

## **ACTUARIAL RESEARCHES AND STUDIES**

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### **ACTUARIAL EDUCATION IN WEST AFRICA**

#### **Proposed content of the lectures**

The content of the lectures are presented in an abridged form for a preliminary consideration. If approved, a more detailed text will be worked out. The final text will contain mathematical formulae, whose level will depend on the degree of knowledge of the participants. It is, then, essential to know as soon as possible what are the requirements to participate to the seminar and the scheduled dates.

#### **1. Pension lectures**

In the pension fields, actuaries have a well-defined role, which, in most countries, is established by legislation. Before dealing with the actuarial involvement, it is worthy to describe the main feature of pension plans (defined benefit, defined contribution and hybrid plans), the relevant coverage and the ways of financing them. The type of pension plan and the relevant financing is strictly related to the economic environment and, sometimes, to historical reasons. The involvement of the actuaries depends on the type of the pension plan and includes the valuation of the liability, investment strategy and actuarial benefit calculation (such as transfer and commutation values).

Actuaries have developed a choice of techniques for the pre-funded schemes (defined benefits plans). Particular models were designed and their application is crucial in the determination of the levels of funding, assessment and management of financial risk. A study of those techniques deals with the nature of cash-flow projections and the different funding (or cost) methods. Examples might be worked out and complemented by the illustration of the practice in the European countries.

Valuation of the plan assets and financial strategy of investments are crucial topics in the management of pension plans. In the recent years many studies have been dealt with and their knowledge is essential in the actuarial education.

In her/his involvement, the actuary should pay attention to the choice of the demographic and financial assumptions. Moreover, it is essential to analyse the surplus and deficit arising from the experience.

Another topic is relevant to the individual accumulation policies or defined contribution plans. In this case the actuary may be required to help the members of the plans to achieve a target pension at a particular retirement age, to plan an investment strategy or to buy an annuity product at retirement.

#### *Main references*

- *Booth P. M., Chadburn R. et al. (2005) "Modern actuarial theory and practice" Chapman & Hall.*
- *Groupe Consultatif actuariel Europeen (2001) "Actuarial methods and assumptions in valuation of retirement benefits in the EU and other European countries" edited by David Collison ([www.gcactuaries.org](http://www.gcactuaries.org)).*