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() , neutral () , or limiting () effects of mining minerals in the Area and the achievement of the Sustainable Development Goals.







Achievements	SDGs	Sustainable Development Goals	Contribution of the Common Heritage of Mankind a) <i>mining</i> b) <i>no mining</i>	potential interactions if mining	potential interactions if no mining
Enable access, benefit sharing across generations	Goal 1	End poverty in all its forms everywhere	a) The promise of the CHM is that it will generate funds for redistribution to mankind, with a particular consideration of the needs of developing countries. This was intended to enhance equity in economic and social development across the globe. It is questionable whether this goal will be reached. It is questionable whether this will be achieved as deep seabed mining is neither technically nor commercially viable and there is no agreement on a minimum return to ISA for redistribution. In addition, mining could be counterproductive to achieving this goal if mining significantly impacts the access to fishing opportunities and/or the quality of fish, if pollution deteriorates coastal waters or if land processing further deteriorates living conditions for people in the neighbourhood. At a larger scale, this negative effect might become effective in economies depending on mineral export, if deep sea minerals change the global market. b) The no-mining scenario would not derive any monetary benefits but provide for undisturbed deep sea ecosystems delivering a range of ecosystem functions and services which are essential in times of biodiversity decline and climate change, the value of which may far exceed the value generated by mining the mineral-containing basis for benthic ecosystems.	 	
Enable access, benefit sharing across generations	Goal 2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	a) In particular goal 2.1, access by all to safe, nutritious and sufficient food is strongly related to coastal and offshore fisheries with local landings, employment and income generation. Deterioration of fishing opportunities by mining-related pollution and spatial competition will impact on livelihoods of coastal populations concerned, eventually counteracting SDG 1.		



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Inspire social capital	Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	The non-monetary benefit sharing mechanisms of ISA need substantial expansion and more permanence for being effective in actually empowering least developed countries and build capacities in the long term. Capacity building should not be limited to issues around mining, but include all ocean topics and environmental governance. ISA could for example be instrumental to setting up an institution comparable to the World Maritime University of IMO.		
Support sustainable livelihoods	Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all	a) The greening of energy production worldwide and ubiquitous electronic devices require a new mix of minerals in so far unknown quantities. Minerals from the deep sea may one day contribute to this rising demand, however, the need for tapping these resources today is questioned. Another line of arguments points out that deep seabed mineral resources may contribute to prevent strong mineral price increases due to scarcity <i>vis a vis</i> rising demand - in other words it shall help maintain the current consumption patterns.	 	
Support sustainable livelihoods	Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	a) Mineral development can be viewed as supporting the concept of sustainable development if the extraction of minerals takes place in a manner that does not lead to irreversible environmental degradation; equitably shares the benefits from the new wealth created; utilizes the capital obtained to provide adequate healthcare, education, and other social services; and reduces the level of waste through recycling and improved technologies to optimize recoveries (Nooten, 2007). The CHM principle aims at all of these elements. However, substantial environmental degradation will be unavoidable, the amount of financial benefits is likely to be modest, and there is a high risk that the mining of minerals in the deep sea, and be it for enabling the transition to renewable energy, will further extend decision-making on measures to reduce raw material consumption to a one earth footprint of mankind. b) If deep seabed mining does not supplement mineral supply and scarcity will increase prices, then this will provide stimulus for developing technologies to globally reduce new mineral consumption, stimulate long and efficient life cycles and further recycling. Blue economy growth can rely on sustainable industries and mining operations would not jeopardise e.g. tourism in island nations.	 	

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Support sustainable livelihoods	Goal 8.4	Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation , in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead	Deep seabed mining will have high ecological costs and cause longterm and large scale environmental degradation. Investing in developing resource efficiency, substitution of critical metals and recycling instead of investment in mining technology could provide solutions in line with SDG 8.4.		
Support sustainable livelihoods	Goal 8.5	By 2030, achieve full and productive employment and decent work for all women and men, ...	a) Deep seabed mining is not likely to have any substantial employment effect. Therefore, the access given to the Area to all states, may at best have indirect effects on economic growth of least developed countries - should substantial financial benefits be distributed by ISA. Sustainable economic growth and in particular so-called blue growth of maritime industries, should be carefully balanced with coinciding environmental and economic costs and rely on renewable resources to improve the lives of the population directly, rather than through unreliable revenues derived from (eventually foreign) mining.		
Inspire social capital	Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation	a) The technology transfer as originally foreseen in UNCLOS was modified by the Implementing Agreement 1994 to follow commercial principles, including the operation of the Enterprise, which lost its central function of technology development, exploitation and market control. The current capacity building is small scale and not sustainable. It is unlikely that developing countries will benefit of substantial financial transfers in the coming decades for building up local infrastructure.		

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Enable access, benefit sharing across generations	Goal 10	Reduce inequality within and among countries	<p>a) One original intention of the Common Heritage of Mankind principle and its rules laid down in UNCLOS was to use the benefits to be derived from the Area for reducing the global inequality. Non-monetary transfer should aid capacity development for science and technology, provide equal opportunities to participate the Area's governance processes. Financial and other economic benefits from activities in the Area should lead to financial transfers which would enable the developing states to catch up developing in their social and economic systems. These origins have been superseded by the 1994 Implementing Agreement to UNCLOS, limiting substantial components of transfer and equity among UNCLOS parties (see Goal 9). The financial and other economic benefits of mining in the Area will at least in the coming decades not lead to substantial funds for redistribution, in particular to satisfy the needs of developing countries' economies. Many developing states aim to ensure a share in benefits through becoming Sponsoring States which involves high risks and liabilities.</p> <p>a+b) The reduction of inequality within and among countries can be addressed by international collaboration to facilitate and enhance high standard education, capacity development and scientific research, as required by currently disadvantaged societies (Goal 4).</p>		
Support sustainable livelihoods	Goal 12	Ensure sustainable consumption and production patterns	<p>a) The provision of minerals from deep seabed mining may prolong the period of unsustainable growth and deviate investments which could better contribute to developing step by step a circular economy in developing as well as in developed countries. Circular economy should be seen as a chance to develop new ways of production and cooperation - according to the needs of the different countries. The 10-Year Framework of Programmes on Sustainable Consumption and Production (10YFP) is instrumental to achieving this goal.</p>		
Maintain and restore ecological integrity	Goal 13	Take urgent action to combat climate change and its impacts	<p>a)</p> <p>b) Ocean protection is one aspect of buffering the effects of rising greenhouse gas emissions and their impacts on climate.</p>		
Maintain and restore ecological integrity	Goal 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	<p>a) Mining the mineral-containing substrates in the deep sea means the irreversible destruction of benthic and pelagic habitats, which will loose their ecological function in ocean processes.</p> <p>b) Ocean protection is the bottleneck for CHM to support Agenda 2030</p>		

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Maintain and restore ecological integrity	Goal 14.1	By 2025, prevent and significantly reduce marine pollution of all kinds	This is also required under UNCLOS Part XI (see Article 145 a) and Part XII. So States individually and collectively have to comply with this law. Deep seabed mining will inevitably lead to pollution of various kinds: sediment suspension and discharge, eventually with toxic contaminants, light, noise, releases during the transfer of ore to transport vessels etc. In any case this will be an increase in global ocean pollution with unknown effects.		
Maintain and restore ecological integrity	Goal 14.2	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.	This is also required under UNCLOS Part XI (see Article 145 b)		
Maintain and restore ecological integrity	Goal 14.5	By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on best available scientific information	a) The ISA has designated so-called “Areas of particular environmental interest, APEIs” a non-permanent sectoral closure covering approx. 30 % of the region (International Seabed Authority, 2011; Lodge et al., 2014; Wedding et al., 2013). These areas are located outside the locations of interest to exploration and potential exploitation. Due to a different nodule cover, these APEIs cannot act as reserves in the case of mining (Vanreusel et al., 2016). Therefore, quantitatively, the APEIs may count towards the SDG 14.5 target, however qualitatively they do not meet the criteria of the more elaborate CBD Aichi target 11 (Rees et al., 2018).	 	
Maintain and restore ecological integrity	Goal 14.7	By 2030 increase the economic benefits to SIDS and LDCs from the <u>sustainable use of marine resources</u> , including through sustainable management of fisheries, aquaculture and tourism	a) Should there be substantial financial and other economic benefits to be equitably shared with particular consideration of the needs of SIDS and LDCs, these funds may support these states economically. However, the resource-dependency and related governance problems may prevent any additional funds to be used sustainably. As Sponsoring States, States also have an opportunity to eventually gain access to technical expertise and profit financially of the exploitation of the CHM, however bear high risks and liabilities (see also Goal 8 and 14A).	 	

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Maintain and restore ecological integrity	Goal 14.A	Increase scientific knowledge, develop research capacities and transfer marine technology ... <u>in order to improve ocean health and</u> to enhance the contribution of marine biodiversity to the <u>development</u> of developing countries, in particular SIDS and LDCs	see Goals 4, 9, 10 on CHM non-monetary benefit sharing a) Considerable research and exploration takes place, including on determining the ecological state of the environment. However, there is no automatic publication of knowledge, an unknown fraction of the knowledge falling under the confidentiality agreement of the ISA with contractors. The aim of research is not to improve ocean health but to mine. SIDS and LDCs which are sponsoring States do not normally own the knowledge themselves. b) Funding of deep sea research is likely to decrease if there was no mining in the future. However, then the threat from mining was not imminent and the research focus could be reoriented to ecosystem function in view of climate change		
Maintain and restore ecological integrity	Goal 14.C	Ensure the full implementation of international law, as reflected in UNCLOS for states parties to it, including, where applicable, existing regional and international <u>regimes for the conservation and sustainable use of oceans</u> and their resources by their parties	a) The ISA regulations and procedures for implementing conservation and sustainable use of oceans can be improved to implement the ecosystem approach to management, including in collaboration with the regional and international regimes. b) If no mining, the focus can be on valuation of the CHM in terms of longterm existence value and ecosystem services value.		
Maintain and restore ecological integrity	Goal 15.5	Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	a) Deep seabed mining will inevitably lead to degradation of large swaths of ocean floor and and unknown volume of deep ocean waters. This will lead to biodiversity loss in the case of nodule mining and in addition to the loss of unique habitats and eventually endemic species in the case of massive sulphide mining at hydrothermal vents and cold deposits. b) No mining will not contribute to a deteriorating state of the oceans but eventually stabilise the ocean ecosystems <i>vis a vis</i> climate change effects.		

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Enable access, benefit sharing across generations	Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	Peaceful use of the CHM is one of the baseline conditions of management of the Area. ISA ensures full participation of all UNCLOS signatories in its organs: in The Assembly one vote per country, in the Council one vote collectively for regional or interest groups. As the Council is the organ taking the decisions, the group representation gives heavy weight to sponsoring states, consumer states, and minerals exporting states. Transparency and accountability to be improved, incorporation of scientific advice not reflected, if done so.		
Inspire social capital	Goal 17	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development		