Climate Action Simulation: Land, Agriculture & Forestry

To: **Chief Negotiators for the Land, Agriculture and Forestry Alliance**
Subject: **Preparation for the Climate Action Summit**

Welcome to the Climate Action Summit. You and leaders from all relevant stakeholders have been invited by the UN Secretary-General to work together to successfully address climate change. In the invitation, the Secretary-General noted that: "The climate emergency is a race we are losing, but it is a race we can win...The best science...tells us that any temperature rise above 1.5°C will lead to major and irreversible damage to the ecosystems that support us...But science also tells us it is not too late. We can do it...But it will require fundamental transformations in all aspects of society—how we grow food, use land, fuel our transport and power our economies...By acting together, we will leave no one behind."

The goal of the summit is to create a plan to limit global warming to less than 2°C [3.6°F] above pre-industrial levels and to strive for 1.5°C [2.7°F], the international targets formally recognized in the Paris Climate Agreement. The scientific evidence is clear: warming above this limit will yield catastrophic and irreversible impacts threatening the health, prosperity, and lives of people in all nations.

Your group includes representatives of the largest agricultural, food and logging companies, the largest landowners, government ministries of forests and agriculture, and land conservation agencies. Your group is focused on how to feed people across the world, protect forests and address climate change, simultaneously.

Your policy priorities are listed below. You can, however, propose, or block, any available policy.

1. **Manage deforestation.** Protecting forests can reduce emissions from deforestation while also preserving biodiversity and protecting water supplies. However, limiting deforestation also reduces potential use of those lands for logging, food production, bioenergy, and other highly profitable uses. Deforestation is caused by both small-hold farmers and rural populations who need wood for fuel, and by large businesses, who clear forest lands for logging and agribusiness, including, for example, converting tropical forests into palm oil plantations, or for livestock and crop production.

2. **Consider afforestation.** Afforestation is the growth of new forests on land that doesn't have trees; sometimes this is land that was previously deforested or degraded. As a forest grows, it sequesters CO_2 from the atmosphere and stores it in biomass and soils. Forests help preserve habitat and biodiversity, slow erosion and land degradation, and protect against floods. If implemented on a large scale, afforestation could use land that is needed for crops or livestock, thereby increasing food prices through greater competition for land. Consider the land required for any given afforestation policy.

3. **Consider emissions of methane, nitrous oxide, and other greenhouse gases.** CO_2 is the most prominent greenhouse gas (GHG), but other GHGs, especially methane (CH_4) and nitrous oxide (N_2O), cause about a quarter of global warming today, and their concentrations in the atmosphere are growing. Over a hundred years, a molecule of CH_4 contributes about 25 times more to warming than a molecule of CO_2; and N_2O contributes nearly 300 times more than

CO_2. Current farming practices and livestock production are major sources of CH_4, and N_2O is primarily generated by fertilizer use. Innovative technologies and practices can reduce these emissions at low cost, but many environmentalists also call for regulations (e.g., limitations on fertilizer use) or changes in people's lifestyles (e.g., reductions in meat consumption and food waste), that could harm the profitability of agricultural and livestock industries. You are reluctant to support such policies even if they might lead to large reductions in these emissions. A wide range of fluorocarbons and related compounds ("F-gases") also contribute to warming. F-gases are used in industrial processes and consumer products (e.g., refrigerants, solvents). Concentrations are low today, but many F-gases contribute thousands of times more to warming than CO_2. You can support policies to reduce these as they would have little impact on you.

4. **Support subsidies for renewable energy.** Fossil fuel emissions, not land use, are the biggest contributor to climate change. You support replacing fossil fuels with affordable clean energy to run your equipment and transport food. Ranchers and landowners can install solar and wind turbines while still using most of their land for crops and livestock, so you support subsidies for clean energy technologies. Large logging companies and big agribusinesses oppose policies like carbon prices on fossil fuels as these would raise operating costs, but land conservation groups support these policies to speed reductions in CO_2 emissions.

Additional Considerations

Current world population is nearing 8 billion people, and the UN projects it will reach more than 9 billion by 2050 and almost 11 billion by 2100. Growing populations and rising incomes are increasing demand for crops, meat, wood, fiber, and other land-intensive products. Today, about one billion people lack adequate food, causing malnutrition and starvation in many nations. Yet, according to the U.N. Food and Agriculture Organization, 30% of global food production is wasted, contributing 8% of global GHG emissions.

Reducing food waste, increasing crop yields, and encouraging healthy plant-based diets can meet growing food demand without requiring more land while reducing GHG emissions from the agricultural sector. However, there is only so much your industry can do before these policies force food prices up. High food costs mean those who need it most might go without. Promoting plant-based diets will also financially harm the large and growing livestock industry.

In much of the world, it will be challenging to change land use and agriculture methods. In many developing countries the potential benefits of climate-smart agriculture are high, but corruption and lack of oversight make it difficult to implement land use policies. Past efforts to reduce deforestation, primarily in Brazil and Indonesia, have been only partially successful. Illegal deforestation remains a significant problem. Some governments actively subsidize deforestation to promote logging and agribusiness, and to provide land for people.

Despite these challenges, climate change is a major threat to the members of your group. Intensifying floods, droughts, heat waves, wildfires, and sea level rise are already destroying arable land, reducing crop yields, damaging forests, and harming profits. The impacts of climate change and the geopolitical dislocations they are creating pose serious risks to your assets, labor force, supply chains, customers, and profitability. Although change will be difficult, and some will be financially harmed, your alliance can contribute to the solution by reducing its emissions through better land management and agricultural practices.