

Gonzague Pillet (1948 – 2007)
in memoriam

One of the principal characteristics of Gonzague Pillet's work and more broadly of his professional commitments is to have been a builder of bridges: between multiple academic worlds, between disciplines – ecology and welfare economics, seen by certain as antagonistic –, and also between many professional worlds as, apart from having been tenure professor at the University of Fribourg, he was also a consultant committed to economic development. Finally in the academic world, as some of us can testify, he was, for many students, an efficient and discreet guide aiding them in the difficult task of writing a doctoral thesis.

Gonzague Pillet was particularly engaged in a discipline, ecological economics, which he had with others contributed to founding at the beginning of the 90s. He also helped to give it a theoretical and institutional founding. The central aspect of his work in this discipline, was to have been the first to introduce the concepts of eMergy¹ and eMergy analysis, at least in the French speaking world, in the context of environmental economic analysis, making particular reference to the work of Howard T. Odum, the famous American ecologist, of whom he was a friend and a student. It is nevertheless clear that his work is not one of a pure theorist, in the sense that his aim was not to create a school of thought, but more so the work of an artisan who uses concepts in reference to precise research contexts and expertise. He did not create eMergy analysis, but his analysis of the Swiss vineyard industry was – and remains – a reference in the subject², a methodological starting point for those who have an interest in the physical accounting of the environment and are looking to define the points of passage between monetary flows and physical flows in order to estimate the “work” of ecosystems. In this respect, he should also be given credit for the fidelity demonstrated to the conclusion of an approach of which he knew the high and low points but which did not benefit either in Switzerland nor in France from an unconditional support from the academic world or policy-makers. In the same sense, we owe him not to have systematically tried to disguise a difficult and demanding approach by giving in to the trends of discussions on sustainable development, a reference definitely easier to sell than that of energy analysis.

We will now return to a few defining moments of an original research path. The work of Gonzague Pillet starts with the writing of a doctoral thesis on environmental externalities, a quasi necessary path in the 1980s for an economist interested in environmental issues. This involved analysing environmental problems, on pollution or the overexploitation of resources, such as “market failures” or coordination problems between rational agents. Once these irregularities taken care of, i.e. once property rights are correctly allocated and the price mechanism is functioning properly, welfare economics assures economic growth without difficulties and a world polluted in an optimal fashion...

Once this academic exercise was finished, Gonzague Pillet, like many other economists, could not stop at this simple, nearly simplistic view of things. Especially because he was someone who wanted to apply economic analysis to real problems which largely escape this analytical framework. These problems which, at the end of the 1980s started to become more and more pressing: climate change, natural resource loss, technological risks, erosion of biodiversity...But, unlike some of his

¹ This approach expresses the sum of flows at the interface (capital and goods) in terms of solar energy content (eMjoules). It is a variant of energy analysis developed in the 1970s. According to this approach, the more the energetic content of a good or service is high, the more the work of ecosystems (analysed consumption or production processes) is important. It is in particular possible thanks to this method to define a sort of “ecological cost” of the interface processes and to associate them to their monetary value.

² Gonzague Pillet, « Case-study of the role of environment as an energy externality in Geneva vineyard cultivation and wine production », *Environmental Conservation*, vol. 14, n°1, 1987, p. 53-58.

contemporaries, who reject this narrow and orthodox framework of economic analysis, Gonzague Pillet preferred to follow the path of articulation and of integration of the orthodox and heterodox analyses. He looked for points of contact and for the common spaces between very different doctrines and disciplines, which he considered useful to the pursuit of a common objective, for instance, to put the environment back at the heart of economic analysis (in that respect, he would have liked to introduce H.T. Odum and K.J. Arrow, the latter being one of the great market theorists to whom we owe the demonstration of the existence of a general equilibrium).

After his thesis, Gonzague Pillet left for the United States to complete his formation at the University of Gainesville, with H.T. Odum, and returned at the end of the 1980s with a series of studies and more importantly a book, written in collaboration with the latter – *E³: Energie, Ecologie, Economie*³ –, which made French speaking economists discover the source of eMergety analysis and the basis of its application to macroeconomic and sectoral analyses. He attempted at the same time to apply the standard concepts of economic analysis to the ecological analysis of systems, in particular through the definition of the concepts of *energetic externalities* or eco-energy (unpaid productive contributions to ecosystems⁴) and of *macro-price* (evaluation from a macroeconomic perspective of the eMergetic price of a country's production, in a monetary unit). A work of diffusion and promotion of these analytical tools followed, particularly at the Centre Economie-Espace-Environnement at the University of Paris I, directed at the time by René Passet, one of the pioneers of ecological economics in France. From this work will emerge three theses defended in the 90s and directly linked to energetic analysis, that he will not have supervised but over which he could claim a certain paternity: that of Sylvie Faucheux and especially those of François Levarlet⁵ and of Jean-Louis Pasquier⁶; the latter two being directly linked to the work initiated by Gonzague Pillet.

With the publication of his book, *Economie écologique*⁷, the articulation of the concepts which he had begun previously became more precise. The ideas were purified and the limits more defined: for eco-energy, the role of the analysis of the interface between ecosystems and economic systems, for economic analysis, the definition of regulation mechanisms (definition of the price and calculation of losses and gains). Ecological economics is the discipline that provides the framework for the integration of these two complementary perspectives and provides a discussion helpful to the formulation of specific recommendations to policy-makers.

In his last publication, and in particular his work, *Economie de l'Environnement, Ecologie de l'économie*⁸, the approach becomes even more complete and in a certain sense reaches maturation. The concept of *emternality* replaces that of eco-energetic externality as the extension in environmental economics of the traditional concept of an *economic externality*⁹.

³ Gonzague Pillet, Howard T. Odum, *E³: énergie, écologie, économie*, Georg Editeur, Genève, 1987.

⁴ Gonzague Pillet, « Prix non payés en écologie et en économie de l'environnement », *Revue économique*, vol. 41, n°2, 1990, p. 321-334.

⁵ François Levarlet, *Les modèles éco-énergétiques à l'interface économie-environnement*, thèse ès sciences économiques, Université de Paris I Panthéon Sorbonne, 1996.

⁶ Jean-Louis Pasquier, *Analyse éco-énergétique et économie écologique: fondements, méthodes et applications*, thèse ès sciences économiques, Université de Versailles St-Quentin-en-Yvelines, 1999.

⁷ Gonzague Pillet, *Economie écologique*, Georg Editeur, Genève, 1993.

⁸ Gonzague Pillet, *Economie de l'environnement, Ecologie de l'économie*, Ed. Helbing & Lichtenbahn, Bâle, 2006.

⁹ Gonzague Pillet, « Emternalities as Counterpart to Economic Externalities...! », *Ecological Modelling*, vol. 178, n°1-2, 2004, p. 183-187. Whilst the concept of negative externality refers traditionally in environmental economics to negative economic effects (pollution) which are not accounted for in market exchanges, that of emternality refers to the positive effects represented by the environmental goods and services used in economic production and which are also not accounted for by market exchanges.

Adding to this is the concept of meso-economic analysis (a term borrowed from industrial economics) of environmental benefits and costs at the scale of an industry, an approach which attempts to provide concrete quantitative estimates of ecological impacts and which complements the analysis usually realised at a national level. In this respect it is worth underlining his study of the cement sectors, of electricity production and of urban communities in Maghreb and Mashreq countries¹⁰.

In parallel to these theoretical activities, Gonzague Pillet developed a career in consultancy at the service of public communities and firms by applying the concepts of environmental economics and promoting the concept of “unpaid cost”. Through the toolbox of ECOSYS, the consultancy firm he founded and of which he was the President, we find numerous standard economic tools, including cost-benefit analysis, which he wished to use in a complementary manner to eco-energetic analysis (of which he deplored the lack of interest from policy-makers) and to the original approaches he had developed. At ECOSYS, Gonzague Pillet also initiated some of the environmental economic accounting work of the Swiss Federal Office of Statistics¹¹ and he especially contributed to the formation of environmental policies (notably in the domain of fiscal ecology and the taxation of road transport) in OECD countries and again in Maghreb countries. He also analysed, again in this region of the world, climate change adaptation strategies¹², hence reminding us of his involvement with the International Panel on Climate Change. His consulting activities were echoed in numerous publications, such as his very lucid engagement for an Ecological Fiscal Reform¹³ and his book *L'efficace, le juste et l'écologique*¹⁴, in which he explores the possible links between an efficient protection of the environment and the reduction of social inequalities across the world.

We can see that curiosity and the absence of dogmatism were the character traits of Gonzague Pillet that struck those who listened to him or read him for the first time. His open mind and his broad culture (enhanced by his knowledge of languages) were not human qualities only, they became a “methodological” advantage to perceive the hidden connections and to discover the new links within a, sometimes very insular discipline, economics. In this sense, Gonzague Pillet leaves us a method that we can qualify as “integrative” in a systematic logic and which remains one of the cornerstones of the approach of ecological economics. It is also this curiosity and this open-mindedness which led him to explore other literary venues¹⁵ and other jobs, a consultant, which nourished his reflection with broader thoughts and perspectives.

FRANÇOIS LEVARLET, DAVID MARADAN, JEAN-LOUIS PASQUIER, FRANCK-DOMINIQUE VIVIEN

¹⁰ Gonzague Pillet, David Maradan, Karim Zein, «Evaluation des couts de la dégradation de l'environnement à l'échelle méso-économique, secteurs des ciments et de l'électricité au Mashreq et Maghreb (2001-2006)», Ecosys SA, Genève, 2006.

¹¹ Pillet, G., *Les comptes économiques de l'environnement – Vers une intégration des données de l'environnement dans la comptabilité nationale*, Office fédéral de la statistique & Société suisse pour la Protection de l'Environnement (SPE), Berne, 1992, 2 vol.

¹² Gonzague Pillet, « Changements climatiques : effets sur l'économie tunisienne et stratégie d'adaptation pour le secteur agricole et les ressources naturelles (2005) »; « Elaboration d'une stratégie nationale d'adaptation de l'agriculture tunisienne et des écosystèmes aux changements climatiques (2006) », Ecosys SA, Genève, 2005/06.

¹³ Gonzague Pillet, Xavier Oberson, David Maradan, *et al.*, *Réforme fiscale écologique - fondements, applications*, Ed. Helbing & Lichtenhahn, Bâle, Genève, Munich, 2001.

¹⁴ Gonzague Pillet, *L'efficace, le juste et l'écologique*, Ed. Helbing & Lichtenbahn, Bâle, 2001.

¹⁵ Gonzague Pillet, *Les donneurs de temps*, Mecenato, Lisbonne, 1990 ; Gonzague Pillet, *Le nomade et l'éboueur*, Georg Editeur, Genève, 1997. *Le nomade et l'éboueur expliqué à mes petit-fils*, reprises this theme under a different angle. It will be published in 2008.