01 A Timeless Dialogue of Nature's Philosophy

Interview with: Ar Prashant Dhawan

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Abstract:
Prashant Dhawan, co-founder of Biomimicry India Network, discusses biomimicry as a vital, cross-disciplinary approach to reconnecting with nature. He critiques modern society's trust deficit and "place blindness," where human institutions overshadow ecological realities. Biomimicry, he argues, helps us ask nature for guidance, offering holistic, time-tested solutions. He emphasizes the need to shape human culture and economy to fit within nature, rather than forcing nature to serve human constructs. By learning from 3.8 billion years of evolution, biomimicry ensures responsible decision-making, reducing unintended consequences and fostering a sustainable, reality-driven way of life.

In a world of constant chaos and change, architecture, even at its best, cannot stay still.To keep up with this endless entropy, we'd need an endless exchange of knowledge and a constant broadening of mind's horizon.

The fifth volume of Kalpa includes a theme revolving around exploring sustainability through nature inspired designs or as we title it: Bionicles: the chronicles of nature. Inspired by Janine Benyu's principles, Bionicles examines nature as a model, a measure, and a mentor and the interview below is a testimony to the application of these principles.

Q1. As the cofounder of Biomimicry India Network, we would like to know your inspirations and influence in this discipline.

I would like to take this question as something which should be much bigger than architecture, if I may say so. One of the key questions I would like to highlight in 2024, as we talk and we look around our planet, and when I say our planet, in many ways, the first thing that seems to occupy our imagination is the human species, which itself is a very big flaw. However, somehow when I say the planet, most of us would imagine what's happening in the city, in the economy, in the society, which, yet again gives us another flawed idea of where we live. There are two words, which I feel are central to all of us. One thing is what is real, and second is trust.

Now let's go a little deeper. Consider, we really look at human culture right now, one will see there is a huge deficit of trust. If we put our hand on our hearts, you'll find people really have lost trust in most of the institutions that we have imagined. We don't trust politics. We don't trust businesses. We don't trust religion. It is surprising that a lot of us actually don't trust religion. Even academia is not to be trusted fully. ***They give us knowledge, but can they give us direction?*** *So the impending question is that every human institution is prone to be hijacked by an agenda or incompleteness of knowledge.*

Yet, the capabilities of humanity are huge. So at one end you have huge capabilities, at the other end, the direction of these capabilities are not clear, because the question of 'whom do you trust?' remains. To me these are the bigger questions, whom do we trust? Where do we look? Whom do we ask?
And in that journey, one comes across a field which says, why not look towards nature? And that's where my journey started because at the first glance, it's an amazing revelation. It's an awakening. Why not look towards nature?

However, just that thought is not enough. Though it gives you a singular high, very soon you want to know, how?
How do we ask nature? Biomimicry, in my simple way of understanding, is a process of demystifying this asking of nature across disciplines, and across practices. Because nature is completely holistic. It does not recognize the silos that we have created.
biomimicry seems to me, seeks to answer the question: whom do you trust? My guess is, this can be the unifying threat that we could be looking for.

To the other question, on what is real? And why do we need to even talk about reality? Because in all fairness if I were to ask to mention ten brand names of companies and what they make really well,it wouldn't take a long time to enlist . However, if I were to ask ten names of fellow organisms and one function that they do really well. I think most of us will be silent or will be quickly googling or asking chat gpt.
Let us now really think about this: all these companies are less than 50 to 100 years old, and nature is 3,800,000,000 years old. So, what it is telling us is that, we have become so economically present that we have become place blind. If we become place blind, we are intrigued to know what is real. Let's put it another way:
What is real? Let us reframe this question. Reality is that which does not change based on what you believe or you don't believe. WIth this thought, one might realize that most of the things change if you don't believe. If you look at the currency note, I promise to pay the bearer. If you don't believe in that promise, it's just a piece of paper. So is it real? And, reality is also something which is experienced with all life, not just humanity. Biomimicry helps us reawaken to what is real and what are the cultural cultural stories that we created. Today, they have become so overpowering that we are mistaking them to be real.
Why should one consider this thought to be important? Because what is beginning to happen is that in our current generation, in our education and in our practice, we seem to be feeling that we need to shape life, the living environment, nature, so that it can fit in and nourish the human economy. Now here's where reality is important because the human economy is a fiction. It is not real. Imagine the seriousness with which we are hoping and expecting everything to fit in and flourish the human economy, which is not real.
That is catastrophic. The awakening should be: "how do I shape my economy and my culture to fit into nature?" This is real. This will not change. One can play around with the economy, but not with gravity.

This is a non-trivial thing. Firstly, biomimicry brings reality back into the game and instead of looking at sustainability in terms of silos, we get a holistic understanding. Secondly, biomimicry also helps us deal with the fact that we might not know everything. Simply put, if we don't know everything, it's a good idea to look at nature because without necessarily going through college, nature has experienced 3,800,000,000 years of evolution. So if something is there, it has been factored in without necessarily coming into our books.
When we adopt and learn from nature, we in some ways make a more responsible decision which will not have unintended consequences. I feel, biomimicry is a non-negotiable way of life. One should begin to adopt and develop and co create, together. Thus, biomimicry can be perceived as a vast field.

Q2. As far as my knowledge extends, biomimicry is interdisciplinary in nature. And, coming from a design field, I think that it is a wonderful way of design thinking. How would you interpret the same with your journey in biomimicry?

I completely agree with the fact that biomimicry is probably the most holistic and most integrated way of thinking and living. My journey has taught me that as you go more and more into observing nature, you begin to say that everything is interdependent

and interconnected. Many of the silos we have created are very important to run the industrial design of the economy, but they might not be very effective as we go to the next stage of our economy. If I may dare to give it a name, and it's not my name, it's lot of people have said that we are done with the industrial age. And, we have to design for the ecological age.

Interestingly, the ecological age cannot be designed on mechanical and industrial principles. These principles have to be the ones which are common with all of life. So in my journey my biggest awakening has been to explore the idea of a common design principle. Not only for humans, but a common design principle, which all inhabitants of this planet should be adhering to. Now that's a big question and a wonderful one too!
Something which is inclusive. Today we are talking about inclusion - Why consider inclusion of only humans? Why not include the cyanobacteria? Whether you have 3 legs or long tails or stripes, why not include all life? That would really be the ultimate solution. Biomimicry gives us certain design principles, which tell us how to be responsible inhabitants of this planet. Once this is known, one can go ahead and become an architect, a politician, a journalist or perhaps even a bank robber! It doesn't matter. Eventually, one has to come back and live life on this planet. Ironically most of us don't know how to live on this planet, but we know very well how to operate in this economy. How absurd is that? This has been a revelation and every day it becomes more and more clear to me that this is where we should be evolving and adapting. This has been my journey - it is true the journey has been very tough. The system which it challenges will not nourish biomimicry. Financially speaking, it has been tough. Nevertheless, it is very rewarding in the kind of resonance one finds with students and other sensitive individuals who can see the larger big picture. So it's a humbling journey and a process which I would be very happy to see more people join and make it a big movement.

Q3. How would you describe the current scenario of biomimicry in India, and its applications to the other streams and specialization fields of urban design and product design. What do you think is the current scenario?

The current scenario in India is very primitive. It is very strange, and interesting to know that the eastern philosophy, especially the ancient Indian knowledge systems and biomimicry have a very deep resonance. If one goes deep into the principles of nature, which is biomimicry, and you look at the ancient Indian texts, they are so amazing, the language might be different, but the essence is very similar because both of them recognize that humanity is part of nature. We are not separated from nature. The separation which happened in the industrial revolution in the west, especially when Rene Descartes, the scientist, talked about it as a duality (mind and body).
It was expected that biomimicry would flourish and India would be a thought leader. Unfortunately, there seems to be no serious funding or support for biomimicry. It is indeed a big opportunity. It will be considered a big loss if we end up studying books written by the West rather than writing the books ourselves. Having said so, I would also think that, while some efforts to teach biomimicry have started, there is a little risk that we have not put any quality control on who is teaching. There has to be a recognised certification or maybe a prequalification for one to teach Biomimicry. This is important simply because biomimicry can often lose its depth if it is just 4-5 examples which have been read on the Internet. It would be nice if, in India, we can introduce a system of certification that will further encourage and capacitate teachers to explore and instruct biomimicry in a more structured fashion and this, in my view, will eliminate the risk of wrong teaching.

Q4. Biomimicry, like we discussed, is an interdisciplinary way of life and design thinking. In practice, how would you like to explain the collaborative efforts and the teamwork that goes on into all of this?

That is a very good question. I think that a big challenge remains with our existing institutions.They have been separated into colleges and departments, while nature doesn't really recognize this. Biomimicry requires collaborative efforts. Working together need not be a physical congregation, but there is a need for a structured methodology or framework which is a highlighted problem diagnosed and understood in a multidisciplinary fashion. This is not very difficult actually: the strange part is that a lot of the tools and methodology that we have already developed can be easily adapted to enable this multidisciplinary collaboration. So one of the critical things which is now really well developed and offers a very good platform is systems' thinking. A certain base level education into system integration really helps in multidisciplinary collaboration. Here, one of the important aspects is how we ensure that the biologists and people who do life sciences are integrated into the process. A lot of these processes involve engineers, economists, architects, who've traditionally not worked with life sciences. The good news is it's not difficult because the tools exist. The problem is that we don't have leaders who are ready to give that initial funding and platform to enable this.

I think we are at a state where multidisciplinary collaboration is very easily possible. Look at the amount of tools that we have and most of the people I find are just wasting time, not knowing what to do. We also have a deficit of visionary leadership. We might have the tools, but we lack the imagination. Since our primary work has been education, we have been very fortunate that we have taught across disciplines, across age groups, and also in multidisciplinary cohorts. In cohort would mean that in the same class you'll have a chartered accountant student, you'll have BBA, you'll have a bioscience, molecular biology student, you'll have a design student. It is a good mix. We teach such courses regularly and have taught in more than 30 engineering colleges, many design schools. It is also a credit bearing course at the National Institute of Design (NID) and at Shrishti Manipal Institute of Art, Design and Technology. The pedagogy is not limited to theory, they have been demonstrated.

There's also been a small session at The Indian Space Research Organisation (ISRO) and we've done corporate workshops with companies such as Marico Industries, TVS, Mahindra and Mahindra. Why was this important? Because here, there is demonstrated scientific evidence that this is an integrated way of problem solving, which is agnostic to who and where you come from. It can be interpreted.
It would be wonderful to do some projects, but that, again, requires some kind of a funding or patronage from either from the government or private individuals, which is where, I think Biomimicry is stuck. India continues to carry a very colonial mind pretending to be very modern, but deep down it's very colonial. Today, nobody invests in this kind of a venture but are willing to fund only for scaling up. A venture is considered to be a foggy step which with time, gains clarity. Here I am today, hoping that Indians will start funding a venture like this which carries with it zero risk and at the same time is an awakening.

Q5. You have a lot of experience, and you have done a lot of research in this field. Would you like to share your works and research whether it's collaborative or real time execution?

Most of our work has been with students. I think at least 50 of these projects would be commercially viable and they would help create sustainable solutions. But all of this requires sustained funding and a platform which unfortunately doesn't exist. There have been many projects which have been across not only product design, but also process design and policy design. We are trying to do things differently, but resources are a very big constraint. Individuals cannot create new knowledge without having any active source of funding. But we do feel that, in this era where not only students, all of us have relatively less attention spans and a very rich media, communication of biomimicry can be gamified and conveyed through storytelling. With this thought, we initiated a project which was called "A New Ecology for a New Mythology" for the ecological age. It was an ambitious project, but due to lack of resources, it's moving very, very slowly. We are hoping it will be a new way of learning instead of boring classes. Everybody can learn together, not only as students but also as families. Why do we think that, on a dinner table learning cannot happen when it comes to learning about the planet? We can do it now. But one day, I think we'll get there.

Q6. Sustainability is often associated with words like efficiency, conservation, self organisation. The principles of sustainability and biomimicry are often perceived alike. While sustainability is the need of the hour, where would you intersect and differentiate these two fields?

I would think that biomimicry getting into academia across the board is inevitable. Inevitable because it's more about awakening. Once the obviousness of this course becomes clear, it will be adopted by everybody. What I also think should be happening in parallel is an investment in making sure that there is some certification of who is teaching. I have experienced that in a lot of colleges that impart biomimicry, students have only explored 4-5 case studies. That is a small issue that can actually highly dilute the purpose of biomimicry. So, in my view, a certification for teachers is important, so that it does what it is supposed to do.

Q7. Sustainability is often associated with words like efficiency, conservation, self organisation. The principles of sustainability and biomimicry are often perceived alike. While sustainability is the need of the hour, where would you intersect and differentiate these two fields?

Sustainability, that word only makes sense if it is combined with life, right? If one really asks the question, what are we trying to sustain?, as we go deeper and deeper, we see that we are trying to sustain water, we are trying to sustain top soil, we are trying to sustain air. We are trying to sustain these because these are life support systems.

We are trying to sustain life. Hence, whatever is required for life to flourish, that is what we are trying to sustain. Now as you go deeper into the layers, it's not just water, air, you'll find life is interdependent, interrelated. Even the human body has trillions of cells. 60% of these are non-human cells, bacteria. How do you factor in all that? So that is where if you have to sustain life, why not understand and learn from life? Isn't it very obvious? That's where it comes in. So if we are trying to sustain life, life is studied by biologists. In fact, the word Bio is the Greek translation for life. So that's where I think sustainability's arrival into Biomimicry. It is like a river finding its source. Biomimicry is the ocean. And there are these various little rivers, which should finally merge into not only that, I would encourage you to think that these are very important words because we live in an industrial economy. People say, restorative design or regenerative design. I would like to ask them, restore what? When will you decide? Who will decide what is to be restored? How will you measure it? Regenerate? Regenerate what? To what extent?Will you keep on regenerating? If you really go deep into this question, you'll find the reference point for all of this will be nature.

Nature and what is biomimicry? Biomimicry is asking nature. Biomimicry should become the overarching thing and let it not be a priest. It can be co-discovered. And if we ask the questions deep enough, biomimicry will be the final destination. The arrival into a holistic framework would be biomimicry. So while talking about design, we come up with this existing culture of India. We know that we celebrate our culture, difference in culture. This is very close to the natural elements that we have like moon cycles, sun cycles - it is very close to nature. So how would you perceive nature, like the influence of this in biomimicry culture? Instead of doing everything new, we can adapt and evolve what we already were doing. I wouldn't say that we have to go back because nature doesn't go back. But nature adapts and evolves, it gives us direction and that's much more efficient and doesn't shock the system. The roots are not disturbed by civilization, yet we become modern. Modern in a way where it is place based, we belong and that is sustainable. So I think that is a very big area of research and opportunity. I strongly think India can take a lead in this.

Q8. In practice, what are the economics of this field? How is it understood by the world today?

In the current economic context, biomimicry, let me put it honestly, it's more like a necessary fashion. People like to talk about it because it sounds good, but when it comes to money, there's no serious money or resources being allocated to it. It is right now, something which everybody knows is right,

but nobody is willing to put the kind of resources required to make it important. This comes to the way we have designed our accounting standards. Our accounting standards calculate profit value in a way where a lot of things which are common are sensible. We all know this will be good for the commons, not only good for you and me, but it will be good for the fish, for the bird. But if it has zero value in the economy, one might not find its worth. Right now, I think we need to relook at our accounting standards. And I dare say in biomimicry, there are people working on what would be true value economics or true cost accounting. These are fields again where mainstream media is not working. Have you paid the bees for the pollination services they do? Obviously, you don't respect it. We don't pay. We have become so conditioned by whatever we have to pay for that biomimicry is seen as a non-negotiable. Nobody pays for it, and so it's struggling to survive. But if we change the accounting system and give it (biomimicry) the right value, then it will grow exponentially. Again, this needs audacious risk taking, bold leadership, and I'm hoping the younger people will see things as they are, not influenced by opinions. Once they have the ability to see themselves in reality: a reality which is true from the cyanobacteria to the president, that is real. Then I think these economic systems will also change. Currently, we need to get ourselves together

Q9. With all these years of experience, how would you state your key learnings in this field?

My key learning is that maybe a lot of effort in the last 200 years of human endeavor both in academia and practice has been to try and find some kind of a unified theory or some kind of answer or solution set to guide humanity. My humble feeling after doing so much is that maybe it is not a common answer, but a common question that will organize us. We can all find our own answers, but is there a common question? And that is where Biomimicry is so wonderful, because I think it is giving us that common question. And that common question is what would nature do here? If we simply adopt it as a common question, whether you are in Antarctica doing something, or you are in the Sahara Desert, or you are in Bangalore, we simply agree to the common question, what would nature do here? I think that one big question can unite us not only as humanity, but unite us with the cyanobacterias, the fishes, and the birds.

Q10. I would like to know what you think is the future of biomimicry.

My view is that in the future, biomimicry will be inevitable. It will be adopted by everyone, and it will grow. I can't give timelines, but just like everything has to adapt and evolve, I think biomimicry will also have to adapt and evolve. When I say so, and I say that purely as a personal opinion, I say it because that's been my personal journey. That currently, biomimicry is being seen from the standpoint of the perception of science as developed in the west. When we say science developed in the West, life is what you perceive through your five senses. It is what you see in your body, through your eyes. I've said it once earlier, but I also feel that we will reach a point in biomimicry where we will have to consider that life in indigenous systems, especially India, doesn't end there. There is life inside. Those are completely new areas, and I think today we have the capabilities and the courage to explore what that would be. Bio is not just life and is not dictated by the boundaries that we have drawn. Life is life. It is outside and currently biomimicry is engaged with it because there's so much to be done. I feel there will be a level where life inside, would need to be also considered and that would be wonderful because a biomimicry umbrella will not even allow the separation between science and spirituality. Both will emerge and that is my long term view.

Prashant Dhawan is the Co-founder of the Biomimicry India Network and "Biomimicry India". He is the first person from India to obtain a Master of Science degree in Biomimicry (from Arizona State University), and a Biomimicry Professional Certification from Biomimicry 3.8 Institute, USA. He also holds a degree in Architecture from SPA Delhi, and an MBA from ISB Hyderabad. He has conducted more than 275 Biomimicry workshops/courses in various educational institutes over the last 10 years.

Prashant is also a TEDx speaker with 2 TEDx talks on Biomimicry, and as an invited speaker he delivered a keynote talk at 29th International Council on Systems Engineering Symposium in Orlando, FL. , U.S.A.

Prashant prefers to call himself an amateur researcher of issues related to sustainable happiness and wellbeing."