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## FACTS ABOUT AGRICULTURAL INFRASTRUCTURE



### 1. What is agricultural infrastructure?

Agricultural infrastructure refers to the diverse systems and networks of resources that are vital to produce, procure, preserve, process, and trade agricultural products.<sup>1</sup> It plays a vital role in the productivity, competitiveness and sustainability of the agriculture sector.



### 2. Hard infrastructure is the backbone of the agriculture sector

Hard infrastructure is the natural and built assets, structures, facilities, equipment and networks that are essential for a competitive agriculture sector and resilient, sustainable food systems. Land, transportation, telecommunications, energy, and water systems, processing and storage facilities are examples of physical infrastructure essential to agriculture.<sup>2</sup>



### 3. Soft infrastructure – the social and human dimensions of infrastructure

Soft infrastructure is the intangible assets represented by human capital, services and social institutions needed to run the physical infrastructure and to maintain the economy and our quality of life. It includes financial, marketing, distribution and logistics, research, extension, education, healthcare, regulatory, governance and recreational services and human resources. These soft infrastructure assets provide the human expertise and ingenuity and social cohesion that drive a competitive and sustainable agriculture sector.<sup>3</sup>



### 4. Infrastructure enhances agricultural productivity, competitiveness and sustainability

Infrastructure plays an essential role in boosting agricultural productivity.<sup>4</sup> A 2015 OECD report noted that innovation and structural change led to growth in Canada's agricultural productivity.<sup>5</sup> With global demand rising, maintaining a stable food supply will require new investments in infrastructure to support sustainable agriculture<sup>6</sup> and to ensure that Canada's export-oriented agricultural sector is well-positioned to compete globally and benefit economically.<sup>7</sup>



### 5. Agricultural infrastructure prevents food loss and waste

Food loss and waste occurs throughout the entire agri-food value chain. Upwards of 20% (11 million tonnes) of all the food produced in Canada annually is lost or wasted.<sup>8</sup> Inadequate transportation networks and storage facilities contribute to food loss and waste.<sup>9</sup>



### 6. Land is the fundamental agriculture infrastructure

Land - the foundation of agriculture - is seeing increased demands for competing priorities that is resulting in farmland being converted to non-agricultural uses. The need for more housing because of urbanization and population growth is one of these demands. According to the 2021 Census of Agriculture, Ontario's rate of farmland loss has risen from 175 acres per day to 319 acres per day in the last five years. The impacts of the loss of farmland, including food insecurity and reduced ecosystem services, will be felt by agriculture sector, society and the environment.<sup>10</sup>



## 7. Transportation infrastructure connects agriculture to the world

Agriculture products are perishable, seasonal, and bulky and are often located far away from their markets and processing industries. To support the production, distribution, and sales of their products, farmers need a transportation system that is safe, dependable, and effective.<sup>11</sup> The availability and quality of physical transportation infrastructure, including roads, bridges, railways, water ways, harbours, ports and airports connect farmers in rural areas to processing operations in industrial areas. Modern transportation infrastructure ensures the freshness and quality of farm products, improves access to farm inputs, and allows farmers to get their products to local and international customers and markets.<sup>12</sup>



## 8. Internet connectivity is essential for the future of agriculture<sup>13</sup>

Modern agriculture has developed into a complex, innovative, and technologically advanced sector due in large part to on-going advances in communication systems and networks, include telephone, broadcast networks (television, radio) and satellites.<sup>14</sup> Over the past 30 years, the internet has become the primary communications system. Farmers rely on broadband internet connections to find information to conduct business, access new technology, negotiate sales, operate digital equipment and systems and pursue educational opportunities. According to a recent Ontario Federation of Agriculture survey, inadequate broadband internet infrastructure is having a negative impact on the overall competitiveness of the agriculture sector and is a key barrier to the adoption of new farm technology.<sup>15</sup>



## 9. Energy infrastructure powers the agriculture sector

The agriculture sector relies on many forms of energy, including electricity, natural gas, propane, oil and renewable sources. Energy infrastructure is a complex mix of power stations, transmission lines, pipelines, power grids, wind turbines, and on-farm infrastructure, such as oil and gas wells, solar panels, and generators.<sup>16</sup> As one of the highest input costs, access to affordable energy is a key challenge for the agriculture sector.<sup>17</sup>



## 10. Energy infrastructure is adapting in response to climate change

With the increasing impacts of climate change, new forms of renewable energy infrastructure are showing promise.<sup>18 19</sup> Many farmers are moving to on-farm renewable energy production, including biogas, wind power, solar heat and electric, and combine heat and power.<sup>20 21</sup> The number of farms in Ontario reporting on-farm renewable energy production increased by 63.8% in 2021.<sup>22 23</sup> Farm equipment is primed to go through a transition as manufacturers continue to explore electrification, which they expect will significantly lower equipment costs for farmers.<sup>24 25</sup>



## 11. Water infrastructure is threatened by multiple forces<sup>26</sup>

Water infrastructure is a complex network of municipal water systems, treatment plants, pumping stations, wells, roadside gutters, stormwater drains, irrigation systems, and dams. Access to a reliable, safe water supply is essential to all agriculture production and critical to food security.<sup>27</sup> Natural sources of water are increasingly inadequate in meeting needs of the agriculture sector. The anticipated increase in competition for water resources is expected to impact agriculture significantly. As the agriculture sector faces growing competition with other sectors for freshwater and the impacts of climate change, farmers are increasingly looking to modern irrigation infrastructure as a solution.<sup>28</sup> Additional water infrastructure, both hard and soft (e.g., evidence-based policy) is needed to meet the demands of a growing population for sustainable food production.<sup>29</sup>



## 12. Storage infrastructure ensures a continuous supply of food

Storage infrastructure, including grain silos, warehouses, and cold storage, is essential to the agricultural sector. It reduces post-harvest losses, enables year-round availability of seasonal goods, safeguards the cash flow of agricultural businesses, and contributes to food security.<sup>30 31 32</sup>



### 13. Agriculture infrastructure needs are constantly evolving

The agriculture sector is grappling with competing demands related to global population growth, food security, climate change, and emerging technology. Ensuring adequate infrastructure that supports a competitive and sustainable agriculture sector requires input and engagement from a cross-section of stakeholders, including producers, processors, consumers, and policymakers at all levels of government.<sup>33</sup>

#### Endnotes

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