

Public Debate, Collective Learning Process and Soil-plant system Expertise: When Scientific Knowledge Become Socially Distributed.

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Here, we aim to develop the conditions of possibility of a collective learning process for the forest ecosystem governance. We argue that stakeholders' discussion and public debate should be intrinsically interconnected with the expertise of the soil-plant cycle. As Chris Argyris underlines, "[i]t is possible to develop knowledge, both valid and which can be "put into action" in everyday life" and which "provides an opportunity to test it in everyday life"¹.

Primary forest is the most biologically diverse type of vegetation system and is characterized by a balance between biomass production and soil evolution. Soil, as the nutrient source, plays a crucial role in the forest productivity. Currently, only 21% of the world forests are indigenous. Human activities, through the "production paradox", disrupt this homeostasis between the nutrient source and the vegetal production.

The mobility of nutrients in the soil-plant system has to be taken into account for sustainable forest governance. Then, the knowledge of the relationship between soil and plant is a "proper way to compose, decompose, or recompose problem sets"² and could also be a proper possibility of "controversy"³ that allows us to elaborate a collective and critical learning process which "entails an appreciation of complexity and an effort to integrate problems into a more comprehensive whole"⁴.

Finally, our governance hypothesis focuses on a *critical environmental ethics* which integrates both the common sense moral feelings involving stakeholders and the knowledge of causal relationship in a forest ecosystem (i.e. soil-plant cycle). This critical environmental ethics will be established on a "*critical knowledge*" as Jean Ladrière underlines it into his work on science and rationality⁵.

¹ « La causalité intentionnelle : Expliquer, suivre et intégrer divers points de vue » in Argyris, C., 2000, *Savoir pour Agir*, Dunod, Paris, p. 257.

² Haas, M., Peter and Haas, B., Ernst, 1995. "Learning to Learn: Improving International Governance", in *Global Governance*, vol. 1, pp. 255-285, p. 262.

³ Limoges, C. et Doray, P., « Le débat public comme apprentissage social et comme régulation constituante : le cas de l'« environnementalisation » » in Schiele, B., et al. (dir.), 1994 *Quand la science se fait culture. Communication Actes II* (livre électronique), Montréal, UQAM-éditions Multimonde, p.3

⁴ Haas, M., Peter and Haas, B., Ernst, 1995. "Learning to Learn: Improving International Governance", in *Global Governance*, vol. 1, pp. 255-285, p. 259.

⁵ J., Ladrière, *Les enjeux de la rationalité. Le défi de la science et de la technologie aux cultures*, Aubier-Montaigne / UNESCO, Paris, 1977. "A critical knowledge," Ladrière underlines, "ought be able to self assess, to identify and discern within itself what is relevant according to the very activity by which it is constituted, and, through this, become able to evaluate on its own the value and boundaries of the validity of what it ends up proposing" p. 128.