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Statistics Division **English only**

United Nations Workshop on Population Projections for French Speaking African Countries

Rabat, Morocco
10-14 September 2012

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Introduction

1. United Nations Statistics Division (UNSD), in collaboration with the High Commission for Planning, Government of Morocco, organized the United Nations Workshop on Population Projections for French-speaking African countries. The Workshop took place from 10 to 14 September 2012 in Rabat and was attended by 16 statisticians and demographers from 11 countries (see annex 1 for list of participants).

2. The purpose of the Workshop was to provide training to participating countries on how to generate population projections using census data. The participants also learnt about available software packages for generating population projections. The Workshop also drew participants' attention to the necessary preparatory work before undertaking the population projections (see annex 2 for the workshop agenda).

Opening

3. The workshop was opened by Mr. Ahmed Lahlimi Alami the High Commissioner for Planning. Mr. Alami started by highlighting the long-standing collaboration between his agency and UNSD, including a similar workshop that was conducted in 2007. In his remarks, Mr. Alami stressed the importance of population projections because countries need to know the estimated future populations in terms of dynamics and size as this has consequences for the future socio-economic situation of the country. Mr. Alami further pointed out that population projections can further be used to study population dynamics and their resultant future size and how this has consequences, for example for youth employment, dependent population, environmental degradation, migration, etc. in order to put in place policies and strategies to adequately address the situation. By so doing, Mr. Alami said, countries would use this knowledge to make the necessary interventions.

4. Mr. Alami mentioned that population projections a crucial aspect of census data utilization. He concluded by pointing out, however, that African countries need to invest in their civil registration and vital statistics systems as a source of reliable data on population dynamics.

5. On behalf of UNSD, Ms. Keiko Osaki Tomita, Chief of Demographic and Social Statistics Branch, welcomed the participants and thanked the Government of Morocco for hosting the workshop. Ms. Osaki Tomita informed participants that the workshop was being organized in the context of the 2010 World Programme for Population and Housing Censuses and as part of a UNSD Italian Government funded project, "Strengthening national capacity to analyze, present and disseminate data for evidence-based policy making" for the African region whose objective is to enhance countries' capacity to use census data as an effective tool for policy planning.

6. Ms. Osaki Tomita reiterated that analysis and projection of population are at the base of almost all major planning decisions. This is because population projections provide an indication of the future size and age/sex structure of the population and are therefore a valuable input for

countries in their planning for public infrastructure, transportation facilities, health facilities, schools, etc.

Workshop presentations

7. Presentations made at the workshop are available on the UNSD website - http://unstats.un.org/unsd/demographic/meetings/wshops/Morocco/2012/list_of_docs.htm

Conclusions

8. At the end of the Workshop, the participants came up with the following conclusions and recommendations:

(i) Need for population projections - Population projections are increasingly in demand at the national and subnational levels. At both national and sub-national levels, population projections should be aligned to serving pragmatic national or sub-national data needs for policy making, development planning, implementation of programmes, and monitoring an evaluation of programmes.

(ii) Need for appropriate input data - The accuracy of any population projection depends on the quality of the input data and the assumptions made about the course of future change. It is a prerequisite for generating projections to thoroughly assess the accuracy of the base population, in terms of reported data by age and sex, and to make appropriate adjustments as necessary. However, such adjustments should be undertaken with caution, i.e., they should be within the national demographic and socio-economic context.

(iii) Methods of population projections - There is no standard method or technique for generating population projections. The choice of methodologies to be applied in generating population projections should be guided by the quantity and quality of data available at different geographic levels. It was noted, however, that the cohort component method is more appropriate at the national level while the ratio method at the lower sub-national levels. The ratio method is more appropriate at the lower sub-national levels due to its robustness and simplicity in the face of the varied and complex subnational demographic settings and trends. The ratio method is also recommended because of the difficulty of obtaining comprehensive and reliable data requirements about sub-national entities and the challenge of making corresponding assumptions on the future course of population components at these levels.

(iv) Assumptions for population projections - In producing population projections, attention should be paid to assumptions to be applied to the levels of mortality, fertility and net migration. These assumptions should reflect the realistic social, economic and demographic pathways of the country. .Given its relevance to various complex factors, the difficulty in projecting the level and the direction of international migration was underscored.

(v) Time and life span of projections - It is worth noting that there is no standard time span over which a projection should be made. However, it is prudent to align the time span to planning requirements of the country at various geographical levels. It should be noted that all projections are provisional and may be revised accordingly as need arises, e.g. as new and reliable data become available, or as new and more robust techniques become available.

(vi) Variants/scenarios of population projections - While incorporating variants/scenarios is desirable during projection, they should be meaningful within the national demographic context. In this connection, countries may take advantage of existing projection scenarios documented by international organizations, including the United Nations.

(vii) Sub-national population projections - There is a growing demand for generating population projections at increasingly lower geographical levels. Although it is technically possible to generate the projections at any geographical level, the reliability and quality of input data, the policy relevance of the output, as well as disclosure concerns and soundness of future trends of the population components at lower sub-national levels should be used as a guide. Furthermore, sub-national projections should not only be internally consistent, but should also be consistent with a national projection.

(viii) Sectoral population projections - Potential complications of generating socioeconomic projections beyond methodological issues were highlighted. Sectoral (socioeconomic) projections should take into account public policy needs (e.g., school enrolment, employment, housing, etc.).

(ix) Population projections software - Although increasing availability of software have made the process of generating population projections less cumbersome, it is still critical to understand the rationale and methodological steps behind the automated process. In cases where countries are not able to access and/or use such software, they are encouraged to resort to simple computations as a stop gap measure in addressing demand for projections.

(x) Best practices and guidelines - During the workshop, it became evident that national offices mandated with generating national and sub-national population projections need to be aware of and have access to best practice and sound guidelines. While the workshop was used to share relevant national experiences, international organizations could help countries by compiling best practices and guidelines on the preparation, methodology and limits of population projections, especially at sub-national levels and for small populations.

(xi) Genera recommendations - Given the technical nature of generating population projections, participants were of the view that the duration of the workshop was too short to fully master the topic. It was recommended that the duration be extended to ensure adequate training. Furthermore, participants requested that a separate training

workshop be conducted on generating sub-national population projections.

As input into population projections, participants recognized the need for accurate demographic data. In this connection, participants emphasized the need for their countries to improve and strengthen their civil registration and vital statistics systems.

Evaluation of the workshop

9. In general, the workshop was favourably evaluated by the participants. For example, the overall value of the workshop was rated 4 out of 5 while the extent to which the workshop achieved its objectives was also rated 4. Similarly, participants gave a value of 4 to the quality of the materials, quality of presentations and clarity of conclusions reached after each session. The substantive sessions of the workshop were also highly rated receiving ratings of around 4.The overall planning and organization of the workshop was rated 3.5. Participants indicated that the duration of the workshop was not adequate and that more time should have been allocated particularly for the hands-on exercises.

Annex 1. Agenda

Monday, September 10, 2012		
09:00 – 10:00	**Opening session**	Morocco UNSD
	Session 1: Introduction	T. Buettner
10:00 – 11:00	1. Introduction 2. The need for and the utility of population projections	
11:00 – 11:30	***Coffee break***	
11:30 – 12:30	3. Population projections for Africa: Background and challenges 4. Getting ready: Software, data, internet	
12:30 – 1:30	***Lunch break***	
	Session 2: Establishing the Base Population	
1:30 – 3:00	1. Overview of base population 2. Main factors responsible for distorted or incomplete data (i) Coverage errors (ii) Content errors (errors in age reporting by sex) 3. Corrective actions: Methods to detect, measure and correct distorted base populations	
3:00 – 3:300	***Coffee break***	
3:30 – 5:00	4. Hands-on exercises (i) Correcting a distorted sex ratio in a population (ii) Correcting a distorted age distribution in a population (iii) Move a population to a specific date	
	Tuesday, September 11, 2012	
	Session 3: Background and First Steps	Ben Jarabi
9:00 – 10:30	1. The basic balance equation of Demography (i) Closed populations and components of change (ii) Open populations and (international) migration 2. Projections of total population by mathematical formulae (i) Linear versus exponential growth (ii) Intrinsic growth rate based on two population counts (iii) Projection of a total population using an intrinsic growth rate (iv) Hands-on Exercise: A simple projection of total population	
10:30 – 11:00	***Coffee break***	
11:00 – 12:30	3. Population projections: The Cohort-Component Method (i) The balance equation (ii) The mathematics of the cohort-component method (iii) Hands-on Exercise: A simple cohort-component projection	
12:30 – 1:30	***Lunch break***	
	Session 4: Projecting the levels of mortality, fertility and migration	T. Buettner
1:30 – 3:00	1. Historical trends in life expectancy, fertility and (international) net-migration	

	2. Approaches to projecting life expectancy at birth (i) UN Model of life expectancy change (5 double logistic models, (ii) U.S. Census Bureau approach PASEX: E0LGST, E0PRJ (iii) Hands-on exercise: Projecting life expectancy over time.	
3:00 – 3:30	***Coffee break***	
3:30 – 5:00	3. Approaches to projecting total fertility (i) UN Model of total fertility change (3 double logistic models), (ii) U.S. Census Bureau approach PASEX: TFRLGST, (iii) Hands-on exercise: Projecting total fertility over time. 4. Approaches to projecting the level of net- migration (i) Challenges and approaches to the projection of international migration, (ii) Hands-on exercise: Simple projection of net-migration.	
Wednesday, September 12, 2012		
	Session 5: Projecting the age patterns of mortality, fertility and migration	T. Buettner
9:00 – 10:30	1. Observing or borrowing: Sources of information about age patterns of mortality and fertility 2. Projecting the age pattern of mortality (i) Tools for the modeling of age patterns of mortality: • Model Life Tables (MORTPAK: Coale-Demeny, UN) • INDEPTH life tables • Relational model life table systems • Lee-Carter model (ii) Hands-on exercise: Projecting mortality age patterns:	
10:30 – 11:00	***Coffee break***	
11:00 – 12:30	3. Projecting the age pattern of fertility (i) Tools for the modeling of age patterns of fertility: • Coale's Model Fertility Schedule, • Brass' polynomials • UN Beta distribution and model schedules (ii) Hands-on exercise: Projecting fertility age patterns • UN approach: Model patterns of fertility • US Census Bureau approach: [RUPEX] 4. Projecting age patterns of migration. (i) Assumptions for projecting the age patterns of migration. (ii) Hands-on Exercise: Generating age patterns of migration	
12:30 – 1:30	***Lunch break***	
	Session 6: Introduction to Population Projections	Ben Jarabi
1:30 – 3:00	1. Recap: the main population projection methods 2. Methods, input requirements, and results for the main population types (i) National populations (ii) Sub-national, sectoral populations (iii) Small populations	
3:00 – 3:30	***Coffee break***	

3:30 – 5:00	3. Lab time: (i) Preparation of projections for own countries with national data (ii) Questions and answers	
Thursday, September 13, 2012		
	Session 7: Population projections for national populations	T. Buettner
9:00 – 10:30	1. Population projections for national populations (Presentation). (i) Using RUPEX/Spectrum (to be determined depending on operating system): • Data input, • Projection parameter settings • Executing the projection • Obtaining, saving the results (ii) Hands-on exercise: Preparing a cohort-component projection (cont.) (iii) Trouble shooting	
10:30 – 11:00	***Coffee break***	
11:00 – 12:30	2. Evaluation of projections results 3. Accounting for uncertainty -- Choosing alternative projections scenarios. 4. Hands-on exercise: Preparing and comparing different projection variants 5. Lab time	
12:30 – 1:30	***Lunch break***	
	Session 8: Population projections for sub-national, sectoral or small populations	Ben Jarabi
1:30 – 3:00	1. Examples of sub-national and sectoral population projections 2. Components of change for sub-national or sectoral populations: data sources and requirements 3. Methods suited for sub-national projections: bottom-up or top-down, cohort component versus ratio methods 4. Methods suited for sectoral projections: Participation-Ratio Method and Cohort-Progression Method	
3:00 – 3:30	***Coffee break***	
3:30 – 5:00	Lab time: Population projections for sub-national, sectoral or small populations	
Friday, September 14, 2012		
	Session 9: Presenting results	Ben Jarabi
9:00 – 10:30	1. How to present the results of population projections 2. Presentation of country projections by participants	
10:30 – 11:00	***Coffee break***	
11;00 – 12:30	3. Presentation of country projections by participants (Cont'd) 4. Questions and answers	
12:30 – 1:30	***Lunch break***	
	Session 10: Final Matters	UNSD
1:30 – 3:00	1. Comment and recommendations by participants 2. Completion of Workshop Evaluation by the participants 3. Closing	

Annex 2. List of participants

No.	Country / Organization	Contact Person Information
1.	ALGERIA	Mr. Kaci GUERROUAZ Engineer in statistics Office National of statistics
2.	BENIN	Mr. Djigbo Femi Christian DOSSOU Chargé d'Etudes Institut National dela Statistique et De l'analyse Economique (INSAE)
3.	BURKINA FASO	Ms. Lonkila Moussa ZAN Chargé de programme d'étude et de recherche en Perspective démographique, Education et Genre
4.	BURUNDI	Ms. Désiré MUNEZERO Démographe, membre des équipes RAPID, BURUNDI, INFO, IMIS et BCR Institut de Statistiques et d'Etudes Economiques du Burundi ISTEEBU, Avenue Prince Louis Rwagasore
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7.	MOROCCO	Ms. Nadia LKHOULF Statisticienne/demographe Haut Commissariat au Plan
8.		Ms. Halima ELHASSOUI Statistitienne /Démographe Haut Commissariat au Plan (HCP-Rabat)
9.		Mr. Mohammed FASSI FIHRI Chef de département Haut Commissariat au Plan (HCP-Rabat)
10.		Ms. Elhassania SABRY HCP Haut Commissariat au Plan (HCP-Rabat) Direction de la Statistique
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12.		Mr. Btissam BENKERROUM Statisticienne/Economiste Haut Commissariat au Plan
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14.	SENEGAL	Mr. Jean Pierre Diamane BAHOUM Démographe/Expert Agence Nationale de la Statistique et de la Démographie (ANDS) Direction des Statistiques Démographicques et Sociales (DSDS) Bureau Etat Civil et Projections Démographiques (BECPD)
15.	TOGO	Mr. Kossi Gbeblewou TETE Ingénieur Démographe, Employé à la Direction Générale de la Statistique et de la Comptabilité Nationale Division des Études et Enquêtes Démographiques
16.	TUNISIA	Mr. Mohamed Achraf MRABET Ingénieur Statisticien Institut national de la statistique
17.	UNSD	Ms. Keiko Osaki Tomita Chief, Demographic and Social Statistics Branch Statistics Division, United Nations
18.		Ms. Margaret Mbogoni Statistician, Demographic and Social Statistics Branch Statistics Division, United Nations
19.		Dr. Thomas Buettner UNSD Consultant
20.		Mr. Ben Jarabi UNSD Consultant