



The BIOCAP Model:

building a 'network of networks' to develop biosphere solutions to climate change

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Building Partnerships for Climate Change Solutions



The miracles of science™





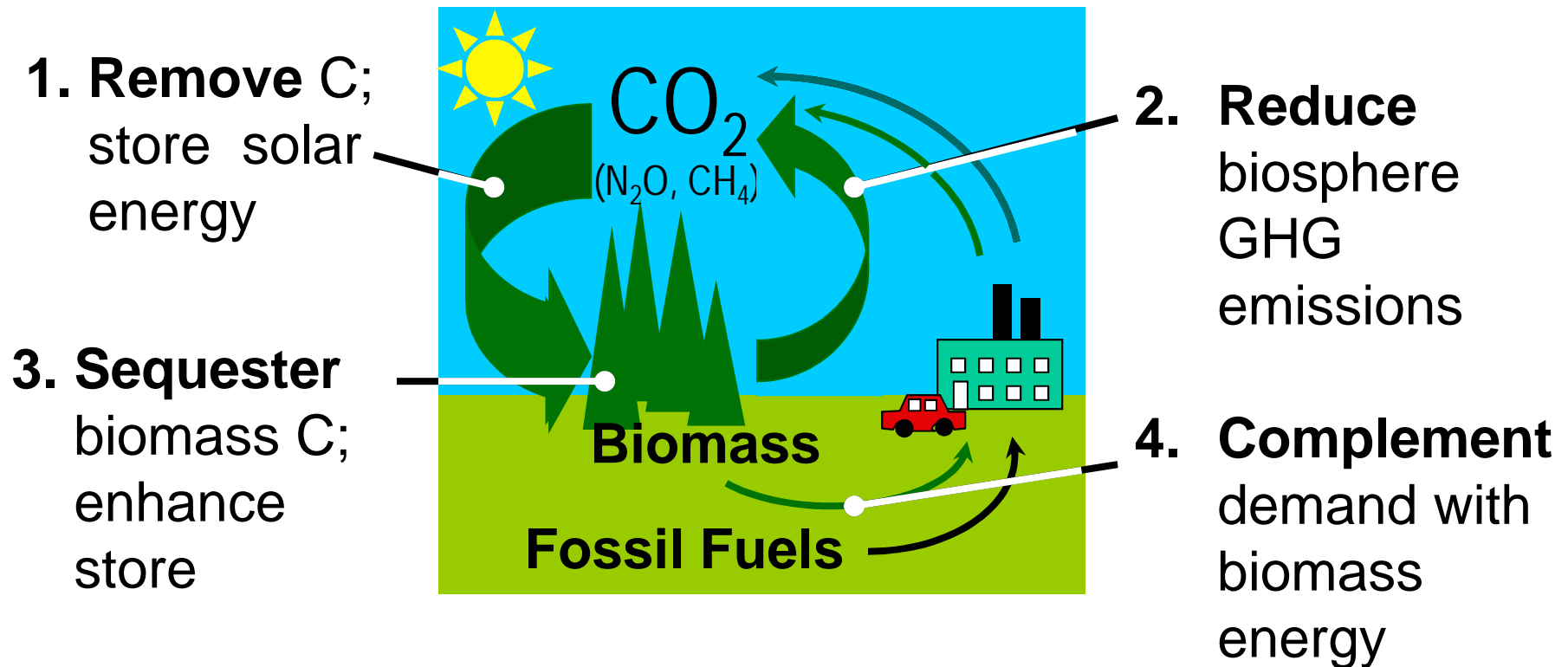
BIOCAP Canada Foundation

- National, not-for-profit research organization;
- **Mandate:** “To harness Canada’s **university research** to explore **biosphere solutions to climate change** and greenhouse gas management.”
- **1998** - concept developed at Queen’s University;
- **1999** - founding sponsors: TransAlta, Suncor, Shell, Prov.Ontario;
- **Today:** unique multi-sector partnership involving companies/ industry assoc’ns, provinces, federal depts, NGOs;
- **2001-6:** federal contribution agreement: \$2M/yr + ind./prov. \$

Building Partnerships for Climate Change Solutions



Managing biosphere C: foundation for a bio-economy

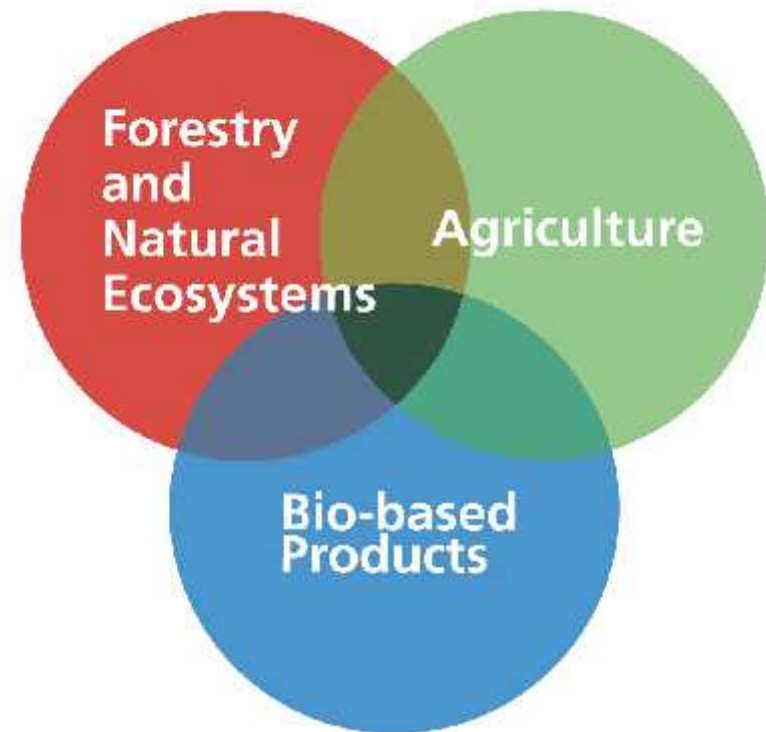


An Integrated Environmental Technology:

- *manage biosphere C cycle to enhance GHG removal and solar trapping (while addressing other econ, environ & social values);*
- *put an 'energy flywheel' on the biosphere C cycle.*

The BIOCAP Strategy

- BIOCAP coordinates, funds and communicates university research on biosphere solutions to climate change;
- Building a **‘Network of Networks’** in three strategic bio-research areas... *with full integration of the “human dimensions”*...



...communication of the insights to policy makers and the public



Why Networks?

- ***Coordinate national research effort:***
 - Minimize duplication of effort
 - Build pool of public information and insights
 - Standardize tools / datasets for scaling and modeling (e.g. national inventories)
- ***Encourage multi-sector and multi-disciplinary research efforts:***
 - Integrate the fundamental and applied sciences
 - Generate new synergies, ideas, technologies
 - Complete 'Innovation Chain' (from science to application)
- ***Improved access to funding:***
 - Must show 'benefit of the network model'

Each peer reviewed network has its own management structure



Establishing a Research Network

- ***Networks must address BIOCAP's Goals***
 - Remove, sequester, complement
- ***Strong and respected research leadership***
 - Overall Lead and Theme Leaders
- ***Research community must 'own' initiative***
 - Adjust their research to fit national need
- ***Attract support and involvement of users***
 - Government, industry, environmental NGOs
- ❖ ***Successful, independent peer review by other agencies***
 - NSERC, CFCAS, SSHRC, NCEs, CFI, etc



BIOCAP Approach for Ensuring Excellence

- Research themes and individual projects chosen on the recommendation of the **Research and Development Advisory Committee (RDAC)** and the **Research Overview Committee (ROC)**
- **Special projects** target specific immediate needs:
 - Industry Canada – Biomass Inventory
 - CARC – Assessment of Opportunities and Challenges
 - CARC – Beneficial Management Practices



BIOCAP 'Network of Networks'

Investments since 2002 (as of Jly '04)
Established and Emerging Networks

Sustainable Forest Management NCE
(GHG Mgmt initiative)
\$1.26M for 2003-7

Fluxnet Canada
(Forest C Cycle)
\$11.6M for 2002-7

GHG Mgmt Canada:
A BIOCAP-SSHRC Human
Dimensions Network
\$3.4M for 2002-7

**Microbial Bioenergy
Technology Network**
(~\$100K for 2003-6)

**Aquatic Systems & Climate
Change Network** (~\$261K)

**Afforestation & Biomass
Crops** (~\$460K)

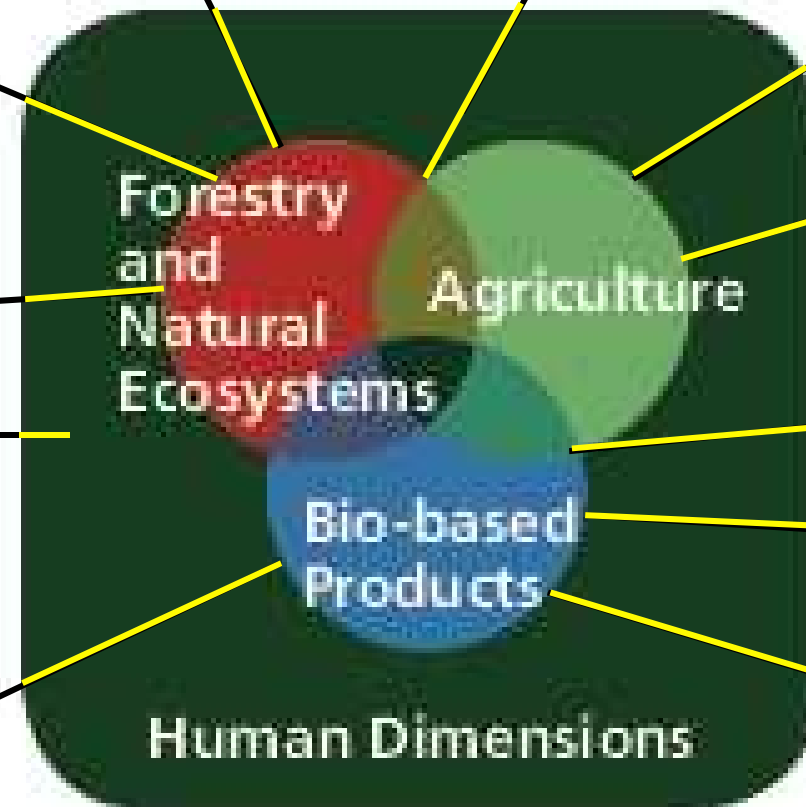
**Animal Prod'n &
Manure Mgmt**
(~\$50K)

**Landscape Scale
Cropping Systems**
(\$1.25M for 2003-6)

Green Crop
(\$466K for 2003-6)

**Green Synthesis
Network**
(\$1.36M for 2003-7)

Auto21 NCE
(bio-fuel initiative)



**The
BIOCAP
Role:**

- Understand needs of stakeholders;
- Advocate for research;
- Coordinate & facilitate network building;
- Support, fund univ. researchers in applic'ns to peer-review agencies;
- Translate, Integrate and Communicate research results

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.



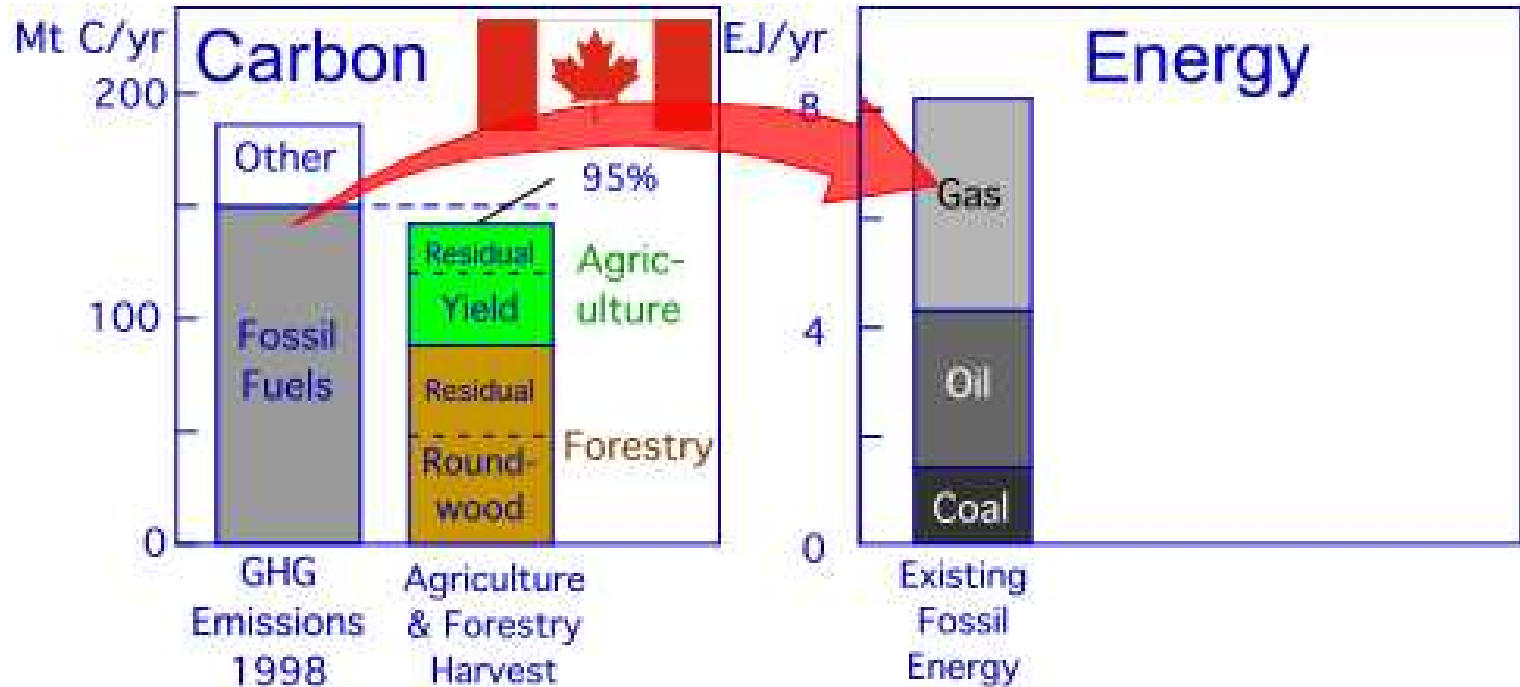
Emerging Research Results Influence Policy Decisions

Identification and communication of opportunities leads to real benefits for Canadians...targeting the potential of bioenergy....

- Early assessment of biomass production from forest and agricultural waste suggest a possible biomass resource for bioenergy production
- Engage Industry Canada for in depth assessment of biomass sources in Canada, and potential use; development of a Biomass Inventory



Comparing Fossil and Biomass Carbon and Energy

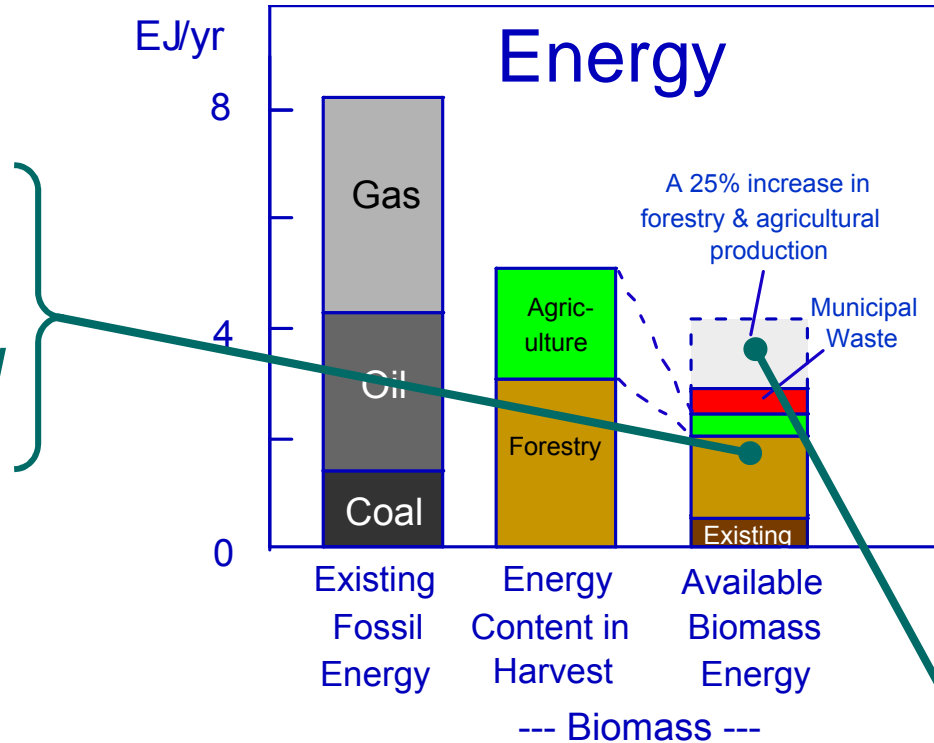


Forestry and agriculture provide food, feed & fibre PLUS a large waste C stream. We can use the waste C and new production to fuel a new bio-economy.

Biomass and Canada's Energy Needs

Note:

- *Residual biomass could provide ~25% of energy now obtained from fossil fuels.*



- *A 25% increase in agriculture & forestry production could provide an additional 16%.*



Directives to Policy Makers

- Canada has a 'Green Advantage';
- We have a large waste C stream that can be used now;
- Increasing biosphere C stocks will offset fossil fuel GHG emissions while building our bio-energy resource;
- Research is needed:
 - Technology development;
 - Life cycle analysis;
 - Implementation strategies

Biomass energy has immediate and substantial potential



Into the Future

- BIOCAP continues to share research findings and interpretations with policy makers

- BIOCAP National Conference

Capturing Canada's Green Advantage:

Biosphere Solutions for Climate Change and the Economy

Feb. 2&3, 2005 Ottawa, Canada

- BIOCAP seeks long term funding



For Further Information

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