



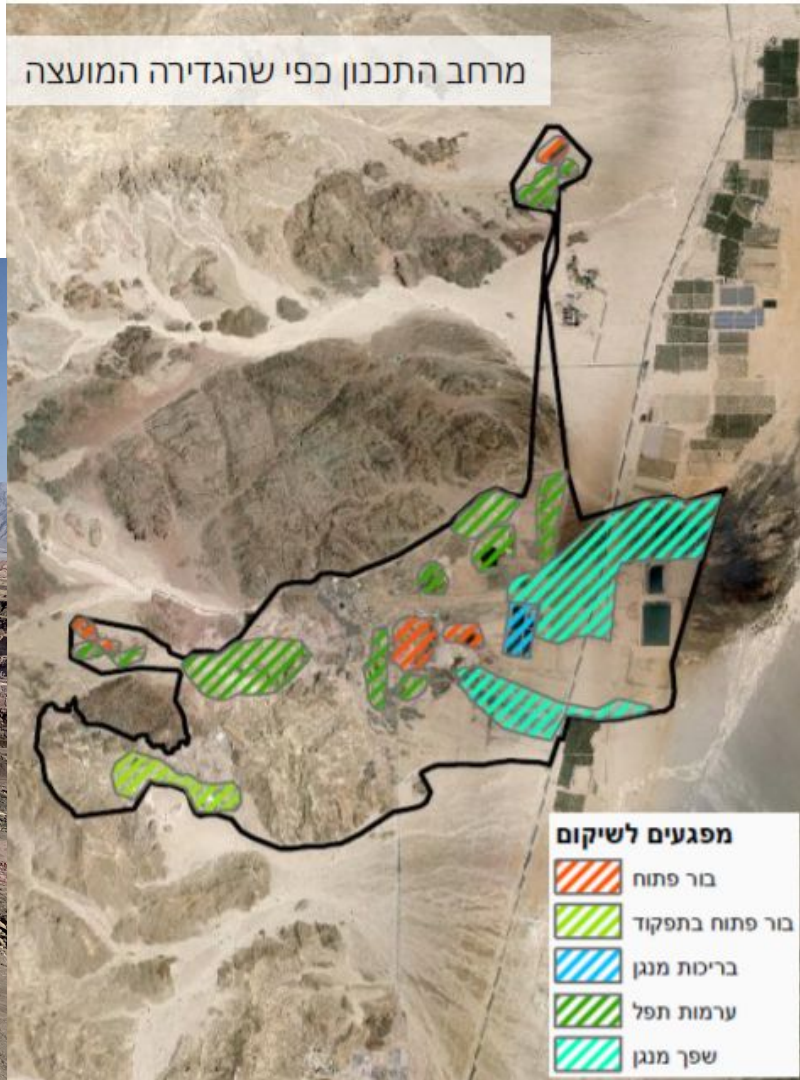
# Timna Mine Initiatives

Maya Angeles, Daniel Correa, Brian  
Montenegro, Grace O'Reilly

# Timna Industrial Area



מרחב התכנון כפי שהגדירה המועצה



# Project Goal

Provide the Eilat Regional Council with analyses of three potential initiatives:

- ▶ Copper Mining
- ▶ Data Center
- ▶ Tourism

# Proposal: Copper Mining



# Proposal: Data Center



# Proposal: Tourism Site



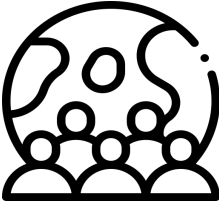
# Sustainability Criteria



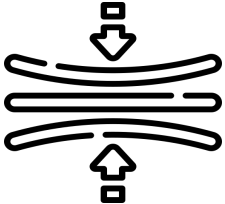
Economic



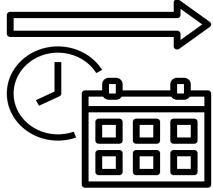
Environmental



Societal



Resilience



Longevity



# Data Collection

## Community Interviews



## Secondary Research





# Our Work



# Assessing Economic Sustainability

	Salary	Industry Growth	Industry Upkeep
Data Center	Average salary for Data Center Employee 324,000.00 NIS/yr; 0-2 years   432,000 NIS/yr; 3-5 years   468,000 NIS/yr; 6+ years   516,000 NIS/yr Managerial	13.4% CAGR growth from 2020-2027	Tier I needs cooling equipments. Tier II needs redundant critical power and cooling equipments Tier III have no shutdowns for equipment replacement and maintenance Tier IV include a fault tolerance which stop short the failure of equipments
Copper Mining	Average salary of a Mining Engineer in Israel is 241,492 ILS per year; 116 ILS per hour	3.7% yearly growth from 2021-2029	There are a multitude of maintenance and safety checks. Example of these checking practices include: Reactive, Preventative, Predictive, and Proactive maintenance.
Tourism	19,769.49 NIS/yr Most tourism jobs pay minimum wage.	Expected to be 6% of national GDP by 2025	Depends on the type of tourism

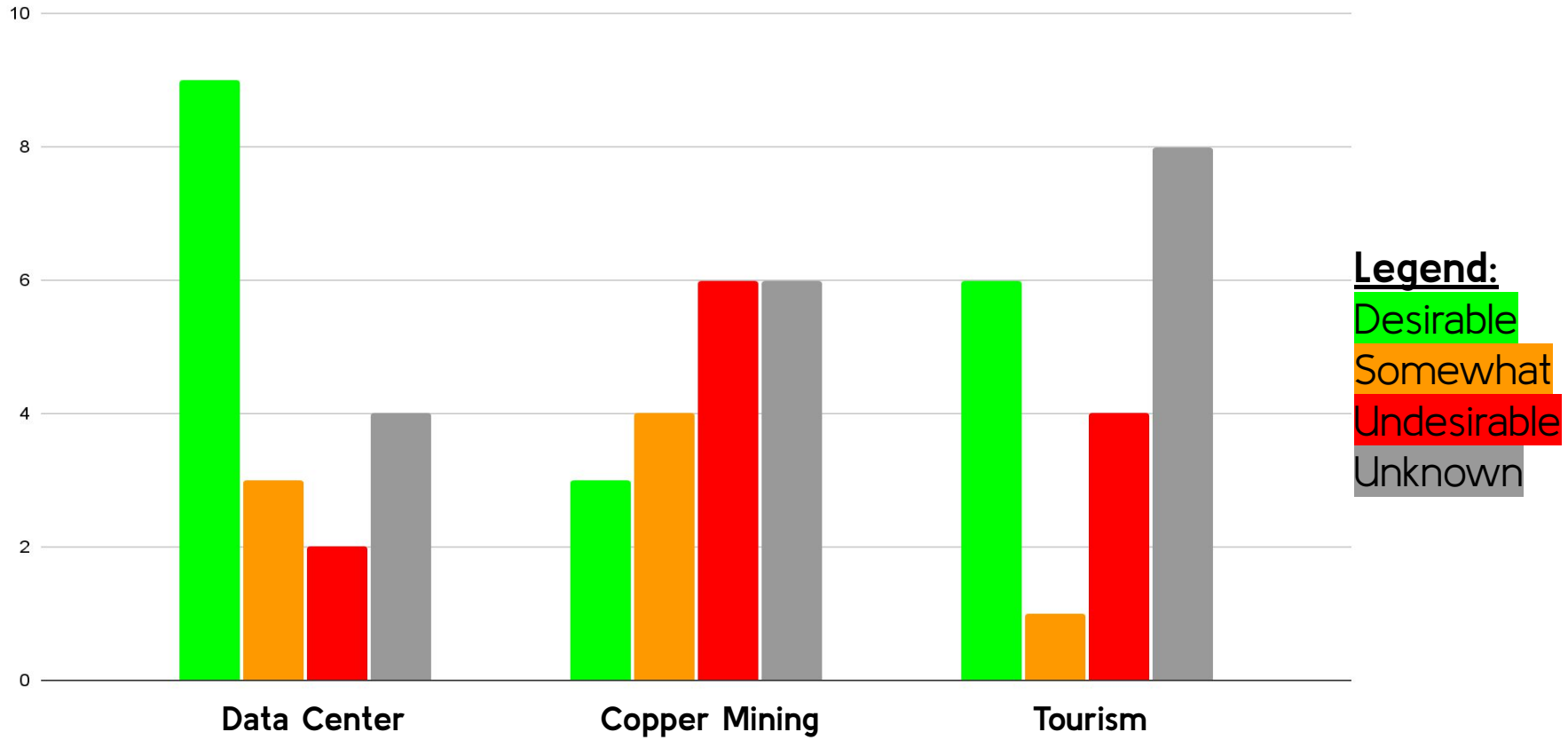
# Assessing Economic Sustainability

	Salary	Industry Growth	Industry Upkeep
Data Center	High	High	High
Copper Mining	Medium	Medium	High
Tourism	Low	Medium?	Low

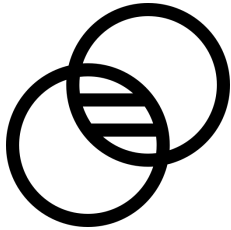
# Assessing Economic Sustainability

	Salary	Industry Growth	Industry Upkeep
Data Center	High	High	High
Copper Mining	Medium	Medium	High
Tourism	Low	Medium?	Low

# Comparison of Sustainability Indicators



# Summary



Common Community  
Opinion



Population Growth



Future Work





# Works Cited

<https://www.proquest.com/docview/2493773724?accountid=29120&parentSessionId=aqBbzDbROW5NcNp6p3o4YpdYFtmnt4nQl%2BnkqW1Ml%3D&pq-origsite=primo>

Alagić, S. Č., Tošić, S. B., Dimitrijević, M. D., Nujkić, M. M., Papludis, A. D., & Fogl, V. Z. (2018). The content of the potentially toxic elements, iron and manganese, in the grapevine cv Tamjanika growing near the biggest copper mining/metallurgical complex on the Balkan peninsula: Phytoremediation, biomonitoring, and some toxicological aspects. *Environmental Science and Pollution Research International*, 25(34), 34139–34154. <http://dx.doi.org/10.1007/s11356-018-3362-7>

<https://doi.org/10.3390/min7070128>

Johansson, P.-O., & Kriström, B. (2015). *Cost-Benefit Analysis for Project Appraisal*. Cambridge University Press. <https://doi.org/10.1017/CBO9781316392751>

Kleczeck, Z., Niedojadlo, Z., Popiolek, E., Skoblinski, W., Sopata, P., Stoch, T., Wójcik, A., & Zeljas, D. (2016). Mining Hazards Analysis with Simultaneous Mining Copper Ores and Salt Deposits in LGOM (Legnica-Głogów Copper Belt) Mines with Regard to Dynamic Influences. *Archives of Mining Sciences*, 61(3), 553–570. <http://dx.doi.org/10.1515/amsc-2016-0040>

<https://doi.org/10.1016/j.envsci.2016.07.011>

Mathers, Nigel & Fox, Nick & Hunn, Amanda. (2002). Trent Focus for Research and Development in Primary Health Care Using Interviews in a Research Project.

<https://doi.org/10.1016/j.gexplo.2019.01.002>

*Research in Engineering Design*, 27(4), 367–389. <https://doi.org/10.1007/s00163-016-0223-6>

Schor, H. J., & Gray, D. H. (2007). *Landforming*. John Wiley & Sons, Inc. <https://doi.org/10.1002/9780470259900>

Sorooshian, S. (2021). Upgrading current multi-attribute decision-making with a 3-dimensional decision matrix for future-based decisions. *MethodX*, 8, 101403. <https://doi.org/10.1016/j.mex.2021.101403>

Stylidis, D., Belhassen, Y., & Shani, A. (2015). Three Tales of a City: Stakeholders' Images of Eilat as a Tourist Destination. *Journal of Travel Research*, 54(6), 702–716. <https://doi.org/10.1177/0047287514532373>

Bacciotti, D., Borgianni, Y., Cascini, G., & Rotini, F. (2016). Product Planning techniques: Investigating the differences between research trajectories and industry expectations. *Research in Engineering Design*, 27(4), 367–389. <https://doi.org/10.1007/s00163-016-0223-6>

Covre, W. P., Ramos, S. J., Pereira, W. V. da S., Souza, E. S. de, Martins, G. C., Teixeira, O. M. M., Amarante, C. B. do, Dias, Y. N., & Fernandes, A. R. (2022). Impact of copper mining wastes in the Amazon: Properties and risks to environment and human health. *Journal of Hazardous Materials*, 421, 126688. <https://doi.org/10.1016/j.jhazmat.2021.126688>

Girard, J. M. (n.d.). *ASSESSING AND MONITORING OPEN PIT MINE HIGHWALLS*. 13.

Goarakhi, M. H., & Bareither, C. A. (2017). Sustainable Reuse of Mine Tailings and Waste Rock as Water-Balance Covers. *Minerals*, 7(7), 128. <https://doi.org/10.3390/min7070128>

Lima, A. T., Mitchell, K., O'Connell, D. W., Verhoeven, J., & Van Cappellen, P. (2016). The legacy of surface mining: Remediation, restoration, reclamation and rehabilitation. *Environmental Science & Policy*, 66, 227–233. <https://doi.org/10.1016/j.envsci.2016.07.011>

Nugui, M. R., & Neldner, V. J. (2015). Two-tiered methodology for the assessment and projection of mine vegetation rehabilitation against mine closure restoration goal. *Ecological Management & Restoration*, 16(3), 215–223. <https://doi.org/10.1111/emr.12176>

Parandoush, K., Atapour, H., & Risch, M. A. (2019). Geochemical signatures of waste rocks around Sarcheshmeh porphyry copper mine dumps, southeastern Iran: Implications for exploration, economic by-products and the environment. *Journal of Geochemical Exploration*, 199, 31–52. <https://doi.org/10.1016/j.gexplo.2019.01.002>

US EPA, O. (2017, November 2). *Contaminated Land* [Reports and Assessments]. <https://www.epa.gov/report-environment/contaminated-land>

Yang, Y.-Y., Wu, H.-N., Shen, S.-L., Horpibusuk, S., Xu, Y.-S., & Zhou, Q.-H. (2014). Environmental impacts caused by phosphate mining and ecological restoration: A case history in Kunming, China. *Natural Hazards*, 74(2), 755–770. <https://doi.org/10.1007/s11069-014-1212-6>

Spanidis, P.-M., Roumpou, C., & Pavloudakis, F. (2021). A fuzzy-ahp methodology for planning

the risk management of natural hazards in surface mining projects. *Sustainability*, 13(4),

2369. <https://doi.org/10.3390/su13042369>

Presentation template by [SlidesCarnival](#)