Committee on Resources,

Subcommittee on Forests & Forest Health

forests - - Rep. Scott McInnis, Chairman
U.S. House of Representatives, Washington, D.C. 20515-6205 - - (202) 225-0691

Witness Statement

Statement of Brett KenCairn
Director, Indigenous Community Enterprises
Before the U.S. House of Representatives
Subcommittee on Forests and Forest Health
on Developing Economic Uses for Forest Fuels

April 3rd, 2001

Dear Mr. Chairman and members of the Subcommittee:

Good morning, my name is Brett KenCairn. I am the Executive Director of Indigenous Community Enterprises, a non-profit organization based at Northern Arizona University in Flagstaff, Arizona. ICE was founded for the explicit purpose of creating new economic and enterprise opportunities in rural and Native communities associated with public forest restoration in northern Arizona. Our primary focus of development over the past 18 months has been creating new uses for the small diameter trees being removed in restoration treatments. Prior to helping found ICE, I worked for almost 15 years on forest restoration and community development issues in both the southwest and the northwest. I have worked with the Forest Products Lab and other institutions for over six years looking for new uses for the byproducts of restoration, and I also worked on more than a dozen community initiatives attempting to build economic development opportunities using these small diameter trees and other restoration byproducts.

It is my understanding that a central purpose of this hearing is to examine options for achieving three broad goals associated with finding uses for forest fuel materials:

1. Creation of viable uses for restoration by-products,

2. Development of enterprises that strengthen and diversify rural economies,

3. Reduction of the dependence on and use of fossil fuels

To address these goals, I would like to structure my presentation today in three parts. First, I would like to suggest a conceptual framework with which to consider how to best make use of small diameter trees and the key obstacles and opportunities we face with each major strategy. Second, I will describe briefly the work of my organization and how it illustrates the key issues related to biomass utilization. Finally I will outline a strategy we believe could substantially accelerate the evolution of wood product and biomass strategies that benefit both communities and forests.

Forest Fuels Utilization Options

For me it has been useful to recognize that there are three broad categories of potential uses for the small diameter tree byproducts of restoration. These are:

- Breakdown into dimensional lumber e.g 2 x 4, 4 x 4 etc.;
- Conversion into raw fiber/biomass;
- Processing as roundwood (post and pole type material).

These distinctions help us to recognize where there is already substantial research and development taking place. They also indicate consequences about choices of scale for enterprises of each type. The different choices among these three approachs will also effect the relative costs and time-to-market that each strategy will require. Finally, we can compare how particular strategies will effect local communities.

As an example, in 1997 I participated in a proprietary evaluation of the viability for establishing a state-of-the-art one-pass saw mill in the southwest. This is technology that uses laser optimization and other advanced techniques to cut an entire log into the opitimal mix of dimensional lumber in one pass. This approach would have cost around $10-15 million to establish, and could have been economically viable at the scale of as little as 15 million board feet of base material annually. Start up time for a facility of this type is probably 6-9 months. Although relatively expensive, it is potentially within the range of existing more established local entrepreneurs in some locations.

In contrast, a biomass facility on the scale typically proposed (30-40 megawatts) is going to cost in the neighborhood of $25-50 million to capitalize. This amount almost guarantees that local investment will be insufficient. Often majority ownership of these types of facilities is held by interests outside the community. A biomass facility at this scale will require 30-40 million board feet of material, and it will, depending on environmental permitting and other compliance issues, take 2-4 years to establish. This is not, however, the only scale of biomass that can be developed. Smaller scale systems, in the range of ½ to 1 ½ megawatt facilities are now viable and can be capitalized for around a million dollars.

The final utilization option I want to describe today is roundwood. Rather than cut small diameter trees into boards, or grind it into chips or sawdust, we can also leave it in the form that nature engineered it (round). In this form it is stronger and has less propensity for defect. Milling small logs often results in high proportions of defect or low grade lumber even using the best of technologies. Leaving small trees in their round form also creates opportunities for utilizing the unique aesthetic properties of this material. These roundwood uses are currently the least well explored. The Forest Products Lab has done its best to provide support given very limited budgets for this topic. No other research organization in the country has made a substantial effort to investigate these issues, largely because they have not been of interest to the large companies that typically shape research priorities. This is, however, an area of particular interest to community-based initiatives because it represents uses that are more congruent with local skills and experience and has lower barriers to entry (capital, expertise, available markets).

The Navajo Hogan/Roundwood Manufacturing Project

My own experience illustrates this situation and the potential for both roundwood and community-based community-scaled initiatives. While working with the Grand Canyon Forests Partnership, I was looking at a wide variety of options for making use of the low-grade small diameter trees being removed in restoration treatments on public forestlands. During that time I was approached by several Navajo people who

suggested that there was a huge need for wood products on the Navajo Nation. First, over 70% of Navajo families still use wood as their primary source of heat. Second, there is a huge housing shortage on the Navajo Nation. The Navajo Division of Economic Development reports that there is a need for over 30,000 new homes on the Nation. This represents probably 60% or more of the total population that either has no home of their own or is living in seriously substandard housing.

In our conversations with Navajo people we learned that there was a strong desire to return to more traditional housing designs, namely the octagonally shaped, log built Hogans. These structures were traditionally built from logs of about the same diameter as those we are currently attempting to find uses for. So began a year long process to work with Navajo elders and others to develop Hogan designs that could incorporate small diameter logs, maintain traditional design features, but have the more modern amenities that Navajos would also like to enjoy (indoor plumbing, electricity, well insulated space). ICE recruited a diverse set of partners including ASU's School of Architecture, NAU's Colleges of Forestry, Engineering, and Business, the Forest Service and Grand Canyon National Park, and private sector partners to begin developing and evaluating these opportunities. I have included computer renderings of the designs that we have developed in this process.

A core goal in this development process was to create a strategy in which the use of small diameter trees and the creation of affordable community housing could also create economic opportunities for community residents. Per capita income on the Navajo Nation is less than $6,000, barely 1/4 of the national average. Over 50% of Navajo live below the poverty line. Unemployment rarely drops below 40-50%, and a high school drop out rate of nearly 50%. By creating a manufacturing facility Cameron, Arizona, a rural community in the western portion of the Navajo Nation, we believe we can address all three of these issues--wood use, affordable housing, and economic development--simultaneously.

Throughout this process we continue to work very closely with community members. We recently held meetings at both the community level and with the President of the Navajo Nation in Windowrock, Arizona. A number of elders from the community joined us in this recent meeting with the President and were the ones who impressed on him the importance of supporting this community-based project. As a result of this meeting, the President pledged funding to assist with the renovation of a currently unused industrial building in the community we have targeted for the manufacturing facility.

A key element in this development has been to identify the most effective ways to process small diameter trees into roundwood building materials. We have looked at technology both nationally and internationally and at a series of machines that can create uniform dimension material ideal for mass building applications. Our goal is to create not only Hogan structures, but a wide array of products--gazebos, shade structures, fencing, panelized building products, fencing, furniture--from small diameter wood.

At the same time, we want the facility to operate at a scale that is well suited to the current social, economic, and ecological situation. We anticipate a start-up cost of around $1-1.5 million. We project direct employment of 15-20 people when we reach full production. This does not count support jobs created. At this scale we would utilize between 1-2 million board feet per year depending on other product development. Far more than this amount already exists on the Kaibab and Coconino National Forests in sales that are through the NEPA process and sit on the shelf without bidders due to the lack of uses for small diameter trees.

Despite this apparently modest use of wood, our estimates suggest that this facility would enable the treatment of over 1,000 acres of forestland annually, several times more than is currently being treated in

our area. Most important, this facility would be far more flexible and adaptive to changes in resource flows and would not require guaranteed contracts of large volumes of biomass in order to assure capitalization.

As a companion to our wood product facility, we are also currently evaluating a range of small-scale biomass technologies. Again, the emphasis is on a scale that is within the capacity of a community-based enterprise to establish and maintain, utilizes volumes of biomass that are well within the range of what is available, and can be established in a relatively short timeframe. We are evaluating several types of technology that range in size from 100 Kw to 1 Mw. Material demands would be from 2-20 tons of biomass day (compared to 600-700 tons/day for many biomass facilities). Again, capitalization costs are relatively small--around $1 million--and could be established in 9-12 months.

Finally, we feel that this approach is much more politically viable than strategies that create large capital intensive facilities with large wood volume needs. Benefits of this smaller scale approach clearly flow to local people, both in the products and in the employment opportunities associated with those products. The business development strategy builds community assets and human capital. The types of materials the project has been designed around do not require any of the larger trees generally at the heart of many timber sale disputes. The scale of the operation makes more flexible and adaptive to changes in resource flows, thus reducing the propensity that an economic interest will attempt to direct forest management to maintain its material flows.

Accelerating Appropriate Scale Development

To summarize my statements to this point, I have asserted that smaller scale, community-based wood products and biomass enterprises will:

1. Create more, and more lasting, rural community benefits,

2. Be 1-2 times faster at scaling up to implementation,

3. Enable more immediate implementation of strategic fuel reduction treatments,

4. Engender more political support (fewer appeals).

However, based on the experience of many of us who have been working for over 10 years in partnerships and forest-based community development, I believe the current structure of research and development necessary to support these appropriate scale, community-based strategies is inadequate. There are several major deficiencies that need to be addressed:

- Inadequate funding, particularly for community-based, community-scaled alternatives

- Too great a distance between research facilities and areas attempting to innovate

- Lack of an immediate connection between research and implementation.

As practitioners we feel strongly that a new approach to research and development needs to be created. In this model, research and development would be based in rural communities with academic and institutional support being provided based on the particular innovations being attempted in that context specific situation. In this way, research results would be directly relevant to the problems being encountered, and results would feed directly into support for enterprises that are creating local jobs and using restoration by-products. We

refer to these rural-based facilities as Innovation and Development Centers to indicate their focus on developing and applying new strategies as quickly as possible, rather than become preoccupied with research alone.

We imagine a series of these facilities, both in the West and in other portions of the country where community-based approaches need to be developed. At the same time, we feel there is a particular urgency to create these centers in the West given the challenge created by the substantial funding currently going towards removal of forest fuels. An existing network of community-based forestry initiatives already exists and has been working on these issues for the past decade. This network would be a logical starting point for establishing these types of facilities. As a network of non-profits, these organizations are committed to the larger goal of assisting all forest-based rural communities find viable economic diversification strategies.

It is important to recognize the existing programs that are working and could be expanded to support such efforts. The Economic Action Program run through the State and Private Forestry program of the US Forest Service has been one of the most successful vehicles for spawning and supporting innovation at the local level. Because of their direct presence in rural communities, the Forest Service has been much more effective at delivering both funding and technical assistance to rural communities than comparable programs such as USDA Rural Development or other state and federal programs.

Congress should also monitor the contracting procedures being used by the Forest Service and BLM to insure that an adequate share of these restoration services (thinning, burning, watershed restoration etc) and byproducts (e.g. small diameter thinnings) are being secured by smaller local contractors.

We look forward to working with Congress to find ways to implement these and other strategies currently being developed. We believe we have a great deal to offer in finding solutions that are economically practical, socially equitable, ecologically responsible, and politically viable.

Thank you for the opportunity to present to you today.

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