

Goal of Approach:

Objective: to address the potential risk of agricultural production and food security from future climate change

Tool: regional climate model, crop model

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Main elements of the implementation strategy

1. to employ the regional climate model for downscaling the global climate model's scenario projections
2. to use *in situ* climate observation data for model's validation
3. Based on the model's validation, the correction on the generated climate scenarios with gridded climate baseline observation data is done
4. to use crop field experimental data for crop models' validation and the determination of genetic coefficients
5. to feed the crop models to simulate the changes of crop yield due to future climate change
6. to determine the criteria for food security and the risk grade of crop production
7. to address the potential risk of crop production and risk of food supply security from the crop models' simulation with the determined criteria and risk grade

Targeted beneficiaries

Key beneficiaries: policy makers, local authorities, the farmers

Benefits: based on the risk assessment, the high risk areas identified, the risk factors isolated, and the agricultural adaptation strategy is developed

Any significant lessons learned

The time-series for the observation data is short, especially for the crop field experiment data; and the long-term crop observation station is few, and the matching for the climate observation station and the crop observation station is not well

Resource requirements

Data needs: high-quality gridded climate data with more variables, especially for solar radiation; more data for crop field experiment

Capacity needs: user-friendly crop models, user-friendly climate scenarios, platform for data exchange

Financial resources: national foundation, international co-operation

Potential for replication or scaling-up

The methodology could be shared in the South-South cooperation

Any additional information

The risk assessment on the damage of climate change is just at the beginning stage, the methodology is not completed, there is a lot of work to do.