

# Hemp TODAY

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Voice of the Global Hemp Industries



INTERNATIONAL HEMP BUILDING ASSOCIATION

# Raising Haiti

IHBA's work on the stricken island moves ahead

**Wolf Jordan:**  
Builder with Soul



**MOROCCO**

Moving ahead in the Rif

**POLAND**

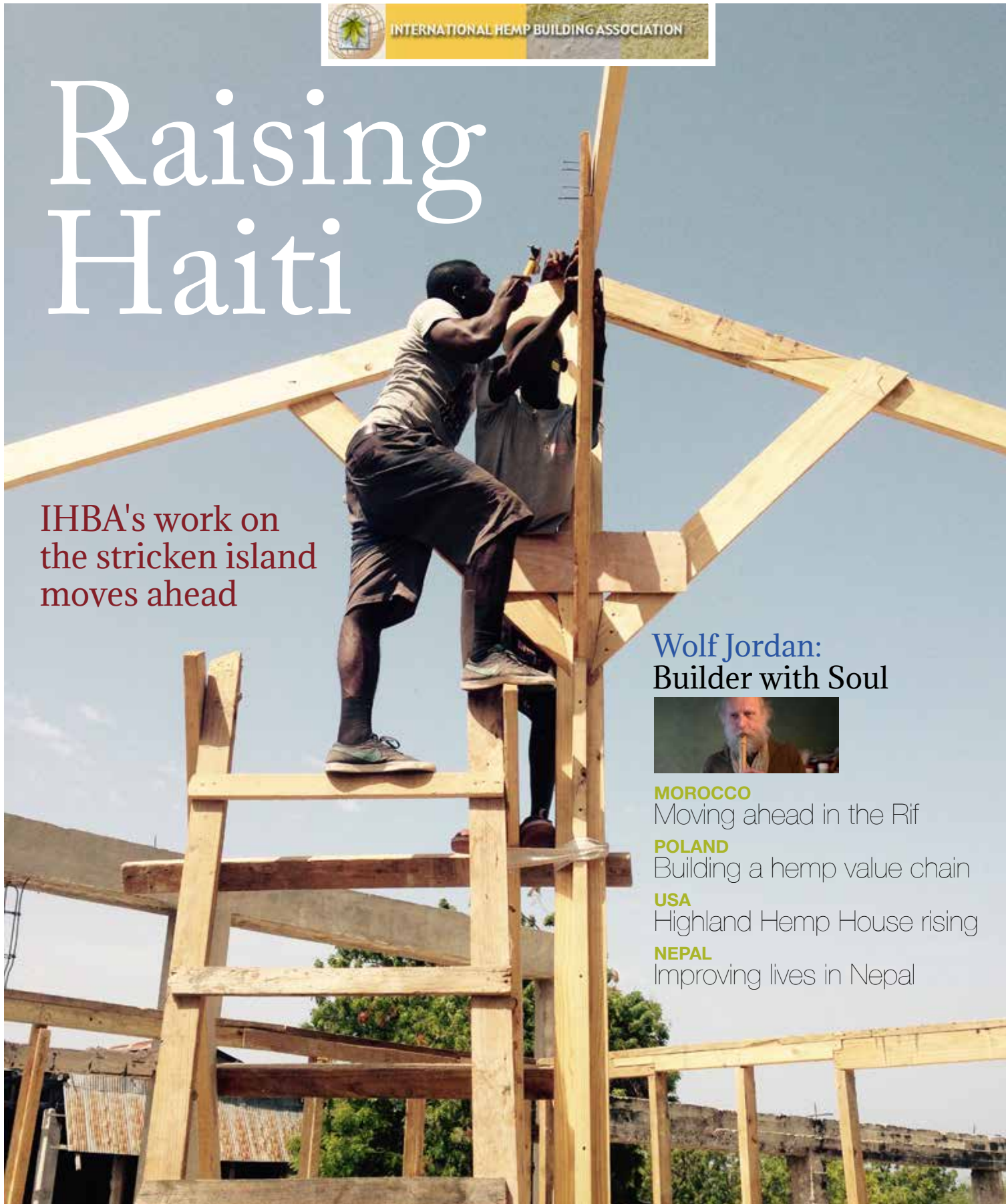
Building a hemp value chain

**USA**

Highland Hemp House rising

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Steve Allin and Finnish architect Ritva Laurila with an extended work crew at the Port au Prince site. (Right) Workers apply hurd as fill-in roof insulation.

# Raising Haiti

## IHBA's work on the long-suffering island empowers locals to grow hemp and build

**W**ith backing by the Finnish government, hands-on support of the Ireland-based International Hemp Building Association (IHBA) and supplies from Dutch firm HempFlax, "Mobil Ekol," a traveling school that promotes hemp farming, processing and home-building in earthquake and flood-ravaged Haiti, is getting its first project off the ground, IHBA Director Steve Allin told HempToday.

"We hope to establish a showcase for a system with a variety of basic houses built with hemp," said Allin, recently back from a trip to the small Caribbean nation.

That effort has now begun in earnest as Finnish architect Ritva Laurila returns this month to advance the initiative's first project, which will transform the site of an old sisal rope factory north of Port au Prince into a center where basic concepts for environmental living will be demonstrated.

### Matching needs and good will

Laurila, inspired after attending one of Allin's workshops in 2013, developed the idea to train young Haitians in hemp

farming, processing and building with hempcrete materials, and to promote the concept across Haiti, one of the poorest nations in the western hemisphere, and which suffered a devastating earthquake in 2010, followed last year by massive floods caused by Hurricane Matthew. The quake killed an estimated 160,000 people, leveled 250,000 homes and destroyed some 30,000 commercial buildings, while the 2016 floods decimated entire towns and villages, leaving more than 1,000 dead.

Laurila lived in Haiti off and on throughout the 1980's and 90's, eventually meeting Jacques Bartoli of the Haitian Resource Development Foundation (HRDF), a NGO that works on development projects in the country's rural areas. In 2010 she led a joint project that eventually put up ten wooden huts donated by a Swedish firm in the post-earthquake relief effort. It was three years later that the architect met Allin at an IHBA workshop in Turku, Finland.

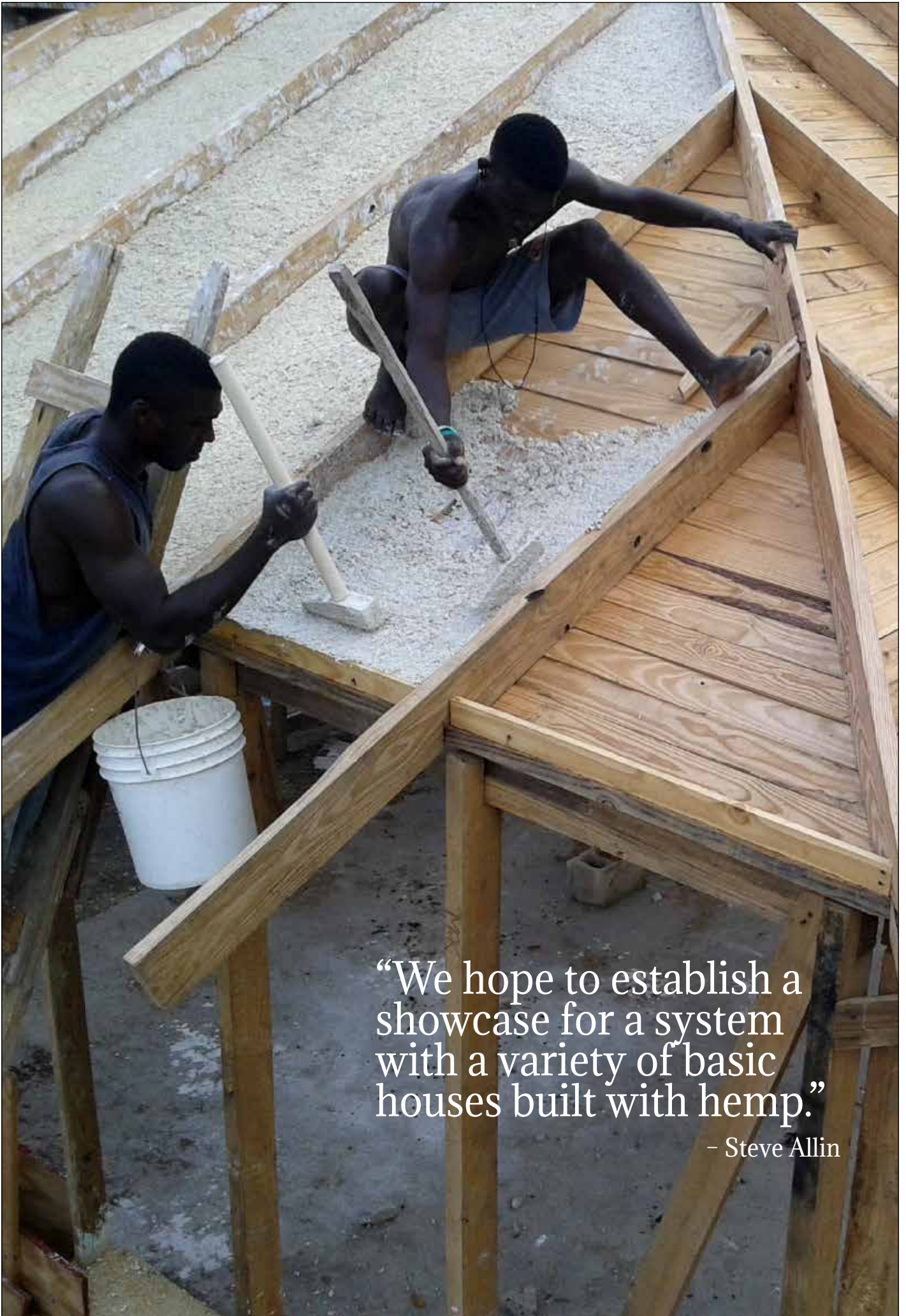
"It just so happened I'd previously written a piece in an IHBA newsletter about the earthquake in Haiti and how hempcrete could be a safer option in the future," Allin said. Quickly enlisted to Laurila's project, he made an initial visit

to assess the situation on the ground in Haiti as she organized €30,000 in Finnish government startup funding for the project in cooperation with HRDF.

### Rights activist donates property

Since that time Allin has returned to Haiti to conduct workshops in soil preparation and hemp sowing. His teams also have developed house plans and learned about framing and infill techniques using bamboo and earth for construction. During his most recent trip, Allin and a Haitian team of builders erected the framework and shuttering for Mobil Ekol's inaugural hempcrete building at the site north of Port au Prince, on land donated by the non-profit Haitian Athletic Association, a high-profile NGO headed by former soccer star and political prisoner Bobby Duval, a prominent human rights activist in Haiti.

HempFlax, Oude Pekala, Netherlands, got involved when Allin caught up with Director Oana Suicre at IHBA's 2016 symposium in Verona, Italy. The company donated a container of hurds which only recently made its way through the Haitian import bureaucracy, after being shipped from HempFlax in April, Allin said.



“We hope to establish a showcase for a system with a variety of basic houses built with hemp.”

– Steve Allin



“The project got caught in a typical trick by a combination of the shipping company and customs, who delayed and obstructed the shipment day after day with one new ridiculous detail after another, or by refusing to answer the phone altogether,” Allin said. “It was delivered only after painful ‘extra taxes’ and storage fees were paid,” he said.

### Materials tests prove successful

Getting started also required “prolonged negotiations” with Haitian officials regarding clay and lime samples collected locally and sent to Ireland for analysis, Allin said. Those trials were “very successful,” putting another key element in place for building projects to advance. “That bodes well for the next visit when we’ll do some building with imported hempcrete to show real examples and give credibility to the idea,” Allin said.

Allin doesn’t expect things to get much easier as the Mobil Ekol initiative moves along in Haiti’s generally difficult environment. But despite the challenges of poverty and the obstacles of little national infrastructure, Allin notes the Haitian Agriculture Ministry’s sustainable resources department is a strong supporter of the project.



Workers assemble frame components for the Port au Prince project. (Left) IHBA Director Steve Allin and Finnish architect Ritva Laurila with a core group formed to kick off the Mobil Ekol project in Haiti.

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The screenshot shows the HempToday website interface. At the top, there's a navigation bar with 'News' and 'EVENTS'. A main article features a photo of a woman speaking at a podium, with the headline 'Gabbard to address Hawaii hemp confab'. Below this, there are several smaller article thumbnails with titles like 'Development continues: agave in Australia', 'Former Gov candidate to talk "cocaine"', 'India institute announces new hemp strain', and 'U.S. should look to Europe for processing technology'. There's also a section for 'Interactive PDF download' with 'More than 300 Pages' and '€59/€36 ORDER NOW!'. The right sidebar includes a 'SATURDAY' event listing for 'PORTLAND EXPO CENTER' and a 'SHIV' logo at the bottom.

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**Website:** <http://shivhomesnp.weebly.com>

### More about this company:

20.02.2017 – Homebuilding project turns to Indiegogo  
15.02.2017 – Nepalese, French firms in 'Hemp Boutique'  
07.12.2016 – SHIV nears completion of a hemp home  
11.11.2016 – German firms aid in post-quake Nepal  
21.07.2016 – SHIV seeks to provide shelter in village  
08.03.2016 – SHIV gets hospital project rolling  
12.11.2015 – Oil crisis adds challenge for Nepalese startup  
13.10.2015 – Entrepreneur looks to hemp to rebuild Nepal

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The screenshot shows the HempTrade website. At the top, there's a navigation bar with 'Home', 'Products', 'About', 'Contact', and 'Log In'. A main banner features a bottle of 'HEMP EXTRACT IN MARULA OIL' for '€33.50'. Below this, there's a section for 'All Products' with a search bar and several product thumbnails, including 'Hemp Seed Oil', 'Flaxseed Oil', and 'Sunflower Seed Oil'.



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# A Builder with Soul

*Wolf Jordan is one of Europe's leading experts in the production of high quality natural paints, plasters and renders for the eco-construction industry. He is the founder and sole owner of Wolf Jordan & Co., which also produces binder formulas for hempcrete construction, and natural oils and waxes for wood and stone. Wolf is an old-world craftsman with more than 36 years' experience, a lecturer, educator and innovator who has worked on natural building projects all over the world.*

**HempToday:** Who would you say are the real pioneers of modern day hemp building in Europe? When would you say was the beginning of the modern-day hemp building movement?

**Wolf Jordan:** I'd point to Yves Kuhn with his project 'Canosmose' in the 1990s. Then came Britain with the first real big commercial building for the Adnams Brewery in Suffolk. Ian Prichett from Greencore Construction was involved with that project, which was something of a breakthrough.

Steve Allin, of course, who started the International Hemp Building Association,

and who wrote "Building with Hemp," still the standard book for anyone who wants to work with hemp and lime. He started the "Building with Hemp" symposia and lectures all over the world. Steve's doing an enormously important job spreading not only the word about hemp, but also the know-how.

Another pioneer is Monica Brümmer, an architect who set up Cannabric, a hemp block producing factory in Andalucia, bringing hemp into Spanish building. Now she is engaged in a stunning project in Morocco. Those are all people who helped to change the world, you know.

**HT:** What are the keys to a successful hemp-based build?

**WJ:** There are some important basics. Principles that are related to physics. Like the understanding of concrete, of binders with fillers. And of the composition of fillers. Many years ago when I stepped into my father's business, I stepped into the classical building world, with cement, concrete, things like that. We sold machinery for building sites and for concrete factories, so I became familiar with physical laws that apply to mixtures that need a binder. I even sold sophisticated mixing machines for making polyester-concrete.



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**HT:** That sounds like heresy, coming from a natural builder.

**WJ:** Some people never change, but I did. I became ecologically engaged, so I started to look for sustainable alternatives. This started with ecological paints. My grandfather, Frans Van Tongerloo, was an artist, so linseed oil and turpentine were absolutely part of my youth. From linseed oil paints to lime paints and lime renders was a small step.

**HT:** What are the mistakes to be avoided, both by the homeowner, and by the builder?

**WJ:** Often the binding process goes wrong due to a lack of water, or a mixture drying too fast, so the proper amount of water is also critical. And when you use formwork, pay attention that the mixture is well and evenly tamped. Steve Allin has developed a very simple but very effective wooden tool for that. The composition of the hemp shivs should be perfect. The lime should be the finest you can buy. Our European building history for over 2000 years shows the finest to be hydrated lime.

**HT:** How did you get introduced to hemp construction? Who was influential in your own development as a natural builder?

**WJ:** In my horse stables I used hemp shivs as bedding material. Then I read somewhere that people were actually building with hemp shivs and lime. I tried this out, of course. And it worked. I tried out several mixtures – like the French do, with hydraulic limes, but the foremost best results I got with fat lime putty as a binder. We make these putties. There are some inconvenient properties but, thanks to my many years of experience with hydrated lime, I found the solutions to deal with those problems.

In 2004 we built the extension of my workshop with hempcrete. Some trials went wrong (like using flax shivs instead of hemp shivs), but that was a very important lesson in what not to do!

Then I went to a workshop in France, organised by hemp farmers in the Charante, but I learned nothing new there on hempcrete.

On the contrary, I had to explain how lime really works. But I did learn their traditional way of building breathable but dry floors, without plastic nor cement, which was worth it. This was 2006.

Then I went to the Hemp and Lime Congress organised at the Centre for Alternative Technology in Wales. That was very interesting. I met the engineers who developed and built the big Adnams project, and spoke to the architect who designed the Haverhill houses (one tradi-

tional house next to one hemp house and they followed up the situation. This was a very useful project that Steve Allin writes about in his book.

**HT:** What kind of material do you think makes for the optimal frame for hemp-concrete construction?

**WJ:** Hemp is the second fastest growing plant, sequestering incredible amounts of CO<sub>2</sub>. That's one of the main reasons building with hemp is so revolutionary. The plant that grows even faster is bamboo. So, the combination of hemp with bamboo is an ecological blessing. If you consider that bamboo is also incredibly strong, then what are we waiting for? Even here in Europe you can grow bam-

“Whereas natural building in general was considered as some weird extravagance, this has totally changed. Especially for hemp construction.”

boo you could use for frame structures. Big industry is not interested of course, as the stakes and the money are not big enough.

Next of course is wood. We have traditions in building strong frames with wood, so for me this is the second best option.

In French Brittany, Kerterre, the eco building group, developed dome structures with the complete hemp plants. They soak them in lime and form domes out of them. Wonderful structures, very beautiful, very artistic and down to earth. But, as I said before, in natural building, the French generally tend to an organic style. That is not to everybody's taste.

**HT:** How do you go about sourcing the pigments for your line of natural paints?

**WJ:** As much as possible, I go directly to the producers of the ingredients that I use. Most of them are sold by the pallet load, but the pigments are usually about smaller amounts. There are still a few natural pigment producers in France, besides I love France, so I regularly drive over to

buy directly from them. But there are still some pigment mines in Europe that are on my to-do list.

**HT:** Who are the end users of your natural paints? Why do you think they go to the expense of such top-shelf natural products?

**WJ:** Practically all my products go B2B, to entrepreneurs, building and decorating companies, as well as specialized shops. Most end users are people who want to finish their houses with natural materials. There are also some institutions, like schools and historical monuments are done with my products. But what do you mean by “go to the expense?”

The general assumption is that high quality ecological paints are expensive. But our paints are generally some 20% cheaper than the synthetic equivalent. The world of natural minerals and agriculture has more stable pricing. This is also true for many other natural building systems as well, and especially for building with hemp and lime.

**HT:** How would you describe the level of enthusiasm now around hemp construction?

**WJ:** Whereas natural building in general was considered as some weird extravagance, this has totally changed. Especially for hemp construction. Look at the UK, where Marks & Spencer built a large commercial building employing hempcrete. Even here in Belgium, a supermarket has been done with hemp-lime.

That was a challenge, since the architects did not want the usual render finish, and instead wanted the hemp to stay visible. So I developed a special natural oil composition, which seems to work well until now. Four decades ago, hemp construction still needed to be invented, and now, to illustrate: our additive for an optimal and super-natural hempcrete goes to 14 countries in Europe. Plus the U.S. That's growing business.

**HT:** At what place on planet earth do you feel most at peace?

**WJ:** Oh, I didn't see that one coming. My inner peace is not necessarily connected to a special place. I have been able to create a wonderful job, where I can really do something for the environment, and for planet earth, and this is so satisfying.

But running a business can be quite stressful. From time to time I need a far horizon and a warm climate, so I begin to think Mediterranean. Paulo Coelho wrote that we regularly need a wide horizon, so that our eyes, our view can take our soul with them, so that the soul can grow again.



# Rebuilding the RIF

## Success in crowdfunding advances development project in remote regions

**A**fter reaching a crowdfunding goal of €32,000, German and Moroccan partners are getting started on a retrofit and hemp-building project that demonstrates their economic development plans in Morocco's High Central Rif. The area is an historic hemp farming region.

The effort is the pilot for an initiative of German architect and natural builder Monika Brümmer of Granada-based Cannabric, and Abdellatif Adebibe of the Moroccan Confederation of Associations for the Development of the Senhaja Rif Region, founders of the recently created cooperative Adrar Nouh. It is part of a long-term plan to improve living conditions in the Rif, and capitalize on the potential of the region's cannabis straw for socio-economic development while saving the traditional architecture of the region. The partners see benefits to education and tourism as well.

**13 funders pitch in.** The crowdfunding campaign, on Vision Bakery, drew funding from 13 parties. The money will be used to retrofit about 80 sq. m traditional terraced structures which in the past served as family dwellings, shelter for livestock and other



Monika Brummer, Cannabric; and a Riffian traditional dwelling (left).

purposes.

"Because of very difficult access and lack of infrastructure in the region, building materials will mostly be collected from local farms, including hemp straw for building materials and 'shinti' (rye straw) for roofs, combining traditional and innovative techniques," Brümmer said.

The construction site is in Fir Tagourth, a "douar" or smattering of tribal dwellings – a 10-hour drive into the mountains from Tangier. The tribes practice an agro-pastoral culture that embraces local cedar forests and the farming of an ancestral cannabis variety on 500-1,000 sq. meter family plots earlier farmed for whole resource utilization. Individual compounds are dispersed, meaning there are no villages. Drinking water and water for cannabis farming in the area is from natural springs and collected rain water.

**'Amazing.'** Looking to future expansion,

the project partners already have installed a hemp decorticator in the upper mountains of the Rif near the construction site. And Brümmer recently returned from an 11-day visit during which project representatives accompanied local women to nearby hemp fields as they prepared for harvest season, and cleaned up the construction sites while recruiting construction workers. She said she'll be back in Morocco soon to source wood for framing, for a trial de-cortication run and to oversee the collection of local hemp straw.

The group recently outrigged a rugged 4x4 vehicle to be able to access the remote project site. "The topography is very hilly; paved roads don't exist, and the last few hundred meters are only traversable by foot." Brummer said. "But it's amazing, including a bridge formed by the two halves of a split cedar stem that ends up in an emblematic rock behind which appears the roof of the first house," Brümmer said.

# All in the Family

## Brothers' hemp operations in Poland span value chain from farming to construction

**B**rothers Piotr and Marcin Jastrzębski are reviving a hemp legacy, inspired by tales of the old days, when the plant was grown on the family farm near Białystok in the northeast corner of Poland, not far from the Belarusian border.

“Our grandmother and our Dad tell stories of how the family grew it decades ago – the whole process of cultivation, harvesting and retting before manually processing and plaiting the fibers into rope,” said Piotr, who along with his brother brought hemp back to local fields beginning with a four-hectare (circa 10-acre) test crop of the Polish Białobrzeskian strain in 2014. The family farm had abandoned hemp in the early 1960s, and while their father is not active in Fermatech, he serves as an adviser to the company. “He’s our wiseman,” says Jastrzębski.

### Expanding hectarage

The brothers’ agro company, G.H. Fermatech Sp. z o.o., expanded hemp fields to 70 hectares from 60 last year and planted six varieties: Finola, Zenit, Futura, Fedora, Białobrzeskian, USO, expanding the range of cultivars to put in test plots. The company has developed Podlaskie Konopie, a building materials brand and produces, food- and feed-grade feed seed.

Fermatech has also been tinkering with various forms of harvesting and processing technology, adapting traditional farming machines for field work, and retrofitting an old Czech-built processing line to turn out fiber for hemp construction – Piotr’s passion.

And the company last year launched Podlaskie Konopie (Podlaskie Hemp), a brand pegged around the name of the municipal district where Białystok is located, and which is considered to be one of the most environmentally pristine areas of Poland.

While Fermatech grows for seed as well as fiber, it’s in hempcrete building materials and techniques where the company made



Piotr Jastrzębski is working to supply the hemp construction sector.

its first splash, promoting the technology at trade shows and in workshops. So far the company has trained more than 100 hemp enthusiasts from Poland and other countries in hempcrete construction, said Piotr, who also serves as vice president of Poland’s Natural Building Association.

### Enthusiasm over hempcrete

The company premiered its system at a “Building Solutions” trade fair near Warsaw last year, drawing crowds of curious onlookers. “It was the biggest attraction of the event,” Piotr said. “People were really enthusiastic.”

In addition to promoting hemp construction, Fermatech is also helping to advance hempcrete science through cooperation with Przemysław Brzyski, a friend and scientist from Lublin University in east central Poland. Shortly after the trade fair, Fermatech broke

ground on a demonstration house – smack in the middle of one of its hemp fields, completing the 100% hemp shell structure – the first of its kind in Poland – by autumn. Brzyski worked on the crew and installed sensors in the walls which he continues to monitor, documenting the hempcrete’s performance with an eye toward getting the material certified for Poland’s building industry. Further plans call for the add-on of energy efficient assistive technologies to create a truly green model home.

### Experienced grain growers

Beyond the processing of shiv for building material, Fermatech is an experienced grain grower. The company owns 640 hectares (1,600 acres) of farmland and contracts for another 160 ha (395 acres) where it grows Rapeseed, maize, wheat and barley that’s prepped for the market in on-site drying facilities – experience valuable to the company’s growth plans in the hemp oilseed market where it sells to food and cosmetics producers.

This autumn Fermatech hopes to boost its straw processing via improvements at the harvesting stage. Jastrzębski calculates that the firm’s re-engineered processing line could double its current capacity of 150kg per hour if it can deliver shorter lengths of shiv from the field.

The Jastrzębskis realized early on – especially where building materials are concerned – that they’d not only have to create a lot of processes and technology from scratch but also have to research and then prime the market to promote the relatively unknown hempcrete technology to traditional builders and homeowners.

“Our shivs already match the quality of our western counterparts,” Jastrzębski said. “At the same time our experience introducing hemp building around Poland shows us there’s great potential for development.”



The company last year built a hempcrete demonstration home on the edge of one of its hemp fields.



A re-engineered decorticating line used to produce hurd for hempcrete and insulation materials.

# Advances for a retrofit home

## Persistence, good network are keys at Highland Hemp House

**P**ersistence and a carefully-constructed network of global suppliers and experts has Highland Hemp House (HHH) founder Pamela Bosch on her way to finishing a dream. When all is said and done, Bosch will have completed the first-ever hempcrete retro-fit home in North America.

Having started stripping away the toxic layers from the walls of her 1970s-era traditional stick-frame Bellingham, Washington home this, Bosch is replacing that material with a hempcrete mixture carefully sourced from suppliers and consultants in Europe. Hempcrete construction is scheduled to begin in August.

### Bureaucratic odyssey

Just getting to the point where she could pick up a sledge hammer was an odyssey for Bosch, an artist, hemp activist and former teacher at Bellingham Technical College and Northwest Indian College, also of Bellingham. She spent four years attending workshops and doing research around Europe on hemp-based building, its history, techniques and modern-day applications. That outreach led her to Albert Dun, Dun Agro, Holland, who is supplying high-quality hurd for the project. Bosch visited Dun's operations twice to see precisely how the hurd for her house would be grown, harvested and processed.

While attending the International Hemp Building Association's (IHBA) annual Symposium in Germany two years ago, Bosch met long-time natural builder Wolf Jordan, a Brussels-based expert on the alchemy of hempcrete. His firm, Wolf Jordan & Associates, is advising on the HHH project and supplying proprietary additives for the hempcrete mix.

"We had no choice but to import these basic materials," said Bosch, noting that very little hemp is processed for fiber in the USA's nascent hemp industry — where most participants in government-managed hemp operations have focused



Pamela Bosch with Ross Grier, Bellingham Bay Builders, who is working on the HHH project

on CBD production and seed processing for food.

### Tough-to-source materials

Bosch said she is still considering a supplier for the lime that will go into her walls, which she expects to get in either the USA or Canada — based on specifications provided by Jordan & Associates.

"I'm sure they have as much lime as they need for hemp building in the United States," said Jordan, whose company is based in Greenbizz.Brussels, an incubator that backs enterprises working toward sustainable solutions.

Bosch's path to the required building permits was also a winding one, as she spent countless hours talking with construction firms, lawyers, building officials, environmental activists and legislators in an oft-delayed process. A month of phone conversations with officials at state and federal agencies was required to obtain a "letter of no objection" from the DEA to import the hemp hurd, Bosch said, in spite of the fact that federal Department of Justice policy clearly states that mature hemp stalks are not a controlled substance.

### Building permit in hand

The delays ended when Bosch finally received the necessary paperwork from local building authorities this past spring

— a milestone being celebrated at Highland Hemp House.

"Nobody accomplishes this kind of change on their own," Bosch said. "A hempcrete house would not be built in Bellingham without the considerable support and encouragement our project got."

Having been first to reach the building permit milestone, Bosch hopes the HHH project will inspire others to look into rebuilding their homes, to incorporate the many health and environmental benefits of hemp into their living spaces.

"The methods and materials for building with hemp and lime are not foreign to time honored building practices," Bosch said. "But in contemporary North America it's considered innovative."

Meanwhile, A shipment containing the Dun Agro hurd and Wolf Jordan's additives is on its way from Europe to Bellingham, Bosch said.

### Beyond pilot project

Looking beyond the pilot HHH prototype, Bosch has already had discussions with both Dun and Jordan on transfer of the knowledge and technology needed to expand hemp building domestically. Dun offers nearly two decades of experience in farming and processing at its operations in Oude Pekela, Holland, where the company turns out not only straw but raw material for foods, fiber for biocomposites as well as other applications. The company was also one of the first to develop specialized hemp harvesting equipment for bigger-size farms.

And Bosch has had discussions with Jordan about setting up production for his patented formulations and additives as well as a line of natural paints his company produces.

While the Highland Hemp House project will serve as prototype for other builders to observe, HHH is also a learning center for hemp building and advocacy and Bosch, a frequent international presenter on hemp construction, offers consulting, R&D and materials testing.



**Before, during and after:** Progress continues at the project in Bellingham, Washington State, USA

# ‘Every project is important’

## Forward thinking in hempcrete construction

*Matthew Mead is an entrepreneur and builder, and the founder of U.S.-based Hempitecture, a hemp construction contractor. He studied sustainable building techniques in earning a Bachelor of Architectural Studies degree from Hobart and William Smith Colleges (New York). In 2014, his firm partnered with Idaho Base Camp, an environmental retreat center in the U.S. state of Idaho that brought together a multi-disciplinary team to create a natural building on a grassroots budget. He is currently helping to coordinate a pioneering hemp retrofit construction project with Highland Hemp House (Washington State, USA).*

**HT:** How is the concept of hemp building being received these days – architects, builders, and building supply firms – down to the market level with the potential client base. What’s the general awareness level about hemp construction and its benefits?

**MM:** In 2013 when I was presenting the earliest concepts of what Hempitecture would become at various entrepreneurial business competitions and expositions, there were zero states that had any sort of pro-hemp amendment. There were under a handful of hemp buildings completed in the U.S. at the time and a majority of the venture capital panels I was presenting to thought I was insane. I’d reach out to architects, structural engineers and building enthusiasts; many thought the idea of using hempcrete as a building material was impossible, outlandish, and perhaps only for those who exist at the nexus of counter-culture and impracticality. This is changing dramatically.

There are well over 20 hempcrete structures in the U.S. now. There are hempcrete workshops appearing all over the country. There are more people who are becoming aware of the need for changing our building strategies. There are more individuals who are realizing the potential of hempcrete and want to build their own home or project with it. With that being said, the education campaign necessary to bring awareness to the general public of this construction method is marginal.

“Every hemp building project put in the ground is monumentally important because it highlights the possibility.”

Hemp building, is indeed, a niche interest. Often we hear comparisons of



‘A majority of the venture capital panels I was presenting to thought I was insane.’

hempcrete to materials like concrete, with hempcrete being a viable alternative to reducing the carbon footprint of the concrete industry. Unfortunately, these comparisons are delusions of scale. Concrete is incorporated in virtually every building project in the world and it has an entirely different set of properties and purposes than does hemp building. It is idealistic yet partially unreasonable to think that in 10 years every building project in the United States will begin to incorporate hempcrete as opposed to other carbon-dioxide intensive materials such as concrete. This is not meant to sound negative.

Every hemp building project put in the ground is monumentally important because it highlights the possibility. It makes the potential more known and it encourages an industry here in the U.S. to emerge and grow with confidence. We cannot support and grow an emerging industrial hemp agronomy without the proper output end-uses understood. For instance, how is a farmer to know that it's an economically viable option to convert his agricultural processes over to a hemp-producing operation without understanding what his crop will get used for and how much the individual plant constituents will be sold for? Hemp building is an important part of supporting the larger hemp agronomy here in the United States.

With that being said, overall for most people, concepts of hemp building are a new and surprising topic for all players in the building sector, from architects to builders to the clients. At this point, the hemp building industry is still in its infancy and it requires inspired, enlightened, or motivated individuals to embrace the risk that a hemp building project presents. In a society where we have robust licensing, insurance, and business requirements, hemp building exists in this abstract, uninsurable realm of newness. How does one get insured to build a building in a manner that isn't accepted by our flawed understanding of building science? How does one work as part of a collaborative team where designs, engineering, and subcontracting relationships rely on definitive information, data, and planning, when what you're planning will inevitably present challenges and new questions?

Hemp building has a long way to go to become a mainstream strategy, moving from niche to conventional. This is what inspires our work, bridging the gap between high quality conventional construction and a forward thinking natural building strategy like hempcrete.

**HT: What were your major takeaways from your experience with the Idaho**

**BaseCamp (IBC) project?**

**MM:** You don't know what you don't know until you know you don't know it. I came from an academic background, studying architecture in college and understanding hempcrete from a level that was gained from literature, research, and some hands-on experimentation. I realized that there exists a tremendous gap in the building sector – a disconnect between the office-based professional and the hands-on builder working hammer-and-nail on site. I spent three months working with a collaborative group on the architectural plan and design for the IBC project, yet was also tasked with hands-on building on site. This process, going from studio with pen and scale, to on site with hammer and nail, opened my eyes to the disconnect between the practice of architecture and the imple-

**It is important that we innovate how we build and install hempcrete homes for it to become a more widespread strategy.**

mentation of a building.

I knew after this experience that I wanted to exist in between these worlds. I spent three years following the IBC project working for a high-end custom construction company in Idaho to bridge the gap between my architectural understandings and my ability to direct and lead a building project on site. The Highland Hemp House is an opportunity for me to bring my craftsmanship and experience of working through a hemp building project to the table and help create a high quality, well constructed home. I believe hempcrete, to be taken seriously, must be applied in practical, conventional scenarios. Otherwise, hempcrete is certain to remain on the fringes, in a place that is a deep niche, not a solution to the problems our built environment presents.

**HT: What led to your passion for hemp as a construction material?**

**MM:** I have always been entrepreneurially motivated. When I was in college I owned an action sports lifestyle based clothing company. It was my passion,

however I had a realization one day. I realized that my company had no aspect of doing something greater than purveying cool gear. There was no aspect of giving back, sustainability, or bettering the earth. I knew that I could seek deeper sense of fulfillment. When I was studying architecture I undertook an independent study that I titled "The Contemporary Relevance of Earth Architecture." I attempted to review many different natural building methods, methods that relied on using earthen materials. In this study I concluded that hemp building presented the most practical opportunity for bringing earthen building strategies to the US.

I knew shortly after concluding my thesis that hemp building would be my life's work. I want to bring legitimacy to hemp building. I want it to be a respected strategy. I think I have a long way to go to complete that mission and it is my hope that others in the "hemp building sphere" take it as seriously as I do.

**HT: What's the key to getting hemp a seat at the table in the broader "green building" discussion?**

**MM:** There is no single key to hempcrete building strategies becoming taken more seriously in the broader green building discussion. It requires an effort from multiple different aspects, but if I was to say that there is one thing that is particularly of importance, it's that hemp building projects be taken on in such a manner that legitimizes the industry, not diminishes it.

"I have made it my mission to only pursue hemp building in a light of professionalism, one that has been gained from experience and years of working hands-on in construction."

I believe it is important that we innovate how we build and install hempcrete homes for it to become a more widespread strategy. The impact of hemp-based construction can be, and will be, most felt when it can be considered a strategy that is as respectable as conventional construction techniques.

**HT: We noticed that your Idaho Base Camp project was successful in reaching its' goal on Kickstarter. Do you have any insight into keys to a successful crowdfunding campaign?**

**MM:** Planning is the most important part of a crowdfunding campaign. I hate to repeat a common phrase, but it's true: If you fail to plan, plan to fail. Spend 3-6 months planning your crowdfunding campaign. Every component of your campaign must be well assembled for it to be a success.





# We're working to bring hemp back to the Great American Northwest

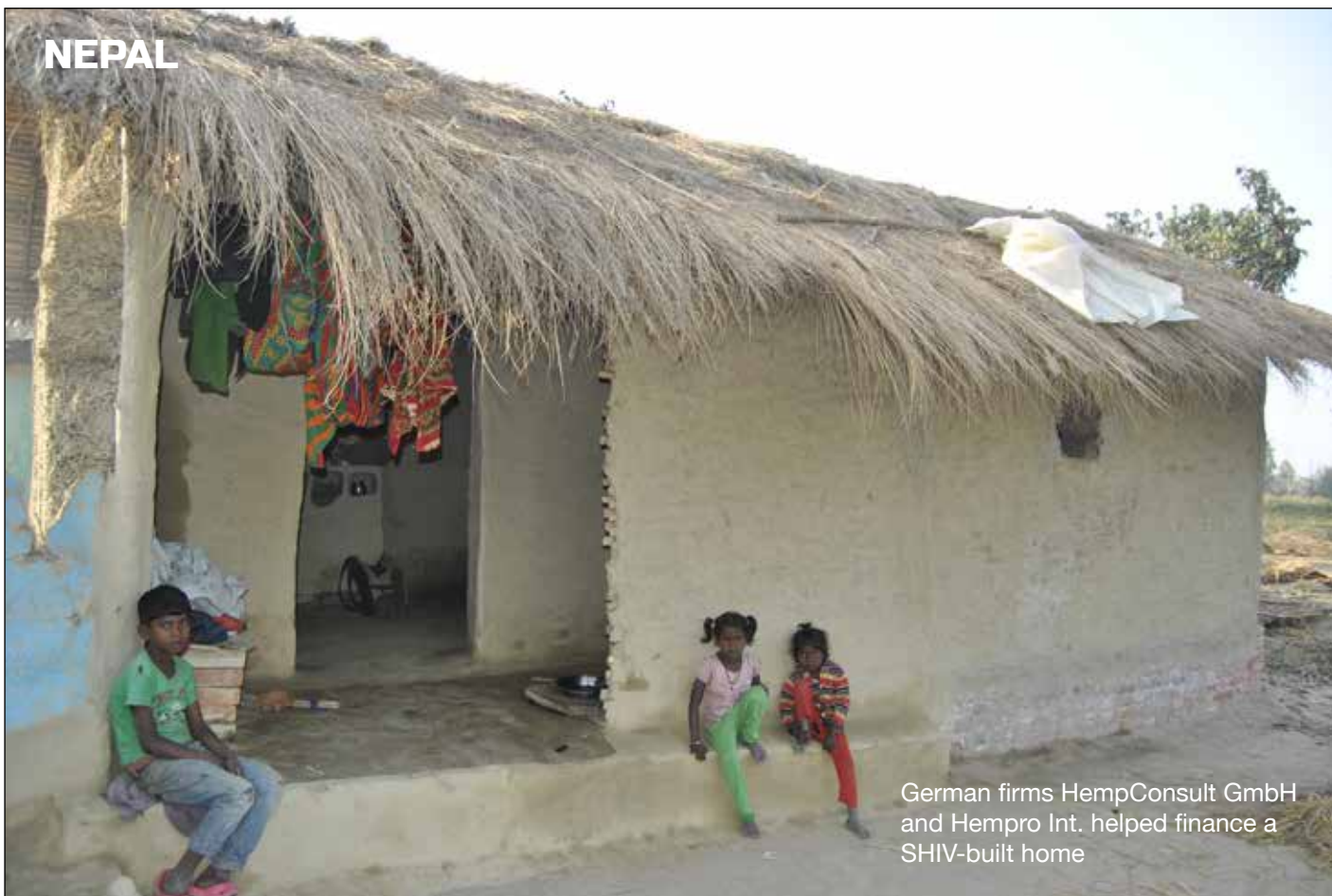
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German firms HempConsult GmbH and Hempro Int. helped finance a SHIV-built home

## Hemp for shelter, education and health

**S**hah Hemp Inno-Ventures (SHIV) this year completed three construction projects that will better the lives of less fortunate Nepalese.

Early this year the company finished a single unit hempcrete-built home under financial backing from German firms HempConsult GmbH and Hempro Int. That was followed by the building of a Montessori school for about 23 students in Lahan, Nepal. Then, in September, SHIV wrapped up construction of an expansion for a medical facility in Janakpur, using locally sourced bamboo and wildcrop hemp.

**Much needed shelter.** “This is the kind of gesture that says a lot about the companies and people working in today’s hemp industry,” Nivedita Shah, SHIV’s co-founder said of the homebuilding project. “It will give a family much needed shelter,” Mrs. Shah said of the Dusseldorf-based firms’ contribution.

Some 600,000 houses and public buildings were destroyed in last year’s massive earthquake in Nepal, which has left many Nepalese living in harsh conditions with little or no shelter. By using locally available raw materials and by employing local labor, SHIV is able to build the four-room dwellings for \$5,000 each.

“SHIV’s work in Nepal is commend-



Dhiraj and Nivedita Shah co-founded Kathmandu-based SHIV.

able. We feel a particular responsibility, and take a lot of satisfaction in supporting this initiative,” said hemp veteran Daniel Kruse, a principle in HempConsult and Managing Director of sister firm Hempro. “We hope others will follow us in supporting Nivedita and Dhiraj in their important work to provide shelter and much needed public buildings to the victims of the 2015 earthquake.”

**Second hospital project.** Part of a Janakpur orthopaedic hospital, the more recently completed facility is for a specialized craniofacial center. The addition is the second hempcrete-based project by SHIV at the

hospital complex. The company completed a wing for a meeting hall and offices last year with the help of Steve Allin, Director of the International Hemp Building Association (IHBA).

wSHIV used bamboo mesh as a false roof with hempcrete insulation in the project, said Dhiraj K. Shah, who is a co-founder of SHIV along with his wife, Nivedita Bansal Shah. Local women applied clay render to the walls, which were painted in lime. A mixture of cow dung, lime, clay are in the roof.

**SHIV’s fast startup.** Kathmandu-based SHIV, started just one year ago, has quickly established itself in construction, hemp-oil based consumer products, and finished hemp-based textile accessories. The company works with local farmers, processors and manufacturers to deliver hemp products by exploiting Nepal’s abundant “wild crop” — uncultivated, naturally occurring hemp fields — providing jobs and spurring local economic development in the poorer regions of Nepal.

Shah says SHIV will soon launch its own-brand binder and a companion line of shivs for construction, under the brand “SHIVcrete.” The company also produces hemp-based cosmetics, food products and a range of hemp-textile accessories.



Construction of a Montessori school in Lahan, Nepal, built by SHIV this year.



The Kathmandu-based firm's craniofacial center project in Janakpur is its latest.

# Message in a dream

## Italian entrepreneur is living out her hemp vision

*Rachele Invernizzi is President at privately-held South Hemp Tecno srl, a fiber processor located in Crispiano-Taranto in southern Italy. She is also agricultural coordinator for southern Italy at Assocanapa, Italy's national hemp association.*

### **HempToday: What is South Hemp's overall philosophy and approach to the economics of the hemp processing business?**

**Rachele Invernizzi:** SHT was conceived first of all as a factory to process hemp straw and at the same time to be the first link in a local production chain. I always say that without a factory, you can't make anything with hemp. But without a source for hemp, it's useless to build a processing plant. We produce fiber and shivs into raw materials for the green building, paper (cellulose), bio-plastics, polymers and biocomposites markets. The market for cellulose and polymers will grow in the near future while green building is already a reality. We also make animal bedding and loose material for agricultural mulch.

### **HT: You've said hemp can play a part in keeping young people from leaving rural areas as it presents fresh business opportunities. Describe the best scenario in which this phenomenon could happen.**

**RI:** Hemp has so many applications that if the value chain gains strength, the industry in southern Italy will begin to work. As a result, young people will be able to find work without having to emigrate to the north of the country or abroad, as many do. They don't necessarily have to be in agriculture, but can think of developing final products. It helps that the south of our country has some important economic aid from the EU which is targeted to young people who want to create businesses.

### **HT: What does the supply chain structure in Italy look like, and where is South Hemp in that supply chain?**

**RI:** Our chain operates across southern Italy, in eight regions. After seeding, from May onwards, we start holding meetings with farmers, agronomists, associations, landowners and potential end users. We talk about everything needed to get them to conduct agricultural tests with hemp, and about current markets for end-use.



**“More than the income statement, there's a great thrill in being in a market at the very beginning of an era.”**

Farmers who decide to join call us in November and we make a list of all the people who are interested in planting hemp. We act as a medium for the supply of seed, which comes from Assocanapa, Ltd., a certified seed vendor.

Once the farmers have sown, we help them to prepare the paperwork to be sent to the police, we talk with the various police headquarters, which still nowadays aren't up to date and can be obstructive. But we are now highly trained and we've created conditions where they don't confiscate anymore.

We sign a contract with each farmer for the transfer of the final goods, regardless of what the production is. We help those who need it with the sowing, and we monitor the fields for progress. At least a couple of times per growing season we go to the fields, which are in a 400

kilometer radius. Visiting farmers in their fields is the most beautiful part of my business. All of Italy is beautiful, but the south and its people are special.

Once the straw is ready, SHT withdraws it from the warehouse, pays the farmers and starts the round for the following year.

### **HT: Can you talk about the growth outlook for your company? What do you expect over the next three years.**

**RI:** Well, we're only two years old, so the ideal today is paying the expenses without having to invest more money — so breaking even is the first goal.

After the third year of operation we expect to begin recovering the invested capital. But first we have the great task of creating the market, in all areas.

### **HT: What lessons were learned through the Assocanapa economic study that looked at the potential for the hemp industry in southern Italy?**

**RI:** We learned that for the first three years you must invest; then you will have great return. But more than the income statement, there's a great thrill in being in a market at the very beginning of an era. Everything needs to be done, and that's just fantastic.

### **HT: What is your personal hemp history? When did you first get involved with hemp?**

**RI:** I got a message in a dream. It was October 2011. At that time I looked at the market for olive oil, which is produced abundantly in our region. Hemp was something new and unknown but exciting, so it was obvious that hemp was the best choice.

I contacted the Assocanapa Association that same month, then in 2012 I planted 2.9 hectares that were seized as drugs and ended up in court. In 2013 I became a member of Assocanapa Ltd. located in Carmagnola (Turin) and had a trial of 120 hectares sown in different areas of southern Italy. From there I decided to start up my own business and to create the first entirely Italian industrial plant for processing straw, which Assocanapa Ltd. proposed.

My hemp guru is Felice Girauda, great reference for hemp cultivation in Italy, and the president of Assocanapa.



Big and small players have quickly emerged as the industry grows throughout Central Europe

# Western opportunities

## As U.S. hemp gets rolling, Euro firms can benefit

**W**hile European hemp companies have found a fertile market in the United States for years, the growth of farming and processing in the USA is bringing further opportunities to Euro firms which have developed world-leading technology to turn out hemp-based products.

From specialized farming equipment to high-tech extraction facilities, Hemp USA needs to ramp up production for a wide range of products – even as the industry continues to be under constraining government-controlled programs.

“The greatest bottleneck we’re seeing along the value chain is among U.S. processors on the dual purpose side of the industry,” said Thomas Dermody, Executive Director of the Colorado-based Industrial Hemp Research Foundation (IHRF).

“From on-site to secondary processing, we need a vast ramp-up in available technology, or (U.S.) companies need to work on licensing agreements that let them bring over European tech to handle the vast amount of raw material we could see by harvest season,” Dermody told HempToday, noting some estimates that

Colorado alone could produce hemp from 35,000-46,000 acres (86,000-114,000 ha.). “Where we are going to process all that material remains to be seen,” Dermody said.

### Demand for knowhow

And while the USA boasts as many as 25 state-run hemp research programs under way or soon coming on line, U.S. industry sources say the lessons learned from Europe’s many years of trial and error can also prove valuable as the world’s biggest market for hemp goods continues the shift from an export-driven supply model to a home-grown value chain – an opening for European hemp consultancies.

For European hemp firms, the potentially behemoth American hemp industry carries a double-edged sword, of course. Transferring technology and knowhow to the USA is sure to speed up U.S. supply chain development, thereby decreasing demand from elsewhere in the world. Still, that’s seen as a longer term proposition that leaves plenty of room for short-term export growth among Euro

hemp firms, said American hemp adviser Richard Rose.

“While U.S. states dither by requiring research only by universities, Europe is growing almost as much hemp as Canada, and allowing full commercialization with THC as high as 1%,” Rose said. “Many (U.S.) states as well as Canada ban hemp CBD, losing 98% of potential value,” he added.

“So Europe is setting the stage to be a supplier to the world, including China. Want cheap production? Go to Ukraine. Want massive fields? Go to Poland. Want hassle-free extraction? Go to the Czech Republic. Want the best hempseed oil in the world? Go to Italy,” Rose said.

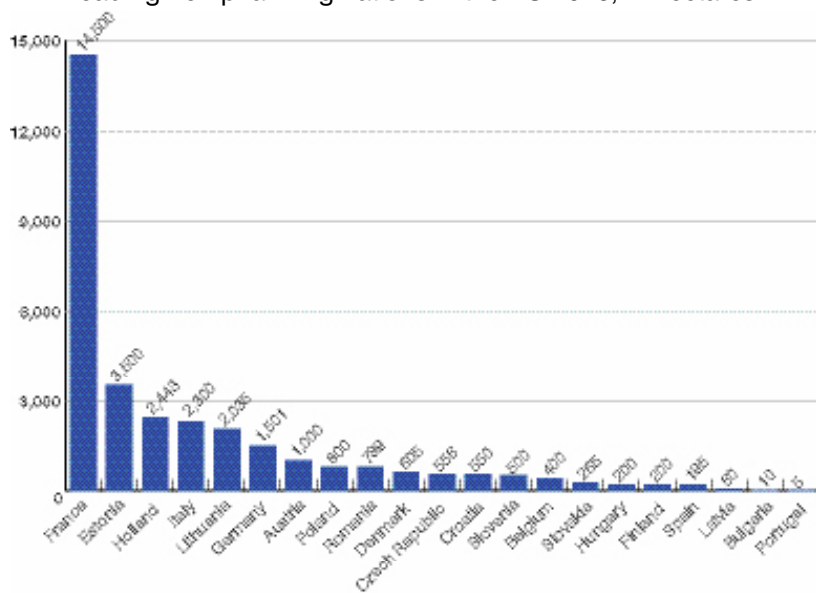
### Central Europe expands

Rose’s analysis signals another trend in Europe: The rise of hemp in Central European countries, several of which have vast farmland and are quickly waking up to hemp’s potential in farming, processing and marketing.

Those states are led by tiny Estonia, which this year jumped into second place behind France in total hemp hectareage, ac-

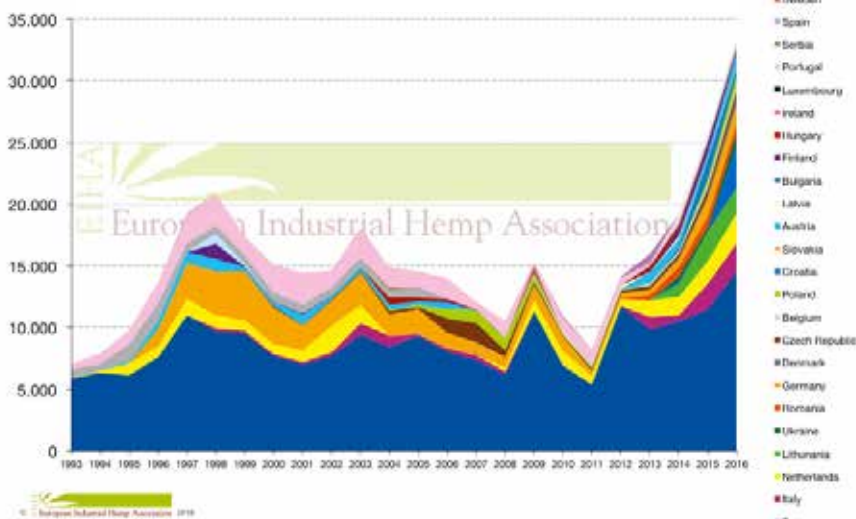
## Leaders in the fields

Leading hemp farming nations in the EU 2016, in hectares.



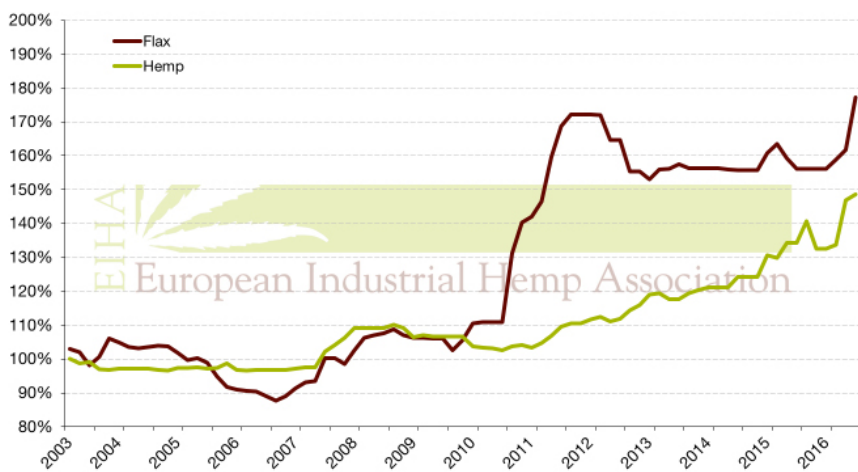
## Historical trends

Hemp farming hectares by EU country since 1993



## Hemp vs. flax

Price development of natural fibers since 2003.



100 % equal the price of technical hemp short fibres in March 2003. Basis: Supply of 100 tonnes per year.  
Sources for 2016: nova-institut on the basis of bi-monthly price reports from BafA/NEU (DE), CAVAC (FR), HempFlax (NL), Institute of Natural Fibres & Medicinal Plants (PL), Loom Vandevoortstele (BE)

According to EIHA's annual field report. But Central Europe's potential is best spelled out in bigger countries such as Poland, Romania and Ukraine, all of which have vast farmland and rich histories in hemp farming, processing and research; they also have examples to follow in Slovakia and the Czech Republic, more developed markets that make up a sort of advance guard for Central European hemp.

## Foods going mainstream

In wider Europe, branded hemp food and food raw materials suppliers continue to enjoy an expanding market across the continent, led by Germany, where hemp foods have moved into the mainstream. But while CBD markets have appeared to hold up over the past year, the sector has not been without its problems.

For starters, the push for a medical designation on CBD in the UK roiled industry players late last year. Around that same time, red flags also went up over an amendment to the federal Regulation on Prescription Medicines in Germany that essentially designated all CBD-laced products as prescription-only without any consideration for dosages or administration methods. The amendment was based on an earlier recommendation by an expert group from Germany's Federal Institute for Drugs and Medical Devices

Those developments quickly drew a proposal from the EIHA calling for a three-tier regulatory framework for CBD products to address the current "tenuous patchwork" of rules covering CBD and hemp extracts in the European Union. Changes would address unclear rules for hemp foods and supplements, guidelines affecting such things as dosage levels, rules for over-the-counter products such as supplements, and CBD levels allowable in food products.

## Isolates drive CBD

The developments in Europe were meanwhile compounded by a clampdown last year in the USA – an anchor CBD export market – over what government regulators called dubious health claims being made by some CBD vendors.

Despite those hiccups, and the potential market interruptions they imply, CBD shortages could – ironically – emerge throughout the summer, driven by the fast growth in demand for isolates, which require more material than simple CBD oils or extracts, said Richard Rose. "There could be a glut come post-harvest in October, but until then shortages are possible," Rose said.

The development of isolates alone shows a CBD sector that is gaining in sophistication and expanding into more and more sub-sectors, which Euro CBD producers are quickly populating with new products.



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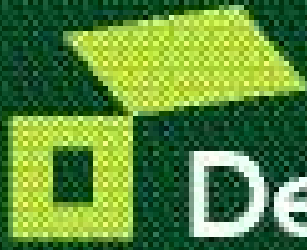
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**Piotr Jastrzębski** and his brother Marcin farm, process and sell hemp derivatives from their vertically integrated hemp operation in northeastern Poland. Their company, Podlaskie Konopie, is also active in Poland's natural building scene as a contractor, by conducting hempcrete building workshops and frequently appearing at natural building trade shows.

[hemptoday.net/deep-green-building/](http://hemptoday.net/deep-green-building/)

