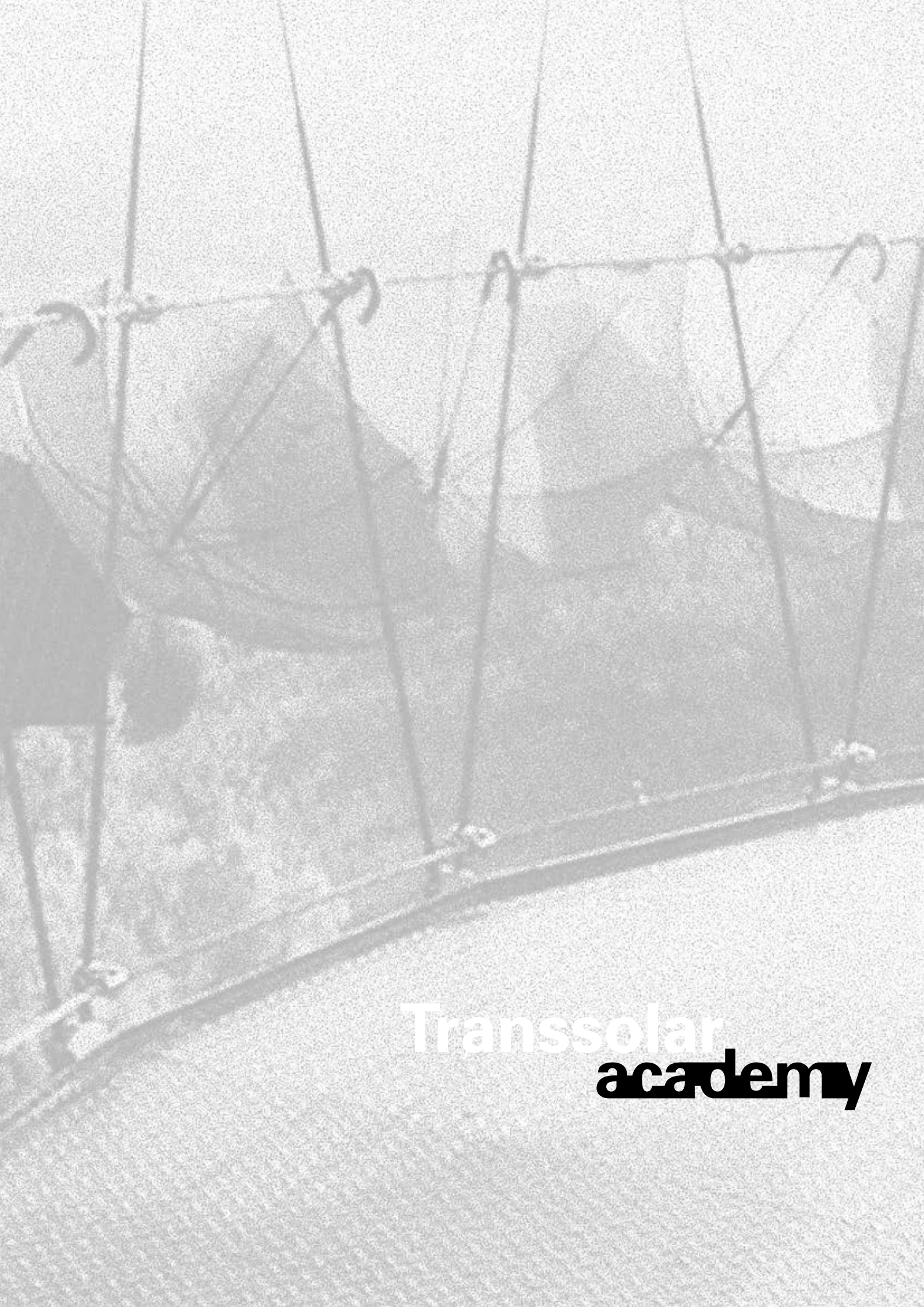

Transsolar
academy

STUTTGART SYMPOSIUM

TRANSSOLAR ACADEMY

MAJORITY WORLD

2014

2015

2016

...

"The MAJORITY WORLD is a term used in preference to the largely inaccurate terms developing countries."

Rahul Mehrotra

"This booklet should not be wrapped up into a shiny package, but simply tell our story, the TSA story."

Tommaso Bitossi

"Honestly if there is something about our work or our company, that I am always 100% proud of, then it is the Academy."

Pratik Raval

This is an honest account of our experiences building up a brand-new, hands-on educational program in Germany. We would like to share our successes, failures, and learnings as well as our hopes and ambitions moving forward.

We believe the Transsolar Academy is an innovative paradigm for education as exchange of knowledge and challenging mindsets and perspectives; not only as an academic exercise but also a professional one.

This booklet is not only a reflection on the Academy's past, but hopefully a tool for its future, to reach out to those we have not connected to before. And to engage in a dialogue of how the Academy model may be piloted in other organizations. Let's connect ideas and maximize impact!

From Transsolar's 20th Anniversary Symposium to the Conception of the Academy

The birth of the Transsolar Academy was marked by Transsolar's 20th anniversary.

On this occasion, we reflected on the true impact that our high comfort, low impact approach has made on the built environment worldwide. We noticed three things. Although we have created better built environments, global problems, including climate change and urban migration, are exacerbating. Although we have worked on many projects throughout the world, our projects are located mainly in certain countries. Although we have accumulated lots of experience and knowledge, creative new solutions are invented daily all over the world.

So we started to wonder what we should do in the next 20 years: what should we keep the same, change, or stop?

We invited our closest collaborators and leading thinkers - architects, engineers, government representatives from all over the world - to explore the question: "What do we need to do to maximize our impact on reducing carbon emissions and on providing better buildings?"

In June 2012 in Stuttgart, all of the participants at the Connect Ideas – Maximize Impact Symposium examined, from multiple perspectives, our roles in designing a better future following four thematic streams: integrated design: the role of design, design and technology, emerging equity: economy and governance, and emerging cities.

We wanted to continue on a daily basis the kind of global information exchange that happened at the symposium, and recognized that face-to-face communication is paramount to high quality information exchange. So we wondered: how could we put these learnings into action? The answer came in three parts: education, catalysts for change, and the majority world.

And thus, the Transsolar Academy was conceived: A space for young professionals to generate and connect ideas, and create impact as catalysts for change in the many places in the majority world that we have little contact with, in which great changes in the built environment are happening at a rapid pace.

Why?
Transsolar Academy Overview and Vision

1

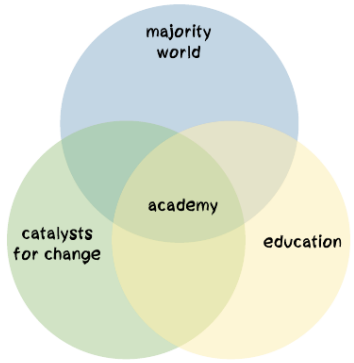
Common Grounds

After the symposium, we were compelled to take action reaching out to the "majority world" and sharing our knowledge, believing this could be the most potential strategy to maximize our impact as a small company.

So, the "why" was defined, but the "how" led to discussions on "how". Following the Transsolar approach used to tackle climate engineering challenges, we started by defining common grounds, beliefs or values that we all shared in relation to a "Transsolar Academy" to be born. These fundamentals, are still the base of how we approach the program today. Our strategy though, is adaptable, since we question the results and our learnings each year, hoping that we can still maximize the impact by becoming even better.

One goal is to invite professionals from the so-called "majority world"; secondly to engage and not just teach them, as Khaled Awad suggested at the 2012 symposium. In consequence, the Academy group is not separate from our office but an integral part, meaning we work together and sit next to each other.
Interdisciplinary work is the most important capability to be learned and mastered by any climate engineer, which is why we bring architects and engineers to the academy.

We select the candidates we can empower the most on their path of gaining knowledge and experience, and at the same time, we see as the most potential multiplicators or "change catalysts" in the future.
Lastly, but perhaps the most important value that drives us, we set up this program not only to teach, but to learn – it is all about sharing knowledge and connecting ideas. Therefore, each Academy Fellow works on a "personal project" that must relate to their home country. The project is presented and revised by the whole company throughout the year and needs to be finalized (to be accredited). It gives us all the chance to learn about the professional life of an architect and engineer in these different countries, the building industry and their strategies.1



Our Story

Piloting the Transsolar Academy in 2013, we had no idea what we were getting ourselves into: from bureaucratic hang-ups dealing with visa applications in various countries to cross-cultural learning in a company of previously predominantly European, if not mainly German, climate engineers.

Committed to impact and hopeful, we invited 7 fellows from 6 countries to kick off Transsolar Academy, TSA I, in October 2013. In the following five years, we have hosted 32 fellows from 23 countries and 4 continents. We had successes and failures. We did our best in admitting to our failures and learning from them moving forward.

Building on the success and learning of each year, it took us 3 years to finetune a clear concept for the Academy program. However, we do not want to stop there. We paused again and wondered: how can we maximize our impact yet again?

We know the Academy needs to get loud and be heard not only across the different Transsolar offices, and not only in the home countries of our fellows. The solution, however, cannot involve bringing in more voices and expanding the Academy at Transsolar. We believe that the core of the Academy's success lies in the intimate setup and close interactions between the fellows, mentors, and the company. Increasing the quantity, we believe, would compromise the quality of the program. How then could we maximize our impact? A network of Academies? Reaching out to those we haven't before? What other models are possible at other organizations? We hope to explore the answer through the development of this booklet.

The Program's Key Elements

- One-year fellowship in climate-responsive building design for 3 young architects and 3 engineers in the Transsolar office in Stuttgart.
- The fellowship covers tuition, travel, and accommodation.
- Each fellow is mentored by one, or possibly, two Transsolar staff.
- The program curriculum comprises of a 1/3 breakdown model:
- 1/3 theoretical education
- 1/3 hands-on, experiential learning through project work
- 1/3 individual project

Why "Academy" and "Fellow"

The word choice of "academy" and "fellow" was intentional.

We use the description "fellow" rather than "student" to indicate an emphasis on the professional development of the candidates. The fellows are expected to take on a great deal of responsibility and contribute to advance knowledge in the field of KlimaEngineering.
An "academy" is defined as a society or institution of distinguished scholars and artists or scientists that aims to promote and maintain standards in its particular field (Oxford Dictionary). This captures the multidisciplinary nature of the participants (artist or scientist, architect or engineer) who are actively participating in a mutual exchange: both learning from Transsolar and each other.

How Does It Work?
Program

2

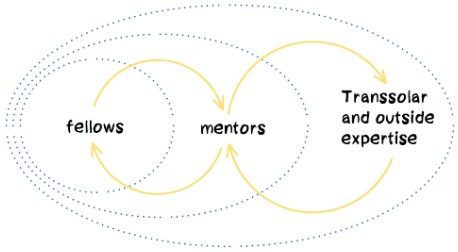
Structured Support

The Academy is a one-year full-time commitment in Stutgart. Our approach to learning comprises of 1/3 learn + 1/3 contribute + 1/3 challenge.

Mentors
The role of mentors is a key component of the fellows experience. Each mentor engages with a fellow on a deeper level, offers professional expertise, facilitates connection to technical experts in or outside the company, and supports personal issues. The fellows are matched with project engineers, who facilitate the connection to the experienced experts. This not only provides the fellows with a mentor who is more flexible with their timing and availability, it also creates an opportunity for the junior to mid-level engineers to improve their managerial skills. With this new model, we have noticed a cascading effect in distribution and sharing of knowledge.

Mentors matching
After trying out a few different methods each year, we have devised a method to match each mentor with the fellows. The two-stage process involves: get to know each other from October – December, and finalized one-on-one mentorship from January onwards. Each fellow is matched with one or two mentors who will be the contact person for office projects, personal project support, etc.

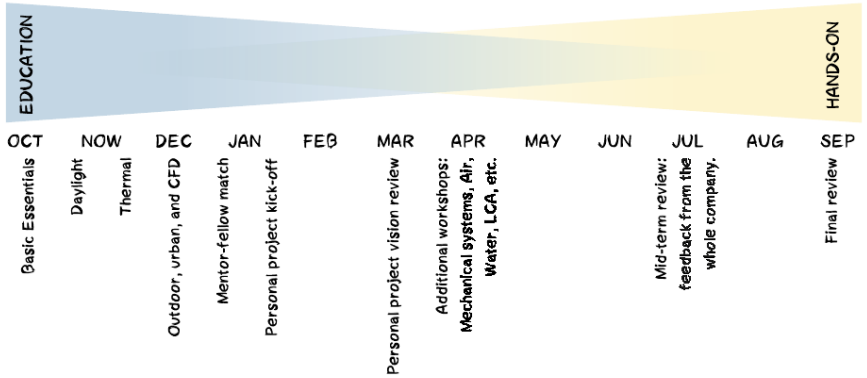
Program Coordinators
The program coordinator(s) and coach are responsible for coordinating all aspects of the academy program. The coach is essential for emotional and professional support of both fellows and mentors, conflict resolution and other soft skills that ultimately affect productivity.



Team Building
While the mentors, the program coordinator(s) and the coach play a key role in the professional, personal and logistical aspects of the academy, peer-to-peer support within the academy is a vital factor for their success. To foster the development of a self-sufficient group, the first few weeks of the program focus on team building, expectation and goal setting, impact chain, cross-cultural communication, and various group activities where the fellows learn to rely on each other.

Company benefits
The program not only benefits the mentors in improving their leadership skills, it also provides an excellent educational program for the whole company. Interns or young engineers who would like to expand their core knowledge may attend the lectures or review the recorded videos at any time.

Logistics
The fellowship provides accommodation, stipend and one round-trip flight to eliminate financial barriers to participation. Further, we do our best to offer local tips to help settle in and navigate the German bureaucratic requirements.



The 3 components making up the program are: educational component, personal project, and hands-on projects.

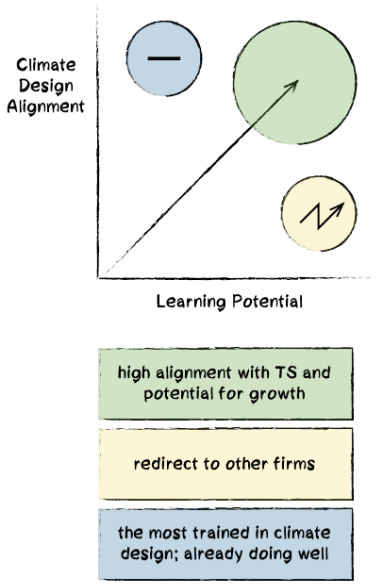
1/3 challenge: personal research project
The individual projects of the fellows make up a very important part of the Transsolar Academy. Each fellow undertakes their own project or field of study concerning their home country, which they bring along. The projects give the fellows and Transsolar the chance to connect ideas and discover the opportunities of KlimaEngineering in the majority world. At the same time, together, we investigate how to maximize our impact for the benefit of our planet.

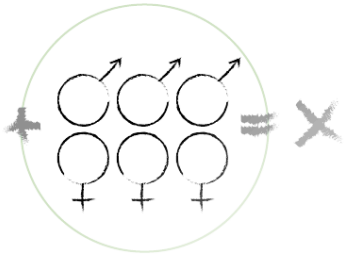
1/3 learn: education
The education program covers the main climate engineering concepts in the first 3 months in 4 intensive modules. Each module, indicated in the figure above, includes basic concepts, advanced topics and tools, and a task to apply the knowledge.

1/3 contribute: hands-on experience
What differentiates the program from a master's or other academic programs is the emphasis on hands-on experience. The fellows contribute to office projects and learn, by doing, different aspects of climate-responsive design. They interact with clients on real projects and understand the realities of project work.

Who Are the Fellows?
Constraints and Opportunities

3





Poised to materialize our vision and the Academy principles, we set certain constraints and opportunities to help us select a group of fellows.

Constraints

- **Impact +**
Unlike typical applications that seek the highest qualified applicants, we not only consider one's expertise, but also the highest potential for growth and impact. We consider candidates with strong connections to the majority world whose aspirations best align with our organizational vision so we can best support them in their endeavours.

- **Shaping career paths**
The academy is for people who understand the program and are motivated to learn about climate design. We invite both young, recent graduates and well-established professionals who were keen on stepping outside their typical expertise box.

- **Structured diversity**
From the start, it was clear to us that we advocate for gender equity. Having 50% female and 50% male fellows not only aligns with our values, it also balances feminine and masculine perspectives.

- **Intimate office interactions**
We limit the size of the Academy according to our office capacity. With an office of 30 in Stuttgart, we believed we could develop meaningful, one-on-one interactions with 6 fellows. The small group size also fosters a higher quality learning and bonding environment within the Academy.

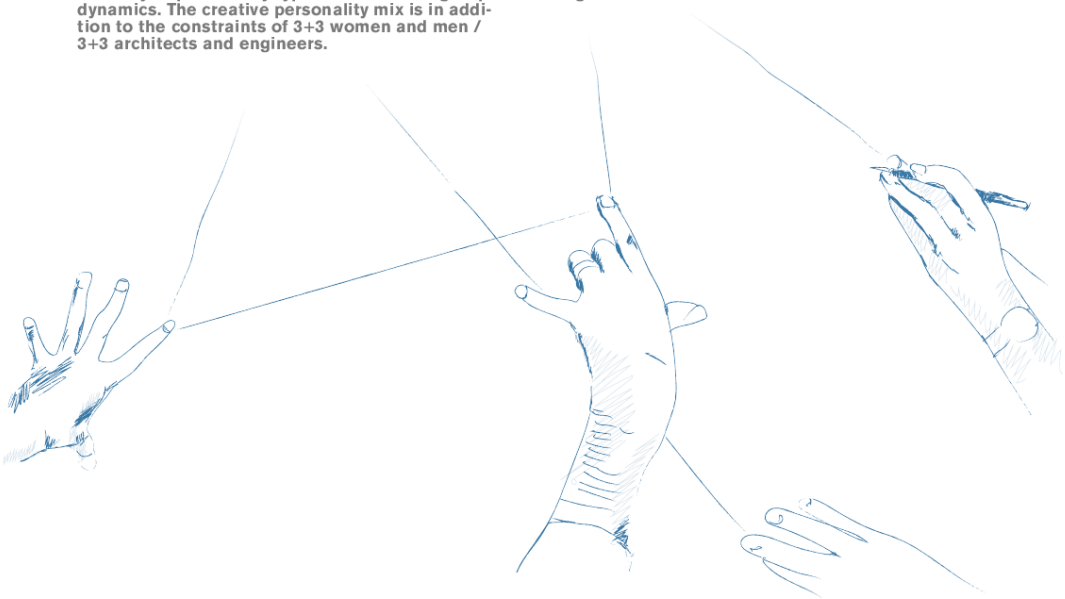
Opportunities

- **Hopes**
We hope to connect to as many countries as possible. We hope to reach out to places where we expect the greatest changes are taking place, and therefore, emerging catalysts for change in the field of climate-responsive design can have the greatest impact.

- **Group dynamics**
We aim to devise the group dynamics by selecting the final 6 in a way that we anticipate would work well and complement each other's strengths. We have learned from the fellows the power of a ‚self-sufficient' group and the importance of group dynamics. As such, we try to imagine how the final 6 candidates may work together and create a sense of team dynamics. This is taken into consideration to bring in a diversity of personality types to enrich the group dynamics. The creative personality mix is in addition to the constraints of 3+3 women and men / 3+3 architects and engineers.

- **Personal growth**
We have noticed each individual grow, not only in their technical competency, but also their soft skills. We strive to realize personal potential.

- **Exchange beyond**
A key component of the Academy experience is the exchange taking place outside the office. This is facilitated by providing a place for the fellows to live together, share, and learn from different cultures, deepen their bonds, and provide support for each other. They navigate life in a new city, new culture, and a new language together. The desire for gender equity had an unintended consequence for co-living options: it made housing more convenient. We looked for two 3-bedroom apartments to offer separate housing for our male and female fellows.



How Are the Fellows Selected?
Application Process

4

The following is an account of the application process for those interested in applying or setting up their own academy.

Application Requirements

- A highly motivated young graduate
- A committed agent of creating a sustainable future through climate-responsive building design
- Fluent in English
- At least an undergraduate degree, or the equivalent
- A record of accomplishment and ability to meet challenges
- A highly developed curiosity about building livable environments
- An eagerness to engage with our way of working
- An ability to tackle complex problems and develop creative solutions

Applicant Qualities
- Initiative
- Vision
- Imagination
- Creativity
- Determination to achieve your goals encourage their involvement.

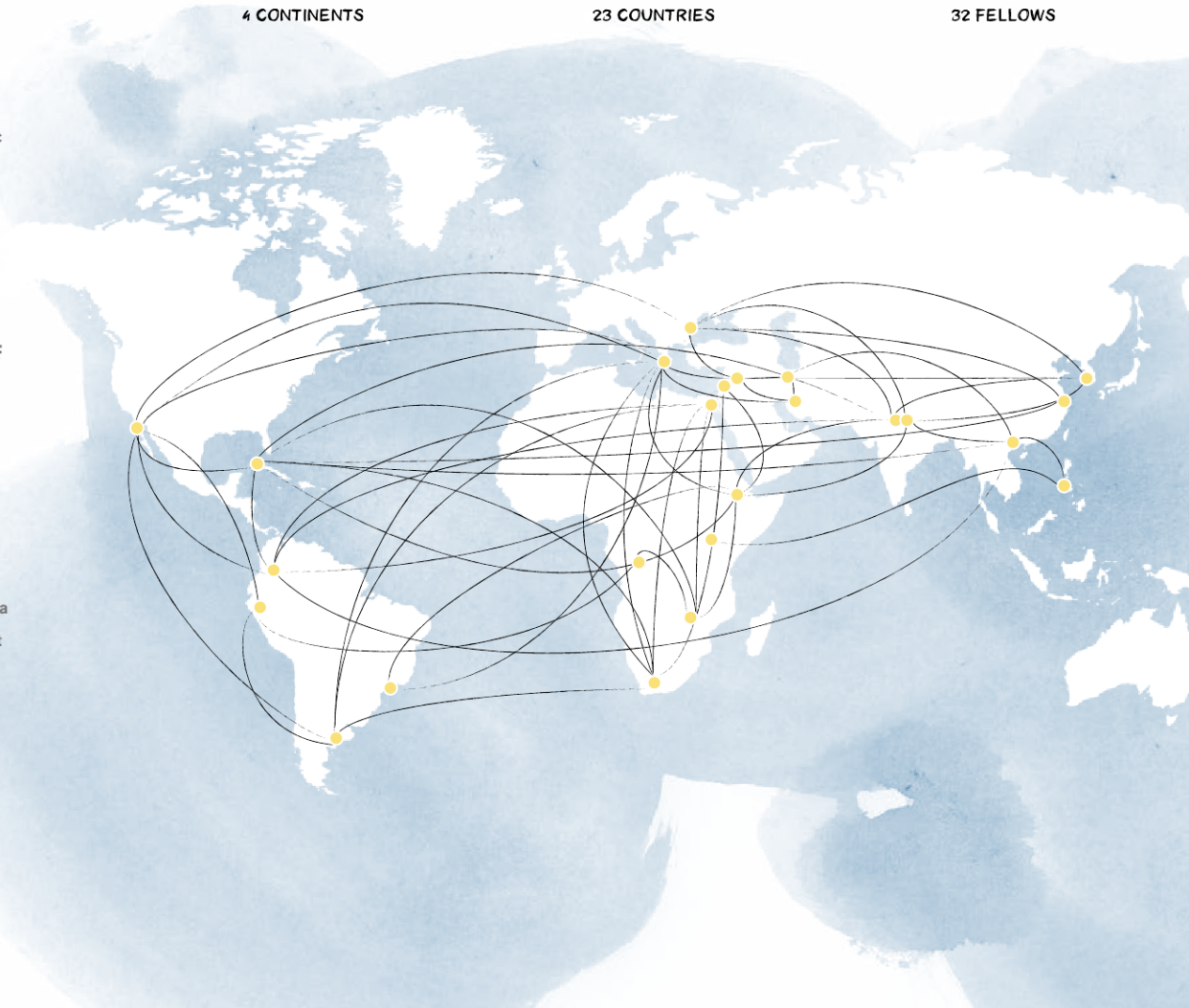
Screening Process

The online application process comprises of short-answer questions, motivation letter, and a creative board. We have developed a systemic way of efficiently reviewing applications and selecting candidates that showed the highest potential for growth and impact.

Interview
The final 12 candidates are invited for a video interview, as almost all our applicants live outside Germany. We believe the online video interview gives us a better sense of who the candidates are and what motivates them.
We then have to make some tough decisions to select the final 6 fellows, considering the constraints and opportunities stated previously: 3 men + 3 women / 3 architects + 3 engineers / balanced personality types.

Visa Application

We have learned from experience that it takes a certain amount of time to acquire visas in Germany. As such, the selection process must be finalized well in advance of the start of the program to allow time to process the visa application. The fellows are assisted in their visa applications - we provide some of the required documentation - and they make an appointment at their local embassy and check for any local requirements.



What Have We Learned?
Looking Back

5

We would like to highlight some of our learning –celebrate successes, admit to failures, and share how we move forward.

Starting up

We learned that building up an internal program for international people in a consulting company of mainly European engineers and architects is tough. And doing this from scratch with little pre-existing mechanisms required a higher initial investment. Even though many of our company employees are teaching in various universities around the world, a consulting company is not intrinsically set up for an internal educational program. Nor does it make business sense at first glance.

The way we learned to address these challenges is by assigning Program Coordinators who dedicate a more significant portion of their time to the Academy for the first year or two. The time commitment can be reduced when the education curriculum is finetuned.

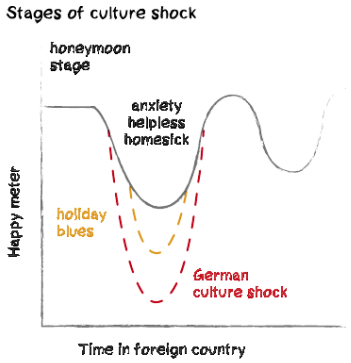
Logistical hurdles
We learned that we need to be patient and persistent throughout the visa application process. The application requirements and time vary for each country, and it may change from year to year.

Cross-cultural communication
We learned that the way we typically communicate in Germany can be perceived differently by other cultures. We also realized our own misunderstanding of different cultures. Though we brought in a facilitator discussing cross-cultural communication, some of our most valuable learning took place by working side by side, talking, and listening to each other's point of view.

The Winter Holidays Blues

We've noticed a period of lower morale for our fellows. The first 3 months people are still in the honeymoon phase (refer to the stages of culture shock graph below). After the honeymoon phase, as the realities of the hardships of living abroad hits people, they also experience the holidays season away from friends and family. For some of our fellows it is also their first cold winter, which adds to the difficulty.

We learned to check in with the fellows more frequently on a personal level. Sometimes offering to host a dinner around the winter holidays helps alleviate the sense of isolation. Most people manage to get past the winter holidays blues; if not, the coach plays a key role in talking and offering advice and support to anyone who still struggles.



Payback

We asked ourselves, what values and assumptions drive us as a person and as a company? Some companies value a business based on their revenue. We believe in making investments that align with our purpose and values. It simply makes sense –

For us, business sense is about both the monetary and non-monetary benefits of an investment. Our CFO justifies the cost of the program as an investment in the company, in our employees, in the market, and in the fellows as future change agents.

The monetary aspect of the investment seems quite straightforward: the company covers salary, workspace cost including technical equipment and professional software licenses, accommodation, and a return flight ticket. In addition, the time and effort of the Transsolar staff is an added cost. Education and transfer of knowledge from the employees to the fellows as well organizing excursions take time and effort. Not to mention, before the program even starts, there is a screening and visa process that take up some work hours.

In return, the company and the employees benefit from the program. We learn about the fellows' home countries and their industries. At the end of the intensive training program, the company benefits from the support of trained young professionals with Transsolar project work. The academy program is an excellent professional development opportunity for the employees who spend their time teaching and mentoring – as well as spending their leisure time getting to know the fellows. These interactions help the employees improve their intercultural sensitivity and management skills.

Another aspect of the non-monetary benefits (which is harder to evaluate but is so important and close to our hearts) is that training young professionals from the majority world brings a deeper meaning to our everyday work. The program contributes to our employees' sense of purpose and happiness. We believe that working with purpose leads to higher employee satisfaction.

The fellows also make an investment and benefit from the academy. They live one year of their life away from home, family, and friends for an educational program without an academic degree. In return, they receive a trainee contract with a one-year work permit in Germany, including 30 days of paid holidays for intercultural exchange and recreation. They work on a self-directed research project as well as on real projects to gain practical experience. By joining external design team meetings and presenting their findings, the fellows develop an awareness and appreciation for the integrated design process.

In summary, it is important to identify the costs and the benefits of such a program, including both the monetary and non-monetary costs and benefits. We invest money and effort in the Transsolar Academy because we believe in reaching out to the Majority World. It is a logical step in taking on the responsibility to spread and gain knowledge.

But the real success of the Academy thrives upon its own dynamics: Fellows are already connecting to and working with other existing organizations, setting up a network that will develop its own momentum.

What Is Our Impact?
Moving Forward

6

Company

We learn from different climates and market realities of places we do not typically work in, and notice the typical strategies that are very beneficial may not work in their climatic and economic context.

Twice a year, all the Transsolar offices from Munich, Stuttgart, Paris, and New York gather to share their innovations in the past 6 months. The Academy presentation has become a permanent part of the project days that people look forward to. Some projects involve ideas that we find fascinating, but have not had a project to develop them into solutions. The fellows carry out research question that concerns their home country, but they also feed the curiosity of our climate engineers dedicated to lifelong learning. In short, it is not a one-way learning, but as we engage with the young professionals, we both learn from each other.

Vernacular and innovative solutions in other regions
Working closely with the fellows, we exchange information on vernacular and innovation solutions in other regions, connect our ideas and hope to incorporate them moving forward, creating impact.

Refugee School, Lebanon

Fellows

At first, we were a bit disheartened that we did not see the impact fast enough, and what we have realized is that what we start with the fellows is planting a seed. It needs to be further nourished and with time, it will blossom. In some of the regions of our fellows, climate engineering is not practiced aside from a few practitioners still true to the country's vernacular architecture, or in academic, theoretical contexts. As such, they find themselves in a system without any supporting organizations. The fellows are, hence, trailblazers.

Further, we question, how do we measure our impact? Is it the number of climate-responsive buildings designed by our fellows? Despite the challenges of measuring short-term impact, we are starting to hear back from our fellows.

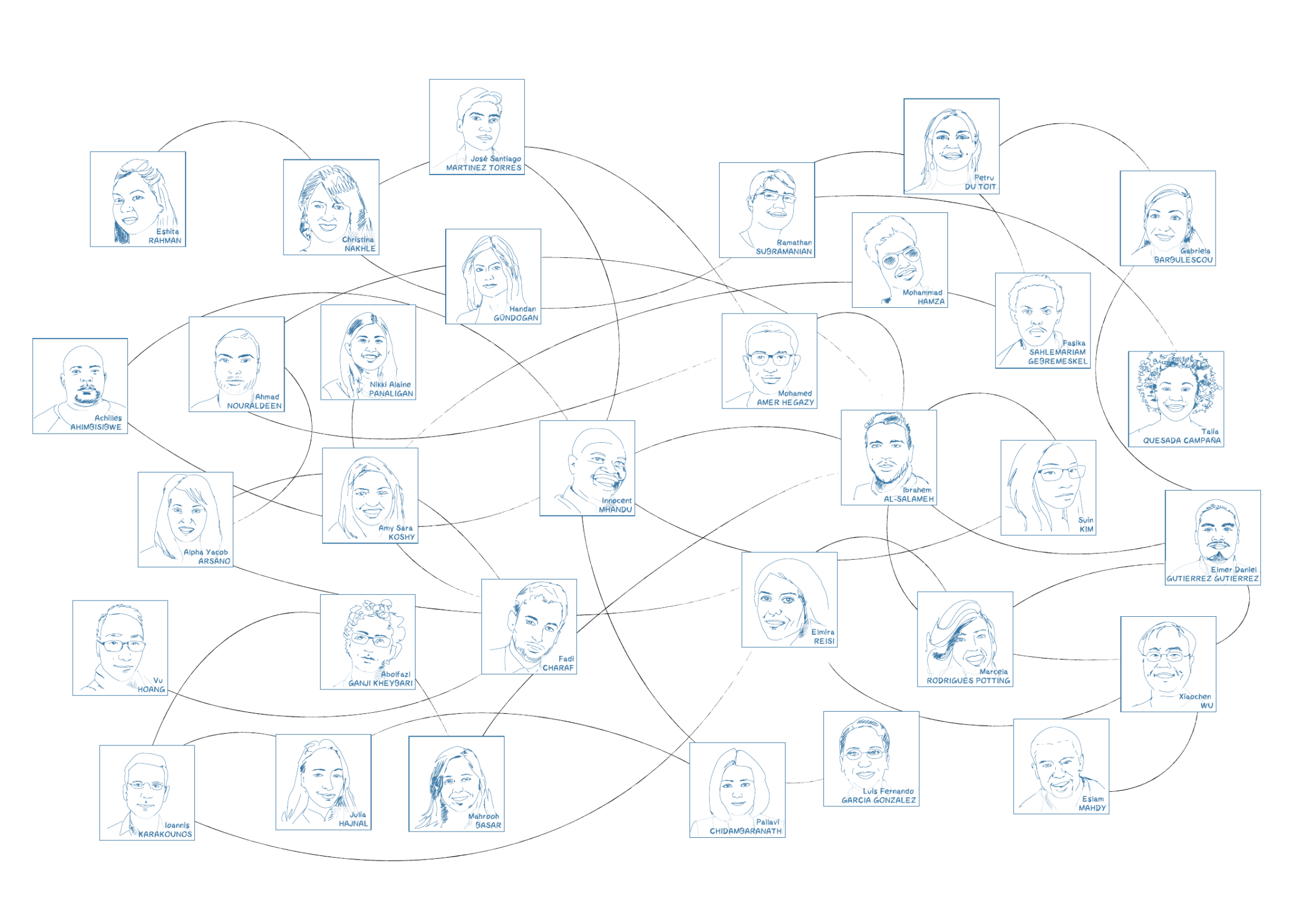
Some of our fellows have already implemented the ideas they developed at Transsolar. For example, Ahmad Nouraldeen, TSA I, was involved in design of a refugee school and realized it in Lebanon with the support of the American University of Beirut and Najjar Najjar Architects. This led to teaching in the DI-Lab at AUB, where students design and realize a project in one semester. Or we hear back from the Academy alumni in unexpected situations where we find ourselves at a meeting in India, sitting across the table from a company's expert in sustainability who turns out to be no other than our very own Mahrooh Bassar, TSA II.

We trust that our Academy alumni working at engineering or architectural firms continue asking questions and proposing innovative high-comfort, low-impact solutions. Only time will tell the true long-term impact the Academy had on its fellows and their home countries.

You

We share with you this publication in hopes that you join us! We are at a stage where we need the multiplication effect to maximize our impact. Are you interested in starting your own Academy? Let us know. Do you know individuals who fit our Academy? Let them know about our next application round. Together we can maximize our impact!

Photo Credit: Eshita Rahman


Eshita RAHMAN
Christina NAKHLE
José Santiago MARTINEZ TORRES
Handan GÜNDOĞAN
Achilles AHIMBISIBWE
Ahmad NOURALDEEN
Nikki Alaine PANALIGAN
Alpha Yacob ARSANO
Amy Sara KOSHY
Innocent MHANDU
Vu HOANG
Abolfazl GANJI KHEYBARI
Fadi CHARAF
Ioannis KARAKOUNOS
Julia HAJNAL
Mahrooh BASAR
Ramathan SUBRAMANIAN
Petru DU TOIT
Mohammad HAMZA
Gabriela BARBULESCOU
Mohamed AMER HEGAZY
Fasika SAHLEMARIAM GEBREMESKEL
Talia QUESADA CAMPAÑA
Ibrahem AL-SALAMEH
Suin KIM
Elmer Daniel GUTIERREZ GUTIERREZ
Elmira REISI
Marcela RODRIGUES POTTING
Xiaochen WU
Pallavi CHIDAMBARANATH
Luis Fernando GARCIA GONZALEZ
Eslam MAHDY