Why Fukushima Might Not Have Been Made in Japan

Stanley Deetz, Ph. D.
University of Colorado at Boulder
Boulder, Colorado, USA
The Inherent Difficulty of Casual Analysis Regarding Culture

- Events like Fukushima are complex with significant elements of timing, event concurrence and multiple actors.
- Most processes involved are systemic rather than linear and the system relations are often emergent.
- Culture is not an independent variable but shapes and is shaped by designs, working relations, technologies, decision processes, and so forth.
Does “National Culture” Spawn a Good Conversation?

- Separating national cultural features from organizational culture and personal capacities and dispositions is nearly impossible.
- More importantly, is it useful to do so?
- It generates a conversation that creates blame and defensiveness, can deflect responsibility often oversimplifies causal relations, and can lead us away from investigating the complexities at a specific plant.
The Diet Report (in English)

“What must be admitted – very painfully – is that this was a disaster “Made in Japan.”

Its fundamental causes are to be found in the ingrained conventions of Japanese culture:

- our reflexive obedience;
- our reluctance to question authority;
- our devotion to ‘sticking with the program’;
- our groupism;
- and our insularity.

Had other Japanese been in the shoes of those who bear responsibility for this accident, the result may well have been the same.”
INPO 11-005 Addendum August 2012

Lessons Learned from the Nuclear Accident at the Fukushima Daiichi Nuclear Power Station

“Behaviours prior to and during the Fukushima Daiichi event revealed the need to strengthen several aspects of nuclear safety culture. It would be beneficial for all nuclear operating organizations to examine their own practices and behaviors in light of this event and use case studies or other approaches to heighten awareness of safety culture principles and attributes.”
2nd Extraordinary Meeting of the Contracting Parties to the Convention of Nuclear Safety

27-31 August 2012, Vienna, Austria

Issues to be considered:

Safety culture and human and organizational factors were identified as crosscutting issues, which affect the consideration of external events, design, severe accident management, including operator training, the good functioning of national organizations and emergency preparedness and response. Particular attention should be given to these in preparation of National Reports for the next Review Meeting.
- Nuclear Safety
  Human and Organizational Factors
  Lessons from Fukushima

Kenzo Oshima  （NRA Commissioner）
International Experts Meeting
IAEA, May,  2013
What went wrong?

Manmade disaster
- Human error
- Inaction, willful negligence
- Failure in safety-first
  Flawed safety culture (the “myth of 100% nuclear safety”)

Emergency response
- TEPCO
- Command center
- Regulatory bodies
Was the accident preventable?

Yes, if...

- “Safety first” policy had been strictly enforced; risks had been squarely faced;
- Severe accident measures (defense-in-depth) were in place (esp. natural hazards);
- International safety standards and good practices had been followed;
- Delays in reinforcements had been avoided.....
Some of TEPCO’s conclusions in IEM5

The IAEA International Expert Meeting on Human and Organizational Factors

TEPCO: “The cause of the accident should not be treated merely as a natural disaster due to an enormous tsunami being something difficult to anticipate.

We believe it is necessary to seriously acknowledge the result that TEPCO failed to avoid an accident which might have been avoided if ample preparations had been made in advance with thorough use of human intellect.”
Some of TEPCO’s conclusion in IEM5
The IAEA International Expert Meeting on Human and Organizational Factors

TEPCO concluded the following in the IAEA International Expert Meeting5:

- Believed that severe accident was unlikely
- Did not pay attention to low probability high consequence risks
- Missed out the opportunities to learn from others and improve
- Preparation for severe accident management was somewhat deficient
Some of TEPCO’s conclusion in IEM5
The IAEA International Expert Meeting on Human and Organizational Factors

Reflections by TEPCO and important messages to the world:

- Nuclear operators must recognize that even the most superior engineers cannot be perfect enough to cover all the aspects for safety enhancement in a timely manner.

- Nuclear operators should assume that something unexpected could happen in the nuclear business even tomorrow, being much more aware of the risk existing in this business than the people in the other industries, and continuously learn the lessons from any others in a modest manner. Self-complacency could hamper these challenges.

- In order to achieve the above it is definitely necessary for nuclear operators to routinely collaborate with other people, other groups, other companies and other countries as if they were their neighbors.
Some of TEPCO’s conclusion in IEM5
The IAEA International Expert Meeting on Human and Organizational Factors

- Communication skills and understandings of behavior science and organization dynamics at a certain level are critical for nuclear operators, that could be essential factors for robust safety culture to be developed.

- Though unique efforts like blind training to improve the capability to respond to the unexpected might be valuable for nuclear operators in parallel with efforts for making the experience basis more robust, the ultimate measures might be to continuously improve their own fundamental engineering capabilities and firsthand technical skills.
Made in Japan?

- The reports as a whole point mostly to internal organizational processes and cultural features.
- The factors relating to over-confidence, superficial response to past mistakes, and cost cutting might well be more characteristic of TEPCO culture than other Japanese companies.
Being human

- In reading on-the-ground reports and talking with Fukushima employees, more basic human factors seem very significant.

- Again, certain general Japanese cultural dispositions shape these somewhat, but in many cases it would be hard to believe that anyone from anywhere would not have struggled with the same.
Take away....

- The more central issues remain:
- Over-confidence and failure to take unlikely events seriously.
- Standard business practices when put into the nuclear industry.
- The need to keep rigorous continuous improvement processes in place and learn from errors.
- Failure to learn from the International community.
Concluding thought...

Fukushima teaches us one more time that national cultures have consequences and certainly must be taken into account at all levels of design and operation, but the stability, uniformity, and impact of national culture can easily be overstated. In some cases it can be used as a cover for what are more clearly failures of management. Successful management must understand and work with larger social values. Cultural values can be put to use for good or can have negative consequences in particular circumstances. But national cultural consequences are not inevitable. Management practices can significantly outweigh potential negative effects of cultural tendencies. Specific management practices introduce a complex set of values that may replace or reduce the impact of the tendencies based in national cultural values.