

## BIOCHAR

When plants grow, they take up carbon dioxide from the atmosphere. When the plants die, the carbon is released back into the atmosphere. However, if the plant mass is converted to charcoal, the carbon that was in the plant can be locked into the soil instead of being released into the atmosphere. Charcoal is made by heating biomass (plant and animal material) in the absence of oxygen. The fumes that are driven off can be fed back to fuel the furnace, and can also be captured to produce high octane fuel. The heat produced can be used to generate electricity.

Charcoal has a very large surface area and provides an excellent habitat for microorganisms which are essential for healthy soils, as well as providing a very large holding capacity for water and nutrients. Charcoal incorporated into soil is known as biochar. Growing tall grass-like crops like corn, sugarcane, sorghum, or giant miscanthus are ideal as they are fast growing and produce excellent quality charcoal.

Biochar is starting to be produced on an industrial scale and operations, large and small, are beginning to spring up all over the world. Some of the world's poorest communities have already benefited by the installation of relatively small biochar production units which supply them with electricity and fuel, enhance their food growing capacity and provide employment. It takes four to eight years to convert desert soil to productive, valuable land. Big companies such as Google, BP, and General Electric are investing in this technology, and the momentum is building.

### Resources

Bates, A. K. (2010). *The biochar solution: Carbon farming and climate change*. Gabriola Island, BC: New Society Publishers.

[www.biochar-international.org](http://www.biochar-international.org)

[soilcarbon.org.nz/biochar-the-next-stage-in-climate-action](http://soilcarbon.org.nz/biochar-the-next-stage-in-climate-action)

[www.ted.com/talks/al\\_gore\\_the\\_case\\_for\\_optimism\\_on\\_climate\\_change](http://www.ted.com/talks/al_gore_the_case_for_optimism_on_climate_change)

# Climate change, biochar and community action: An exchange of letters

*Katerina Seligman, Bev Hosking and Martin Putt*

## **Katerina's opening letter**

Dear friends:

I soothe my soul before sleep by reading the AANZPA journals. They connect me with a large community of brave, fun-loving people doing inspiring, dedicated work to create a better world. They connect me with you. Till last night, I had not thought of writing an article for the journal. My psychodrama work has taken a back seat in recent years, with climate action in the forefront. Phil Carter's (2014) editorial woke me up to the fact that maybe I could write. "Poems are okay," he said. "Stories are okay." "Aesthetics, engagement with the whole being are what is important. Invite the reader into an experience," he says. Maybe I can write something relevant to others in my psychodrama community. A sociometric exploration? A story? Or a simple sharing of this journey with my psychodrama whanau, building on previous work described in my journal article (Seligman, 2011).

Yesterday, I spent many hours researching biochar stories. A new group has arisen in my life. A Biochar Action Group. Suddenly I am encouraged, no longer alone on this biochar journey. Others are working away with me to try to bring this hopeful news to the world. My sister, on watching the half hour video, "Biochar -The Next Stage in Climate Action," said it was the most hopeful thing she had seen in years. My brother wrote, when I sent him some of my biochar writing, "great stuff Kat, keep it up." Encouraging, heart-warming words from a brother who has been brought closer to me than I ever thought possible through our parallel climate change work.

The truth is no longer, in Al Gore's words, "inconvenient," it is terrifying. I know this because I am a scientist at heart and I have studied the science. Intensively. The truth sits in the pit of my stomach like a ball

of dread. It rises to my heart which quickens, and then the fear passes. Life resumes normality: clients, grandchildren, meetings, movies.

I am a lover, a lover of life, a lover of nature. The bush, the natural world, is my church, my cathedral. The thought that it will be further decimated is painful. People are already suffering due to climate change. But haven't people always suffered? The suffering and losses stand to multiply beyond all belief. The biggest part of the tragedy is that it is avoidable. Not by flying less or taking shorter showers. By employing technologies and methods that already exist and need to be given a place of prime importance in the hearts and minds of people.

Perhaps it's because I'm from a holocaust survivor family that I can't let this rest. I know in my bones that bad things don't just happen to other people. I don't want to get on a soap-box, convert people, or champion a cause, but I know that commitment on a massive scale is required.

It's many years now since I intensively studied climate science, hoping to discover that there was not too much to worry about. What I learned shocked and frightened me. I know we are past the point of no return. 350 ppm (parts per million) is the "safe" level of carbon dioxide equivalents in the atmosphere. We are currently 405 ppm and rising exponentially; the "runaway" effect. It is no longer enough to cut carbon emissions to zero. We must take carbon dioxide out of the atmosphere. And it *is* possible. There are ways to achieve this, but they would take total commitment, from governments, farmers, corporations, from ordinary people everywhere.

For eight years I worked with a climate action group, a wonderful group of friends. Together, with humour and dedication we focussed on many areas, the local, the global, the political, the grass roots, the coal, the oceans, the TPPA. We produced street theatre and songs, and heart-warming meetings. On the downside, dozens of depressing emails and links came into my in-box daily, dragging my spirit through the dirt. It was a liberation to step down from this group, to decide to focus on just one thing, one solution, one area that offers hope - biochar. And so our Biochar Action Group came into being.

To reverse climate change, biochar and other known solutions would have to be employed on a massive scale, seemingly an impossible pipe-dream. But as I live with the terrifying truth that climate change is poised

to escalate out of control, I am reminded of Zerka Moreno's final words in her book *To Dream Again*: "the impossible does happen."

I'd love to know your response,

Katerina.

## **Bev**

Dear Katerina – I am writing to you on a remarkably warm, beautiful, autumn day, one of a string of unseasonably, warm days in Wellington this year. They have been compellingly enjoyable, and at the same distinctly disturbing, as it is hard not to notice such a change in the weather pattern and to link this to an immediate and worrying experience of climate change.

Thanks for your letter and for inviting me into conversation with you. I have enjoyed hearing from you and I am very interested in your recent discoveries, both about biochar and also your shift in warm-up, based on the need to work in ways that are life giving and sustainable. Facing and working with the truths about climate change certainly are a big challenge to this.

I have been online to look at the video you refer to and to get some further information. It is so very heartening to hear that there is at least one technology that can have such a rebalancing effect. I love the fact that it not only can remove carbon from the atmosphere, but it is so beneficial to plant life. That is really exciting. I also have so many questions, such as, "Do you have such a machine? Are there folk in your area getting together to develop a community-size version? Are you working to get government to take up this solution?" Practically, I am currently planning to ask my nephew, who is an engineer, whether he might be able to make such a machine for myself and my friends/neighbours to begin to use – it looks reasonably simple as technology goes, from my view as a non-techno person.

I have also been interested in questions of process, and wondering which of your sociodramatic and sociometric abilities you have been applying as you are involved with these groups and this issue?

I have been grappling with this myself – where and how to make interventions in current social, cultural, political global issues of which this is such a major and urgent one. I have been seeking out ways that I can bring to bear some of this very powerful method that we have spent years training ourselves in.

The world is such a different place from the 1960's to 1980's when I was much more active politically and the experience of protest was on the streets with hundreds/thousands of others. Now, there is so much more readily available information about what is happening, but I have found it challenging to see and feel groups gathering around such issues in creative ways, where I feel I could make a contribution. This was what I found myself experiencing, so I decided that this was where I needed to start, and not disregard or leap over this awareness.

This has led me to experimenting, in recent years, with a few different colleagues to invite folk to conversations where we can bring forward what is important to us. At different times and in various combinations, we have used group work, playback theatre, sociodrama, sociometry, as well as sitting together with folk, talking and listening, with a strong focus on listening. We have worked to open out areas of interest and concern and to explore what is of significance to those present.

We have often set up the conversations with an invitation for the same group to meet for two consecutive evenings, or three evenings, a week apart, so that a more reflective and substantial conversation can take place. In this work to date, we have had a high value in working with emergent themes, building out from what folk have brought forward as important at the current time and place, and so far climate change has not come to the fore. This is of interest to me, however I have not investigated it in any depth. I imagine it is because of a fear of overwhelm and helplessness, which are some of the feelings that have been expressed when climate change has surfaced as a theme in sociodrama training events. The groups have then gone onto work with this in some creative ways.

In our work, we have intentionally taken action to come to know something of the complexity of various situations. As we have done this we have worked to hold off feelings of urgency and to avoid orienting to solutions or particular outcomes. This has been quite challenging. We have wanted to open out spaces where we can think together in ways that go beyond opinion and debate.

From J. L. Moreno, and from my own experience, I have learned again and again that the face to face relationship is extremely important. I have seen how much folk love being together with others in these settings, how there is such a longing for a deeper connection with others around things that matter to us. We have had a focus on listening and experiencing being affected by one another.

At the time, it has not always been clear what folk have gained from this sort of being together, although enjoyment, deep satisfaction and stimulation have been expressed at these events. However, a significant surprise element has been that when folk go away they are often moved to action. Sometimes a call to action happens at the end of such a gathering, but more frequently we later hear reports that folk have taken some action, small or large, that is of real significance to them in their personal, social and political settings. We have witnessed the role of citizen being animated.

As I write, I am wondering whether the time together assists us to think and feel about things in a way that we cannot do on our own, as it is often overwhelming. As a result of this way of being together, we are empowered to act. This is in line with Moreno's idea that the psychodrama methods he developed would enable us to move from being passive to being active as members of society.

Warmly as always,

Bev.

### **Katerina**

Kia ora Bev,

It is heartening to me to have you engage with me so willingly on this topic.

Our Biochar Action Group came about via the process of something called, "The Community Game, Motueka," a weekend event in which I participated earlier this year, where people from the community presented projects and had others join them. We participated in collaborative, game-like exercises with the goal of learning a variety of ways for groups to work smarter and faster, to meet their community's needs and aspirations. Throughout the weekend, we were treated to videos of inspiring real-life success stories, where small groups achieved seemingly impossible goals by collaborating with each other. It was a very rewarding weekend and our action group was born. We did not engage in the deep sharing that occurs in your groups, Bev, but I think it would be very worthwhile to do so.

The groups you have been conducting, where you invite people into important conversations, sounds totally relevant. Clearly heart-warming, strengthening, life-enhancing connections and insights are made. I know that face-to-face encounters, with acceptance, is by far the best way,

maybe the only way, that people make shifts in their consciousness. I love your statement that “animation of citizens comes from being together with people with enjoyment, deep satisfaction and stimulation.” As you say, helplessness and overwhelm are the greatest obstacles to people engaging. It is also something about the nature of the climate threat we are facing ... it is mostly so invisible and not immediately threatening to most people, or so it seems.

In our Biochar Action Group, I think my psychodrama background, and grounding in sociodrama and sociometry, supports me in my roles as out-reacher, net-worker, connector and educator. It is with forty years of psychodrama experiences in my bones that I feel supported and confident enough to strive for planetary healing. But I am still daunted by the thought of taking the next step of going deeper, with larger groups of people, on this subject.

I am coming to a place of acceptance of how things are in relation to climate change, that most likely we are past the point of return, feeling the sadness of that, and sometimes the fear, and still enjoying life and maintaining hope that there is a positive way forward. There are millions of people on the planet going all-out to find solutions and intent on creating a sustainable and just world. Whether these efforts will succeed or fail is not really the point for me. The point is to keep on *as if* success is possible. To quote Zerka Moreno again, “the impossible does happen.”

I'd like to briefly answer your questions about whether we have a biochar-making machine, whether we have a community of people involved, and whether we are taking action with the Government about these issues. Our group does have a number of ways of making charcoal on a very small scale. The process is called *pyrolysis*, and the machine used is a furnace called a *pyrolyser*. We have done site visits to furnaces that produce charcoal on a large scale and are currently looking into ways we might acquire one.

We have a man in our small group with practical engineering skills, several with a great deal of theoretical and practical know-how, some people with business experience, and a soil biologist. We are thinking perhaps at first we might make use of the char produced at a huge MDF plant in our area, to first try and get biochar onto people's radars. To build something big enough to deal with the massive amount of orchard and forest waste in our area would take a lot of money, and people willing to work on the project full time. There are business opportunities there, and we are exploring how we might make the most of them.

As far as getting the government to engage with this 'biochar solution', we have made small, and, so far, apparently unsuccessful outreaches to government personnel, so we need to focus more on this aspect. Within our otherwise very busy lives it's challenging to find time to do it all. I struggle to accept that what I am doing is enough, but I am not willing to do more. I have a Gandhi quote on my wall: "Almost everything you do may seem insignificant, but it is important that you do it."

With warm wishes and appreciation,

Katerina.

### **Martin**

Dear Katerina and Bev,

Jasper, my son, is 12 years old now. When he was 10, he wrote his first speech for school about plastic bags killing our sea life. He loves birds and sea creatures and he cared that humans hurt them, by their littering and using so many plastic bags. He looked things up on Google and found facts that he could use: islands of plastic the size of Texas marauding in our oceans; 40,000 plastic shopping bags dumped in NZ landfills every *hour*.

We watched Martin Luther King's *I have a dream* on YouTube. He said, "I have a dream Dad, that every time people go to the beach, they pick up some other people's litter." Into the speech that went. He learnt it off by heart. He won his school speech contest. We realised in him, then, a marriage of passion and talent. He cared, and he wanted his audience to hear what he cared about, and change, take on his dream. That he did well, of course, we were proud parents; but that he expressed something nascent, accepted the input of auxiliaries, and yet was determined it be his original work and that, when the moment came, he rose up out of himself, onto the stage and into the world. This moved me beyond measure.

From the idea to the enactment, the road is paved with distraction, obstacles and fears. From the supervision office, the toilet seat pondering, the late night conversation, the potency to move forward as an animateur, as a producer with our method and training in tow, this can seem an insurmountable act of courage. Without this spontaneity being catalysed, we can't develop, we can't effect change, we can't express what is possible. If we wait for the wind to fly our kite, if we wait for a model, someone who has gone before, shown us how it is done, we are



on the back foot, passive, stewing. The journey of a thousand miles begins with the first step, or as you quote Zerka, “the impossible does happen.”

When I heard the scientists and innovators speaking about biochar in the video you encouraged, I thought of the beginning of their thinking, the eureka moments, the courage to conceive, to not be overwhelmed, to dream an impossible dream. Biochar seems counter intuitive, in that not only can we sequester and lock away carbon emissions by heating plant material, but that we can convert it into bio fuels and charcoal, which then radically enhances the soil, providing income and sustainability to the subsistent poor, and moves us toward averting climate-based disaster. Thinking neurobiologically, relationships are enhanced by their rupture followed by their repair, creating stronger bonds. If we can bear our anxiety, we generate spontaneity and creativity, and vice versa. Spontaneity begets spontaneity. The overwhelm that arises, as we face climate dread and ever more evidence, statistics and bad news about the imminent disaster that is upon us in the world, can bring depression, anxiety, despair and inaction to even the most intelligent and active amongst us. And still, in spite of this, humanity seeks solutions and genius abounds.

Back to Jasper, because of his parents’ whanaungatanga, a chance encounter in a café, and the wish from the environmental movement to hear the voice of youth, he was invited to repeat his speech in Aotea Square, in the heart of Auckland, at the end of the People’s Climate March in 2014. Oh how nervous and excited we were. The moment before he was announced, I looked at him, and I don’t know why, said, “are you sure about this Jasper? He looked at me, cool as a cucumber, and said, “I’m fine Dad.” He was a rock star.

The following year he was invited back, barely days before the event, this time to address 15,000 people in Albert Park before the biggest ever NZ climate march, as part of the global demonstration for the UN’s COP21. He wrote a new speech for the march, ending with the chant he’d learnt the year previous, marching up Queen Street, “*So people, what do we want? - Climate Action - When do we want it? - Now!*” This was his rallying cry, repeating it over the PA till everyone was chanting, before pouring onto the street to march. This is the same boy who hates spiders and bugs and won’t take the compost out because of them.

So Katerina and Bev, here you are, here we are, finding ways to maintain spontaneity, to generate encounters and solutions, rather than

despair or terror, despite complexity or welcoming complexity both, despite, Katerina, your deep knowledge as a scientist of just what the indicators point to. In responding to you, I have thought close-to-home, to what is with me currently, and to the simple inspiration that comes in the hearts and minds of young people who inherit the best and the worst of us, individually and collectively.

Jasper is writing his next school speech, as he gets older and has experiences under his belt it is now not without increased anxiety. We asked him what he thought he'd make his speech about this time, for intermediate school.

He said, "humanity."

"Oh, okay. That sounds good, what about humanity?"

"Well, that things about humanity are bad, but they are good at the same time, like the police in America shoot black people and there's mass killings and lots of people are being killed in wars and it's terrible, but there are many people that are inspiring and kind-hearted, and make things with science and technology like seed robots and movies and things that change the world."

"Okay, that sounds like a good idea for a speech."

We spent time today working on it, arguing, giving up, feeling blocked, googling things, enjoying each other and frustrating each other, me, at times a good auxiliary, other times pathetic.

"It's not your speech Dad, it's mine. I want to say what I want to say ... I want to end how I started, by saying, *Humanity: it's a sad but beautiful existence.*"

"Okay darling, it's your speech."

## **Katerina**

Kia ora Martin,

I found your response to my conversation with Bev both moving and hope-inspiring. It's wonderful to me that people as young as Jasper are engaging with the big challenges of our times. And I am in awe of your parenting which has produced such a switched-on young person.

As psychodramatists, we are immersed in a methodology which assists people to deal with blocks and unleash spontaneity, and as you say, spontaneity begets spontaneity! I love your reflections on the

beginning moments of an idea: the 'eureka' moments, the courage to conceive, to not be overwhelmed, to dream an impossible dream.

I recommend reading Joanna Macy (2007, 2012). Macy re-frames for me the depression, anxiety, despair, and helplessness that arise in response to seemingly impossible odds in turning the climate threat around. She emphasises that all of these emotions are a part of the process of warming up to action. They are not morbid. Rather, she says, they are a measure of a person's willingness to engage with the truth and feel compassion for all of creation.

Carbon sequestration using biochar is not simple. The more I learn the more complex I find it can be. But it *is* possible, it *is* being done, it *does* offer solutions. Your words inspire courage and determination in me. So here's to complexity and to keeping on keeping on!

With warm wishes to you and Jasper. Please pass on my heartfelt congratulations to him.

Katerina.



## References

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**Katerina Seligman** was born in post-war Prague, Czechoslovakia, and emigrated to Melbourne with her family when the Stalin regime took hold in 1948. She gained an M.Sc. degree at Melbourne University and moved to Aotearoa in 1975. In about 1980, she changed careers and later qualified as a psychodramatist and psychodrama trainer. She continues to work as a counsellor, group-worker and clinical supervisor from her home in Motueka. She is an active grandmother, a keen tramper and has worked for many years in environmental protection, especially in the area of climate mitigation.



**Bev Hosking** is a role trainer and TEP. She is experienced in active methods that aim to promote social dialogue and cohesive communities and is committed to bringing spontaneity and creativity to all aspects of life and work. She is currently the Executive Director of the Wellington Psychodrama Training Institute and a member of the AANZPA Board of Examiners.

**Martin Putt** is a psychodramatist and registered psychotherapist living in Westmere, Auckland with his partner, Clare, and son, Jasper. He works part time in private practice and part time in a hospital-based forensic secure care setting. In his practice, he tends to see men and boys on a one-to-one basis, oftentimes related to sexually problematic behaviour and other more general difficulties in living satisfying lives. Martin is currently the Secretary of the AANZPA executive. He grows a garden and keeps bees at home.

