Copper Exploration and Development Status

Since the implementation of the western development strategy from 2000, in the west China (including 12 provinces and autonomous regions), many large and medium-sized copper deposits have been discovered and evaluated, copper reserves have increased remarkably, a number of large and medium-scale copper mines have been opened, several copper resources development bases have been formed, the proven copper reserves and production capacity gradually increased and exceeded the middle-east China.

The copper resources & reserves of the western China have been increasing steadily since this century, and the proportion accounting for whole country has risen from 46% in 1999 to 56% in 2012, overtaking the middle-east China, and a new pattern of copper resource distribution has formed. There was also substantial growth in the west mine copper production: increased from 108 kt in 1999 to 937 kt in 2012, the proportion accounting for whole country increased from 24.7% to 56%. The West has become Chinese main copper production area.

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2 New Proven Large Copper Deposits and their Geological Characteristics this Century

The large copper deposits found in recent years in the west China are mainly located in the Gangdise and the Bangong Lake-Nujiang River metallogenic belt of Tibet, the Southwest Sanjiang metallogenic belt and the East Tianshan metallogenic belt in Xinjiang. Porphyry copper deposits account for a large proportion of these new deposits, associated Au, Mo or Pb-Zn and Ag. The main deposits include: Qulong super large porphyry Cu (Au, Mo, Ag) deposit (Zhang et al., 2009), Jiama porphyry-

3 Analysis of Copper Exploration–Development Potential Regions

From the proven copper resources & reserves, ore grade, other characteristics of discovered deposits, exploration potential, development technological and economic condition, environmental impact. 14 copper exploration-development potential regions are selected. Among them 10 A-class are rich in proved resources & reserves, and can be exploited on a large scale in the near future (3-5 years) , and 4 B-class regions require to enhance exploration to further increase the reserves, and can form main copper development bases 8-10 years later. Main A-class regions have great copper development potential including Maizhokunggar- Gongbo’gyamda, Jiangda-Mangkam, Ngamring- Xaitongmoin and Nimu-Quxi of Tibet, Yangla-Pulang of Yunnan.

The copper exploration-development potential of west China is very big. The amount of predicted copper resources of west China in the crustal space from the surface to 1000 meters accounted for 80.3% of that of whole China according to the result of Chinese new round mineral resources assessment. There are 109.13 Mt copper skarn copper polymetallic deposit (Tang et al., 2010), Xiongcun porphyry Cu-Au deposit (Xu et al., 2006; Lang et al., 2010), Tinggong porphyry Cu (Mo-Au) deposit (Xu et al., 2006), Zhumu Cu (Au) deposit (Zheng et al., 2006) in the Gangdise metallogenic belt; Duolong porphyry Cu (Au) ore field (including 7 deposits such as Duobuza, Bolong etc.) in the west part of the Bangong Lake-Nujiang River metallogenic belt (Li et al., 2006); Pulang porphyry Cu(Au) deposit, Yunnan (Fan et al., 2006) in the Southwest Sanjiang metallogenic belt; Tuwu-Yandong porphyry Cu(Au) ore field, Xinjiang (Ren et al., 2002) in the East Tianshan metallogenic belt.

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prognostic resources in the 14 western copper exploration potential districts (Table 2), accounting for 40% of the total prognostic copper resources of China. Through strengthening exploration, copper reserves can be increased substantially, and mine copper production capacity can be further released by 2020.

4 Suggestions of Copper Exploration and Mining

Firstly, strengthen the copper exploration & development to promote the transformation of advantages of copper resources in west China. Secondly, scientific assessment of environmental impact must be done before large-scale development of copper resources, because the copper development potential areas in western China are located mainly in the region of high mountains and deep valleys, Gobi desert, or the upper reaches of rivers, ecological environment is very fragile, infrastructure is backward. We should try to reduce the disturbance to the natural environment, to prevent pollution and geological disasters, to protect water resources and vegetation. In addition, the improvement of transportation, energy shortage and other infrastructure should be accelerated.

References