Adaptive greenhouse horticulture in tropical lowlands

Examples based on experience in Malaysia, Taiwan and Indonesia

Tropical low land
The climate provides several advantages:
• High diurnal temperatures (T) so limited heating requirements
• Ample light so limited assimilation light requirements

The climate also provides challenges:
• High humidity (RH) requires ventilation to remove transpiration
• High T/RH favours insects/diseases so measures are necessary
• High winds (taifoons) may require constructional measures

Economic context (South East Asia)
Protected cultivation in SE Asia is of big economic importance:
• Food production for nearby metropoles
• Decreasing imports even as countries are rapidly industrialising
Issues are:
• Increasing the technical level of local growers (empowering):
  • Reducing the emission of fertilisers and plant protection
    products into the environment
• Increasing the volume and quality of locally produced
  vegetables and ornamentals

Adaptive greenhouse horticulture for tropical lowlands
Adaptive greenhouse horticulture means stepwise developing local growers, using local supply industry and local extension networks.

For tropical lowlands this means for example:
• Year round production modelling based on local climate data.
• Sector assessments based on local prices.
• Introduction of Integrated Pest Management.
• Reduced emissions by recirculating substrate systems.
• Improved greenhouse design for local contractors.
• Instruction and coaching of local research staff to act as example and knowledge bank for local growers.

Cases by Wageningen UR Greenhouse Horticulture
Wageningen UR Greenhouse Horticulture contributed to developments in Malaysia, Taiwan and Indonesia.
• Malaysia: locally build improved greenhouse design. Local staff
  trained to use automated irrigation equipment
• Taiwan: taifoon proof greenhouse design. Screen technology
  was more cost effective than investing in any other technique
• Indonesia: locally build improved greenhouse. Local substrate
  (rice husk). Less disease by improved climate regulation.