Dairy in the Philippines

strength from variation,
community and/or commodity

or also: Snow White and her seven companions

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Snow-white

and her seven dwarfs that can make a giant

Snow White's seven companions

questions asked to me by a Philipino friend

1. What needs to be done to get the dairy industry moving right and well and up to speed?
2. How do you do this, moving industry from A to B? How long?
3. What is at stake? Who to be Involved? Budget?
4. Further research? Testing in breeding? Etc.
5. How do you treat an agency like NDA?
6. Which success model in developing countries on dairy can apply to the Pilipino setting?
7. What is overall vision appropriate to Philippines (realistically)?

my own seven dutch dwarfs!

- dairy is technically possible, at medium yields, whether goats, buffaloes or ‘cows’, at least in large parts of the country
- dairy can also be feasible economically, ecologically and socially, at least in large parts of the country
- Philippine Dairy is ‘community’ (local fresh milk products) more than ‘commodity’ (compete with powder etc.)
- dairy coops have a world to win and an act to clean up in the collection, the value chain and in the marketing
- ‘variation is the strength’ and local markets are opportunity
- ‘large’ ánd ‘small’ can be win-win for Philippines
- ‘government’ can do much more than import cattle, e.g. scenario studies for training & development

Outline

(concerto grosso in three times seven parts)

seven pilipino dwarfs

seven dutch dwarfs

seven parts to this story

I. Feasibility of dairy: ecology, economy and sociology

II. Production systems analyzed (feed & breed)

III. Management scenarios (whole farm design)

IV. Processing and marketing (a big question mark)

V. Some notes on policy (some sketches)

VI. Concluding comments (Snow White's dwarfs)

VII. Message from the director

Part I: Feasibility of Dairy

ecology, economy and sociology

'yes we can'

Dairy production, processing and marketing

it is technically possible!

Dairy can be feasible

socially and economically (part I)

Vicky Espaldon c.s. showed in previous talk, among others:

- that farm families generate livelihood
- that dairy helps recyle resources
- that dairy helps provide network for bad times
- .. ..

Dairy can be feasible

economically (part II)

- Data for the 25-dairy cow module from PCARRD (nice title *'profitability analysis'* .. ☺☺)
- Initial investment 5,057,973₱, only one package, calling for scenario work with different reasoning for small & large
- 1 kg concentrate for 2.5 lts milk (a conceptual issue explains difference with 1kg for 1.5lts!)
- Using depreciation, more ways are possible
- 1000-1200kg concentrate/ cow/ yr

Dairy can be feasible!!

Also ecologically

- Soil cover
- **Water use**
- Recycling and crop residues
- **CO_2 and CH_4 emissions**
- **Biodiversity**

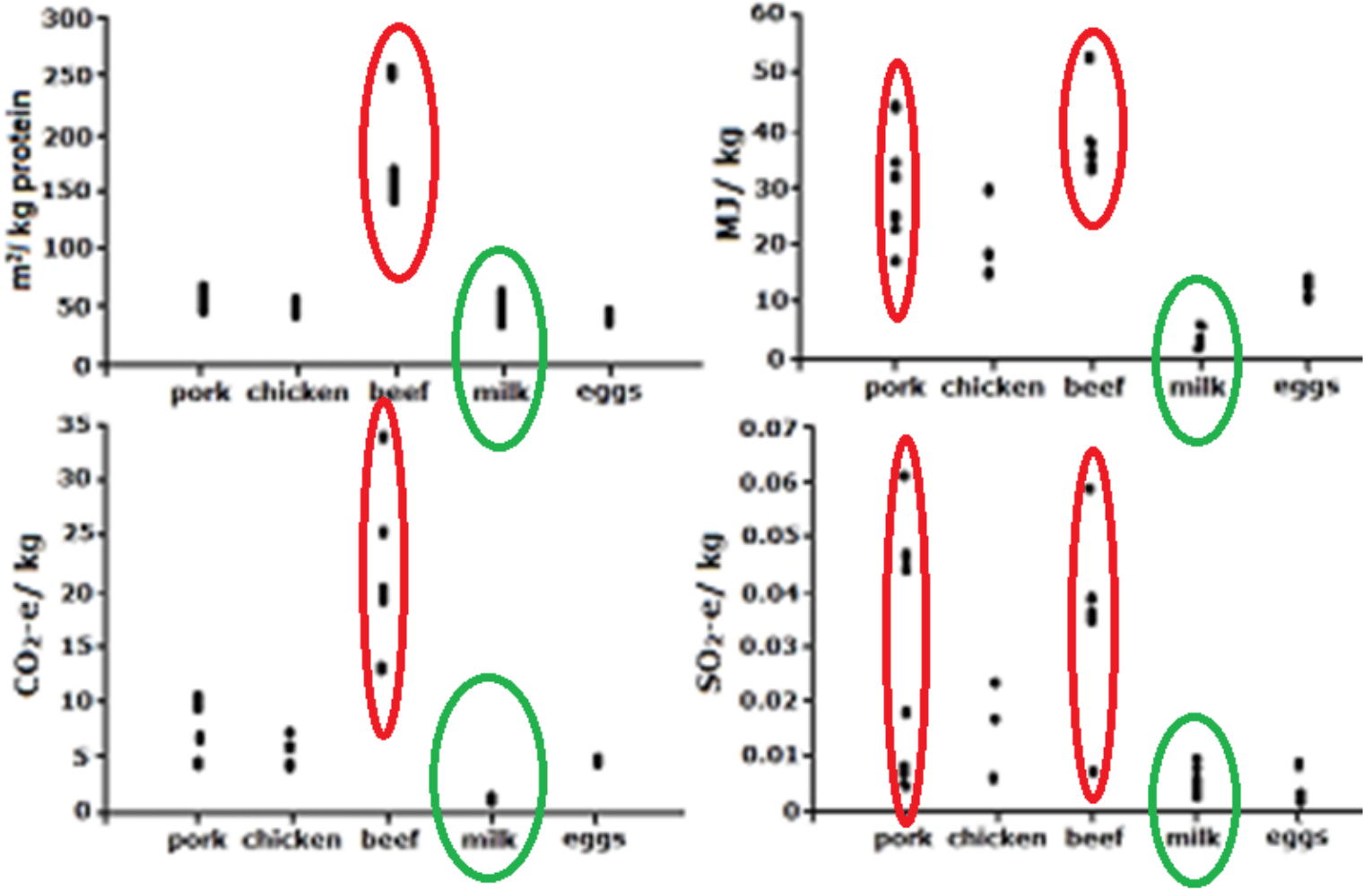
water use: two faces of Pilippino dairy

- Dry seasons / regions need adaptation and special feeding regimes (silage is but one option, straw use is another, again a nice area for scenario studies)
- (clean) water use is >600 lts of water / liter of milk
- that is – in my view for the time being – no problem in the Philippines with > 1000mm net rainfall in certain regions (please correct me on the data)
- Pollution of water should not be problem (as in pigs)

Ecology and livestock in general

dairy is no great problem even if caution should reign

(m^2/kg protein; MJ/kg; CO_2-e/kg; SO2-e/kg; based on DeVries&DeBoer, 2010)



Ecology and sociology in pictures

1a/b/c: (bio)diversity (avoid a Philippino cow)
2) solar power, 3) landless and 3) solar power



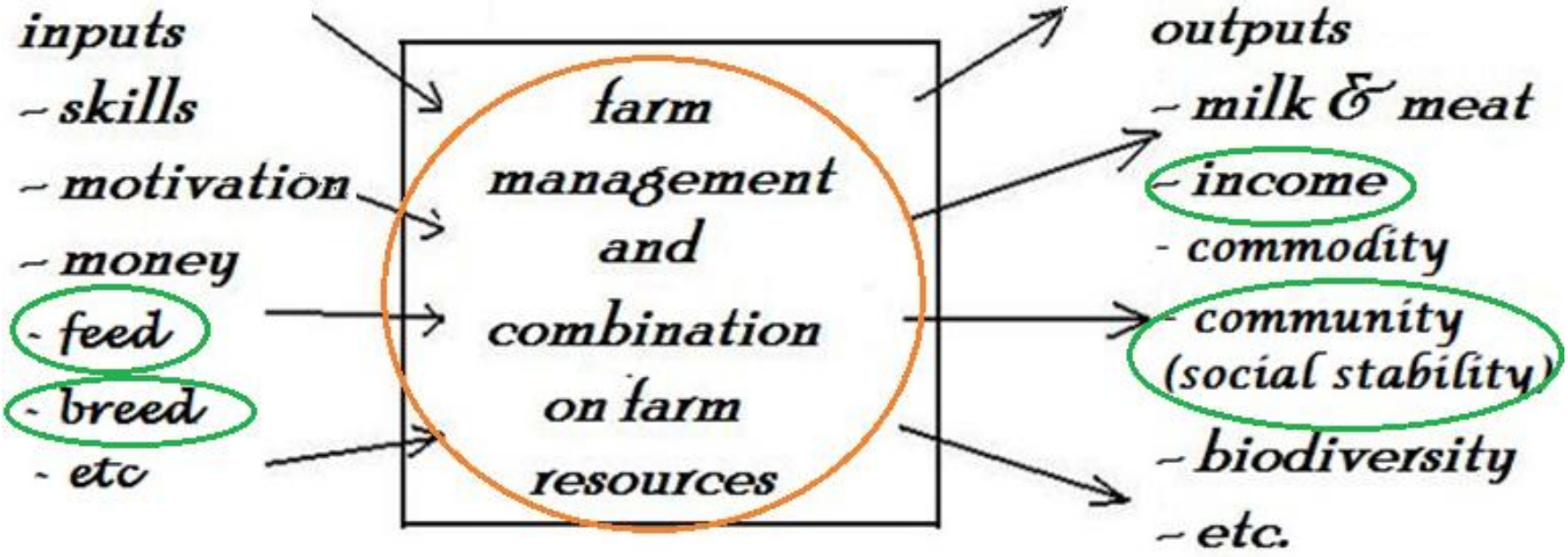



Part II: Production Systems

combining inputs

production systems

some management scenarios
(see also policy notes)



Dairy can be feasible ?!?!

Simple scenarios on feed and fertilizer to trigger discussion:

- if milk (farm gate) is 20₱
- if concentrate (16-18%CP) is 18₱/kg
- 1kg of concentrate can yield 1.5 lts milk
  (there is a problem if it is much lower

  (PCARRD' uses 1kg and 2,5lts but there is a trick in this, see next slide)

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then it pays to feed concentrate

- 18₱ concentrate yields 30₱ milk ?!?!

Dairy can be feasible ?!?!

economically

≈ I DO NOT LIKE UREA TOO MUCH AND I DISREGARD ALL OTHER COSTS .. but ≈

- if urea costs costs 980₽ / 50kg (≈20₽/kg)
- then 1kg N costs ≈40₽/kg
- and if 1kg N yields 30kg fodder (dry matter) then 1kg fodder from urea costs 1,3₽
- if only 2/3rds gets eaten then feed dry matter from forage costs 2₽

.. continued on the next slide ☺☺ …

Dairy can be feasible

and I do not too much like urea but …

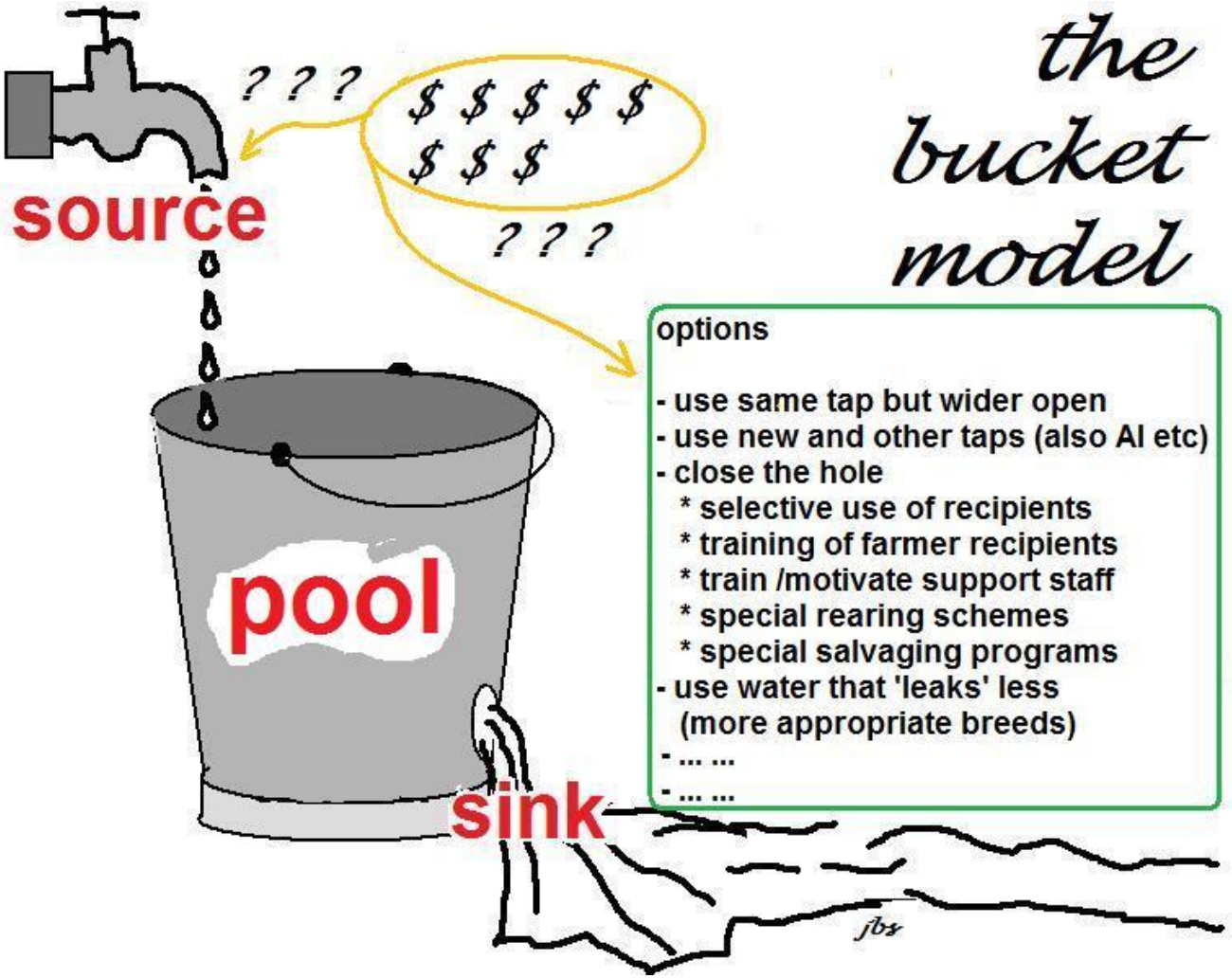
- if 1 kg of fodder from urea nitrogen costs 2₽
- if that grass contains 60% TDN
- then 1kg TDN_{grass} costs 2/(,60) = 3.3₽

- if 1 kg of concentrate costs 18₽
- if that concentrate contains .60% TDN
- then 1kg $TDN_{concentrate}$ costs 18/(,60) = 30₽

- **WHICH MISTAKES DO I MAKE APART FROM SIMPLIFYING??**

The breeding and the bucket

more scenarios



Dairy can be feasible

more scenarios on economics

- if a (local dairy) cow costs 50.000₱
- if that cow goes for slaughter at 42.500₱
- If she lasts at least 4 lactations (PCARRD)
  (Netherlands 2-3 lactations!)

- then she should yield **?? lts** and **?? calves** to pay for the difference and for expenses like housing, equipment, labour, interest, veterinarians etc.

Dairy can be feasible???

Economic and social scenarios

- if an import cow (X-bred) costs 120-150.000₽
- if that import cow goes for slaughter at 42.500

- then she should yield **??lts** and **??calves** to pay for the difference and the expenses for housing, veterinarians etc.

- who pays the bill??

Dairy can be feasible???

Economically and socially??

- if import cows (X-bred) costs 120-150.000₽
- If those cows go for slaughter at 42.500
- and if they have a 25% chance to die at the start

- then she costs 150-187.500!!! and she should yield **??lts** and **??calves** to pay the difference and expenses for housing, vets etc.

Dairy can be feasible???

Economically??

- if the value of a calf is 2000₽ at birth
- if there is no mortality, no bull calves and no other expenses ☺☺ ..
- if she drinks 225 lts of milk (@20₽) and if she eats 60kg calf starter (@25₽) then she 'values' 4500₽ + 1500₽ = 6000₽ in the first 3 months

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- a local pregnant cow costs 40-60,000₽ on the market
- why not more locally reared cows; is that because of mortality, bull calves, other costs and IRR?

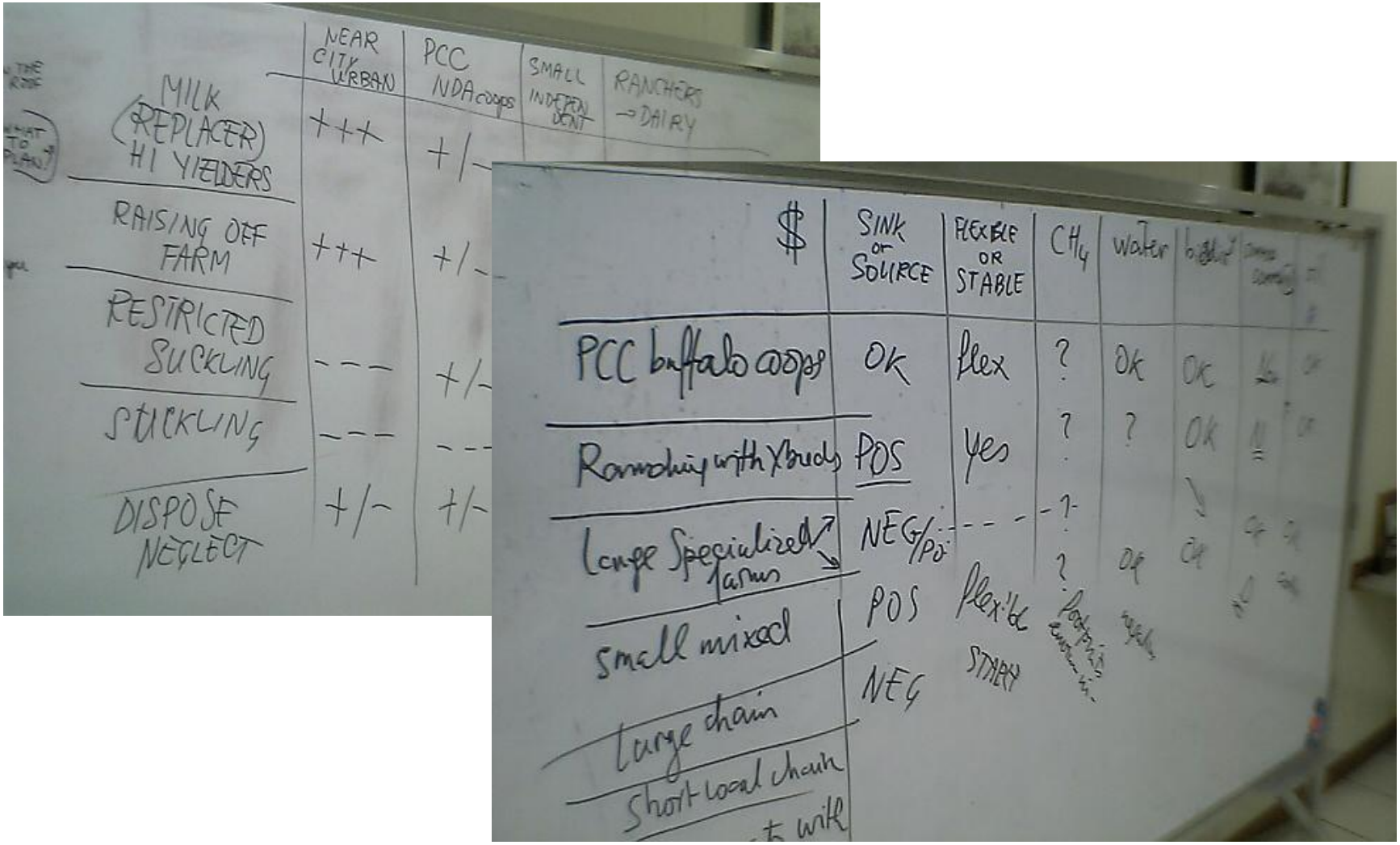
One just wonders …

again some scenarios

- 1 import cow 120 - 150.000₱
- Monthly salary of AI-technician .. 10,000₱
- Plus equipment and office etc .. 10,000₱
- Total 20,000/month, i.e.:
  one import cow of 120,000 (‘only’) costs 6 month AI-technician .. and if half of the import cows die, then ‘1’ cow costs one year one technician
- how many calves can we get ‘from’ one technician / year and at which risks?

calf rearing schemes

other scenarios and alternatives worth of thought



Part III. The management

other scenarios, now at farm level

The management priorities

housing & feeding

	Small farmers Resource Poor Farmers (RPF)	Large farmers Resource Rich Farmers (RRF)
New Zealand system (grazing)		
- use of labor	-low, i.e. less income generating	- opportunity for RRF
- extensive use of land	-difficult for RPF, requires much land	- opportunity for RRF with much land
- difficult for mixed systems		
- low nutrient re-cycling	-perhaps some trees & legumes -difficult for cash strapped RPF	- no real concern for RRF - RRF can buy nutrients
Stall-feeding with cut and carry		
- easy for use of crop residues	Important for mixed system of RPF	Not relevant for RRF
- can allow nutrient recycling	Relevant for poor RPF	Not a problem [yet] for RRF
- does not require much land	RPF can use land for crops	RRF has to hire much labor
- higher labor need	Higher labor income opportunity	implies labor problems

The management priorities

housing & feeding

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New Zealand system (grazing) - use of labor - extensive use of land - difficult for mixed systems - low nutrient re-cycling	-low, i.e. less income generating -difficult for RPF, requires much land -perhaps some trees & legumes -difficult for cash strapped RPF	- opportunity for RRF - opportunity for RRF with much land - no real concern for RRF - RRF can buy nutrients
Stall-feeding with cut and carry - easy for use of crop residues - can allow nutrient recycling - does not require much land - higher labor need	Important for mixed system of RPF Relevant for poor RPF RPF can use land for crops Higher labor income opportunity	Not relevant for RRF Not a problem [yet] for RRF RRF has to hire much labor implies labor problems

Peasants & Enterpreneurs

more scenarios (vdPloeg (2009; p139)

	Low Cost	Hi Tech
Units of labor force	1,0	1,0
Working hours (man hours / year)	2500	2490
Land (ha)	32	35
Milking cows	53	81
Milk yield (kg / year / cow)	7547	9673
Total milk (kg/ year / farm)	400,000	783,515
Concentrate (euro's / 100 kg milk)	3,8	7,5
Calculated Labour Cost (euro / 100 kg milk)	13,0	6,7
Technology costs (euro / 100 kg milk)	5,4	7,1
Production costs (euro / 100 kg milk)	34,5	34,7
Income (euro / hour worked)	19,20	16,36

What is optimum milk yield?

Design of mixed systems …

Individual Production (L/ day/ cow)	System production (l/ day)	Herd size (cows/ farm)	Cotton (ha) See note 1	Total income from milk and crop sales (Rs./ day/ farm)
0.3	1.0	3.5	0	10.5
2.0	5.1	2.5	0	22.2
4.0	7.8	1.9	0	30.4
6.0	9.5	1.6	0	35.4
8.0	10.6	1.3	0	38.9
10.0	10.6	1.1	0.4	39.1
12.0	10.4	0.9	0.8	38.9
16.0	6.6	0.4	1.0	27.6

(Patil et al., 1993)

Dairy can be feasible

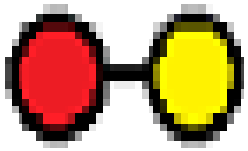
Conclusions on scenarios

- I did not consider buffaloes with milk prices ranging from 40₱ in N-Luzon to 70₱ in Cabite
- I exclude cost of land, but that can be 'investment' unless we have to borrow money
- I excluded labour costs but that can be family income
- I excluded risks of climate, theft and ecology
- I almost ignored benefits & costs to community, farm life and environment (sociology and ecology)
- **I simplified without regrets, that is scenarios work, this is MY WAY .. and it could be (y)our way**

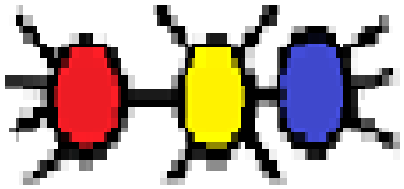
Part IV: processing & marketing

Micro-, meso- and macro chains

very local, within family / between neighbours



locally sold via markets

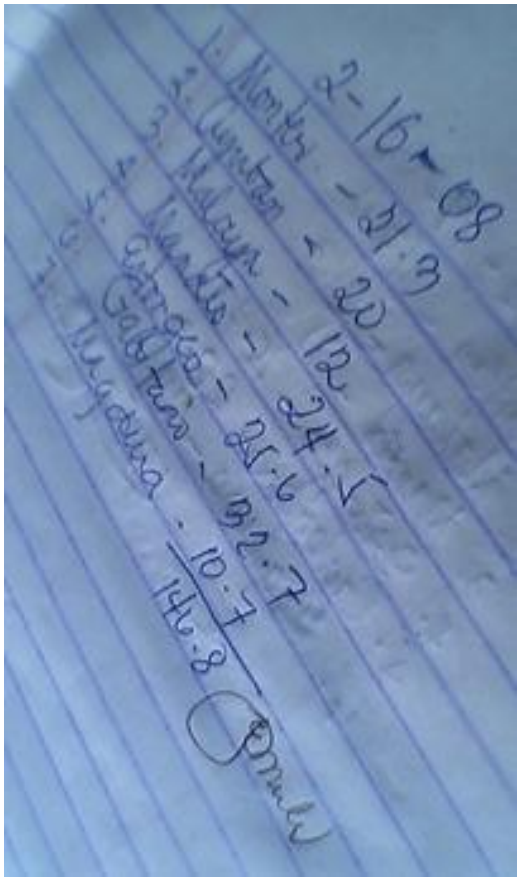


entering sophisticated chains and (super)markets

Primary Dairy Coop, meso chain

400-800 members and 500lts of milk

it ‘baffles’ me, with such nice stuff available



Brasil,

but why not India, Indonesia, Vietnam? or Thailand!

packaging (materials), attractiveness, size and shapes

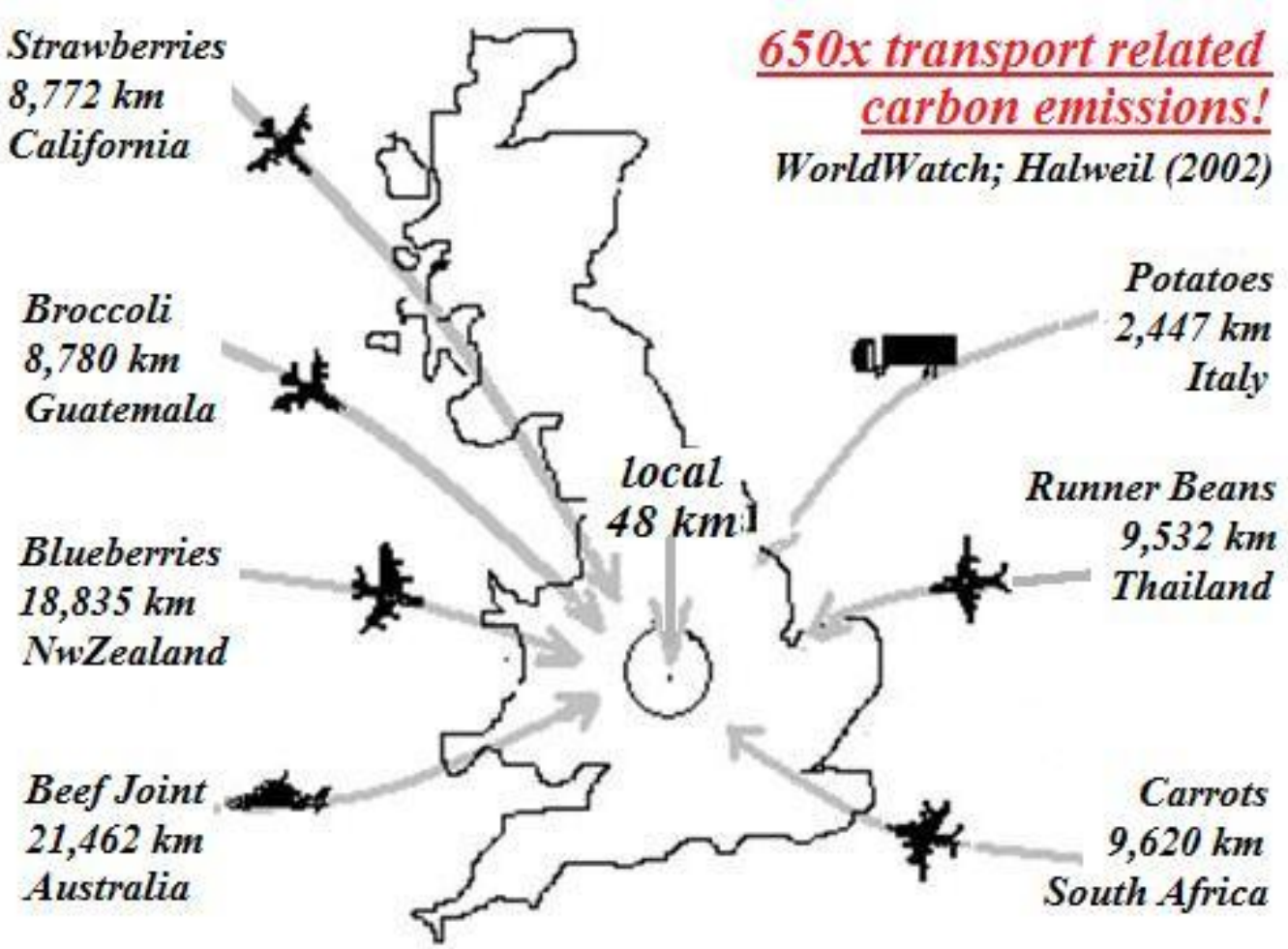
the (local) markets exist

and marketing is being done ..

Why are coops ‘teetering’ to float on school-milk

Environmental scenarios

micro → macro chains, ecology, economy and sociology



Micro to macro,

economy, ecology and sociology

	micro market 	meso market 	macro market 
distance producer - consumer	short	medium	large
special packaging	jar, jug, ...	bottles	plastic etc.
storage	not relevant	up to 1-2 days	>2 days/weeks
food miles	0 - 5 km	5 - 25 km	> 25 km
storage time	< 1 day	up to 2 days	> 1 week
hygiene	can be OK	needs be OK	crucial
community value	high	can be high	not relevant
commodity value	low	higher	high
diversity	high	lower	standard

Do we want them on board?

Economy and sociology

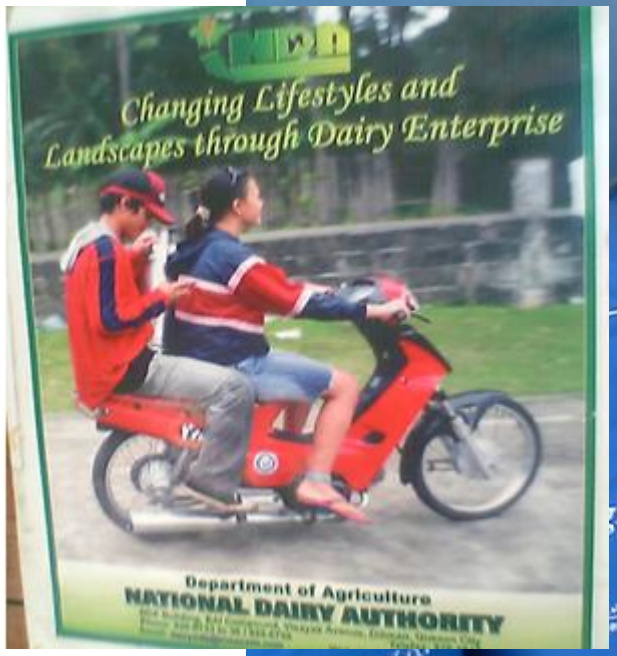
Part V: some notes on policy

Role of Government and policies

- beware of empty cans ..
- legislation (e.g. ‘fresh milk’, food safety, local sales
- facilitate / support import
  (via private farmers & why not more AI, ET ??)
- **initiate scenario work, perhaps the most important**
- invite & travel / facilitate R&D / Dairy Expo
- recording .. I have my doubts
- …
- …

Beware of empty cans ..

and look for policy scenarios



R&D and scenarios

for small and large farmers, for ecology and economy

(remember beer carton, spreadsheets, STELLA, LP, etc)

'Technology'	Resource Poor Farmers	Resource Rich Farmers
Special concentrates	Not likely to be useful?	Likely to be useful!
Calf Rearing	No cash, so not relevant	Should have cash, should be keen
Type of market	Local and personal (India did it for large milkshed)	Anonymous and remote
Milktank (cooling on site)	almost impossible even if (Brasil does it on community level)	Logical step for individual farmers
Silage making	Possible but not very feasible due to short term horizon of poor & small farmers	Possible and feasible for certain climates (rather short dry season)
Source of nitrogen	Legumes and excreta	Fertilizer, concentrates
Import-cow (on 'loan')	It is done (but strong doubts)	possible, and why not (if it pays)
Calf-rearing	Suckling	Bucket-feeding

Scenarios for fresh milk,

again: Brasil, India, Vietnam, Thailand, Indonesia
(go and find out what they do)

Legislative scenarios

- Fresh milk … existing ‘legislation’ .. what is the status .. administrative order and not law ??.. how to upgrade that

- Can farmers sell directly, or has it to be regulated by FDA, how to stimulate community and diversity by (deleting) laws ..

- Import quota .. in (some) other countries milkpowder import is tied to local milk collection .. ..

VII. Concluding comments

back to Snow White as metaphor of the dairy sector

back to Snow-white

and her seven dwarfs that can make a giant

Snow White's seven dwarfs,

(questions asked to me by a Philipino friend)

1. What needs to be done to get the dairy industry moving right and well and up to speed?
2. How do you do this, moving industry from A to B? How long should it take?
3. What is at stake? Who to be Involved? Budget?
4. Further research? Testing in breeding? Etc.
5. How do you treat an agency like NDA?
6. Which success model in developing countries on dairy can apply to the Pilipino setting?
7. What is overall vision appropriate to Philippines (realistically)?

The seven dwarfs, nr. I

What needs be done to get the dairy industry moving right and well and up to speed?

1. *define direction and alter/ reverse some directions, take less than one year to get organized (see further under 'DWARF II')*

Direction

diversity rather than uniformity;
commodity ánd community (more than milk alone)

the seven dwarfs, nr II

How do you this and move the industry from A to B?
How long should that take?

Development is a never ending story, but

- *government to facilitate / allow others to move,*
- *private sector seek partners (incl. OFW),*
- *get flow going, or find out what the problem is*
- *focus on fresh milk, production and processing*
- *do scenario work on production and processing*
- *make realistic legislation to self-organization*
- *get first (study) phase done in less than 1 year and get to work .. (I feel miserable by suggesting 'study')*

the seven dwarfs, nr. III

What is at stake?

Healthy country side, social network / safety net, ecology, national pride, ..

Who to be involved?

Farmers, co-ops, private sector, universities, ...

Budget?

not too much, some for meetings and a bit more for scenarios (what would be saved if we spend less on imports)

the seven dwarfs, nr IV.

Further research? Testing in breeding? Etc.

Further research:

scenario stuff to map out (future) farming models in terms of economy, ecology and sociology and to understand policy needs

testing in breeding:

- no formal progeny testing but monitoring is useful,

- do not focus on (standard) Pilipino breeds, the Philippines vary and change (Dutch Dairy also changes!)

the seven dwarfs, nr. V

what to do with government agencies

- basic questions:
  - should we do something with govt agencies or should they do something with us … (☺☺)
  - should govt agencies do something or facilitate .. sometimes they help by doing less (☺☺)
- if at all, government and/or NDA can:
  - lead and facilitate, not do it by itself
  - focus on ‘community’; ‘commodity’ is private sector
  - identify scenarios and make /delete legislation
  - lead in generic promotion for fresh milk

the seven dwarfs, nr. VI

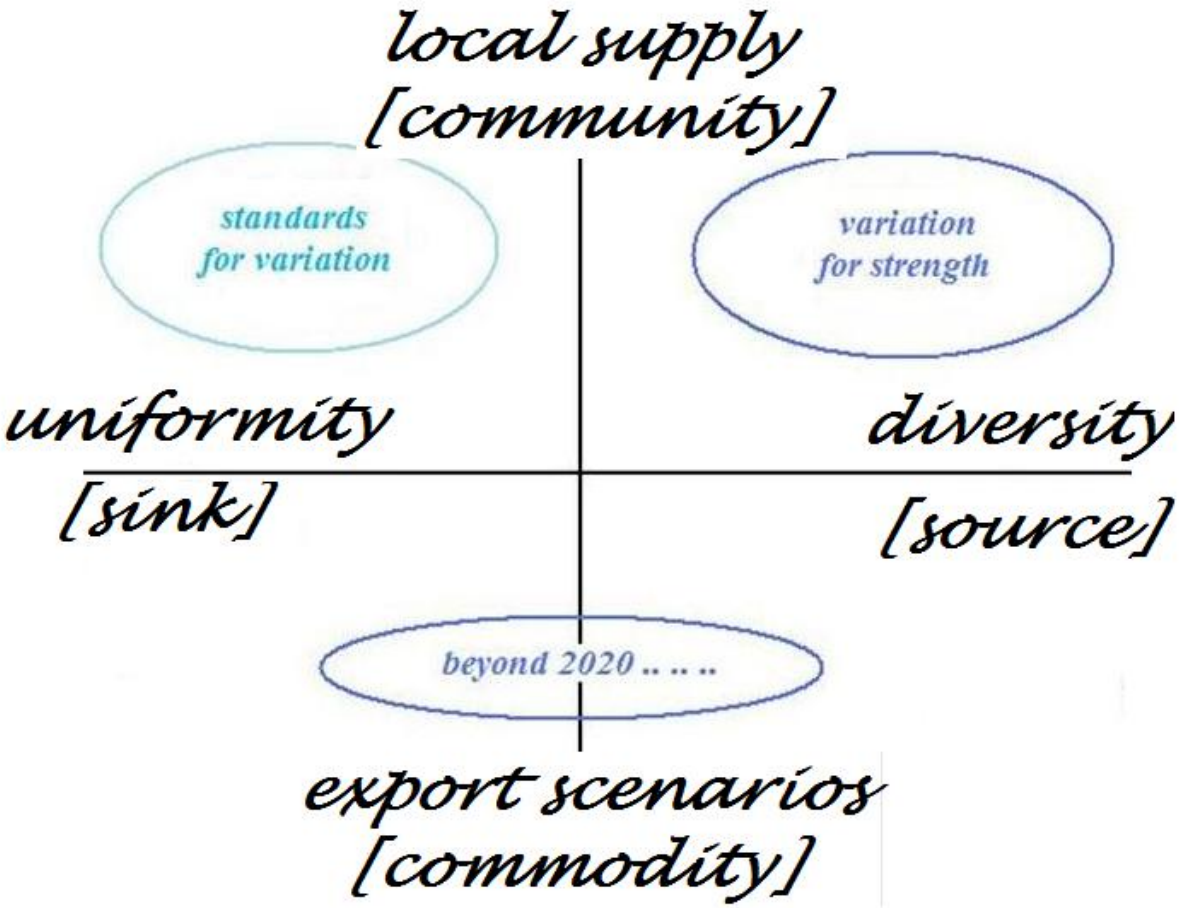
which success model in developing countries on dairy can apply to the Pilipino setting?

SOME SUGGESTIONS FOR VISITS:

- *India and Brazil: on collection and getting 'snow white' streaming from small farmers,*
- *Indonesia: on use of import quota,*
- *Thailand &Vietnam, I don't know their secrets well,*
- *China is great but not useful, it goes for uniformity and commodity*
- *if 'you' can 'see & hear', visit the US, NwZealand, the Netherlands etc., to see change and variation*

The seven dwarfs, nr VII

what is an appropriate vision for the Philippines



.. .. my seven statements .. ..

I hope to have explained some of that

- dairy is technically possible at medium yields, whether goats, buffaloes or ‘cows’, at least in large parts of the country
- dairy can also be feasible economically, ecologically and socially, at least in large parts of the country
- Philippine Dairy is ‘community’ more than ‘commodity’
- dairy coops have a world to win and an act to clean up in the collection, the value chain and in the marketing
- ‘variation is the strength’ of Pilipino-dairy
- ‘large’ ánd ‘small’ can be win-win for Philippines
- ‘government’ can do much more than to import cattle .. Policies for the next decades are needed

The big question is: can we …

Message from the director

Thank you

and
perhaps till next time

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