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### **Bidding on Construction Projects in Countries with Abundant Labour**

Soumission de projets de construction dans des pays disposant de beaucoup de main-d'oeuvre

Ausschreibung von Bauprojekten in Ländern mit Überfluss an Arbeitskräften

**S.C. HARDY**

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I have been prompted to speak by the various remarks made about the World Bank and international lending agencies generally during the course of the Symposium. Some criticism was made yesterday about international agencies discouraging the use of labour-intensive operations on the projects they finance, and I would like to set the record straight on that point.

First, a brief note about the World Bank. It is a multinational agency comprising about 130 member countries, each of whom contribute to the capital of the Bank and are represented on the Board of Directors. The Bank lends money for the construction of infrastructure projects in developing countries - roads, bridges, ports, irrigation, dams, hospitals, schools, etc. - just the type of projects with which IABSE is concerned. Last year, we lent about US \$ 6'000 million for such projects, which represents a total value of about US \$ 12'000 million since we finance only about 50% of the estimated project cost.

What is the World Bank doing about the use of local labour on the projects it finances?

Recognizing that unskilled labour is an abundant resource in most developing countries, the Bank - some few years ago - spent about \$ 3 million on a study of the practicability of substituting labour for equipment on a number of discrete tasks in civil engineering works. Not only was it found to be practicable, but economically competitive, at low wage rates of \$ 1.00 to \$ 2.00 per day, with equipment based construction. The rate of \$ 1.00 - \$ 2.00 per day may be regarded as the equivalent opportunity cost or "shadow price" of labour where there is a labour surplus or unemployment.

The Bank has prepared some 26 Technical Memoranda on the subject of appropriate tools, wheelbarrows, relative costs of haulage by man, animal, machine, etc. all



of which are available for your information. Shortly, we shall be publishing a "Manual on Site Management of Labour Intensive Operations", and one on "Programming and Planning".

In collaboration with other agencies, amongst them the International Labour Organisation (ILO), we are carrying out pilot road or irrigation projects in Kenya, Tchad and Honduras using labour-based or intermediate technologies of construction. Some Governments, often for political and social reasons, tend to construct large portions of their public works programs by "force account", i.e. departmentally, using labour-intensive projects as a means of unemployment relief. It would be preferable and probably more cost effective to undertake such works by competitive bidding amongst contractors.

Domestic (local) contractors require far less foreign exchange to undertake a construction project than their foreign counterparts, and this is important to any developing country with limited foreign exchange reserves. Some three years ago the Board of Bank approved a preference of 7 1/2 % for domestic contractors in bid evaluation. The policy is on a trial basis until 1979; so far, it has been effective in a few countries in Asia and Africa, where awards of contract have gone to a local contractor after applying the preference margin to the bids of foreign contractors. The significant feature is that governments of some developing countries are prepared to pay a premium to assist their local construction industry.

Usually, there is a range of construction technology involving different proportions of labour and equipment, which might be applied equally well to the construction of certain projects - particularly roads and irrigation projects. Unfortunately, designs, specifications and even financing, sometimes carry a heavy equipment bias, originating as they do from industrialized countries. In circumstances where a range of technology is acceptable and desirable, consulting engineers and architects should produce a "neutral" design and specification, thus providing the opportunity for different bidders to offer their own particular technology.

Construction methods that are not heavily mechanised usually take longer to construct. This can be recognized in a rational method of bid evaluation which takes benefits foregone by the owner and the additional costs of supervision into account. Similarly, the different shapes of the "S-curve" of cumulative payments to contractors could be taken into account in bid evaluation. By discounting the curves to present values at appropriate interest rates, the financial benefits to the owner of the flatter curve of the labour-intensive bidder would be apparent.

A further boost to encourage contractors to use labour in place of machines, could be given by asking all bidders to price their bills of quantities at a "shadow" wage rate - that is at some level less than the going market wage rate or the legal minimum. The difference, or incremental wage, would be made up in the form of a subsidy.

All the above aspects of bidding have been the subject of recent studies by the World Bank, and reports will be available shortly.

Equipment intensive technology is often regarded as "modern" technology by governments and other clients in developing countries. Anything less is considered to be a retrograde or backward step. This attitude has to be overcome, with a sharper focus on "appropriate" technology or the prudent use of locally available resources.

In conclusion, Mr. Chairman, we have heard a number of presentations by eminent and intelligent consultants, contractors and academics from developed countries about what should be done. Unfortunately, there has been little substantive contribution from the developing countries. What appears to be needed is a detailed action programme, spelling out practical objectives for introducing - perhaps at first on a trial basis - appropriate construction technology in selected developing countries, utilising local resources to the extent possible. The World Bank is prepared to collaborate with organisations such as yours in achieving these objectives. Thank you!