Special Event on Genomics Information

Genomic information: technological & institutional dimensions

Scoping study: Opportunities for benefit sharing

Eric Welch, Arizona State University

Margo Bagley, Emory University
Todd Kuiken, North Carolina State University
Selim Louafi, CIRAD

EMORY

 LAW







Outline

- Benefit sharing context
 - ➤ General interviewee feedback
 - Sources of value
 - Modes of infrastructure
- Benefit sharing examples
- Potential lessons from study

General interviewee feedback

- Viability of Pooling of Benefits
 - > Pooling as a viable mechanism to thinking about benefits
 - Difficulty of monitoring, linking provenance to outputs, distributed beneficiaries
 - Pooling as a recognized research practice
 - ➤ Distributed value of data and information hard to link contribution with outcome and benefit
 - ➤ The value is in pooling value from sharing and increasing contribution

Sources of value

- Diverse perspectives on value of DSI and research in synthetic biology
 - Innovation and accelerated breeding
 - Understanding sequence and part functionality
 - Plant system understanding
 - Education and exploration
- None of the interviewees reported that monetary benefits had already been shared with providers

Modes of infrastructure

- High entry cost
 - Significant gaps physical and human capital
 - Approach: new facilities and equipment, institutional relationships, curriculum, short term training, etc.
- Low entry cost
 - Bottom-up perspective
 - Approach: Education, exploration, innovation, competition
- ☐ Flexible design, technology and goal dependent
 - Continuum, initial infrastructure & goal dependent
 - What different capacity building efforts can be established and sustained to maximize research engagement?

1. Linking benefits to DSI access

- ex ante ABS agreements Pandemic Influenza preparedness (PIP - WHO) make vaccines available to provider countries in return for sharing genetic sequence data for disease prevention
- ex ante monetary benefits sharing for investment in technical and analytical capacity in-country
- Flexible investment model clinics for analysis and processing of samples.
- Easier to accomplish when genetic resource is clear, transfer is obvious, key players identified

2. Grant based funding

- Model 1: Hard infrastructure combined with longterm investment in training (traditional capacity building approach)
- Model 2: Local problem oriented approach low or flexible infrastructure; contingent resource needs.
- Possible approaches:
 - One window in call for proposals under the benefitsharing fund to invest in centers for analysis
 - Partnering with national or regional funding agencies for investment in buildings and equipment

3. Facilitated Access

- Recognized value of 'open access' (journals & DSI)
- Formalized access through institutional design
 - Formal mechanisms to build an open repository of sequences, 'parts' and information. Parts as technologies for transfer.
 - Designed as resource to attract / engage plant scientists to develop a community of researchers.
 - Orientation toward balancing public contribution and opportunity for obtaining intellectual property rights.
- But...access is capacity dependent; ...limited consideration of equity and fairness across different levels of capacity;
- Potential in designing mechanisms with existing actors for better inclusion of equity considerations for access.

4. Research collaboration

- Collaboration can contribute to facilitated access, information sharing, capacity development and technology transfer.
- Model 1. Traditional science collaboration often driven by research priorities of higher income countries.
- Model 2. Emergent technology collaboration research challenges to encourage exploratory investigation and innovation.
- ☐ Criticality of 'local' research questions, flexible infrastructure approach.

5. Education and training

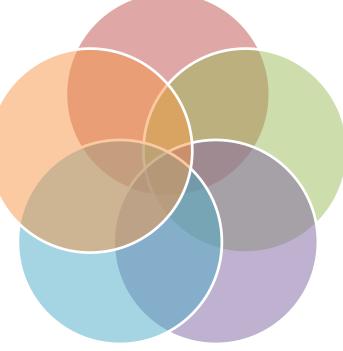
- Traditional approaches
 - In country training: expert visits; short-term training
 - Out-country training: longer term stays in universities or research institutes
- New models:
 - Challenges example of iGEM kits for low infrastructure, group exploration and innovation, usually young people

Summary

Ongoing technology & institutional assessment

Clarify problems and infrastructure needs

Identify alternative sources of value



Develop array of benefit sharing options

Establish new partners & resource streams

Special Event on Genomics Information

Genomic information: technological & institutional dimensions

Thank you!

Opportunities for benefit sharing

Eric Welch, Arizona State University
Margo Bagley, Emory University
Todd Kuiken, North Carolina State University
Selim Louafi, CIRAD







