CAPACITY DEVELOPMENT FOR POST COVID-19 FORESTRY PRACTICE

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OUTLINES

- Impacts of COVID-19 pandemic on forestry activities
- Indicators for forestry practice in post COVID-19 era
- Quantum leap in capacity development
- Application of digital technology in forest activities:
  - Application of Digital technology in Forest Management:
  - Emerging Tech in Forest Inventory and Forest Surveillance
  - Advanced technology in Forest Protection
  - Digitalization of tree harvesting, timber processing and transport logistics
- Effective management of Urban Forestry/Parks
- Cultivation of Medicinal forest products and spices
- Conclusion

Impacts of COVID-19 Pandemic on Forest Activities

- Covid-19 pandemic affected role of forests and the forest sector in providing essential services and products to support livelihood
- Negative impacts were induced by restrictions in movement of forest goods
  - Lockdown disrupted global forest business supply chains
  - Forest based SME experienced decline in production
  - Forestry activities drastically reduced or ceased
  - Illegal tree harvesting and deforestation increased
  - Sawmills were shutdown , there were job losses in forest sector
  - Prices of forest products (timber, paper products) increased

Impacts of COVID-19 Pandemic on Forest Activities Ctd

- Positive Impacts
  - increase in the demand on the forest to play safety-net role amongst the rural populace
  - increase in demand for medicinal forest products and spices
  - increase in visits to urban green spaces/forest park for outdoor recreation
  - high demand and consumption of pulp and paper products such as face masks, sanitary paper, toilet paper and paper towels

Paradigm shift *in forestry practice*

- COVID-19 pandemic stimulated 'New Normal'
- Increase in the use of digital and advanced technology in transactions
- Sustainable forest management in post COVID -19 era will be driven by digital technology in order to '***build back better***'
- Quantum leap in capacity development is required for accomplishment of UN strategic plan for Forests 2017-2030 and 2030 SDG

Application of Digital Technology in Forest Activities

- Digital Technology is revolutionizing industries it:
- played significant role during the pandemic period or **New Normal**
- will drive forestry & industrial operations in post-pandemic era
- requires a paradigm shift from highly manual and analog system
- will optimize operation process and reduce the drudgery and time lag
- would facilitate efficiency in forest management, improve yield, increase productivity, reduce operational costs, and increase revenue

Indicators for forestry practice in post COVID-19 era

- **Forest practices in Post COVID Era :**
- Adoption of precision forestry

- Digitalization of timber processing and transport logistics

Indicators for forestry practice in post COVID-19 era

- **Forest practices in Post COVID Era :**
- Focus on "intangible resources" (non-timber forest products) – these include; carbon sequestration, water shed management, air purification etc.
- Development of urban forests and Forest parks

Quantum leap in Capacity Development

TRAININGS ON:

- Application of Digital technology in forestry management
- Emerging Tech in forest inventory
- Advanced Tech in Forest protection
- Adoption of artificial intelligence in timber processing

CHANNELS OF TRAINING:

- ✓ Short-term skill acquisition
- ✓ Review of curricular in tertiary institutions

Application of Digital Technology in Forest Management

- Requires knowledge of forestry planning models and advanced analytics
- Forest planning soft-wares are used to optimize nursery production
- Data analytics could be applied in processing large amount of data in order to identify critical operational problems and develop appropriate interventions
- Data analytics are also used in prescribing silvicultural management techniques for tree growth in relation to soil nutrient and water regime

Emerging Technologies in Forest Inventory and Forest Surveillance

- Forest Inventory
  - ✓ Emerging technologies that relevant to forest inventory include Unmanned Aerial Vehicles (UAVs)/ drones, Laser scanners (lidar), GPS, GIS Satellites etc.
  - ✓ Lidar sensors can be mounted on aircraft, drone or telecommunication mast
  - ✓ The sensors acquire signals for measuring distance between emitted and reflected pulse of laser light to create 3-D image
- Forest Surveillance
  - ❖ Drones are now used for forest surveillance and mapping
  - ❖ The interpretation of images captured by cameras on the drone are useful in detecting and controlling pest infection

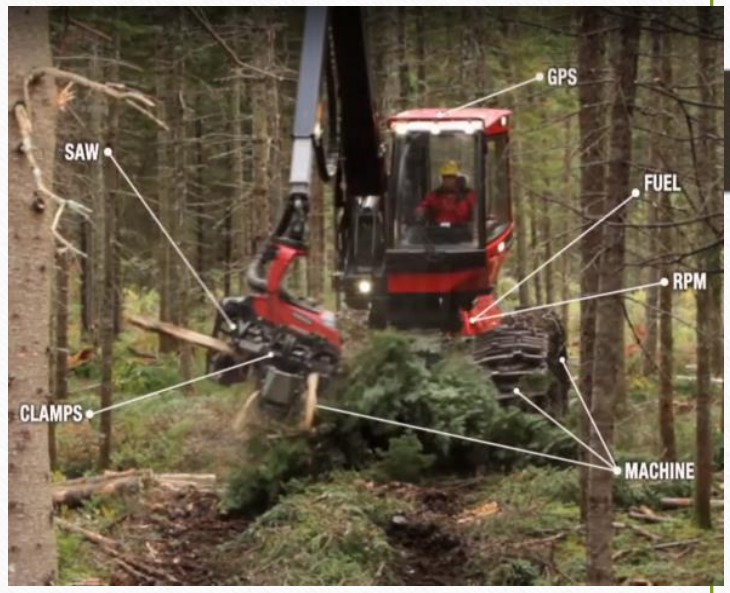
Forest Inventory with Drone Technology

Advanced Technology in Forest Protection

- remote sensing facilities and UAV's such as drones are reported to be accurate in providing data for pest monitoring
- Drones are also effectively used in spraying pesticides
- Imageries obtained from satellite and cameral attached to drones provide early warnings about fire outbreak
- Artificial intelligence (AI) was used in real-time metrological data analysis to predict forest fires

Digitalization of Tree Harvesting, Timber Processing and Transport logistics

- Cut-To-Length (CTL) system is a digital system for plantation tree harvesting
- In CTL , instructions are relayed in real time to the tree harvester while sensors mounted on the harvester measure log shape and quality
- Artificial intelligence is used in planning efficient log conversion procedure
- Robotic technology are adopted in positioning and turning the logs
- Digital solutions helps in optimizing truck routes and haulage
- Automated controlled supply chain structure that are not constrained by cross border movement of people should be developed



Cultivation of Medicinal plants and spices

- Develop technology for raising medicinal plants, spices and forest fruits.

Effectively Management of Urban Forestry Facilities and Forest Parks

- The effects of COVID-19 pandemic on restriction of indoor facilities may linger for some period thus green spaces will continue to provide recreational supports.
- Capacity development in Forestry-planning models are necessary to ensure effective management of parks and green spaces.

Conclusion

- There should be paradigm shift towards sustainable forest management in order to guarantee inclusive global economic development
- Training and capacity development are considered to be critical in managing forest activities in post pandemic era in order to ***build back better***
- Precision forest technologies have gained traction
- Capacity development and adoption of digital technology will vary with different organizations
- Forest institutions should structure end-to-end digital transformation embracing 4D strategy (Discover, Design, Deliver and De-risk) for efficient post covid-19 era

THANK YOU