

Agricultural innovation and contributive justice: the multiple advantages of participation



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Citizen Science: New epistemological, ethical and political challenges
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Food production and global challenges

- Major problems for human welfare:
 - Hunger and obesity
 - Malnutrition: deficiency in vitamins and minerals
→ noma, blindness, underdevelopment of brain and body
 - Pollution, contribution to climate change
 - Use of non or slowly renewable resources (soil erosion, pesticide effectiveness)

Science as part of the solution

- Both the advocates of biotechnology and organic agriculture (agroecology) see the development of science as an essential element in the process of solving these problems, however:
 - Biotechnologist generally find that the solution involves breakthrough science (mostly patentable)
 - Agroecologist tend to take a broader interpretation of “science”, incorporating traditional knowledge and incremental innovation (mostly not patentable).
 - Arguably, both agricultural methods could be used to feed the world
- Blurry boundaries between science – experiments - innovation

Agricultural justice in innovation: a proposal

- Commutative justice
- Distributive justice
- **Contributive justice**
- Intergenerational justice

Forms of justice

- Procedural justice
- Restorative justice

Establishment of justice

Opening up science & innovation

- Epistemic benefits: epistemic diversity, higher chances of developing adequate solutions (culture, poverty, environment, infrastructure, gender, race)
- Self-determination: participation increases the opportunities to redirect research
- Contributive justice: participation as a right

The right to participate in science

Universal Declaration of Human Rights (1948) art. 27:

“Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.”

The ICESCR (1996, art. 15.1) only refers to the right:

“(a) To take part in cultural life”

The demands of contributive justice

- (1) Opportunities to participate
- (2) Opportunities to develop skills
- (3) Opportunities to learn how to be productive
- (4) Fair evaluation of inputs
- (5) Duty to do one's share according to one's capacities
- (6) Fair division of meaningful work and tedious tasks

“From each according to their abilities, to each according to their needs”

→ With a special emphasis on empowering people to participate according to their full potential and creating the conditions where their input is well received and encouraged.

Opportunities to participate

- Access to training
 - Access to information and infrastructure
 - Make opportunities available
 - Eliminate hurdles and threats
- Allows wider citizen monitoring, opportunity identification and risks assessment

Opportunities to develop skills

- Opportunities to learn, develop and make frequent use of skills

→ Skills can be put into multiple uses (e.g. participation in science and defence of democratic institutions)

Opportunities to learn how to be productive

- Opportunities to acquire productivity-enhancing skills and knowledge
 - Access to infrastructure and knowledge to improve productivity
 - Inefficient work can deteriorate the overall work experience (disincentive)
- Harmonizing productivity increases the chances of having a diverse intellectual input

Fair evaluation of inputs

- Ideas should be evaluated on merit
- Relying on “big names” or other types of biases erodes scientific quality
- Fight discrimination (i.e. testimonial and hermeneutic epistemic injustice) and self-discrimination (adaptive preferences)

→ A fair competition of ideas increases cognitive diversity and prevents nepotism

Duty to do one's share according to one's capacities

- People should put their skills at the service of society
- This requires redirecting research towards the most urgent needs

→ Redirect curiosity or market driven research to solve urgent social problems (sustainability, poverty)

Fair division of meaningful work and tedious tasks

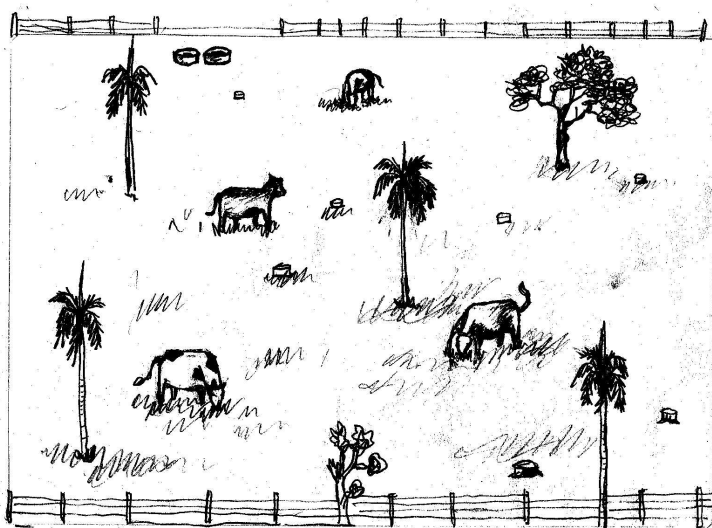
- An unfair division of meaningful work deteriorates the overall work experience, acting as a disincentive. It also impedes the use and further development of skills.
- A fair division of meaningful work is crucial to retain participation and maintain a productive workforce

From citizen science to knowledge-intensive agriculture

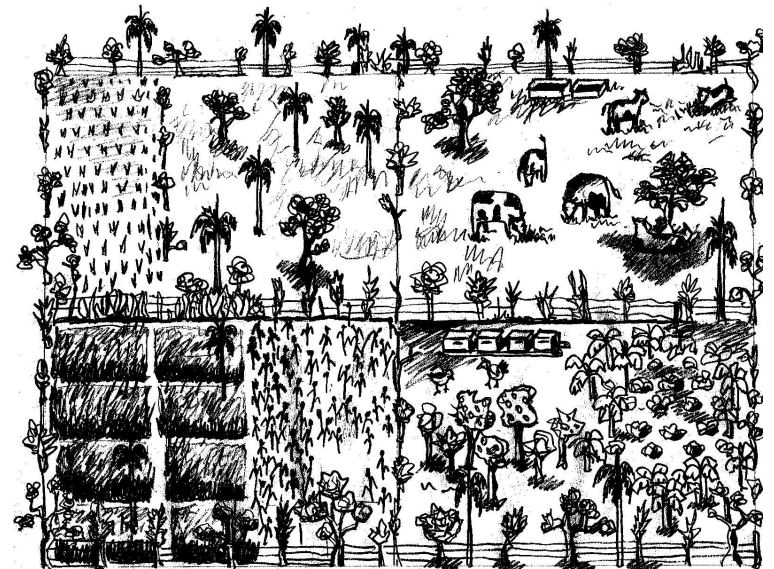
- (1) the intrinsic benefits of participation (on self-determination)
- (2) the opportunity to learn skills and improve productivity
- (3) empowerment, allowing people to contribute to social welfare
- (4) shifting positions of dependency to mutual influence
- (5) social recognition

Re-design farming systems

Traditional cattle breeding system



Agroecologically intensive integrated production system



Earlier related work

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Thank you!

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