

Recent trends concerning the
accessibility of African population
censuses to the academic community
A user's perspective

Valérie Golaz, Françoise Gubry, Francis Gendreau

Centre Population et Développement

UMR 196 CEPED, Université Paris Descartes, INED, IRD

<http://www.cepel.org/wp>

Contact • Corresponding Author

Valérie Golaz, Démographe INED
CEPED - UMR 196 Université Paris Descartes, INED, IRD
valerie.golaz@ceped.org

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UMR 196 CEPED, Université Paris Descartes, INED, IRD
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Recent trends concerning the accessibility of African population censuses to the academic community

A user's perspective

*Valérie Golaz**, *Françoise Gubry†*, *Francis Gendreau‡*

Résumé

Il existe un nombre important de recensements réalisés en Afrique au cours du dernier demi-siècle. Alors que les données de recensement demeurent peu exploitées, mal connues et difficiles d'accès, différents projets sont en cours, qui ont pour objectif commun de rendre ces données accessibles et en cela, de favoriser leur valorisation. Cette communication a pour objectif de dresser un panorama de l'avancée de la mise à disposition des données censitaires concernant l'Afrique de l'Ouest. Trois niveaux d'informations seront distingués. Tout d'abord, l'accès aux métadonnées est un enjeu majeur pour une bonne utilisation des données et permet une analyse secondaire des premiers résultats produits par les Instituts de statistique. Certains projets, comme IPUMS-International, mettent à disposition les micro-données et les métadonnées de recensement de certains pays, en travaillant à l'harmonisation des variables fournies et à la construction de variables supplémentaires similaires pour tous les pays. Cependant, dans l'état actuel de ce projet, la spatialisation de l'information a été perdue pour des raisons de maintien de l'anonymat. Enfin, l'accès aux micro-données s'étend aussi, en fonction des modalités de la politique de diffusion adoptée dans chaque pays, ce qui permet alors des analyses approfondies, éventuellement spatialisées, correspondant aux besoins des chercheurs. Cette mise à disposition est complétée dans certains cas par la possibilité d'effectuer en ligne sur les sites des Instituts de statistiques les traitements les plus simples grâce au logiciel Redatam, ce qui correspond à la demande publique la plus courante. Mais indépendamment des efforts de documentation des variables disponibles, les définitions sous-jacentes aux opérations de recensement conditionnent entièrement les résultats obtenus, comme par exemple la définition de l'urbain mais aussi celle du ménage, et elles restent très variables selon l'État et l'époque. Ainsi, afin de favoriser dans le futur la valorisation des recensements africains, il s'avère plus que jamais nécessaire que les États prennent conscience de ce problème et s'accordent sur une harmonisation minimale qui permette de développer des analyses comparatives sans perdre les spécificités locales.

The Quebec City Declaration¹ in June 2007 expressed the shared desire by a number of researchers and representatives of national statistical institutes to collectively contribute to the preservation and optimum use of African censuses. As a new wave of censuses in Africa is being prepared, the question arises more than ever of what should be done with the documents and data relating to previous census operations. Census data are analysed for the planning needs of the administration. They also are used as sampling frames for future surveys. Censuses are often decried as expensive but they are

* Institut National d'Études Démographiques (INED), UMR CEPED, France.

† Institut de Recherche pour le Développement (IRD), UMR CEPED, France.

‡ Consultant.

¹ http://www.demographie.auf.org/IMG/pdf/Quebec_City_Declaration-Census_Africa.pdf

precious instruments in their own right as well as for the economic and demographic surveys designed along samples that derive from them. The research drawn out of them is usually rather little compared to all that could be done. Population censuses provide researchers with an essential general framework, even if they cannot - and are not meant to - answer all research questions (Gubry *et al.*, 1996). Since they are exhaustive, they can be used for in-depth analysis, possibly spatialised at all levels, of simple demo-economic data collected at a point in time. Moreover, successive censuses give a clear picture of changes in the distribution and demographic structure of the population. Comparison of census data from various countries can provide regional population analyses.

For decades, access to population data from African countries has been restricted, but this global setting is experiencing fast changes. Many national institutes of statistics are putting up effective policies of information and communication, organising themselves as providers of data for the academic community, enhancing strong links with local universities and research institutions. If coping with individual needs remains difficult, due to large numbers of time-consuming requests, computerised systems of metadata² and microdata³ archives enable a faster production of required extracts, sometimes directly on-line on the internet. Moreover, some population censuses are available through other data providers than the national statistical offices, and have their own dissemination policies.

The major objective behind this recent dynamics is of course to enhance further analysis of national statistical data, population censuses as well as surveys (Golaz, 2009). This prospect requires microdata and all the documentation available, to shed light on the categories used, on the instructions given to the interviewers, on the way variables are defined and questions are asked. Researchers are usually interested in more than one operation: depending on the scale of the project, repeated measures over time, or different type of information provided by different surveys or censuses, or more than one country's data might be at stake. This raises the question of comparability, over time and space, of statistical data.

The amount of census information provided in Africa varies very much from country to country. Metadata is usually accessible in the home country, or in libraries abroad. Some institutions⁴ have made efforts to systematically acquire documentation concerning the population censuses of African countries. They usually provide on-line catalogues that can help locating the material that is being looked for. But there is no place where everything can be found. Even in the countries themselves, ancient population censuses documents (as well as micro-data) have sometimes been lost.

Apart for these on-line catalogues, different projects have been set up, each answering specific needs. They involve the setting up of web sites that provide information on both meta- and micro-data, and sometimes the micro-data themselves. Before going through their development in Africa let us briefly describe them.

² Metadata: all the documents related to a data collection operation, e.g. interviewer manuals, questionnaires, official results publications, etc.

³ Microdata: the statistical data base, that can be used for further analysis.

⁴ Should be underlined here, the Library of Congress in Washington DC, the library of the University of Texas in Austin, the British Library in Development Studies, at the University of Sussex, the documentation centre of CEPED, in Paris (see Gendreau and Gubry, 2009).

ACAP: The African Census Analysis Project

The African Census Analysis Project set at the Population Studies Centre of the University of Pennsylvania was initiated to preserve and enhance further analysis of African census data. Data for many population censuses collected in Africa South of the Sahara were copied and stored at UPenn, accessible to visiting scholars (Map1). Since 1998, more than 40 African scholars have visited ACAP and used the data available there. The PACE (Pan African Census Explorer), announced 10 years ago by the ACAP, should enable registered on-line users to directly produce their own analyses on the available census data bases. This 'explorer' is still not working to date, and the lists of population censuses, even though the web site has been renewed, has not effectively been updated for a few years (population censuses done after 2000 are missing). Today, ACAP's website provides an inventory of the data available at ACAP and some pdf documents relevant to census data analysis (publications, manuals, questionnaires related to a census), but mostly for the 1980s and 1990s censuses. On one hand, the project seems to have been stalling for a few years in terms of collecting agreements and data from the African countries. On the other hand, it has been dynamic in terms of analysing census data and disseminating the results of these analyses. ACAP is today the editor of a series of books entitled 'a general demography of Africa'.

IPUMS–International: Integrated Public Use Micro-data Series International

Based at the Minnesota Population Center of the University of Minnesota, the IPUMS-International Project was set following similar goals, yet with a more open dissemination policy and a strong harmonization effort. The project covers countries all over the world, and is getting very active on the African continent. Samples of census micro-data are directly downloadable from the IPUMS-I website. Variables are presented both under their original form and under harmonized forms, to make international and over-time comparisons easier. New variables are also created and added to the micro-data, to help the user access information concerning the parents and spouse(s) of each individual in the data, when in the same household. 19 countries in Africa have an agreement to date with IPUMS-International, and 7 of them already have census micro-data accessible on line via the IPUMS-I website (Map2). The project is on-going and new samples are added to the IPUMS-I website every year. They include samples for newly participating countries as well as other censuses of already participating countries, either older ones that have finally been recovered, or more recent ones, processed after the first agreements were signed.

National initiatives

A large number of countries, with the support of the Accelerated Data Program – ADP – of PARIS21⁵ are in the process of putting up their own data archive and setting national data dissemination policies (Map3). The use of software such as Redatam⁶ is spreading, enabling users to produce tables

⁵ The *Partnership in Statistics for Development in the 21st Century (PARIS21)*, founded in November 1999 by the United Nations, the European Commission, the Organisation for Economic Co-operation and Development, the International Monetary Fund, and the World Bank, encourages and assists low-income countries to design, implement, and monitor a National Strategy for the Development of Statistics (NSDS).

⁶ REtrieval of DATa for small Areas by Microcomputer, a software program developed by the Latin American and Caribbean Centre of Demography (CELADE) based in Chile, that allows any professional to quickly and easily process census data, for any geographical area.

and to cross variables on-line, through the IMIS (Integrated Multi-sectoral Information System) web sites posted on the home page of the National Bureaus of Statistics. Some countries have developed their own tools for disseminating information related to their data collection operations: the Jupiter database developed by Benin's INSAE, the South African Data Archive that pre-existed ADP, the BDMI (*Base de Datos de Meta-Infôrmaçao*), a meta-data base developed in Cape Verde and the UN-initiative development indicator information system developed with support of the UN on the websites of Malawi, Ghana or Tanzania. Some of the other countries, without developing any such device, also offer consistent documentation for their data collection operations, including some cartographic sections. Some francophone countries, like Mali, under an agreement with the ODSEF⁷ programme are also working on the archival of filled census questionnaires.

A few other organisations also try and encourage statistical data archiving at a continental scale in Africa. The African Center for Statistics (ACS) of the UNECA in Addis Abeba, and AASDA, the recently born African Association of Statistical Data Archivists, both contribute to promoting statistical data archiving in Africa. This new dynamism is a sign that national, international (African) and international (European or American based) initiatives are working in the same direction: archiving and disseminating data for a better and wider use.

All these projects, aiming at archiving statistical data and offering access to meta or micro data complement each other. They contribute by different means to the same overall objectives. Their differences make them complement each other without being in competition. The data available through these projects or institutions do not cover exactly the same needs.

Due to strict confidentiality policies and to the practical aspects of downloading data, the IPUMS-I datasets are samples (5 to 20%) of the original data sets. Some variables have been modified or deleted according to their consistency. Some new variables have been created to facilitate analysis (pointers towards parents for example). The modalities of the major variables have been harmonised to enhance international comparisons. Moreover, samples are provided at the county or district level, that is to say that no territorial unit of less than 20000 inhabitants can be singled out from those data. So even if IPUMS-International provides the easiest access to census data for the academic community, the data available does not cover all needs.

The IMIS websites usually enable spatial analysis. But the statistical methods that can be applied to the data through IMIS are limited: they consist in selecting and crossing variables. In a sense IMIS enables a personalized description of the database, but by not providing the micro-datasets themselves, they do not enable any in-depth analysis.

The other ways of accessing data, through ACAP or directly through the National Statistical Offices, is the most complete, since according to the dissemination policy of the country, it should be possible to access micro data at a desired scale. But ACAP does not own copies of recent data and does not allow outside use of its datasets. Accessing data through NSOs sometimes takes time, but this should be reduced by the set up of automatic data archives that can produce extracts on request.

Not all countries have adapted to the opportunities of the new statistical and communication technologies but others are eagerly seizing all chances that can improve their national knowledge. The situation varies very much from country to country, even in the same part of the continent, in relation to each State's political history⁸ (Map4). At present, some NSOs still do not have a web site⁹, while

⁷ *Observatoire démographique et statistique de l'espace francophone*, a programme of the University of Laval (Canada).

⁸ Should be mentioned here the case of non independent territories (Mayotte, Reunion, St. Helena), of countries whose independence is contested (Western Sahara), of young States (Eritrea), or of difficult recent political history, that has

some others have interactive ones (see Table 2) that can compute your tabulations on demand for some of the data they have produced (for example Cameroon, Kenya and Rwanda). Some have not had any population census in a long time (in DRC since 1984), while others have collected such data every 10 years for more than 50 years. Some are still reluctant to hand out their data, while others are actually putting data directly on line. Most of the NSOs working on improving their communication policy have concerned themselves only with the most recent census and surveys. But old data remains extremely precious for researchers. When the information has survived, their collection, safeguard and access are crucial.

What would help the user today would be an up-to-date bibliography of the existing metadata, with their location. To face this variety of settings, it would be very useful to conceive an African information system covering the whole of Africa and pointing at the available resources, the place where to find them, the policies ruling the access to each type of information. AASDA is already providing links towards the national data archives accessible on-line. But a global view of the statistical scenery is still missing. To a researcher's point of view, it would be interesting to at least localise the metadata produced in the countries that have not put them on-line. Some NSOs still do not have a web site, and therefore cannot offer any on-line information whatever their dissemination policy is. Some have lost material concerning older data collection operations. Some of the lost material can sometimes be recovered across the world, when outside researchers have preserved these documents over time. It would be very useful for both researchers and data archivists to recover as much as possible from the documents related to past operations. The internet today provides a way of doing it, through an interactive website¹⁰.

The growing accessibility of population censuses raises the issue of their comparability over time and space. Even though some solutions are worked out and offered to the public, especially by IPUMS-International, concerning the harmonisation of some census variables, a major issue is still at stake. The basic concepts on which national data sets are built are still conceived locally, with some effort towards an international harmonisation. It is the case for urbanisation. The definition of the urban status vary very much from country to country, sometimes defined on the basis of a population threshold, sometimes of the hierarchy of the location in the administrative setting, sometimes on other complex criteria (Denis and Moriconi-Ebrard, 2009). This leads to biased estimates of economic or demographic characteristics of the population living in urban and rural settings, especially in countries where livelihoods differ very much along this divide. Survey sampling frames are then drawn from the population censuses on the basis of this urban/rural status. The definition of the household is also a major issue, in terms of future sampling frames, and of socio-economic analysis led at household level (if three couples and children living under the same roof are considered in one country as a single household and in another as 3 different households, then the resources of the households will be in the second case a third of the resources of the first case). A recommendation has been given by the UN on the definition of the household (UN, 2008), which most countries have tried to integrate over time (Randall, Coast and Leone, 2008). Yet, many differences still render comparisons difficult (Van de Walle, 2006). Thus, however well documented some population censuses are, some of the information they provide cannot be compared easily. The long lived debate about harmonising

hampered the development to date of a proper system of national statistics (Angola, Burundi, Djibouti, Guinea Bissau, Equatorial Guinea, Somalia...).

⁹ It is the case of Angola, the Comoroes, DRC, Djibouti, Eritrea, Lybia, Somalia. Madagascar, Mali and Zimbabwe's NSOs websites exist but are under construction or not responding (on 15th June 2009).

¹⁰ This is the goal of the IREDA (*Inventaire des Recensements et Enquêtes Démographiques nationales en Afrique*) project, on-going at CEPED (www.ceped.org/IREDA).

these basic concepts is still at stake, more than ever. Discussions over a way of harmonising data collections over the continent without losing local specificities should be renewed, in view of providing decisive information on living conditions in the whole of Africa. The prospects of increasing collaboration between the academic community and the NSOs could also be fruitful in this matter.

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NB. All the website pages mentioned in this paper were consulted on the 1st of June, 2009.

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<http://www-aidelf.ined.fr/colloques/Quebec/aidelf-2008/spip3640.html?article13>

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http://unstats.un.org/unsd/Demographic/standmeth/principles/Series_M67Rev2en.pdf

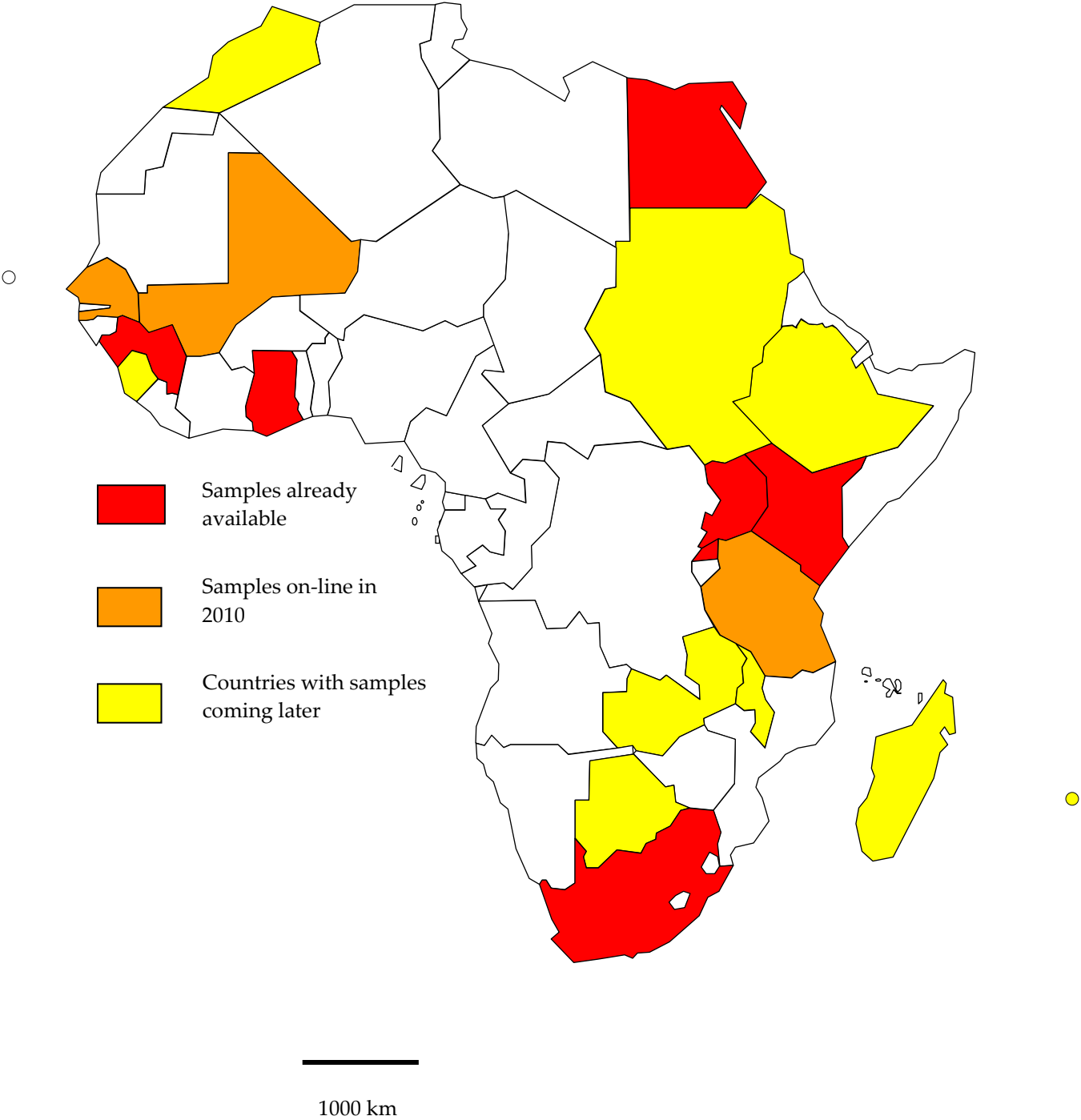
Van de Walle Etienne (ed.), 2006, "African households. Censuses and Surveys, A General Demography of Africa", ACAP- ME Sharpe, Armonk (NY), xxxix + 247p.

Map 1. Countries taking part in the ACAP program



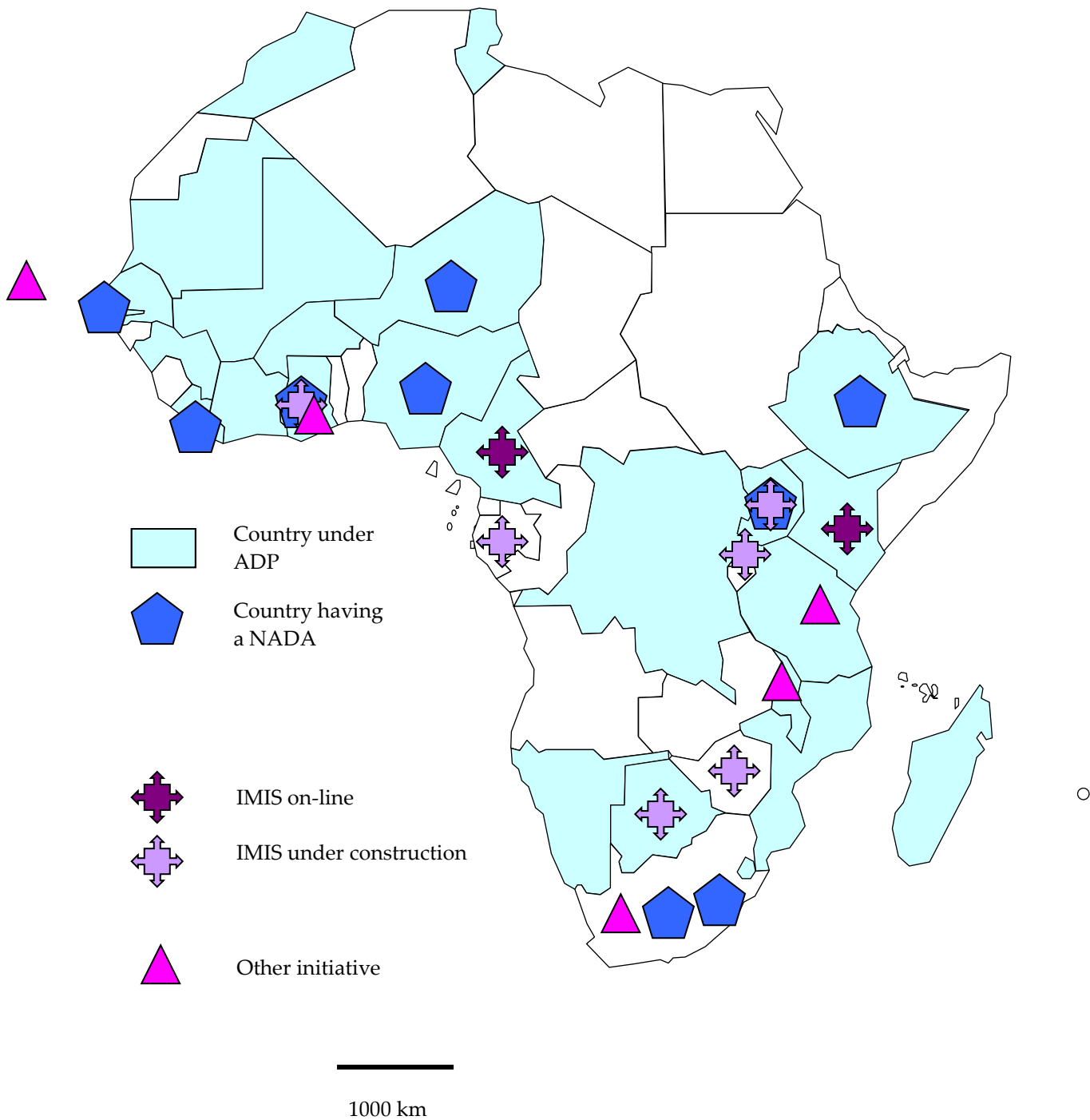
Source: www.acap.org/ on June 1st 2009; see also Table 1 (4th column)

Map 2. Countries taking part in the IPUMS-International program



Source: <https://international.ipums.org/international/> on May 25th2009; see also Table 1 (5th column)

Map 3. Country initiatives



Source: <http://www.surveynetwork.org/adp/> on May 25th2009 and NSOs websites when available, see also Table 1 (7th-10th column)

Map 4. A global view of country initiatives

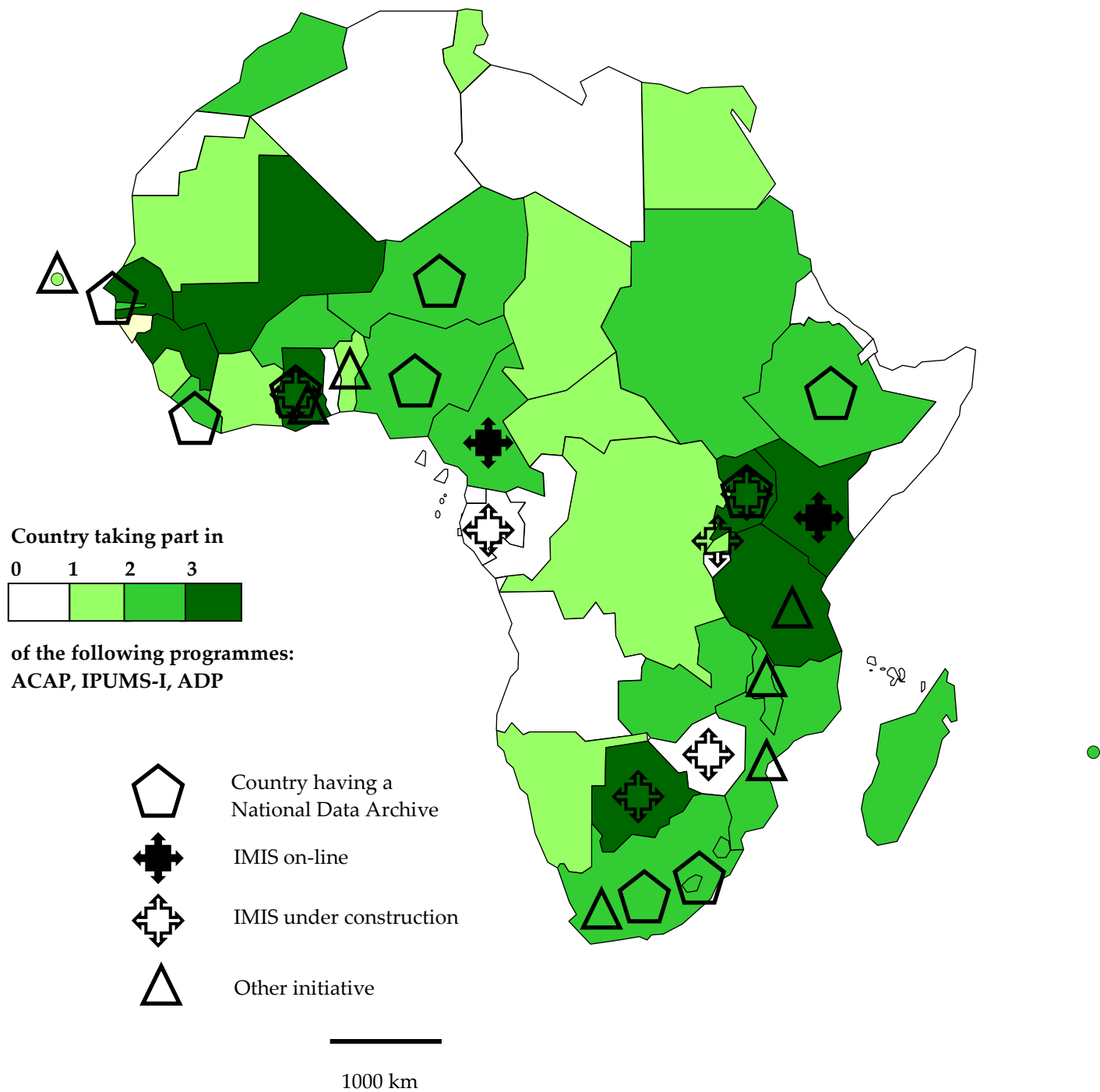


Table 1. Data archiving and dissemination for population censuses in Africa

Country	Nb. of Population censuses conducted since 1945 (a)	Minimal nb. of existing data bases (b)	Nb of censuses with info available at ACAP (c)	Agreement IPUMS (c)	IPUMS Samples on-line (c)	In touch with ADP (c)	NADA on-line (d)	IMIS on-line (d)
Algeria	8	2						
Angola	4							
Benin	3	3	2					
Botswana	7	3	2	yes		yes		soon ?
Burkina Faso	4	3	1			yes		
Burundi	3							
Cameroon	3	3	2			yes		yes
Cape Verde	6	2	1					
Central African Republic	4	2	1					
Chad	2	1	1					
Comoro	5	1						
Congo	3							
Côte d'Ivoire	3					yes		
DRC	1					yes		
Djibouti	2							
Egypt	5	3		yes	1			
Equatorial Guinea	4							
Erythrea	1	0						
Ethiopia	3	3		yes		yes	yes	
Gabon	5	1						soon ?
Gambia	5	4	3			yes	yes	
Ghana	5	2	3	yes	1	yes	yes	soon ?
Guinea	2	2	2	yes	2	yes		
Guinea Bissau	6							
Kenya	6	4	4	yes	2	yes		yes
Lesotho	7	3	2			yes	yes	
Liberia	3	2	1			yes	yes	
Libya	6							
Madagascar	2	1		yes		yes		
Malawi	5	4	3	yes		yes		
Mali	4	4	1	yes	2010	yes		
Mauritania	3	2				yes		
Mauritius	6	3	2	yes				

Country	Nb. of Population censuses conducted since 1945 (a)	Minimal nb. of existing data bases (b)	Nb of censuses with info available at ACAP (c)	Agreement IPUMS (c)	IPUMS Samples on-line (c)	In touch with ADP (c)	NADA on-line (d)	IMIS on-line (d)
Mayotte	8							
Morocco	6	3		yes		yes		
Mozambique	6	2	1			yes	soon ?	
Namibia	7	1				yes		
Niger	3	2	1			yes	yes	
Nigeria	6	2	1			yes	yes	
Réunion	9							
Rwanda	3	2		yes	2			soon ?
St Helena	7							
Sao Tome e Principe	6	1						
Senegal	3	3	2	yes	2010	yes		
Seychelles	8							
Sierra Leone	4	1		yes				
Somalia	2							
South Africa	9	7	5	yes	3		yes*	
Sudan	4	4	1	yes				
Swaziland	7	3	1			yes		
Tanzania	6	2	1	yes	2010	yes		
Togo	3							
Tunisia	7	3				yes		
Uganda	6	2	2	yes	2	yes	yes	soon ?
Western Sahara	5							
Zambia	8	3	2	yes				
Zimbabwe	8	2						soon ?

As of June 1st, 2009. Some countries NSOs were not found

(a) Number of census data collections organised per country: source IREDA

(b) Existence of micro-data: source IPUMS-International

(c) According to the web site of the programme

(d) As observed on the NSO's web sites when existing

* But not under the same norm as the other countries

Table 2. NSO's websites (1st June 2009)

Country	Website when available
Algeria	http://www.ons.dz/
Angola	n.a.
Benin	http://www.insae-bj.org/
Botswana	http://www.cso.gov.bw/
Burkina Faso	http://www.insd.bf/
Burundi	http://burundistats.org/
Cameroon	http://www.statistics-cameroon.org/
Cape Verde	http://www.ine.cv/
Central African Republic	http://www.stat-centrafrique.com/
Chad	http://www.inseed-tchad.org/
Comoros	n.a.
Congo	http://www.cnsee.org/
Côte d'Ivoire	http://www.ins.ci/
DRC	n.a.
Djibouti	n.a.
Egypt	http://www.capmas.gov.eg/
Equatorial Guinea	http://www.dgecnstat-ge.org/
Eritrea	n.a.
Ethiopia	http://www.csa.gov.et/
Gabon	http://www.stat-gabon.ga/
Gambia	http://www.gbos.gm/
Ghana	http://www.statsghana.gov.gh/
Guinea	http://www.stat-guinee.org/
Guinea Bissau	http://www.stat-guineebissau.com/
Kenya	http://www.cbs.go.ke/
Lesotho	http://www.bos.gov.ls/
Liberia	http://www.lisgis.org/
Libya	n.a.
Madagascar	http://www.instat.mg/ (under construction)
Malawi	http://www.nso.malawi.net/
Mali	DNSI is being transformed into INSTA
Mauritania	http://www.ons.mr/
Mauritius	http://www.gov.mu/portal/site/cso
Mayotte	http://www.insee.fr/fr/regions/mayotte/
Morocco	http://www.hcp.ma/
Mozambique	http://www.ine.gov.mz/
Namibia	http://www.npc.gov.na/cbs/index.htm
Niger	http://www.stat-niger.org/
Nigeria	http://www.nigerianstat.gov.ng/
Réunion	http://www.insee.fr/fr/regions/reunion/
Rwanda	http://www.statistics.gov.rw/

Country	Website when available
St Helena	n.a.
Sao Tome e Principe	http://www.ine.st/
Senegal	http://www.ansd.sn/
Seychelles	http://www.nsb.gov.sc/
Sierra Leone	http://www.statistics.sl/
Somalia	n.a.
South Africa	http://www.statssa.gov.za/
Sudan	http://www.cbs.gov.sd/
Swaziland	http://www.gov.sz/home.asp?pid=75
Tanzania	http://www.nbs.go.tz/
Togo	http://www.stat-togo.org/
Tunisia	http://www.ins.nat.tn/
Uganda	http://www.ubos.org/
Western Sahara	See Morocco
Zambia	http://www.zamstats.gov.zm/
Zimbabwe	http://www.zimstat.co.zw/ (not working)