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**Summary:**

One of the key points Professor Zilberman raised was the importance of a communication and outreach strategy as the centerpiece rather than focusing on just doing a brief.  He generally suggested the following 3 step process for getting to the policy brief:

 1)      For you own success and for your credibility on a topic, you need to publish research in a peer-reviewed journal, and write something technical that experts understand.

2)      Then, if you want to influence policy in California, you need to publish it in California Agriculture. This is important
3)      After that, then you put it into pamphlets and briefs, which are usually 2 pages and 2 figures and are very basic.

He talked about the importance of providing at least a couple of alternatives for consideration with pros and cons for each approach. If the document is going to very important policy makers, your brief is essentially 1-2 pages in bullet format.

In terms of extension outreach and effectiveness, he talked about setting up meetings with individual farmers through Cooperative Extension County Farm Advisers and setting up a meeting with these people, then getting them to help set up meetings with farmers, environmental groups, and other stakeholders.  You can also produce videos which can be really influential and helpful.  Finally, he noted one key thing is that you have to have something to offer.  e.g. joint paper with farm adviser, help them in what they did.  Farmers or environmental groups need to know that you have something to offer.

David gave us examples of policy research and briefs he has done in the following areas:

* Dairy Waste Managment
* Water Use Efficiency and Drainage
* Pesticide use and Methyl Bromide
* Water Use in Droughts and Water Trading
* Biofuels
* Climate Change

Background:

In the past ARE had 5 Cooperative Extension positions, now have 2 people at 20% funding, David Zilberman, and David Sunding.

Doug Parker, Water Resources Institute

Gary Siever, Director of Extension

Zilberman worked with Steve Wooz, specialty in how farmers obtain information.

Overview:

Speak about experiences,

Role of policy brief, and how you make them.

In economics, generally have theoretical work, and they have a journal called Choices, Journal of Ag. Economics that is aimed at policymakers. In the past, economists have been the people who worked in policy. As shifts in

Zilberman started working in Animal Waste in Chino Area near LA, and Dairies that were contaminating groundwater. Governor Reagan was friends with water development people near Riverside. EPA introduced Clean Water Act. Water

1)What are laws?

2) What is political atmosphere?

3) Institution: water quality control board introduce standards to limit numbers of waste produced by dairy.

David knew nothing about dairies. Desire to know about disposal area of dairies.

In the end , developed system to move solid waste outside valley, keep liquid waste.

1. Need to know the specifics, know the farmers, know the farmer’s organizations. Need to understand the stories involved.
2. When you’re finished you need to write up a report. 2-4 page reports that describe the situation in simple language. E.g. 800k cows, increase salt to groundwater in X way, wrote report with Water Quality Control Board. Separate into solid and liquid waste. Make recommendations
3. Follow up on the long term enforcement. Continue over the years to warn farmers, describe the problems.

When Reagan left, and it became Governor Brown, shifted from water quality to air quality. Problem continued, nothing was really done until 3-4 years ago that Clean Water Act wasn’t bein inforced.

The Dairy industry in CA was an interesting creature. Develop by cities, then move. Live poor and die rich. The move to orange County, then to Chino, Now they’re in Tulare, nobody cares when they move there because it’s rural ag. Land.

Role of environmental groups, is to make sure when government doesn’t do it’s job, they raise a little bit of hell. NRDC, etc.

Doing lot of work in technology adoption. Risk.

Water Efficiency Technology Adoption

Background information to tell how important policy is. Development of drip irrigation technology. Irrigation is based on 100 year old property rights, based on prior appropriation. Started for gold, moved to Ag. You lose water if you don’t use it. People were using flood irrigation. Water efficiency was really low. Most of the work on water use efficiency was based on what David did, because agronomists couldn’t describe stuff in plain terms.

Force people to adopt drip, problem is it would be a boondoggle. Have people on 2 sides. 1) we do it fine as we do it. Some people say that only 3% (Hagan) big water engineer, but had a blind spot in irrigation and efficiency 2) want full adoption of a technology everywhere

1. For you own success, need to publish in a journal. Got paper accepted in journal. If not, then people don’t care or believe you. Have to publish here. Need to have publish
2. If want to be in California, need to put into California Agriculture.
3. Once you get it there, then you put it into pamphletsYou can write as many pamphlets that you want, but if tyou can’t get into Cal Ag, then they won’t believe you.

Found that there were some places where it made more places to adopt, and some places where it doesn’t make sense.

Can explain a new policy when you

Irrigation is water holding capacity, when have clay soil, sandy soil, etc. if you don’t understand agronomy, don’t understand economics,

Drainage problem in CA, #1 big environmental problem in the valley.

David describes claypanand rising water levels, and water logging, if continues , have a swamp. People build drainage canal, to dispose of the water. Western side of the valley has this problem. Inefficient, then Bureau of Reclamation, moved the water into the biggest wetland and develop Kestersen Wetland. What they didn’t know that the soil had selenium, the birds died, had a selenium problem. Bureau of Reclamation, without fixing selenium problem. Bureau of Reclamation put $60 million into drainage program. Program went from $3 million to $60, and everyone wanted to work on water. $6 million went to economics and social science. People want a solution. Lot of consulting firms, everyone was developing a $6 million model to fix problem. David said, lets take $400k and write a book on economics of drainage. After 4 years, the director, gave the money to write up the book, Economics of Water and Drainage in California.

So how to do policy brief?: long term and short term

1. Long term: take land out of production,
2. Move to low water crops
3. Move to technologies that use less water that don’t result in as much buildup of drainage water.

Write book, get Cal Ag publish, write pamphelts. Go to community, meet with people in rural areas and cities, and counties and have an ag commissioner report and extension. (the ag commissioner reports who would distribute pest control for farmers, historically, program for pest control, poisoning pests). The farm advisors are experts in field, know the growers, can get you an audience. Come from Berkeley, but

At extension meeting ½ the people are above 70, that’s okay, a lot of farmers are old. Parents make decisions while their kids are in the field. Computer irrigation, 55 year old guy had to check with his father, waited for father to die before adoption.

Basic point, have information, write report, develop powerpoint, go to county, speak with farm advisor, then they introduce you to farmers.

Good farm advisor is a one stop shop: Regional environmental activist, etc. growers, etc.

Gustavson, in San Diego County. Some show of drip irrigation in Mexico. First people were using drip irrigation were in mexico, to grow illegal marijuana, brought drip irrigation to California (Gustavson did this). Lot of information is from extension specialist.

Developed crop budgeting. Suppose you grow tomatoes.

Approach A and Approach B

Yield

Estimate

Fertilizer

Pesticide,

Look at inputs, outputs, investments, etc. do this then talk about intangibles. Approach A yield lower quantity, higher quality, Approach B yields XYZ. Tell them all details, have to do a crop budget.

Zilberman, developed crop budgets to show to people, a policy brief is a crop budget,

For an environmental group, add “impact to environment” Approach A yields this pollution or waste (pesticide, etc. ), approach B yields that pollution level.

Back to drainage: Ways to benefit from this technology, drainage canal was too expensive, take land out of production, move to efficient irrigation,

Need to have a portfolio of publications, from journals, to Cal Ag, to pamphlet: Very very simple. How technology can increase input use efficiency. Modern technology increases efficiency from 60% to 95% however it costs X, you emphasize whatever topic of interest,

Need to know your audience:

California Catflour producers, Avocado growers, for them they’re highly educated. you like technical details

A lot of tomato growers come from Cambodia and hardly speak English. Something at that level is really really good.

Start working as consultant for EPA

Economics of managing Risk. Hada strong program on pesticide and needed someone to evaluate.

Have pesticide risk and pesticide benefit. Once its being used, and ther’es a problem with it, it will be disappearing. Have a process where you slowly eliminate it, Methyl Bromide, in gray zone, still in use.

People were using economic analysis to assess cost of pesticide

e.g. Paracyan (sp?) rumors of problems, but nobody could prove it. Consider what implication is of abolishing it. If you abolish it, yield drops by 50%, price of tomatoes X, the loss will be big. Yet, when you drop the suppy, the price increases, so the losers aren’t the farmers, it’s the consumers. Farmers have less tomatoes ,but they’ll make more money. That’s a more realistic model of what happens when you remove pesticide.

Use scientific risk assessment of Cancer and use it:

1. Contamination
2. exposure
3. risk
4. response

cost of pesticide A, B, C, get it in Science, Great. Once you have a case on that topic, then they’ll call you, then you do field specific journal, then to Cal Ag. Then you do pamphlets. Then EPA reports, hearing.

20 farmers

50 environmental groupls

Each group has a lawyer,

The person who wrote the report defending the report. Have to be very long, 700 pages with lots of footnotes to be able to anwer every possible question. If have to write a report to Washington, has to go to council of environmental quality council, have to do the opposite. Write 1-2 pages. Wrote severl reports forclinton, 1.5 pages. When Bush Jr. President 1 page max. The president has to have very short reports. Bullet points.

e.g. Short report to Sec. of Interior, lot of production is low value crop. Several solutions, 1) build canal to pacific ocean. 2) build cnal to SF Bay, 3) operation plants, move to modern irrigation technology.

On one hand, write long report, when going to policy maker reduce it to 1 page.

Pesticide,

Ban pesticide use in California, The university was divided about it. Don’t ban them, manage them better. The environmental community was divided. Wrote several papers, David Pimental, net benefit, but need better system, pesticide taxation, or pesticide regulation to reduce use by 70%. Write report then provide it to the media.

Some areas, have high benefit, some areas have low benefit, so you reduce it in areas with low benefits, you be specific in journals, 4000 words, every word counts.

Pesticide, Big Green, taught me, even though have funny accent, they love you, the media loves you if you give them one-liners.

All these propositions to reduce pesticide, if no guidance for pesticide different. Pest control and water done here was very importatnt

Water

1987-92 drought.

Everytime you have a crisis, you write a 1 page report, you will get money for 50k to do a pilot study. Policy makers are very afraid to enter a controversial issue, so if you do the work for them, they will give you the money.

5 grad students: how californai responded to the drought. Work with farm advisor,s have list, write letter, several main implications

1. you have water storage years 1-2 no difference
2. 3rd year use groundwater
3. After this, stop growing low value crops, start using better technologies

Introduce water trading, it’s a big issue because the value of water depends on water. When drought reached trouble. Have interst in people who are growing rice , which is low value, and transport the water to apple trees, which are high value. developed water trading system, where you can move. Tree crops die and have a big loss.

Then the EPA gave us a big contract on how to do water trading to improve the environment. In California , legal concept of beneficial use of water. Federal water must go to : farming, municipal, mining, etc. But environmental use wasn’t a “beneficial use” There was a proposal in the senate, Central Valley Improvement Project, one of most importatnt environmental regulation nthe 1990s . idea was to take water from Ag and move it to the environment, 1) how much water 2) how to sell to congressmen and senators, Take 10% of water fron ag to environment, then allow farmers ability to sell water to toher places. They could then benefit.

This exercise took 3 years. Wrote papers, then they had the hearing. Couldn’t handle hearing. Hired David Sunding to do the hearing. For that wrote a lot of policy brief. Bush Sr. cared about the envorinment. Several to congressman Miller. All of the briefs were very simple, write very big appendix with all the detail. Their staffers are English majors, work with people. If you can get a job AAAS Fellowships for congress, could be a great experience. When write a memo, lot of time goes for that.

For water conservation drainage stuff. Had a hearing , some interest group.

1. Municipalities
2. Environmental groups
3. Farmers
4. Industry

Environmental groups have coalition, mostly he does work for them, but the environmental groups are diverse: ducks unlimited, anglers, sierra club, NRDC, EDF, Hunters vs. Watchers. They hate one another, but they all work together. Farmers also divided.

Really touch to work with these groups to convice the different factions that you’re on their side, and that you suggestion serves their interests in the long run. #1 objective X #2 get some water from ag for environment. Have to treat everyone is like a kid who doesn’t’ want to give

Write paper that nobody understands

Reduce to short bullet points

Do basic statistics. Do water pricing matter. Nobody believes regression except scientists. Do an experiment.

East side of valley (tons of water right), and west side of valley (no water rights)

East invests a lot in technology because they don’t’ have water. People with surface water vs. ground water. People with ground water have more efficiency because they pay for pumping.

Once you have a hearing, have to go to the counties, in CA Kearney Center in Parlier, CA. One in the North, big farms that belong to the university. A lot of time, do a workshop in the center, have the farmers, parents of farmers, present your perspective, then the next day Fresno bee quotes’ you.

**You need to develop an outreach strategy**

Don’t think about biefing, think about outreach strategy.

How to go from hgh level to low level. Iveory tower, to Cal Ag. To 2 page briefing. Meeting in modesto, Bakersfield, and Fresno, ask a lot of farm advisors to be there, Ask to have “Friends of Extension” there. People who work to keep extension in place. Really good.

Produce videos on water conservation, that will lead to discussion.

1. Have a local collaborator. Contact Farm Advisors. Really important to know the farm advisor. In every county, there’s a farm advisor. Call them, go visit them. Generally have a county meeting 1/week. Tell story at thet meeting in 10 minute. Would like to make presentation. Have a survey. They need faculty and
2. 3-4 environemtnal advocates and 3-4 big farmers will be there at a meeting. Have to have something to offer. I really want to develop an IPM program. Margorie Joy, introduced biological control for California. Offer ways to deal with pests. Write joint paper, started a big company in bio control. Started with small collaborator.
3. Joint paper with farm advisor, help them in what they did. Know that you have something to offer.

e.g. CIMES Weather stations across the state. Have money to study impact of CIMES. Took class, every student was assigned 50 names, and got an estsimate of benefit of CIMES.

Students wrote a report, they gained from us. We got money to respond to grad students. As long as they know what they gain. Need to know. Barbara Allen Diaz. 2 deputies, county directors, faculty. Most young faculty have no clue what’s going on, once they know it’s great. Some of aour older faculty are legends, Sandy Purcells, Sposito,

**Biofuels**

Wrote paper about food vs Fuel. Wrote in ARE Update, Sent to Economic Research Service in USDA. Asked for 50k grant, write paper, something popular in ARE Update, that’s academic content that’s readable, send it to the USDA and they will be interested in doing it. Did biofuel, did ARE Update, really ereally effective.

When you speak about something controversial, whenever you have a perspective, they always bring you to speak. A lot of time ,find outlets like that. ESPM should havea blog, or a small magazine where people write policy issues. If you have blog.

Every year have 150 people at berkely bioeconomic forum/conference. Send email. Wrote 2 pages and 2 graphs. People will buy it. A big mistake that we don’t have that. should have something like this.

It’s tricky, I write a lot . take scientific problem and dumb it down. What is convincing and what is not.

**Climate Change**

After pesticides, developed good connection, got interested in water, then climate change. EPA was looking for . nobody in EPA was excited about it. The y do air / water, then they did a task force on climate change . needed a science advisory board. Suddently responsible for climate change. Have a political scientist. What’s really going on with climate change?

Who will be constituents. What people say about climate change. People didn’t want US to sign before China and India. Because the. Kyoto, will benefit from carbon sequestration. Can recognize benefits that will come.

Develop a $5million program of education on climate change. Conference in DC, economic impact on climate change. In aggregate, net cost of bnefit would be small, some places win some places lose. Don’t argue about aggregate change, but people will be making mass migrations from mexico to Canada, from Oklahoma to Vermont. The most solid scientific effect. 3 main effects

1. Low probability of something horrible happening
2. Change in agriculture, things just move around to different aras
3. Mass migrations and possible war. People in Mexico starving and stuck,

Moved from environmental program to a geopolitical program. From a global perspective, it’s bad, but we don’t want to pay for it. Also, replace biofuel, create new jobs, lot of times need to understand local angle.

Back to extension. Sustainable Resource Development. Why not produce videos of this conference. Produce videos, 3 conferences, 40 min video. Showed it in class, sent to senator, then got a check to make a new video. 10 minute video can be really good. Can be a device. Water needs video, pest ontrol, can be a video. Food security can be a video.

The thing about extension allows you to be very creative. Video allows you to speak with people. Made one big mistake, guy who had a $200k grant to digitize videos, envers aw them again. Future of Central Valley. Introduce to farmers. Main complaint: Air Quality: built video, kept center going for 5 years only on 2-3 videos.

**Methyl Bromide**

Haunted me from early in career. Introduced by Berkley people. Soil-borne diseases. Has 2 problems 1) expensive 2)

Worked on it until decision to ban methyl bromide. Our approach. 1) too much use, but if you use 10% of it, it can be very beneficial.

Period of 4-5 years, where CA was allowed to use it, and nobody else could. Barry Brown, had hearing, wrote 2 Cal Ag papers on methyl bromide, looked at value, 20, minimal value, 5 decent value , 5 high value. Point is, can redcue large amounts and keep a lot of gains. When you present something in methyl bromide , everyone is your enemy. Some environemtnalists want complete ban.

Other student, working for EPA on methyl bromide, Bush gave up on Methyl bromide. Was able to find a few applications whre it was really benefiticial. Area where an expert can really make a difference.

Eliminate globally, find solutions. In nursury’s it can be contained. Conider substitutes, solutions, etc.

2 main uses of methyl bromide

1. Nurserys allows clean genetic material
2. Shipping of fruits/vegetables. For food safety considerations – probably better tomove to irradiation. Wrote small publication on methyl bromide, why our decision to not use irradiation: then you’re stuck with methyl bromide

Need to have communication strategies

Good articles down. When you look at communications, don’t hesitate ot use video, media, blogs. If I was student, I would develop food institute blog.