REDUCING RISK AND PROMOTING SUSTAINABILITY IN THE FOOTHILLS OF THE HIMALAYAS
A Pedagogy for Teaching and Practicing Sustainable Development

Sarah Ernst¹ and Andrew Edwards²

Architecture Sans Frontières-UK
¹s.ernst@asf-uk.org
²a.edwards@asf-uk.org

Abstract
This paper considers the role of a workshop as an educational approach and as a catalyst for positive change in the context of vulnerability and risk in the foothills of the Himalayas in the region of Uttarakhand, northern India. The paper will discuss the evolving pedagogy of Architecture Sans Frontières-UK (ASF-UK), an organisation that uses workshops as a primary tool to explore international development issues and help develop the relevant competencies for built environment professionals working in this sector. The workshop, and its catalytic potential, will be discussed and evaluated in relation to a case study: an international workshop coordinated by ASF-UK and partner, SEEDS India, which took place in Almora, Uttarakhand in 2010. The workshop marked the inception of a three year project which aims to facilitate improved building practices in symbiosis with disaster mitigation and wider development agendas through education, capacity building and prototype development.

Keywords: Risk; vulnerability; participation; education; sustainability; building capacity; catalyst; resources; workshop; technology.

INTRODUCTION
The context in which ASF-UK is working
The approach of Architecture Sans Frontières-UK is continually evolving as the organisation witnesses, and attempts to respond to, a context of rapid urbanisation, scarce resources, poverty, vulnerability and natural disasters which define the 21st Century. Over twenty years ago UN-Habitat (1987) warned that ‘cities in the developing world will account for 95% of urban expansion over the next two decades and by 2030, 4 billion people will live in cities – 1.4 billion in slums’ (in Hamdi, 2010). ASF-UK is examining the impact of this context on the human development of billions of people across the world, and the critical role the built environment professional can play in facilitating positive change.

In ASF-UK's work there has been a continual dialogue concerning what can and should an architect do, and how well are architects equipped to work in challenging contexts with vulnerable people? While ‘only about ten percent of the population has the resources to commission the kind of buildings that the ‘academically trained’ architect has learnt to design’ (Tovivich, 2008), it is essential for architects to question the impact their work has on the other ninety percent of the world's population. ASF-UK’s programme offers architects the opportunity to embrace a social and environmental agenda; broadening the area of concern in a bid to make the profession more relevant, and the skills architects possess available to a much wider audience.

By increasing the number of practitioners equipped with the necessary skills to work effectively with their local partners, ASF-UK hopes to improve living conditions for vulnerable groups and disadvantaged communities. ASF-UK also seeks to influence the aid and humanitarian sector by highlighting the importance of using appropriately trained international and local practitioners in order to enhance agencies' capacity to deliver relevant shelter solutions.
The organisation is not just an avenue for architects, but all building and environmental professionals and community place-makers. ASF-UK endeavour to work with a range of people, with a range of skills to offer, and find new methodologies and platforms for sharing knowledge.

ASF-UK believes that there are challenging contexts locally as well as further afield, and that the skills of building professionals can be invaluable if used appropriately. A working methodology grounded in community engagement, which is at the heart of ASF-UK’s mode of practice, is relevant to a multitude of contexts and capable of adding untold value in all project scenarios. While the ASF-UK programme is diverse, delivered through workshops, lectures and events in the UK and internationally, there is a consistency in the approach. All projects promote the development of partnerships with local organisations that are involved in sustainable development and all projects develop transferable competencies for participants, which are relevant to practitioners in any context.

**A gap in education**

Questioning and understanding the role of the architect in development currently sits on the margins of architectural education. Unless students have made a conscious decision to attend one of the few universities that offer a course specifically aimed at giving students the ‘opportunity to develop knowledge, skills and attitudes in the rapidly changing field of development and emergencies’ (CENDEP, Oxford Brookes University, 2010) they would struggle to cope in such a challenging and different context. The other options are a handful of university courses with a design/build focus, academic courses purely focused on development, and extra-curricular short practical courses for architects or a wider range of professionals.

While Nabeel Hamdi and others have been pioneers in establishing courses alongside the curriculum at universities such as Oxford Brookes, there is still little on offer for the majority of architecture students. ASF-UK is attempting to bridge that gap by teaching the inclusive, participatory and empowering methods of working effectively within communities, to alleviate poverty and increase community capacity. Workshops in the UK and internationally, combine theory with practical experience, to teach international development issues, and the unique roles and responsibilities built environment professionals have when working in this sector.

**Relevant competencies**

In reality, it is impossible to know everything, so it is essential for students to develop critical thinking, methods of learning and judgement, to prepare themselves for a career of continued learning and investigation. Jeremy Till, (2005) an architect, academic and critic, suggests that the development of judgement is far more pressing than the accumulation of knowledge, and emphasises the value of ‘multiple modes of thinking rather than specific methods of doing’. Hamdi (2010b) uses the word competency in a similar way and indicates that ‘competency is actually about being flexible, being entrepreneurial, recognising your ignorance, and taking opportunity when you spot it’. Being able to reflect on your actions is a crucial part of it, as is accepting that ‘getting it wrong is part of getting it right’.

Through accumulated experience ASF-UK has identified a number of core competencies (in addition to those that architects are assumed to possess as a result of their training) which need to be developed and nurtured through field-based learning. In a move towards relevance, the architect does not need to abandon the skills they have, but redirect them from the traditional model of provider, to that of an enabler, or servant and interpreter. In this position they can draw on a wide range of sources and consider their impact on current and future societies (Khan, 1987). The role requires of architects a transparency, and a willingness, to engage. This can transform the commodity of architecture from a private skill to ‘a social resource’ opening up the rights for people ‘to make high demands of it.’ (Oliver, 2005)

**Key competencies**

A willingness to question the preconceived role of the architect, and redefine it, is a key competency and involves probing the process undertaken and your position within it. With a
freedom-centred understanding of development, architects can assume a position of agency, which Lisa Findley describes as ‘the power to act on behalf of someone else or on one’s own behalf’ (in Loh, 2005). Agency is more than just taking a position to help people, but a way of working that is participatory, instead of patronising or controlling.

Responding to context is the ability to balance creativity with cultural considerations, and locally available and appropriate resources in diverse environments. It involves developing an understanding of how a community operates: from a basic appreciation of community composition to uncovering networks, exchange, production and hierarchy. Context broadly includes resources, shelter, and settlement and by considering all three, an architect can begin to develop a locally relevant and sustainable architecture.

Broadening the area of concern can introduce architects to contexts they would not have previously conceived of working in, and opportunities to engage with 90% of the worlds’ population, who would not otherwise have access to design services. The ability to develop ethical judgement is even more critical when working in a context with fewer building and planning restrictions. It is essential that these contexts do not become a testing ground for architects’ aspirations, and that learning from experience is not solely the ‘freedom to make the same mistakes’ (Edwards, 1996). It is vital to consider the long-term implications of a potential project, and not to take advantage of the freedom to experiment in a context with less enforced building regulations.

**PEDAGOGY OF A WORKSHOP**

A workshop can be understood in this context as a particular method of learning, combining aspects of the architectural design studio with characteristics of field-based/live projects, to create an opportunity for ‘experimental learning linking action with reflection’ (Hamdi, 1996) which ASF-UK term learning in action. The workshop is a small moment in a much bigger picture: in one sense it attempts to embody a way of working and a whole process. On another level it merely serves to introduce and expose participants to the complex web of issues associated with development. It illustrates the relationship between theory and practice, and how one can generate new theory from research and practice.

While workshops do not follow a rigid curriculum they are structured around a series of parameters which act as a framework to facilitate planning and evaluation. On one level the framework serves to regulate an otherwise organic process, while on another it clarifies the intention of the workshop, and helps to measure how successful it is in developing the competency of participants and in contributing towards a long-term agenda.
Vulnerability and Risk: the role of green technology 2010
This pedagogy will be discussed and evaluated using, ASF-UK’s workshop in 2010 as a case study. This was the second collaboration between ASF-UK and SEEDS India (SEEDS) which explored a range of small innovations in green technology; from bamboo prototypes for earthquake resistant building to compressed stabilised earth blocks, in the context of vulnerability and risk in the Indian Himalayas. SEEDS is a non-profit voluntary organisation supporting vulnerable communities to become more resilient to disasters. SEEDS adopt a ‘multi hazards’, ‘locally-based’ approach seeking to empower communities through generating awareness, training and action. Founded in 1994, by a group of students and pedagogues of the School of Planning and Architecture, New Delhi, SEEDS comprises young professionals drawn from various development-related fields.

Partnerships, participants and facilitation
ASF-UK believes strongly that local communities and local built environment professionals should be determining their own development, and any external players should be building capacity and helping to facilitate the change needed. Through partnerships with national NGOs in developing and ‘non-developing’ countries, ASF-UK has organised international workshops where students have learnt on the ground. The partnership between ASF-UK and SEEDS India, which began in 2006, is built on mutual learning and exchange. SEEDS India is keen to support and strengthen the work of smaller NGOs, and provide opportunities for workshop participants (or students) to bring their experience and skills, to give a different perspective to the challenges their partners
The participants learn first-hand from the local NGOs and community, rather than the other way around.

In this workshop, the local NGO was Lok Chetna Manch (LCM), a grassroots organisation which runs courses on skills training and sustainable livelihoods. LCM is a member of Mountain Forum Himalayas (MFH), a network of established voluntary organisations across the Himalayan states of Himachal Pradesh and Uttarakhand which works to promote good governance, environmental sustainability and disaster risk reduction. MFH is in turn supported by CASA (Church's Auxiliary for Social Action) a leading Indian voluntary organisation, specialising in emergency response, and disaster risk reduction for over sixty years. The combination of organisations working in partnership enhanced the shared learning experience and potential for scaling up initiatives.

Seventeen participants from the UK and overseas and five Indian participants took part in the workshop; all were students or professionals at different stages of their architectural training. The workshop was directed by three facilitators (which included 2 members of staff from ASF-UK and the ex-director of SEEDS India, Anshu Sharma) supported by 3 volunteers. Although a workshop tends to be short, the number of man hours available during this time is significant. Numbers on ASF workshops range from 15-25 on average, which results in 1250-2000 man hours over a two week period. Strategically, placing a workshop within an ongoing or emerging project can be a simple way of temporarily bolstering capacity.

Equally, there is an interesting relationship and dynamic between insiders and outsiders. During workshops, ASF-UK carefully considers the responsibility and ethics of being an outsider and both the positive and negative implications. The challenge as an outsider is to be collaborative and interactive, rather than simply extractive. An outsider can be a resource to assist smaller groups to engage with the authorities and demand the attention they deserve in the local context. There is a lot of potential for skilled outsiders who are willing to offer organisations access to their skills.

Figure 2: Stakeholders of workshop and long-term programme (Source: Andrew Edwards).
Context, content and approach to learning

The workshop took place in Ranikhet, a hill station in the northern state of Uttarakhand, in the Indian Himalayas. The Himalayan region is one of the most disaster prone and ecologically vulnerable ecosystems in the world. It lies mostly in Seismic Zones IV and V, indicating very high earthquake vulnerability. It is prone to cloudbursts, flash floods, avalanches, landslides and forest fires, with natural disasters affecting thousands of lives, houses and infrastructure each year. Many of the hydro-meteorological disasters have been demonstrating an increasing trend in the past decades, and are reportedly set to get worse due to the impacts of climate change (Mountain Forum Himalayas, 2010).

The workshop took place over a two week period and was structured to allow the first week for research and analysis to understand the context and issues of vulnerability (by looking at the traditional and contemporary vernacular architecture, available skills and materials employed) and the second week for developing propositions for a safer and more sustainable architecture in the area (considering the role of green technology and options to reduce risk and vulnerability).

The group had an opportunity to present their findings from week one to Aarohi, another NGO in the region, at the end of the week and present their propositions and design development to local government officials at the end of week two. These were essential moments for feedback and reflection in an otherwise packed programme which galvanised thoughts and raised new questions. The second week was far more intense, as groups were thinking about shelter and
settlement strategies to reduce risk and promote sustainability as well as considering locally available materials and how they can be used in isolation and in combination. The culmination of this activity was a small covered shelter which utilised knowledge from the testing and research into bamboo and earth construction, and shelter design.

The approach draws on the model of the design studio, which as Parnell (2001) explains, requires students to step out of the familiar didactic process of learning in order to develop judgement, and take responsibility for their own learning. Paulo Frière, (1972), a Brazilian educationalist, challenges the didactic model of education, where the consciousness of a student is seen as an 'empty vessel' to be filled by the tutor and advocates that the oppressed must participate in developing a pedagogy for their liberation (Parnell, 2001). Problem based learning encourages students ‘to make propositions which are often speculative and exploratory in nature’ (Roberts, 2004) and values the ‘practice of coming to know through struggle’ (McNiff, 2002). It allows students the freedom to develop their own ideas from the stimulus they have been given, and by doing so come to terms with a range of possible outcomes. The skill of learning from a problem, and not starting with a series of determined outcomes to choose from, can shift development from being ‘top-down’ to ‘bottom-up’.

Research vs. practical build
In the process of unravelling the workshop, it is possible to draw comparisons with the workshop ASF-UK ran two years ago. In 2008, participants engaged in a complex two week programme of investigation, design, procurement, negotiation and construction of a small intermediate shelter behind a primary school. The shelter served not only as a prototype for the local community, but also as an additional classroom for the school. The group also looked at designing solutions for retrofitting the existing school for earthquake resistance and to begin designs for a model school.

The context in which the scenario was based introduced the majority of issues development practitioners have to confront when working post disaster. The participants were faced with physical and mental exhaustion, diarrhoea and food fatigue, the heat, dangerous working conditions, frustration with communication difficulties, time and cost constraints, difficulties in finding suitable materials, cultural differences, a complex site, and group dynamics which all contributed towards a very real learning environment in which they had to work. The challenging process meant that the sense of achievement at the end was all the more real, but the time constraints limited the opportunities for them to reflect on what they were doing at the time. In contrast, the workshop in 2010, was designed to provide more time and space for reflection, and had less ambitious outputs within the time available. While the learning curve was steeper in 2008, ASF-UK hope the learning from this workshop will be more gradual and sustained.

Community engagement
When learning takes place in the community, working alongside local partners, the process can be empowering, participatory and more meaningful. Field based learning allows for complex problems to be approached from a number of angles in order to see the short-term and long-term implications, and the range of stakeholders involved. The perception of this complexity changes once one is able to break down the challenges into a process consisting of people and responsibilities.

Participatory Rural Appraisal (PRA) is an empowering way to work in a community, where surveys are abandoned in favour of collaborative discussion and mapping of ideas. Maps can be drawn with the communities’ involvement, to locate people, families and resources, and consider density, topography, geography and resources. The process, described by Robert Chambers (1992) as ‘handing over the stick’, is the first step to building trust and rapport when working in a community. In doing so, the information that is generated is shared, and not extracted, and you may find the answers to questions you would have never thought to ask.
Long-term agenda

No matter how effective a workshop is in developing competency amongst participants, unless it builds on partnerships with local organisations, and is strategically placed to form part of a long-term agenda, it will be detrimental to development. Building successful partnerships and devising a sustainable long-term agenda are the hardest parameters to meet. Workshops which take place at a key stage or start of a project to generate ideas, energy and direction have the potential to catalyse change. This relies on a strong relationship with local partners, and their capacity to take things forward.

If shelter is understood as a process and not just a product, as first articulated by Ian Davis (UNDRO, 1982) the process of shelter design and construction has the potential to have a positive impact on lives and livelihoods, when devised in a fair and just way. As Tovivich (2009) explains ‘a catalyst uses architectural design process/interventions as a step for local capacity building in order to strengthen community bonds with regard to raising awareness of the beneficiaries to start critically thinking about their situation and future by doing.’ This process is illustrated in Figure 4.

![Figure 4: Shelter as a process, not a product: a diagram to illustrate the long-term agenda. (Source: Sarah Ernst).](image)

1. Assess traditional and contemporary vernacular housing
2. Consider availability of local resources, skills and labour
3. Conduct sensitisation workshops with local community on safe and sustainable construction
4. Organise mason and contractor training workshops in appropriate technology
5. Construct a prototype of a locally appropriate, safe and sustainable shelter
6. Support the process of construction on a larger scale
THE WORKSHOP AS A CATALYST FOR A SAFE AND SUSTAINABLE CONSTRUCTION PROGRAMME

Developing a long-term programme
As part of ASF-UK’s working methodology the organisation tries to position workshops as catalysts on two levels. In the short-term to impact on participants and their architectural training, and in the long-term to influence the disaster and development sectors.

A workshop can perform the role of small intervention that triggers a series of developments, which can be increasing in scale. It can be an organic process, partly directed by the motivations of the individuals involved, and opportunities uncovered during the workshop. While the strategy of starting small and getting bigger clearly makes sense, there are common principles that can be used to upscale to a local action agenda in the future.

This workshop marked the start of a new three year project to promote appropriate shelter technologies and processes for disaster and climate resilience in the Himalayan Region. The next stage is a good practice guide on appropriate shelter technologies and processes for the region, building on and evaluating existing shelter practices in the area. A series of sensitisation and design workshops will then lead to a built prototype to demonstrate appropriate shelter technologies and train local construction workers and trainers.

The aim is to develop a credible consolidated local knowledge base on shelter construction appropriate to disaster and climate risks in the Himalayan region. Sensitisation of local communities is essential for local people to appreciate appropriate shelter construction, and strive for safe and sustainable houses themselves. At the same time, by sensitising decision makers in government to appropriate shelter construction, state policy can be better informed. The humanitarian aid community will be better positioned to respond to disasters with appropriate shelter rehabilitation interventions and overall levels of disaster and climate resilience in the region will be enhanced.

Phase 1: Guidelines on appropriate shelter technologies and processes (for local government and NGOs)
The good practice guide captures the process and many of the lessons learned (from this and other ASF-UK workshops) in a set of guidelines tailored to the context of Almora, but relevant to a multitude of contexts. The guidelines establish technology and process benchmarks for ‘building back better’ and illustrate approaches to ensure that houses are disaster and climate change resilient, culturally compliant, thermally comfortable, secure and sustainable. They review industrial and indigenous shelter materials and technologies to arrive at appropriate solutions and promote participatory processes not just in assessments, but also in planning, design, construction and monitoring activities.

The guide is designed for local government and Community Based Organisation/Non-Governmental Organisation practitioners, as a set of principles which can help facilitate improved building practices in symbiosis with disaster mitigation and wider development agendas. The guide places building and adaptations to the built environment in an ongoing process of strengthening community and livelihoods, rather than as a singular, one-off event detached from its cultural context.

The guidelines are an attempt to ‘scale-up’ lessons learned by ASF-UK alongside its partners, and bring them into the debate on safer and more sustainable building practices at government and organisational level. The guide synthesises indigenous and contemporary knowledge on both Disaster Risk Reduction (DRR) and sustainability measures in a context of high risk and scarce natural resources. It is unique in giving equal importance to the topics of resources, shelter and settlement and valuing the process of building over the end product, in particular, how materials and skills are sourced and transferred to deliver new and improved environments.
**Phase 1: Laboratory testing of materials and technologies**

Appropriate technologies for the region will arise from the intermediate combinations of indigenous technologies and selected industrial technologies. These include stabilised composite earth blocks, lime mortars, natural reinforcements and bamboo formwork. The workshop utilised the participatory tool of harvest mapping to locate local resources, skills and labour. While this visual and interactive tool builds a map of the areas resources, it can also reveal gaps in skills and technology, and suggest opportunities for new enterprise. The workshop mapped out the skills and labour locally available as part of the harvest map process. Groups developed a simple business card system which recorded the contact, skills and location of all masons. It was a simple yet highly effective system which began to form a database of skills and knowledge which was left behind for use and further development by the host NGO. Figure 5 illustrates the difference between sourcing materials locally and importing them from further afield.

![Figure 5: Local resources](Source: Andrew Edwards)

1. Resources and money kept inside locality reducing CO2
2. Resources brought into area money extracted outside increasing CO2.

The workshop compared natural and industrialised materials and components in terms of cost-benefit analysis, considering the environmental impact of each process versus its properties and longevity. A tension remains between the longevity and perceived resilience and strength of industrialised materials over that of natural materials. It is a misconception that all industrialised materials should be rejected on environmental grounds; rather one should consider a material / component in terms of their comparative cost and environmental impact, in relation to their value added. Through research and experimentation during the workshop, students and professionals concluded that intermediate, or hybrid technologies provided the best value. This is illustrated through the comparison of Compressed Stabilised Earth Blocks (CSEB) with a typical Compressed Earth Block (CEB) or mud wall. While the addition of cement in the CSEB block raises the embodied energy, it was concluded from experimentations during the workshop and
additional research by SEEDS, that the additional strength and useful life of the component as a result of this addition is an acceptable trade-off. Furthermore CSEBs acknowledge the growing cultural stigma attached to earth, and the rejection of traditional earth construction in favour of cement-based products. The addition of cement symbolically can change public perception, dramatically improving the rate of adoption of CSEBs.

Intermediate technologies draw on materials that relate to the traditional vernacular and which are locally available, utilising state of the art research and technology to create sustainable intermediate technologies. Local, natural materials are used where suitable, whilst acknowledging the need for the sustainable management of indigenous resources. Traditional materials in the region of Almora are earth, stone, slate and timber, typical of the state of Uttarakhand. Timber and slate are no longer readily available as a result of illegal logging causing widespread deforestation and excessive quarrying leading to a similar ban restricting new excavation. However, the traditional vernacular in the region demonstrates a construction highly attuned to both the climate peculiarities of the region and a resistance to seismic activity which is acutely lacking in almost all modern un-engineered reinforced cement concrete (RCC) homes. The challenge is therefore to achieve a new, contemporary vernacular which draws on the knowledge and expertise of the old, utilising local materials, without further exhausting heavily depleted resources. Technologies such as treated bamboo frame and CSEB represent an intermediate technology which acknowledges the aspirations for the modern without disregarding the lessons of the past.

Exploring low-tech approaches in preference of highly industrialised components and processes will ensure a design is easily adaptable and replicable under varying conditions and constraints. The over-reliance on hi-tech, highly industrialised materials in shelter construction has resulted in a higher dependence on ‘foreign’ materials and components often imported from a considerable distance. These can bear no relation to the resources available locally and as a result present no benefit to the local economy or local skill base. In addition, hi-tech components frequently result in a dependence on the original manufacturer for installation, maintenance and modification which makes the product unsuitable in changeable environments.

The workshop tested the use of CSEBs manufactured in a manual block making machine (see figure 6) which could be easily transported and therefore implemented locally, without the use of...
expert skills or highly technical tools and costly maintenance. In contrast, a hydraulic block making machine can produce blocks of a far greater strength, with a locking profile, which do not require the use of mortar during construction. The hydraulic machine however is not easily transportable, is costly to run using a diesel motor, is approximately 5-6 times the capital cost of the manual machine equivalent and expensive to maintain requiring regular servicing from a specialist engineer. For the remote region of Uttarakhand where transport links are restricted due to narrow and winding roads, the manual machine was more suitable. The workshop considered amendments to the structure and operation of the manual machine to improve the quality of the final product, such as extending the lever arm to improve the level of compression and reducing the size of the block to improve overall strength and reduce cracking. There was insufficient time during the two-week workshop period for sufficient systematic testing of mixes to determine the optimum block mixes based on the soil types available. However, the workshop demonstrated that within a short period of time, several participants could be trained in how to use the machine effectively, and start to experiment and evaluate different mixes and their strengths.

**Phase 1: Mason training and sensitisation**

From a set of guidelines and continued material testing, the programme will embark on a series of design sensitisation workshops which seek to engage local community and key local stakeholders in the discussion of design for a locally appropriate, disaster resilient prototype shelter built from sustainable resources which in itself becomes a tool for further skills training. A prototype, as with a workshop can be a vital catalytic tool for transferring ideas, skills, knowledge and awareness. From this point the programme will endeavour to grow further, through the training of local masons and networking with local suppliers and manufacturers, to facilitate the building of additional prototypes, adapting to the new challenges specific to each location. This will build on the successful mason training programmes initiated by SEEDS India in post-disaster situations across India and most recently on a large scale in Bihar.

Over 2 million people were displaced by the shock flooding in Bihar in August 2008. Houses were damaged beyond repair by the flood water, and communities were forced to take refuge on higher ground. Due to the scale of the damage and complexity of needs, SEEDS developed a strategy for rehabilitation through training and education in appropriate construction technology. A material hub was established in a centralised location to cater for around 20 villages in 2 blocks close to a local rural market place, a main road and a canal. The hub includes an exhibition area where there are models of disaster resistant construction details, as well as a model house prototype. The prototype promotes local materials; brick and bamboo, and is designed to be earthquake and flood resilient. The hub also offers an opportunity for daily interaction with community members, training programmes for artisans, bamboo treatment and enterprise activity for local skills. The spaces can also be used for meetings with members of surrounding villages and community mapping through focus group meetings.

**Phase 2: Scaling up in the region and further a field**

Phase 2 of the programme will look at continuing and expanding the field studies and workshops to cover shelter technologies across the two neighbouring states of Uttarakhand and Himachal Pradesh. Documentation of relevant technologies from the region will be supplemented with advanced testing and research on select materials and technologies, and the construction of further prototypes at strategic locations in the region. Advanced guidelines on appropriate shelter will be developed alongside further sensitisation and training workshops for local stakeholders in two states.

By using the same model in one region, and then across the state, and then in neighbouring states, it will be possible to assess the structure and effectiveness of the approach and make adaptations where necessary. The programme structure is designed to be relevant to other regions of India. In each area, region specific guidelines can be developed from the generic good practice guide framework alongside a harvest map of resources and skills, and an analysis of traditional and contemporary vernacular. Workshops can be useful at this stage to generate a
lot of information quickly. Following on from the research phase, a region specific intermediate or hybrid technology for appropriate construction can be developed and tested alongside mason training and community sensitisation workshops, before a prototype is built.

The model can be scaled up from local village knowledge centres to regional and even global knowledge hubs to share good practice at all levels and influence the key decision makers in government in appropriate shelter construction to build resilience in communities pre-disaster, and build capacity of both government and the humanitarian aid community to be better positioned to respond effectively to disasters with appropriate shelter rehabilitation interventions. The overall disaster and climate resilience at region and country level will be enhanced.

CONCLUSIONS
The workshop demonstrates the challenges and reveals the opportunities of balancing a learning experience and a long-term agenda. The immediate output through this experience was the exposure of participants to a real and challenging context followed by new links formed with local partners, and the learning experience shared by all stakeholders. It is only through the development and delivery of the longer term programme that the impact on the vulnerability and risk within shelter construction in the area can be assessed.

Lessons for ASF-UK
As ASF-UK’s pedagogy evolves, the value of integrating workshops into long-term live projects becomes clearer and more fundamental to our overall approach. By integrating the two, a continual evolution in the process of learning in action is possible, which ensures the pedagogy is never stagnant but always free to adapt to new scenarios and fresh challenges. As ASF-UK builds on its own capacity, it continues to engage both practitioners and students with little or no previous experience in development.

The challenges inherent in the workshop are offset by the potential opportunities of positioning a learning experience, such as a workshop, as a catalyst within a long-term agenda. The parameters which form the pedagogy of the workshop can seem simple in isolation, but together they can expose students to the unique roles and responsibilities built environment professionals have when working in this sector and can contribute to a beneficial experience for all stakeholders.

The success of the model/pedagogy can be critically evaluated against the success of this workshop to instigate and sustain a longer term project. The longer term programme is the only way to achieve meaningful engagement, positive change and sustained learning. While the workshop is only two weeks the fast-paced learning scenario, with skilled individuals from seven nationalities and a variety of backgrounds and experiences, can provide the momentum to drive forward a process.

Lessons for the sector
As ASF-UK learns and evolves as an organisation, and adapts its pedagogy accordingly, it will benefit from the experience of other organisations, especially local partners. ASF-UK hope that other organisations can learn from the approach that they are developing and potentially implement learning workshops within their programmes.

There is an ongoing need for better links between learning and practice which needs to be tackled both within academia, to help maintain a focus and pragmatism to theory, and through practice, to explore, test and disseminate advancements in theory. Learning in action is a tool that can easily be used by other organisations as a process of exploration, testing evaluation and eventual advancement.

Organisations can benefit from an increased openness towards internship programmes, training and research posts, as well as learning workshops. It is possible to design workshops for new and ever challenging contexts to create interdisciplinary learning experiences as well as promote knowledge sharing and institutional learning. Workshops are a credible starting point for improved practice and raising standards within the humanitarian development sector.
Afterword

The authors presented the good practice guidelines to an audience of development and disaster response practitioners and academics in September 2010 at a conference entitled Improving learning and practice in the NGO shelter sector hosted by the Centre for Development and Emergency Practice (CENDEP) and CARE UK in Oxford. The guidelines were well received and subsequently several attendees reviewed the first draft.

Since then, ASF-UK and SEEDS have continued to share the guidelines with local government representatives and NGOs in India, and have discussed how to enable the activities of Phase 1 to continue and grow into Phase 2. In September 2012, ASF-UK, in collaboration with SEEDS India, the TERRA learning project, and Transition by Design undertook a feasibility study to assess the relevance and viability for establishing a ‘building knowledge centre’ in India, to act as a repository of information and a living laboratory for appropriate technology (technology which demonstrates disaster resilient characteristics, minimises ecological impact and promotes climate change adaptation).

The results of the feasibility study suggested that the most effective way to build capacity and facilitate knowledge transfer would be through two platforms; an online, virtual building centre, and a physical centre. The virtual building centre will maximize visibility and knowledge sharing amongst regional building centres, NGOs, institutions and professionals. The physical building centre, on the other hand, will be in a strategic location to act as a hub to strengthen and revive the existing network of building centres throughout India, exhibit examples of technological innovation, and facilitate skills training at multiple levels. SEEDS India are approaching potential partners from government, civil society and business to collaborate with in order to realise this vision.

ASF-UK continues to use international workshops to teach inclusive, participatory and empowering methods of working effectively within communities to alleviate poverty and increase community capacity. Between 2010 and 2012 ASF-UK has facilitated workshops in Ghana, Kenya, Cameroon, Brazil and India. All workshops promote the development of partnerships with local organisations that are involved in sustainable development, and develop transferable competencies for participants, that are relevant to practitioners in any context.

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Authors:

Sarah Ernst
Communications Manager
Architecture Sans Frontières-UK
s.ernst@asf-uk.org

Andrew Edwards
Programme Coordinator
Architecture Sans Frontières-UK
a.edwards@asf-uk.org