Topic 4: This week’s discussion will focus on possible impacts of synthetic biology applications that are in early stages of research and development, on the three objectives of the Convention. Possible impacts (which could be either positive or negative) is a type of shorthand to say that we are looking at the results of a risk assessment or similar type of assessment. It might be helpful to parse the three objectives of the Convention into a matrix with the three types of synthetic biology applications we have been talking about (organisms, components and products) so that we can compartmentalize our examples and better communicate where our concerns lie. To this end and according to my understanding, I have created the attached matrix for your consideration and have placed some examples in its cells.

With respect to the organisms, components and products of synthetic biology:

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| CBD Objective | synthetic bio organisms | synthetic bio components | synthetic bio products |
| 1. Conservation of biological diversity | Cartagena Protocol on Biosafety  Examples: assessment of possible impacts/biosafety (and sustainable use) of LMOs, GMOs, GE gene drive, some genome edited organisms  Biosafety of potentially some synthetic biology organisms that are not LMOs (are not covered by CPB).  Examples: ? (this is also a Synbio AHTEG 3 task) | Convention  Examples: assessment of possible impacts of DNA-based test kits, iGEM bio-blocks, certain vaccines, proto-cells, etc. with respect to biodiversity | Convention  Examples: assessment of possible impacts of certain biofuels, certain perfumes, certain biologicals or drugs, certain flavourings, etc. with respect to biodiversity  risk assessment of certain chemical products are already covered by other MEAs. |
| 1. Sustainable use of its components | Nil | Convention  Nagoya Protocol  (Art. 9: benefits arising are to be used to promote sustainable use of components)  Examples: ? | Nil |
| 1. Fair and equitable sharing of benefits arising from use of genetic resources | Convention and Nagoya Protocol  Examples: benefits arising from certain LMOs, GMOs, GE gene drive, some genome edited organisms (if a qualifying genetic resource used) | Convention and Nagoya Protocol  Examples: benefits arising from certain DNA-based test kit, certain vaccines (if a qualifying genetic resource used) | Convention and Nagoya Protocol  (“derivative”?)  Examples: benefits arising from certain new anti-cancer drug, new plant variety, new vaccine, new pesticide (if a qualifying genetic resource was used) |
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