Enhancing the Sustainability of Food Processors Through Efficient Use of Resources Using Learning Alliances

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Overview

1) The Learning Alliance Approach to KTT
2) The Cyclical Process of Innovation
3) Learning Alliance Model – Example of Rainwater Harvesting
4) Adopting Pollution Prevention using Learning Alliances
5) Current Project Status
6) Challenges, expectations and next steps

Learning Alliance Approach to KTT

- **Shift in perception not technology**
- Engaging the end-users in the process of innovation
- Engaging facility employees in this process results in problems relevant to the facility's environmental needs to be identified, and specific solutions will be determined

Learning Alliance Approach to KTT

- Learning alliances are organic means of knowledge generation and as such they can multiply, each tackling a specific issue/problem

- As knowledge generation is developed from the bottom up, reliance on conventional and often ineffective top-down information systems is reduced and knowledge sharing is facilitated both horizontally and vertically

- Learning alliances encourage openness and transparency and build capacity for networking

# Learning Alliances as a Model for Sustainable Innovation

Learning Alliance Model – Example of Rainwater Harvesting

- Policy and regulation changes

- New research and development projects (greywater pilot project)

- Significant media attention (CTV, Globe and Mail, Discovery Channel and CNN)

- One PhD and two Master thesis

- Formation of new companies offering RWH services

- Training of regional, national and international stakeholders

- Largely self-organized movement in RWH

Learning Alliance Approach to KTT

- Learning alliances are innovative learning platforms where many elements of KTT are embedded
- A learning alliance is a reflective approach that ensures knowledge both informs the implementation process and in turn allows it to be shaped by the experience
- The impact is to first develop a culture of learning and innovation among those participating in the learning alliances and later within the entire facility

Problem definition

Solution Identification

Reflection

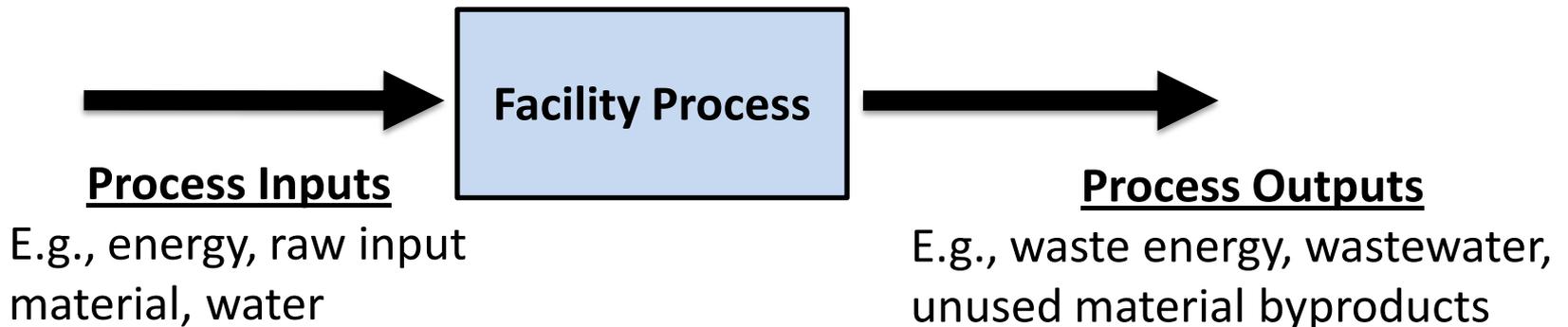Implementation
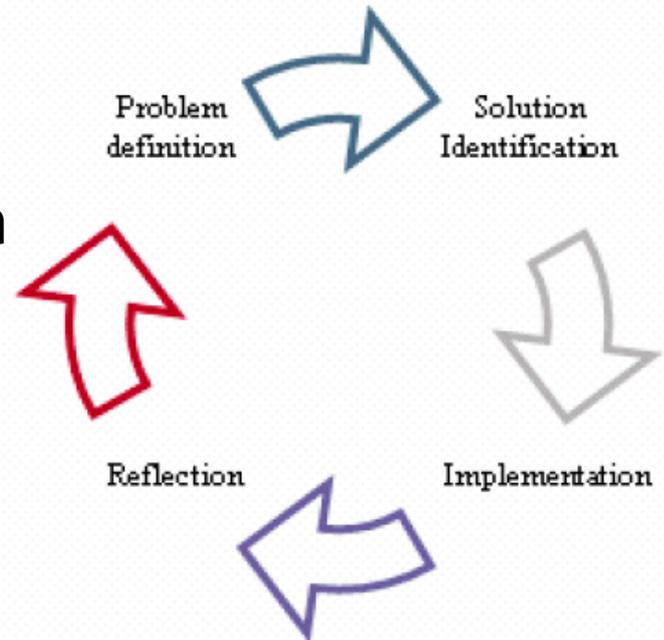
Learning Alliance Approach to KTT

- Learning alliances, similar to action or participatory research, are only meaningful in the context of an actual project

- Improving environmental performance of a facility serves as the "project" and pollution prevention as the catalyst or action component of the learning alliance

Adopting Pollution Prevention Using Learning Alliances

- **"End-of-Pipe Solution" vs. Pollution Prevention (P2)**
- Efficient use of resources is an essential pillar of pollution prevention and an effective means of reducing pollution and reducing the cost of environmental compliance
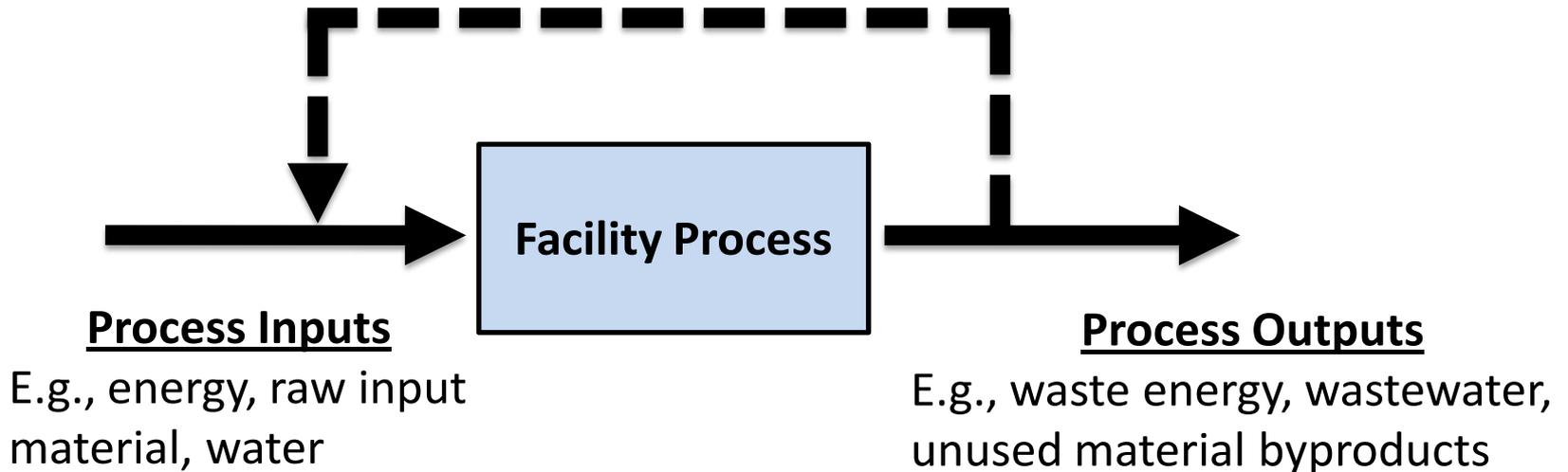
Conventional Process Flow

Facility Process

Process Inputs
E.g., energy, raw input material, water

Process Outputs
E.g., waste energy, wastewater, unused material byproducts

Pollution Prevention

Addition of Recycling/Reuse Stream

E.g., Recycled Energy, Material, Water for re-use

Facility Process

Process Inputs

E.g., energy, raw input material, water

Process Outputs

E.g., waste energy, wastewater, unused material byproducts

Benefits

- Improved environmental performance
- Cost-saving opportunities at process inputs AND outputs

Phase I – Current Project Status

- Recruitment of facilities from the Food Processing Industry
  - Dairy processing facility – ***Retained***
  - Snack food processing facility – ***Retained***
  - Other facility interest
    - Pork processing facility
    - Poultry processing facility
    - Baking facility
- Strong buy-in by facilities at the management level
  - Facilities beginning to acknowledge the need of input from lower level employees

Phase I – Current Project Status

- Interests of participating companies
  - Water and energy conservation
  - Improvement of wastewater effluent characteristics
  - Internal benchmarking of environmental performance
  - Reduction in wastewater discharged to sewer system
  - Consolidating existing environmental initiatives/projects into a single forum (i.e., institutionalize within facility)
  - Institutionalizing participation

Phase I – Next Steps

1) Identify facility personnel interested or engaged in specific areas of concern for facility (stakeholders)

   – Varying organizational levels (management, technical staff, end-users directly interacting with facility processes)

   – May require incentives to encourage employee participation

2) Establish Learning Alliance platform with identified facility personnel and UofG Research Team

   – Scheduling of regular meetings for discussing progress and challenges facing learning platform

   – Documentation of Learning Alliance

Phase I – Next Steps (cont'd)

3) Identify and set targets for areas of concern (e.g., reductions in energy, wastewater effluent, water usage, and waste sent to landfill)

   – Data collection/measurement by UofG Research Team as needed

4) Identify potential solutions and implementation strategies for cost-savings and environmental performance

   – Wide range of solutions expected from diverse perspectives of LA platform members/stakeholders

Phase I – Next Steps (cont'd)

5) Prioritize and select pollution prevention strategies
   - Involvement of UofG Research Team expertise in Pollution Prevention as needed
   - Expansion of UofG Research Team as additional expertise is required

6) Implementation of selected strategies

7) Identify means of assessing implementation and progress towards defined targets

8) Reflection on and reassessment of issues arising from implementation
   - Redefine issues in light of newly acquired knowledge

Phase I – Challenges

- Diversity of existing cultures within participating facilities

- Selection of facility personnel for Learning Alliances to champion the process

- Use of Learning Alliance model is an experiential process, and experiences will be diverse and unique to each facility

- Scale of facilities

Phase II

- Expand Learning Alliance platforms within participating facilities
- Development of Case Studies for dissemination amongst project partners (OMAFRA, OFIEC, GFTC)
- Facilities continuously build understanding of pollution prevention and are able to:
  - Reduce dependency on expensive pollution abatement technologies (i.e., "end-of-pipe solutions")
  - Undertake future pollution prevention initiatives internally
- Continued documentation of process

Phase III – Inter-Facility Networks

- As knowledge and experience develops regarding implementation of learning alliances, our research team will explore the development of learning alliances between various facilities or within a particular sector of the industry

- Industries are generally not prone to sharing information and these barriers against inter-firm networking will be examined and various means of addressing them will be identified and implemented

- The outcomes of this stage of the project are relatively difficult to predict

Emergent Networks – Phase III

- As participating industries learn to innovate from bottom up and develop capacity in pollution prevention, and as the new knowledge is disseminated by our partners, interest will be generated in ecological networking among various industries

- Such networking can result in significant advances in the way industries exchange resources and by-products to cut production costs and costs associated with pollution abatement

Project Outcomes

1) The first outcome involves the development of a KTT approach and methodology that is new to food industry.

- The organic nature of learning alliances and their ability to engage end-users in meaningful ways can lead to the development of a new "culture of learning and innovation" that to a large extent, is self sustaining.

2) The second outcome is the development of a strong knowledge base in resource use efficiency and pollution prevention in the food processing industry

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