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Suggested revision to Regulations 12 and 27 in document ISBA/16/C/WP.2

(Submitted by the Chinese Delegation)

Regulation 12
Total area covered by the application

2. The area covered by each application for approval of a plan of work for exploration for cobalt crusts shall be comprised of not more than 150 cobalt crust blocks which shall be arranged by the applicant in clusters, as set out in paragraph 3 below.

3. Five contiguous cobalt crust blocks form a cluster of cobalt crust blocks. Two such blocks that touch at any point shall be considered to be contiguous. Clusters of cobalt crust blocks need not be contiguous but shall be proximate and located entirely within a rectangular area not exceeding 300,000 square kilometres in size and where the longest side does not exceed 1,000 kilometres in length.

4. Notwithstanding the provisions in paragraph 2 above, where an applicant has elected to contribute a reserved area to carry out activities pursuant to article 9 of annex III to the Convention, in accordance with regulation 17, the total area covered by an application shall not exceed 300 cobalt crust blocks. Such blocks shall be arranged in two groups of equal estimated commercial value and each such group of cobalt crust blocks shall be arranged by the applicant in clusters, as set out in paragraph 3 above.

Regulation 27
Size of Area and Relinquishment

2. By the end of the eighth year from the date of the contract, the contractor shall have relinquished at least one-third of the original area allocated to it;

3. By the end of the tenth year from the date of the contract, the contract, the contractor shall have relinquished at least two-thirds of the original area allocated to it; or

3 (bis). Notwithstanding the provisions in paragraph 2 and 3 above, a contractor shall not be required to relinquish any additional part of such area when the remaining area allocated to it after relinquishment does not exceed 1,000 square kilometres.

Annex

Explanatory Note

【Abstract】 The Draft Regulations sets 2,000 km^2 for the exploration area and 500 km^2 for the exploitation area in an application. The said areas are too small to meet the requirements to conduct a commercial mining on cobalt-rich crusts in the Area. On the basis of its surveys and researches, the Chinese side proposes to increase the exploration area and the exploitation area to 3,000 km^2 and 1,000 km^2 respectively, with a view to enabling commercial mining and avoiding to the greatest extent the overlapping claims between applicants.

1. In accordance with the regulations 12 and 27 of *the Draft Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese Crusts in the Area* (ISBA/16/C/WP.2), the total area covered by an application (hereinafter referred to as "the exploration area") shall not exceed 2,000 km^2 and after two relinquishments, the area that may be retained by a contractor for exploitation (hereinafter referred to as the "the exploitation area") shall not exceed 500 km^2.

2. The sizes of the above-mentioned exploration area and the exploitation area are calculated on the basis of a hypothetical model mine site (hereinafter referred to as "the Model Mine Site 1"). The basic information on the said model mine site was contained in the document entitled "Exploration and Mine Site Model Applied to Blocks Selection for Cobalt-rich Ferromanganese Crusts and Polymetallic Sulphides Part 1: Cobalt-rich Ferromanganese Crusts" (ISBA/12/C/3/Part 1). The summary of the information is as follows:[a]

Basic Information on the Model Mine Site 1

Items	*Worst Case*	*Best Case*	*Model Site*
Mean crust thickness (cm)	2.0	6.0	2.5
Wet abundance (kg/m^2)	39	117	48.75
Annual production (wet tonnes)[a]	2 000 000	1 000 000	1 000 000
Area mined/year (km^2)	51.3	8.55	20.5
Recovery efficiency (%)	70	90	82
Area mined/year (km^2)[b]	73.26	9.50	25.0
Area mined in 20 years (km^2)	1465	190	500
Area for exploration (km^2)[c]	7362	950	2500

[a] Wet abundance based on density of 1.95g/cm^3.
[b] Calculated using the recovery efficiency and the tonnage per unit area.
[c] Arbitrarily set at five times the area mined during 20-year operation.

Under the Model Mine Site 1, an application has 2,500 km^2 for the exploration area and 500 km^2 for the exploitation area. The Draft Regulations has altered the exploration area to 2,000 km^2, for the likely reason that the coefficient of exploration venture (please see Note c of the above table) was changed from "5" to "4" in the course of preparing the Draft Regulations.

[a] See also table 2 in the Annex 1 of the document ISBA/12/C/3 (Part 1).

3. On the basis of its surveys and researches, the Chinese side proposes a hypothetical model mine site (hereinafter referred to as "the Model Mine Site 2") that can be employed to calculate the sizes of the exploration area and the exploitation area in an application. Please refer to the following table for its basic information:

Basic Information on the Model Mine Site 2

Items	*Model Mine Site*
Mean crust thickness (cm)	4
Wet bulk density (g/cm^3)	2.0
Wet abundance (kg/m^2)	80
Annual crust production (wet tonnes)	1 000 000
Ideal area mined/year (km^2) — S1	12.5
Ideal area mined in 20 year (km^2) — S2	250
Coefficient 1: crust thickness — C1	0.6
Coefficient 2: crust grade — C2	0.75
Coefficient 3: topography — C3	0.75
Coefficient 4: Recovery efficiency（%） — C4	70
Area mined/year (km^2) — S3	52.9
Area mined in 20 years (km^2) — S4[a]	1 058
Coefficient 5: exploration venture — C5	4
Area for exploration (km^2) — S5[b]	4 232

[a] As indicated in the paragraph 8 of the document ISBA/12/C/3 (Part 1), "the annual tonnage required to support a viable mining operation is not known". Solely to facilitate the comparison, the Model Mine Site 2 employs the very same hypothesis with the Model Mine Site 1, i.e. the annual crust production is one million wet tonnes. However, if the annual crust production is revised to one million dry tonnes, taking into account that the average moisture content of crust is 30 per cent, the "Area mined in 20 years" (S4) and the "Area for exploration" (S5) would be increased to around 6,000 km^2 and 1,500 km^2 respectively.

[b] S4 = S2/(C1×C2×C3×C4) = 250/(0.6×0.75×0.75×70%) = 1,058 【Note：Due to low crust thickness, a mining operation should not only consider the four coefficients listed in the table, but the effect of the dilution rate on resources and the mining area as well. However, due to the unavailability of the dilution rate prior to the mining operation in the Area, this model does not consider the dilution rate. Where the dilution rate is incorporated, the result for "Area mined in 20 years" (S4) shall be even higher.】

[c] S5 = S4 ×C5 = 1,058×4= 4,232

According to the Model Mine Site 2, if we take the approximation of the above-mentioned S4 and S5 in the table, the exploration area in an application is 4,000 km^2 and the exploitation area is 1,000 km^2.

4. Notably, the sizes of the exploration area and the exploitation area in the Model Mine Site 1 are far less than those in the Model Mine Site 2. The main reason is that the coefficients used in the calculation of the exploration area in the two model mine sites are also different. The Model Mine Site 1 employs only one coefficient, i.e. recovery efficiency with a numerical value of 82 per cent. In contrast, the Model Mine Site 2 uses four coefficients, i.e. crust thickness, grade,

topography and recovery efficiency. Their numerical values are 0.6, 0.75, 0.75 and 70 per cent respectively.

5. Based on its surveys and researches, each State can propose its model mine site to calculate the size of the exploration and exploitation areas necessary for a commercial mining. Different as the results may be, a reasonable proposition is that all results shall be larger than the exploration area and the exploitation area derived from the Model Mine Site 1. The major reason is that, as indicated in document ISBA/12/C/3(Part 1),[b] the Model Mine Site 1 is not designed to make an economic evaluation. Therefore, the element of crust grade is not considered. However, the crust grade is a key factor in determining the quality of a mining area. In addition, the factors of crust thickness and topography also have important impacts on the quality of a mining area. As far as any mining operation on crusts is concerned, all these factors need to be accounted for to enable calculating accurate sizes of the exploration area and the exploitation area.

6. In light of the above analysis, the Chinese side is of the view that the sizes of the exploration area and the exploitation area provided in the Draft Regulations are too small to make a commercial mining possible, thus unfavourable to encourage the conduction of activities in the Area. It is necessary to amend the regulations concerned, to make reasonable increase in the sizes of the exploration area and the exploitation area.

7. The Chinese side also believes that two principles shall be observed in making reasonable increase in the sizes of the mining areas: (1) the mining areas cannot be too small; it should enable a commercial mining; (2) the exploration area cannot be too large; it should avoid to the greatest extent the overlapping claims between applicants.

With regard to the first principle, based on the Model Mine Site 2 proposed by the Chinese side, the exploration area and the exploitation area that can be allowed in an application are 4,000 km^2 and 1,000 km^2 respectively.

With regard to the second principle, the Chinese side is of the view that it is necessary to impose some reasonable limitation on the sizes of the exploration area that an application can get.

8. With due consideration of the above analysis and the two principles raised in paragraph 7, the Chinese side proposes to set 3,000 km^2 for the exploration area and 1,000 km^2 for the exploitation area respectively in the Draft Regulations. The Chinese side further proposes to make corresponding adjustments in the scope of the geographical area within which the blocks under application are located and the proportion of each relinquishment.

[b] The paragraph 3 in the document ISBA/12/C/3 (Part 1) indicated that, "... a set of conditions have been selected that are used here to illustrate the selection process of lease blocks on seamounts for the exploration phase and mining operations for cobalt-rich crusts. ... The illustrations are not meant to be an economic evaluation, so the crust grade (contents of cobalt, nickel, copper, manganese, etc.) is not considered."