METABOLISM

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BLIND MEN AND THE ELEPHANT

Metabolism is a beautiful metaphor. But the underlying questions are different: what do we use, for whom, in the name of sustaining what? Who consumes the resources, who carries the waste, who profits from the transformation? Those seated around this table — an energy policy researcher, an ecological economist, an urban commons activist, and a bio-artist — attempt to understand metabolism by looking from different scales. And all are aware of the blind men and elephant story: wherever each one touches the elephant, that is all they see.

We begin with Peter Menzel's photographic project Hungry Planet: the weekly food consumption of families from different countries placed side by side. A Turkish family on the left, a Sudanese family on the right. Different sources of carbohydrates, different protein ratios. When you translate this into energy, the same landscape appears: which societies use which types of energy? Coal, oil, nuclear? For what — electricity, heating, transport? In which sectors — industry, housing?

Single-number indicators — "if everyone lived like us, we would need 2.2 earths" — have powerful communicative force but kill nuance. A layered approach makes visible different points of intervention at different scales. Electricity can replace certain fuels, but aviation still depends on petroleum. To produce policy without seeing these layers is to move blindfolded.

> "Questioning what we do, what we use, and for what, is a very great priority. If we put justice at the centre while doing so, we can continue better."

The Galápagos Islands are a concrete example. WWF wants an ecological footprint measurement; researchers propose metabolic analysis. A five-hundred-person island, ninety per cent under conservation, all energy arriving by tanker by sea. Standard footprint measurement gives a simple result: an isolated island problem. But metabolic analysis reveals a different reality: all the imported oil goes to tourists, money doesn't stay on the island, the local population cannot expand because of conservation status restrictions. Different methodology, different political reality. The conclusion: a recommendation for multi-day stays rather than the cruise model. Method determines what becomes visible.

We struggle enormously to speak across disciplines. Everyone speaks the language of their own field, attends their own conferences, writes for their own journals. Academia has become an increasingly closed loop — the same people, the same conferences, the same discourses. To break this loop, we need to meet with activists, artists, and people from different practices. To simplify academic language, but without losing complexity in the simplification — this balance is very difficult but essential. And there is a personal journey here too. Growing up in Saudi Arabia — seeing resource inequality, gender oppression as a child — then reading sustainable development in Sweden, researching energy policy in Barcelona, running projects from Ecuador to South Africa. Metabolism is not merely an analytical framework; life itself is metabolic — where you flow from and to, what energy you spend and where, where you reproduce yourself.

ENVIRONMENTAL CONFLICTS AND JUSTICE

Environmental justice is the political face of metabolism. Projects imposed from above — dams, mines, urban renewal — affect local communities in different ways. Those affected resist with different discourses but a shared objection: through petitions, protests, legal processes. Gezi Park made this language comprehensible to everyone: before it, explaining an environmental conflict took a long time; after, people understood immediately.

> "Gezi Park became something that made our lives easier. When we talk about environmental conflict now, people understand much more readily."

But there is a tension here. Writing, academic papers — this work will not be done that way. We write so much — who reads it? Visual language has throughout history been more powerful than written or spoken language. Art and the visual have a different effectiveness in communication. NASA's climate animations, a billboard, a radio programme — these are different channels but all ask the same question: how do we carry knowledge? When a map of Turkey's environmental conflicts is produced, a holistic perspective guides people towards understanding — unlike scattered papers, a single visual representation shows the whole picture.

Even within the field of ecological economics, interdisciplinary work is not easy. Economics departments teach through mainstream American programmes; people with interdisciplinary doctorates struggle in the job market. Reform at the level of education is slow, but research culture can transform more quickly. If you have strong mainstream credentials — like Bosphorus University Economics — you can do interdisciplinary work. Otherwise, you remain outside the system.

Urban metabolism research is another layer. Cities are dependent on external inputs — energy, food, water, materials. Internal efficiency improvements are limited; structural dependency is external. Istanbul is a city of twenty million — can it feed itself? We do not know. But there was a period in history when it could, and that is important knowledge. When a map of environmental conflicts across Turkey is produced — mines, dams, thermal power plants, urban renewal projects — hundreds of conflict points appear across the whole country. Each is meaningful in its own local context, but viewed holistically, a common pattern emerges: top-down redistribution of resources, local community resistance, and the suppression of that resistance.

Personal stories also run parallel: someone who began with birdwatching and wanted to become a vet, then biology, then economics, then ecological economics, then environmental justice — navigating between disciplines across an entire life. A passion that began with diving turns into the practice of cataloguing sea shells at Bozcaada for Turkish scientific records. Personal curiosity evolves into scientific contribution, but this transformation is never planned.

> "I never once thought about what I was going to do with any of this. I lived it."

A SLOW SOCIAL METABOLISM

Before Gezi, commons groups were building bridges between different movements — public universities, precarious labour, ecology, food, public space. Four or five forums were held. Then Gezi came and suddenly everything converged. But afterwards, an atomisation occurred. We were pulverised, scattered. Depression, careerism, family formation — individual withdrawal from collective energy. But from within this dispersal, something new germinated: Dürtük — the Resistant Producer and Consumer Collective. Its very name is a programme: food politics centred on resistance.

Dürtük's practice is simple but difficult: orders from local producers every week, distribution every week, labour every week. A coordination team of twenty to twenty-five people, a network of two hundred and fifty to three hundred households. A venue in Beyoğlu — Dünya Mekan — that serves simultaneously as distribution point, meeting space, and exhibition venue. Every week for more than two years, with effort but with persistence.

> "We place orders every week, with difficulty. They go every week, do the shopping, distribute every week. With difficulty."

Efficiency is rejected — consciously. Four people could do the weekly work, but more are involved, because the issue is not logistics but resocialisation. To continue the adjacencies, the sociality that Gezi produced. Labour is shared, tasks rotate, hierarchy does not institutionalise. "There is still market pressure" — but in spite of it.

The question of price is complex. With two hundred and fifty to three hundred people, you cannot compete with supermarket prices. But "fair price" is determined by a different logic: dialogue with the producer, seasonality, the real cost of labour. When Uncle Mehmet and his wife Cemile cannot work in the rain, you cannot evaluate them purely on the basis of price. Moreover, the producers themselves are under attack — agricultural land is threatened, environmental conditions are deteriorating. This generates a political quality beyond market logic.

There is also the question of "growth." Dürtük does not want to grow — consciously. To grow too large is to lose depth. Building sustainable long-term intimacies, preserving the thickness of the relationship — these weaken as scale increases. Compulsory efficiency kills practice. For this reason it remains small, but within the smallness there is an intensity. Collaboration is ongoing with the İzler group — artists — and hand-printed promotional materials are produced. Everything by hand, face to face, slow. Behind Dürtük are concrete struggles: the Northern Forests resistance; the Yedikule Gardens — century-old urban gardens under threat of demolition — the Piyalepaşa Garden; the sixteenth-century mosque garden of Mimar Sinan, in the shadow of an eight-hundred-million-dollar urban renewal project.

Food sovereignty, urban commons, environmental struggle — all intertwined, all part of ecology.

> "The economic sphere, the environment, resocialisation — these are all intertwined. Part of ecology."

FROM MICRO TO MACRO

A bio-artist magnifies what she sees under the microscope. Bioluminescent bacteria — do they emit light out of fear, for reproduction, for concealment? Even scientists do not know. An octopus egg found by chance in Tenerife — which species does it belong to, what function does it serve? Unknown. But it was "certainly designed, through years of evolution, to be placed exactly there." This sentence reminds us of the value of not-knowing. The human perspective is trapped in the middle — we cannot see the too-small, we cannot grasp the too-large. Tools — microscopes, Google Earth, satellite images — expand our perception, but each expansion opens a new unknown.

The resemblance between the micro and macro worlds is astonishing: the same patterns repeat between the internal structure of a cell and the map of a city, between the branching of a leaf vein and a river delta. Metabolism operates at every scale — from the single cell to the megacity.

> "What moves me most in nature is nature's randomness, its unknowability, its directness."

Scientists can lose the capacity for wonder through repetition. Art restores it — through different forms of representation, different perspectives. When a biologist has looked at a cell a thousand times, they no longer see it; when an artist reconstructs it in glass and light, everyone sees it for the first time. This is a "re-enchantment" — the reanimation of knowledge through aesthetic experience.

Material ethics is also a question of metabolism: how do you produce plastic by natural methods? Glycerin, vinegar, biodegradable binders — but even "natural" substitutes feel artificial. Art itself is also a metabolic cycle: inputs (knowledge, materials, experience) are transformed, outputs (work, exhibition, dialogue) emerge, and waste is unavoidable.

Working in a bio-art programme at MIT, monthly laboratory visits at American universities, teamwork with biologists — this collaboration is itself a metabolism. Scientists discover craft; artists discover biological observation. "Sometimes scientists cannot think of simple things, or cannot see what we take for granted as natural." And the reverse is equally true: the artist could never have reached the octopus egg outside a laboratory. This mutual access

— entering each other's worlds — is the real meaning of interdisciplinary work.

THE CIRCULARITY FALLACY

The United Nations development apparatus now speaks of "circular economy" and "social inclusion." But the underlying assumption goes unquestioned: is a closed-loop metabolic system possible? The laws of thermodynamics do not allow it — every transformation involves an energy loss, entropy increases. Mainstream economics has abandoned thermodynamic thinking since the 1950s; generations receive an education in "circular economy" without understanding thermodynamic limits. Metabolism is inevitably an open system.

It has inputs, outputs, waste. To "close" it is not possible, but it is possible to slow the flows, distribute them equitably, reduce waste. Here we return again to Dürtük's practice: "a slower social metabolism" — a consumption habit based on food, local, proximate, relational.

> "Writing will not do this work. That is why strengthening the visual dimension is very important."

But visual language is not sufficient alone either. Without deep writing, research, and accumulated knowledge behind it, visuals also float in a vacuum. Simple messages have high communicative power, but "without all that writing behind it," depth is lost. Both together: layered analysis and accessible visual language. Each of the blind men touches a part of the elephant; but when all look together, the elephant is visible.

And there is this: conditions are deteriorating. In 2011, at the peak of Istanbul's popularity, an ecological economics conference was held — now budgets are constrained, there is unease, things are not good at all. These gatherings themselves — sitting and talking, breathing, coming together — are an insistence in spite of conditions. Returning to the most fundamental meaning of metabolism: to transform in order to stay alive, to take and give in order to transform. And an ethical question hangs in the air: metabolism is not merely "is it sustainable?" but "how should humans live together with other living beings?" The metabolism metaphor carries specific political resonances — can one imagine non-hierarchical systems? Layered structures like geological strata, or an anarchic metabolism? While doing technical work, holding these ethical-political dimensions before our eyes, making them part of critical inquiry, is necessary.

This conversation too is a metabolism — an exchange of knowledge, experience, emotion. Slow, insistent, transversal. A perspective that encompasses socio-ecological metabolism is birbuçuk's "metabolic cradle" — the framework in which we sit, the air we breathe, the experience we digest.