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Belt and Road Institute for Agricultural Cooperation (BRIAC)

China Institute for South-South Cooperation in Agriculture (CISSCA)

Small Technology, Big Harvest

---A Tanzania-China SSC case

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Maize labor intensification demonstration project:

CAU team...
since 2010...

1 village to 10 village; 1 household to 1000 households; 10 acres to 1000 acres...
exploring SSC model...



Phase 1: Piloting in Peapea village

- China's successful transformation roused global interest in the question that whether Chinese experience can work in the rest of the developing world.
- 2011, financed by IPRCC and World Bank in adapting Chinese poverty reduction experience in Tanzania



Peapea village: 454 households, 2481 persons. Distance to Morogoro town 120km

near a Chinese sisal farm

Peapea based on maize

Peapea near main road

agriculture: a core element in Chinese poverty reduction experience
yield: essential goal of China's agricultural development
maize: ensure self-sufficiency

Introducing China's labor intensification technology to improve maize yield, thus realizing staple food self-sufficiency.

Piloting in Peapea village

- Participatory approach
 - Grasp the basic conditions of the village
 - Discuss with villagers what to do for development
 - Design the pilot plan

Project components

- infrastructure: road, drinking water, village center
- production: labor intensification maize growing technology
- capacity building: agricultural technology training



Project activities

- Maize growing for **demo farmers**
 - Improved seeds
 - Appropriate fertilizer
 - Technology training: labor intensive
 - Land preparations: hand hoe/machinery
 - Close spacing: 30cm*75cm
 - Weeding: 2 to 3 times
 - Thinning
 - ...

Demo farmers

种植户和种植养殖结合的示范户要求土地相对集中连片，便于管理和示范；养殖户要求农户对于家庭养殖上兴趣，而且已经有一定的养殖业基础，如养殖奶牛、养猪、养羊和养鸡。

示范户自愿申请、有劳力（年龄不能太大、身体强壮）、

对于新技术感兴趣

愿意接受项目的条件（通过贷款来负担项目所推荐种植和养殖及加工示范的生产性投入，如机械耕作、种植度、化肥等费用、棚圈建设费用、饲料等、项目需要进行基线调研，以比较项目实施效果等）

示范户参与项目协议：主要强调示范户必须遵从项目所推荐的农业生产示范方案；接受项目贷款，并按其还；真实有效地记录其生产投入和产出



技术内容	当地技术	中国要素融入的技术	成本增加
备耕	机耕	机耕	无
品种	自留品种	购买当地优质品种 每英亩需要10公斤	1500先令/公斤 15000先令/英亩
种植密度	60厘米*60厘米 11100株/英亩	40厘米* 50厘米 20000株/英亩	增加劳动力
点穴	留4-5株苗/穴	间苗，只留一株/穴	增加劳动力
化肥	不施用化肥	有限使用化肥 一袋尿素/英亩	75000先令
田间管理（除草）	2次	3次	增加劳动力

A gradual process

2011	Encouraging participation, but only one demo farmer
2012	Trust building through village center, road, public toilet and water tanks. 10 demo farmers, but on collective land rather than own land
2013	Continuing technology training, 31 demo farmers.
2014	44 demo farmers, exploring intercropping, maize and beans
2015	53 demo farmers...



Implications for Peapea piloting

- Chinese agricultural technology can be adaptable, labor intensive maize planting technology could vigoarate local agricultural development
- Peapea piloting is mainly promoted by the Chinese side, without cooperating with local institutional actors
- **What about next step?**
- China' s development experience: **state-driven** development
- China' s experience in receiving foreign aid: **Chinese government** actively learns and diffuses lessons learnt



- **Phase 2: how to cooperate with local government and internalize technology demonstration and extension**
- Piloting in another village: Mtego Wa Simba village
- Comparing with Peapea
- Similar project activities– infrastructure, farming technology training and extension
- Different project management—**all project activities conducted by local teams headed by Morogoro regional administrative office. Chinese expert only give guidance/consultancy to local teams.**

Project phase 2: Mtego Wa Simba village

- **The Next step?**

- China' s development experience: state-driven development
- China' s experience in receiving foreign aid: Chinese government actively learns and diffuses lessons learnt
- New elements in development practice
 - Partnering with local government, establishing local working team: from **Work for you** to **Work with you**
 - Partnering with local research institutions, establishing links between universities and agricultural development

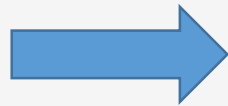


Phase 2 activities

- Cooperation with Sokoine University of Agriculture, building China-Tanzania joint agricultural research center to bring technology service to local agriculture.



before



after

- Local government capacity---how to develop a developmental government?

- Provide partial budget for relevant activities

- training

- Peapea project components
- Agricultural technology

- Field visit to China

- how Chinese government work
- Rural development
- How Chinese government support agriculture



- 45 came to China for learning and training
- Over 100 trained in different forms
- 20 Chinese experts went to Tanzania for project design, field demonstration and communication
- 2 experts for over 3 months in Tanzania every year



Phase 2 progress

- Labor intensive maize technology training and extension
 - Similar technology standards with Peapea
 - Village head and agricultural extension officer organize in-village technology training, Chinese experts provide guidance only
- progress
 - 122 farmers adopted labor-intensive tech
 - Yield increase for 2- 3 times
- effects

Wasimba	375 household	2014	2015	2016	2017
Added demos		12	63	17	25
Accumulated demos		12	75	97	122
proportion		3.20%	20.00%	25.87%	32.53%

- **yield continuous increases:** “surprise!”
- farm innovation: cooperation among researchers, companies, local government and farmers
- productivity increase: capacity building is the foundation

Phase 2 progress

- local government team has the capability for agricultural projects
- Chinese agricultural technology could be adapted locally
- Project model could be extended to more villages
- **Local government recognized project practise**
- The then Tanzanian PM Mzenge Pinda gave special thanks to CAU' s small-holder development practice in Tanzania and urged for better higher education and extension in agriculture
- Project office include professors from SUA, officials from President' office, Morogoro regional office. Most of them attended training and visits in China2017, project participator shared project content in Tanzanian regional agriculture meeting
- 2018, The Citizen reported on "Chinese varsity, SUA team up to improve maize production"



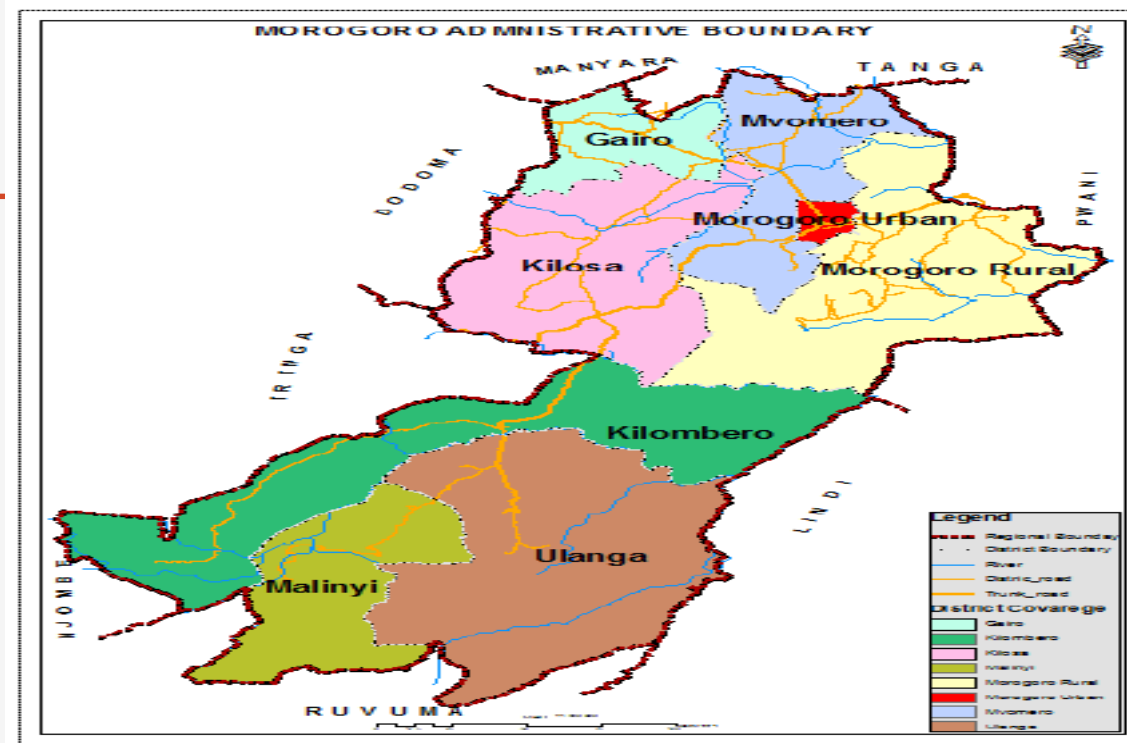
Phase 3---11 Tanzania-China maize Labor intensification project

- Outcome of phase 1 & 2
- **1 technology: labor intensive tech**
 - based on local circumstances: rain-fed and lack of funding; land preparation, improved seeds, increased labor input, appropriate fertilizer, weeding, thinning...
- **1 mechanism: parallel experience sharing**
 - cooperation between local government, researchers, extensioners and farmers;
 - Cooperation between China and Tanzania in piloting, demonstration, extension
- **New elements**
 - More responsibilities for local government working team
 - Design project plan and budget
 - Select demo villages
 - Identify demo farmers
 - Sensitization in villages
 - Tech training
 - Bigger working team-41 people
 - Develop Performance evaluation plan
 - **Establish village working team** 包村工作队
 - More standardized project monitoring and assessment: baseline survey, in-progress monitoring, and final evaluation



Phase 3 activities

- Wider coverage (10 villages: Peapea, Wasimba + 8 new villages)
 - Coveing 7 counties in Morogoro region
- More demo farmers
 - 100-200 demo farmers per village
- Wider planting area for maize
 - At least 1 acre for each demo
- Bigger local project team
 - 40+ people, consists of regional agricultural official, country agricultural official, ward agricultural officer and village agricultural extension officer
 - Village focal team, consists of county, ward and village agricultural officers.



District	Village	Pop.	H/hold	Rain (mm)	Maize Prod. (Ton/Ha)	Std. Prod. Ton/Ha
GAIRO	NGAYAKI	3,997	889	800-1200	2.3	4.5
GAIRO	LETUGUNYA	3,798	884	800-1200	2.2	4.5
KILOSA	KITETE	2,442	531	800-1400	2.2	4.5
MOROGORO	KIKUNDI	6,404	1,423	1000-1800	2.3	4.5
MVOMERO	MAKUYU	4,798	985	600-1200	2.25	4.5
ULANGA	MWAYA	4,455	990	1,200	2.0	5.2
KILOMBERO	KISEGESE	7,773	993	1,050	2.0	4.5
MALINYI	KISWAGO	4,076	927	800-1600	1.9	4.5

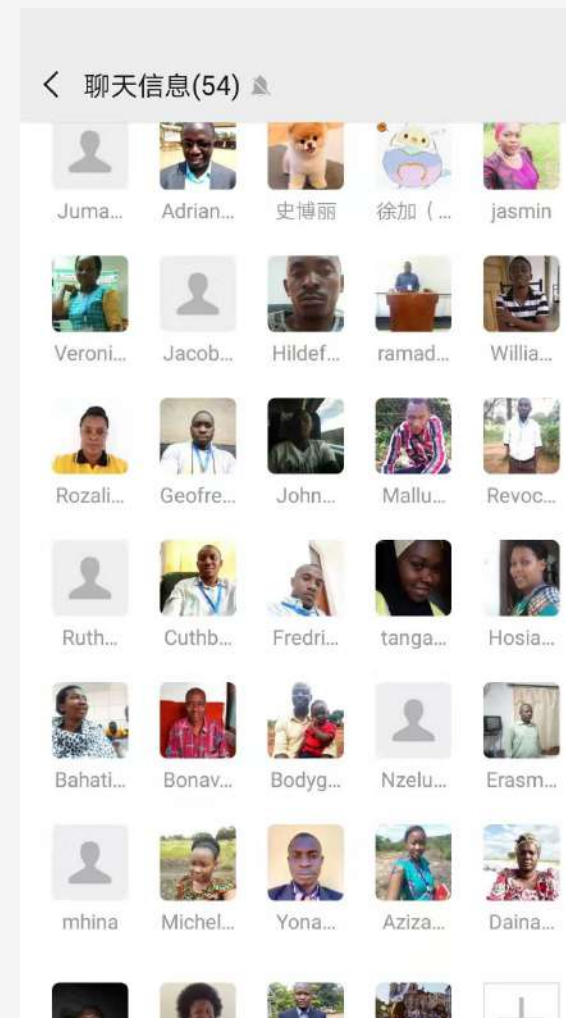
Real cooperation mechanism

CAU provides budgetary support and exchange mechanisms

Morogoro regional office responsible for project design, budget making and implementing

SUA provides technical support to Morogoro regional office team

wechat—smart phone working group, for online discussion and interaction



Key Elements for the Case

- Targeting the top priority need – Food security
- Targeting the universal crop – Maize
- Easy technologies package – labor intensive
- Requiring small size – 1 acre: no machine, no budget
- Working with local team together
- Encouraging local innovations
- Gradually process and Long-term input

Chinese experts provide training and tech service, to justify the adaptiveness of Chinese labor-intensive technology in small-holder communities

Partnering with local government and research institutions, to justify the capability of the local institutions to adopt and adapt Chinese technology

Bigger decision-making power with local government, to justify a Chinese experience of state-driven rural development model

Thank you for you attention!

