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Expert Group Meeting on the Utilization of
Non-Ferrous Scrap Metal in Developing Countries

Vienna, Austria, 15 - 29 November 1969

UTILIZATION OF COPPER SCRAP:
TECHNOLOGY AND EQUIPMENT

Annexure 1:

Possible Policies and Measures for the Creation
of Copper Scrap Facilities in Developing Countries

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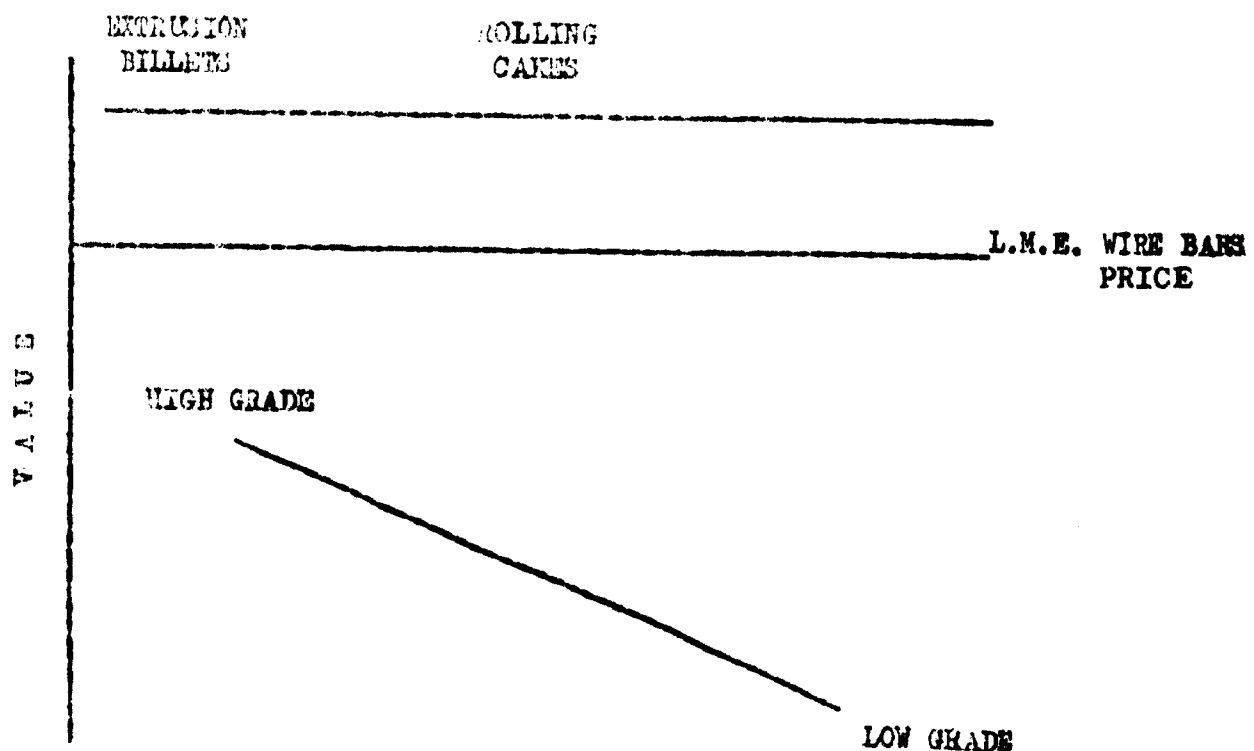
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Developing countries should primarily face the basic question of whether or not they are making the best possible use of their scrap copper arisings. If, for example, there is a flow of scrap out of the country yet no import of standard shapes in the form of refined copper, then there is a strong case for the establishment or extension of a scrap recovery programme. The extent to which this programme could be developed must depend upon the total demand for copper in the countries concerned and also whether or not this demand can be met in the conditions required. Thus demand for copper in the form of wire for electrical purposes may require the use of electrolytic refining whilst copper in the form of tube and sheet may be produced by the simpler and less costly method of fire refining. Indeed, with certain exceptions, fire refined copper may be acceptable for very many electrical purposes.

It would seem, therefore, that the policy to be pursued by developing countries is one of maximising the scrap copper resources. In order to achieve this, domestic scrap must be converted to a usable form by refining processes. The scale of the refining operation will be dictated by the volume of scrap arisings, thus fire refining may be employed for very small scale operations but electrolytic refining is economically viable only on very much larger scale operations.

The diagram below illustrates the comparative values of scrap and refined copper shapes. Scrap copper, well sorted and graded, will obtain a price, from a market, lying somewhere along the sloping line according to its purity. This represents its commercial value internationally. On the other hand, buyers of copper shapes for rolling and extrusion are required to pay a premium over wire-bar. The difference between the two lines indicates the cost area for refining and casting to shape.



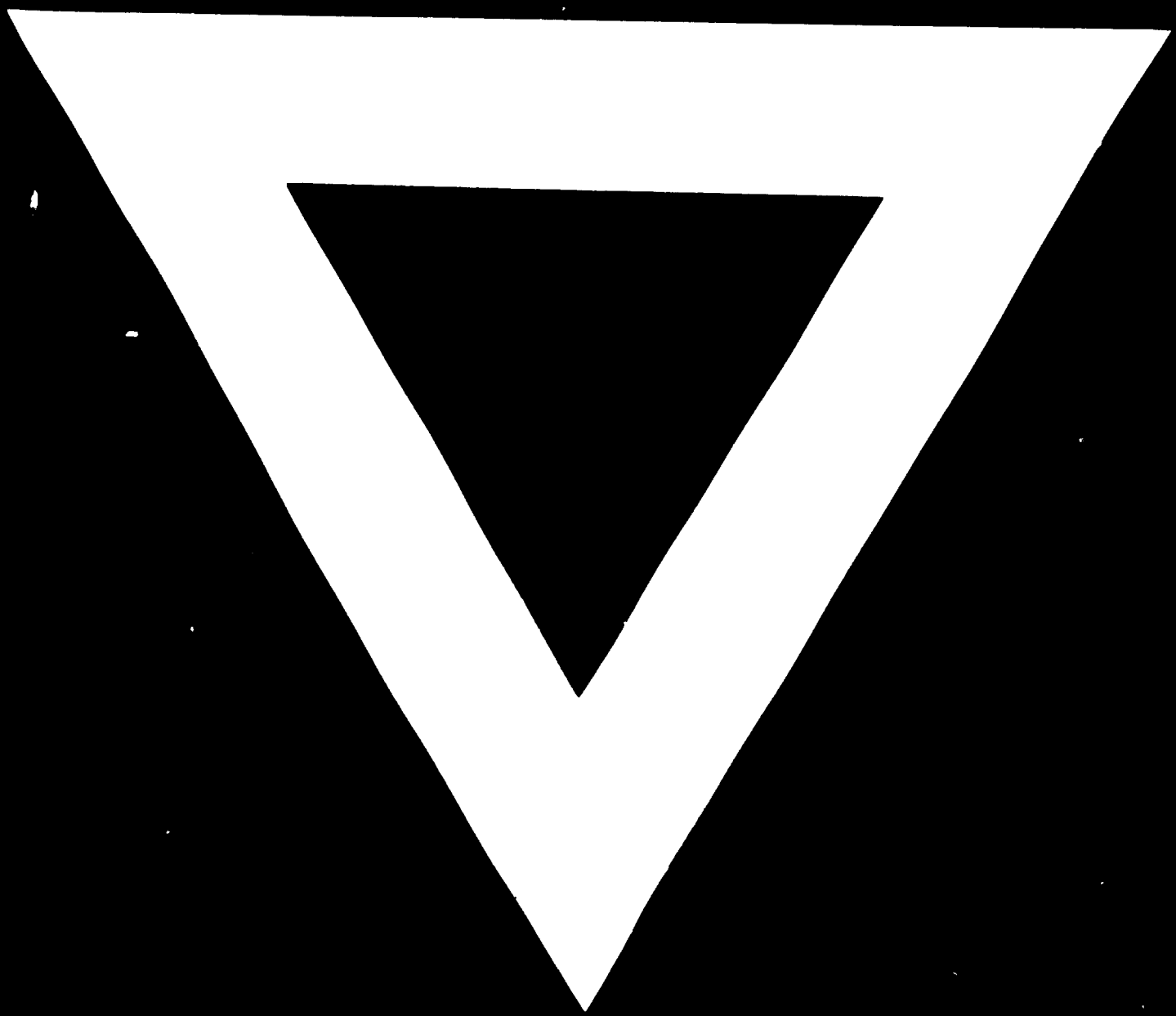
It is easy to see that a country importing shapes or semi-finished products yet possessing scrap copper arisings, should do everything possible not to be a seller of scrap and buyer of shapes. To create this position should not be a formidable task. Both in Europe and the U.S.A. exist national associations of scrap merchants and a developing country intent upon exploiting its scrap copper resources should seek assistance from these organisations, in setting up highly efficient scrap collection service industries modelled upon the lines of those found in Europe and the U.S.A.

For scrap collection to be successful and for continuity of supply to be ensured, the price of scrap paid to the collectors must be a fair one both to them and to the refining facility. Again use may be made of the expertise of the national associations referred to above. In those countries of the world in which the secondary metal industries have become major industrial enterprises, the fair dealing of both parties has contributed to the successful development.

Again developing countries would be advised to study the structure and working of these associations in conjunction with the similar associations of the secondary metal refiners.

The establishment of successful secondary copper refining facilities calls for the application of metallurgical principles akin to those of the primary metal producers. Whereas the latter commence with an ore and extract from it the copper, the secondary metal producer begins with metallic copper, frequently with the more difficult impurities removed. Therefore the application of fundamental metallurgical principles is the basis of secondary metal refining operations and are effectively applied in the industry. Developing countries intent upon establishing economically viable refining operations should establish close links with the major secondary refiners in order to seek advice and expertise. The use of consultants, the purchase of 'know-how' and the organisation of visits of technical and managerial personnel are to be recommended as ways in which a secondary metals recovery programme may be implemented.

The U.N.I.D.O. Expert Group Meeting on this subject indicates the willingness of the non-ferrous scrap metals industries to assist developing countries to exploit this field and it may well be worthwhile considering how U.N.I.D.O. could establish a permanent service to enable the exchange of information, visits etc., to be made quickly and conveniently.



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