# Annexure E: Proposed Table of Contents – Book Chapter

Title: To be confirmed

1. Trends and an Emerging Culture of Data Sharing, Publication and Citation
   1. Research Infrastructures
   2. Permanent Identifiers and Linked Open Data
   3. Free and Open Data: Licensing and Policy
   4. Data Citation and Publication
   5. Citizen Science, Crowdsourcing, and Proliferating Sensors
   6. Roles and Responsibilities
2. The Network of the Future
   1. A Vision for Future Data
   2. The Role of Standards and Specifications
   3. A Scalable, Interoperable Architecture
3. Scope of Biodiversity Observation
   1. Essential Biodiversity Variables
   2. Important Entities, Relationships, and Properties
      1. Species and Genomes
      2. Specimens, Samples and Occurrence
      3. Traits
      4. Ecosystem Structure
      5. Interdependencies
4. Domain-Specific Best Practice
   1. Scales of Observation and Aggregation
      1. Appropriate Scales of Observation in Support of EBVs
   2. Protocols for Observation
      1. Methodology
      2. Provenance
      3. Special Case: Citizen Science
   3. Data, Services, and Supporting Standards
      1. Data Families
      2. Applicable Services, Content, Catalogue, and Meta-Data Standards
      3. Overview of Compliant Software and Services
   4. The Role of Vocabularies, Thesauri, and Ontologies
   5. Distributed Processing, Workflow, and Automation
   6. Non-Standard Data Challenges
   7. Data Curation and Preservation
   8. Quality Metrics and Annotation
5. Real Use Cases
   1. The GEO BON Interoperability Use Case
      1. Integrating GEOSS and GEO Common Infrastructure
   2. The GBIF Workflow Use Case
      1. Intelligent normalization
6. Challenges, Research Questions, and Gaps
   1. Development of Extended Standards
   2. Long-Term Access and Funding Models
   3. Dealing with ‘Big Data’

It is envisaged that the chapter will be supplemented by a number of online resources, which may include the following:

1. A number of case studies, reinforcing best practice and illustrating the benefit derived from standards. Several initiatives have informally expressed an interest in contributing material for this (ASEAN, Latin America).
2. Detailed ‘How-To’ guides obtained from practitioners in respect of standards implementation.

Open Questions/ Ideas:

GEOSS Common Infrastructure –

1. Mine the CGI Registry for inputs (best practice, …)
2. Fill the gaps in respect of component and service registration
3. GEO-BON Profile of CGI

Engagement with other workgroups – review drafts against our processes, matrices, etc. – ask Michele

Link in one of the earlier chapters – editor? Bob?