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Response functions for migration, ethnicity and ageing

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Abstract

Objectives/aims

The main objective of this study is to review, identify and quantify the range and type of migration pressures and to define these for the future scenarios in terms of response functions and anticipated land use changes at the NUTSx level.

Methodology

This report presents an analysis and interpretation of secondary data on demographic trends associated with the combined issues of migration, ethnicity and ageing and the resulting land use changes driven by these, expressed as a series of land use change characters resolved to NUTSx. The trends are converted into qualitative response functions. The functions are then interpreted according to the four scenarios used in PLUREL as the basis for exploring future land use change in rural urban areas. A series of maps shows the main migration trends and the potential land use change patterns arising from this work.

The model used to explain and to predict migration trends is the so-called “Push and pull” model. This identifies a number of factors which tend to push a person into becoming a migrant and to leave their original place of residence and a second set of factors which pull them towards a certain destination.

While the data on past and to some extent present migration is quite good it does not tend to be clearly related to land use change, so some inference of the effect on the landscape is needed, based on other data such as landcover maps and field observation in affected areas.

For future prognoses we use a set of scenarios which seek to explore the influence of some major trends on land use. These four scenarios are descriptive narratives and in no way intended to predict the future.

Data limitations and the nature of the scenarios demand that these response functions are descriptive and highly speculative. Following from the evaluation of the anticipated land use changes some observations on the possible impacts on ethnicity, ageing, education and social equity are made in the concluding section.

Results

Migration flows work in several directions, at different territorial scales and they concern different socio-economic groups – not being entirely associated with poor or unskilled people, although these may form an overall majority.



To look at ethnicity, ageing, education and social equity separately makes little sense as these factors are all bound up together. The main driver of all of this as far as future projections in Europe are concerned is quite clearly migration.

The effects on ethnicity are most obvious, especially when significant numbers of people from other world regions immigrate into Europe and create greater diversity of ethnicity, religion and culture.

Within Europe it is the east to west labour migration which is such a topical feature but the long term pattern is less obvious as many of these migrants are temporary.

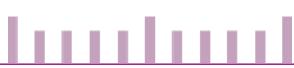
Ageing also manifests itself visibly in connection with various forms of national or international retirement migration. This, whether moving from a city to the countryside, moving from a city to the coast or moving from a northern country to a southern one.

The response functions show that the international retirement migration is likely to cease. Internal EU migration is also likely to reduce in importance, especially when the economies across Europe are more equalised. Immigration from outside the EU is the feature which is most increasing and this places most pressure on the urban areas.

Classification of results/outputs:

For the purpose of integrating the results of this deliverable into the PLUREL Explorer dissemination platform as fact sheets and associated documentation please classify the results in relation to spatial scale; DPSIR framework; land use issues; output indicators and knowledge type.

Spatial scale for results: Regional, national, European	Europe
DPSIR framework: Driver, Pressure, State, Impact, Response	Driver/Pressure/State/Impact/Response
Land use issues covered: Housing, Traffic, Agriculture, Natural area, Water, Tourism/recreation	Abandoned rural, extensified rural, stable rural, idyllic rural, intensive rural, grey rural, gentrified rural, dynamic urban, stagnant urban, shrinking urban
Scenario sensitivity: Are the products/outputs sensitive to Module 1 scenarios?	Yes
Output indicators: Socio-economic & environmental external constraints; Land Use structure; RUR Metabolism; ECO-system integrity; Ecosystem Services; Socio-economic assessment Criteria	Socio-economic & environmental external constraints; Land Use structure; RUR Metabolism; Socio-economic assessment Criteria
Knowledge type: Narrative storylines; Response functions; GIS-based maps; Tables or charts; Handbooks	Response functions; GIS-based maps; tables and charts
How many fact sheets will be derived from this deliverable:	1



1. Introduction

The subject of this paper is nominally called “Response functions for ethnicity and ageing” and in the DoW it is shown as also concerning education and social equity. However, in exploring the issues in relation to land use change and a set of response functions it became clear that the subject of migration is one which in many ways encompasses these, especially in terms of how the ethnic composition and ageing issues are combined. These together also have the biggest visible effects on land use change, often in quite complex ways. The issue of demographic growth in Europe is heavily intertwined with that of migration, while certain specific aspects of the ageing population also have implications for land use change in relation to migration – sometimes indirectly, concerning older people who are left behind when strong out-migration takes place in rural areas, for example. Education is also complex because of the educational or skill levels of migrants and the character of many migration processes also have major implications for social equity.

This paper explores the nature of the phenomenon of migration in Europe, with the aim of endeavouring to understand how the different types and patterns of migration within and between European countries have affected and are likely to affect land use change in different ways – from increasing urban densification, urbanisation and urban sprawl to rural abandonment and extensification. Migration flows work in several directions, at different territorial scales and they concern different socio-economic groups – not being entirely associated with poor or unskilled people, although these may form an overall majority. The intensity of land use changes also varies from country to country and region to region, although because of data limitations the analysis will mainly be resolved as far as possible to a single territorial level – NUTSx, even though most of the data on migration is defined at NUTS2. However, some examples of the variation within a single NUTS region will be illustrated. There are also several specific “hotspots” of in or out migration which can be found and which will be illustrated.

While the data on past and to some extent present migration is quite good it does not tend to be clearly related to land use change, so some inference of the effect on the landscape is needed, based on other data such as landcover maps and field observation in affected areas. Future prognoses however, are extremely difficult to predict. Demographic trends based on levels of fertility, mortality rates and so on give quite a good prognostication of future levels in total but how those populations will change through migration and the subsequent contribution to land use changes which themselves are also affected by other driving forces are extremely difficult to predict. One approach, which will be adopted here, is to use a set of scenarios which seek to explore the influence of some major trends on land use. These four scenarios are descriptive narratives and in no way intended to predict the future. However, they provide powerful “what if?” possibilities which can be subsequently used to explore different futures and to assess potential impacts.

It is useful to fit studies of land use change into the so-called “DPSIR” framework (drivers, pressures, states, impact and response) (EEA) so that demographic, environmental, economic or technological drivers can be understood as setting the conditions leading to migration which then places pressures on the land (or a release of pressure) leading to a change of state (eg increased urbanisation, sprawl, land abandonment). This new state produces impacts on environmental services (such as reduction in green areas) or quality of life (such as increasing crime or commuting time) and which call for responses by national and local government (such as restricting certain types of migration or by reducing the impact).

In this study the main objective is to review, identify and quantify (as far as possible with the data available) the range and type of migration pressures and to define these for the future

scenarios in terms of response functions and anticipated land use changes at the NUTS x level. Data limitations and the nature of the scenarios demand that these response functions are descriptive and highly speculative.

Following from the evaluation of the anticipated land use changes some observations on the possible impacts on ethnicity, ageing, education and social equity will be made in the concluding section.

2. Migration and its role in landscape change: previous studies

Landscape changes are dynamic over time due to natural processes and society development (Bürgi et al., 2004; Wood & Handley, 2004). These changes in landscape patterns are influenced by a number of driving forces which can be described as “*the forces that cause observed landscape changes*” (Bürgi et al., 2004: 858). According to Antrop (2005), and through his analysis of landscape changes that have taken place in course of the past

centuries, three main social driving forces are responsible for changes in the landscape: “accessibility, urbanization and globalization” (Antrop, 2005: 25). Other social drivers such as “demography; technology; economy; political and social institutions; culturally determined attitudes, beliefs, and behaviour; information and its flow” (Agarwal et al. 2002: 36) are also noted in the literature. Lambin et al. (2001) have also pointed to the term “globalization” as the “unifying theme” for changes in the landscape, since it can increase or decrease the driving forces by connecting people, places, markets, information all over the world (Lambin et al., 2001: 266).

Migration fluxes are one of the expressions of globalisation processes and they can occur at a national or an international level, reflecting the different economic and social policies of each country. Flows of people moving from one place to another, in a voluntary or a forced way have always existed as a result of climate changes, wars, demographic growth, or economic reasons (Castles, 2000). Since the 16th century, demographic changes in Europe have also functioned as driving forces for landscape change (Antrop, 2005). Following a general trend of out-migration until 1945, the post war years and particularly the period from the 1980s until the present international immigration levels in Europe increased, reaching particularly high levels in the 1990s and since then (Boswell, 2005; Castles, 2000) due to the combination of a prolonged period of sustained economic growth (that ended in 2008), the fall of the Berlin Wall which opened up Eastern Europe, the end of the Soviet Union (Godoy, 2002) and since 2004 the expansion of the European Union and liberalisation of restrictions on movement within much of the EU.

The impact of migration on host societies has been widely discussed, mainly at in terms of social and economic impacts rather than on the landscape, although, according to Greenwood and Hunt (2003: 3) the phenomenon which might have been responsible for raising the “initial interest” in migration processes by academics could have been the effect on urbanisation. During the transition from the 19th to the 20th Centuries in both the U.S. and in Western European, urbanisation grew quickly, mainly due to populations moving from the countryside to the cities and also the large numbers of immigrants arriving in American cities. By the 1920s, migration was being studied as a social and demographic phenomenon and, the Great Depression in the 1930s, was an incentive for economists to join the other scholars on migration as a topic of research (Greenwood & Hunt, 2003). On our days, many scholars have been looking at this phenomenon from different perspectives: sociology, anthropology, politics and economics, leading to a fragmented view of migration (Borkert et al., 2006). However studies regarding the impact of migration in land-use

changes are very limited (Lopéz et al., 2006), especially in the European context. Recent work by the authors of this paper have started to redress this imbalance, examining some of the migration hotspots and the landscape changes

2.1 Migration: definitions

There is no single official definition of migration and the lack of agreement on how to define it between different countries and organisations is both remarkable and problematic for any international study. According to the International Migration Organisation (IMO) (2004: 4) migration is defined as: “*A process of moving, either across an international border, or within a State. It is a population movement, encompassing any kind of movement of people, whatever its length, composition and cause*” and this is the definition adopted for this paper. However, different national statistical offices use different definitions when they are compiling census or migration data and this is an issue when trying to compare data and to provide a Europe-wide picture.

With a multiplicity of concepts linked to migration, many scholars have tried to look at it from different perspectives: sociological, anthropological, political and economic, leading to a fragmented view of migration theory (Borkert et al., 2006). Some of the theories focus on

the causes for the initiation of international migration, and others focus on the reasons why international migration continues over time. The various theories have different conceptual frameworks, some having economy and politics as the major background, other focussing on the sociological context.

The Neoclassical Economic Model is considered to be the traditional model for explaining the initiation of labour flows, based on economic models and concepts. The ideas behind the neoclassical model are sometimes referred to as the “push-pull” theory (Figueiredo, 2005). This theory perceives migration as a consequence of the interaction of “push” factors that motivate people to move and leave their places of origin, and “pull” factors that attract people to particular places (Portes, 1995). The “push factors” include demographic pressures, poverty or social and political hardship, while the “pull factors” can include the perceived economic, political and social prosperity or freedom of the prospective receiving country (Portes, 1995; Portes & Böröcz, 1989). This theory is based on two arguments: the first is that people from the poorest societies are the ones most likely to emigrate; the second is follows from a truly neoclassical approach (Figueiredo, 2005) and is that the sheer economic differences between places can be a reason for peoples’ movements (Portes & Böröcz, 1989). However, there are many more factors that can affect the actual pattern of migration, such as social and cultural conditions and past colonial history of both countries or regions (that which the migrants leave and that where they go), and which can also be built into the “push-pull” model, a model which is adopted for the purposes of this paper.

2.2 The Push and Pull Model

The model used to explain and to predict migration trends is the so-called “Push and pull” model. This identifies a number of factors which tend to push a person into

becoming a migrant and to leave their original place of residence and a second set of factors which pull them towards a certain destination. This unemployment may act as a push factor to leave a place while a job market and higher wages in a specific region or country would act as the corresponding pull factor. Likewise, political repression would act as a push factor leading someone to try to become an asylum seeker in a country easy to get into and with other people from the same ethnic and political group present to offer support. This means

that there are particular places which tend to have specific combinations of push factors and others with complementary pull factors leading to unequal trends of migration, some countries such as the UK being very popular as destinations and others, such as Poland much less so for all kinds of migration. Likewise, some countries are noted for being sources of certain kinds of migrants, such as labour migrants coming from Poland.

Figure 1 shows an example of how a combination of push and pull factors influence different classes of migrants to Portugal. This example is interesting because it shows distinct groups of people with specific reasons for migration which are different from each other.

Table 1a-c shows how a number of different push and pull factors have been identified in the literature reviewed in this paper. From this it is possible to identify different categories of factors which allow the model to be applied in different settings and among different migrant groups. Table 2 shows this application for specific countries.

Figure 1. The push and pull migration model applied to Portugal

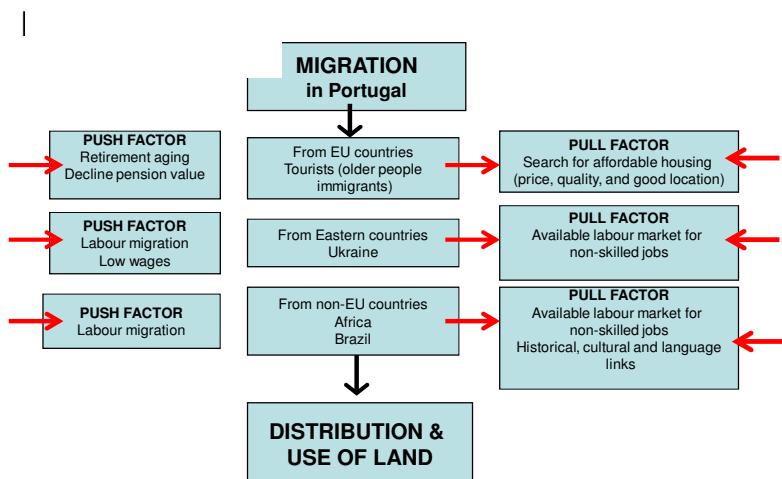


Table 1a Examples of push factors (from the literature review) supporting the model

Push Factors – Migration	
Demographic growth Poverty Social and political hardship	Portes (1995) Portes and Borocz (1989)
Investment in human capital- wish to use skills elsewhere	Massey et al (1993)
Cultural links between core areas (cities) and peripheral areas	Massey et al (1993), Massey et al (2006)
Difficult living conditions in the city – high stress levels, poor housing, high crime levels, housing costs, poor transport	Malgesini (2006), EEA (2006)

Climate change	UNFPA (2007)
Retirement	Bosque and Romero (2002), King et al (1998)

Table 1b Examples of push factors (from the literature) supporting the model

Pull factors – migration	
Opportunities and an available labour market for unskilled labour	Malgesini (2006), Malheiros (2002), Malheiros and Vala (2004), Fonseca(2001)
Social networks, “co-ethical” networks, use of human capital	Deurloo and Musterd (1998), Bodaar and Rath (2005), Hårsman (2006), Malheiros and Vala (2004), Arapoglu (2006)
Pleasant climate	Rodriguez et al (1998), Bosque and Romero (2002), King et al (1998)
Lifestyle	Bosque and Romero (2002), King et al (1998)
Historical and cultural links	Deurloo and Musterd (1998), Malheiros (2002), Malheiros and Vala (2004),
Globalisation and transnational cooperation	Favell (2002), White (1998)

Table 1c Examples of observable changes in land use (from the literature) and supporting the model

Changes in distribution and use of land	
Urbanisation	Malgesini (2006), Bodaar and Rath (2005), Rodriguez et al (1998), Arapoglu (2006), King et al (1998)
Suburbanisation and urban sprawl	Malheiros (2002), Malheiros and Vala (2004), Arapoglu (2006)
Concentration of migrants in specific sectors of a city	Fonseca(2001), Arapoglu (2006), Bodaar and Rath (2005), Hårsman (2006), Favell (2002),
Landscape change of coastal areas	Rodriguez et al (1998), Petrov and Lavalle (2006), King et al (1998),
Construction in rural areas	EEA (2006)

Table 2: Push and pull factors affecting migration in relation to specific countries

“Push” Factors	“Pull” Factors	Where	Impact	Article/Report
High price of houses in urban areas Loss of jobs (industrial and agriculture sectors) Age factor	Availability of jobs in services sector in urban areas	Estonia	Urbanisation by the young population Suburbanisation by family ages Urban-rural migration by older people	Kontuly & Tammaru, (2006)
Retirement	Pleasant climate Quality Lifestyle Previous holiday experiences Information	Spain -	Tourism Settlement in costal mid-size cities by the North European immigrants in Cataluña	Bosque (2002)
Retirement of UK citizens	Warmer climate Healthier and slower pace of life Family connections	Spain, Italy, Portugal, Malta	Settlement in rural areas in Tuscany – “farmhouse” Settlement in “urbanizaciones” (residential estates) - Spain Construction on the fringes of the main coastal settlement axis – Spain Reconstruction of semi-derelict farmhouses - Algarve Dense distribution of villas in the rural areas adjacent to the coastal strip – Algarve Development of new urban settlements Algarve	King et al (1998)
High prices of houses in the city centre Small size of the house Dublin’s transportation system	Single-houses in the countryside	Ireland Dublin	Urban-rural migration Urban sprawl	EEA (2006)

3. Historical patterns and processes of migration

Europe has been characterised by large scale migration events and processes throughout history. For the purposes of the present study the main influences are rooted in the 19th century onwards. This was the period of the development of the largest colonial empires, which has set the foundations for much of the migration in the 20th and 21st centuries. The 19th century was characterised by the huge emigrant flux from many countries of Europe to the United States, Canada and Australia as well as, to a lesser extent, Brazil, Argentina, New Zealand and South Africa. However this tendency changed and during the second half of the 20th century, and Europe became a hosting region, largely as a legacy of the by then dismantled colonial empires and the aftermath of the Second World War.

3.1 Phases of migration

The following main phases of migration can be observed (adapted from ESPON 1.1.4, without date):

From 1950 to 1975 – this period was characterised by important intra-European migratory movements between the poor peripheral countries and the rich central countries (France, Germany, UK) due to the economic push and pull factors and the needs of the labour market. The main direction of flow were from Southern (Mediterranean) to North-Western European countries, especially Portugal, Turkey, Cyprus and southern Italy but also movements from Ireland to the UK and Finland to Sweden. There were weak movements between Eastern and Western countries mainly because of the barrier formed by the Iron Curtain.

The 1960s and 1970s – in this period the extra- European flows started to exceed the migrations from Southern to Northern Europe. This can be explained by the push-pull theory where poor people in former colonial countries such as India, Pakistan, sub-Saharan Africa, Brazil and the Caribbean were encouraged to migrate to former imperial powers such as the UK, France, Portugal and the Netherlands to fill the labour market for un- or low-skilled workers. These migrants settled in places where certain industries could be found, such as cotton mills and the garment industry for people from the Indian sub-continent in the UK. These locations were later to form important magnets for later waves of migrants from these countries.

From 1975 to 1990 - the extra-European flows into Europe decreased. In part this was probably because immigration became illegal, and the official numbers decreased while the unofficial, illegal immigration increased. During this period the expansion of the EU and the money being put into the poorer economies started to allow them to develop and to reduce the influence of the push factors of poverty and unemployment, though this process was not to take full effect until the later 1990s.

During the 1990s – increase of immigration. Although the legislation became more restrictive extra-European immigration increased as existing immigrants brought over their family dependents.

In terms of intra- European movements, the economic imbalances between areas significantly decreased and living conditions became more uniform among the EU countries. This started to have an effect of increasing the demand for labour in the newly growing economies such as Ireland which started to become a net in-migration country instead of a net out-migration source.

The beginning of the 1990's saw the collapse of the so-called Eastern bloc and the USSR which initially became translated into large-scale flows from Eastern to Western European countries as borders opened. However, this tendency decreased after 1995 as controls came into force in many countries.

During the 1990's metropolitan areas were the most "favoured spaces by immigrants". This has been a feature of many groups, partly because the urban areas saw the most demand for jobs and partly because immigrants saw a move to another country and an urban lifestyle away from a poor village as a social and economic improvement.

According to Boswell (2005), after 1973-4, Western Europe followed the same tendency as the rest of the world. As a result of the oil crisis Western Europe as a whole decreased its rate of migrant recruitment, but immigration flows continued in the form of family unification, refugee flows and some labour migration (Castles, 2000). Subsequently, in the 1980s and 1990s migration levels increased once more as economic growth resumed, reaching particularly high levels (Boswell, 2005; Castles, 2000). The western (Austria, France, Germany, the Netherlands, Switzerland, UK) and Nordic European countries are examples of this trend. In 2001 the average net rate of immigration was 3.0 per 1,000 inhabitants (OCDE 2004 cited in Boswell, 2005) and the OCDE described the main source country-receiving country patterns as: "*Moroccans in Belgium; Iraqis and Afghans in Denmark; Russians in Finland; Moroccans and Algerians in France; Poles and Turks in Germany; Romanians and Ukrainians in Hungary; Albanians, Romanians and Moroccans in Italy; Angolans and Cape Verde nationals in Portugal; Iraqis in Sweden; and Indians in the UK*" (Boswell, 2005, p.3)

The European Union has been responsible for trying to unify the member states' immigration policies, by elaborating policies to regulate the movements of legal migrants and also of refugees. While, on the one hand, European citizens are increasingly free to circulate, to live and work in other European Union member countries, on the other hand national policies are becoming increasingly restrictive regarding non-European Union migrants. "Fortress Europe" is the term that reflects the European policy of keeping non-European Union residents outside its frontiers (Bolestá, 2004).

Statistics from 2006 (Eurostat) reveal that the population of the EU-25 grew from 376 million people in 1960 to 460 million people in 2005, migration being one of the main reasons for this increment. Net annual in-migration to the EU-25 increased from 590 000 persons per year in 1994 to 1.85 million by 2004. Figure 2 shows the net migration, annual average growth, by NUTS 2 regions, 1 January 2000 to 1 January 2006 from Eurostats. There are clear patterns here of the source and receiving regions from within Europe, although there are also movements into and out of Europe too.

4. Types of migration

Migration processes are not homogeneous, and different kinds of migration must be considered in the study of this phenomenon, especially when linking migration to land use change. As noted above in the model, people migrate for different reasons, but over the latter half of the 20th century, it was possible to identify three main types of international migration: labour and temporary migrations, including illegal migration, forced migration (refugee movements) and International Retirement Migration (IRM). There is also internal migration, most commonly from rural areas to urban centres but also a trend in some places for counter urbanisation. These will be examined in turn.

4.1 Labour migration in the EU

Labour migration represents the movement of individuals from one country to another with the purpose of seeking work or responding to recruitment drives in another country. However, in labour migration it is possible to identify two types of migrants: highly skilled labour and unskilled low wage labour (including illegal or forced immigrants)

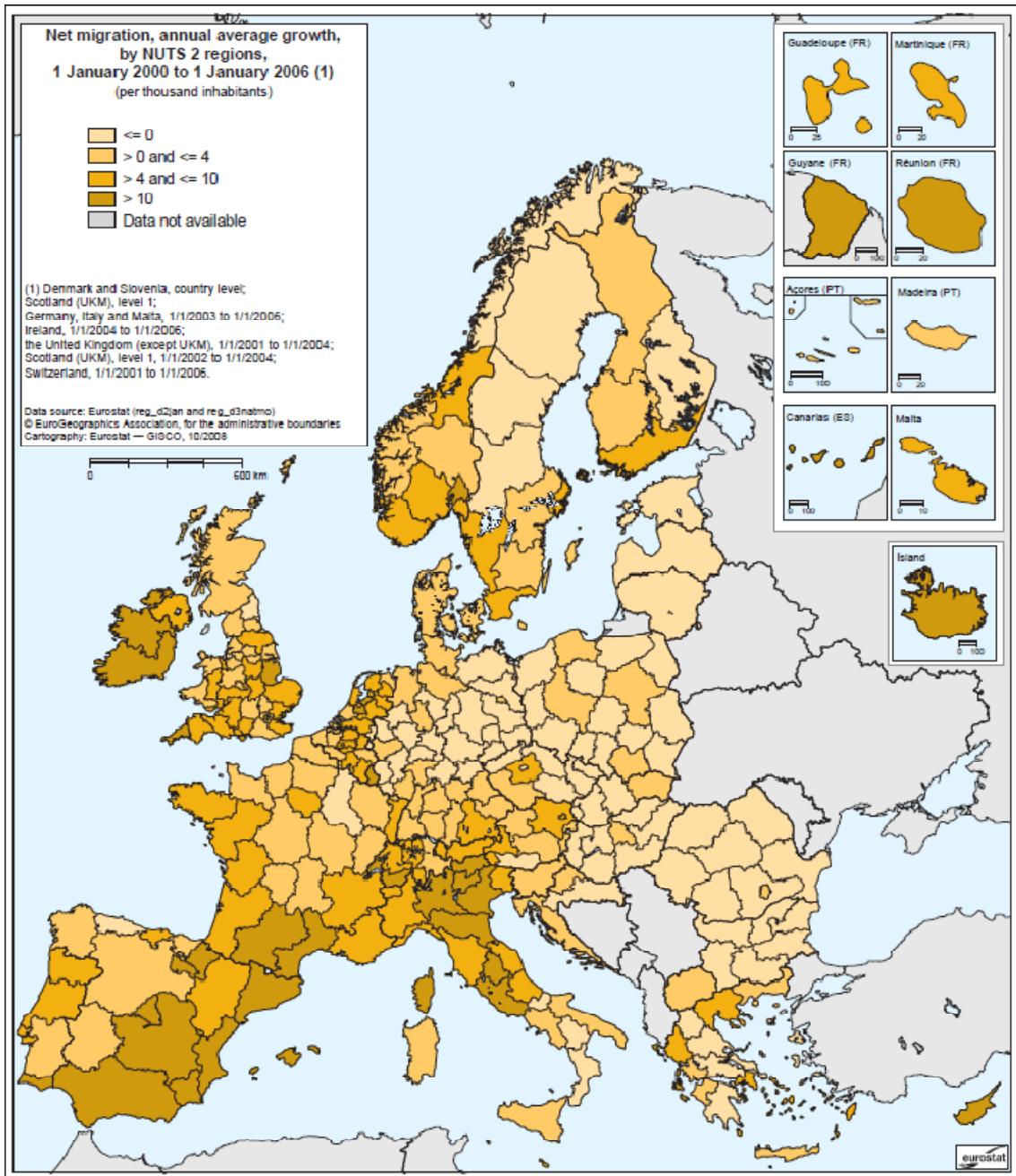


Figure 2: Map of European net migration between 2000 and 2006, encompassing the expansion of the EU in 2004 (source: Eurostat)

4.1.1 Highly skilled labour migration

This represents only a small percentage of migration (Peixoto, 2001) and it is the type of migration most wanted by the hosting countries who develop special types of incentives to attract highly skilled labour, often in specific categories, such as doctors and nurses (Castles, 2005). The attraction of highly skilled labour lies in the ability of the host country to accumulate human capital with no education or training costs (Figueiredo, 2005). However the loss of skilled labour, a phenomenon known as the “brain-drain”, can have severe consequences for the sending countries who lose human capital and all the money invested in the education and training of the people who leave. Nevertheless, it can be seen as an alternative solution to solve problems of unemployment and a way to increase economic production (Kubursi, 2006). Since the 1980's, the USA, Canada and Australia have had specific policies to attract skilled labour in particular categories, using a points system to score applicants who wish to emigrate there. This policy has been followed, more recently, by some European countries and parts of Asia (Castles, 2005). Highly skilled labour tends to be young to early middle aged people who are from specific sectors, for example medicine or computer programming. Many people stay in the country they migrate to and then raise families and assimilate themselves into the population, retaining a high level of educational attainment in their offspring.

4.1.2 Unskilled low wage labour and temporary migration

After 1945 unskilled low-wage labour was the main type of migration which played a very important role in the economic reconstruction of the industrialised countries. Not all of this immigration is legal and some countries, such as the USA, have been very attractive to illegal migrants, especially from Mexico and other Latin-American countries willing to work in the “black economy”. In 1988 Sassen, in her approach to the global cities, referred to the dual economy which uses these low skilled labourers as a primary source for the low wage jobs (in industry, construction and domestic service) (Castles, 2005). This constitutes the larger percentage of economic migration and is the process that attracts more attention from the media and social organisations (Kubursi, 2006). The unskilled low wage labour is usually also linked to illegal migrants who clandestinely enter the host country. Such people are the most vulnerable to unjust exploitation and human rights violations, because they have an illegal status (Kubursi, 2006). If they remain they frequently end up staying in deprived areas and joining a community of deprived people who are unable to climb out of poverty without help.

When the Central and Eastern European countries joined the EU in 2004, large-scale labour migration from these countries to the west started, especially to countries such as the UK and Ireland, which did not impose any interim immigration controls. The labour market in the still-growing economies (until the financial crisis of 2008 and the subsequent recession) was and is primarily in three sectors: agriculture (picking and processing agricultural and horticultural products), the hospitality industry (hotels and restaurants) and construction. Many of these people are temporary migrants – possibly seasonal and also for short periods until they have amassed enough money to start a business, for example. These migrants are also usually young but may include middle-aged people who may bring their dependents with them. Temporary migrants may be educated but unable to transfer their skills to the host country owing to the need for certain certificates for professions, for example, where the host country does not recognise certain qualification qualities.

4.2 Forced migration

Forced migration includes not only refugees¹ and asylum seekers but also people displaced from their homes by projects such as dams, roads, etc, or certain natural disasters (Castles, 2003, 2005). Castles (2003) has also referred to another way of forced migration, which is related to the trafficking of people, with special emphasis on women and children for the sex industry.

While some countries may be favoured for such migration – asylum seekers to Britain have been an issue in recent years – other countries which do not otherwise feature as receiving large numbers of labour migration may in fact welcome asylum seekers – Scandinavian countries for example. The educational level of many refugees, especially asylum seekers may be quite high (as a result of their exile being caused by their being politically active students for example) or, in the case of people displaced by civil war, it may be very low. Some asylum seekers return to their native country if the circumstances there improve (eg Iraqis returning after the fall of Saddam Hussein). Many assimilate into the local ethnic communities and become part of the multi-cultural community, often in a relatively low level of affluence.

4.3 International Retirement Migration (IRM)

This type of migration, characteristic of the Northern countries such as Germany, the UK and the Nordic countries is characterised by the residential mobility of retired people who have the economic power to buy properties abroad (Rodríguez et al., 1998). Retirement is the main “push factor” to initiate this migration process (King, et al., 1998). As a “pull factor” the pleasant climate characterised by warmer temperatures, the landscape, a quality lifestyle associated with a healthier and slower pace of life, and also the availability of information about the countries as well as previous holiday experiences are all elements that attract immigrants to Southern European countries (Rodríguez et al., 1998; King, et al., 1998, Bosque & Romero, 2002; Petrov & Lavalle, 2006). The major impact of these immigrants in the host countries is the pressure on urbanisation and the mass construction of housing in coastal and rural areas (Rodríguez et al., 1998; Petrov & Lavalle, 2006). According to the EEA (2006) the coastal zones of Portugal and Spain, along with Ireland, had the highest rates of urbanisation (20-35%). In Spain retired immigrants settle in “urbanizaciones” (residential estates) (King, et al., 1998) and the construction of these developments has a

large expression in rural towns and villages on the Costa del Sol (Rodríguez et al., 1998). In Portugal, the Algarve is the most popular area for retirement. In this area, also due to the high levels of tourism, there is an increase of infrastructure construction and recreation. Golf, as one of the main attraction, has a direct impact on the “*modification of dune soils, loss of natural vegetation, disturbance of sensitive wildlife and extra demand on limited water resources.*”(Petrov & Lavalle, 2006: 15). Retired immigrants tend to reconstruction of semi-derelict farmhouses, live in villas in the rural areas adjacent to the coastal strip or settle on new urban development (King, et al., 1998). According to King et al (1998) retired

¹ According to the Geneva Convention on refugees, “refugee” is defined, among other things, as: “As a result of events occurring before 1 January 1951 and owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable, or owing to such fear, is unwilling to avail himself of the protection of that country;” (U.N., 1950)

Some ratification were made to this convention, and in 1966 the refugee status was changed and expanded to every one who was being persecuted, by omitting the words “As a result of events occurring before 1 January 1951 and...” and "...as a result of such events” (U.N., 1966)

immigrants in Italy, settle in rural areas in Tuscany – in “farmhouses”- but they also present a tendency for urban settlements in major cities such as Florence and Lucca.

There are migrations which are similar but not strictly retirement as they involve people in mid- or late-career leaving their jobs and moving to rural areas in other countries, such as British people to rural France. They may tele-work or set up businesses but in essence they are looking for the same things as the retirees – a less-stressful life, a better quality of life and perhaps to live more cheaply on the same income.

4.4 Internal migration

This type of migration occurs inside a particular country, and between regions, especially from economically poor areas and rural parts to major cities. The effects during the 1990's can be explained by the social and economic disadvantages of living in some areas. This trend, which had occurred in western Europe for centuries, had been more-or-less arrested in the Eastern bloc due to social controls but once the socialist system collapsed along with the economies, large scale migration occurred which, with the inclusion of many of these countries into the EU became transformed into international labour migration. The patterns of internal migration can be quite complex and have profound effects on land use as will become clear.

In France there is a north to south movement. However, in the old industrial areas of the north there is also out-migration, but in this case to the Paris region, while the inhabitants of the latter tend to move south, attracted by the good image of quality of life and a healthy economic dynamism associated with cities such as Toulouse and Montpellier.

The Scandinavian countries have seen movements from peripheral regions and industrial areas to metropolitan areas. This tendency has been reinforced during the 1990s. In Sweden and Finland, for example, there has been large-scale rural depopulation of more remote areas and the main cities have expanded, so that increasing proportions of the population live in cities. This has resulted in some places with largely emptied villages and the loss of rural services. These areas now tend to be dominated by, for example, industrial forestry.

In the former Eastern Europe (now referred to as the central and eastern European countries or CEE) in the period since the collapse of the Soviet bloc, large-scale movements from rural and old industrial areas to metropolitan regions have taken place. This has been followed by out-migration to other European countries. The rural areas contain a lot of abandoned land and may be dominated by old people who have been left behind. There is a tendency for young people to leave to seek education as well as work but not to return to rural areas. However, inside the metropolitan areas there is a tendency for suburbanisation away from Soviet or socialist era housing estates dominated by large panel buildings to single family houses in the suburbs, contributing to urban sprawl.

Counter-urbanisation is another type of internal migration and represents the movement of people from urban to rural areas. In England, contradicting the world's tendency, this movement is increasing and has been observed since the 1980s (Hardill et al., 2004). This phenomenon is characterised mainly by the in-migration of older couples and “relatively well-off families”, which balance the rates of younger groups moving into cities, and can be explained by four drivers: “*commuting patterns; work-driven migration; pre-retirement (movement to rural areas with job but with the intention of retiring in that place); retirement related moves*” (Lowe and Stephenson, 2003: 2).

The number of older people living in rural areas is also increasing, being nearly 28% and it continuing to increase (Lowe and Stephenson, 2003). In the U.K., the ‘retirement areas’ - places that most attract 60-74 year olds –“ are primarily seaside towns and rural-coastal

areas (Champion, 2004: 29). Hardill et al. (2004) identify the aim of many people of “re-establishing some quality to life”, after working hard to build up some financial stability, as impulses for retirement migration to rural areas. In this case, the financial resources work as a “push factor” and the desire for a better quality of life a “pull factor”. Also in Ireland, the aim of living in rural areas, near to nature and with a better quality of life, as well as the wish of living in a single family house (EEA, 2006) can also be considered to be “pull factors”. In addition, population growth in cities, high property prices in the city centre and the small size of houses, along with a deficient transportation system work as “push factors” for urban-rural migration.

In some CEE countries there is a small trend for counter-urbanisation. For example in Estonia, Kontuly and Tammaru (2006) have noted the movement of older people to rural areas, returning to the places of their birth after being forced to live in cities or towns during their working life. In these places the family may own a rural property which was reinstated to them after the end of the Soviet system.

5. Characteristics of immigrants in urban areas

Most of the international immigrants settle down in urban areas due to the economic, cultural and social opportunities that large cities can offer (Malgesini, 2006). Along with these opportunities, the available market for non-skilled jobs (Fonseca, 2001, Malheiros, 2002; Malheiros & Vala, 2004), social networks (use of human capital inherent in the ethnic networks, relatives and friends in the host country, information) (Arapoglou, 2006; Hårsman, 2006; Malgesini, 2006, Malheiros, 2002; Malheiros & Vala, 2004), family reunion (Deurloo & Musterd, 1998), labour recruitment policy and historical and cultural links (colonial past and share of same language) (Deurloo & Musterd, 1998, Malheiros, 2002; Malheiros & Vala, 2004) result in “pull factors” to immigrants.

The settlement of immigrants and the demographic growth of their descendants have a social impact on cities (Malheiros & Vala, 2004), contributing, in some cases, to a high degree of urbanisation (Malgesini, 2006). Spatial segregation, in some cases is a consequence of the presence of immigrants in cities (Gaspar, 2001). The ethnic segregation in Europe is related to the recent waves of international immigration characterised by labour immigrants, immigrants from the former European colonies and refugees, (Fortuijn, Musterd, & Ostendorf, 1998). In the American literature, under the influence of the Chicago School, it is possible to find references to the idea of “ghetto”, representing an idea of high levels of urban segregation and poverty (Fortuijn et al., 1998). In the European context “*few ghettos can be found*”, mainly due to the recent experience of segregation (Fortuijn et al., 1998: 367). Nevertheless, in a different scale from the American context, “*segregation also shapes cities*” (Kaplan and Woodhouse, 2004: 580). Segregation is seen has a failure of assimilation of the ethnic minorities and most of the societies aim to stop the ethnic residential division.

Malheiros (2002) has also considered the two different scenarios in Europe regarding the settlement of immigrants and segregation patterns: the Southern European cities are characterised by low levels of ethnic and social segregation, while the Northern European cities present higher levels of segregation. He considers the differences in immigration (different periods of migration, the multiplicity of immigrants and the high percentage of non-legal immigrants involved in informal activities in the southern European Countries) and the divergence of urban and house policies (“late industrialisation and suburbanisation”, lack of public housing in the southern European Countries) (Malheiros & Vala, 2004: 1067) as key elements for these differences. As an example of this scenario, in Greece, Albanians immigrants experience a low index of segregation in Athens, mainly through their capacity to live among the Greek population and in different areas of the city (Arapoglou, 2006). However, other immigrants from central and eastern Europe, and also from Asian and

African countries have their own communities and tend to live closer together and somewhat more segregated.

6. Predicted migration and resulting population changes

The future migration map of Europe will depend on several factors: the changing balances between push and pull factors which may increase or decrease migration from different areas or in different directions; immigration controls to migration from outside the EU. The overall population of many European countries is expected to increase largely as a result of migration rather than through demographic growth. The pattern on migration is also affected

by the composition of the migrants. Eurostat has produced some forecasts of net population increase and anticipated migration for the years 2004 – 2031. These are not the same years as are studied in PLUREL but they do help to evaluate the effects and to link these to land use change. Figure 3 shows Population relative change 2004 – 2031 at NUTS 2 while Figure 4 shows Net international migration (cumulative change), by NUTS 2 regions, 2005-2030 but not for all countries due to a lack of data. The anticipated main pattern of migration within Europe is shown in Figure 5a and b in terms of the main sources and receiving destination and also the directions of flows between them (Fig 5a shows the primary flows and Fig 5b the secondary flows. The main flows from outside the EU are shown in Figure 6.

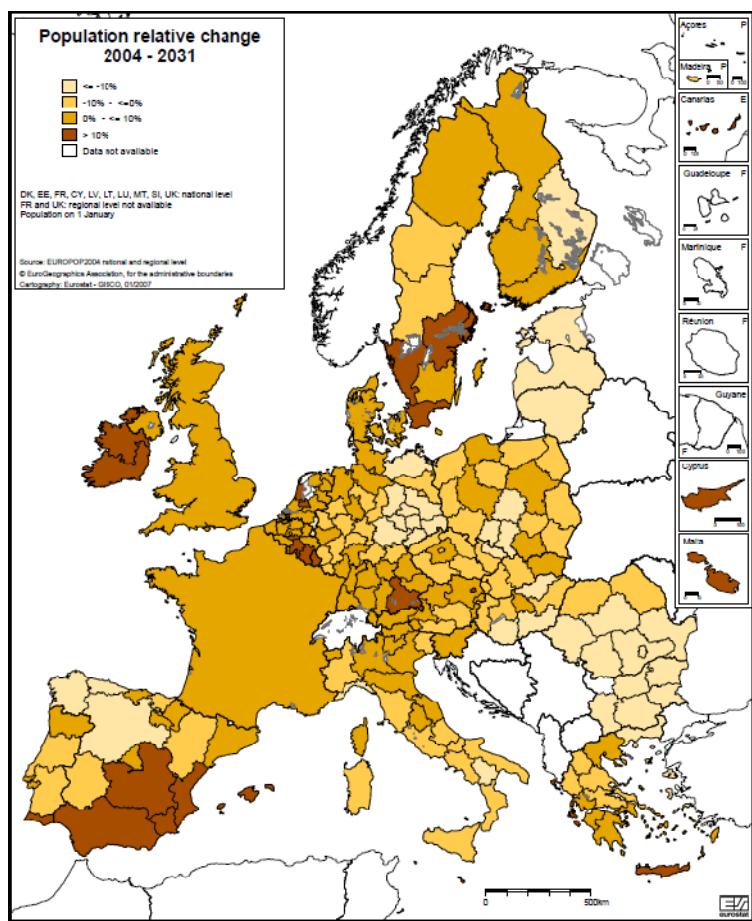


Figure 3: Map showing expected relative population change in the EU from 2004-2031.
(source: Eurostats)

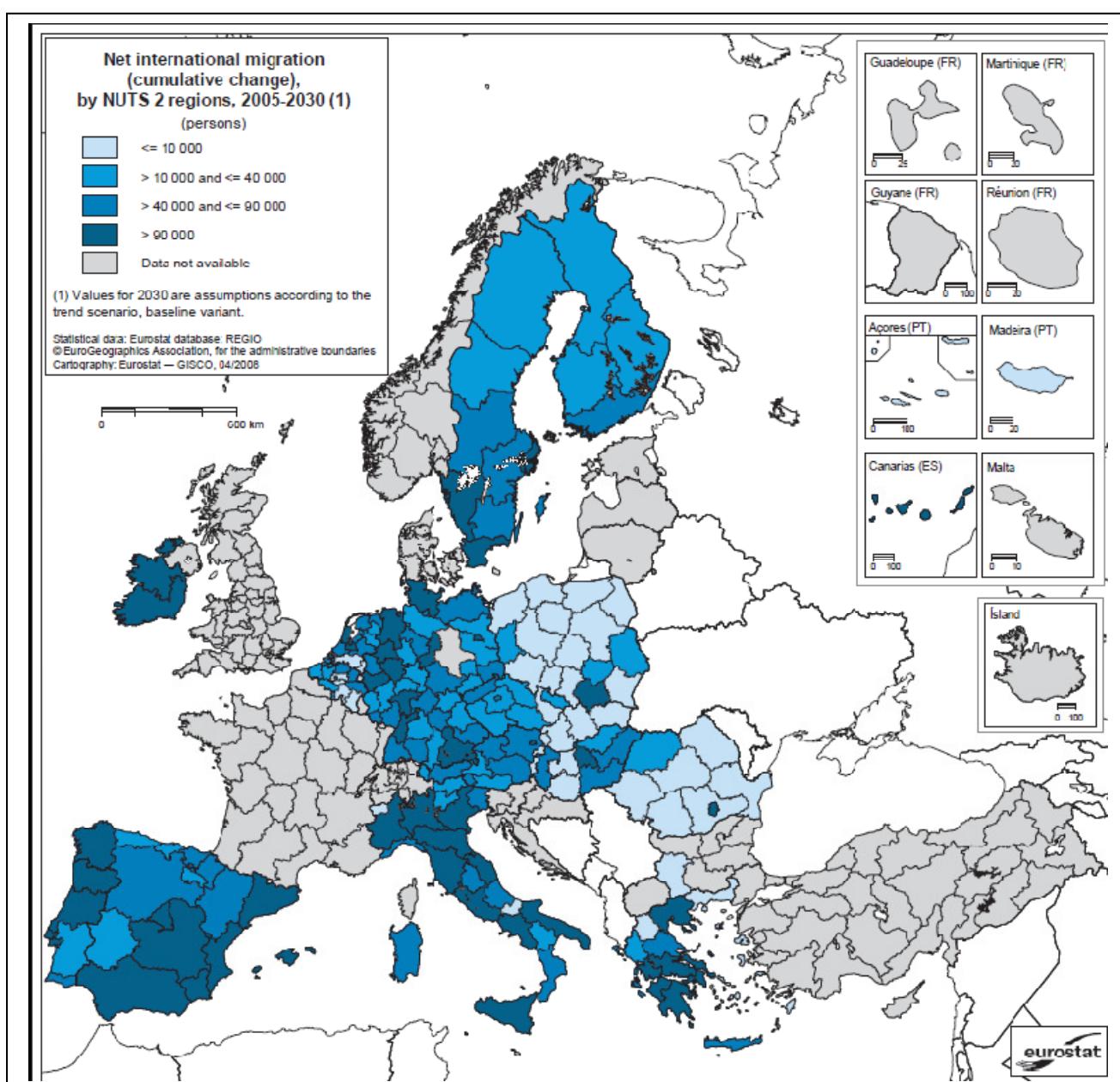


Figure 4: Map showing net projected cumulative changes in international migration for selected countries. (Source: Eurostats)

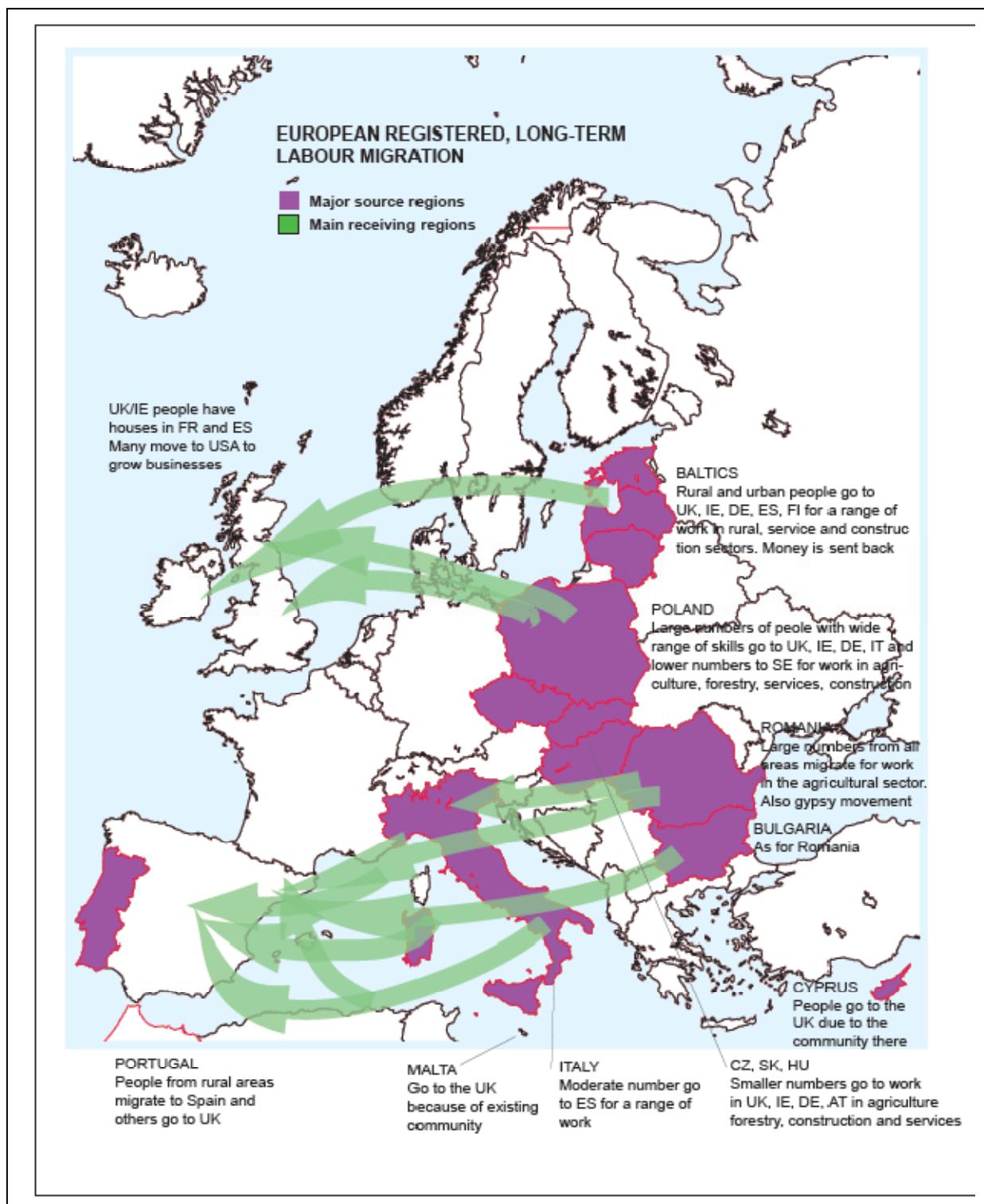


Figure 5a. Map showing expected primary flow directions of EI migration, in relation to the main source and receiving locations (Source: OPENspace)

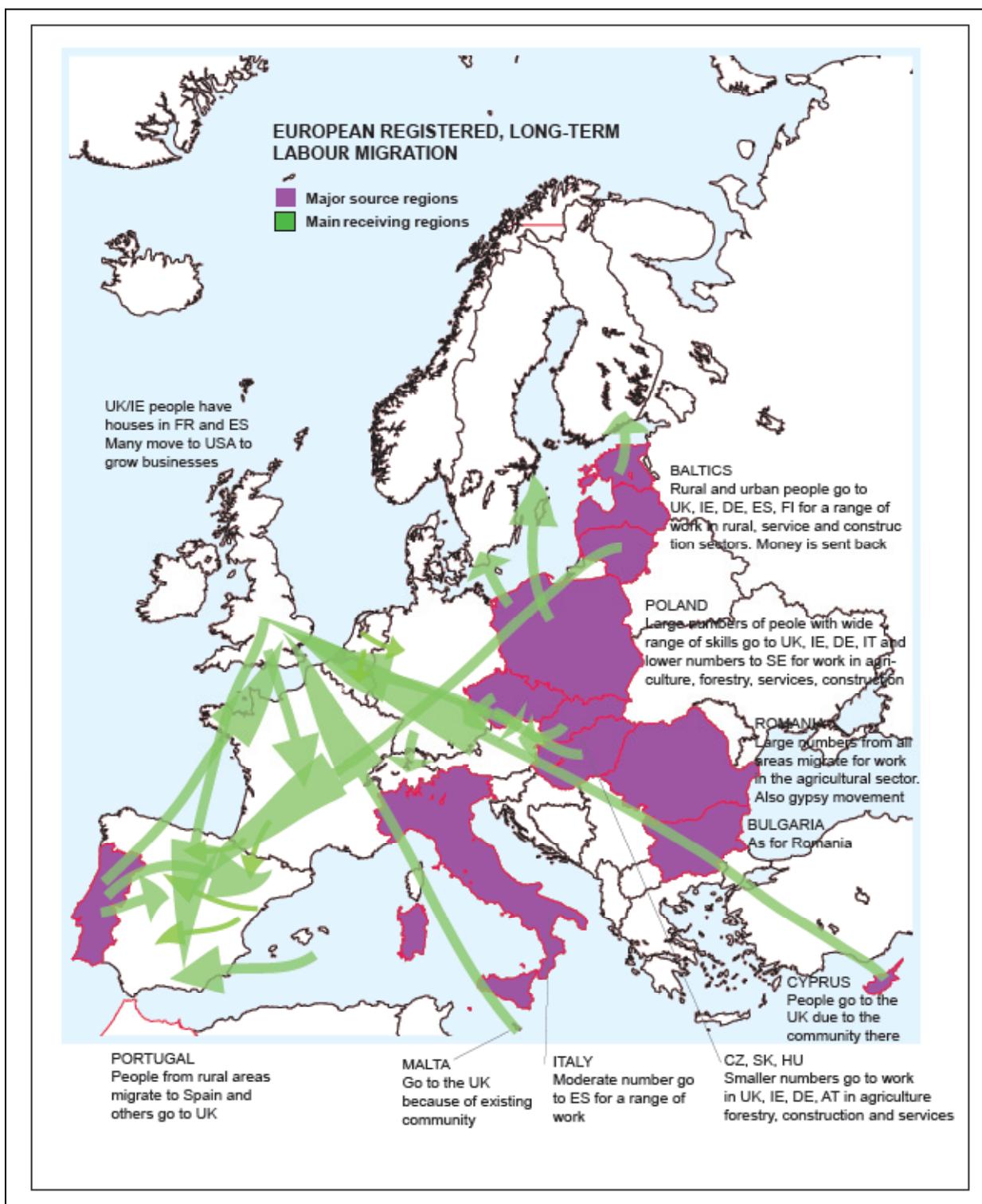


Figure 5b. Map showing the expected secondary migration flows in the EU in relation to the main source and receiving locations. (Source: OPENspace)

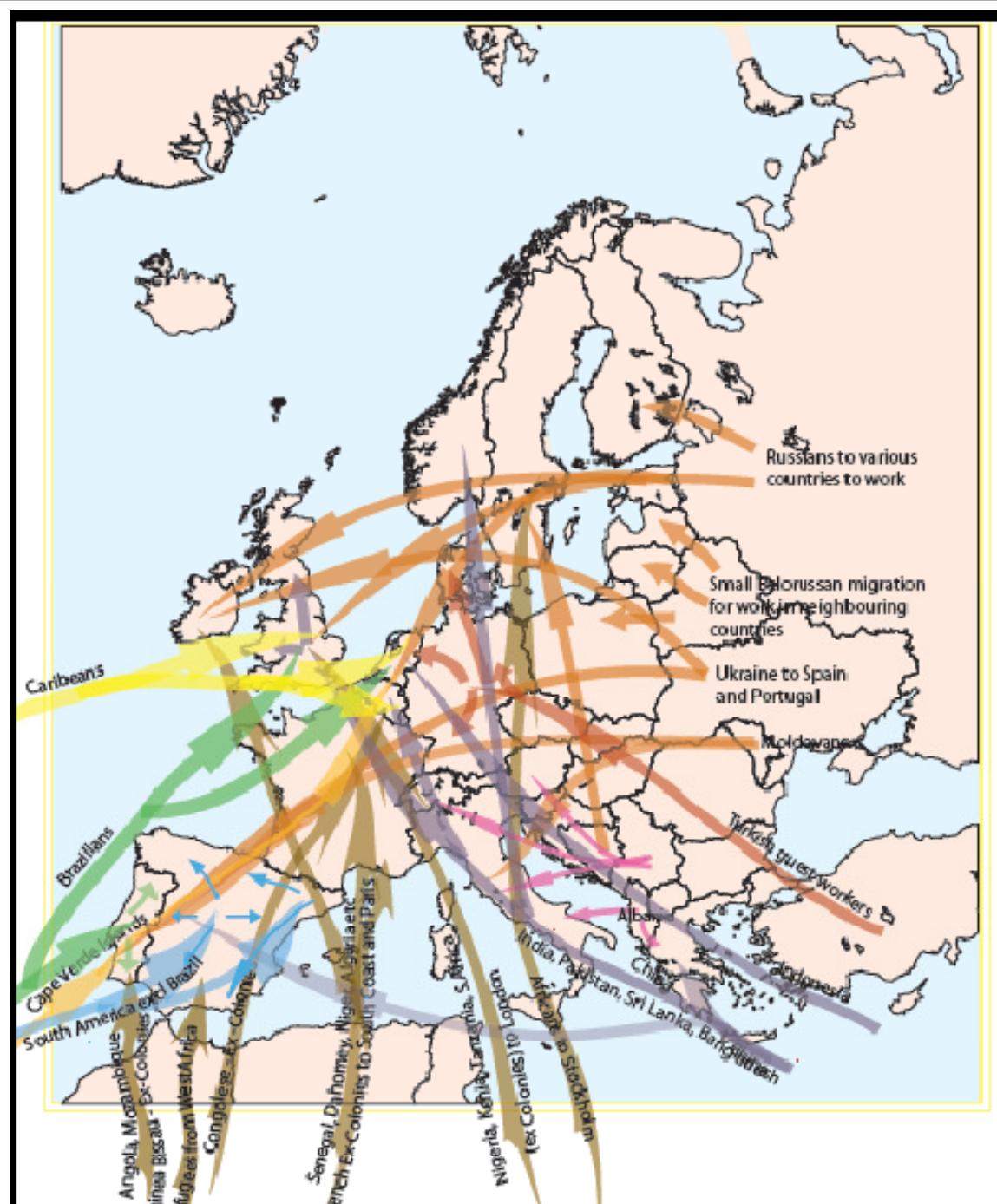


Figure 6. Map showing anticipated migration flows from outside the EU and their main destinations. (Source: OPENspace)

One of the characteristic features of the migration flows from outside the EU is the popularity of the countries which were the former colonial powers in the 18th to 20th centuries as potential receiving countries. This places particular pressures on the UK,

France, the Netherlands, Spain and Portugal. The other feature is the continuing link between Germany and Turkey and the expected flows from the former Soviet Union, some of which are already fairly strong, such as that of Ukraine to Portugal.

These anticipated flows will present major challenges for many countries in assimilating migrants into society, with potential dangers of the development of more ghettos and urban areas dominated by certain ethnic groups probably living in rather deprived conditions and needing more and more social support, special education programmes owing to language problems and so on. The political implications should not be underestimated either. Social cohesion, national identity and perceptions about over population are issues that are already being raised by politicians in many countries. In countries where fertility rates have been falling the more fertile migrant populations may affect the balance of ethnic composition in school classes in certain inner city locations, for example and there may also be perceptions that there is some kind of threat to the ethnic make-up of cities or countries which is also on the political agenda in some places.

7. Land use change processes resulting from migration pressures

The connection between migration and land use change can be described as a response function – the land use responds to the pressures caused by migration in different ways in different places. The problem with calculating response functions and obtaining a predictive formula, for example, is the lack of data. Therefore it is necessary to interpret the available data and trends qualitatively. It is also necessary to be quite speculative about what will happen in the future and how current trends will evolve, because of the complexity of the combination of push and pull factors in any one migration category as well as the combination of categories which may affect a particular area. Data exists and some predictions have been made which are available in the references and in sets of maps produced by Eurostats, at least for where data is available (it is not comprehensive for the EU and often omits the Balkans). Maps 1-3 show the Eurostat predictions.

In order to determine what kinds of land use changes are likely, it is necessary to be able to see how migration flows work spatially, to see where migrants come from and where they go to as well as what kind of migrants and what they do when they arrive, where they are likely to live and so on. There are some clear patterns:

Certain countries are experiencing migration from rural areas to urban areas: eastern European countries, Portugal and Nordic countries, for example; others are experiencing counter-urbanisation from urban to rural areas: the UK, France, Spain, Italy (not necessarily French people but also British Dutch and German to rural France, Spain and Italy, for example. This leads to several trends: urban growth as a result of migrants moving to urban areas of, where they often live in low-rent accommodation to start with and often cause an increase in multi-occupancy in residential areas and urban densification. This may not be so visible as a land use change on maps but is nevertheless significant. The counter urbanisation leads to the so-called “gentrification” of the countryside in regions around cities, within the commuting zone. It also leads to the regeneration of rural areas in France, for example, where old houses are renovated and dying villages are repopulated. European labour migration is primarily from eastern Europe to western Europe, especially the UK and Ireland. The people often come from rural areas back home (where the rural depopulation is worst) to both rural and urban areas in the receiving countries. They generally live in low-rent areas, often in places where people from their country already live, frequently in inner cities as opposed to suburbs or peri-urban public housing. This leads to denser populations and an increase in multi-occupancy but these people are there to earn

money and they do not normally receive benefits or live in public housing. There is also a turnover of people, some staying for longer periods of becoming permanent residents, moving into better housing as they prosper, while others come seasonally. These latter come often for agricultural, horticultural or forestry work and as such they indirectly contribute to the intensification of agricultural areas such as the Netherlands, Eastern England and parts of Ireland.

Non-EU migration is from a range of countries and a range of push-pull factors, mainly economic or political (especially with asylum seekers). These people may also be invited to countries to fulfil labour shortages for key jobs. Invariably these people move into inner urban areas or peripheral public housing estates and first generation immigrants from developing countries frequently end up in deprived areas with low incomes. They may displace earlier generations or groups of immigrants who move into better places and so create a wave effect which results in pressure to develop housing in peri-urban areas. There are distinct patterns of migration, with many countries of origin being former colonial countries of the various European empires of the last 200 years, so that there are distinct ethnic groups concentrating on some countries but those which did not possess empires tend only to have a few immigrants, mainly asylum seekers or refugees (Scandinavian countries for example).

International retirement migration has very distinct patterns and one of the most obvious land use change effects as a result. The suburbanisation of rural areas in Spain and Portugal is a clear example of this.

Maps 5 and 6 above show the patterns of movement of migrants around and into Europe, showing where the main pressures are. This section considers how this pressure can be converted into predicted land use change.

8. Predicted effects on land use change at NUTSx

This section takes the data and analysis of migration movements in all classes and presents some prognoses for the effect on land use change. While the statistical data from Eurostats etc is only resolved to NUTS2, it is possible to refine the impact below this scale, to NUTS x in order to include the main urban centres, where these are mapped out at NUTS x.

Following the presentation of the current land use change situation, the four scenarios developed in PLUREL will be used to speculate on the potential future patterns if these came to pass, interpreting effects of these scenarios on the push and pull factors and translating them into conversion of one land use class into another.

There are several types of land use change currently taking place, sometimes with a number of sub-types occurring within each NUTS x region, which would enable a certain degree of modelling within a region to be developed if so wished. These land use changes are taken from the evidence of studies from various locations and then extrapolating them into other similar areas.

The following table (Table 3) describes the land use change typology adopted here and Figure 7 presents the spatial pattern. Because Europe is still largely rural despite the scale of urbanisation the map seems to show more rural types than urban types. However, many rural NUTS x regions contain towns and other urban areas while the urban areas may appear as the core territory surrounded by a periurban ring. This depends on the way the NUTS x boundaries have been drawn so the degree of detail for urban and periurban regions varies from country to country.

Table 3. Current land use change processes as a result directly or indirectly of different types of migration in Europe

CATEGORY	TYPE	MIGRATION CHARACTER	LAND USE CHANGE CHARACTER	LOCATIONS WHERE THIS CHANGE TAKES PLACE
1	Abandoned rural	Flow of young people to cities, flow of working age people to cities or abroad, older residents left behind	Land abandonment: fields lie uncultivated, empty farms, forest colonising abandoned land, landscape becoming progressively “wilder”.	Eastern Europe (Baltics away from main cities), parts of Poland, Bulgaria and Romania, Portugal and Spain, parts of Swiss, Austrian, Italian and Greek mountains.
2	Extensified rural	Flow of young people to cities, general depopulation out of the region.	Extensification of agriculture and forestry: more land farmed by fewer people, extensive modes of farming and industrial forestry. May be some tourism development in places.	Eastern Finland, Eastern Germany, parts of Romania, Italy, central Sweden, Hungary, eastern France, Iceland.
3	Stable rural	Slight increase in population but low rates of migration, mostly to urban centres within the area.	Traditional farming continues or there is extensification in remoter places and tourism development including holiday houses.	Western and northern Norway, northern Finland, rural Ireland.
4	Idyllic rural	Foreign migration into rural areas by well-off people from elsewhere in Europe or migration to remoter areas within countries. Retirement migration.	Rural houses and villages are regenerated and revitalised by foreign incomers. Traditional rural landscape is maintained or slightly extensified. Tourism development also uses old settlement infrastructure.	Western and central France, Central and northern Italy, parts of Portugal and Spain, small trend in Greece, Romania and Bulgaria, northern Scotland and parts of England and Wales.
5	Intensive rural	Labour migration into productive agricultural areas	Areas where agricultural production and horticulture is economic but relies on low wages. Landscape covered by polytunnels and other modern technology of agriculture.	Eastern England, Netherlands, southern Spain.
6	Grey rural	International retirement migration from northern to southern Europe	Ex-urban suburban developments along coastal areas, in association with golf courses and other amenities.	Southern Spain, southern France and Brittany, the Algarve in Portugal, Greek islands.

7	Gentrified rural	Not strictly migration but movement of better-off people from the city to rural edge or hinterland	Villages close to large urban centres expand, new residential developments in rural areas within commuting distance of the city. Urbanisation of rural areas (more roads, street lights) and local people priced out of the housing market.	UK, Ireland, southern Germany, southern Scandinavia, France, national or regional capital cities in most countries or economically developing cities in Eastern Europe.
8	Dynamic urban	National migration from rural to city, EU labour and non-EU immigration, intensive in scale and multi-ethnic in composition in many places.	Pressure on urban areas leading to densification, reducing quality of some neighbourhood environments as well as urban sprawl. Ethnic composition of some urban districts changes, local population is displaced to the urban fringe.	Cities in UK, France, central Germany, Italy, Spain, Netherlands, Belgium, Scandinavia and other regionally dynamic areas
9	Stagnant urban	Moderate population change from inward and outward migration, net effect being slight reduction in population. Some non-EU immigration substitutes for the loss of national population.	Some decay of urban infrastructure, reduction in development pressures, increase in brownfield land.	Central Germany, parts of Eastern Europe, ex-industrial cities across Europe
10	Shrinking urban	Net out-migration from failing cities to other more economically active regions or countries. May be in-migration at a rate that does not balance out-migration	Reduction in development pressure, vacant housing in less-desirable areas, increase in brownfield sites.	Eastern Germany, Baltics, regional cities in eastern Europe.



Figure 7. The spatial pattern of land use types according to the model arising from migration processes at NUTSx

9. Potential migration and land use changes according to the four PLUREL scenarios

The four scenarios developed in Module 1 of the PLUREL project each describe different extreme or shock conditions where the drivers (push and pull factors) for each type of migration vary considerably between them. In this section the implications of the narratives presented with the scenarios are interpreted in terms of changes to migration and land use. The land use change is presented as a conversion of one land use typology (from Table x) into another, with some specific locations where these happen differently depending on the likely effect of the particular scenario.

Scenario A1 or “Hypertech” suggests that while land is not so much needed for agriculture because of technological development, it is managed to provide tourism resources. Since technology allows home- or tele-working it is possible that many people will want to move out of cities to idyllic rural areas and small towns, increasing the counter-urbanisation trend and gentrifying the countryside. The areas currently under intensive agriculture will also become gentrified while gentrified areas close to cities will become increasingly urbanised. Owing to delayed retirement there will be less retirement migration so the grey rural areas will become more mixed and more like idyllic rural areas. The economic development accompanying this scenario will revitalise the cities so that stagnation and shrinkage will cease and all cities will become dynamic. Migration pressures within countries (rural-urban) are reversed and while labour migration within Europe and from outside Europe will continue the rate will be slower.

Scenario A2 or “Waterworld” is a complex one involving some places suffering increased flooding, others suffering from drought and general losses by southern countries and gains by northern ones. Low lying cities will suffer from flooding or increased flood risk. As a result of the droughts affecting other parts of the world demand for food production will increase so land abandonment and extensification will cease and reverse towards more intensive production in the centre and north where there is no drought stress while in the south it may cease and land may become abandoned. Thus there will be a reversal of migration from rural to urban areas and labour migration within the EU will cease as the source countries become important food providers. The declining environmental conditions in other parts of the world will increase the pressure for non-EU migration which will increase, placing pressure on cities. The stagnating and shrinking cities will start to grow as these regions become more affluent and as a result of in migration. Conversely, some dynamic cities in flood prone regions and at risk from sea level rises or else suffering from acute water shortages will stagnate or shrink as people move away to safer or less risky areas.

Scenario B1 or “Peak oil” is a situation where the high cost of energy and the need for renewable energy is a major factor affecting the economy and the way people travel. Low levels of commuting means that people want to live near their work so they do not commute, leading to in migration and expansion of cities and loss of rural populations, in turn leading to extensification or further land abandonment. Transport costs also affect the ability of people to migrate between countries so that these pressures reduce significantly. Retirement migration also ceases. Thus populations stabilise. The rural areas around cities become more intensively managed for food production and gentrified areas become more urbanised over time. Urban sprawl increases. All cities become dynamic and stagnation and shrinkage cease as the internal migration increases.

Scenario B2 or “social fragmentation” concerns processes of decentralisation, increased regional competition, and a society where there is competition for resources among the generations. International migration within the EU of some younger people and from outside the EU of many people is a significant factor leading to increased urbanisation and

migration of older people from cities to countryside near cities. The need for regional self sufficiency in food causes abandoned or extensified land to be brought back into some production and to hold populations in rural areas or to cause some return of urban people to rural areas. The regionalisation also reduces the retirement migration. The lack of a central driving economy leads to stagnation of many cities and the reversal of shrinkage as fewer people leave them to go elsewhere.

Table 4 presents the implications as interpreted above for each of the scenarios as response functions. The response functions are qualitative for migration and they are presented, firstly, as the expected trend for each type of migration for each scenarios, where “+” means an increase in migration, “o” means no change or only a slight change and “-“ means a reduction or reversal in migration.

Table 4 Qualitative response functions for each of the four PLUREL scenarios

Migration Type	Scenario A1	Scenario A2	Scenario B1	Scenario B2
Internal migration	-	-	+	+
EU labour migration	+	o	o	o
Non EU migration	+	++	o	++
International retirement migration	-	-	o	-

What is noticeable here is that the most important migration type in each is non-EU migration, while in each type international retirement migration either reverses or stops. EU labour migration is also less important except in the A1 scenario. B1 is the scenario leading to least migration as a result of a reduction in travelling due to high energy prices. The potential effect on land use is now developed by applying the response function to each of the land use types presented in Table 3 as a change from one type to another (or the type remains the same).

Table 5 Predicted land use change from class to class as a result of the migration effects predicted by each scenario narrative storyline.

ORIGINAL LAND USE CLASS	Scenario A1	Scenario A2	Scenario B1	Scenario B2
1	3	3	1	3
2	3	3	1	3
3	4	5	1,5	3
4	7	7	7	3
5	7	7,2 ²	5,8	5
6	4	9,1 ³	5	3
7	8	8	7	6
8	8	8,9,10 ⁴	8	9
9	8	8 ⁵	8	9
10	8	8 ⁶	8	9

² Wealthy people can pay for irrigation which is why it stays 7 in places;

³ 6 changes to 1 in the south due to drought

⁴ 8 become 9 or 10 in low lying areas and in southern Europe

⁵ 9 becomes 8 away from low lying areas

⁶ 10 becomes 8 away from low lying areas

The main feature here is that the scenario A2, “Waterworld” is the most complex with more winners and losers than the other scenarios and a more differentiated change to land use affected secondarily by migration. Figures 8-11 show the changes in land use type as a result of each scenario.

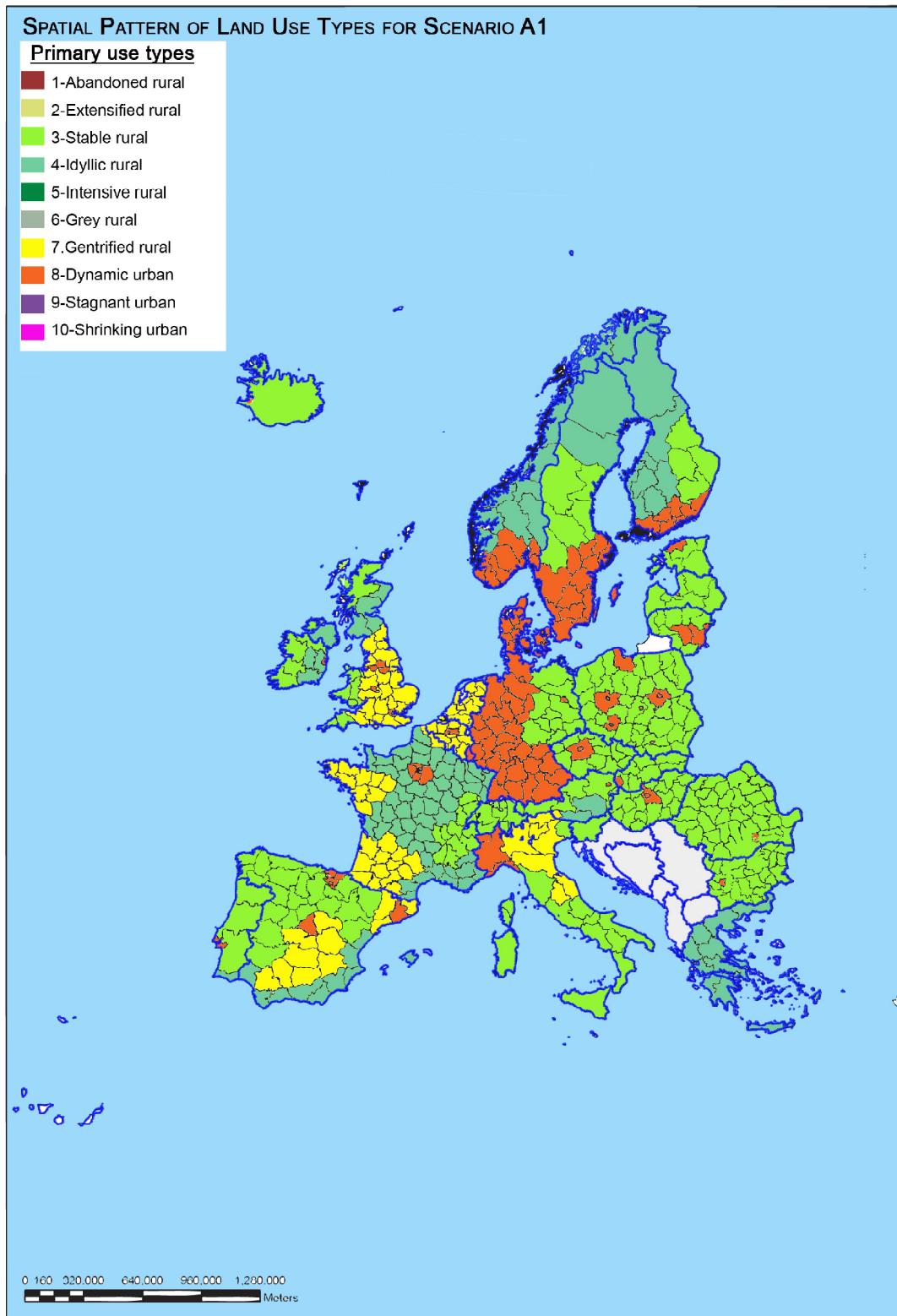


Figure 8. Spatial pattern of land use types predicted according to the application of Scenario A1

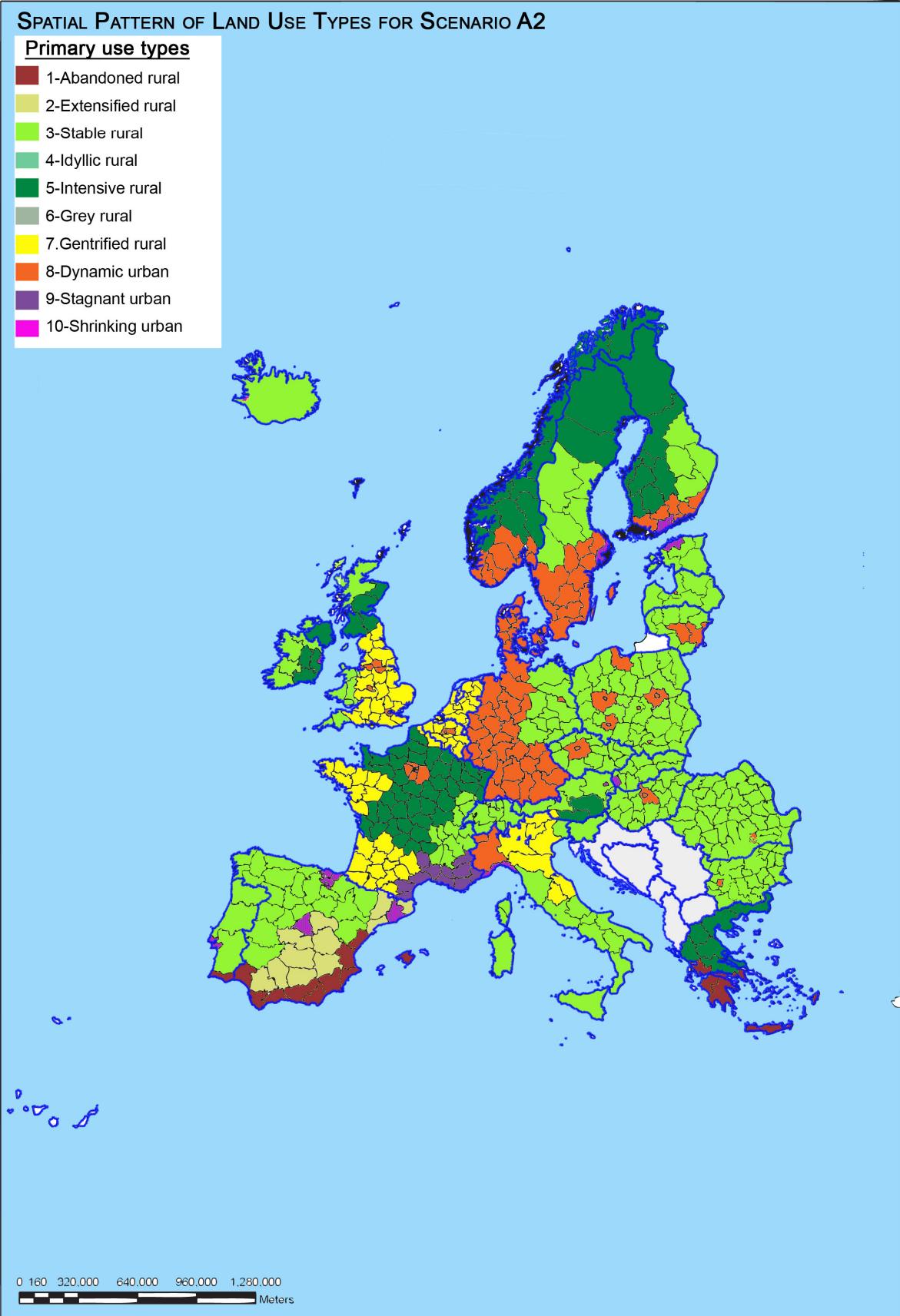


Figure 9. Spatial pattern of land use types predicted according to the application of Scenario A2

SPATIAL PATTERN OF LAND USE TYPES FOR SCENARIO B1

Primary use types

- 1-Abandoned rural
- 2-Extensified rural
- 3-Stable rural
- 4-Idyllic rural
- 5-Intensive rural
- 6-Grey rural
- 7.Gentrified rural
- 8-Dynamic urban
- 9-Stagnant urban
- 10-Shrinking urban

Secondary use types

- 1-Abandoned rural
- 2-Extensified rural
- 3-Stable rural
- 4-Idyllic rural
- 5-Intensive rural
- 6-Grey rural
- 7-Gentrified rural
- 8-Dynamic urban
- 9-Stagnant urban
- 10-Shrinking urban

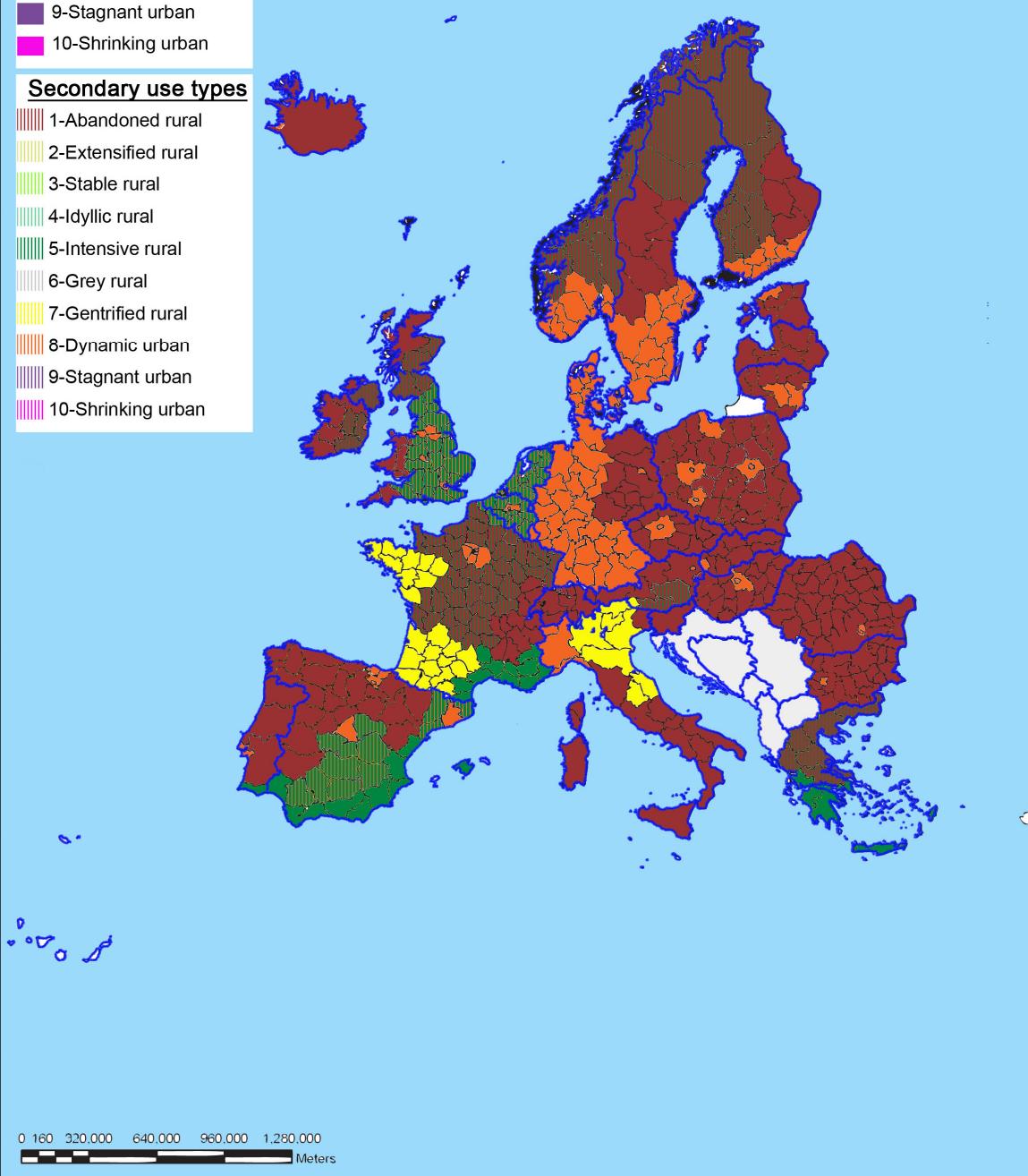


Figure 10. Spatial pattern of land use types predicted according to the application of Scenario B1

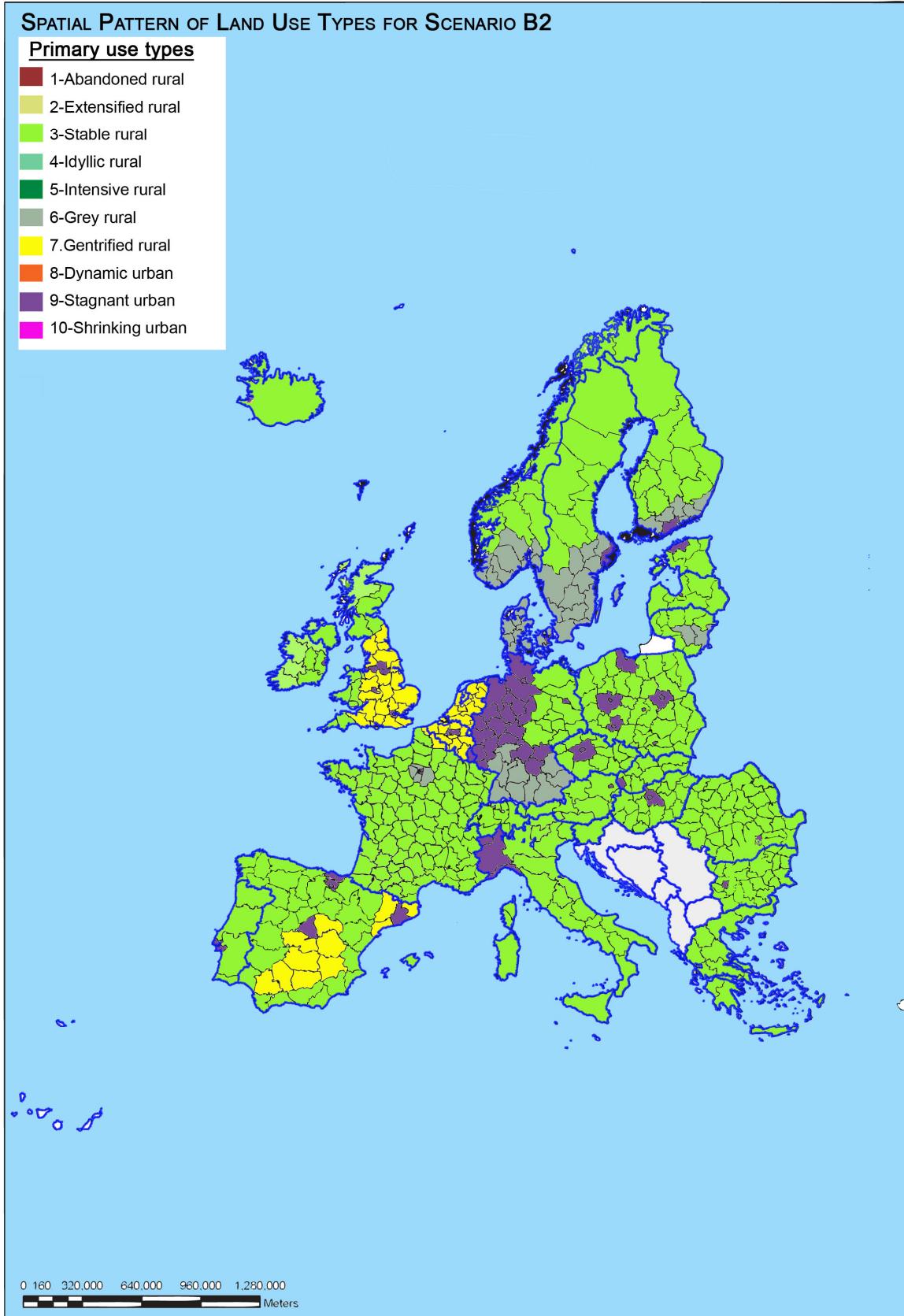


Figure 11. Spatial pattern of land use types predicted according to the application of Scenario B2

Owing to the problems with data and the extreme unpredictability of migration from year to year, no attempt has been made to present these as anything other than general futures with no specific time steps.

These maps show some interesting patterns, where some of the changes seen over recent decades are likely to be reversed as land is brought back into agriculture and rural areas become repopulated, although in Scenario B1 the trend for rural abandonment becomes extreme. The trend for urban areas to start to grow or become more dynamic is also noticeable in all scenarios except B2.

10. Conclusions

This study, using limited data has nevertheless been able to determine some important aspects of the way that one of the main drivers of change is linked to land use change. To look at ethnicity, ageing, education and social equity separately makes little sense as these factors are all bound up together. The main driver of all of this as far as future projections in Europe are concerned is quite clearly migration. The model for migration shows that many factors are at work and that Europe is a very dynamic region as far as migration is concerned. The effects on ethnicity are most obvious, especially when significant numbers of people from other world regions immigrate into Europe and create greater diversity of ethnicity, religion and culture. The pattern of this immigration is closely tied to factors such as the countries which were former colonial powers being the most attractive destinations as well as the presence of existing immigrant or ethnic communities which provide initial social support and community networks. Within Europe it is the east to west labour migration which is such a topical feature but the long term pattern is less obvious as many of these migrants are temporary. Ageing also manifests itself visibly in connection with various forms of national or international retirement migration. This, whether moving from a city to the countryside, moving from a city to the coast or moving from a northern country to a southern one. Such movements place added pressure on health and social care in the places where older people move to live. The issue of ageing which is much less visible is that of old people left behind in abandoned rural areas with poor housing and lack of services. Under the scenarios the abandonment of land ceases and there would be repopulation of at least some of these areas so reducing the social isolation of old people.

The response functions show that under different scenarios the international retirement migration is likely to cease, thus releasing pressure on land use and on accompanying services. Internal EU migration is also likely to reduce in importance, especially when the economies across Europe are more equalised. Immigration from outside the EU is the feature which is most increasing in the scenarios and this places most pressure on the urban areas, especially deprived urban cores or peripheral housing areas where most immigrant communities are presently located. There is likely to be a displacement of non-immigrant groups from these areas to others, which will have a knock-on effect on sprawl pressures at the urban fringe and in the gentrified rural areas which according to the potential scenarios are likely to face urbanising pressures.

As noted earlier, the increase in non-EU immigration could, with the increased population in ghetto areas or similar concentrations of ethnic minorities living in potentially still relatively deprived conditions, have important political and social repercussions. Concerns over social cohesion, social support, educational attainments and other socio-economic aspects could be more important in the future, especially in those countries which are the more significant

attractors of migrants. This has many implications for urban development, housing policies, provision of education and other services, crime and policing etc.

One of the interesting aspects to come to light in terms of land use change through migration pressures is the fact that it can operate in two ways at once – the changes occurring where the migrant comes from – such as rural land abandonment – and where the emigrants travel to – such as an increase in density of population and of multi-occupied houses.

For a number of reasons, not least the absence of much hard data, this study has become more and more speculative as it has developed. Nevertheless, as an attempt to show the effects of these social factors as drivers of land use change it achieves some significant results. Only time will tell if the trends will continue and if land use change occurs as the model suggests.

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