NSU Professor Co-Authors *Nature Communications* Study on Antimicrobial Resistance in Poultry Farms

Professor Maqsud Hossain of the NSU Genome Research Institute (NSU-GRI) has co-authored a major study published in *Nature Communications*, titled *"Convergence of resistance and evolutionary responses in Escherichia coli and Salmonella enterica co-inhabiting chicken farms in China."* The international research team, led by Professor Tania Dottorini (University of Nottingham), analysed over 660 bacterial isolates collected from chicken farms in China over 2.5 years. The study revealed how E. coli and Salmonella share antimicrobial resistance (AMR) genes through mobile genetic elements such as plasmids and transposons, and how evolutionary pressures shape resistance in farming environments with high antimicrobial use. Using advanced data mining and machine learning, the researchers uncovered both known and novel mutations linked to resistance against 28 antimicrobials. Findings showed that resistance spreads rapidly within bacterial communities, posing a significant challenge for both animal and human health. This work highlights the urgent need for multi-modal strategies to address AMR in agricultural systems. NSU-GRI's contribution demonstrates Bangladesh's growing role in global research on antimicrobial resistance and public health.