Building Collaborative Research Success: Update to Senate on U of S Centres

– Karen Chad, Vice-President Research
What are Centres/Institutes?

- A cluster of faculty who collaborate on a research area
- Close to 70 research centres across campus
- Wide-ranging – from crop development to process philosophy research
- All accountable to a Dean or VP
- Centres policy created in 1997, revised in 2003
Why Create Centres/Institutes?

- Explore cutting-edge research as befits a U15 research intensive university
- Add value beyond individual research programs
- Provide novel and unique student training opportunities
- Enhance knowledge transfer and exchange, as well as partnerships with communities, industry, government
- Provide valuable resources to meet community needs
Types of Centres

- **Type A:**
  - Part of a college; report to a Dean
  - Do not involve substantial resources
  - Responsibility for funding rests with the college
  - *e.g.* Interdisciplinary Centre for Culture and Creativity

- **Type B:**
  - Activities extend beyond scope of a single college
  - Usually involve significant resources; report to a VP
  - Organizationally part of the University and subject to University management and control
  - *e.g.* Canadian Centre for Health and Safety in Agriculture
Types of Centres (cont’d)

- **Type C:**
  - Incorporated and legally distinct from the University
  - Have academic/research implications for University
  - Accountable to U of S Board of Governors
  - *e.g.* Canadian Light Source (synchrotron)

- **Type D:**
  - Legally incorporated entities
  - Established to promote University’s best interests
  - Not engaged in academic affairs
  - *e.g.* Canadian Eco-Toxicological Environmental Services (CETES)
U of S Centres and Institutes

Some highlights...
Global Institute for Water Security (GIWS)

- Builds on existing U of S expertise:
  - More than 70 faculty and government scientists and 50 students
  - Water security is a U of S signature area of research
Global Institute for Water Security (cont’d)

- $30-million, joint federal-provincial-university commitment (Canada Excellence Research Chair)

- Co-located with Environment Canada’s National Hydrology Centre at Innovation Place

- Led by Dr. Howard Wheater, one of world’s foremost hydrologists
Global Institute for Water Security (cont’d)

- Understand how *climate change, land management practices*, and *natural resources development* affect our water environment
- Develop modeling tools to sustainably manage water
- Links science to policy to help protect and manage resources
Global Institute for Water Security (cont’d)

- New areas:
  - Socio-hydrology
  - Water and Health

- SK River Basin Observatory
  - $2M CFI-funded

- Environmental change across Western Canada
  - $24M in-kind and $5M NSERC
  - 36 Canadian and 15 international collaborators
GIWS (cont’d) – SK River Basin Project

[Map showing the SK River Basin Project with key locations and features marked.]
Global Institute for Water Security (cont’d)

Diverse geographic research locations

Prairie Research Site—Smith Creek

Rocky Mountain Research Basin—Marmot Creek

Boreal Forest Research Site

www.usask.ca/research
Sylvia Fedoruk Canadian Centre for Nuclear Innovation (Fedoruk Centre)

Research and training in four areas:

- Medicine
- Materials
- Energy
- Environment
Fedoruk Centre (cont’d)

Highlights:

- First proposal call (winter 2012) – funding awarded:
  - Using medical isotopes to better assess kidney function, allowing for earlier detection and better treatment of kidney disease
  - Developing new sensors for applications ranging from medical instruments to cargo scanners
  - Taking the pulse of Saskatchewan people’s attitudes towards nuclear issues

- Second call for research projects – Winter 2013
Fedoruk Centre (cont’d)

U of S Building SK’s First Cyclotron

Cyclotron:

- Machine that produces radioisotopes used to create images of living organisms (human, animal, plant)
- Built by 2015 in renovated space near CLS
Fedoruk Centre (cont’d)

Innovations in Cyclotron Science

Cyclotron and associated lab will supply imaging agents for:

- SK’s first human PET-CT scanner
  - Improved detection, diagnosis and treatment of diseases (cancers, Alzheimer’s, Parkinson’s and MS)
- Enhanced animal health
- Better crop and plant health
- Clinical research to test new drug treatments
Saskatchewan Structural Sciences Centre

- Provides U of S and external researchers with access to state-of-the-art equipment, training and support
  - non-pesticide crop protection chemicals
  - creating new bioproducts from flax
  - breeding tools for cold-hardy wheat
  - health applications such as bacterial resistance to antibiotics
International Centre for Northern Governance and Development

- Northern-tailored graduate programs and applied research
  - e.g. feasibility study of northern greenhouses
- Partnership with northern SK stakeholders, including First Nations and Métis, industry, government, and other agencies
Indigenous Peoples’ Health Research Centre

Indigenous health research using Indigenous knowledge and practices:

- Treating people suffering from addiction
  - $1.8-million CIHR grant
- Disparities in respiratory health
  - $1.5-million CIHR grant
Community-University Institute for Social Research

- Understanding communities and opportunities for improving quality of life:
  - Homelessness and housing issues
  - Patterns of political engagement
  - Social economy and enterprises

Young trappers in northern SK training program
Understanding role and operation of co-operatives in economy and society:

- Poverty reduction
- Co-operative model in Aboriginal communities
- Small farmers and global markets
Toxicology Centre

- Explores harmful effects of chemical and physical agents on living organisms and biological systems:
  - Analytical and forensic
  - Biomedical and human
  - Veterinary and wildlife
  - Ecology and aquatic

www.usask.ca/research
SK Population Health and Evaluation Research Unit (SPHERU)

- U of S and U of R partnership
- Reducing health inequities among vulnerable populations
Indigenous Land Management Institute

- Research enabling informed policy and economic decisions on indigenous land and resource issues
Forensic Behavioural Science and Justice Studies

- Addresses critical issues of crime and justice, including operation of criminal justice system and care of offenders
  - People exiting gangs
  - Cultural programs and services for offenders
VIDO-InterVac

- World-class centre investigating infectious diseases of humans and animals and methods to control such diseases
- “One Health” is a U of S signature area
VIDO-InterVac (cont’d)

Highlights:

- Completion of $140-M International Vaccine Centre
  - Tuberculosis (TB), West Nile Virus, Anthrax, prion diseases such as BSE (Mad Cow Disease), Chronic Wasting Disease, and Avian Influenza

- Joint development of vaccine for respiratory illness with Chinese institutes

- Vaccine development in Africa
Canadian Light Source (CLS)

- Cause of heart arrhythmia discovered using X-rays at CLS
- Structure of a protein identified that stops viruses
  - Will aid in vaccines for influenza, SARS, Hepatitis C, West Nile fever and polio
Prairie Swine Centre

- Develops new science and trains highly qualified personnel to address needs of Canadian pork industry
- Multi-disciplinary solutions to reduce production costs and address animal welfare, environment, worker health and safety issues
Global Institute for Food Security (NEW!)

- Developing Saskatchewan-led solutions to feed a growing world population
Global Institute for Food Security (cont’d)

Roger Beachy

– GIFS Founding Executive Director and Chief Executive Officer

- World-renowned scientist
- Founder of world-class Danforth Plant Science Centre
- First Director, U.S. National Institute of Food and Agriculture
- Former Chief Scientist, U.S. Department of Agriculture
Global Institute for Food Security (cont’d)

- Dec. 2012 – $50M funding
  - $35M from PotashCorp and $15M from Gov’t of SK

- Aligns with U of S signature areas, including “Agriculture: Food and Bioproducts for a Sustainable Future”

- Aims to improve sustainable crops, nutrition, feeds, and value of ag co-products
Saskatoon Centre for Patient Oriented Research (SCPOR)

- Joint undertaking of U of S, Saskatoon Health Region, and Saskatchewan Cancer Agency to support clinical research
- Assisted 58 clinical researchers in more than 200 studies
Saskatoon Centre for Patient Oriented Research (cont’d)

Highlights:

- Clinical trials of new drug for severe spinal injuries
- New drug options for inflammatory bowel disease
- Family-integrated care in the neonatal intensive care unit
  - Parents participating in intensive care of newborns
Centres are...

- Critical to our success as a U15 university
- Help solve local and global challenges
- Enhance our educational and research missions
- Serve Saskatchewan communities