

G7 Environment

Universities for Sustainable Development



G7 2017
ITALIA



MINISTERO DELL'AMBIENTE
E DELLA TUTELA DEL TERRITORIO E DEL MARE

Three Dimensions of Sustainability



- Food
- Energy
- Water

Three Dimensions of Sustainability

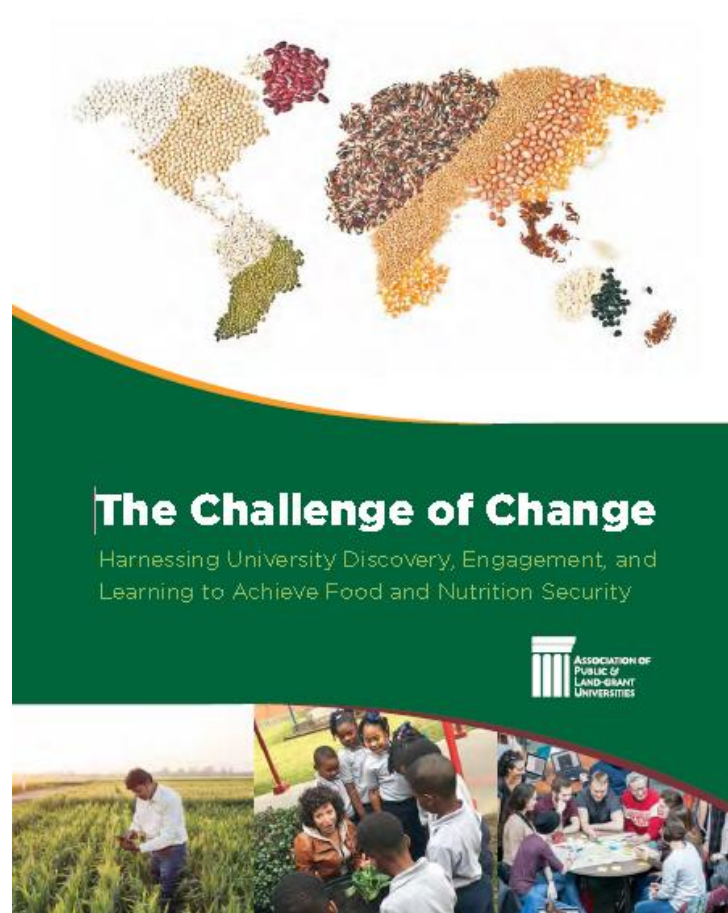


- **Food**
- Energy
- Water

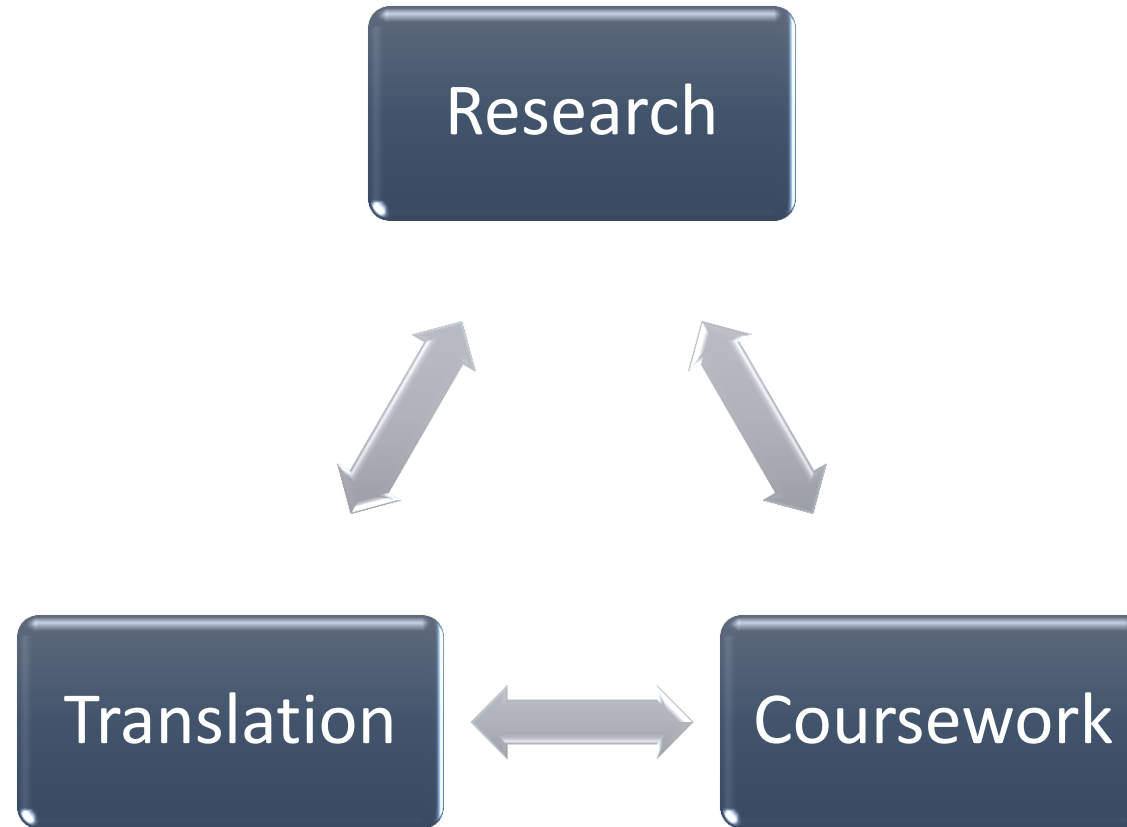
Challenge of Change – APLU, 2017

Harnessing University Discovery, Engagement, and Learning to Achieve Food and Nutrition Security

<http://www.aplu.org/library/the-challenge-of-change>



A Land Grant University Model for the 21st Century



Research begins with a relationship with the clients

- Address needs identified by knowing the client, the industry, the marketplace
- Research begins with advancing understanding of the fundamentals
- Research findings lead to practical applications



Research begins with a relationship with the clients – 2 examples

Oklahoma wheat variety development

- Unique production system – dual purpose
 - Grazing – tillering, vernalization
 - Grain – yield, quality
- Unique soils, climate
 - Nitrogen efficiency
 - Water efficiency
- Protections
 - Diseases
 - Insects
- Clients:
 - Producers
 - Millers



Research begins with a relationship with the clients – 2 examples

Reversing desertification in Ethiopia

- Tigray province (north) – Mekelle University
- Semi-arid region, hit with El Niño drought
- Mountain runoff drained rapidly, plains devoid of moisture
- University faculty established relationship with farming families
- Constructed detention ponds at base of mountain range
- Resulted in elevated aquifer in plains, > 260 wells



From a desert to 260 irrigation wells



Research that fosters entrepreneurship

Food industry – Food innovation centers, food products incubators

- Business plans
- Product testing
- Pilot plant environment
- Process training
- Market studies
- Labels, safety regulations
- Enterprise expansion
- Trade development



The screenshot shows the website for the Robert M. Kerr Food & Agricultural Products Center. The header includes the center's name and navigation links: Division Home, Extension, Research, Teaching, Academic Departments, and OSU Home. A secondary navigation bar contains social media icons (Facebook, Twitter, LinkedIn, YouTube, Google+) and a 'Join our mailing list' button. The main content area features a 'FOODSAFETY' banner with a call to action to download the 'FAPC CONNECT App Today!'. A left sidebar lists navigation options: Home, 20-Year Anniversary Celebration, About Us, Industry Advisory Committee (highlighted), Contact Us, Calendar, Events, Faculty and Staff, Services and Disciplines, and News. The main content area is titled 'Industry Advisory Committee' and includes a breadcrumb trail: 'You are here: Home / About Us / Industry Advisory Committee'. The text describes the committee's purpose and lists its members: John Patrick Lopez, Chair (Lopez Foods); Edward Clements, Vice Chair (Clements Foods Co.); Tommy Kramer, Secretary (Durant Industrial Authority); and Paul Schatte, Past Interim Chair (Head Country Food Products).



Research that fosters entrepreneurship

Bio-industry – Bio-fuels, Bio-products

- Agronomic solutions
- Logistics planning and execution
- Processing technology development and transfer
- Feeding into manufacturing value chain
- Market analysis
- Capital development



Changing culture – Campus food systems as an example

- Teaching transdisciplinary thought and action
- Addressing food waste at the system level
- Addressing food insecurity where it's hidden
- Addressing lifestyle for better health





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Outdoor Adventure



Employee Wellness

- Teaching transdisciplinary thought and action
- Addressing food waste at the system level
- Addressing food insecurity where it's hidden
- Addressing lifestyle for better health

Fitness

Group & Personal Training, Challenges, and Fun Activities



Challenge of Change conclusions

- Elevate food and nutrition security to top priority
- Align universities for transdisciplinary approach
- Enhance and build university-community partnerships
- Educate new generation to work across disciplines
- Broaden focus beyond yields
- Change food system incentives structure
- Develop capacity of universities in low-income countries
- Leverage technology, big data, information science

