SYPHONING REAL ESTATE OPPORTUNITIES THROUGH URBAN FARMING IN ALBERTA MUNICIPALITIES

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SAIT in partnership with the Alberta Real Estate Foundation

WHAT IS URBAN FARMING?

- Urban farming is defined as agricultural practices within urban areas and the regions that immediately surround them.
- It includes a variety of different methods involving horticulture, aquaculture, aeroponics, and various other approaches to growing plants for a range of purposes, including fresh food.
- In contrast to traditional farming, urban farming is small space friendly, uses less water, involves fewer food miles, is more sustainable with packaging, and emits less GHG.

URBAN FARMING BENEFITS

- Socio-Cultural
- Environmental
- Economic
- Health
- Why are these benefits important for Alberta?

RESEARCH QUESTIONS

- Can urban farming intersect with the evolving real estate landscape and offer an innovative and feasible solution to environmental sustainability and vacant urban space in Alberta cities'?
- What incentives could enable private and institutional real estate owners to rent spaces to urban farmers?

METHODS

Research methods

Interview methods

Workshop

TYPES OF URBAN FARMING

Current forms of outdoor urban farming in Calgary and Edmonton include residential gardens, community gardens, rooftop farming and container farming, although these forms are confined to the growing season between May and September (Moghayedi et Al., 2022).

Indoor forms are practiced year-round and include greenhouse, vertical and container farming.

COMMUNITY BASED URBAN FARMING

- Land used is often public or donated.
- Greater emphasis on socio-cultural, environmental, and/or health benefits.
- Highfield urban farm in Calgary and Edmonton urban farm have very different models despite both being community based.
- Community based urban farming could utilize any of the various types of urban farming that will be discussed later

COMMERCIAL BASED URBAN FARMING

- Typically uses private land/property
- Any of the benefits associated with urban farming could be realized through commercial urban farming, however economic benefits are often the main aim.
- Not limited to only selling produce, could include horticulture, aesthetic greening, or a green space.

COMMUNITY GARDENS & OUTDOOR FARMING

- Community gardens or community farms often use public land, city-owned land, or land which has been donated for farming initiatives.
- The aim of this type of farming is often rooted in non-profit ideologies, and can range from social, food security, or environmentally friendly activities.
- Average yields are estimated to be between 0.5 to 1 pound per square foot of space per growing season.
- Foods that could be grown include vegetables, fruits, herbs, grains, and flowers.

ROOFTOP FARMING

- Involves using the roof space of buildings.
- Could be done in a variety of ways including greenhouses, outdoor farming, hydroponic systems, or vertical farming
- The average yields range depending on the size, types of crops grown, climate, and farming methods used, however the yields can range from 10 to 20 times more per square foot compared to traditional farming
- Foods grown can include vegetables, fruits, herbs, and grains

AGRITECH

- Vertical farming: method for growing crops indoors using stacked layers, often uses hydroponics or aquaponics and is often more technology focused
  - Hydroponics: plants are grown without soil, in a nutrient-rich water solution using a growing medium to provide support for the roots.
  - Aquaponics
- Container farming

GREENHOUSES

- Greenhouses are built structures constructed from transparent materials which can magnify light to regulate internal environmental conditions.
- Greenhouses are often an addition to urban farming and could be built on land or retrofitted for rooftop farming.
- Winterized greenhouses could be used year-round in Alberta.

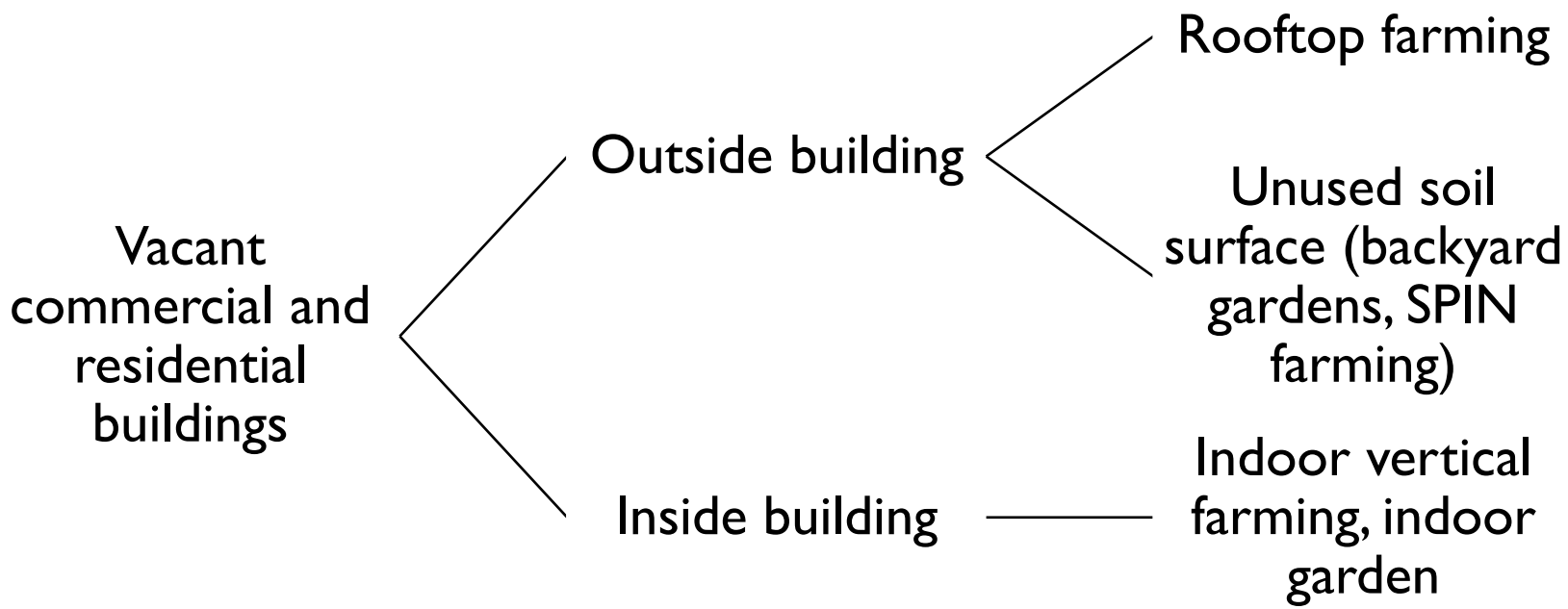
OTHER FORMS

- Green roofs
- Indoor gardens
- Green walls/vertical walls
- Urban orchards/edible trees: fruit trees and bushes planted in public or private spaces accessible to the community
- Fungiculture/mushroom farming

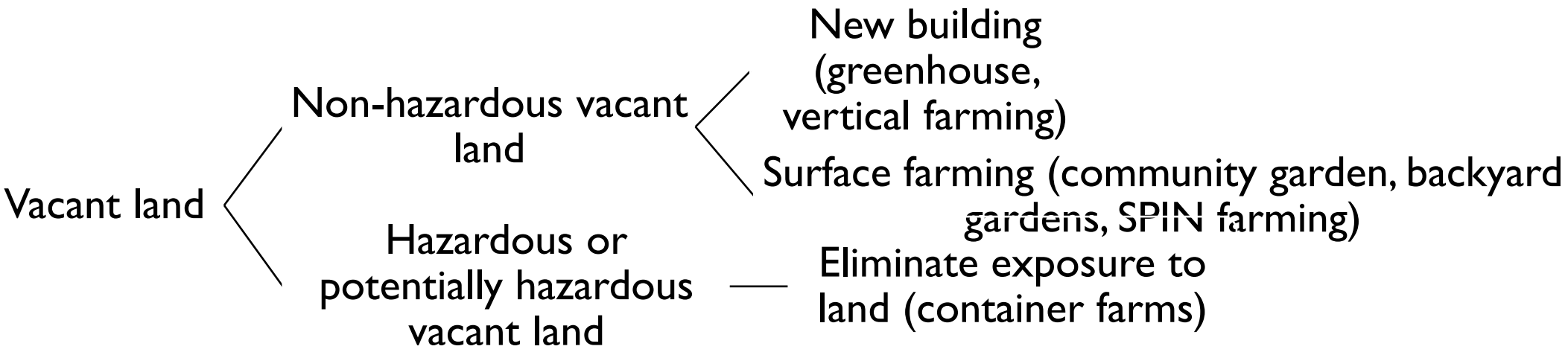
REAL ESTATE VACANCY RATES: BUILDINGS

City	Type	2018	2019	2020	2021	2022
Calgary	Residential	4%	4%	6%	5%	
	Commercial	27%	24%	28%	32%	33%
	Industrial	5%	6%	6%	4%	2%
Edmonton	Residential	5%	5%	7%	7%	
	Commercial	16%	15%	17%	18%	22%
	Industrial	8%	7%	8%	5%	6%

URBAN FARMING USING VACANT BUILDING SPACE



URBAN FARMING USING VACANT LAND



CURRENT URBAN FARMING PRACTICES: CALGARY

Community gardens & outdoor gardens

Greenhouses

Rooftop farming

Vertical farming & agritech

CURRENT URBAN FARMING PRACTICES: EDMONTON

- Community gardens & outdoor gardens
- Greenhouses
- Rooftop farming
- Vertical farming & agritech

POLICIES AND REGULATIONS

- Land use bylaw and planning
- Climate change emergency declared in Calgary
- Local food plans in Calgary and Edmonton:
  - CalgaryEATS! Food System Assessment and Action Plan
  - Edmonton FRESH: Food and Urban Agriculture Strategy

POTENTIAL INCENTIVES AVAILABLE

Government Loans and Grants

Market specific enabling practices for real estate

Sustainable building incentives provided by the government

BEST PRACTICES: CITIES

Paris, France

New York, USA

Montreal, Canada

INTERVIEW AND WORKSHOP RESULTS

- Throughout the interviews and culminating from the workshops in Edmonton and Calgary, several important themes became apparent surrounding the intersection of urban farming and vacant real estate in Alberta.
- Repetitive themes included *Land Access and Tenure, Knowledge and Skillset, Food Systems and Food Security, Municipal Policies and Regulations,* and *Innovation and Entrepreneurship*

LAND ACCESS AND TENURE

Highlighted as a barrier to urban farming by 1/3 of participants interviewed, from backgrounds in non-profit urban farming, academia, and indoor farming.

Issues discussed included long-term land tenure, urban real estate prices, access to space, and availability of infrastructure on land/real estate.

Strong interest in urban farming but often not enough space to accommodate everyone.

Uncertainty of land tenure often conflicts with urban farmers ability to invest time and money into a piece of land.

KNOWLEDGE AND SKILLSET

Highlighted as a barrier by ½ of the participants interviewed, from backgrounds in non-profit urban farming, academia, and indoor farming.

Although there is an increased interest in urban farming, often people lack the knowledge and necessary skillset to be successful or feel comfortable pursuing urban farming.

More technical types such as vertical farming, aquaponics, or aeroponics require an even greater knowledge base.

With older generations of farmers entering retirement, a shortfall of farm workers is expected to emerge.

In addition to these future gaps, future farming skills also need to evolve to include data analytics and climate-smart practices

FOOD SYSTEMS AND FOOD SECURITY

Food system and food security issues were voiced mainly by members of the urban farming community, including non-profit and commercial.

Food system issues are most apparent in the rising cost of food due to climate change issues and supply chain disruptions.

Big box stores have also created issues for urban farmers as consumers are often wedded to cheap food options.

MUNICIPAL POLICIES AND REGULATIONS

Most interview participants discussed municipal policies and regulations as a significant barrier to urban farming, participants that mentioned this also stemmed from all backgrounds including real estate

Calgary EATS! and Edmonton Fresh food action plans both highlight urban farming as a necessary component for local food production

Calgary EATS! mentions supporting and promoting urban agriculture as a key component, but this is not reflected in interview and workshop results

Edmonton Fresh is a food and urban agriculture strategy, yet interview and workshop participants still voiced a divide.

INNOVATION AND ENTREPRENEURSHIP

Highlighted by interview participants stemming from the agritech community.

Barriers discussed by other participants were considered to be driving factors for innovation entrepreneurship.

Interview participants spoke about urban farming in a positive and passionate manner.

An underlying business plan and more educational facilities were still considered necessary.

LESSONS LEARNED & NEXT STEPS

- Municipal policies and city leaders are key enablers for urban farming.
- Cities with best practices all have significant municipal support through policies.
- Opportunity for more interest from younger generations in farming.