

**Project MMWD  
Making Migration Work for Development**

# **Working Paper**

## **Methodology to construct MMWD policy scenarios**

**(final version indicating the minimum information to  
be included in the scenarios)**

### **WP 4. – CONSTRUCTING POPULATION FORECASTS AND POLICY SCENARIOS ON HUMAN CAPITAL, LABOR MARKETS, AND SOCIAL NEEDS AT NATIONAL AND REGIONAL/LOCAL SCALES**

Activity 4.4. Construction of policy scenarios at the country and at the regional/local level and definition of a reference methodology for policy scenarios

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## **1. Background and Objectives**

Demographic change is, without any doubt, one of the megatrends that will influence Europe in many ways during the next decades. The European Council and the European Commission have recognised this for some years now. Demographic change – with a shrinking workforce and the changing composition of this workforce - is a recognised major challenge to the European sustainable growth, and as such, it has been reflected in the EU Treaty.

Article 151 of the ‘social policy’ chapter, referring to the general objectives of the EU social policy, explicitly mentions: ... *the promotion of employment, improved living and working conditions, so as to make possible their harmonisation while the improvement is being maintained, proper social protection, dialogue between management and labour, the development of human resources with a view to lasting high employment and the combating of exclusion.*

Demographic change is the combined result of three factors: fertility, mortality and migration. The first two are usually referred to as ‘natural’ factors.

New data on population trends show that demographic growth in the 28-members’ European Union growth was over 1m in 2012, with net migration responsible for almost four times the natural growth between births and deaths. There was an annual rate of +2.2 per 1,000 inhabitants, due to a natural increase of 0.2m (+0.4%) and net migration of 0.9m (+1.7%).

**MMWD approach** considers that transformations in demographic structures have direct effects on the social and growth prospects of regions and cities. The project builds on the belief that policy-makers engaged in the design of territorial development strategies would benefit from a future oriented and integrated vision of development that takes into high account changes in the population structure and characteristics. Population

structures are increasingly affected by migration (in-migration, out-migration). An added value of MMWD is to isolate the impact of migration on demographic change and on evolutionary trends in human capital, labour market, social and community needs.

The main objective of this paper is to provide guidelines for the preparation of MMWD policy scenarios, i.e. the identification of key development challenges in the 3 policy realms identified by the project, namely human capital, labour market, welfare services, placing demographic change at the centre of the analysis.

In the framework of the activity 4.3. of the project, the different available methods to elaborate local development scenarios have been examined critically (see Activity report of the Activity 4.3.). The objective of the activity 4.4. is the Construction of policy scenarios at the country and at the regional/local level and the definition of a reference methodology for deriving policy scenarios, which should become a sustainable capacity-building tool for administrations across the SEE region. This activity will be followed by the Activity 4.5., expected to involve the responsible officers of the policy sectors that are relevant for the project's policy scenarios, with a view to ensure that (political and technical) stakeholders within each administration assume ownership of the selection of territorial challenges depicted in the scenarios, thus building acceptance of policy scenarios in their policy context. This is a critical activity, as policy scenarios are meant to support the correct identification of territorial needs, as well as the identification of policy challenges which are best addressed by cross-sector action.

Scenarios in MMWD will also aim to address the specific effects of human migration. Therefore, it is important that they are perceived as useful tools rather than as threats to the administration. Policy scenarios could flag up the anticipations of territorial needs that are crucial for the development of strategic policy frameworks, which, in turn, could be steered towards enhanced growth and competitiveness of SEE regions and cities (see more in the TOR of WP 4). Moreover, supporting coherence between policies on labour market, human capital and social services is part of the project's innovative contribution to strategy and policy making.

Partners of MMWD have been involved in the development of the project's methodology to construct policy-scenarios, as they contributed to the identification of suitable methodologies to produce policy scenarios (Activity 4.3.), and contributed to the identification of relevant literature that was critically assessed in the framework of Activity 4.3. Finally, given indications were discussed during the scientific meeting that took place in Bucharest last 6 and 7 November 2013.

## ***2. Overview of approaches to the construction of policy scenarios***

Before presenting the concrete steps for scenario construction in the framework of MMWD, it is important to review critically the policy scenario approaches as described in the literature (the comprehensive review is presented in the Activity Report of the Activity 4.3.).

### ***What is a scenario and why is it important to use it?***

There are several definitions of scenarios. According to Moniz (2008 p. 92), scenarios are being used and applied for different purposes. They relate to developments in the long term, helping to inform policies by anticipating to a certain extent what will happen in the future and how best to meet future challenges. In this way they can be applied by companies or by public organisations for their need to manage their future operations. They can be considered also as an analytical tool.

Scenarios have been developed for about 60 – 70 years now. There are three mains 'schools' in scenario making:

- The military tradition and beyond - first, in the 1950s they were used widely in the US military and by intelligence agencies (example of analyzing alternatives... further developed by RAND) (ref. Paoletti at all, 2010)

- The intuitive logic school - In 1967 Shell launched the 'Year 2000' study, a project to examine the business environment that would exist in 2000. Scenarios were seen as a useful research tool beyond conventional forecasts (ref. Paoletti at all, 2010).
- The school of the perspective – (Gaston Berger), Centre d'Etudes Prospectives, scenario approach to long-term planning, which he named 'prospective thinking' or La Prospective (ref. Paoletti at all, 2010).

We agree with Schüll and Schröter (2013) that scenarios:

- ...are about thinking in advance. They are systematically applied and integrated into „what-if-considerations“.
- ...are coherent and plausible descriptions of alternative future situations and of the events and decision points that lead to these situations.
- ...are neither predictions nor projections, although predictions and projections are used to build scenarios.

It is important to have in mind that scenarios do not aim to be 'right' or to predict the future correctly. Their aim is to be relevant and to give orientation. Scenarios do not aim at producing statements about what will be. Scenarios are about anticipating possible key outcomes of current demographic evolutions and about their consequences.

Scenarios have been applied in many different spheres, including in the domain of migration and demographic development (see for example "The concept and theory of migration scenarios", Paoletti et al. 2010). These authors focus also on some weaknesses of scenario-making such as anxiety about the future but difficulties to predict.

The expected outcome of MMWD scenarios is not to suggest specific policy choices to be made, but rather, to highlight key changes and challenges to be taken into

consideration in territorial strategy making until 2020, for each of the 3 policy realms of MMWD and in a more integrated vision (cross-sector).

Examining the effects of (internal and international) in and out migration flows on overall demographic processes is a crucial part of the work on MMWD population projections, as they impact on the structure of the resident populations in the SEE territories and therefore, on their development prospects.

This is already part of our on-going work on population projections, in which we are attempting (as much as it is possible and relevant to individual contexts) to isolate the effects of migration on age structures, the composition of households, and the levels of education.

As with population projections, the time horizon of MMWD scenarios is 2020 (i.e. the time horizon of the Europe 2020 Strategy and of the next EU programming period 2014-2020).

### ***3. Steps for Scenario construction***

#### **Step 1: IDENTIFICATION OF KEY VARIABLES AND INDICATORS**

It requires that partners refer to *Europe 2020 strategy* for their country-specific targets; *the EU Cohesion Policy 2014-2020* and its thematic objectives (TO); the Partnership Agreements between Member States containing national priorities for ESF, ERDF and EAFRD programmes; *Eurostat* “Regions and cities”<sup>1</sup> database containing sub-national level data for EU Member States can be a common starting point for retrieving necessary data; to be integrated with other relevant national or regional sources of statistical data when necessary.

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<sup>1</sup> See [http://epp.eurostat.ec.europa.eu/portal/page/portal/region\\_cities/introduction](http://epp.eurostat.ec.europa.eu/portal/page/portal/region_cities/introduction)

## Minimum set of indicators common for all scenarios

In order to build a common reading structure for the scenarios, a minimum set of indicators, coherent with the Europe 2020 strategy and targets, and with the results of the gap analysis in Activity 3.3, is proposed as follows:

**Table 1: List of minimum information to include in MMWD scenarios:**

Policy areas	Suggested Indicators
<b>LABOUR MARKET</b>	Activity rate
	Employment rate + employment rate 55-64
	Unemployment rate + youth unemployment rate
	Long-term unemployment rate
<b>HUMAN CAPITAL</b>	Students enrolment by ISCED level
	Population 25-64 by educational attainment
	Tertiary education attainment rate
	Early leavers from education and training
	NEET rate
<b>WELFARE/SOCIAL NEEDS</b>	At-risk-of-poverty rate
	Severe material deprivation rate
	People living in households with very low work intensity
	Children aged 0-3 years in day nursery if not available Children aged 4-5 years in nursery school

In addition to the minimum common list of indicators above, each partner can include additional specifications or variables of interest, according to its context, data accessibility, and territorial priorities.

### **Box - Objectives and targets of the Europe 2020 strategy:**

The Europe 2020 strategy, adopted by the European Council on 17 June 2010 (1), is the EU's agenda for growth and jobs for the current decade. It emphasises smart, sustainable and inclusive growth as a way to overcome the structural weaknesses in Europe's economy, improve its competitiveness and productivity and underpin a sustainable social market economy. The Europe 2020 strategy is the successor to the Lisbon strategy. The latter was launched in March 2000 in response to the mounting economic and demographic challenges for Europe at the dawn of the twenty-first century.

The Europe 2020 strategy puts forward 3 mutually reinforcing priorities to make Europe a smarter, more sustainable and more inclusive place to live:

1. It envisions the transition to smart growth through the development of an economy based on knowledge, research and innovation.
2. The sustainable growth objective relates to the promotion of more resource efficient, greener and competitive markets.
3. The inclusive growth priority encompasses policies aimed at fostering job creation and poverty reduction.

Under the 3 priority areas, the EU adopted five ambitious headline targets on employment, research and development (R&D) and innovation, climate change and energy, education, and poverty and social exclusion.

The targets are monitored using a set of eight headline indicators (including three sub-indicators relating to the multidimensional concept of poverty and social exclusion).

Each indicator falls within one of the three thematic priorities:

- ✚ The smart growth objective is covered by the indicators on innovation (gross domestic expenditure on R&D) and education (early leavers from education and training and tertiary educational attainment).
- ✚ The sustainable growth pillar is monitored by three indicators on climate change and energy (greenhouse gas emissions, share of renewable energy in gross final energy consumption and primary energy consumption).

✚ Inclusive growth is measured against the poverty or social exclusion headline indicator (combining three sub-indicators on monetary poverty, material deprivation and living in a household with very low work intensity) and employment rate.

The EU headline targets have been translated into national targets. These reflect each Member State's situation and the level of ambition they are able to reach as part of the EU-wide effort for implementing the Europe 2020 strategy.

The 5 targets at EU level in 2020:

1. Employment: 75% of the 20-64 year-olds to be employed
2. R&D: 3% of the EU's GDP to be invested in R&D
3. Climate change and energy sustainability: greenhouse gas emissions 20% (or even 30%, if the conditions are right) lower than 1990; 20% of energy from renewable sources; 20% increase in energy efficiency
4. Education: Reducing the rates of early school leaving below 10%; at least 40% of 30-34-year-olds completing third level education
5. Fighting poverty and social exclusion: at least 20 million fewer people in or at risk of poverty and social exclusion

The strategy also includes seven 'flagship initiatives' providing a framework through which the EU and national authorities mutually reinforce their efforts in areas supporting the Europe 2020 priorities such as innovation, the digital economy, employment, youth, industrial policy, poverty, and resource efficiency.

## **STEP 2: CONDUCTING QUANTITATIVE AND/OR QUALITATIVE ANALYSIS**

The choice of quantitative or qualitative approaches is context-tailored, depending also on heterogeneous data availabilities across MMWD. A combination of both quantitative and qualitative methods is recommended.

Scenario making is both a creative and a scientific process. In theory, a virtually unlimited number of different future developments are possible, but only a few are reasonable in the sense that they differ in a meaningful way and are scientifically sound (Schüll and Schröter, 2013).

In the literature authors such as Godet advise to use the retrospective analysis (**Analyse the dynamics – retrospective analyses, actor games, battle fields, strategic stakes** (Godet, 2008). One possible research approach could be to attempt to understand the **dynamics** of the regional development and population changes in retrospective in relation to the principal actors in its strategic environment. For instance, sensitive retrospective analyses of population changes and stakeholders' participation in policy development could help to point out weaknesses and advantages.

Another approach largely developed in the literature is the one using **wild cards, threats and opportunities, megatrends and risk evaluation**. One can use enquiry methods with experts to highlight megatrends, wild cards, and finally to draw out the most likely policy scenarios (see more about the application of this method in the context of environmental scenarios in Schüll and Schröter, 2013).

## Figure 1 – Scheme of the discussion pattern: from indicators to scenarios

**Note that the process of scenario making does not have a linear progression.** It includes several possible feedback loops, in particular, from phase 3 to phase 2.

### **STEP 2.1 QUANTITATIVE ANALYSIS**

This step requires that the collected data in Step 1 is analysed for time-series data. An important condition for completing this stage of scenario – making is the availability of data over a sufficient time span.

An example of a **quantitative** approach in scenario making is the experience of Emilia-Romagna, which is based on econometric modelling.

Different models are used to define the quantitative relationships established between input and output variables, depending on the policy area and on data availability:

- a) LABOUR MARKET: estimation of an econometric model;
- b) SOCIAL NEEDS and HUMAN CAPITAL: cohort component projections and/or quantitative relationship with input variables and economic/demographic scenario variables.

**For the labour market** a multinomial logit regression model is used to estimate the individual probability of being in a given state of labour market as a function of explanatory variables which include individual socio-economic characteristics and macroeconomic variables.

**In the realm of social needs**, an ad hoc model was designed to foresight the number of applications for day nursery, using data at NUTS 3 level.

**The percentage of applications for day nursery on the total number of children aged 0-2 years** is modelled as a function of per capita income and the employment rate of women aged 25 -34 years (estimation of a fixed effects model). A positive relationship has been found: an increase of female employment rate and an increase of per capita income generate an increase of the rate of day nursery applications.

The projection mechanism is the following:

- Per capita income is obtained by macroeconomic scenario hypotheses.
- The employment rate for women aged 25-34 years is an output of Labour Market econometric model.
- The number of children aged 0-2 years for the projections' period is an output of demographic scenario hypothesis.
- The probability of nursery application given a specific level of per capita income and a specific female employment rate is an output of fixed effects model.
- The projection of number of applications for day nursery is obtained multiplying the number of children aged 0-2 years by the probability of nursery application.

## **Step 2.2 QUALITATIVE ANALYSIS**

The aim is to provide context to the findings of the quantitative analysis (Step 2.1).

Qualitative analysis could utilise data from expert interviews or focus group discussions.

Examples include:

- a/ Complementing quantitative projections to 2020 with other context information (statistical and non-statistical data)
- b/ Expert discussions, for instance, selecting a panel of thematic experts to comment on the results, expert interviews, including in the form of Delphi panels, will contribute towards finalising the scenarios.

### **STEP 3: BUILDING STAKEHOLDERS' OWNERSHIP**

It is very important to think of ways the scenarios could help to make a change in practice.

The goal of this stage is to ensure local ownership and the placement of MMWD scenarios in the institutional analysis of developmental challenges and critical needs ahead. A key step is to ensure that MMWD scenarios are actually recognized as useful and relevant by actors in charge of territorial development strategies and to foster their incorporation in the design of development strategies and related programming documents.

This is the specific task of Activity 4.5

Practical tools:

a/ Presentation and discussion of scenarios within the administrations and with other territorial stakeholders (for example, administrative levels, representation of enterprises, third sector, trade unions, NGOs...).

b/ In this phase, it is advisable to use concise, sharp headlining and a short summary of the most essential figures and description of future developments. Make it visually attractive by the use of charts, graphs, maps, figures.

MMWD will use standardised formats for presenting population projections and scenarios.

## Template for a Country Report

### TABLE OF CONTENTS

Country.....

Territory (territorial level) .....

MMWD Partner:

Authors:

### Section 1: Introduction

- ✚ Briefly describe/introduce the country specific context in relation to the three policy realms (labour market; human capital; social needs);
- ✚ Specify the main data sources – national, regional and European - used for scenario making;
- ✚ Describe the work plan (activities implemented to produce the scenarios);
- ✚ Mention the approach chosen for scenario making (quantitative / qualitative / mixed with description of concrete choices);
- ✚ Mention the variables/indicators used in the scenario making;
- ✚ Introduce the hypothesis for constructing the scenarios and the alternatives considered;
- ✚ Recall the use of common variables (population groups by age/wealth; national/foreigners; transition patterns) in scenario making.

### Section 2: Demographic Projections

Recall main results of the demographic projections made for Activity 4.2 (summary of result which are made available on the knowledge platform)

### Section 3: Policy Scenarios (in three strands):

**The results of scenario-making should be presented in terms of analysis of (at least) the set of indicators listed in the Summary table below. The filled in Summary table should be copied in Section**

**In illustrative terms, for each indicator of the minimum common set, the analysis should describe:**

- ✚ **3.1 Current situation** on the indicators (last year available) in comparison to a previous year available (e.g., 2007). The dimension/ indicator could be further detailed according to regional priorities and more detailed information (i.e. employment rate by sex or by level of education);
- ✚ **3.2 Demographic evolution (Activity 4.2)** of the relevant age group for each indicator up to 2020. Proposed age groups by indicator are recalled in the table below; departures due to data availability or different statistical definitions should be clearly explained and justified). If possible, a comparison to be made between local and migrant population.
- ✚ **3.3 Policy impact at 2020:** describe the expected impact of the demographic changes summarised in the previous column on the policy dimension measured by the indicator (could be the level of the indicator foreseen at 2020, if quantitative scenario approach is used, or more qualitative but sound indications). The focus should be also on the share of the evolution of the indicator “explained” by the demographic change.

**Section 4: Cross sector analysis:** concretely implement the cross-sectoral approach promoted by MMWD (i.e. a horizontal overview of societal change driven by demography, through a cross-sector reading of the 3 policy realms). Two segments of the population can be placed at the centre of the analysis, being particularly critical in terms of future challenges: youth (15-39, or 15-24 + 25-39) and elderly (75+).

Looking (separately) at the youth and the elderly, it should be easier to elaborate a story telling linking together:

- ✚ The present context in terms of emerging problems (ageing of population or sustainability of welfare models, just to make two examples) and opportunities/policy priorities (i.e. enhancement of human capital as a dimension of individual and social well-being and a factor for economic growth);
- ✚ The projected evolution until 2020 (with reference to numbers and figures);
- ✚ The implications for each policy realm and their mutual connections.

This section can be written in anecdotal way highlighting logical and concrete connections among indicators and policy priorities.

## **Bibliographic references**

## **Annexes (if any)**

**Summary table for scenario results (to be filled by each partner as an annex to the report):**

<b>DIMENSION/INDICATOR OR EUROPE 2020</b>	<b>RELEVANT DEMOGRAPHIC TRENDS 2007- LAST AVAILABLE YEAR - 2020</b>	<b>POLICY IMPACT AT 2020</b>
<b>LABOUR MARKET</b>		
<b>Activity rate</b>	Working age population and (15-64 or 20-64)	
<b>Employment rate</b> + employment rate 55-64	Working age population (15-64 or 20-64 or 15+) + population 55-64 <i>(Possibly disentangle age group 15-39 and 40-64)</i>	
<b>Unemployment rate</b> + youth unemployment rate	Population 15+ or working age population + youth (15-24 or different definition)	
<b>Long-term unemployment rate</b>	Population 15+ or working age population	
<b>HUMAN CAPITAL</b>		

<b>Students enrolment by ISCED level</b>	Relevant age group for education (3 – 25 years) (different only if the country uses a different statistical definition of the indicator)	
<b>Population 25-64 by educational attainment</b>	Population 25-64 <i>Possibly disentangle age group 25-39 and 40-64</i>	
<b>Tertiary education attainment rate</b>	Population 30-34 (different only if the country uses a different statistical definition of the indicator)	
<b>Early leavers from education and training</b>	Population 18-24 (different only if the country uses a different statistical definition of the indicator)	
<b>NEET rate</b>	Population 18-24 (different only if the country uses a different statistical definition of the indicator)	
<b>WELFARE</b>		
<b>At-risk-of-poverty rate</b>	Total population <i>Possibly disentangle age group 65+</i> <i>Single parents households</i>	

	<i>Large families</i>	
<b>Severe material deprivation rate</b>	<p>Total population</p> <p><i>Possibly disentangle age group 65+</i></p> <p><i>Single parents households</i></p> <p><i>Large families</i></p>	
<b>People living in households with very low work intensity</b>	Population 0-59 according to the statistical definition of the indicator	
<p><b>Children aged 0-3 years in day nursery</b></p> <p><i>if not available</i></p> <p>Children aged 4-5 years in nursery school</p>	<p>Population 0-3</p> <p>Projections on households typologies</p>	

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