

Tailor-Made Biotechnologies for Endogenous Development 生物技术的重塑与内源发展 Prof. Dr. Guido Ruivenkamp

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Critical Issues in Agrarian and Development Studies

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Content: Presentation 内容

- **Biotechnology in agro-industrial production chains:**
农业产业链条中的生物技术
 - Politics in agro-industrial biotech 农业产业生物技术中的政治学
 - Three separation processes 三个分离过程
- **Codes in biotechnologies and struggles for re-codification 生物技术中的编码和围绕重新编码的斗争**
 - Lessons from bridges, machines and plants 从桥梁、机器和植物中学到的经验
 - Beyond pro-contra biotech debate 超越对生物技术的支持-反对之争
 - Strategic actions for challenging social relations in the code 挑战编码中社会关系的战略行动
 - Tactical actions for rewriting the code 改写编码的策略行动

Cont. Content: Presentation (接上) 内容

- Two exemplary cases of Tailor-made Biotechnologies (TMBT) for endogenous developments 量身定制生物技术 (TMBT) 对于实现内源发展的两个典型案例
 - Seeds as subpoliticizing catalysts 种子作为亚政治化的催化剂
 - Food products as reconnectors 食物产品作为重新连接器
- TMBT Biotechnologies in China: A research proposal to be discussed 量身定制生物技术在中国：一项有待讨论的研究建议

Agro-industrial Production chain
农业产业生产链

Biotechnology 生物技术

Biotechnology 生物技术

Inputs 投入

New System Biopower
Plant biotechnology 植物生
物技术 新的系统生物权力

Plant biotechnology 植物生
物技术

Agriculture 农业

Enzyme and fermentation-
Technology 酶和发酵技术

**Enzyme and fermentation
Technology** 酶和发酵技术

Food products 食物产品

Consumption 消费

Food products within global food chains:

Externalization of agricultural activities 全球食物链

中的食物产品：农业活动的外部化

Selection and multiplication
of seeds 种子的选择和多样化

Soil fertility 土壤肥力

Crop-protection 作物保护

Agricultural production 农业生产

Preservation products 储藏产品

Processing to food 加工成食物

Distribution 分配

Consumption 消费

Appropriation

biological farm activities

侵占生物农场活动

Substitution of products

产品的替代

De-localization of
production

生产的去地方化

Institutional Breeding:

机构育种

Hybrid seeds 杂交种子

Fertilizers 化肥

Biochemicals

生物化学物质

Farmers 农民

Cooperatives 合作社

Food Industry 食品工业

Retailers 零售商

Consumers 消费者

Agriculture 农业
Natural Environment 自然环境

Biopower in
Food Chains
食品链中的生物权力

Agriculture 农业
Food Production 食品生产

Agriculture 农业
Food Quality 食品质量

Agriculture 农业

De-coupling natural environment
与自然环境脱钩

Coupling scientific information
与科学信息连接

Natural Environment 自然环境
New Seeds 新种子

Biopower in
Food Chains
食品链中的生物权力

Agriculture 农业

Agriculture 农业

De-coupling Local Food
Production 与地方食品生
产脱钩

Coupling Scientific
information
与科学信息连接

Decoupling Food Quality
与食品质量脱钩

Food Production 食品生产

Food Quality 食品质量

Enzymes 酶

Bioethanol 生物乙醇

Politicizing Products (Biopower) 产品的政治化 (生物权力)

Informationalized seeds

信息化的种子

Remote Control 远程控制

Informationalized Enzymes and
Fermentations 信息化的酶和发酵

Interchangeability 可互换性

Patents 专利

Relocation of Power: From Regulation Through Policy to
Design of Products

权力的再定位：从规制、到政策、到产品的设计

II. Codes in biotechnologies and struggles for re-codification 生物技术中的编码和围绕重新编码的斗争

- Strengthening Separation Agriculture and Environment through informationalized seeds with a specific (scientific/immateral) content 通过含有独特（科学的/非物质）内容的信息化的种子加速了农业与环境的分离
- Separation Agricultural products and Food products through informationalized enzymes 通过信息化的酶使农业产品和食物产品相分离
- Separation Agricultural Products and Food Qualities through specific non-food products and components 通过独特的非食品产品和组成成分使农业产品和食品质量相分离
- Separation Agriculture and Health through specific additives and ingredients 通过独特的添加剂和组成成分使农业与健康相分离

Products: Combining immaterial/material content

产品：将非物质内容与物质内容相结合

- Seeds, enzymes, amino- and fatty acids, ethanol, ingredients, additives are **politicizing products**; creating new social and power relations in food productions

种子、酶、氨基酸和脂肪酸、乙醇、食品成份、添加剂是政治化的产品；在食品生产中创造新的社会和权力关系

- The codes in biotechnological artefacts are not inevitable but can be **changed**

生物技术人工制品中的编码不是不可避免的，而是可以改变的

II. Recodification: lessons from bridges, machines and plants

重新编码：从桥梁、机器人和植物中学到的经验

- Long Island Beach: Artefacts do have politics (codes)
长岛海滩：人工制品确具政治性（编码）
- Assembly line: Artefacts intervene in social relations
流水线：人工制品干预社会关系
- High Yielding Varieties: Artefacts strengthen unequal relations
高产作物品种：人工制品强化不平等关系
- Textile machines 19th century: Codes can be changed
19世纪的纺织机器：编码可以被改变
- Redesigned Seeds and food products as social transformers
重新设计的种子和食物产品可以作为社会变革的“助推器”

Recodification of biotechnologies in complex societies:

Struggles on different fronts

复杂社会中生物技术的重新编码：不同战线上展开的斗争

- Ideological front: Beyond pro-contra biotech debate 意识形态战线：超越对生物技术的支持-反对之争
- Strategic actions: Transforming the social relations which are inscribed in biotechnological artefacts 战略性行动：转变生物技术人工制品中所铭写的社会关系
- Tactical actions: Transforming the (im)material content of artefacts 策略性行动：转变人工制品的（非）物质内容

Ideological front (1): Going beyond pro-contra Biotech Debate

意识形态战线（1）：超越对生物技术的支持-反对之争

Society 社会

Technology 技术

Separated entities; technology as instrument 分离的实体；技术作为工具

Splitters 分裂者

Society and Technology are Interrelated; mediation

社会和技术是相互关联的；调节

Weavers 编制者

The mediation is arena of social struggles and opportunities

这种调节是社会斗争和机遇的竞技场

Re-designers 重新设计者

Recodification (2): Emergence of tailor-made biotechnologies (TMBT): Strategic actions

重新编码（2）：定制生物技术的出现——战略性行动

- Criticizing/Challenging the social relations/organization from which agrofood biotechnologies emerge (*Re-coupling what agro-industrial Biotech de-couples*) 批判/挑战农业食品生物技术所源发的社会关系/组织（重新连接农业产业生物技术造成的脱钩）
- Criticizing/Challenging the technical/social organization knowledge from which technology development emerges (*Commons and open source knowledge development*) 批判/挑战技术发展所源发的技术/社会组织知识（公共物品与公共知识的发展）

Recodification (2): Emergence of tailor-made biotechnologies (TMBT): Strategic actions ---CONTD

重新编码（2）：量身定制生物技术的出现——战略性行动（接上）

- Strengthening location specific resources for endogenous developments (*Food products/process as re-connectors*) 加强地方独特资源，实现内源发展
- Strengthening the generic capacity of the common (new forms of living labour) for uncovering potentialities for development (*TMBT*) 加强民众的普遍能力（新形式的活劳动），发现新的发展潜能

Recodification (3): Tactical actions for transforming the immaterial/ material content of biotech artefacts 重新编码 (3) : 转变生物技术人工制品非物质/ 物质内容的策略行动

- Choosing specific subpolitical scientific information (*early maturing, dual purpose sorghum seeds*) 选择具体的亚政治科学信息（早熟了的、双用途的高粱种子）
- Developing products as social dynamic forces (*Obatampa maize, Ghana*) 发展能够提供社会活力的产品（加纳的高蛋白含量玉米Obatampa）
- Developing products as levers for local developments (*lupine streetfoods, Ecuador, Waache Ghana*) 开发作为地方发展手段的产品（厄瓜多尔的羽扇豆街头食品，加纳的特色米饭和豆食品Waache）
- Products as mediators for the creation of social life (*production of commons*) 以产品作为中介，创造社会生活（公共物品的生产）

III. Recodification of seeds: Coupling Strategic and tactical actions 种子的重新编码：战略性行动与策略性行动的连接

- Integrating other social relations: 整合其他社会关系
 - Location-specific (not globally food chain oriented) 因地制宜（不以全球食品链为导向）
 - Recoupling farming to social/natural environment (not de-coupling) 将农作与社会/自然环境重新连接（而不是脱钩）
 - Alternative knowledge base (beyond expertcrat) 替代性的知识库（超越专家统治论）
 - Multi-purpose productions (not over specialized) 多用途的生产（而不是过于专门化）
 - Re-skilling craftsmanship (beyond brutally mechanization) 重新磨练匠人工艺（超越粗鲁的机械化）

III. Cont. Recodification of seeds: Coupling

Strategic and tactical actions (接上)

- Urban agriculture and rural processing (beyond urban-rural dichotomies) 城镇农业和乡村加工 (超越城乡的二元对立)
- **Rewriting the embodied political content in seeds 改写种子中所嵌入的政治内容**
 - Inclusion of care (not care-less/de-coupled productions) 包含了关怀 (不是无关怀的、脱钩的生产)
 - Inclusion of culture (diversity of agri-cultures) 包含了文化 (农业文化的多元性)
 - Inclusion of open source knowledge (production of commons) 包含了开放的知识 (公共物品的生产)
 - Inclusion of transformative power (reflexive design) 包含了变革性的力量 (反思性的设计)

III. Seeds production reclaimed: seeds as subjects; as subpoliticizing products 种子生产的权利诉求：种子作为主体、作为亚政治化的产品

- TMBT seeds stimulate transformative processes 量身定制生物技术种子激发变革的过程
- Produce new social relations 生产新的社会关系
- Strengthen development of commons 加强公共物品的生产

Conclusion: Reconstruction (re-codification) of the immaterial/material composition of seeds is a key area for establishing endogenous developments in each region/country.

结论：重新建构（重新编码）种子的非物质/物质构成是在每个国家和地区建立内源发展的一个关键领域

III. Food Products as Reconnectors

为了重新联接的食物生产



IV. Tailor-Made Biotechnologies for Endogenous Developments in China: A research proposal

量身定制生物技术对中国的内源发展：一项研究建议

- Practices of tailoring biotechnologies to location-specific developments: 生物技术适用于地方性发展的实践
 - Seeds as social transformers 种子作为社会变革的“助推器”
 - Food products as re-connectors 食物生产实现重新联接
 - Knowledge production for commons 面向公众的知识生产
- To be discussed 有待讨论

Thanks for your attention

谢谢！