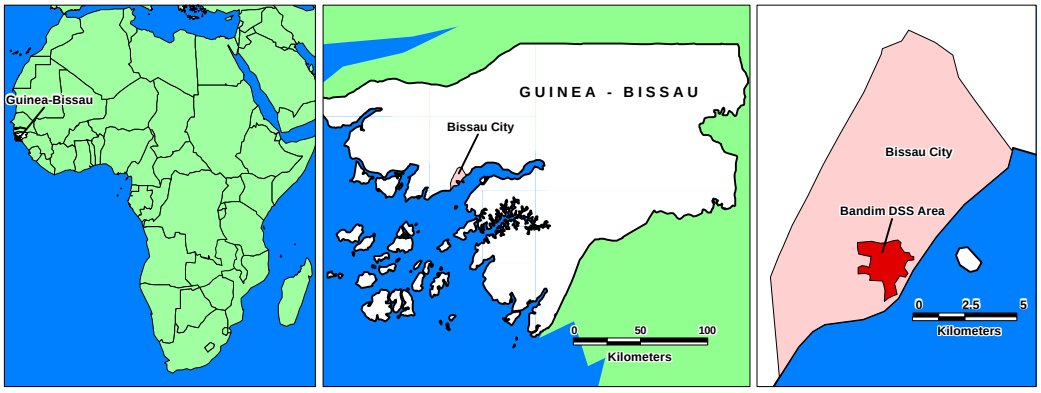
BANDIM DSS

GUINEA-BISSAU

BANDIM PROJECT
GUINEA-BISSAU MINISTRY OF HEALTH



LOCATION OF BANDIM DSS SITE GUINEA - BISSAU: Monitored Population 100,000

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1. BANDIM DSS SITE DESCRIPTION

1.1 Physical Geography of the Bandim DSS Area

The Bandim DSS is located in a suburban area of the capital Bissau in Guinea-Bissau, West Africa, a former Portuguese colony liberated in 1974 after a violent war. The study area comprises five suburbs of the capital and a mobile rural unit. These areas are situated at 12 00^0 north latitude and 15 00° west longitude. Total population of the country is approximately 1,300,000. The climate is subtropical. Mangrove vegetation covers the banks along the many rivers. Southern and northern parts are mainly forest while the rest of the country is wooded savannah, much of which is under cultivation with rice fields and crops like peanuts, maize and manioc. The rainy season with high humidity lasts from June to October. Temperatures range from 20 to 36 °C.

1.2 Population Characteristics of the Bandim DSS Area

The DSS population of over 100,000 is partly suburban; and partly rural. Public water supply is available for some 35% of the population in the capital only, and drinking water is not boiled. There is no public sewerage system and all latrines are pit latrines. Major economic activities include small scale agriculture and petty trading with a large proportion of the population engaged only seasonally in selling cashew nuts, cashew wine, palm oil, fruits, vegetables or rice. Smaller domestic animals sleep inside the house. Houses are made of mud bricks and roofs are either thatched or covered with corrugated iron. The public sector has 36,000 employees, the majority being soldiers. Schools are primarily public but in recent years a growing number of small private schools have appeared. In 1994 25.6% of males and 45.1% of females over 10 years of age had no school education. The literacy rate is 13.0% in rural areas and 35.2% in urban areas. In the urban area, the *Pepel* is the largest ethnic group (38%) followed by the *Manjaco* (15%) and various Muslim ethnic groups, mainly *Fula* and *Mandinga*, (12.4%). In rural areas, *Fula* (25.8%) is the largest single ethnic group followed by *Pepel* (22.7%), *Mandinga* (19.4%) and *Balanta* (18.4%). In urban areas most people speak *Criolo*. An increasing number of private clinics, hospital-like institutions and pharmacies has distorted the health structure over the past decade. There are two health centres in the study area, one of which was built by the project and has a 6 bed maternity ward and laboratory. There is only one paediatric ward in the capital which facilitates follow-up of children from the study area during and after hospitalisation. Of the children who died in Bandim in 1993, 49% were hospitalised and 90% were seen by a physician or nurse before death. Thirty two percent of children with diarrhoea were brought to a health facility, a figure determined in a 1993 survey. In 1995, measles vaccination coverage in the urban area was 83.8% before 2 years of age. Acute and persistent diarrhoea accounts for the majority of childhood morbidity and mortality. HIV-2 infection is still more prevalent than HIV-1. Including double infections, the HIV-1 prevalence was approximately 5% in 1999. Cholera epidemics were observed for the first time in 1987 and again in 1994 and 1997.

2. BANDIM DSS PROCEDURES

2.1 Introduction to the Bandim DSS Site

After independence in 1974 an extremely high under five mortality rate (around 500/1000) prompted the Ministry of Health to approach SAREC (Swedish Agency for Research Co-

operation with Developing Countries) to organise a study to define nutritional priorities in preventive health care. The nutrition and child health study was initiated in 1978 and a census was carried out with a subsequent anthropometric survey and organisation of antenatal care for all women found to be pregnant during the census. All new pregnancies were registered together with births, deaths and migrations. This became the basis for the ongoing registration of the population in the Bandim suburb. Distinct ecological zones were selected and regular rural population surveys covering 5 regions were initiated in the interior. A number of other suburban communities have been added over the years (Bandim 2 and Belem in 1984, Mindará in 1994 and Cuntum in 1999) and in 1990 a follow-up cluster survey of rural women of fertile age was initiated in 5 rural areas. In 1993 the Bandim project took over the administration of a community study in the Caio sector, Cacheu region, which had previously been administered from the MRC laboratories in The Gambia. Besides close relations with the MRC in The Gambia, the Bandim project has collaborated with ORSTOM/IRD in Senegal since 1983.

An armed conflict between rebel soldiers and the government started on June 7, 1998 with involvement of troops from Senegal and Guinea-Conakry. Several outbreaks of fighting and consecutive attempts to establish cease-fires followed until the final cease-fire was established in February 1999 after the arrival of a joint African peace keeping force. During this period, the majority of the inhabitants of the study area fled to a non-camp setting outside Bissau. It was possible to carry out a census with subsequent follow-up during the period of national conflict and it has been possible to follow people after their return to the study area.

The central features of the research in Bandim are the attempts to follow long-term consequences of various infections, health conditions and interventions. Main areas of research are: determinants of measles mortality, evaluation of different measles vaccination schemes, long-term consequences of measles infection, crowding and health, epidemiology and control of diarrhoeal and respiratory diseases, management of childhood illnesses, impact of breast feeding and weaning on morbidity and survival, risk factors for hospitalisation, immunological determinants of child survival (T-lymphocyte subsets, thymus growth and delayed hypersensitivity), maternal mortality, epidemiology of HIV-2 and other retroviruses, and epidemiology and control of tuberculosis.

The Bandim Dss covers a population of 75,000 in five suburbs, nearly 30% of the population in the capital Bissau. The rural population covered is 28,000 in five regions, and the survey of women in fertile age comprises 25,000 women. The study is presently monitoring nearly 12% of all births in Guinea-Bissau with around 6,000 registered births per year.

The site headquarters are situated in the Bandim suburban area of Bissau, where the main study population is found. A mobile team based in Bandim carries out the rural surveys. There are 100 field assistants, 55 medical doctors, nurses and laboratory technicians, as well as 8 to 10 expatriate academics employed at the project. The administration consists of an administrator, an accountant, a secretary and three drivers. The site has a contract of collaboration with the Ministry of Health, but the status of an NGO-like project with full financial and managerial autonomy. The site has close financial and training relations with the National Health Laboratory, where most immunological and biochemical analyses are carried out.

Continuous registration of all measles cases in the study area since 1978 has given rise to innovative ideas on the epidemiology of the disease, as well as the long-term consequences of the infection. As a consequence of the focus on maternal and child health, the database system

fully relates information on all vital events with anthropometry, vaccination status, morbidity and nutritional aspects as well as hospitalisations and diagnosis. Special features include a focus on registration and monthly follow-up of pregnancies, and 14 years continuous morbidity monitoring (diarrhoeal and respiratory diseases).

The project has no core funding, and relies on funding from many different organisations including DANIDA. A number of specialised studies have independent funding from the Danish Research Council (measles, diarrhoea, viral infections, respiratory infections, HIV-2), the British MRC (HIV-2), EU (measles, diarrhoea, HIV-2) and NOVO (RSV-epidemiology, sonography).

Research results have been disseminated through publication in international journals, and through participation in national conferences on specific issues or in advisory groups at national and international level (WHO).

2.2 Data collection and processing

2.2.1 Field procedures

a) Mapping

Mapping was done by hand and has now been transferred to a GIS-based system (MAP-INFO) in 1995. Spatial analyses on cases of diarrhoea and on measles epidemics have been done.

b) Initial census

The first census was done in 1978. Over the years a number of censuses have been carried out in Bissau (1981, 1986, 1988, 1993, 1995, 1997, 1999) and in some of the rural areas, to keep track of the population and to document family structure. In the censuses information is collected on names, date of birth or age, sex, household status and family relation, ethnic group, civil status, level of schooling, use of bed nets, use of common bed, and type of work.

c) Regular update rounds

Partly due to an increasingly mobile population after the economic liberalisation, censuses have now become an annual event in the Bissau districts as well as in the Caio sector. Migrations are tracked within the study area, and in certain studies migrations are tracked outside the study area as well.

c) Continuous Surveys

With a historical focus on maternal and childhood health, registration during pregnancy has been a key element of the data collection system. Field assistants visit all households once a month to enquire about new pregnancies and register women who have already given birth. In the urban districts children are followed on a 3-monthly routine basis from birth to 3 years of age (from 1999 up to 5 years of age). The interval between routine visits in the rural areas is 6 months. Often children are followed more closely due to specific studies, such as weekly morbidity surveys of respiratory and diarrhoeal diseases. Information is gathered on anthropometry (weight, height and arm-circumference), immunizations, feeding and breast-

feeding, infections and hospitalisation, various socio-economic indicators and migrations and deaths. In Bissau, data on hospitalisation of children from the study area are collected routinely at the hospital. Sources of data are primarily household members such as mothers or caretakers.

Death certification is done by a brief verbal autopsy-like questionnaire conducted by 1-2 specialised field assistants usually 2 weeks to 3 months after the death (one questionnaire for children and a different one for adults). Expatriate and national medical doctors have carried out more thorough verbal autopsy surveys in 1987,1993 and 1999.

d) Supervision and quality assurance

There is one supervisor for each 2-3 field assistants and the same supervisor is responsible for questionnaire checking and data entry. Each assistant is supervised weekly in the field. Temporal analysis of assistant bias are carried out every 3 months.

2.2.2 Data management

Data are entered on laptops into a menu based DBASE program designed specifically for the Bandim site. The database program has built-in control and validation features. Once a month a report of inconsistent or lacking information is printed out for correction. Each supervisor checks questionnaires before data entry. National supervisors and expatriates carry out field supervision.

3. BANDIM DSS BASIC OUTPUTS

3.1 Demographic indicators

The Bandim DSS has over 100,000 people under continuous monitoring (75,000 urban and 28,000 rural). Three percent are infants, 13% are under five, 25% are 5-14 years, 57% are 15-64 years, and 2% are 65 years of age and older. The age dependency ratio is 82 and the male:female sex ratio is 0.92. The total fertility rate for women aged 15-49 is 5.8 for urban and 6.8 for rural. The infant mortality rate is 102 per 1000 live births in the urban areas and 128 per 1,000 live births in rural areas. The under five mortality ratio is 256 per 1,000 live births. The maternal mortality ratio is 818 per 100,000 live births. The average household size is 4.57. 67.1% of males and 40.7% of females are literate by age 15 or over.

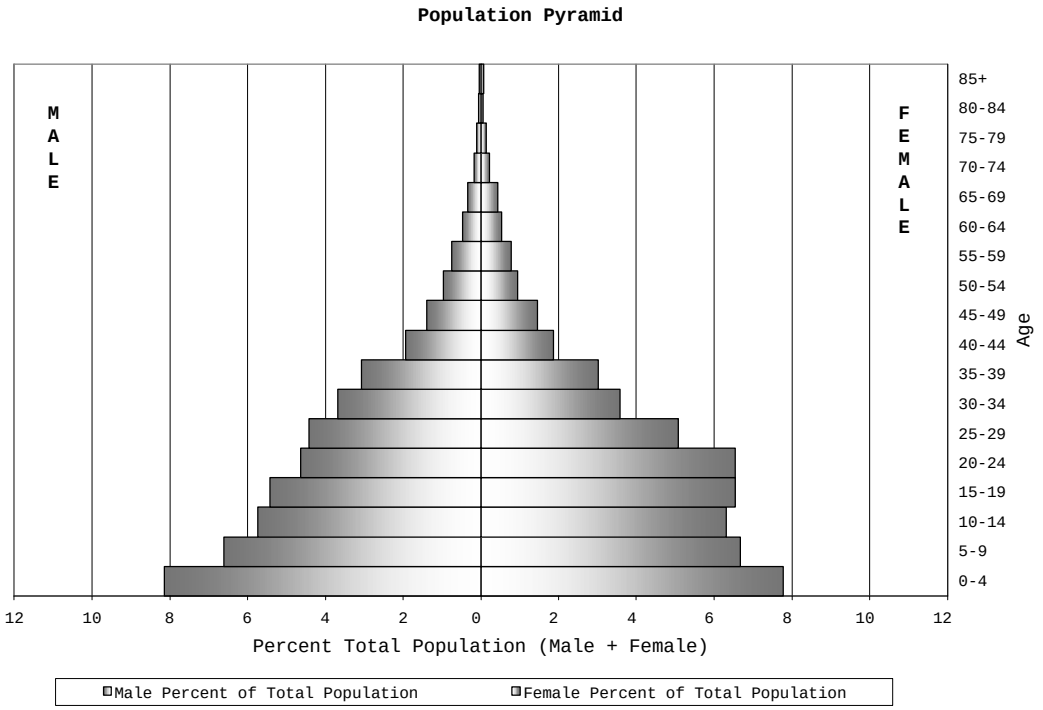

Figure 1. Population pyramid in the Bandim DSS site, 1995-1997.

Table 1: Mortality Rates

** Omitted in WEB version **

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5.0 ACKNOWLEGEMENTS

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