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The Alexander von Humboldt Science Prize provided me with an opportunity to spend nine months between 1999 and 2001 at the Center for Development Research (ZEF) of the University of Bonn. ZEF had recently been established, and at the time the Center was developing its strategy for research, education and outreach.

This was an opportunity to participate in an exciting experiment: a new center, established within a University but with a strong mandate to contribute to

decision-making and policy on development. ZEF's three departments brought together natural, social and economic sciences with the aim to conduct research, and provide teaching at Ph.D. level. These first years were a time for exploring, discussing and experimenting with many of the issues Academia faces as it aims for greater policy relevance and, therefore, engages in interdisciplinary science: How to provide disciplinary excellence and depth while conducting broad interdisciplinary research? How to develop an institutional strategic vision while also accommodating demands for very specific development oriented research for a variety of funders? How to conduct timely research in a policy environment while also fulfilling formal academic mandates? How to motivate people to spend time engaging with other disciplines and with knowledge users? None of these questions have a single answer; they have many possible responses which need to be "lived", not only discussed theoretically.

Continuing on after the initial Humboldt prize years as a ZEF senior fellow and later member of its International Board, I saw how the push and pull between disciplines for a purposeful science has continued throughout the years. There have been remarkable outcomes in scientific and academic productivity, in building personal and institutional capacities internationally, in generating publications and outreach that go beyond single topics and investigations, and in building and maintaining international research and teaching collaborations. Yet, even today, the three departments of the Center are struggling when it comes to jointly framing research questions, synthesizing socio-environmental results, and turning multidisciplinary projects into integrated interdisciplinary operations and knowledge.

My own work on the American continent involved supporting international and interdisciplinary teams to conduct research programs which can contribute to policy development in the region and its countries. From that practical (and very political) perspective, ZEF's struggles and contributions towards a new, user-oriented science take on great importance. ZEF is one of a few institutions around the world which explore the frontier of applied interdisciplinarity (or transdisciplinarity) with many experiments, successes, errors, and always the flexibility to change and move on. During its 20 years of developing, maintaining, defending and modifying approaches to research and teaching, ZEF has contributed not only to a body of knowledge but also to the soft skills that are essential to transforming a merely additive multidisciplinary effort into integrative interdisciplinarity. The dialogue between human and natural sciences, the mutual understanding of fundamentally different approaches to what, for instance, constitutes scientific proof, the patience and respect for the other disciplines and their scientists have rarely been part of university teaching. Yes, truly integrated joint research and the joint publication of outcomes may still be relatively rare even in this interdisciplinary center, but established scientists of the "old schools" talk, ask questions, develop ideas and produce together.

Prejudices in the academic world are deeply entrenched. In my own work, I have heard a senior natural scientist comment after four years of interdisciplinary collaborations, that social scientists "really need to learn some basic science". At the same time, because we are all social animals, there is a temptation to assume that the understanding of how societies work is innate and does not need academic discipline. On the other hand, social scientists are reluctant to engage with the natural sciences, their data floods, "imperative" conclusions and aversion to qualitative information. It takes not only effort but also much time and individual reflection to overcome such judgements and develop a bridging understanding. Institutions such as ZEF, which have interdisciplinarity and user-oriented transdisciplinary science as a core mandate, are making slow progress towards the mixed-team work that is required by the profound social-environmental problems of development and global change. Experience from many places indicates, that the task is perhaps too difficult to complete inside established careers, structures and academic norms, and can only be completed with a generational change.

This is where ZEF is making an important additional contribution with its Ph.D. program. This was one of the first programs in Germany to adopt the North American approach of combining both research training and further formal teaching, thereby creating an opportunity for interdisciplinary education. Deepening the students' disciplinary knowledge while also providing broad exposure to interdisciplinary methods, content, working groups and projects generates a new generation of scientists for whom an interdisciplinary discourse will come naturally. Much like "millennials" naturally interact with the IT devices that are an integral part of their lives, these new scientists will bring ease to what has long been a difficult exercise. Over 600 such new Ph.D. scientists have now come out of ZEF. This will enrich the scientific landscape, particularly in developing and threshold countries for which ZEF has an excellent return record: 80% of alumni are again active in their home countries. With a tenth of the PhDs coming from Latin America, some of the interdisciplinary discourse has now arrived here, particularly since ZEF is now also engaged in new research projects on this continent.

Tying ZEF into university structures, and recently also into Bonn University's international excellence Ph.D. program (BIGS), sharing academic appointments between faculties, maintaining an active dialogue with University leadership, regional and federal ministries, all help to anchor ZEF in established institutions. This is necessary for the stability of ZEF, and also brings impulses for change to institutions beyond ZEF. Both flexibility and quality control have been key in this process.

It has been a privilege and enriching experience to follow the center through its 20-year history and see its struggles and successes to make science more policy relevant. Writing this from Montevideo and thinking about the struggles and successes in developing science that can be a motor of development, a guide for navigating global change and a mentor for policymakers on the American continent, I congratulate the University of Bonn and ZEF for creating an avant-garde institution that has not stood aloof but shared its progress with the world.