelian countries remained stable.

In dollars per capita (map 11-17), the top list of receiving countries is not quite the same. The two following maps allow to qualify what is said above about the weakness of aid flows oriented to Northern Africa compared to Central and Eastern Europe. The major receivers are countries of the Middle East, Western Balkans and some countries of Central and Eastern Europe and Caucasus. The maps show that the gap between Northern Africa and central Europe is not that wide. There are doubtlessly huge difference between the Western Balkans and Northern Africa. But Morocco, Tunisia and Egypt have received roughly the same amounts of dollar per inhabitant as many CEE Countries.

Map 11-16 : Total net official development assistance to the EU neighbourhood from 2001 to 2004.



Map 11-17 : Net official development assistance per inhabitant in the EU neighbourhood from 2001 to 2004.

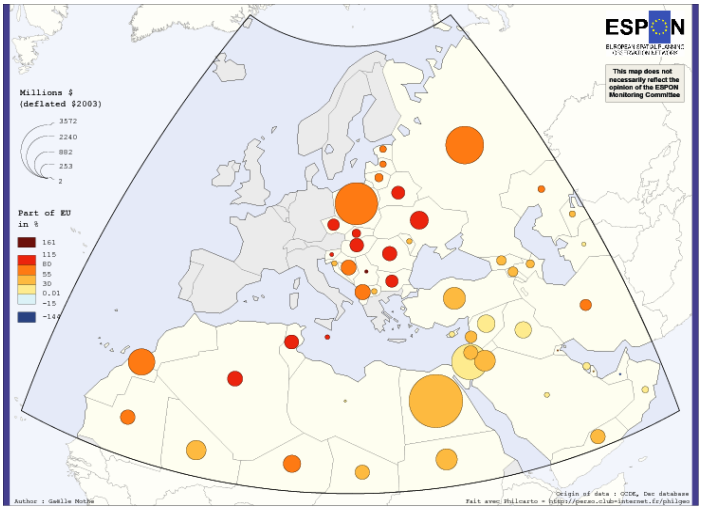


The share of EU (map 11-18 & 11-19) in the flows oriented to the neighbourhood of EU 15 varies a lot. It is not surprising that its share is higher in the CEE countries, which are no more neighbour countries since they are full members), in the Balkans and in the Maghreb countries. But its share is lower in the Near and Middle East. Besides, one can notice several evolutions since 1990:
- A slight but regular decrease of the share of EU (EU 15 + European Commission) in Northern Africa.
- A significant decrease in the Near and Middle East and in the CIS.
- A relative stability in the Western Balkans where the reconstruction and the financial support of fragile economies is largely supported by EU (CARDS programme and other financial assistance).

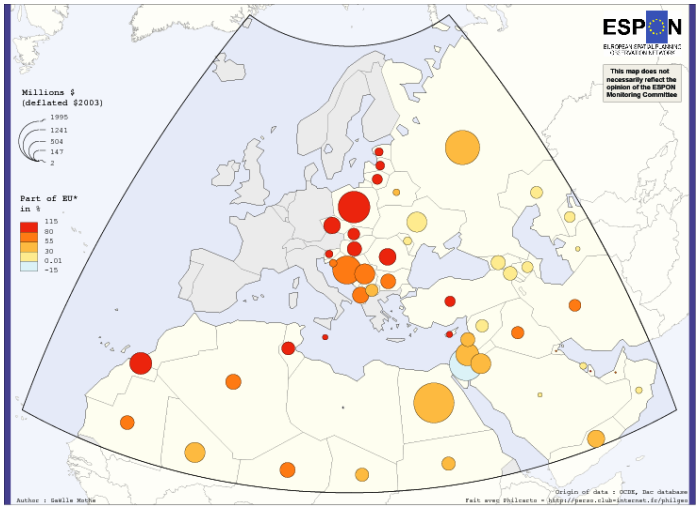
Meanwhile, the Near and Middle East receives more development assistance from the United States than from the EU (map 11-21). US assistance is very much focused toward a few countries. In absolute terms, it is concentrated in Israel, Iraq, Jordan and Egypt. In percentage terms, it dominates in Israel, Jordan, Iraq and also in Russia. Such a geographical distribution is not really traditional. Only Israel received significant amounts of development assistance in the 1990s while the other countries did not. The recent increase in Iraq is due to the reconstruction of the country after the war. Besides, it is clear that Turkey is much more supported by EU than by the United States.

At last, the aid disbursed by the Arab countries (map 11-22) and development agencies is very much focused on the Middle East (Arabic peninsula), in the East Mediterranean (Palestinian territories, Turkey, etc.). Generally speaking, their share on the assistance is not dominant but significant in many countries located in Central Asia, in the Caucasus, in Northern Africa and even in the Balkans (Albania, Bosnia) where the Muslim populations are in majority.

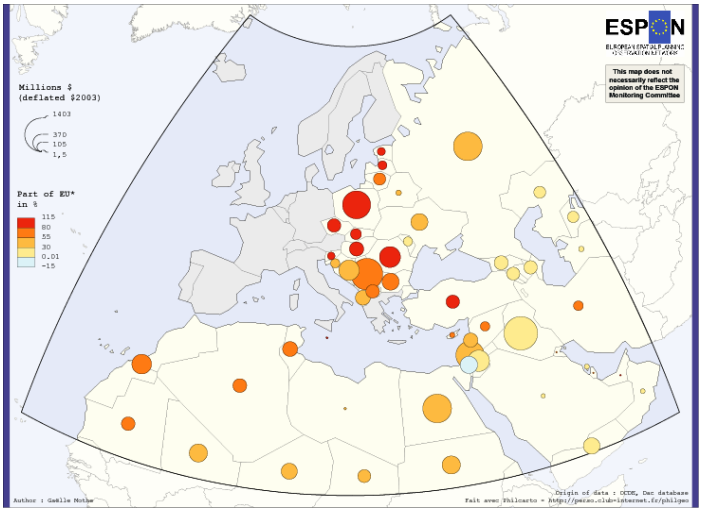
Map 11-18 : Net official development assistance to the EU neighbourhood and share of the EU (Commission + EU 15 members) from 1991 to 1995.



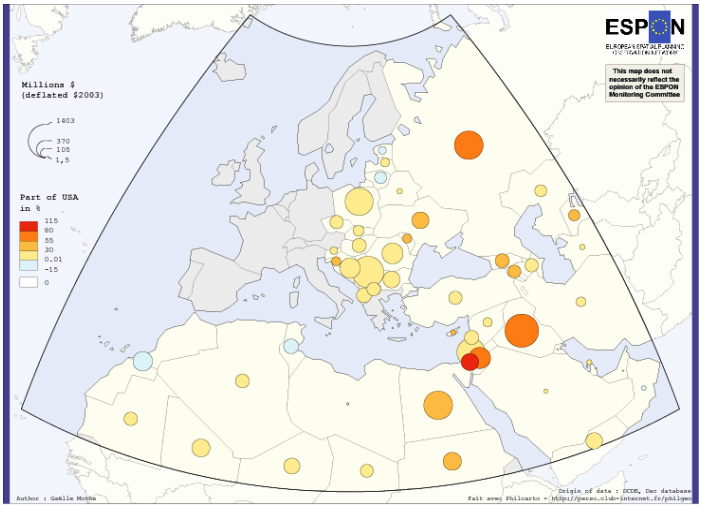
Map 11-19 : Net official development assistance to the EU neighbourhood and share of the EU (Commission + EU 15 members) from 1996 to 2000.



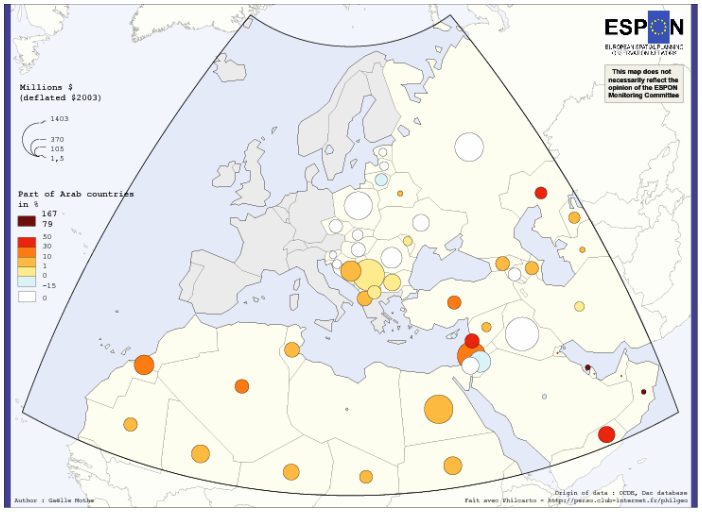
Map 11-20 : Net official development assistance to the EU neighbourhood and share of the EU (Commission + EU 15 members) from 2001 to 2004.



Map 11-21 : Official development assistance to the EU neighbourhood and share of the USA from 2001 to 2004.



Map 11-22 : Official development assistance to the EU neighbourhood and share of the Arab countries and Arab agencies from 2001 to 2004.



11.2.4 Flows - Workers remittances

Workers remittances constitute a huge amount of financial flows (hundreds of annual billions dollars worldwide). OECD and the World Bank have recently created a working group to study these flows, which have several advantages for the developing countries: (i) they are often bigger than public international subsidies, and sometimes than the FDI inflows; (ii) they show quite stable, which is accurate for development strategies; (iii) they are bottom up (individual workers send money to their individual family), which prevents from corruption or bad governance and is good for local projects.

The region entails several of the largest beneficiaries of these flows in the world: Jordan, Morocco, then Tunisia, Lebanon... The numbers have been decreasing in the European countries that used to be emigrant countries: see the case of

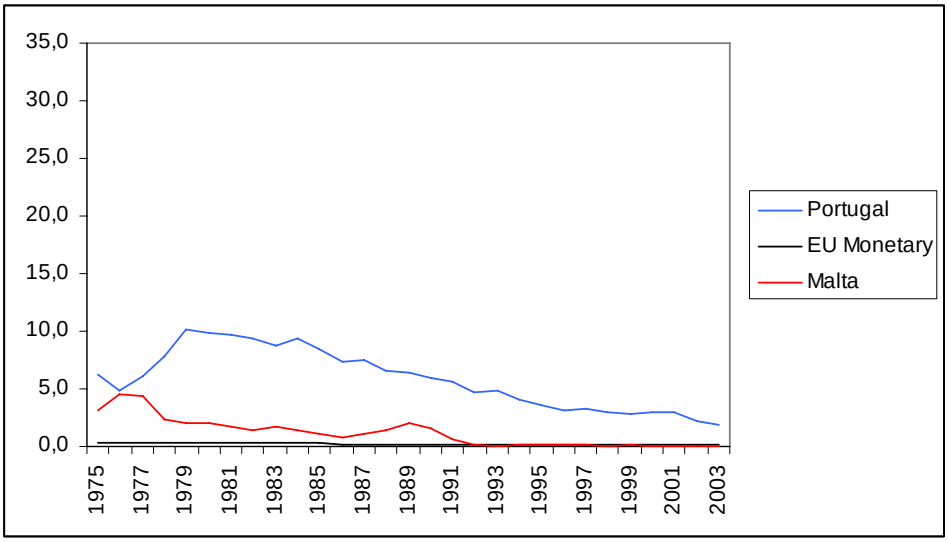
Portugal and Malta for instance in fig. XX. They show quite stable and high in the southern neighbouring: for Jordan, Morocco and Tunisia, remittances are some sort of a "build in" component of development. It used to be the case in Egypt, but the return of the enormous mass of migrant workers from Libya and the Gulf since a decade has lowered this financial manna. The most erratic evolution in the one of Lebanon, whose diaspora, that boomed during the civil war, constitutes along with the banking sector the main source of national revenues.

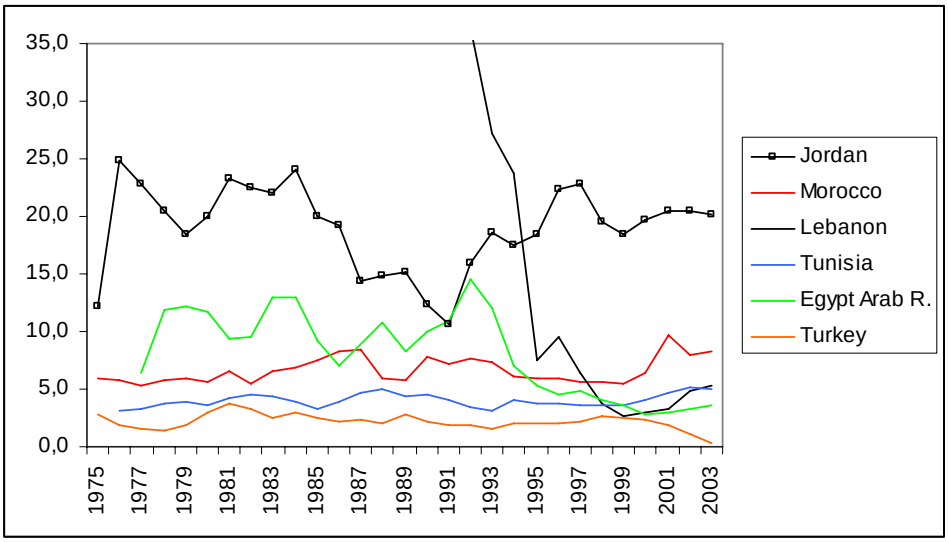
Remittances are useful revenues, but they are in fact a mixed blessing. In the case of countries that depend highly – and more and more in the case of Egypt for instance – on rent economy, remittances are a part of the difficulty. Many Arabic countries hardly make profits, they rely on rent revenues, internally (urban land and real estates revenues) and internationally (remittances, tourism, oil, Suez Canal's fees for Egypt). The WB report on development in the Arab world (World Bank 2004) criticizes that this rent economy runs the bulk of relations between Europe and its southern neighbours.

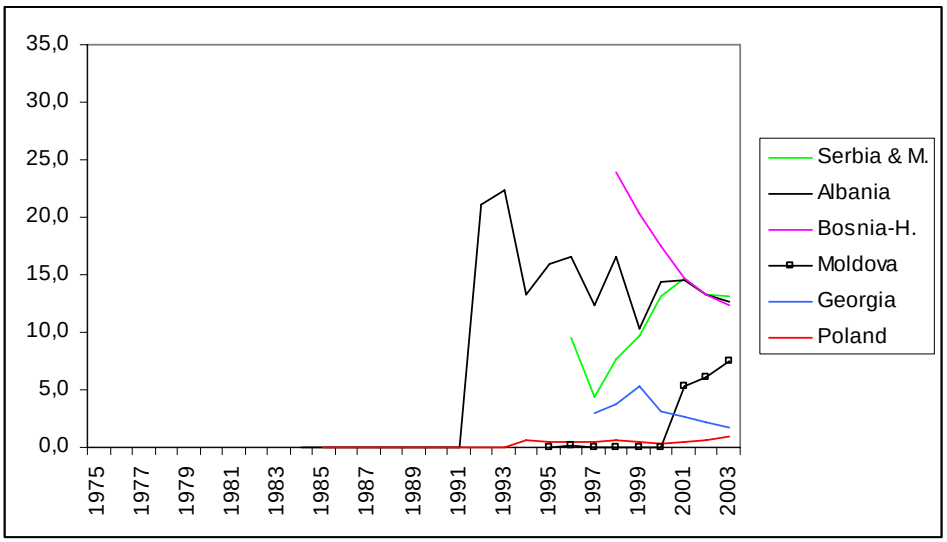
Turkey shows another profile: the share of remittances in the GDP has been declining since the end of the 1990ies, thanks to the overall economic development (growth of GDP) and to the rise of a true productive system, generating profits rather than rent incomes. That is also the path followed by CEEC by the way (see Poland).

Some new players appear in the south-eastern neighbouring: Albania after the country was opened a decade ago, which provoked a soaring emigration to Greece (that would host today almost a million Albanese?); Moldavia since 2000, and Serbia too since the middle of the 1990ies (linked to a new emigration?). On the contrary Bosnians seem to have returned to their country, and reduce remittances. Much work is still to be done on this linked remittances and migration regional geography.

Table 11-10 : Workers' remittances (current $), in % of the GDP







Source: Word Bank

11.2.5 Flows – Tourism

Tourism flows show the quite high degree of regional integration. The countries of the region make roughly 90% of their tourism exchanges within the region (fig. XX). Transmediterranean flows have somewhat decreased since 2001 09/11, but they have almost recovered, and the rise of Turkish destinations has largely counterbalanced these Mediterranean losses. Table 11-11 gives the number for the arrivals in Egypt: 52 tourists out of 100 who arrive in Egypt, come from Western Europe, 4 from the CEEC, 9 from the NIS, 13 from the Meda countries and Turkey, 10 from the Middle East. Very few indeed – and less and less – come from other regions (3 from Northern America, 4 from Asia, see figure 11-17 too). Undoubtedly, tourism mobility is growing in the euromediterranean region (that is Espon + neighbours) as a whole. Of course tourism is only a peculiar index of mobility. But it clearly demonstrates that this growing mobility is a strong component of the regional pattern.

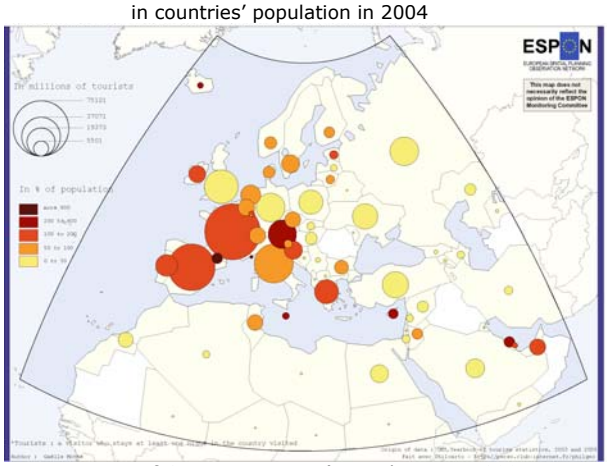
Table 11-11 : Destination (Germans, Spanish) and origin (Egypt) of tourists, %

	From Germany ann. average 2001-04	From Spain ann. average 2001-04	to Egypt ann. average 2001-03
Western Europe	77,4	84,2	51,9
CEEC and NIS	8,7	3,4	12,9
Turkey	4,3	0,5	0,5
North Africa and Middle East	2,7	2,6	22,5
Σ European Region	93,2	90,6	87,8
Americas	3,5	7,3	3,8
South & South-East Asia, Oceania	2,5	1,7	4,9
Sub-Saharian Africa	0,8	0,4	2,1
Total	100,0	100,0	100,0
(number, millions)	(77)	(18)	(5)

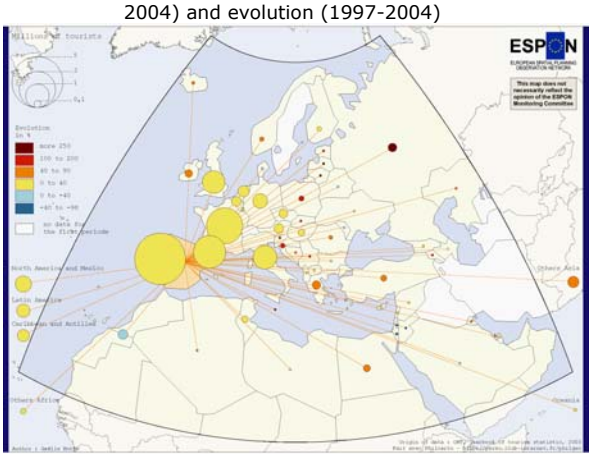
Source: OMT Yearbook of tourism statistics, 2003.

Figure 11-16 : Tourism flows in the European region

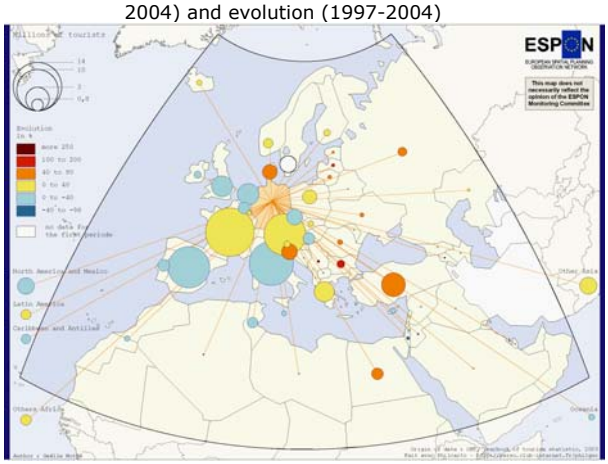
Arrival of non resident tourists at national borders, and % in countries' population in 2004



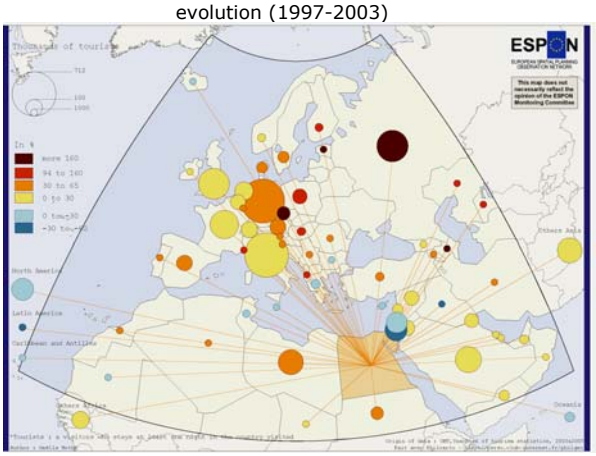
Destination of Spanish tourists (annual average 2001-2004) and evolution (1997-2004)

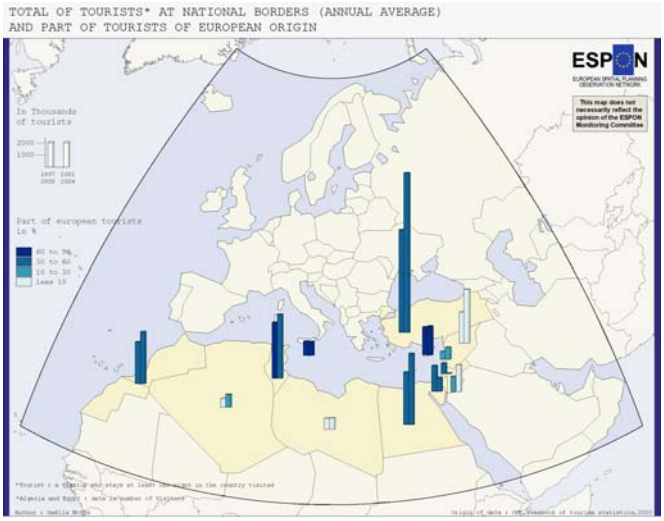


Destination of German tourists (annual average 2001-2004) and evolution (1997-2004)



Origin of tourists in Egypt (annual average 2001-03) and evolution (1997-2003)





11.2.6 Flows - International migrations

Northern America has been the dominant receiver of international migrations during the second half of the XXe century, both with respect to the relative size of net in-migration and of the total number of international migrants. But the importance of EU in the geography of migrations has been growing since the 1980s up to present. According to the data provided by OECD, EU has become a major receiver and is on the way to catch up with the United States. Meanwhile, the international migrations flows between EU members have stayed at a very low level although there is a total liberty of movement inside the EU territory for EU citizens.
Despite a strong process of globalization, the migration issue from neighbour countries is a major subject of concern for EU members for several reasons:
- As far as the North South model of regional integration is concerned, it is impossible for EU to reorganize its value chain on a wider territorial base, encompassing neighbour countries, if these countries are deprived from their highly skilled and educated workers.
- Europe should take care of recent developments with growing flows of highly educated workers from Northern Africa to Northern America whereas those who leave this region to Europe are less educated (Fargues, 2005).

To study the international migration flows is very challenging. There are many types on international migration flows: migrations of workers, migrations of refugees, definitive or temporary migrations, local and long distance flows, etc. There is no unified statistical tool: each country utilizes its own definitions which are often not strictly comparable to those implemented in other countries. Many countries, especially the developing countries, do not provide the analysts with data about out-migrations. This explains why the in-migration flows are much better known than the out-migration ones. Consequently, there is generally no correspondence between data provided by Mediterranean and European countries about the trans-Mediterranean migrations. This data problem also explains why the South-North flows are better known than the South-South ones, and why they are analysed from the point of view of the receiving countries (that is Northern America, European countries, etc.). For instance, Middle East (Arabic peninsula mainly) is a major migration destination, but one would hardly find reliable data about the flows converging to this region. Besides, a significant part of the migration flows is composed by illegal migrants. Although many reports regularly try to do so, it is hardly possible to give any relevant estimation of their number, especially because a majority of them legally enter their country of destination, with a tourist visa for example. At last, the geography of international migrations is more and more complex: the traditional regional patterns, mainly based on proximity and eventually former colonial relations, are step by step replaced by more distant flows. In addition, former

regions of departure have also become regions of destination – this is the case of Maghreb for example.

Nevertheless, the available statistical sources and several reports make possible a study of migration flows between EU (ESPON) and the neighbourhood countries. This subpart aims at answering the following questions: what is the relative importance of neighbouring countries in the migrations flows oriented to EU and ESPON? Is there one or several neighbourhoods - each one being characterized by its on migration patterns? What is the impact of migrations coming from the neighbourhood in the internal ESPON territory?

11.2.6.1 What is the relative importance of the neighbourhood in the migration flows converging towards European Union and ESPOIN space?

Throughout the 1980s and 1990s up to now, the neighbourhood has been a major origin of the migrants coming to Europe (see Final Report – Volume 1 – Map 45 – Page 129). There are tight relations between France and Northern Africa countries for example. These relations between both shores of the Mediterranean have even been reinforced in the 1980s since countries such as Italy and Spain have become major in-migration countries. In the 1990s, these traditional flows have been brutally combined with new kinds of flows coming from the Eastern neighbourhood and the Balkan countries. First, after the collapse of the socialist bloc, migration flows coming from Central and Eastern Europe (mainly for economic reasons or even eco-ethnic reasons in the case of the German Aussiedlers) have grown up rapidly. But they were never as massive as those coming from the South. Secondly, because of the long lasting political instability of the Balkans, Western Europe had to handle massive flows of refugees coming from former Yugoslavia (mainly form Bosnia).

It is impossible to evaluate the relative importance of the flows coming from the neighbourhood in the total of flows converging to EU and ESPON. The statistical sources of receiving countries are not based on the same statistical definitions. Nevertheless, the existing sources allow us to draw some conclusions. In the 1990s and in the 2000s, the international migrants who entered EU countries and who came from other EU countries were a minority in the total flows: around 25 % per year. Those who came from the neighbourhood (Northern Africa, Near and Middle East, Turkey, Balkans, CEE countries and Western CIS) represented between 40 and 45 % of the whole (OECD, 2005).

As far as the stock of foreign of population residing in the EU is concerned, the importance of the neighbouring country is also high. It is estimated that roughly 20 million foreigners lived in EU before its enlargement in 2004. Among this

total, only 5 million came from EU. According to a study recently released by the CARIM (Fargues, 2005), in 2002 5.8 million came from the South and East Mediterranean countries. A large majority were of Turkish (around 2.7 million), Moroccan (around 1.6 million, see Final Report – Volume 1 – Part C – Box 7 and Volume 3 – Case study about Morocco) and Algerian (around 0.75 million). That means that the migrants from all neighbour countries represent largely more than one half of the total. It is more difficult to give any comprehensive appraisal of the share of residing migrants coming from Balkans and the CIS because of serious data gaps. According to the OECD, they represent a large share of foreigners in certain ESPON states: more than 24% in Switzerland in 2001, 45.3% in Austria, 13.5% in Germany, 13 % in Denmark and roughly 10 % in Hungary (OECD, 2005). Their number was higher in the 1990, while and just after the war in former Yugoslavia.

The importance of EU and ESPON as destinations for the migrants coming from neighbour countries is high in certain cases. But it is difficult to measure the share of EU and ESPON as destinations in the out-migrations flows, because of data gaps in the countries of origin. The CARIM estimates that there are between 10 and 15 million international migrants coming from South and East Mediterranean countries in the World (first generation only). A bit less than half of them are living in EU. Besides, there is no doubt that a majority of the migrants who also left Eastern neighbours are residing in the EU territory. One can see an increase of the flows coming from CIS in Czech Republic and in Hungary for example. Their number has also been growing in West European countries such as Germany, Italy and Portugal since the beginning of the 2000 but we still miss precise studies about the size of such flows.

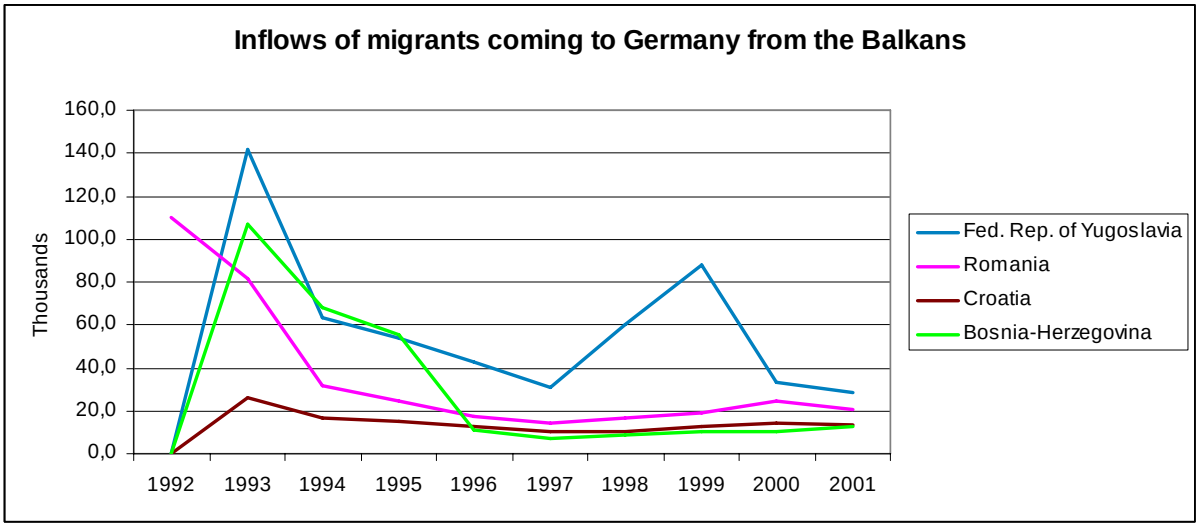
11.2.6.2 Is there one or several neighbourhoods?

One can not consider the neighbourhood as a homogeneous whole. Not all the migration flows coming from neighbour countries are oriented to EU. Some neighbour countries send much more migrants to the rest of the world. Some of them are even destination countries and show positive net-migration rates while others have negative rates. To these respects, one can distinguish several sub-regions in the EU neighbourhood, characterized by various patterns of migrations.

The main difference lies between the Southern and the Eastern neighbourhoods. The South and East Mediterranean countries emit much more out-migration flows than the Eastern neighbours. Only the former Yugoslavia could be compared to Mediterranean countries but only in the 1990s, for the out migrations from this

region have strongly decreased since the beginning of the 2000s, as it is shown by the graph below based on the German example.

Figure 11-17 : Inflows of migrants coming to Germany from the Balkans



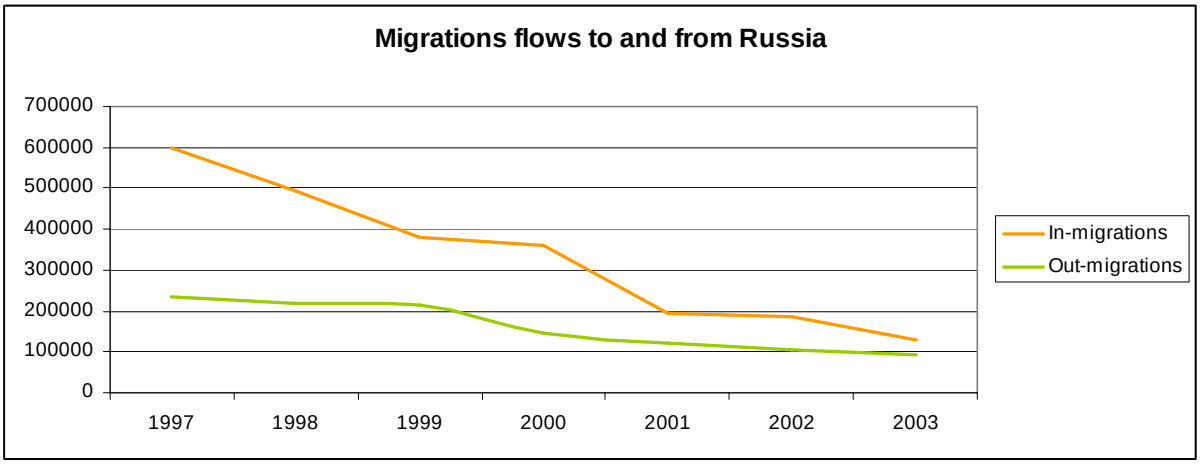
The huge difference between South neighbours and others is due to very different demographic situations. A majority of eastern neighbours show bad demographic performances since the end of the 1980s and have even lost population. They are themselves in need of migrants, as it is the case in Russia whose migration rate has been positive most of the time since the outbreak of the USSR. That is why the flows coming from the East have never been as massive as they were expected – or feared – to be by the Western European countries in the beginning of the 1990s. The migration rate was still positive in 2003 in Russia, but the flows have been sharply falling since the 1990s. Since 2005, President Vladimir Putin tries to change the Russian legislation related to the acquisition of citizenship and to the management of migration flows. This decision has been followed by new bills voted by the State Duma, which aim at attracting especially ethnic Russian who still live in former Soviet Republics. According to various sources, the number of illegal migrants in the Russian Federation lies between 7 and 14 million but Russia must face up with a serious demographic deficit (see table below).

Table 11-12 : Evolution of population in CIS neighbours

	1990	1995	2000	2004
Russian Federation	148292000	148141000	146303000	143849600
Ukraine	51892000	51512300	49175850	47451290
Moldova	4363950	4338750	4274639	4217911

Source: World Bank

Figure 11-18 : Migration flows to and from Russia

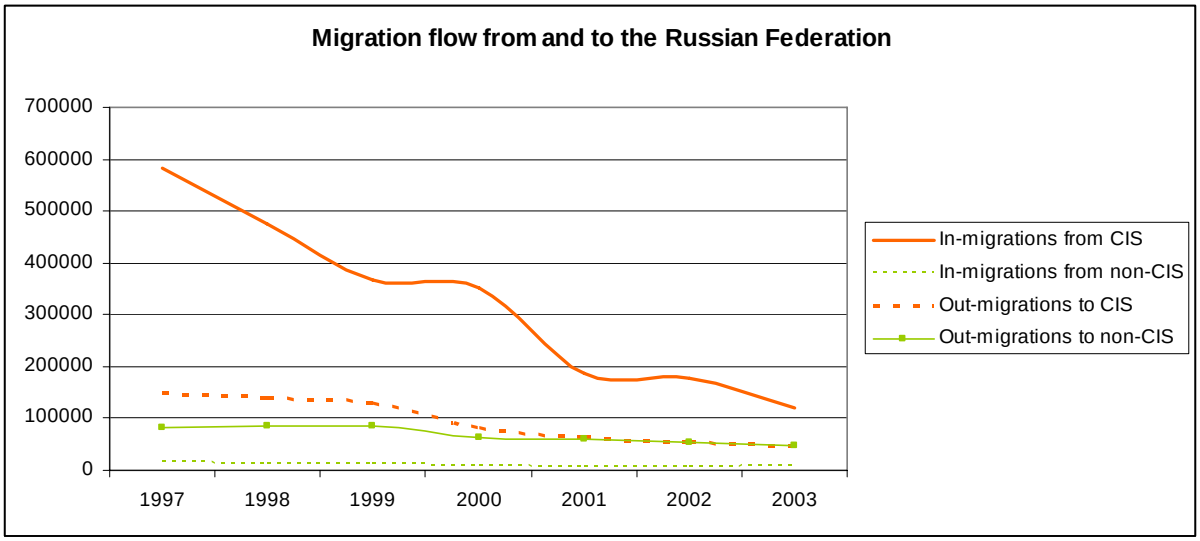


Middle East countries also send relatively few migrants to EU. Those who leave Syria, Jordan and Egypt are going mostly to oil producing countries of the Persian Gulf and mainly to Saudi Arabia where the needs for workers are high. In almost all the countries of the Arabic peninsula, the international migrants represent more than half of the labour force. Middle East foreign residents almost never appear in the top list origins in the OECD members, except for Irak. But, in this case, these migrants are probably composed by a significant share of refugees.

A large majority of migrants who leave Algeria, Morocco, Turkey and Tunisia go to EU. Whereas those who leave Egypt mainly go to Arab countries, and those who leave Lebanon go to other countries (mainly in Northern America). Almost all the temporary Egyptian labour force working abroad in 1999 (1.9 million) was concentrated in the Middle East countries: 924 000 in Saudi Arabia, 333 000 in Libya, 227 000 in Jordan, 191 000 in Kuweit, 95 000 in the United Arab Emirates (Fargues, 2000; Wihtol de Wenden, 2005).

The situation is almost the same in the former USSR where Russia attracts the majority of migrants who decide to leave CIS countries (de Tinguy, 2004). But the situation has been changing since the middle of the 1990. It seems that the migratory system of Russia is getting step by step less CIS based and more connected to the rest of Europe. As far as the out-migration flows from Russia are concerned, the share of non CIS countries as destination countries is now the same as that of CIS countries; the sole Germany represents roughly 40% of the total outflow leaving the Federation (Goskomstat Rossii, 2005).

Figure 11-19 : Migration flow from and to the Russia Federation



At last, it is possible to distinguish different kinds of neighbourhood with respect to the evolution of their migration rate. The box below shows that it is impossible to draw a unique view – thus an unique policy – of migrations in the neighbourhood.

Migration rates in the neighbourhood : a great variety of situations

In the Soviet bloc, during the period up to the end of the 1980s, the net-migration rates were relatively stable. During the 1990s, they began to drop. Especially sharp was the fall in Armenia and Georgia. The explanation is probably the same as for the Baltic States – the Russians returned home (one indication that many Russians went back home during the 1990s is that Russia shows a small but constant upward trend, from negative to positive; this trend seems to develop). Besides, the three Caucasian states (Armenia, Azerbaijan and Georgia) are localised in an area with wars, conflicts and disorder – things that hamper immigration and stimulate emigration. Moldova has shifted from being an immigration part of the Soviet Block, to a country with a relatively high migration deficit nowadays. It is a small country with low living standard – one of the lowest in Europe – and many people seem to try to find a way out of the situation by emigrating westwards. Ukraine is another country that has transferred from being an immigration to an emigration country. In this case it is probably the Russians that have returned but migration westwards is another part of the explanation. On the other hand, Belarus shows an upward trend regarding net-migration. From being an emigration part of Russia, it is today a country with net-immigration.

All the three countries in Central Asia - Kazakhstan, Turkmenistan and Uzbekistan - have experienced long-term negative development with respect to the migration rates.

The Maghreb countries experienced different migration patterns during the second half of the 20th century. During this time, many political events took place and these countries lost their colonial ties during the 1950s. Morocco, Algeria and Tunisia have had negative migration rates during all the period. Libya shows quite another pattern; in this case the immigrants are probably coming from the surrounding countries in Africa.

Mashreck is also a region that has been characterised by wars, conflicts and turmoil during all the time since WWII. Despite this, Israel has had a migration surplus during all the time since the nation was founded. There also seems to be two peaks in the net-immigration rates: one during the 1950s and 1960s and one in the beginning of the 1990s. The other countries, with the exception of Egypt, have very fluctuating migration rates. The Palestinian migration rate has, however, been relatively constant since the beginning of the 1970s. Egypt has had a relatively stable net-migration rate since the beginning of the 1950s. Since the beginning of the 1970s it has been negative. In the second half of the 1970s, it was 150,000 persons annually on an average and during the second part of the 1990s the migration deficit was 100,000 persons yearly on average.

In the Arabic peninsula and the Persian Gulf, most of the countries have had migration surplus almost all the time. The Kuwait-war had also a clear impact. Kuwait lost one fourth to one third of its population as en effect of net-emigration between 1985/90 and 1990/95. A lot of people working in the service sector have come from other parts of the World – e.g. Asia and from the former Soviet bloc – and this has contributed to the immigration surplus.

11.2.6.3 What is the impact of migrations coming from the neighbourhood in the internal ESPON territory?

All over the world, there is a diversification of migration flows (Bernard, 2002; Castles and Miller, 2003; Simon, 1995). They are still mainly based on the proximity between countries of origin and countries of destination. But this pattern is not predominant anymore. Foreign residents residing in EU are more and more coming from non neighbour countries: Senegal, Pakistan, Afghanistan, China, Sri Lanka and so on. It is possible to make some distinction between EU countries with respect to the relative importance of migrants coming either form neighbour or from non neighbour countries. The process of diversification is obvious in the table below, showing the example of France. Mediterranean

countries still top the list of origins but new ones appeared in the 1990s, such as Brazil, Democratic Republic of Congo, Japan, China and even Russia.

Table 11-13 : France, main inflows of foreign population by nationality (thousands)

Country of origin b	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Morocco	16,4	13,8	8,1	6,6	6,6	10,3	16,1	14,1	16,9	18,7
Algeria	12,3	13,1	9,7	8,4	7,8	12,2	16,7	11,4	12,4	15,1
Turkey	9,2	6,8	4,7	3,6	3,4	5,1	6,8	5,7	6,6	6,9
Tunisia	4,0	3,5	2,3	1,9	2,2	3,6	5,3	4,0	5,6	6,5
United States	..	..	2,4	2,4	2,7	..	..	2,7	2,6	2,6
China	..	..	1,3	0,9	0,7	2,8	5,7	1,7	1,8	2,1
Haiti	..	3,2	1,9	1,4	0,8	1,9	1,9	1,4	1,8	2,1
Sri Lanka	..	..	..	0,8	0,9	..	..	1,2	1,3	2,1
Japan	1,3	1,2	1,1	1,0	1,1	1,2	1,1	1,4	1,2	1,4
Switzerland	..	..	..	..	..	..	..	..	1,4	1,4
Fed. Rep. of Yugoslavia	..	..	..	..	..	..	..	1,4	1,2	1,4
Romania	1,1	1,0	0,7	0,6	0,5	0,6	0,9	0,9	1,1	1,4
Russian Federation	..	..	..	..	0,6	0,7	0,9	1,0	1,1	1,4
Dem. Rep. of Congo	..	2,2	1,3	0,9	0,9	2,9	4,6	1,5	1,0	1,3
Brazil	..	..	..	0,9	0,7	0,6	0,7	0,8	1,0	1,2
Total	..	..	91,5	77,0	75,5	102,4	139,5	114,9	126,8	141,0

Source: OECD, 2005

Some ESPON countries are not very much concerned by the migrations coming from the neighbourhood. But they are very few and they are mainly located in Northern Europe: United Kingdom, Luxembourg, Portugal and, to a certain extent, Sweden. In Luxembourg, the majority of foreign residents come from EU countries. Not surprisingly, Luxembourg is incidentally the only EU members where European Union is the first reference of identification, before the national reference. In Portugal, despite the increase of residents coming from CEE countries (Romania, Ukraine) in the last few years, the majority of them come from former colonies: Southern Africa, Guinea Bissau, Brazil, Cape Verde… Neighbouring counties do not appear in the top list of origins among resident. And it is the same for the migrations flows.

Table 11-14 : Portugal, major origins of foreign population (stock) by nationality (thousands)

	1989	1991	1996	2001
Cape Verde	28,0	29,7	39,6	49,9
Brazil	10,5	12,7	20,0	23,5
Angola	4,8	5,7	16,3	22,6
Guinea Bissau	3,4	4,8	12,6	17,6
United Kingdom	7,8	8,9	12,0	15,0
Spain	7,3	7,6	9,3	13,6
Germany	4,5	5,1	7,9	11,1
United States	6,4	7,2	8,5	8,1

France	3,0	3,4	5,1	7,8
Sao Tome and P.	1,9	2,2	4,2	6,2
Mozambique	3,0	3,4	4,4	4,7
Netherlands	1,7	1,9	2,9	4,5
China	1,1	1,4	2,4	3,9
Venezuela	4,9	5,1	4,2	3,5
Italy	1,1	1,2	2,0	3,4
Total	101,0	114,0	172,9	223,6

Source: OECD, 2005

The features of UK's migratory system are very close to those of Portugal with a majority of foreign residents coming from distant countries and namely the former colonial empire: India, United States, Pakistan, Somalia, South Africa, Sri Lanka, Jamaica… From neighbour countries, only Former Yugoslavia appears in this list, at the 14th rank.

In all other countries, the residents coming from neighbour countries represent a significant proportion of the total number of foreign residents. It is possible to make distinction between them in taking into account their origins (OECD, 2005). The extreme situation is shown by Austria, where former Yugoslavian and Turkish residents represent together almost 70% of the total foreign population residing in the country. Countries such as France, Belgium and Netherlands are strongly related to the South Mediterranean countries. In Netherlands, residents of Turkish and Moroccan nationality represented 30% of all foreign residents in 2001. In France, those of Turkish, Moroccan, Tunisian and Algerian nationality represent 41 % of the total. In other countries such as Spain, Switzerland and Italy, the foreign residents mainly come from Mediterranean countries and from South Eastern Europe (Balkan countries or Romania). In Hungary and Czech Republic, the majority come from former USSR, former Yugoslavia, Romania and Bulgaria. Sweden is more oriented to Near and Middle East and to former Yugoslavia. At last, in Finland, foreign residents of Russia nationality represented more than 22% of the total.

11.3 Regional policies

11.3.1 The ambition of the European Neighbourhood Policy

Launched by the Commission in 2003, the European Neighbourhoods Policy (ENP) aims at unifying various existing policies and budgets: Meda, Phare, Tacis etc. The new Partnership financial Instrument concerns:
(i) Nine Mediterranean countries: those of the former Barcelona process, minus Turkey (that will benefit from a specific budget), Cyprus and Malta (now member states), plus Libya.
(ii) The three Caucasian countries (Azerbaijan, Armenia, Georgia)

(iii) The three NIS that are located between UE and Russia (Moldavia, Ukraine, Belarus - but the latter is still not included for political reasons).

European Balkans countries are not included because they are potentially state members. Neither is Russia, because of a specific strategic agreement with EU, which general goals are nevertheless quite similar to the ENP's: create a common space for trade, capital, migrations, training, culture, and security. The idea is to "share everything but institutions", in order to develop one integrated region that would encompass the EU and its neighbours. The ENP enhances a common tool, the Action Plans (definition of specific goals for each neighbouring country, with a three to five years programme of precise actions – energy, transports, governance…). The budget could be around 15 billion euros (2007-2013), to be compared to the 8,4 billions for the 2000-2006 period.

Yet, this view is hampered both eastward and southward. Eastward, the Ukrainian call for membership since December 2004 presidential elections, raises a tough political issue with Russia. Southward, the recent Barcelona Summit in November 2005 (for the tenth anniversary of the first Agreements), which was supposed to enhance the Mediterranean partnership through this ambitious European Neighbourhoods Policy, was a crude failure: whereas all UE states where represented by the head of their government, only two Mediterranean partners sent theirs. What are the reasons of this failure?

11.3.2 The shortcomings of the Barcelona process

The Barcelona Agreements, which entailed an economic chapter (enhancing market economy and launch a free trade area in 2010), a political and a cultural chapters, had created a great hope. Ten years after, everyone can see the positive steps. First, the Barcelona process is a quite unanimously accepted policy. Its goals are shared by all the countries involved. Its procedures are making cooperation more natural; it is the only forum where European and South Mediterranean countries representatives – and namely where Israelis and Arabs officials – attend the same conferences. Second, the Association Agreements have become a well known framework for bilateral (UE/Med partner) and regional economic cooperation. Some have been signed very recently (Syria's is still to be confirmed) but many came into force several years ago (Palestine, Israel, Morocco, Tunisia and Turkey are the eldest). A set of technical committees and sub-committees ensure practical implementation of the agreements; they progressively build the habit of a partnership in the Region. Third, the institutionalisation of the partnership has gone a step further in Mach 2004, when the Euro-Mediterranean Parliamentary Assembly (EMPA) held in Athens its inaugural meeting. In 2005, the EMPA held its plenary session in

Cairo, and the Anna Lindh Euro-Mediterranean Foundation for the Dialogue between Cultures (financed by all partner countries and the Commission), devoted to the civil society networking, intellectual and cultural exchanges, was inaugurated in April in Alexandria. Forth, networking among civil societies through NGOs has developed North-South and also South-South.

But shortcomings are real too. They go far beyond the conflict between Israel and Palestine, beyond the effects of international terrorism or of the war in Iraq. First they are economic. Economic reforms remain insufficient in the southern shore of the Mediterranean. In these countries except in Turkey, the activity remains dominated by the rent economy, whether it stems from oil and gas, tourism, or foreign aid. Such a system explains why corruption is rampant. This is the reason why the economic gap between the two shores has been increasing in the last years, despite the Association Agreements. These are bad conditions to prepare a free trade zone, which could be as dangerous for the Southern neighbours' balance of trade as the free trade agreement with the EU had been a decade ago for Turkey's.

Second, they are political. The South sees the ENP as a form of compensation for countries that would never be allowed to enter the Union. This is mostly the case for Turkey, but it is also true for the other countries. The ENP policy seems badly accepted because it was not created by a negotiation process between the South and the North like before the Barcelona agreements of 1995; the word of "neighbour" makes a really dissymmetric sound... In fact, the South sees more and more Europe as a fortress, with huge financial means dedicated to the promotion of the "integrated border management" in the neighbouring countries (e.g. Melilla's equipments financed by the EU) in order to fight against illegal immigrants. This strongly security-oriented treatment of the region's instability hampers the progress of democracy in the South, and hampers in the North the idea of a Mediterranean cooperation.

Third, they are geographic. The southern neighbours do not feel that the EU demonstrates a real integrated view of the region, encompassing both eastern and southern neighbours. They believe that the Union has a limited interest in the South of the Mediterranean compared to central and eastern European countries. Of course there is no clear consensual opinion in the southern shore that these countries should actively promote a common region with Europe. But all the same, the idea is rising that the new world context calls for regional groupings, to cope with eastern Asia or Latin America (see for instance the growing competition for food industry including for "Mediterranean" products, that comes from the industrialised south American agriculture, namely Chilean and Argentinean). Such a regional grouping can not be just an extension of the Barcelona agreements of ten years ago. Obsessed by the security issue, the

2005 Barcelona summit did not propose really ambitious regional policies focused on key sectors such as agricultural trade in the framework of a win-win regional pattern, qualifying migration and higher education.

Furthermore, the proposed bilateral cooperation (Action Plans) risks to jeopardize the regional Euromed partnership by reducing the multilateral actions of the former Barcelona process, and by diluting it in a vast ENP whose winners are most likely to be located at the East of Europe. What southern neighbours fear is a rising competition between them and eastern neighbours to catch the ENP subsidies.

Are they right? A piece of answer is given by the numbers of the past decade. The UE has spent six billion euros in the Barcelona process (table 11-15). But only a half have been really paid, because of weak capability of southern partners (namely Algeria and Syria) to fulfil the technical European requirements for applicants. Their capability has improved lately; besides, the UE has settled down a Delegation in each of these countries which ameliorates this administrative and technical relationship. But all the same, the difference between EU's subsidies to the South and to the East is striking. During the 1995-2004 period, the EU has spent 20 billion euros for the CEEC but only 3,2 for the Mediterranean partners. In other words, European's subsidies reached 27 € per inhabitant in the CEEC and less than 2 in the Mediterranean.

Table 11-15 : EU's subsidies to the CEEC and the Mediterranean partners Annual average, 1995-2004

	million €	€ / inhabitant
MEDA countries :		
-West Bank & Gaza	38,2	10,0
-Jordan	35,1	6,1
-Tunisia	48,6	4,8
-Lebanon	10,5	2,8
-Morocco	57,1	1,8
-Egypt	51,7	0,7
-Algeria	10,5	0,3
-Syria	3,9	0,2
Together	255,5	1,4
CEEC	1 996,7	27,0

Note. Regional cooperation MEDA funds (70 M € / year, spent for several southern countries altogether) are not taken into account. Source : European Commission

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12 MENTAL MAP THEMATIC ANALYSIS

12.1 Firms, Countries, International Organisations and NGOs's: World regionalisation

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12.1.1 Introduction

International Organisations, Countries, Non Governmental Organisations and global private firms are the main actors at the global level. They divide the World in order to administrate it, to locate their activities and to organize their relations with other countries / groups of countries: in other words, to exert their power practically or symbolically17.

Those divisions of the World are often available on the different tools used by global actors for their communication. Those tools can be either reports (for example the "World Development Report" from the World Bank), or electronic supports like CD-Rom, or websites. In this study the maps and divisions of the World mainly come from the websites. All maps have been collected approximately within the same period of time running from summer to fall 2005.

One should keep in mind that the representations of the World that are published on websites are not necessary operational division of the World used by the World actors. However, as they are exposed before public opinion, it has been assumed that those maps have necessarily some meaning for the actors and are at less the sign or the symbol of their power at the World scale.

The main questions that we will try to answer in this part are the following ones:
Do all actors divide the World in the same way?
Which criteria are they explicitly or implicitly using?
What can we learn from their maps concerning their vision of the World?

The methodology for the building of the databases and their computation will be presented in a first step. Then, the criteria that seem to have been used by the actors will be presented.

[17] As explained by C. Raffestin, the fact to establish territorial division is always the sign of a power. States have the monopole of official internal division inside their borders. Global actors do the same at World Scale but nobody has a monopole of an official division of the World.

12.1.2 Methodology

The analysis of the divisions of the World by global actors is quite different from that displayed in the survey on ESPON community (Cf. Case Study: Europe and the World, The ESPON community's point of view), although it is based on the same principles. The reason is that, contrary to the survey, there is no "normalised" way for the firms to let one know what their divisions of the World are. The sources are quite different and may raise problem for the interpretations of the results because there is generally no information available about the criteria used to divide the World.

The same methodology has been used to build the databases for International Organisations, Countries, Non Governmental Organisations and private firms. That allows us to make comparisons between the different kinds of World divisions produced by those global actors. In a first step, the strategy used to build the database will be presented and then the methodology used to formalize and interpret the results.

12.1.3 How we build the data base

The choice of the sample of actors

International public Organisation. International organisations are many and some of them have mainly a regional orientation, for example the European Union and North American Free Trade Agreement (NAFTA). To know which International Organisation exists, a list available on a Canadian website has been used: < www.collectionscanada.ca>. All those organisations websites have been checked and 19 maps or lists of divisions of the World have been collected. Some of them present the subdivisions of an upper level regionalisation. It is the case for example for United Nations which provides three different divisions of the World. The International Organisations included in the survey are the following ones : United Nations, World Bank, United Nations Educational, Scientific and Cultural Organization (UNESCO), World Tourism Organisation (WTO), United Nation Children's Fund (UNICEF), United Nation Refugees Agency (UNHCR), International Labour Organisation (ILO), World Meteorological Organisation (WMO), Universal Post Union (UPU), World Health Organisation (WHO), International Telecommunication Union (ITU), World Trade Organisation (WTO), International Monetary Fund (IMF) and finally Food and Agriculture Organisation (FAO). It is interesting to observe that despite the fact that all these organisations belongs to the UN system, they do not use any common framework which means that UN is rather an umbrella than a real power at World scale. The context of the proposed divisions is quite different from one website to another. It could be the list of the member States of the International Organisation. That

means that the list is not exhaustive as not all countries are members of all the organisations. So far, 32 countries from our list of 168 countries are not members of the OMT "Organisation Mondiale du Tourisme".

Countries. As it was not possible, actually, to collect all the maps and regions produced by all the countries of the World, it has been decided to take into account only the documents produced by the countries that are commonly recognised as the main actors of the World, i.e. the countries that are susceptible to have a great influence at the World level. It has been decided to take into account the five permanent members of the security council of the United Nation (China, United-States, Russia Federation, France, United Kingdom) and the countries which belong to the informal but powerful G8 (the same as the previous ones excepting China, together with Germany, Canada, Italy and Japan)18. Maps have been collected for all those countries on the Foreign Policy or Foreign Affairs ministries websites, except for Russian Federation whose website is unusable for a non Russian speaker.

Non Governmental organisations. It was especially difficult to select main NGOs (Non Governmental Organisations) of the World and to check their divisions of the World. Moreover, a large number of them are very small ones. They act locally and they do not need to produce divisions of the World. The research has concentrated on NGOs having global ambitions. We have first tried to identify global NGOs by searching "Transnational NGOs", "Global NGOs", "International NGOs" (and the equivalent expressions in French) on the Google website. Then we used two main lists of global NGOs (one in French, one in English). The first one is published on <http://www.toile.org/psi/ong/html> and the second one is available on <http://billie.lib.duke.edu/pubdocs/ngo/transnational.asp>. The main problem with this group of actors is that the lists by World regions provided by them are generally lists of countries associated with types of actions. Therefore, those lists are too much incomplete to be used as a support in the study of World divisions. Only eleven maps and divisions of the World have been collected from the NGOs list (Table 12-1).

Private firms. The number of private firms in the World is high, even when taking into account only firms having a global orientation. It was not possible to collect the division of the World for all of them. Moreover, the firms had to be large enough to have a worldwide presence. In a first step, it has been decided to study only European firms and then to shorten the list to collect only maps displayed by the firms included in the stock market index of their countries. The three main financial markets of Europe have then been selected and finally only

[18] Alternative approach could be based one the World share of population of GDP and/or population including therefore other countries like India, Brazil or Indonesia.

the firms from the CAC 40 (40 firms), FTSE 100 (102 firms) and DAX (30 firms) indexes have been studied. All the private companies included in those indexes are generally (but not always) oriented towards the global market, but they do not necessarily provide their websites with their divisions of the World.

Table 12-1 : list of NGOs

Amnesty International - Large regions
Amnesty International – Sub regions
Derechos Human Rights
Directory of Development Organisations
Human rights watch
OXFAM
World Conservation Union
Médecins sans frontière
Reporter sans frontière
Red Cross
Red Crescent

Different kinds of maps: a first vision of the World

The raw material (i.e. maps published on the websites) already provides precious information on how the firms or other actors perceive the World, or on the way they want to show to the public their perception of the World. Three major kinds of maps available on websites can be roughly identified. The first one, Pernod-Ricard, presents a clear division of the World in form of territorial partition[19] (figure 12-1). The Cadbury-Schweppes one shows the will to consider the World as a whole and is based on a list of regions whose countries lists are published on another part of the website (figure 12-2). The Siemens map presents an intermediate situation between the two previous ones. The net surfer first faces a moving picture of the globe without any division. If he wants to get more information about both the delimitation of regions and their composition, he has to click on the globe which then stops to turn. A region is then highlighted in yellow colour and details about the chosen region appear on the right side of the globe (figure 12-3).

This kind of presentation is not specific to some type of firms and it is neither related to their nationality. But it is interesting to note that, apparently, some firms do not want to let one know immediately how they divide the World on a pictorial medium. Maybe it is a well-thought-out decision of a firm that does not consider that showing divisions of the World is "politically correct". It can also be a spontaneous representation that could reveal that the firms have a hegemonic

[19] Different subset with null intersection and complete coverage of the World

vision of the World. The Cadbury-Schweppes map, for example, could mean that wherever you are in the World, maybe excepted in Siberia or Sahara, you can find Cadbury products… There is therefore no more division of the World for Cadbury, as it is united by the worldwide consumption of their products. Indeed, from a market's point of view, a division of the World by a firm could be based on the following criteria: countries were our products are available, countries where they are not…

Harmonisation maps collection

The raw material used to achieve this study has been the maps published on the global actor's websites. Some problems have to be underlined concerning maps and divisions of the World collections. The first one, and the main one, is the use of different World divisions on different web pages on a firm's website.

- More than one division of the World proposed in the same website. It is possible that firms, international organisations or other actors do not have a clear vision of the World regions. They can provide websites with different World divisions on different web pages. One example is the ALCATEL French firm. It is a communication firm that claims to be present in 130 countries in the World. In its website, one can find at least three divisions of the World. First, the firm proposes a list of the local branch companies' websites <http://www.alcatel.com/comps/localsites/>. On this web page, three World regions are proposed: Americas, Asia / Pacific and Europe / Middle East / Africa. Then comes a presentation of the geographical distribution of sales of the firm (in a web page called "About Alcatel") on the English version website, where five zones are proposed: Western Europe, Other Europe, USA, Asia, rest of the World. <http://www.alcatel.com/apropos/inbrief/index.htm>. Last, a division of the World is proposed in the corporate documentation presenting the repartition of the firm's employees in the World. This map shows a quite unusual division of the World <http://www.alcatel.com/apropos/Company_Presentation.pdf> where France is included in the same region as Africa, Arabic Peninsula and South Asia, whereas Spain is included in the same region as South and Central America, Southern Europe with Israel and Georgia… (Figure 12-4).When two divisions were proposed and when the choice was to be made between a map and a list, the map was preferred because of its higher symbolic impact, because one is not likely to remember in detail the division of the World from a list. It was the case for ALCATEL. When the conflict was between two maps, and when the two maps were in line with the purpose of a World division in regions, both maps were used. It was the case for the United National Population division. Its cartographic department proposes regions of the World that are different from the regions generally proposed in the reports (Figure 12-5).

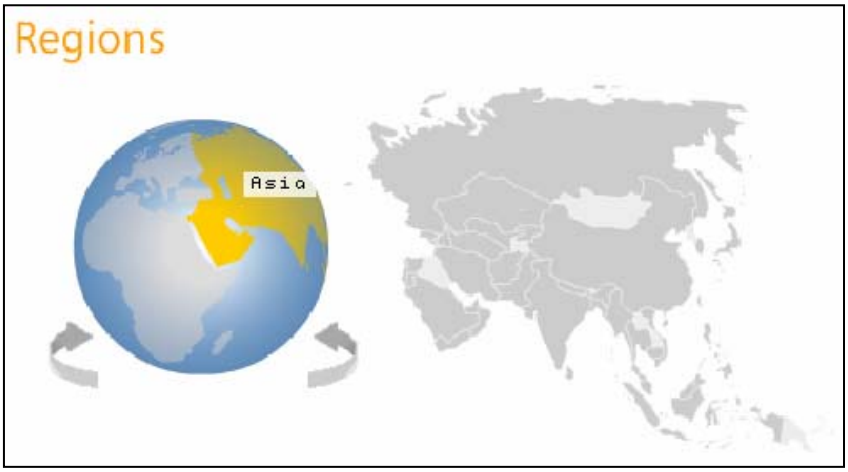
Figure 12-1 : Pernod-Ricard division of the World

Source : http://www.pernod-ricard.com/

Figure 12-2 : Cadbury-Schweppes division of the World

Source : http://www.cadburyschweppes.com/

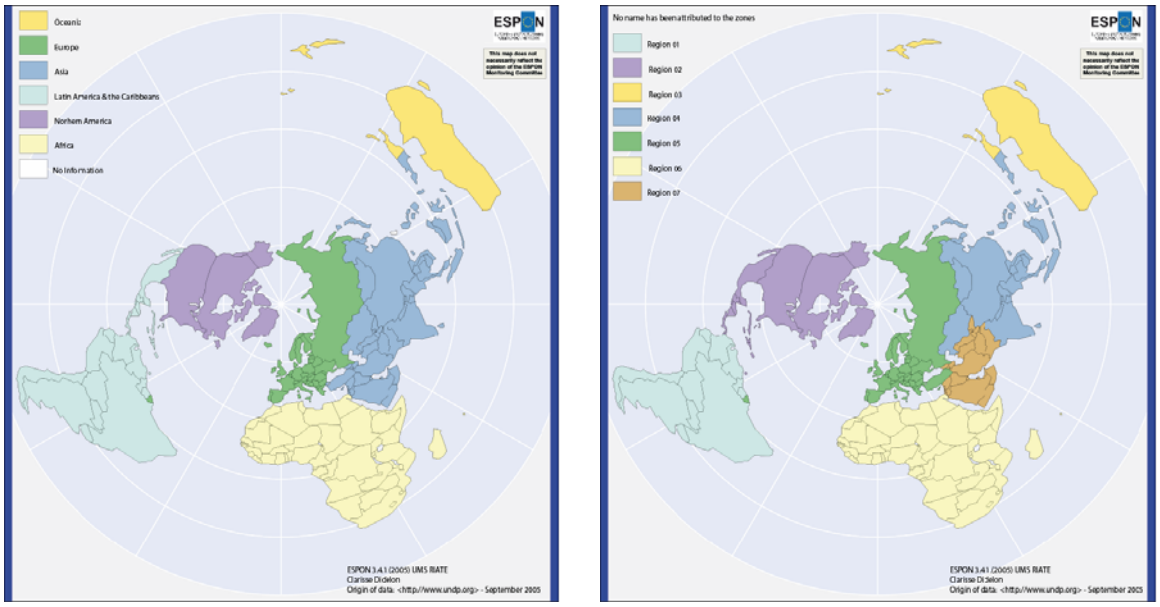
Figure 12-3 : Siemens division of the World



Source : http://www.siemens.com/

Figure 12-4 : One of the Alcatel divisions of the World

Figure 12-5 : two different divisions of the World proposed by the United Nations



- Difference between the map and the text. Even when only one division of the World is proposed, it can happen that a map and a list are presented together. And, in some cases, it could happen that there is a difference between the maps showing a division of the World and the list, even if the list is often placed in front of the map. For example, here are two maps provided on the AXA Group website (figure 12-6.) <http://www.axa.com/en/group/World/> quoting the presence of the firm in different countries, illustrated by maps showing the region. The main problem here is that Turkey appears in the list as belonging to Europe. But, on the map, Turkey is included in the Middle East region. We chose

to follow the text each time the problem will appear. This method seems more reliable because people who make the websites are probably not cartographers.

Figure 12-6 : The presence list version / map version problem (AXA website)

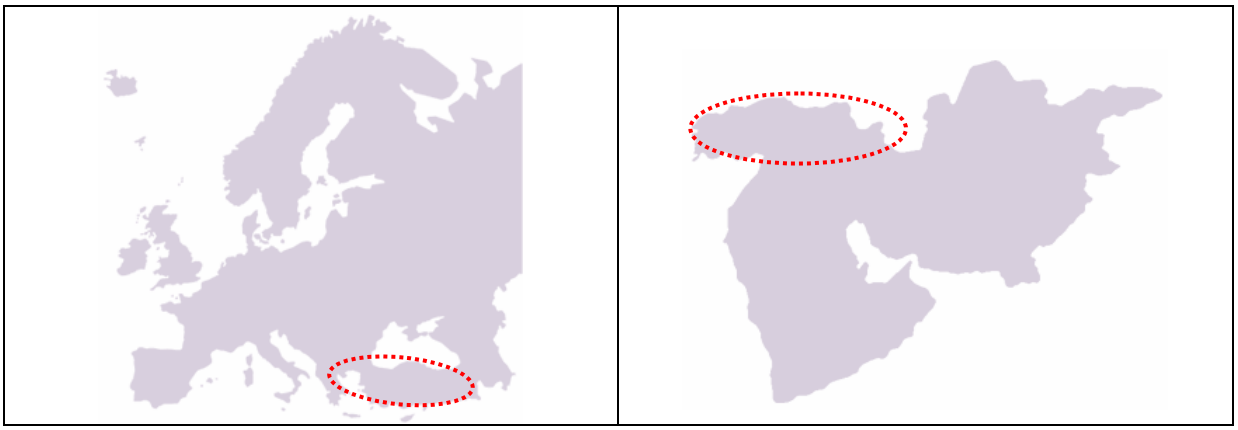
Presence : Austria, Belgium, France, Germany, Ireland, Italy, Luxembourg, Monaco, Portugal, Spain, Switzerland, The Netherlands, Turkey, United Kingdom

Presence : Lebanon, The emirates

The double belonging problem is the same kind of problem. It can happen that a country is shown on two maps showing different World divisions. This is the case for the French firm Peugeot website (Figure 12-7). Turkey appears on a map as belonging to Europe and on another one as belonging to Middle-East Central Asia region. In that case, if a text is available, the only solution is to rely on it.

Limit of Stock Market Firms. The main problem raised by choosing firms that are in the stock market index is that those large firms are often not composed by only ONE enterprise but a group of enterprises. As a consequence, it can happen that all the enterprises from one group do not propose the same divisions of the World. Consequently, the divisions provided on the firm's website do not match that of the branch office. In this study, we focus only on the head firm's division of the World.

Figure 12-7 : The double belonging (Peugeot website)



Limits from the sample of map collection

The problem with NGOs is that many of them have a global action and wish to promote the idea of a united World. Therefore they do not propose any division of the World on their websites20.
Another particular problem can be raised concerning the NGOs division of the World. When one makes a synthetic analysis, the visions of the World which are collected have very different origins and they share few common features. The problem is that it is difficult to analyse such a result: NGOs are from different countries and they belong to different sectors of activity. It is most likely that NGOs which deal with HIV epidemic do not have the same vision of the World than those dealing with the animal protection. In the previous analysis, the actors had something in common and they were grouped on this base. For example the firms that have been studied belong to the same country (i.e. we studied British, German and French firms). In the case of the study about country's division of the World the common point was the origin of the data: all the divisions of the World came from the website of the different Foreign Offices. For all those reasons, the comments of the divisions of the World displayed by the NGOs websites have to be used cautiously.

[20] The analysis of global actors which refuse to divide the World would demand a specific analysis.

Table 12-2 : first step of building the matrix. To which zone belongs a country?

	Quest. n°1	Quest. n°2	(…)
Afghanistan	Asia	Wider Asian Area	(…)
Albania	Europe	Europe	(…)
Algeria	Africa	Mediter Africa	(…)
Angola	Africa	Sub Equatorial Africa	(…)
Argentina	South America	Latin America	(…)
Armenia	Asia	Wider Asian Area	(…)
Australia	Australia	Pacific area	(…)
Austria	Europe	Europe	(…)
Azerbaijan	Asia	Wider Asian Area	(…)
Bahamas	South America	Latin America	(…)
Bahrain	Asia	Mediter Africa	(…)
Bangladesh	Asia	Wider Asian Area	(…)
Belarus	Europe	Europe	(…)
Belgium	Europe	Europe	(…)
Belize	South America	Latin America	(…)
(…)	(…)	(…)	(…)

Table 12-3 : second step of building the matrix. For each questionnaires a matrix has been built

		Afghanistan	Albania	Algeria	(…)
	Quest. n°1	Asia	Europe	Africa	(…)
Afghanistan	Asia	1	0	0	(…)
Albania	Europe	0	1	0	(…)
Algeria	Africa	0	0	1	(…)
Angola	Africa	0	0	1	(…)
Argentina	South America	0	0	0	(…)
Armenia	Asia	1	0	0	(…)
Australia	Australia	0	0	0	(…)
Austria	Europe	0	1	0	(…)
Azerbaijan	Asia	1	0	0	(…)
Bahamas	South America	0	0	0	(…)
Bahrain	Asia	1	0	0	(…)
Bangladesh	Asia	1	0	0	(…)
Belarus	Europe	0	1	0	(…)
Belgium	Europe	0	1	0	(…)
Belize	South America	0	0	0	(…)
(…)	(…)	(…)	(…)	(…)	(…)

Table 12-4 : third step of building the matrix. Sum of all individual matrixes

	Afghanistan	Albania	Algeria	Angola	Argentina	Armenia	(…)
Afghanistan	110	0	14	7	6	59	(…)
Albania	0	110	9	1	2	19	(…)
Algeria	14	9	110	49	3	19	(…)
Angola	7	1	49	110	4	5	(…)
Argentina	6	2	3	4	110	4	(…)
Armenia	59	19	19	5	4	110	(…)
(…)	(…)	(…)	(…)	(…)	(…)	(…)	(…)

12.1.4 How we get the results

12.1.4.1 Data modelling

One table and two different matrixes need to be built to make the analysis. In a first step, a simple table has been built that indicates to which region each country belongs in each questionnaire (for the survey of the case study) or in each website (for this Key Question) (table 12-2.). For example, for the questionnaire n°1, Afghanistan belongs to Asia.
Then, an elementary matrix is issued from each column of the previous table. For each questionnaire, one matrix is built, checking the common belonging of two countries to the same region (table 12-3.). The box is filled up with a "1" when two countries belong to the same region and a "0" otherwise. For example, in the table 12-3., Armenia and Afghanistan have been included in the same "Asia" region: the box is filled with "1".
The synthetic matrix is the sum of all the elementary matrixes (table 12-4.). The number in a particular box shows how many times two countries have been included in the same zone by the considered sample of actors or by the ESPON seminar participants. For example, Armenia and Afghanistan belong to the same zone for 59 questionnaires obtained from the ESPON community in Luxembourg in May 2005.

12.1.4.2 Methodology for analysis

The aim of the analysis was to propose clusters of countries that were: Always or often included together in the same region and generally associated with the same countries.

To build the clusters, we have to chose a similarity index as explained in the Europe in the World project's first interim report (part C.3: Methodological framework for the analysis of flows and structures). A hierarchical ascendant analysis can then be used in order to build clusters by joining at each step the two most similar elements or clusters. In the final step, all the elements (i.e. countries) are gathered in the same cluster.

The problem is that the results depend heavily on the choice of the dissimilarity/similarity index and that many mathematical solutions are available, underlying different conceptual assumption. We wanted to join states which are not only present in the same regions but also excluded from the same ones which means that the synthetic matrix was not sufficient as it focus only on common belonging and do not take into common excluding. Consequently, the solution was to use a correlation index. One well knows coefficient index, Pearson

index, can be used in similarity computation. It is a measure of the strength of the associations between two variables. This method have been used on all the matrixes that have be built to study the divisions of the World proposed by firms, NGOs, International Organisation or Countries.

12.1.4.3 Maps of Synthesis of the divisions

To choose the number of region to represent on the synthetic maps of the division of the World of firms, International Organisation and NGOs we rely on the hierarchical tree of the hierarchical ascendant analysis and on the related indexes. The following graph (figure 12-8.) presents the hierarchical tree for NGOs. Mathematical criteria suggest that the 1st more significant level of partition is in five clusters. The second one is in four clusters but we did not take it into account as is make less regions that previously while what it is interesting is to find sublevels. So we used the 3rd more significant level of partition that produces a regionalisation in 8 zones.

Figure 12-8 : hierarchical tree for NGOs

One exception has been made for the synthetic maps (12-1 to 12-3) of firms, because here the aim was to make easier the comparison between the different countries of origin of firms. We tried to use the more significant partition that would apply to the three maps and that would allow to observe enough sub levels.

We choose not to name ourselves the regions produced by the synthetic analysis of the division of the World by firms, NGOs and International Organisations. Indeed that would induce to use pseudo "neutral" names, i.e. names linked to

the geography and the traditional division in continents, while we precisely think that the division are not neutral. More, name them would influence the reader by imposing him our point of view on the composition of the regions. That is why all synthetic maps identified the regions anonymously.

12.1.4.4 Map of the limits of regions

This map (12-6.) was obtained by adding the limits proposed by the International Organisations. When an International organisation proposed more than one division of the World (UNDP or World Bank for example), we used only one of them for the building of this map. When large and small divisions where proposed, we used the larger one because the number of zones were closer to the average number of zones proposed by other organisations. For example, The United Nation Refugee Agency proposed large regions and sub regions. Only the large regions have been used to build this map. When zones have been based on other criteria than geographical ones (indebtness, wealth, development), we used only the geographical criteria.

12.1.5 Results

12.1.5.1 Continentalisation

The division of the World proposed by the different actors shows a strong tendency to use the traditional continents figure as a support for the drawing of the regions. This trend can be first noticed in the average number of zones drawn and then in the limits used.

Number of regions
The average number of zones, identified by the different actors, ranges between 5.6 (for British firms) and 7.2 (for International organisation) (table 12-5). That reminds clearly the traditional number of continents that are generally presented as being 5, but often 6 when two Americas are distinguished (Cf. First Interim Report, ESPON 3.4.1. Europe in the World).

Table 12-5 : number of regions

	British Firms	German Firms	French Firms	Countries	International Organisation	NGOs
Minimum	3	2	4	6	5	4
Average	5,6	6,9	6,6	6,7	7,2	6,6
Maximum	14	9	9	9	10	11
1st cluster level	3	4	4	X	4	5
2nd cluster level	4	2	5	X	6	4

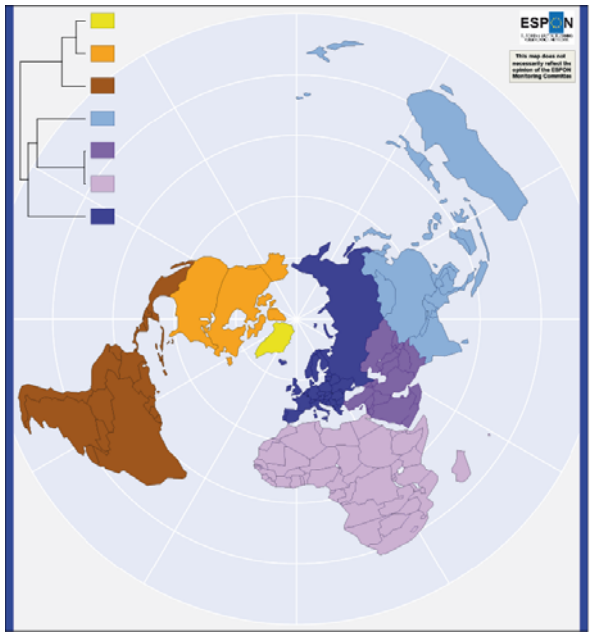
This is particularly true on the countries' Foreign Office websites (Map 12-4.). The divisions in regions show a division of the World into 6 to 9 zones. The four European countries included in the analysis, i.e. France, Germany, Italy and United-Kingdom show a division in six parts. Northern America countries (U.S.A. and Canada) propose a division in seven parts. Asiatic countries show a division in 7 (Japan) and 9 parts (China). But Germany and Italy follow strictly the traditional division in continents established in the 20th century. The only difference between them is the limit between North and South America. The small countries of Central America are included in North America according Germany but in South America according Italy.

Localisation of limits

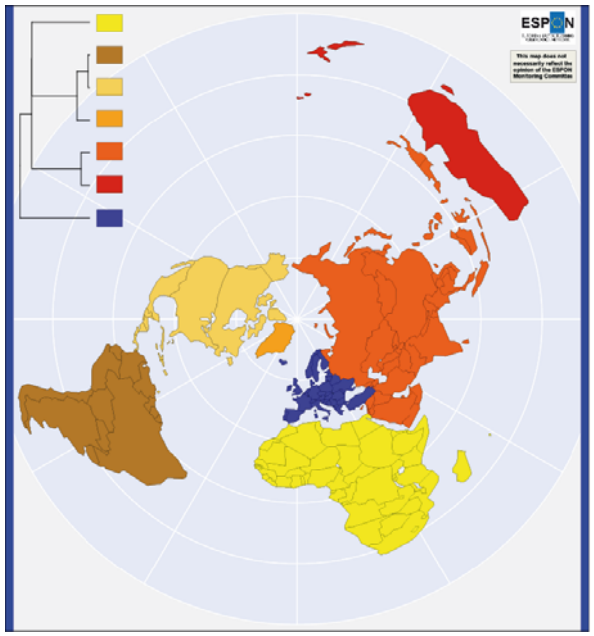
Additionally, the synthesis of limits proposed by International Organisation (maps 12-5) clearly shows that continental bodies are privileged in the drawing of zones. Stronger limits are located between two continents, in the sea or ocean. That is the case for the limit crossing Atlantic, Indian and Pacific oceans from North to South. But it is also the case for the far less large Mediterranean Sea between Europe and Africa and even for the Red Sea between Africa and Arabic peninsula.

Terrestrial limits are always thinner than maritime ones because it is apparently more sensible, from a political point of view, to draw a line dividing lands and people than crossing a neutral aquatic surface. The exceptions are the limits drawn between Russian Federation and the Chinese World, i.e. Mongolia and China, and between North America, on the hand, and Mexico and South America, on the other hand. Those two exceptions will be detailed later.

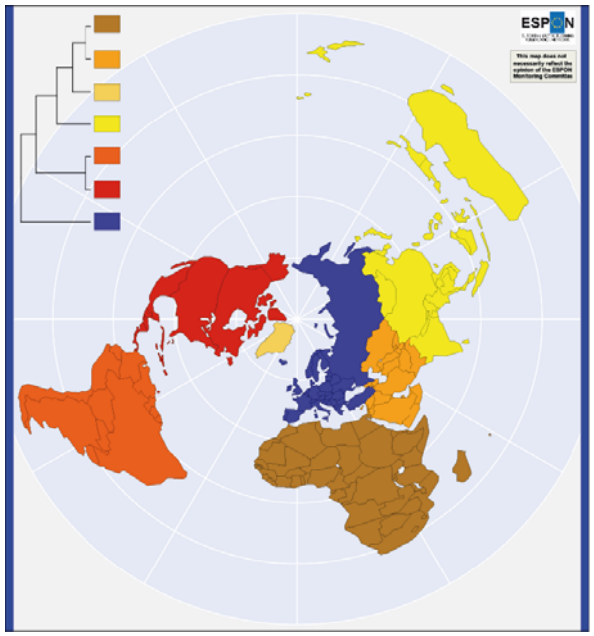
Map 12-1 : French firms dividing the World



Map 12-2 : German firms dividing the World



Map 12-3 : British firms dividing the World

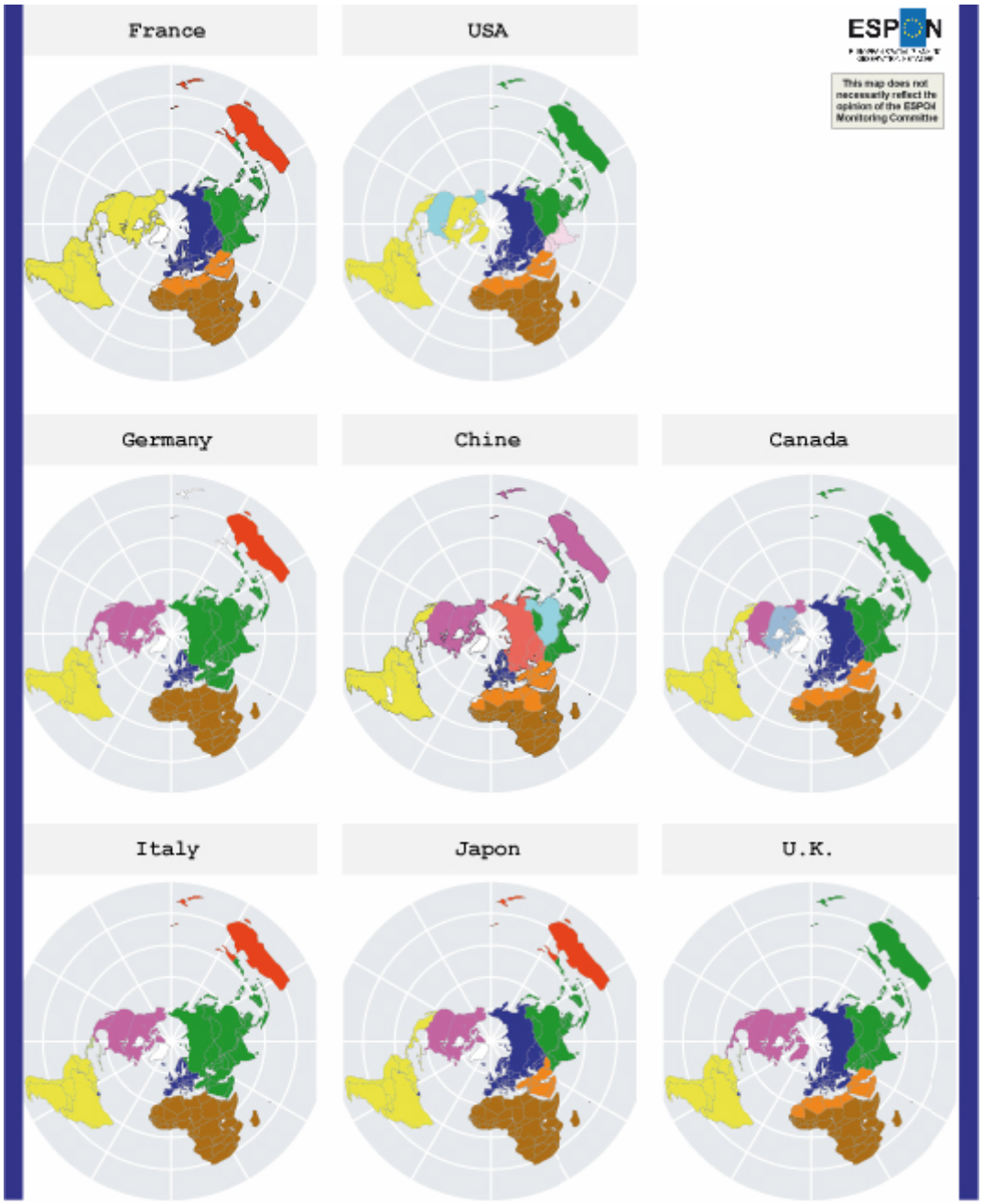


12.1.5.2 Other "Geographical" factors for subdivisions?

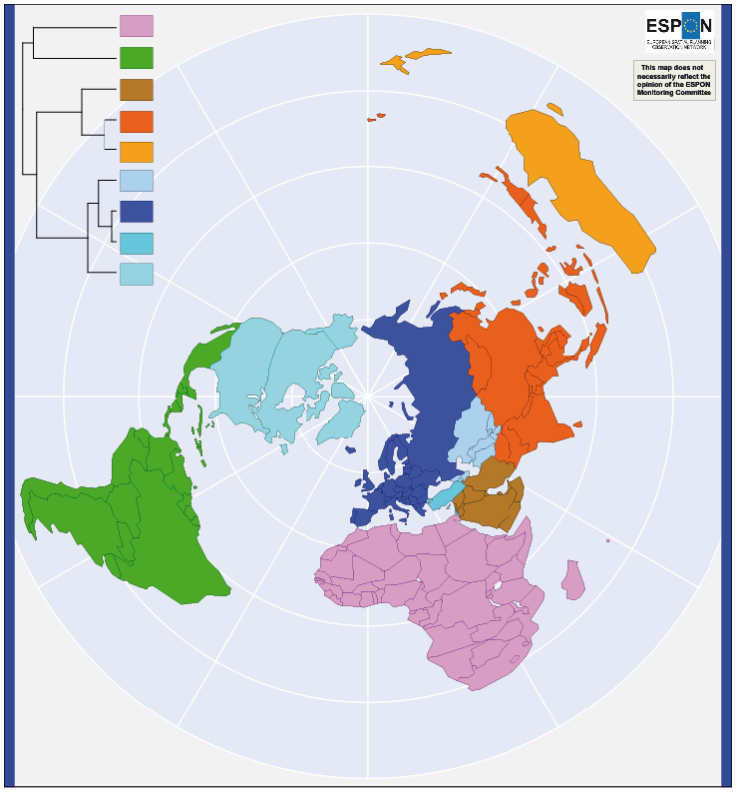
As International organisations are more likely to build additional subdivisions, is it possible to find if further geophysical characteristics of a group of countries can contribute to identify them as a sub-level? Observing the maps 12-4 it seems to be the case for the Caribbean and the Melanesian regions. Those regions are defined by the fact that the countries which constitute them are Islands. But, if so, what are the common geographical characters between Kazakhstan and Japan that could justify they are put in the same region?

Other factors that could explain the shape of some regions and the position of some limits are the localisation of natural obstacles like deserts and mountains that are very low populated area. Indeed, the Sahara often appear like a limit when global actors identified a North African region and Himalaya too when India and China are placed in two different regions. However it is difficult to know if those natural obstacles seem significant in the drawing of the region because people identified them as such; or if they appear because they had a great role in the cultural differentiation of population located on each side of the obstacle and that this is this cultural difference that is used as a criteria to compose the zones.

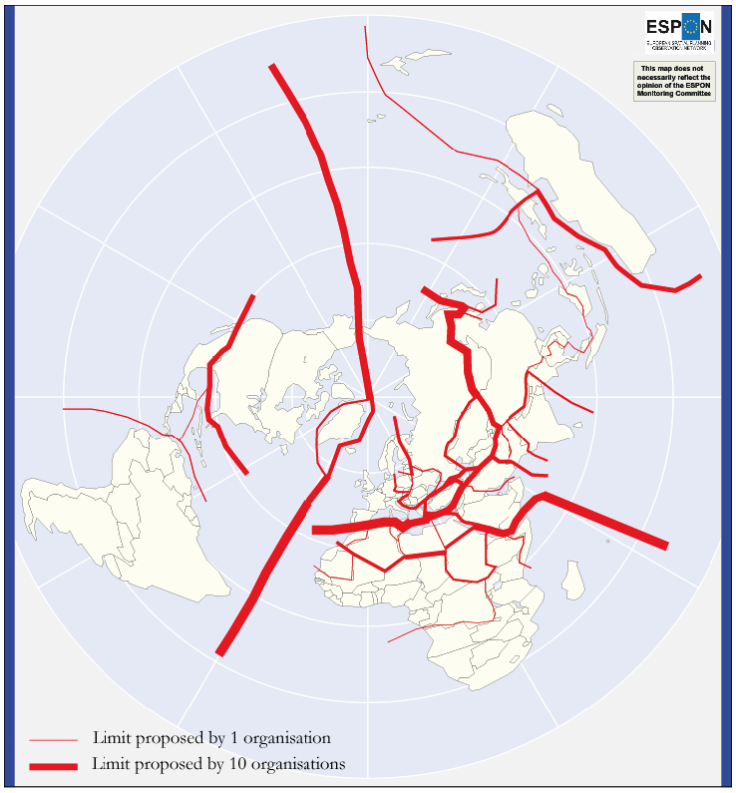
Map 12-4 : Countries dividing the World



Map 12-5 : International Organisations dividing the World



Map 12-6 : the limits of zones by International Organisation



Moving composition of "continents"

When using the clustering method to produce a synthesis of the regions proposed, one has to notice that the first more significant step produces cluster in 3 to 5 regions; but more often 4 regions. For example, the synthesis of the division of the World from the International Organisation point of view is done in four regions. The two first ones to be identified are two zones that have a coherent shape from on continental point of view. In the pink colour comes first Africa, as a whole, without any distinction between northern Africa countries and sub-Saharan ones. In the green colour, International organisations identify South America countries, including Mexico, Central America and Caribbean countries. Those two regions seem to have such an internal coherence that they are identified in the first step and are no more divided till the end of the analysis. The other regions to be identified are Asia, on the one hand, and the Europe-North America on another hand. These regions will be then facing more divisions. But those fourth first steps seem to underline the use of a continental base to draw the regions, plus another criterion that could be either economical or cultural in the case of the Europe-North America region.

The following table (12-6) tries to summarize the composition of the regions that are formed. Even with so few regions, their composition is quite different according to various actors. That shows that the concept of continent is a moving one.

Table 12-6 : composition of regions formed by the most significant partition

	More significant partitions
British Firms	(3 regions) Europe – Americas – Rest of the World
German Firms	Europe – Asia – Africa – Americas
French Firms	Europe – Africa & Middle East & Central Asia – Asia – Americas
International Organisations	Africa - South America – Asia – Europe and North America
NGOs	(5 regions) Americas – Europe – Asia – Sub Saharan Africa – North Africa and Middle East.

Conclusion on continent

Following so clearly continental bodies and avoiding drawing terrestrial limits on the one hand, and using more often average number of 5.6 to 7.2 regions shows the will of the different actors studied here to promote the idea that they use all at some degree the continents to draw their regions. That makes the divisions more consensual, more legitimate in the public opinion as it is not based on contestable criteria but on the so-called "real facts" taught by geography. The question is therefore the following one: is it impossible, in a politically correct way, to divide the World in less than 5 zones, or in more than 7 or eight?

The previous paragraph dedicated to the moving composition of the continents shows that, in fact, geography is not a "hard fact". The supposed neutral continental division of the World that are proposed are still representations and interpretation of other phenomena which is clearly enlighten by the recurrent aggregation of Europe and Northern America. The following parts will be an attempt to show which criteria are often used in the drawing of World regions.

12.1.5.3 Cultural factors

Among the other criteria, the first that seem to be used in the drawing of World regions are those related to cultural facts.

An Arab-Muslim region

The economic and more probably the so called "cultural"21 differences are certainly at the origin of the division (map 12-6) between North African Countries and Sub-Saharan ones. The rest of Africa is nearly not divided except for Sudan that is sometimes placed together with sub-Saharan countries, sometimes with North African ones because to the main religion of the country is Islam.
The use of the "cultural" factor is particularly striking when one observes the maps that make a synthesis of the World regions proposed by NGOs (Maps 12-7 & 12-8). The most significant partition, when studying the division of the World from NGOs point of view, is a partition in 5 regions. If this number matches the traditional number of the continents, this division in 5 zones is far less neutral that it is in the case of the other actors. In fact, the regions proposed include a "North African – Middle east" region that is mainly based on civilisation criteria, from Huntington's definition of civilisation, i.e. mainly religion. Neither firms, nor international public organisation dare do so, even in nine regions. Only countries propose a "Muslim region".

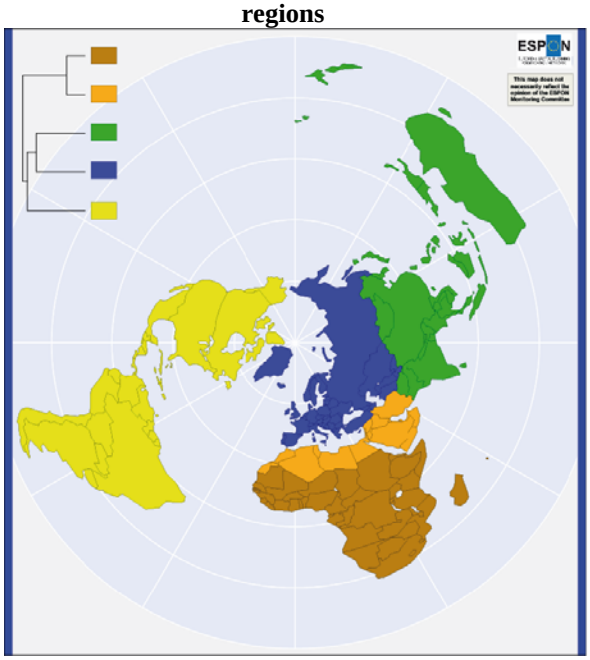
Two interpretations can be given to this Muslim region. Either, the NGOs are mainly of western origins and adopt their countries point of view. Or the civilisation aspect is very important for NGOs and they act in different countries with social workers and the population. In consequence, the religion and language of North African and Middle East countries may be an essential parameter to be taken into account, if the action of the NGOs is to work with woman or child concerns. But therefore, there should be more distinctions inside Asia, because Indonesia is the first Muslim country of the World. The religion is

[21] This fuzzy term is employed here as the conglomerate of linguistic, sociologic, historical, religious etc. criteria which are generally difficult to measure and to combine on an objective basis.

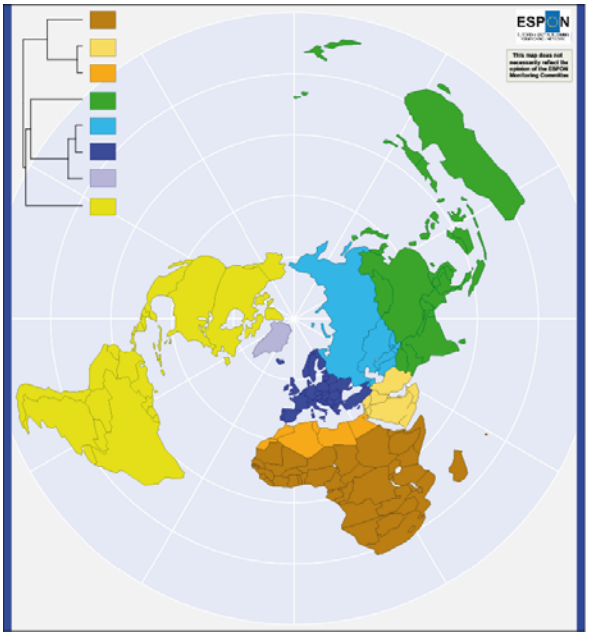
not the only criteria. The linguistic and "ethnic" ones are implicitly used to and we have here an Arab-Muslim region.

Concerning the countries, actually only two of them do not propose such a region: Germany and Italy follow a very consensual division of the World that is the division in continents. Among the others, the size of the Arab-Muslim region varies very much: Japan proposes a very small zone concentrated on Persian Gulf that is maybe more related to energetic supplying than to religious criteria. Another remark concerning this region is the place of Turkey. For Asiatic countries (Japan and China), Turkey belongs to the Arabic-Muslim Region. For European countries which draw this zone and North-American ones, Turkey clearly belongs to Europe.

Map 12-7 : NGOs dividing the World in 5 regions



Map 12-8 : NGOs dividing the World in 8 regions

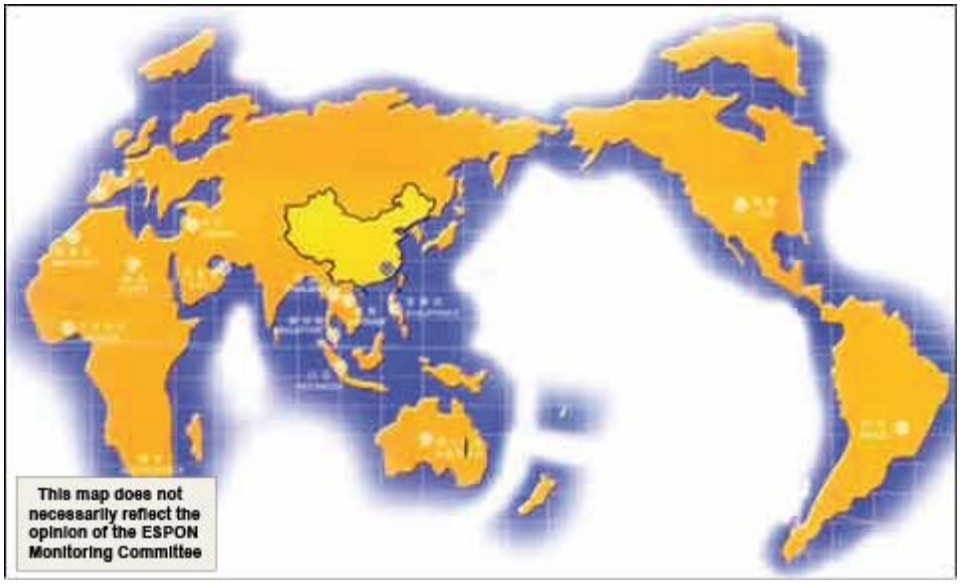


Australia, a part of Asia?

The position of Australia is another phenomenon that can be studied in the light of cultural considerations. Australia is sometimes considered as a part of Asia, sometimes as a specific region that is called Oceania. From the continental point of view, Australia is perceived as the fifth continent and its history links it with the Western civilisation. Australia has been populated from Great Britain and it is still part of the Commonwealth. This suggests that Great Britain, European and North American countries considered it as something apart and therefore not to be included in an Asian region. In fact, when observing the maps, one could see that, on the contrary, only British firms, NGOs and Anglophone countries consider it as a part of Asia. Maybe only the English speaking World agrees with

the claim of Australia to belong to Asia, at least from an economical and functional point of view. Other countries consider it as a part of Oceania, except for China that puts it in the same region as North America (i.e. Canada and United States), in a region that could be defined as a non-European western civilization region. It is related to the way that China produces World map (Figure 12-9). This western presence on the two shores of the Pacific Ocean can be of great strategic importance from a Chinese point of view.

Map 12-9 : example of Chinese World map.



Source: China Radio International <http://www.chinabroadcast.cn/>

Struggle for influence

The question of cultural region is raised particularly when observing the spaces that are sometimes included in a region and sometimes in another one. More generally, the map 12-6. allows to notice that when a country or a small group of countries are circled by a limit, those places are zones of conflicts or, at least, zones of political tension. The tension can come from the challenge between different geopolitical entities in their attempts to control this space, either politically or economically speaking.

That is the case for example for the countries of Central Asia, where Russian Federation tries to keep its historical dominant position, but where other political actors try to play an important role because of their strategic position in an oil supplying perspective. European Union and U.S.A. try to control the region, but also other new coming regional actors such as India and China, for which those countries are of great importance. Moreover, those countries are mainly Muslim ones that make them closer, from a cultural point of view to Iran Republic and Turkey. However the stronger limit is in the south of the Central Asian countries.

That may means that the influence of the Russian Federation is still perceived as the most important one in the region. More, only China draws a specific Russian region that includes Ukraine, Belarus, Caucasian countries and Central Asian countries. Maybe from political and strategic point of view, China prefers to have the former Soviet Empire to its side, unless it is one more time something like a civilization point of view.

The other countries that are rather isolated between two (or more) different political and economical influences are Turkey, Greenland and the three small Caucasian countries. Turkey is isolated between two large limits, between its claiming to be a part of the European Union, its historical links with it and its cultural origins that are Central Asian and Muslim ones, even if Mustapha Kemal tried to make people forget their cultural belonging and to make them feel European. Greenland is split between its institutional belonging to Denmark and its cultural and geographical proximity to North America and more precisely Canada. Georgia and even more Armenia and Azerbaijan (which was formerly a Persian province), are divided between their former belonging to Soviet Union and their cultural belonging to Central Asian Muslim region. The synthetic maps of regions show therefore that they are sometimes included into Asia, sometimes into Europe, at least in the periphery of Europe. One other strong hesitation is that between North America, on the one hand, and Mexico and South America, on the other hand. This limit, from the international organisations' point of view, can be drawn by taking the level of development and the language and other cultural feature into consideration. No matter the trade agreement between North America and Mexico, Mexico is closer from a cultural point of view to the rest of South America. The hesitation is quite visible on all maps, but it is maybe more based on development facts than on cultural ones.

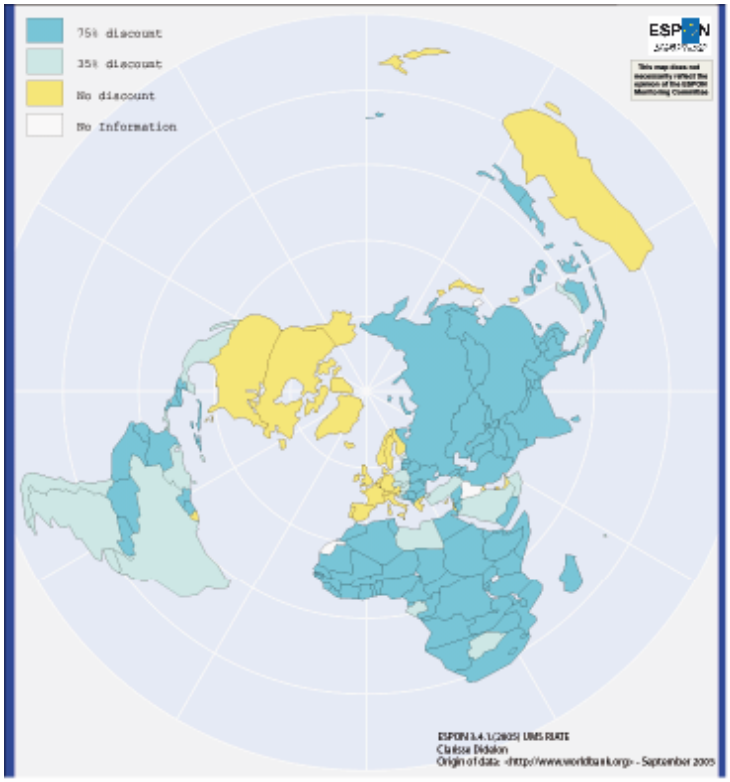
12.1.5.4 Development Perceptions

Sometime, when exploring a website of an international organisation, one can find other interesting divisions. For example, the discounts allowed for individuals from some specific countries in the purchasing of the data produced by the organisation are mapped. They can be seen as a way to divide the World. It is the case of the World Bank (Maps n°12-9 & 12-12). People or administration of some developing countries can get a 75% discount. Others from more developed countries 35% discount. At last, people from developed countries can't get any discount. Those divisions are not official ones, but they are effective ones based on some concrete criteria. In consequence it is interesting to integrate them in the study, at least to help interpreting the result of the analysis. Strange divisions of the World are often proposed, mixing geographical criteria and development ones. Industrialised and developed countries are gathered in one

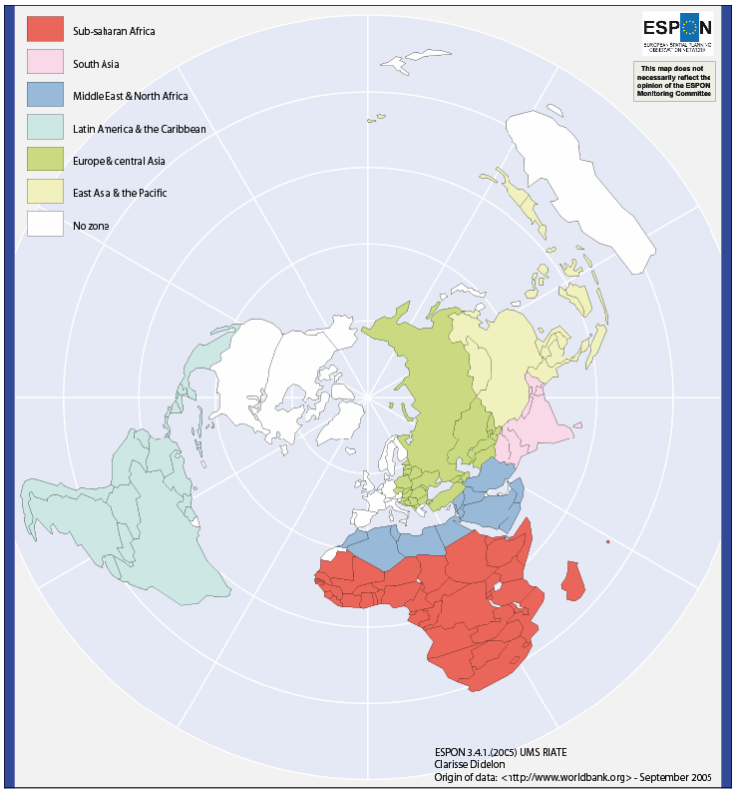
group without any attention paid to their geographical location. Developing countries or emerging economies are grouped according to their geographical location and the divisions seem to be made according physical criteria (the Pacific) or cultural ones (Arab States). It is particularly obvious for the following map built with the data provided on the World Bank (Map n°12-10) website in a category that is called "geographical areas". It is strange to observe that developed countries "do not need" to be distinguished according cultural or physical criteria and are not even affected to a specific zone.

But this kind of division is also made by the Food & Agricultural Organization which proposes a division of the World mixing the development level and the geography (Map n°12-11). As a consequence, the developed zone is divided into "industrialised developed country" and "transition developed country", while developing countries are classified according to their geographical location (South America & the Caribbean, South Asia, etc…).

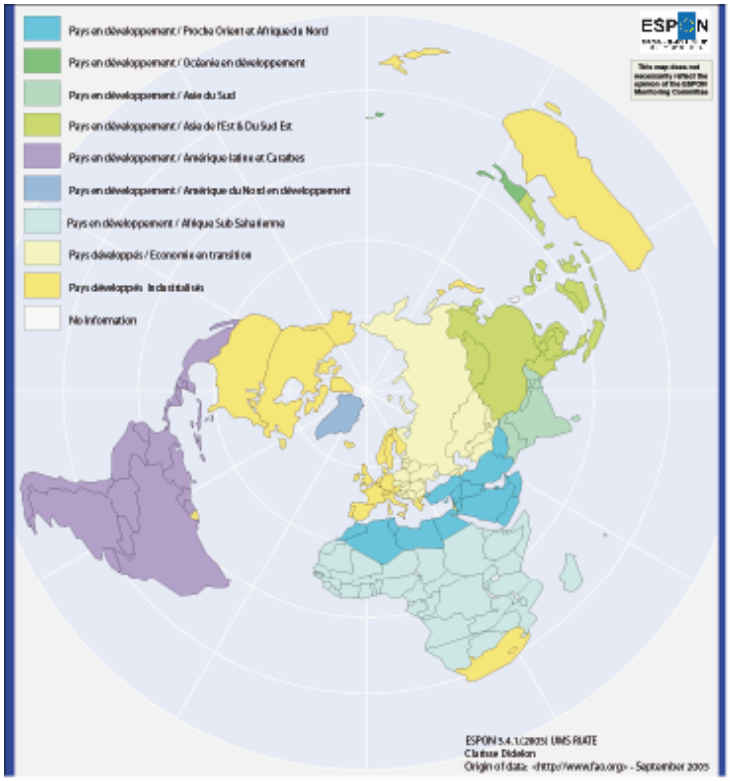
Map 12-10 : Division of the World according to the World Bank - Geographical discount



Map 12-11 : Division of the World according to the World Bank - Geographical areas



Map 12-12 : Division of the World according to the Food & Agricultural Organisation – Development, sub-level



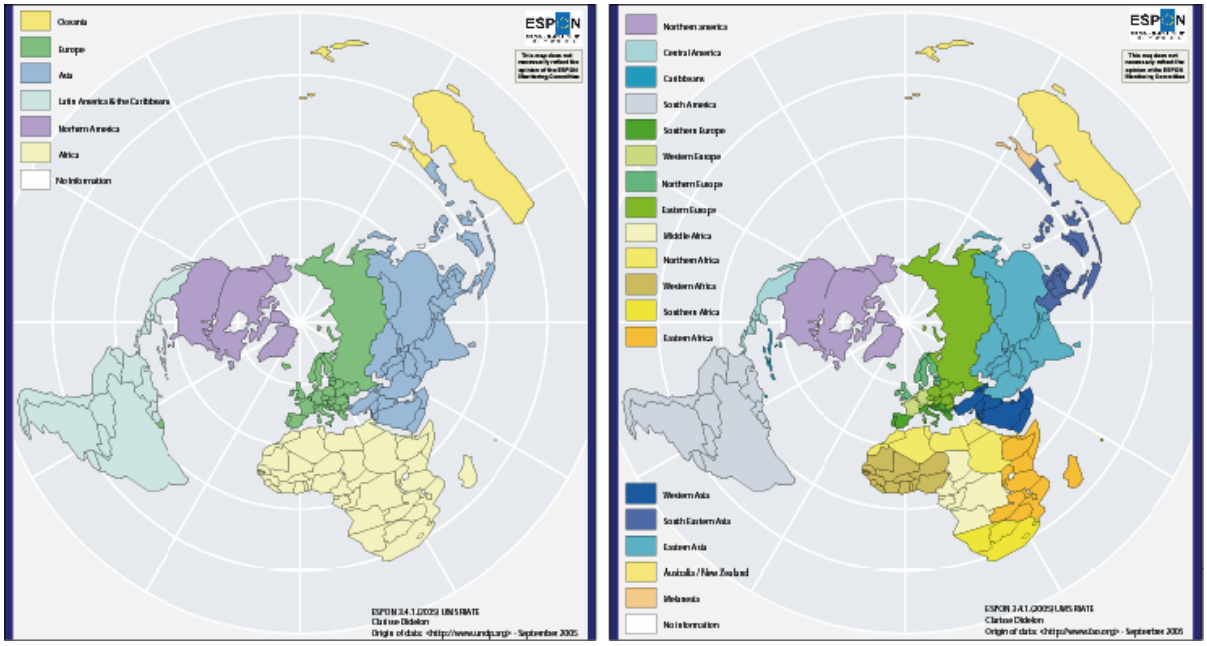
12.1.5.5 Europecentric view of the World

Last but not least, it seems that all the actors, even countries, adopt more or less a Europecentric view of the World. This European point of view of the World is clear when considering the maps that make the synthesis of British, German and French firms division of the World (maps 5.3.1. to 5.3.3.). The first observation is that there is a great difference between the division of the World of French firms, on the one hand, and British and German firms, on the other hand. The latter have distinguished Europe from the rest of the World in the first step of the analysis. Concerning French firms, they rather make a distinction between an "old World" (i.e. Eurasia and Africa) and a "new World" (America).

It can be noticed too on the International organisation map (5.3.5). For some international organisation many divisions of the World exist. In most cases, there is one upper level division of the World and one lower level. (Maps n°12-12). What is striking is that for the general level, the word "region" is used in the subtitle as if they were objective ones. For the subdivisions, they are presented as "development" sub-levels as if the division were based on economic criteria. However, one can notice that the names of the zones are geographical ones and the cardinal points are used to name them (Western, Southern, Northern and

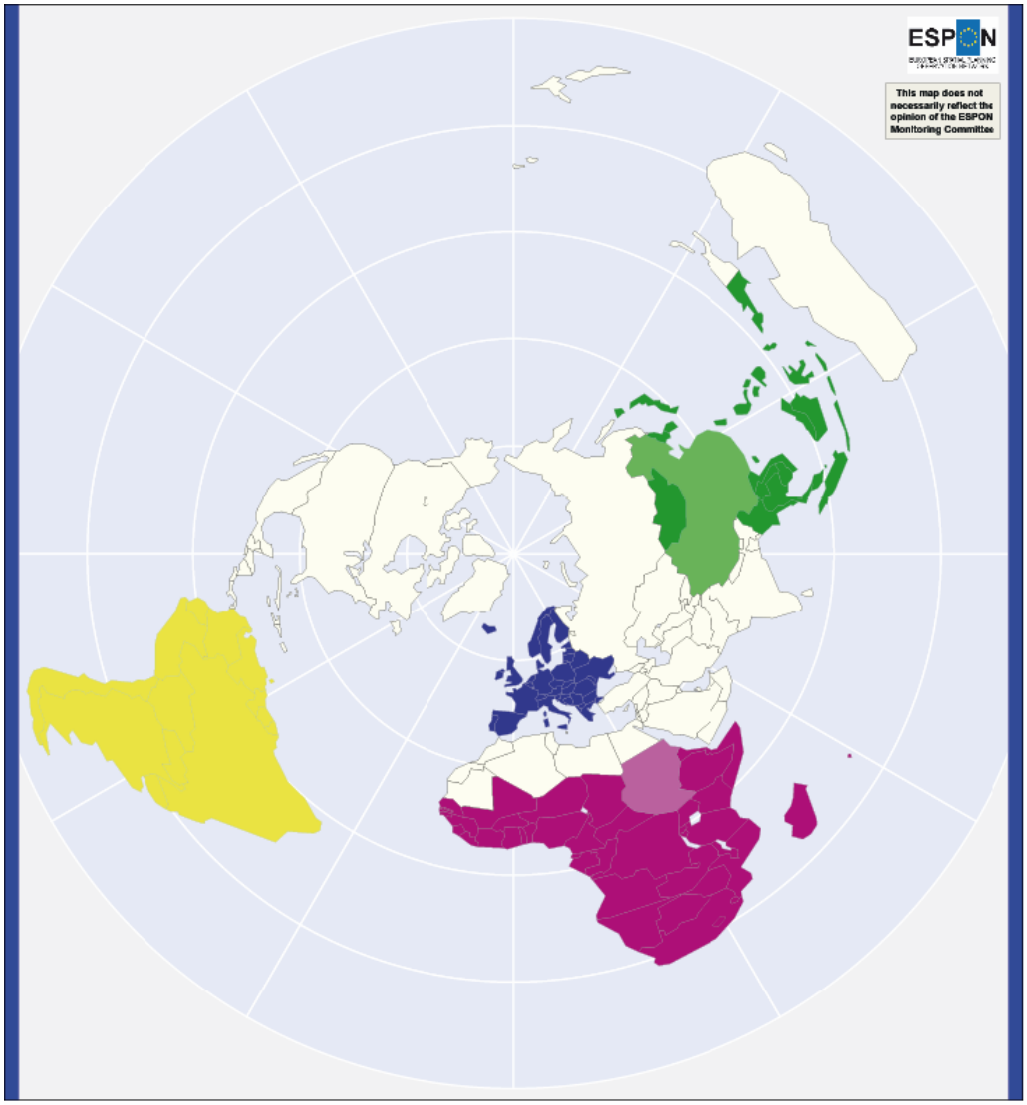
Eastern Europe for example). One can also notice the great differences between their sizes. For example, Western Europe counts 7 countries and a very small share of World surface and population. Nineteen countries belong to Eastern Asia sub-region. Some of them are very large (China, India, Kazakhstan, Mongolia and Iran) in term of surface and two of them are the most populated countries of the World: China and India, each one gathering more than 1/6th of the humankind. So what are the justifications for such unequal divisions of the World? Is the European region divided in 4 sub-level of small size because slight differences of economic orientation, development level or cultural facts between the countries are well-known by the people working in the United Nation office? Does that mean that Asia, from Iran to Japan, is not known as well as Europe? Or does it mean that a Europecentric perception of the World dominates in the United Nations Offices?

Map 12-13 : Division of the World according to the United Nation Population Division. Regions, general level & Development, sub-level.



The other point that has to be noticed is the extension of Europe in the NGOs point of view. It includes the Russian Federation and the former Soviet countries of Eastern Europe, Central Asia and Caucasus, and also Turkey and Greenland. But then, one more time, the European region is further divided, showing a Western European perception of the World, with, on the one hand, Western European countries and, on the other hand, European peripheral countries. The only other region to be further divided is the North African & Middle East one. It can be due to a good knowledge of those countries by NGOs, maybe because the programmes implemented in those two spaces are of different kinds.

Map 12-14 : smallest common denominator of regions



The previous map (12-14.) shows the lowest common denominator of the regions from the countries map collection. Only four regions are identified. In green are the countries always included in Asia, in purple the countries belonging to Africa, in blue European countries and finally in yellow southern America countries. The lighter colours are for the countries that have been isolated (China) or place in another region (Sudan) only one. All regions are contiguous, except the Asiatic one because of China that distinguishes itself in its presentation of World regions. The countries in light cream-colour are those which are at least once included in another region than that it is commonly known to belong to. From a European point of view (half of the eight countries studied are European ones, two are of European origin), this division could evoke first a definition of Europe that is very different / far from Europe. The cream-colour countries could be then those that are in an intermediate position between what those defined by us as European and those defined by an absolute

otherness. Does it mean that the countries that rule the World have a European centrist perception of the World, even Japan? From a functional point of view, one could identify three peripheral areas and one of the poles of the triad (Europe). However, some countries belonging to the Asiatic zone can be considered as belonging to the triad to, such as Japan and some other south-eastern countries (South Korea, Taiwan...).