

1. IMPACT OF EQUIPPING NEW CONSTRUCTION (TO 2010) WITH FIBER OPTICS

1.1. Background Summary

PFA's original proposal (Activity 2–5) provided for an examination of existing and planned communications and information-technology infrastructure and facilities. This activity was additional to the original scope of work and was not explicitly called for in the Terms of Reference. The general aim of this activity is not to propose any specific schemes for interconnection or integration of the telecoms facilities of the COMELEC member utilities, but rather to consider the current state of affairs from the point of view of possible constraints imposed by limitations of telecoms capabilities, as well as the likely impact of future developments in the telecoms area on the foreseeable interconnection regime.

The initial questionnaire prepared in advance of the Consultant's first working visit (version of 17 May 2002) contained a number of general questions related to the current state of telecoms and prospects for further developments. The following issues were of particular interest:

- General characterization of the operational data network infrastructures and systems (PLC, microwave, leased-line, radio, fiber-optic ...)
- The extent of current deployment of fiber-optic technology, and the phasing and time scale of future deployments
- The configuration and type of fiber being deployed, e.g., fiber count (e.g., 24 fibers) and ITU conformance specification (e.g., G.652)
- Estimated capital costs for completion of the “fully expanded” fiber optic network infrastructure.

Detailed responses were requested from SONELGAZ and STEG only, the situation with ONE being well known to the Consultant from previous work in Morocco. Accordingly, only an update from the ONE Telecoms Division was needed.

The information obtained from Tunisia indicates a somewhat different state of affairs. The information presented by STEG indicated that fiber optic technology has not been deployed on the same scale as in Algeria and Morocco; buildout along the North-South axis is just in the initial phase and is evidently unrelated either to plans for eventual interconnection or incentives towards commercialization of telecoms activities. In contrast to the two other COMELEC member utilities, it does not appear that STEG is implementing a policy of automatically equipping all new HV/VHV facilities with OPGW cable. Rather, STEG continues to rely primarily on PLC technology of limited functionality and expansion capability. The implications of this state of affairs for an eventual Algeria-Tunisia interconnection will require further examination.

The responses supplied by SONELGAZ provided a good general overview of SONELGAZ's situation in the telecoms area. This information was greatly supplemented in the course of a meeting with Mme. Izemrane of the Telecoms Division, who gave a detailed presentation and supplied more extensive answers to a number of the issues posed in the questionnaire.

An additional issue was to gain an understanding of the scope and objectives of the Feasibility Study currently being conducted by Beck Connect. From the discussion with Mme. Izemrane, it was apparent to the Consultant that this study is largely concerned with SONELGAZ's current SCADA systems and the manner of interfacing them to the fiber-optic or other transmission media. Accordingly, there appears to be no area of overlap between the two studies.

A preliminary review indicates that SONELGAZ appears to have a coherent and well-reasoned approach to large-scale deployment of fiber-optic technology, and for migrating applications (both operational and administrative) to these facilities as they become available.

At the same time, it may be pointed out that substantial additional network build-out needs to occur before a geographically widespread, unified and robust network infrastructure is in place. According to SONELGAZ's projections, this is likely to happen around the time horizon 2004. It may be noted that this horizon roughly corresponds with ONE's plans for fiber-optic network buildout as far as Oujda. (Subsequent discussions with ONE confirmed that the network buildout in the eastern region of Morocco remains on or slightly ahead of schedule.)

Also noted was the anticipated capital cost of the full network buildout (estimated at around US\$120 million for a network extension of 5000–6000 km, with all transmission and switching equipment included). Although not explicitly stated by SONELGAZ, based on PFA's previous experience the projected US\$120 million cost will probably be allocated roughly equally between the fiber-optic facilities and their installation; and the associated transmission, switching and access equipment. This assumption is bolstered by the fact that, again in PFA's experience, the cost of installation of fiber-optic cable by an electric utility company under the conditions prevailing in the Maghreb should be on the order of US\$10,000 per kilometer, or US\$60 million if a 6000-km deployment is envisioned.

1.2. Options for Equipping New Construction with Fiber Optics

The analysis that was performed on the reinforcements of the electrical network of the three COMELEC members in the period up to 2010 (see Task 3, Volume II) the greatest amount of new line construction is expected to occur in Algeria. Algeria accounts for substantially more of the new construction than the other two countries combined, both in terms of number of lines and in terms of overall line length. In Morocco, the total amount of new construction called for is only some 730 km. Furthermore, although Tunisia accounts for nearly 1200 km of new line construction, STEG is believed not to have a plan or a timetable for deployment of fiber optics.

Accordingly, it is apparent that the issue of equipping new construction with fiber optics assumes the greatest significance in the case of Algeria.