



Linking the Access and Benefit-Sharing Clearing House and the Global Catalogue for Microorganisms

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Why do we wish to link the ABSCH and GCM?

- To provide legal certainty to microbiologists and other users
 - Link to permit or equivalent issued by providing country
 - Custodians of Culture Collections and users of those collections can know that the material was obtained legally
- To assist Competent National Authorities in Providing Countries discover what has happened to genetic resources accessed in their country

What are we trying to link to in the ABSCH?

- In the ABSCH there are two relevant National Records that allow a link to external information:
 - *Internationally-Recognised Certificates of Compliance*
 - The record published by a Competent National Authority in the Providing Country by submission of a permit (or equivalent) covering the collection of the Genetic Resource *in situ*.
 - *Checkpoint Communiqués*
 - The record published by a Checkpoint in the user country reporting the Utilization of a Genetic Resource
- Both these forms have fields that can link to an external resource:
 - Specimen data
 - Taxonomy
 - Geographic coordinates where accessed

What are we trying to link to in the ABSCH?

Options to link to external data from IRCC on ABSCH:

- Specimen data
 - Link to a URL providing information about a specimen.
- Taxonomy
 - Link to a URL providing information about a name (e.g. Catalogue of Life, GBIF)
- Geographic coordinates where accessed
 - Link to a geojson file

On Checkpoint Communiqué currently only available if IRCC number not provided to Checkpoint.

Of the three fields above the first seems closest to link to a microbiological strain.

This will be a test case for the ABSCH facility to link externally



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Subject-matter or genetic resources covered by the permit or its equivalent *

Please provide information on the subject matter or genetic resources covered by the permit. This could include biota at any taxonomic rank, which may carry a taxonomic name. It may also include a locality of collection of the material. It may also be possible to identify the genetic resource through reference to a voucher specimen or field notes held in an identified archive or collection.

test animal matter species name etc etc

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Providing details about the subject matter or genetic resource covered by the permit or its equivalent can provide additional legal certainty.

Specimen data

Link to a voucher specimen held in an appropriate facility

[just a random link](#)



Add link

Taxonomy

Link to record in external taxonomy database, e.g. GBIF, Catalogue of Life

[another random link](#)



Add link

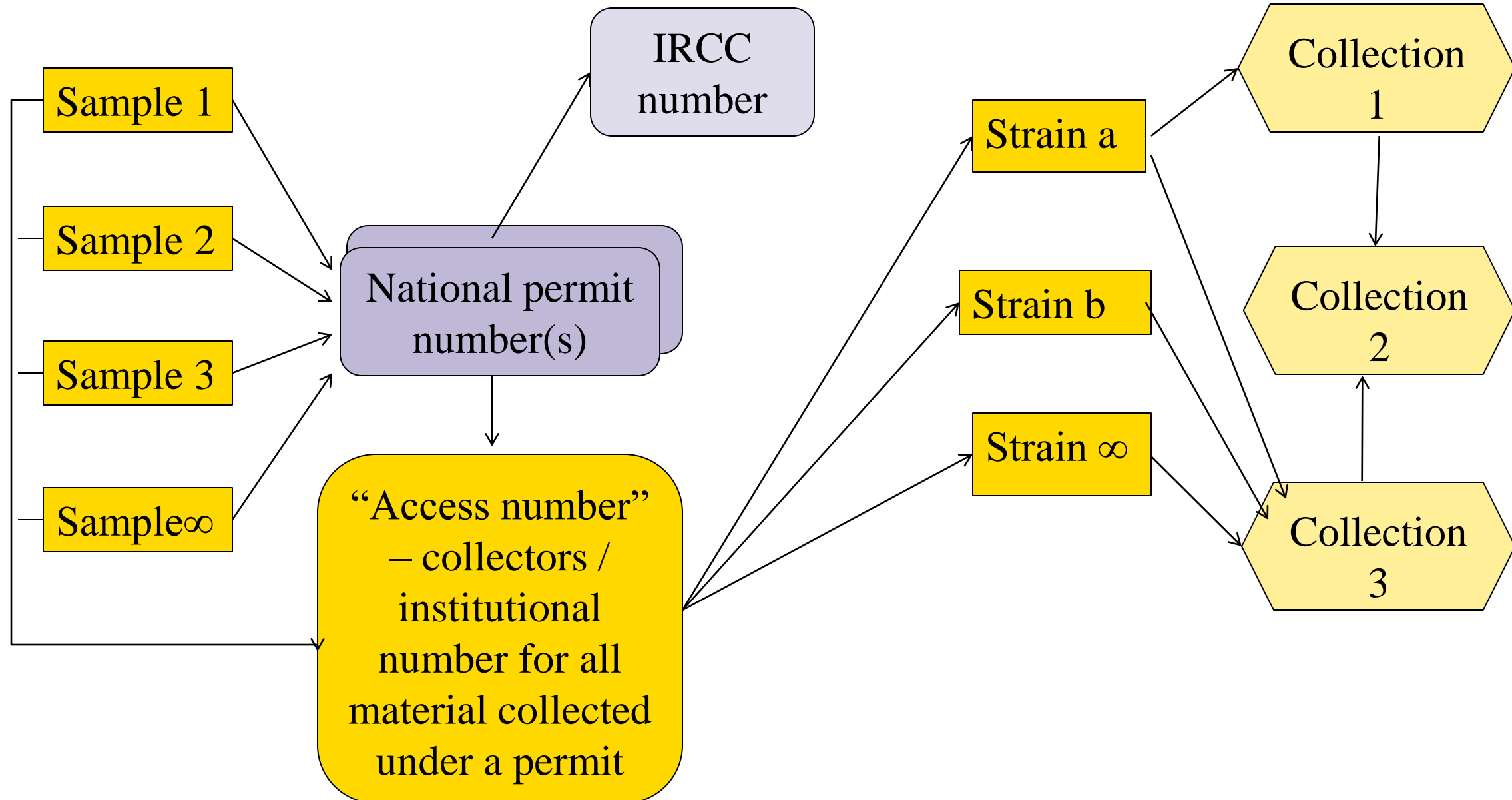
Issues to address

- There is a single field for the external link, while a single IRCC may cover hundreds of different strains accessed under the same permit or equivalent
 - CBD Secretariat to consider
- GCM must provide a link to the record in a form that is simple for the CNA to include in the IRCC (i.e. not a GUID but a URL)
- IRCC likely to be generated before strains have
 - (i) been isolated from the samples,
 - (ii) been identified and accessed into a culture collection and
 - (iii) A strain-level GUID issued by the GCM
- IRCC is completed by the CNA, who must make any additions / emendations
 - Unclear if an emended IRCC has the same link as the original (i.e. would a link to the original from the GCM still work?)

Issues to address

- Desirable properties of a system are:
 - Low cost
 - rapid
 - requires minimal human intervention and activity;
 - reduces risk of error through transcription;
 - provides high legal surety for users of a strain;
 - provides comprehensive information for the CNA on what has happened to material that has left the country, based on simple queries;
 - provides a model for other systems.

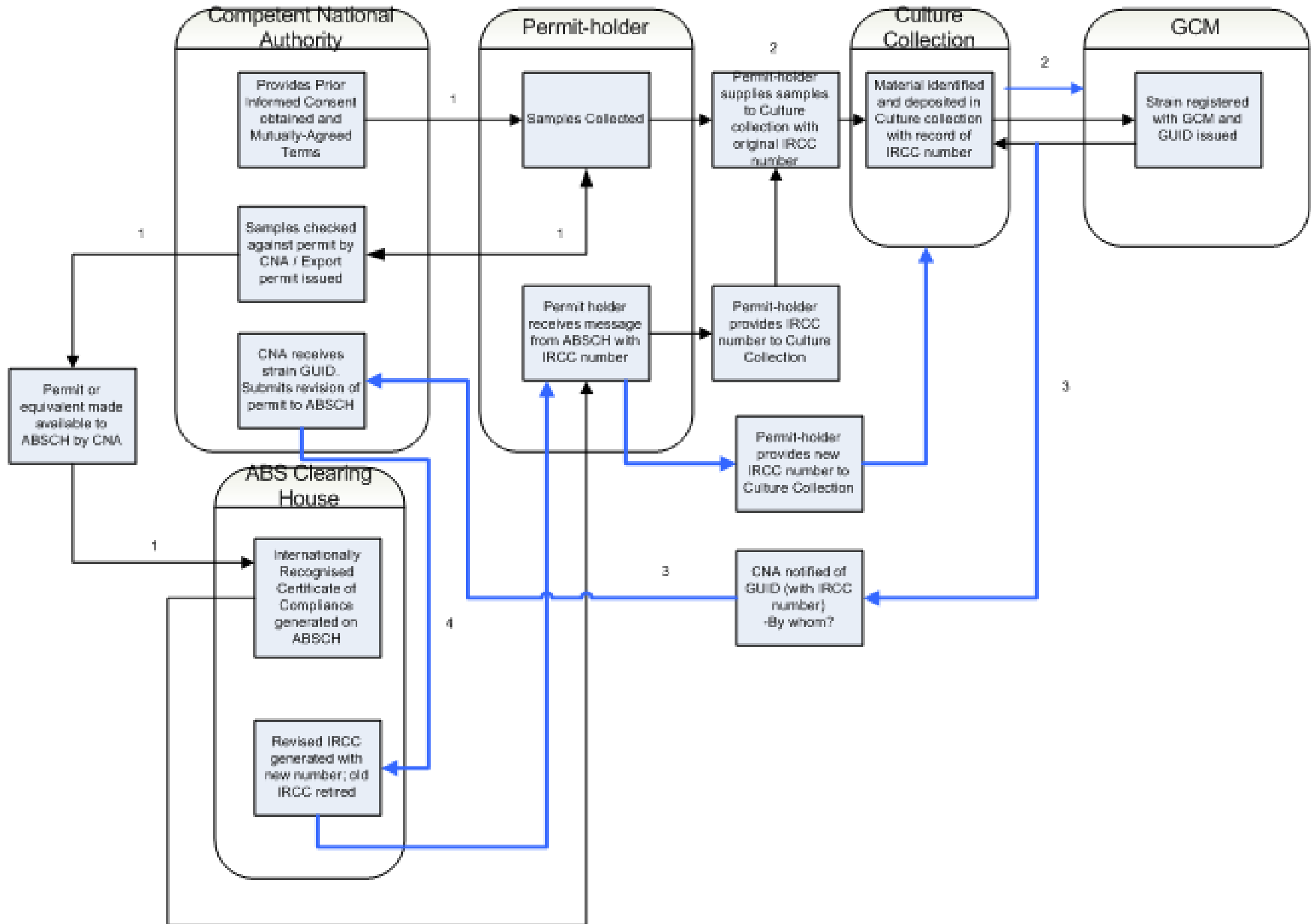
Unique identifiers may be applied to



Option 1: Competent National Authority notified of GUIDs once issued by the GCM

1. Competent National Authority submits a permit to the ABSCH
 - ABSCH generates IRCC with a blank field for the link to the GCM
2. Organisms collected identified and deposited in registered culture collection
 - Culture collection provides GCM with information
3. Record (with GUID) generated by the Global Catalogue of Microorganisms (GCM);
 - sent to the CNA of the providing country
4. CNA generates new IRCC, linked to the original, which is then retired
5. GCM includes a link to the IRCC with the record of the strain

Option 1: Competent National Authority notified of GUIDs once issued by the GCM



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Advantages:

- Conceptually simple

Issues:

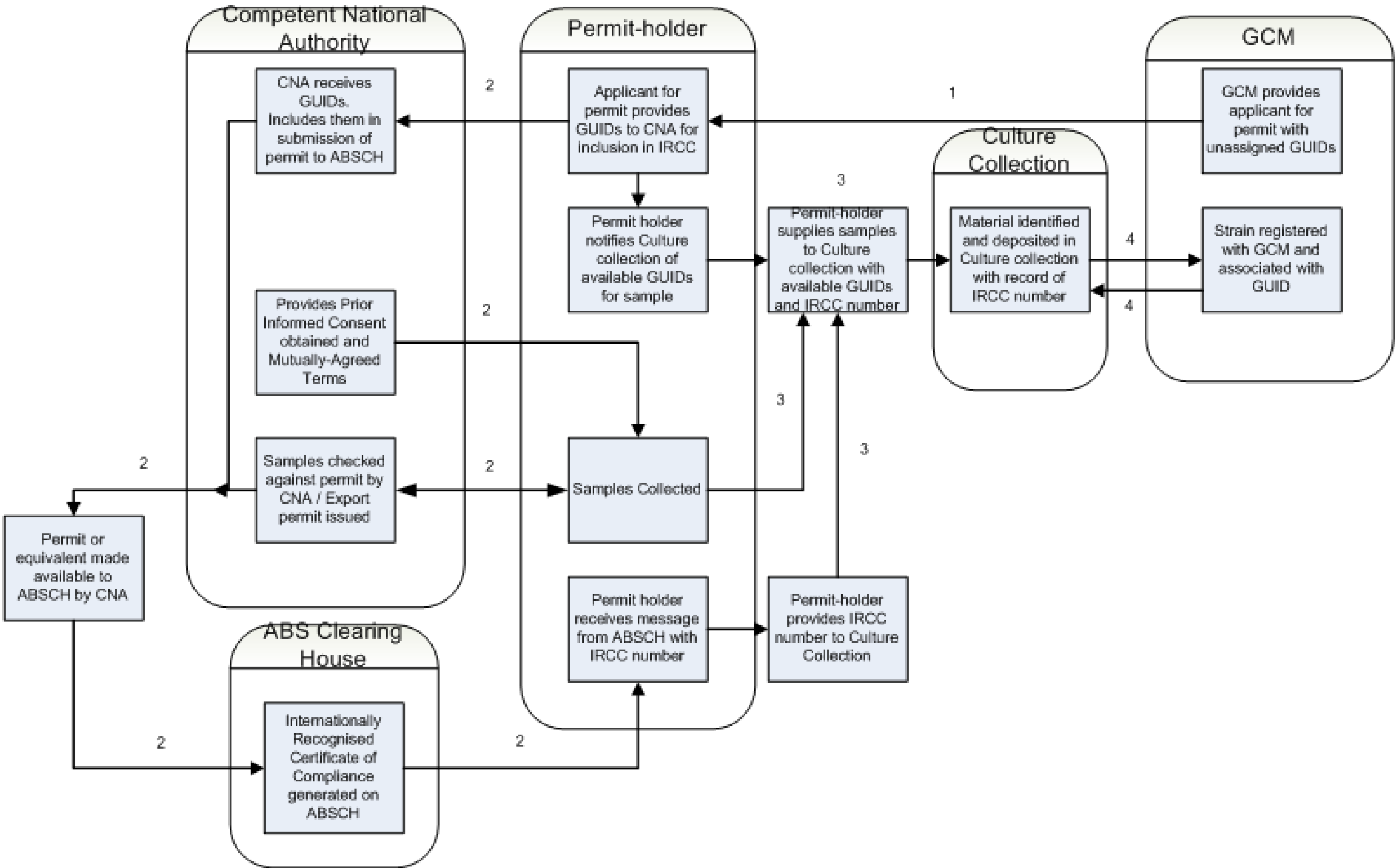
- Link from the GCN to the original IRCC must also link to its replacement on the ABSCH [to be discussed with SCBD]
- Any link in the culture collection database to the original IRCC must also link to its replacement on the ABSCH [to be discussed with SCBD]
- A means of notifying the CNA of the record in the GCM needs to be developed, ideally automated.
- Disadvantages:
 - CNAs may not have capacity to enter the new information -> incomplete record linkage
 - May be multiple strains and thus records issued over time, each one requiring an amended IRCC

Option 2: pre-issue of GUIDs by the GCM

Proposal:

1. Set of GUIDs given to applicant (permit-holder) by GCM
2. Competent National Authority submits a permit to the ABSCH, including GUIDS
 - ABSCH generates IRCC populated with GUIDS, although these do not link to any populated records in the GCM
3. When organisms are identified and deposited to a registered culture collection, the permit holder provides the IRCC number and a GUID from the originals supplied by the GCM on the accession form.
4. The information is provided by the Culture Collection to the GCM, which populates the empty record of the relevant GUID.
5. The GCM includes a link to the IRCC with the record of the strain

Option 2: pre-issue of GUIDs by the GCM



Option 2: pre-issue of GUIDs by the GCM

Advantages:

- No requirement for CNA to edit IRCCs once issued

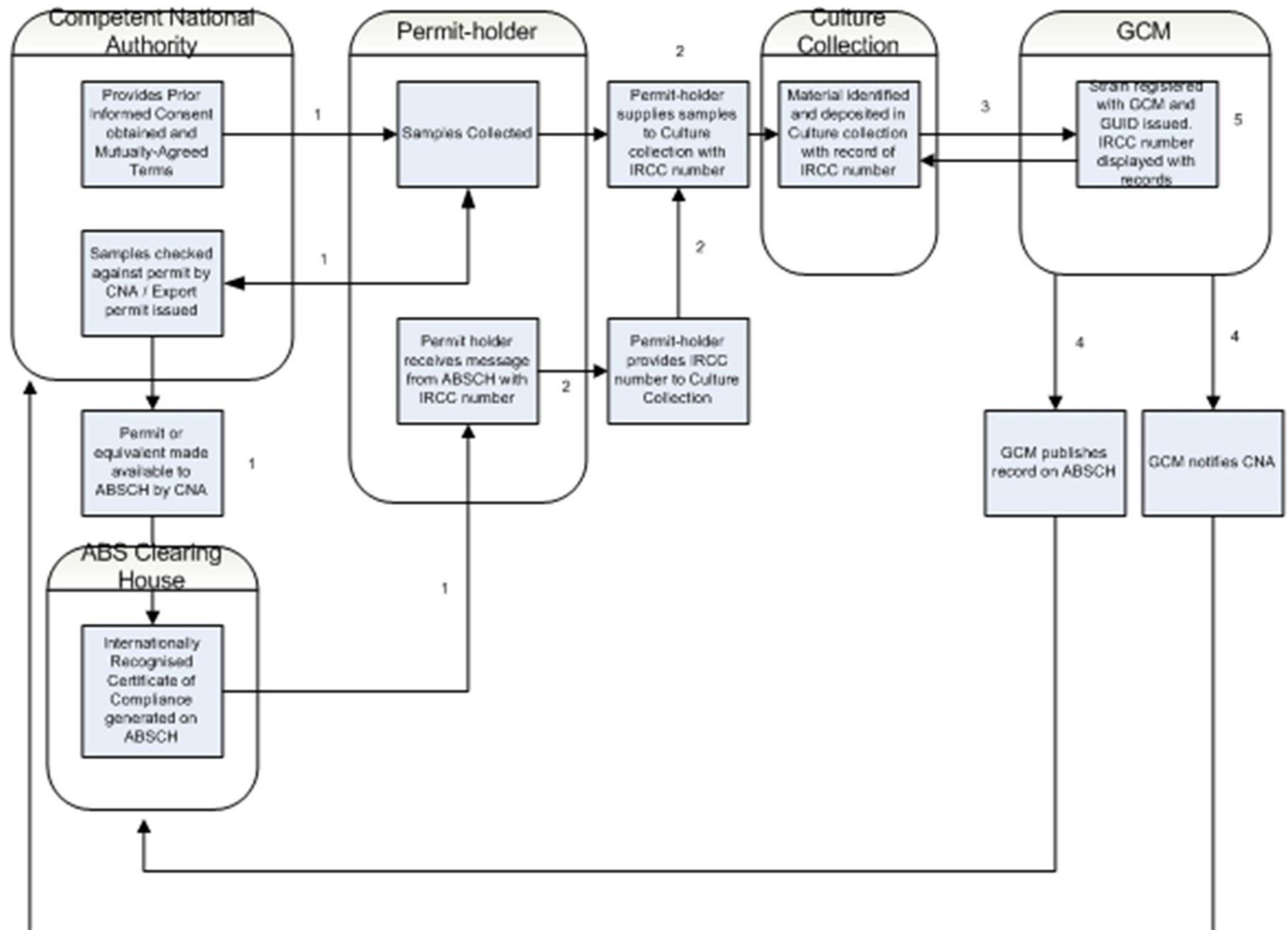
Issues:

- GUIDs cannot be resolved, so persistent URI would be needed
- Many GUIDs issued by the GCM will never be associated with strains, and thus never used.
- Many GUIDs on IRCC may not link to a record on the GCM, creating confusion [to address this might have a return from GCM stating “GUID not assigned to strain”]
- Requires change in modality of GCM

Option 3: using the GCM as the de facto search system

1. Competent National Authority submits a permit to the ABSCH,
 - ABSCH generates IRCC
2. When organisms identified and deposited in a registered culture collection, an IRCC number is provided by the permit-holder on the accession form.
3. When organisms are identified and deposited in a registered culture collection, a GUID is generated by the GCM.
4. The GCM sends the information to the CNA with the IRCC number as a courtesy; the CNA may or may not update the IRCC
 - GCM also published the information on the ABSCH as a Virtual Library Record
5. The GCM includes the IRCC number with the record of the strain, and develops a search facility for the IRCC (which when found can link to the ABSCH and the strain(s)).

Option 3: using the GCM as the de facto search system



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Advantages:

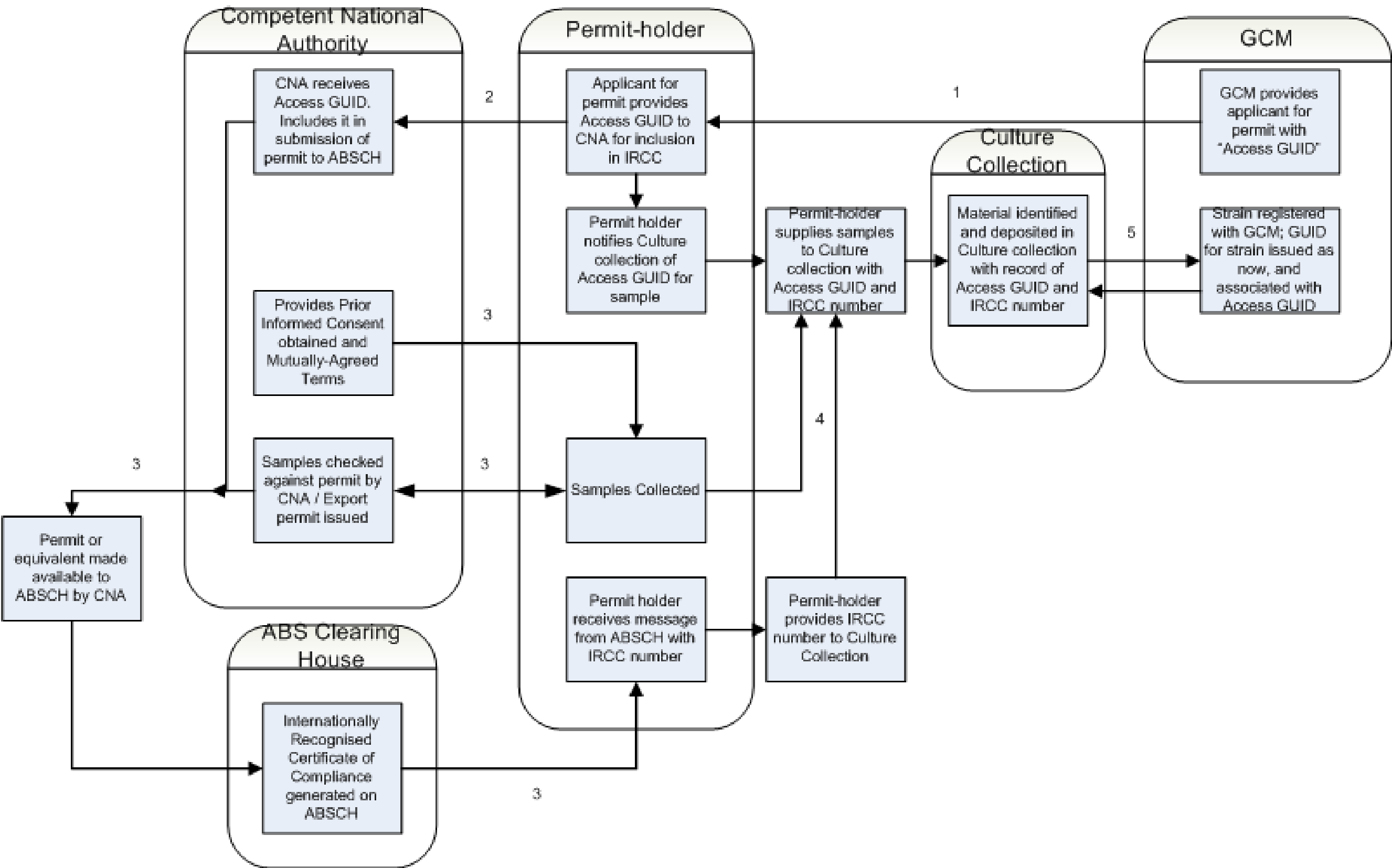
- No requirement for CNA to edit IRCCs once issued
- CNAs can check details when provided by GCM if so desired
- Simplest system

Issues:

- Requires change in modality of GCM, to allow searches using the IRCC number
- Current organisation of Virtual Library records on the ABSCH is not conducive for a search as would be needed

Option 4: the Access Record

1. GCM issues an “Access GUID” to the permit seeker. This links to a record of the collector and the country being visited – few data are required.
2. The permit seeker provides this GUID to the CNA when applying for the permit.
3. Competent National Authority submits a permit to the ABSCH,
 - ABSCH generates IRCC
4. When the permit-holder deposits samples in the Culture Collection, he also provides the IRCC number and the Access GUID.
5. When organisms are identified and deposited in a registered culture collection, the IRCC number and Access GUID is supplied to the GCM. A strain-level GUID is generated by GCM, and associated with the Access GUID.
6. A search of the GCM for the Access GUID delivers a report of all the strain GUIDs associated with it, and thus covered by the IRCC.



Option 4: the Access GUID

Advantages:

- This may have the fewest opportunities for error, and provide greatest surety.

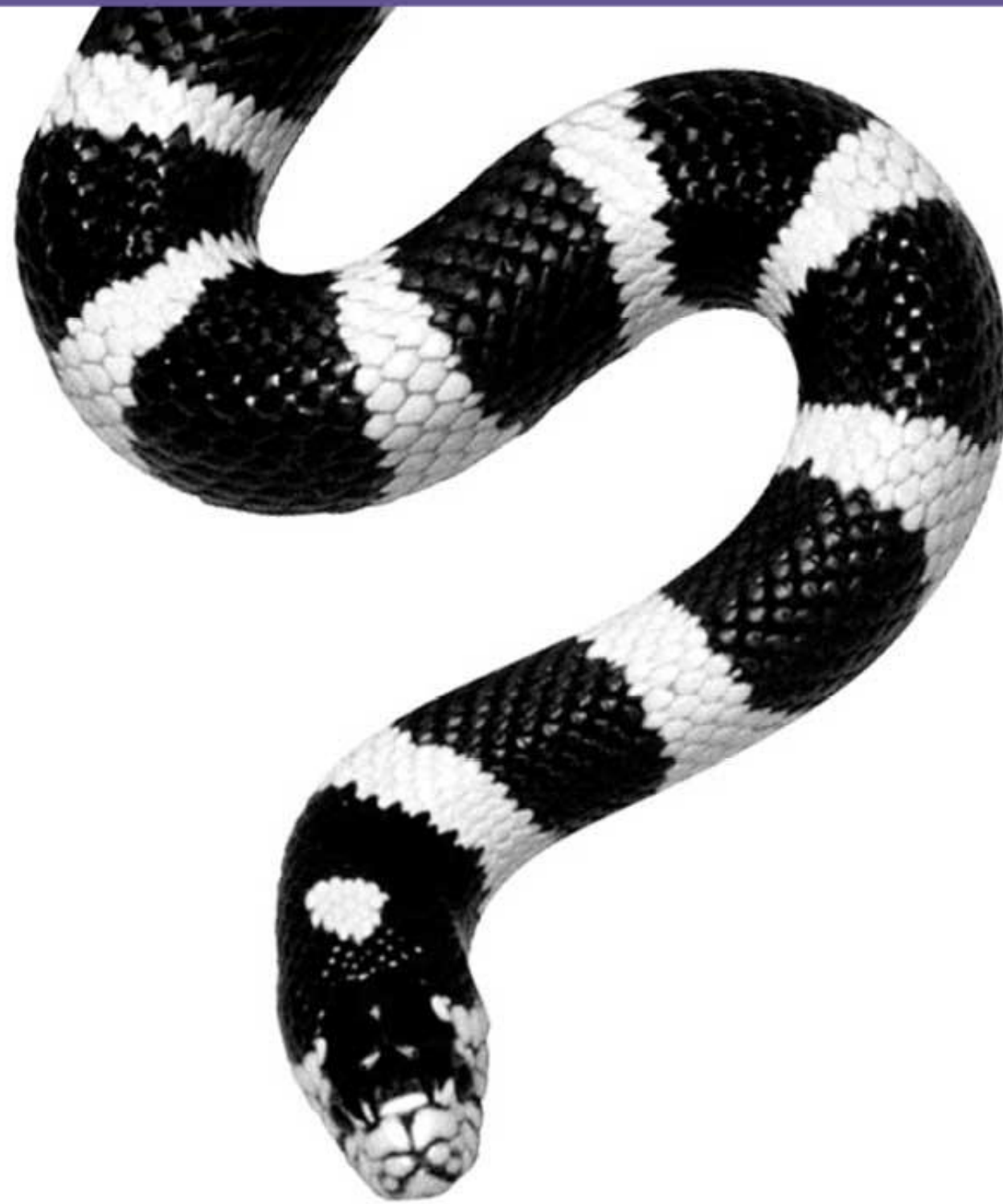
Issues:

- Requires change in modality of the GCM to develop a novel type of GUID and associate it with the strain GUIDs when they are generated. It will also have to develop a novel search system.

Summary

- If anything is provided to the ABSCH it needs to be a persistent link to one or more records, not simply a GUID, unless a dedicated field is used on the ABSCH with an API from the GCM.
- The ABSCH must accommodate multiple records, unless the Access Record model is chosen
- The GCM may act as a *de facto* Checkpoint for deposition of strains;
 - possibility to develop automated Checkpoint Communique for this non-national body?
 - There is a great deal of potentially valuable information on the ABSCH – can we find means of accessing that directly through the GCM using an API from the ABSCH?

Questions?





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