PROCEEDINGS OF THE POLICY SEMINAR-WORKSHOP ON

PALAY, BIGAS, KANIN: MANAGING DEMAND TOWARDS

LINDEN SUITES, SAN MIGUEL AVENUE,
ORTIGAS CENTER, PASIG CITY
NOVEMBER 13, 2013

SOCIO-ECONOMICS DIVISION AND NATIONAL YEAR OF RICE TEAM
PHILIPPINE RICE RESEARCH INSTITUTE

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PHILRICE
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FOREWORD

Rice self-sufficiency means having enough locally produced rice for domestic use without having to import. The Aquino administration through the Department of Agriculture (DA) had worked hard to achieve this by the end of 2013. It nearly made it. Support systems were implemented to enhance production and manage consumption, which both affect rice supply.

In its effort to help attain self-sufficiency, the DA-Philippine Rice Research Institute organized and conducted the Policy Seminar-Workshop on Palay, Bigas, Kanin: Managing Demand Toward Sufficiency in November 2013. Researchers and representatives from the government, private sector, and international organizations convened to review government strategies in managing rice utilization and identify additional approaches toward rice self-sufficiency.

This publication documents the discussions that transpired in this seminar. It contains mainly about the status of rice utilization in the country, factors influencing rice demand, and the realities about rice wastage. We hope that this will be useful for stakeholders, especially those involved in crafting policies and interventions to further promote responsible use of rice.

We wish to thank the seminar speakers who provided their research papers and presentation materials for this publication. Appreciation is also given to the Socioeconomics Division (SED) that successfully spearheaded the seminar. The Policy Research and Advocacy (PRA) team doubled as editorial team for this publication.

EUFEMIO T. RASCO JR., Ph.D.
Executive Director

POLICY SEMINAR-WORKSHOP ON PALAY, BIGAS, KANIN: MANAGING DEMAND TOWARD SUFFICIENCY

RATIONALE

The Philippines aims to be rice self-sufficient by the end of 2013. For this to be realized, the Department of Agriculture through its Food Staples Sufficiency Program (FSSP) for 2011-2016 intensified the provision of services to increase rice productivity and manage consumption of staples.

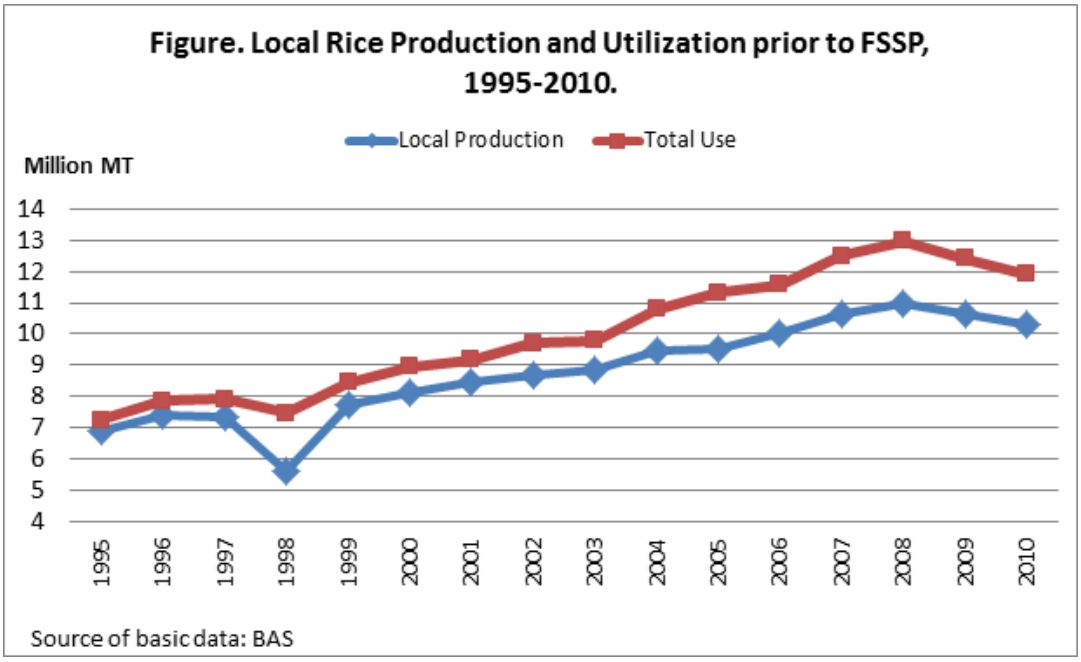
To attain self-sufficiency in rice, domestic production should equate with the total demand. Based on the Supply and Utilization Accounts (SUA) of the Bureau of Agricultural Statistics (BAS), the Philippines had become 94% self-sufficient in 2011, which is 14 percentage points higher than in 2010. This means that 94% of the utilization was supplied by local production.

To further raise this self-sufficiency level, FSSP continues to provide services to influence both rice supply and demand factors. Expansion of rice areas, increase in cropping intensity, and improvement of land productivity are some of the ways to increase locally produced rice. On one hand, demand may be tempered by encouraging people to become more responsible rice user.

Based on the FSSP document, 12 key interventions are being implemented under the program. Majority of these are focused on the production side and only few are on the consumption side. Specifically, 9 interventions are geared toward raising farm productivity and only 3 strategies are focused on the management of staples consumption.

Prior to FSSP, production support services were also implemented but the country still failed to attain self-sufficiency. This is because rice demand also increased rapidly (Figure). Specifically, rice per capita consumption increased from 105.8kg per person in 1999/2000 to 119 kg per person in 2008/2009. Aside from food, demand also includes allotments for seeds, feeds, wastage, processing, exports, and ending stocks. Understanding these demand components could aid in crafting useful strategies to manage rice utilization without sacrificing the nutrition of the population.

With this, government strategies related to management of rice utilization may need to be reviewed to identify additional means to help ensure attainment and sustenance of rice self-sufficiency. The Socioeconomics Division (SED) and the National Year of Rice (NYR) Team of PhilRice intend to participate in this call by conducting a policy seminar-workshop that will create an avenue for discussion on rice utilization and also for crafting additional strategies to help the country attain rice sufficiency.



OBJECTIVES

This seminar-workshop aims to:

1. Present the status of rice supply and utilization accounts.
2. Identify the factors affecting rice consumption.
3. Determine the factors that influence rice demand changes.
4. Review the trends in table wastage.
5. Present the existing strategies to reduce table wastage.
6. Determine status of postharvest losses and the strategies for its reduction.
7. Identify the factors affecting seed-use.
8. Consolidate policy recommendations for consideration of stakeholders.

HIGHLIGHTS OF ACTIVITIES

The event comprised of paper presentations, open forums, and stakeholders' consultation on the strategies that can support laws related to the responsible use of rice. The speakers were given 30 minutes to present their papers followed by a 15-minute open forum for questions.

1 SUPPLY UTILIZATION ACCOUNTS (SUA) OF RICE

Ma. Carol G. Duran [1]

INTRODUCTION

The Bureau of Agricultural Statistics (BAS) is a staff bureau under the Department of Agriculture (DA). It is the principal government agency responsible for the collection, processing, analysis and dissemination of official statistics on agriculture and fisheries. One of the tasks of the bureau is the development and maintenance of the Economic Accounts for Agriculture of which one component is the Supply Utilization Accounts (SUA). In pursuing this function, the BAS subscribe to the UN System of Economic Accounts for Food and Agriculture (SEAFA).

In the early 1990s, SUA was prepared through the collaborative efforts of various agencies involved in food statistics such as NSCB, NSO, SRA, PCA, FNRI, NFA, BPI, LDC, BAI and NNC. A handbook on SUA was developed by BAS which describes and discusses the data sources, concepts, procedures and estimation flow employed in the preparation and generation of supply and utilization of agricultural commodities.

SUPPLY UTILIZATION ACCOUNTS (SUA)

SUA as a statistical framework presents a comprehensive picture of the pattern of the country's supply and utilization for food and non-food commodities. The SUA being maintained by BAS covers 82 agricultural commodities in their primary or raw forms only and with national level of disaggregation. Related to the SUA framework is the Food Balance Sheet (FBS) which is prepared by the National Statistical Coordination Board (NSCB). FBS covers all potentially edible commodities, processed or unprocessed, whether they are actually eaten or used for non-food purposes. FBS gives an indication of the adequacy of food supply relative to the nutritional requirements of the population.

Uses of SUA

a. Serves as framework for the physical accounting of agricultural commodities.

   SUA requires putting together all statistics on supply (production, imports and stocks) and utilization (exports, seed, feed, waste, industrial use, food, and other uses).

[1] Statistician IV of the Bureau of Agricultural Statistics, Department of Agriculture

b. Serves as means for checking data consistency

SUA enables the analysis of resulting balances if these are consistent with other available data.

c. Provides the basis for deriving relevant food security indicators

The variables contained in SUA allow for the computation of important food security indicators such as Self-Sufficiency Ratio, Import Dependency Ratio and other indices of food supply.

Table 1. Elements of the Supply and Utilization Accounts (SUA).

Supply	Utilization
1. Beginning stock	1. Export
2. Production	2. Domestic utilization
3. Import	2.1 Seeds
	2.2 Feeds
	2.3 Wastes
	2.4 Processed for food and non – food uses
	3. Net food disposable
	4. Ending stock

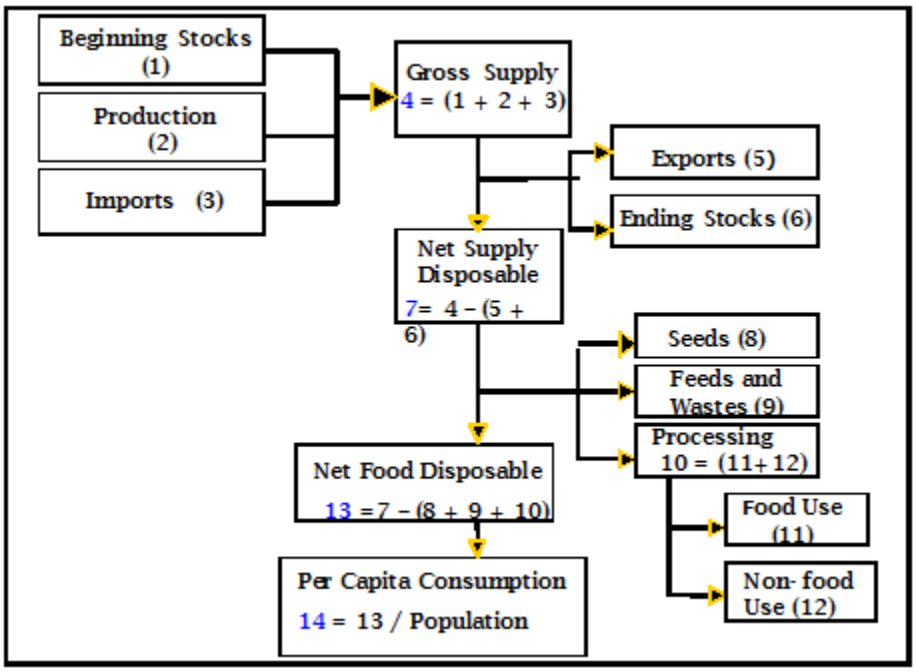


Figure 1. Flow of estimation for commodity supply utilization.

This flow will describe how to derive the Net Food Disposable (the NFD will balance the supply against the utilization) from the Gross Supply (4) it should be deducted from the Export (5) and the Ending Stock (6) to get the Net Supply Disposable (7), accounting for Seeds (8), Feeds and Waste (9), and Processing (10) is based on establish parameter which are based on the studies on commodity uses from the Net Supply Disposable deduct the sum of Seeds, Feeds and Wastes, and Processing (consist of the quantity converted into food use and non-food use) and then the result will be Net Food Disposable (13). The NFD is derived from the parameter, it is expressed in per capita terms (kg/year, or, g/day), it is residual because sometimes there are researcher that are confused in NFD this is the residual after accounting for the parameter from the above parameters and it represent the volume of the commodity that is available for human consumption (it did not say that it is all consumed) which is different from the result of the Direct Measurement (survey of food demand) this is the food available for human consumption.

The supply component of the commodity accounts consists of beginning stocks, domestic production and importation. The utilization component comprises of exportation, domestic utilization and ending stock. Domestic utilization includes seeds, feeds, wastes, and processing. Accounting for seeds, feeds, wastes and processing is based on established parameters. These were estimated based on studies on commodity uses.

Gross supply is the sum of beginning stock, domestic utilization and imports. Net supply disposable is the difference between gross supply and the sum of exports and ending stocks Net food disposable (NFD) is the balance or the difference between net supply disposable and the sum of quantities used for seeds, feeds, wastes, processed for food and non-food uses. NFD represents the volume of commodity that is available for food consumption.

Table 2. Sources of data for SUA.

Variable	Source of Data	Source Agency
Production	Palay Production Survey	Bureau of Agricultural Statistics (BAS)
Trade	Foreign Trade Statistics	National Statistics Office (NSO)
Stocks	Palay Stocks Survey: Household Commercial NFA	Bureau of Agricultural Statistics (BAS) National Food Authority (NFA)

Definition of Terms Used in the Accounting

Supply Elements

Production - relates to the total domestic production that takes place during the reference period. It includes commercial and backyard production.

Beginning Stock - quantity of the commodity available at the beginning of the reference period, this includes stocks held at various levels from the farm to final consumption or consumers of the commodity usually at the household level. It also includes that part of imports in stocks.

Import - covers all movements of commodity into the country irrespective of the purpose. It includes inflow of goods resulting from commercial trade and food aid from donor countries. As a rule, figures are reported in terms of net weight which excludes weight of the containers.

Utilization Elements

Export - covers all movements of commodity out of the country. Domestic Utilization - comprise of the quantity of the commodity allotted for seeds, used for production purposes and also the quantity used as feeds, it also includes the quantity wasted or the quantity loss during the reference period from the farm to retail level like wastage during the storage, transport and the commodity in other forms other uses is the quantity that goes to the processing it includes the quantity of the commodity used as inputs or raw materials in manufacturing in food and non-food items.

Feeds - the amount of food commodity allotted for animals or livestock/poultry during the reference period.

Seeds - the amount of commodity allotted for seeds or, in general, for production purposes.

Wastage - the amount of food commodity lost during the reference period at various stages from farm to retail level as in processing, storage and transport.

Processed - the amount of commodity manufactured into food and non-food items.

Net Food Disposable - the amount of food commodity available in its original (unprocessed) form for human consumption. This is usually equated or made equivalent to the quantity consumed. Net food disposable (NFD) is the balance, i.e., it is the remainder after all the "use" parameters are taken into account.

Per Capita NFD - derived by dividing total net food disposable by population

Ending Stock - the stock of commodity available at the end of the reference period. This includes stock held at the various levels, i.e., households, traders, government and commercial warehouses.

Table 3. SUA Parameters for Rice.

Parameters	Estimation
Milling recovery rate	65.40%
Seeds	75 kg. per hectare
Feeds and Wastes	6.5% of production
Processing	4% of production

DATA LIMITATIONS OF SUA

The development of the parameter of SUA is in early 1990's with the given advancement of technologies and development the parameters are already outdated there's really a need to:

Old parameters/conversion ratios
Need to update the parameters on: seed use, processing, feeds and waste
National data only; need for sub-national level

ISSUES ON THE MAINTENANCE OF SUA

1. Accounting of the commodities is done at the national level. There has been a growing demand for lower levels of disaggregation.
2. SUA's conversion ratio (milling recovery rate) and parameters used for seed use, feeds, wastes and processing are old and therefore need to be updated.

Figure 2 shows the trend in production. The lowest level is in 1998 and 2008 due to the occurrence of El Niño which affected the production of palay during those years it shows that the rice importation is high. In 2008 production level was high actually during that year the area harvested is high the area is increased by 4% coupled with a better yield but then if you look at the Imports it is high this is the year that we have Global Rice crisis in 2008, the price of the rice is high in the world wide and our domestic price. We have importation to stabilize our domestic price.

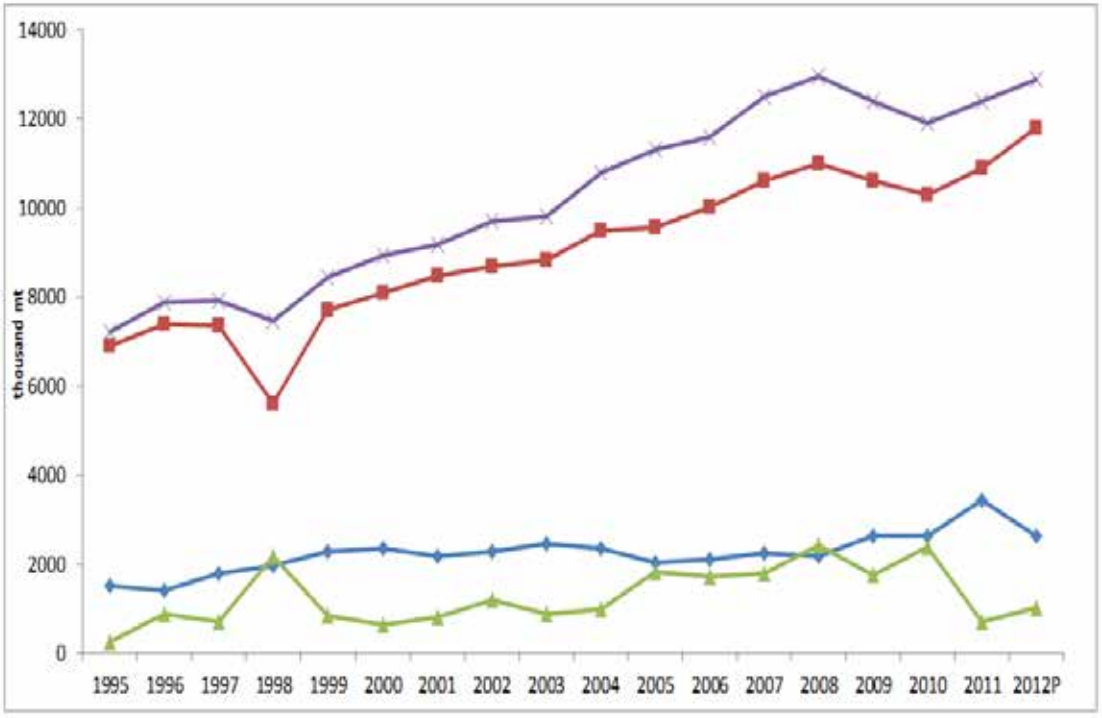


Figure 2. Trends in supply and utilization of rice, Philippines, 1995-2012.

Figure 3 shows the per capita Net Food Disposable (NFD). NFD peaked in 2008 (128kg/yr). Lowest point is in 1998.

. KILOGRAM

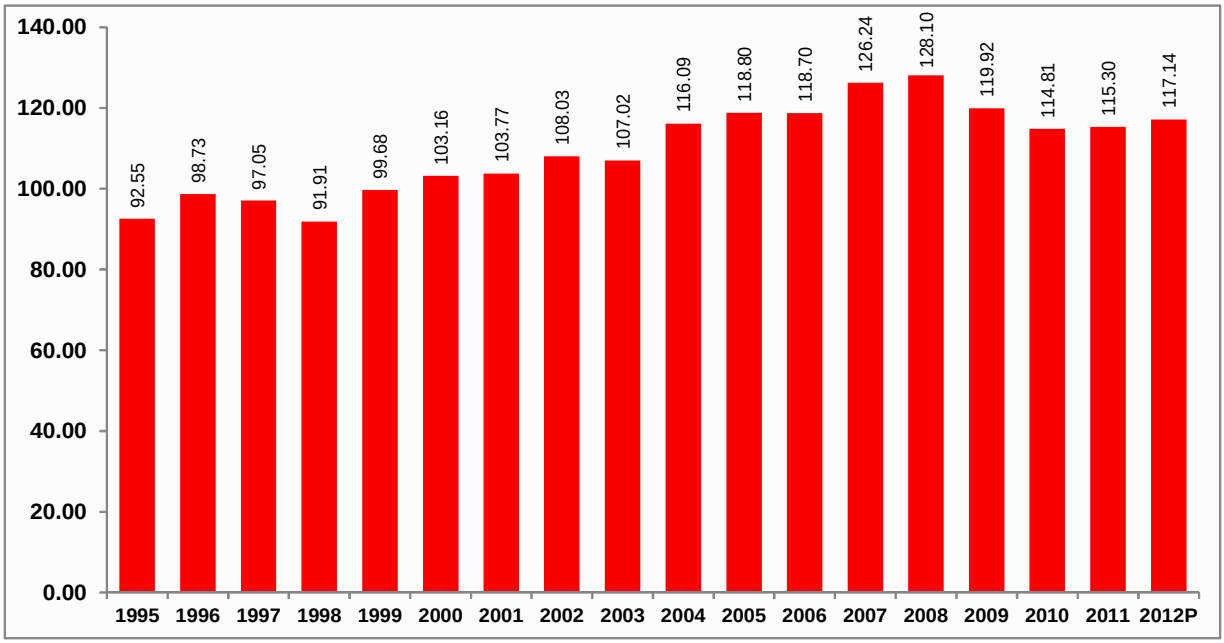


Figure 3. Per capita net food disposable, Philippines, 1995-2012.

2 FACTORS AFFECTING RICE CONSUMPTION

Eduardo B. Sanguyo [2]

ISSUES ON THE MAINTENANCE OF SUA

In 2010, a study was conducted to investigate the reasons for the increasing per capita consumption of rice in the country. It was in response to the inquiry of PhilRice Board of Trustees (BoT) why per capita consumption of rice in the country is increasing whereas decreasing in the ASEAN neighbouring countries such as Vietnam, Indonesia, Thailand and Malaysia.

In response again to the invitation of PhilRice relative to the seminar-workshop on "Palay, Bigas, Kanin: Managing Demand toward Sufficiency", the study done in 2010 was revisited and updated.

OBJECTIVES

The study aims to determine the factors that can explain the consumption of rice in the country. Specifically, the study seeks to:

1. Analyse the substitution between rice and other food commodities, and
2. Determine the factors (both statistics and economics aspects) that affect rice consumption

CONCEPTUAL FRAMEWORK

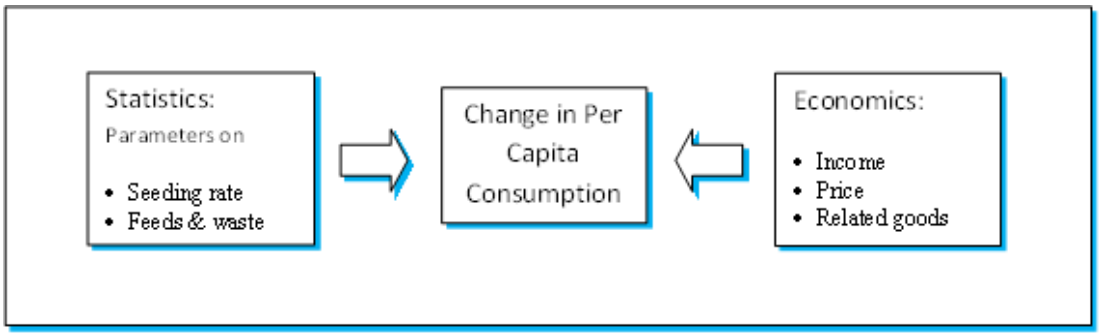


Figure 1. Factors that may affect the change in per capita consumption of rice.

At the outset, considerations in explaining the increasing per capita consumption of rice may be grouped into statistical and economic aspects. Changes in per capita consumption over time can be statistical in nature. An example is the use of parameters which may have become

[2]Chief, Socio-Economic Statistics Section, Agricultural Accounts and Statistical Indicators Division, Bureau of Agricultural Statistics.

outdated through time. These parameters are used in the construction of Supply Utilization Accounts (SUA). On the economic aspect, the increasing per capita consumption of rice may be explained structurally by many factors such as price of rice, consumers' purchasing power, prices of related commodities (corn for example) and other relevant factors.

REVIEW OF RELATED LITERATURES

The consumer theory relates preferences to consumer demand curves. Preferences are the desires by each individual for the consumption of goods and services. Consumer demand curve, on the other hand, shows the relationship between the price of a certain commodity, and the amount of it that consumers are willing and able to purchase at that given price.

The behavioural assumption of consumer theory is that all consumers are rational decision makers who seek to maximize utility function subject to a budgetary constraint. This means that consumer theory asserts that all consumers purchase that combination of goods and services that will make them happiest given the amount of income they have to spend.

Demand curve, on the other hand, is the graph depicting the relationship between the price of a certain commodity, and the amount of it that consumers are willing and able to buy at that given price, given the consumer income (or the budget constraint to maximize utility). The demand curve usually slopes downwards, that is, the quantity demanded has a negative association with price. The negative slope emphasizes the "law of demand", which means people will buy more of a commodity as its price falls. The demand curve is related to the marginal utility curve, since the price that a consumer is willing to pay depends on the utility. However, demand directly depends on the income while the utility does not. Thus, it may change indirectly due to change in demand for other commodities.

Movement along a demand curve is caused by changes in price of the commodity while the shift of a demand curve takes place when there is a change in any non-price determinant of demand, resulting in a new demand curve. Example of these non-price determinants are disposable income, taste and fashion (preference), availability and cost of credit, price of related goods (substitutes and complements), population size and composition, expectation, education, climate or weather etc. Changes in each of these non-price determinants (ceteris paribus), will shift the demand curve either to the right (upward shift) or to the left (downward shift). An upward shift means higher consumption level while downward shifts means lower consumption of the commodity.

The theory of consumer choice examines the trade-offs and decisions people make in their role as consumers as prices and their income changes. The substitution effect is the effect observed when relative price of the commodities changes. To maximize the utility with the reduced budget constraint due to changes in relative price, the consumer will re-allocate consumption to reach the highest available indifference curve which is tangent to that curve. Another important item that can change is the money income of the consumer. The income effect is the effect

observed through changes in purchasing power. It reveals the change in quantity demanded brought by a change in real income. Graphically, as long as the prices remain constant, changing the income will create a parallel shift of the budget constraint. Increasing the income will shift the budget constraint rightward since more of both commodities can be bought, and decreasing income will shift it to the left.

Related Studies

In the National Capital Region (NCR), there has been a widespread substitution of bread and other cereal products for rice [F. V. Aguilar Jr. (2005)]. Metro Manila has the highest per capita consumption of other cereal products (made from flour and consumed in the form of bread, noodles, cookies/biscuits, and the like). The study found also that rice consumption is inversely related to household size and income class; lower per capita consumption of rice among households with more members and lower income group.

Corn is the second most important staple food. For social and economic reasons, white corn is more preferred in some provinces in Visayas and Mindanao. Corn has more vitamin A, protein and fats, and it gives body bone-building elements such as calcium and potassium, compared to rice [H. D. Tacio, (2009)]. However, production of white corn posted an average annual decline of 1.3 percent; from 2.97 million metric tons in 1990 to 2.32 million metric tons in 2009. Some farmers shifted to production of yellow corn because of the increasing demand for animal feeds, feedstock for bio-ethanol production, and other industrial products.

Urban dwellers are said to be heavy consumers of prestigious food such as meats, poultry, eggs, milk and milk products while households from the rural area consumed more of the cheaper foods such as rice and rice products, corn and its by-products [Catelo S. P. (2004)]. He noted that the growth in urban areas and urban population has resulted in busy lifestyles and office work had taken much time away from household chores, thus fast food diets were preferred over traditional foods to cope with the fast-paced lifestyles. He also noted the following: (i) Food covers majority or 54% of total personal consumption expenditures of Filipinos; (ii) Food consumed at home has been decreasing while food consumed outside has been increasing over time; (iii) Factors that affect shift in consumption pattern include urbanization, age and income; (iv) Urban dwellers eat more prestigious foods (meat, poultry, eggs and milk) while Rural households eat cheaper goods (rice, corn, starchy tubers and vegetables); (v) Varying ages have different needs/preferences wherein elderly people tend to revert back to traditional diet that are mostly staples; (vi) It was projected that from 2000-2035, there will be a tremendous increase in the number of elderly Filipinos (mostly in rural areas) thus, a decrease in production of rice and an increase in demand/consumption of staples; and, (vii) Most Filipinos fall short on nutritional requirement due to income generation problem, thus income remains a major determinant of food access.

The high-price foods like meat, fish, fruits and vegetables have higher income elasticities than staple cereals, thus, with increased income, demand for high-valued commodities also increase significantly while increase in staple cereals would only be marginal [Ingco, M. D. (1991)]. Over time, rice income elasticities have been declining during periods of income growth. For corn, income elasticities become more negative during periods of increase in income and less negative during periods of income decline. She used linear version of the Almost Ideal Demand System (AIDS) in her paper entitled "Is Rice Becoming an Inferior Good? Food Demand in the Philippines". She found that (i) Budget shares for each commodity is most responsive to price and income, (ii) Consumption of high value food increases as an area becomes urbanized; consumption of staples like rice slightly decreases with urbanization. This validated the study of Bouis (1989) that showed rice as negatively income inelastic in urban areas while positively income inelastic in rural areas, (iii) Preference for rice increases slightly over time, (iv) Most foods including rice were considered normal goods (with positive elasticity or 0<e>1) except for corn which was considered an inferior good (negative elasticity or e<0). This supported both studies of Bouis (1989) and Huang (1990) where the former found that corn was an inferior good and the latter found that rice was a normal good, (v) As income grows, demand for high value goods increases significantly while demand for normal goods/staples increases marginally or decreases, (vi) Staples (rice,corn, fish) are not that sensitive to changes in own price while high value goods (wheat, meat, fruits and vegetables) were relatively sensitive to price changes, (vii) Demand for other goods is affected by price of rice, (vii) Rice, corn, wheat and meat are net substitutes; rice, fish, and vegetables are net complements.

The study entitled "Analysis of Food Consumption of Japanese Households" [Tokoyama et al., (2003)] found that (i) Over time, consumption of traditional food (includes rice) in Japan decreases while non-traditional food (more westernized diet) increases, (ii) Food demand is largely influenced by income, number of household members and age of the household head, (iii) With respect to income, rice in Japan was found to be a normal good; Food-away from Home (fast-food) was considered luxury with income elasticity greater than one, (iv) As incomes rise, demand for fish and meat increases greatly among lower income groups than higher income groups, (v) Japanese are highly sensitive to changes in the price of its staples like rice and fish, (vi) Rice in Japan was mildly complementary to most foods except for fast food (FAFH) which was a strong substitute, (vii) Consumption of rice varied across regions in Japan.

Linh Vu Hoang (2009) also used linear approximation of AIDS and found that (i) Rice is considered the most important single food in Vietnam, (ii) Staples like rice and vegetables have income elasticities less than one (consumption does not vary much with changes in income); while high value commodities like meat, fish, poultry, fruits and FAFH have income elasticities greater than one, (iii) Staples, especially rice is consumed more among poor Vietnamese while the rich Vietnamese consumed more high value food like meat, fish and FAFH, (iv) Rice, other staples, pork, other meats, fish and fruits are not that sensitive to changes in own price

while chicken and FAFH are highly sensitive to changes in price, (v) Price of rice affects consumption of all food groups. Price of FAFH and pork also affect consumption most of the food groups, (vi) Most foods except for FAFH and vegetables serve as complement to rice, (vii) As income rises, urban households tend to consume more rice, FAFH, drinks and other meats than rural households do. Rural households eat more pork, poultry and vegetables as their income rises, (vii) Rural households / poorer Vietnamese are more sensitive to changes in price of staples, (ix) Farmers and ethnic minority groups in Vietnam are heavy consumers of rice, and (x) Demand functions vary across regions and income groups.

Surabhi Mital (2006) used Quadratic Almost Ideal Demand System (QUAIDS) in a two-stage budgeting framework of consumption behaviour with the following findings: (i) Cereals are the most important constituent of the household's food basket with rice considered as a normal good, (ii) In general, an increase in income leads to a fall/decrease in the consumption of staple commodities and a higher consumption of high value goods (vegetables, fruits, milk, fish and egg) over time, (iii) Among poorest groups in India, an increase in income leads to an increase in the consumption of cereals, (iv) With lower price for rice, its consumption increases; but with lower price for related commodities/substitutes, consumption of rice decreases, (v) Regarding the changing taste and preferences, decline in share of cereal consumption is highest in magnitude among poorest group, (vi) Family size has a negative effect on per capita expenditure on food; an additional member to the family leads to a decline in per capita consumption of food, (vii) Urbanization and time trend has a negative effect on the consumption of staples and a positive effect on the demand for high value goods, (viii) Pulses are complementary to cereals while meat, fish and eggs are substitutes to it, and (ix) Rural households are more sensitive to price changes than urban households.

Reithmuller and Stroppiana (1999) utilized single equation model using double-log constant elasticity functional form. They found that (i) Rice is considered staple in the three countries (Philippines, Thailand and Indonesia) while fish is considered as the most important non-plant food, (ii) Demand for wheat has been increasing in the three countries (especially in urban areas of Thailand), (iii) Consumption of most food items are affected by changes in income. Demand for rice (Indonesia) is relatively the same; demand for rice (Thailand) falls as incomes rise, (iv) Consumption of chicken in Indonesia and Philippines were responsive to income changes. On the other hand, demand for pork is most responsive to changes in income in Philippines and in Thailand. For fish, consumption in the Philippines fall as incomes rise while in Thailand, its consumption increases with income, (v) Price elasticities of most food items in the three countries were low and follows the Law of Demand; Consumption of beef in the Philippines was most affected with changes in price, (vi) In both Thailand and the Philippines, there is a close substitutability between beef and fish, (vii) With lower tariff barriers in Indonesia, consumption of rice, sugar, milk and wheat increases while in the Philippines, it is beef, vegetables and wheat that increases with regard to openness index, (viii)

In the three countries, consumption of traditional food items increases with age structure or as people grow older, (ix) Higher population density indicates higher consumption of beef, chicken, milk and fish and of rice and fruit (in Indonesia), and (x) Urbanization causes a shift in the consumption of high value commodities especially in Indonesia and Thailand. In Indonesia, women who are employed are likely to consume more rice, wheat, milk and sugar.

METHODOLOGY

Descriptive research was employed. The study analysed the factors (both statistics and economics aspects) that can explain rice consumption.

Data, Data Sources and Data Treatment

Most of the secondary data used in this study were gathered from the Bureau of Agricultural Statistics (BAS). The data on per capita consumption were sourced from the 1999-2000 Food Consumption Survey (FCS), 2008-2009 and the 2012 Survey of Food Demand for Agricultural Commodities (SFD). Likewise, the data on prices and SUA parameters were sourced from BAS.

For the econometric modelling, the study used panel data sourced from the SFD covering four (4) survey rounds - August 2008, November 2008, February 2009 and May 2009. The survey successfully covered 13,617 households nationwide. For purposes of this study, it utilized only the panel data of households who bought the rice they consumed. Further, the data were filtered to include only those households with rice consumption for four (4) survey rounds. The resulting panel data covered 9,122 households. Likewise, for 2012 SFD the resulting panel data covered 8,033 households. Information on prices collected by the survey was in peso per local unit. These prices were converted into peso per kilogram by dividing the total value (in peso) by the total quantity consumed (in kilogram).

Statistical Tools

a. The substitution between rice and other food items was described using tables, graphs, growth rate and cross price elasticity formula.
b. The factors that affect rice consumption were grouped into two:
   b.1. Statistical aspects
      The framework used in the construction of Supply Utilization Accounts was reviewed as well as the parameters used in the estimations.
   b.2 Economic aspects

Factors that affect rice consumption were explained using the demand model below:

$$\text{Log}Q_Y = \text{Log}\,\beta_0 + \beta_1 \text{Log}\,P_y + \beta_2 \text{Log}\,I \ldots + \beta_n Z_n$$

Where: Q_Y - Quantity of rice consumed
P - Price of rice
I - Household income
Z_n - Other variables (based on related studies)
β's - are coefficients

The model results were assessed through the following statistics:
F-test. *It is used to test the overall significance of the model; the higher F-statistics, the better.*

R2 (Coefficient of determination). *It measures the total variations in the dependent variable that is explained by the statistical model. The values of R^2 vary from 0 to 1. R^2 with values closes to 1 the better.*

t-statistics. *It is used to test the significance of each explanatory variable included in the regression model. The computed t-statistics for each variable has corresponding p-value. The smaller p-value of the computed t-statistics the more significant it is to explain the variations in the dependent variable.*

Diagnostic tests. *It is used to determine if the model satisfy the assumptions required by a good regression model such as normality, multicollinearity, autocorrelation and heteroskedasticity.*

RESULTS

Substitution between rice and other food items

Table 1 shows the annual per capita consumption of selected carbohydrate-rich commodities. This table contained the results of Food Consumption Survey (FCS) conducted in 1999-2000 and the Survey of Food Demand for Agricultural Commodities (SFD) conducted in 2008-2009 and 2012. In 2008-2009 results, the annual per capita consumption of rice grew by 12.59 percent. On the other hand, the other carbohydrate-rich commodities such as corn, camote, potato and cassava posted a downtrend in the annual per capita consumption. In 2012, the annual per capita consumption of rice decreased by 4.04 percent while the per capita consumption of other carbohydrate-rich commodities increased except cassava. This table suggested the possible substitution between rice and other carbohydrate-rich commodities.

In 1999-2000, the total consumption of the above commodities was 131.97 kilograms. The consumption of the same commodities in 2008-2009 went up to 134.06 kilograms. That increase was not statistically significant and that the total volume of carbohydrate-rich commodities consumed may be assumed to have remained essentially the same.

However, the composition of those commodities consumed changed significantly (Table 2). For instance, the consumption of rice in 2008-2009 shared 88.83 percent of the total carbohydrate-rich food. It was only

80.15 percent in 1999-2000. On the other hand, the share of other carbohydrate-rich food (corn, camote, potato and cassava) went down in 2008-2009. The total volume of carbohydrate-rich food consumed was essentially the same but there was a change in the quantity of each of the commodities. The decrease in the consumption of other carbohydrate-rich food was substituted or replaced by the increase in rice consumption.

Table 1. Annual per capita consumption of selected food commodities, Philippines, 1999-2000 and 2008-2009.

COMMODITY	FCS	SFD	SFD	PERCENT CHANGE	
	1999-2000	2008-2009	2012	2009/2000	2012/2009
Rice	105.77	119.08	114.265	12.59	(4.04)
Corn	10.93	7.07	10.261	(35.24)	45.13
Camote	7.4	4.06	4.307	(45.07)	6.08
Potato	0.99	0.73	0.872	(26.32)	19.45
Cassava	6.88	3.12	2.829	(54.55)	(9.33)
TOTAL	131.97	134.06	132.534	1.58	(1.14)

Source: Bureau of Agricultural Statistics

Table 2. Per capita consumption of selected commodities and percentage share of each commodity, Philippines, 1999-2000, 2008-2009 and 2012.

COMMODITY	FCS 1999-2000	% Share	SFD 2008-2009	% Share	SFD 2012	% Share
Rice	105.77	80.15	119.08	88.83	114.265	86.22
Corn	10.93	8.28	7.07	5.27	10.261	7.74
Camote	7.4	5.61	4.06	3.03	4.307	3.25
Potato	0.99	0.75	0.73	0.54	0.872	0.66
Cassava	6.88	5.21	3.12	2.33	2.829	2.13
TOTAL	131.97		134.06		132.534	

The proper way of determining if two commodities are substitutes is through cross price elasticities. Substitution happened when there is an increase in quantity demanded for particular good as a result of an increase in the price of another good. Figure 2 showed the retail price index of rice and corn from 2000-2012. Real retail price of rice was only 67.03 percentage points higher in 2008 and 74.47 percentage points higher in 2009 than in 2000 (base year). For corngrits, retail price index was 82.29 percentage points higher in 2008 and 93.86 percentage points higher in 2009 compared to the based year. The price of corngrits increased faster relative to rice especially in those years. This suggested

that the increase in the rice consumption in 2008-2009 could explain partly by shifting in consumption from corn to rice or substitution of rice in place of corn because of the big increase in the price of corngrits in those years.

From 20011 to 2012, price index of corngrits decreased from 206.50 percent to 203.14 percent while price index of rice (regular milled) for the same period increased from 178.00 percent to 182.38. Correspondingly, per capita rice consumption dropped to 114.265 kilograms.

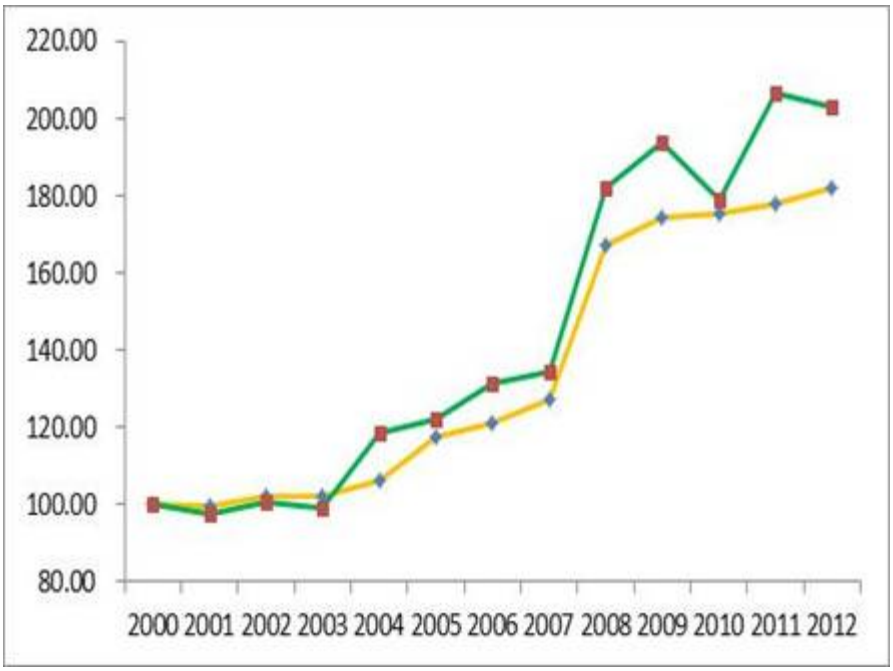


Figure 2. Retail Price Index of Rice (regular milled) and Corngrits (white), Philippines, 2000-2012 (2000=100).

Algebraically, cross price elasticities can be derived as:

$$\text{Elasticity (year)} = \frac{\text{Percentage change in the quantity of rice}}{\text{Percentage change in the price of corn}}$$

The two commodities are substitutes if elasticity is greater than zero (positive) and complementary if the elasticity is less than zero (negative). Given the per capita consumption of rice of 105.768 kilograms in 2000, 119.08 kilograms in 2009 and 114.265 kilograms in 2012, and the retail price of corn (grits, white) of P14.00 in 2000, P27.14 in 2009 and P28.44 in 2012, the estimated elasticities are:

$$\text{Elasticity (2009, 2000)} = \frac{(119.08 - 105.77)/105.768}{(27.14 - 14.00) / 14.00}$$

Elasticity (2009, 2000) = 0.134

$$\text{Elasticity (2012, 2000)} = \frac{(114.265 - 105.77)/105.768}{(28.44.14 - 14.00) / 14.00}$$

Elasticity (2012, 2000) = 0.078

The computed elasticities for 2009 and 2012 against 2000 are positive (greater than 0). This means that rice and corn were substitutes.

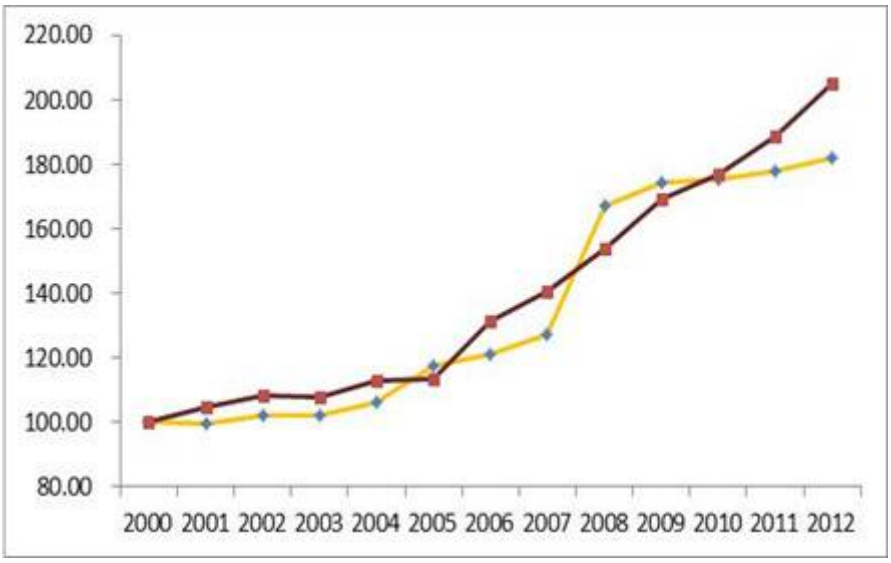


Figure 3. Retail Price Index of Rice (regular milled) and Camote, Philippines, 2000-2012 (2000=100).

The retail price index of camote increased faster relative than retail price index of rice starting from 2005. For 2000 and 20012, the computed cross price elasticities is 0.0765. Rice and camote are substitutes

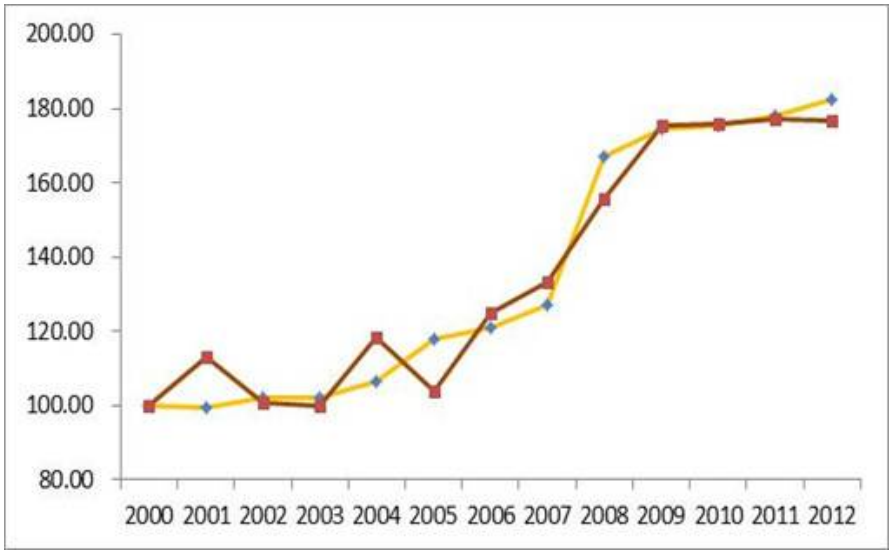


Figure 4. Retail Price Index of Rice (regular milled) and Potato, Philippines, 2000-2012 (2000=100).

The retail price index of potato fluctuated from 2000 to 2005 but showed almost similar movement with the retail price index of rice starting 2006. The computed cross price elasticities is 0.1049 using the 2000 and 2012 data. Rice and potato are substitutes.

Factors affecting rice consumption

Statistical Aspect

The left side of the Supply Utilization Accounts Framework shows the information on supply which is the sum of beginning stocks, local production and imports. The right side of the framework shows the utilization. Subtracting the data on exports and ending stocks from the gross supply, the difference is the net supply disposable. Deducting again the quantity of rice used for seeds, feeds, quantity wasted, and those used for processing, the remaining quantity is the net food disposable (NFD) or the quantity available for consumption. NFD divided by the total population is the per capita net food disposable which is most often equated to per capita consumption.

The SUA framework

The quantity used as seeds, feeds, and those quantities goes to processing and those wasted are estimated using parameters which are results of commodity studies done long time ago. The parameter is multiplied to the current total area or production to estimate the current quantities of seeds, feeds, waste and quantities that goes to processing. Can these parameters describe the current situation is the immediate concern:

Table 3. SUA Parameters for Rice.

Parameter	Estimation
Milling recovery rate	65.40%
Seeds	75 kg. per hectare
Feeds and Wastes	6.5% of production
Processing	4% of production

The effects of these parameters on the net food disposable of rice are:

1. Adoption of high hybrid seeds required less seeds per hectare but increases the yield significantly. This reduces the seeding rate and increases the net food disposable;
2. Inefficient rice milling lowered the supply of rice and therefore the quantity available for consumption;
3. Large quantities used as feeds reduces the net food disposable;
4. Improvement in the post-harvest facilities and equipment reduces losses. This increases the quantity of rice available for consumption; and
5. Big requirement for processing lowered the quantity available for consumption.

Table 4. Description of variables used in the regression models.

Variable	Description
log_Q	Quantity of rice in kilogram
log_P	Price of rice per kilogram
log_Income	SFD 2012 = quarterly income *0.0513207* ; SFD 2008-2009 = annual income
worker	number of working member/s per household
rfemale	ratio of female to the total household members
sc1	dummy variable (1 if household's socio-economic class is AB, 0 otherwise)
sc2	dummy variable (1 if household's socio-economic class is C, 0 otherwise)
sc3	dummy variable (1 if household's socio-economic class is D, 0 otherwise)
sc4	dummy variable (default = socio-economic class E)
viz	dummy variable (1 if household lived in Visayas Region, 0 otherwise)
min	dummy variable (1 if household lived in Mindano Region, 0 otherwise)
luz	dummy variable (default = households lived in Luzon)
dbf1	dummy variable (default = buying frequency is "daily")
dbf2	dummy variable (1 if buying frequency is "weekly", 0 otherwise)
dbf3	dummy variable (1 if buying frequency is "twice/trice a month", 0 otherwise)
dbf4	dummy variable (1 if buying frequency is "monthly", 0 otherwise)
dbf5	dummy variable (1 if buying frequency is "as need arises", 0 otherwise)
rural	dummy variable (1 if household lived in rural barangays, 0 otherwise)
urban	dummy variable (default = households lived in urban barangays)
seas1	dummy variable (1 if February survey round, 0 otherwise)
seas2	dummy variable (default = May survey round)
seas3	dummy variable (1 if August survey round, 0 otherwise)
seas4	dummy variable (1 if November survey round, 0 otherwise)

The estimated demand model for rice for using the 2008-2009 SFD and 2012 SFD are statistically significant as suggested by the computed F-statistics. Using the 2008-2009 data, the coefficient of determination is 0.399. About 39.9 percent of the total variations in rice consumption are explained by the model. For 2012, the model explained about 14.11 percent of the total variations in rice consumption.

Price of rice (P_RICE) and household income (INCOME) are significant factors that affect rice consumption. The estimated coefficients of price had negative sign. This conformed to the law of demand. A one percent increase in the price of rice will decrease rice consumption by 0.047 percent in 2008-2009 and 0.475 percent in 2012. On the other hand, the computed coefficients of household income are greater than zero but less than one (0 < < 1). This means that rice is a normal good. A one percent increase in the household's gross annual income will tend to increase rice consumption by 0.167 percent using the 2008-2009 SFD data and by 0.205 percent using the 2012 data.

The number of employed household members (worker) significantly affects rice consumption. Additional member of the household who get employ for a

job will increase rice consumption by 0.136 percent based on 2008-2009 data and by 0.16 percent based on 2012 SFD results.

Buying frequency significantly affects rice consumption except for those households whose buying frequency is monthly (dbf4) in 2008-2009 while "twice/thrice a month" (dbf3) in 2012. Households whose buying frequencies are weekly (dbf2) and as need arises (dbf5) had rice consumption lower than those households whose buying frequency is daily. On the other hand, households who bought rice twice/trice a month (dbf3) had rice consumption of 0.039 percent higher than households who bought rice daily in 2008-2009.

Table 5. Factors Affecting Rice Consumption in the Philippines, 2008-2009 and 2012.

Dep. Variable: log_Q

VARIABLE	COEFFICIENT			
	SFD 2012		SFD 2008-2009	
_cons	3.1675	*	0.3366	*
log_P	-0.4751	*	-0.0473	*
log_Income	0.2053	*	0.1665	*
worker	0.1599	*	0.1356	*
rfemale	-0.0020	*	-0.1707	*
sc1	-0.1130	*	-0.3770	*
sc2	-0.0741	*	-0.2132	*
sc3	-0.0083		-0.0497	*
viz	0.1314	*	0.1538	*
min	0.1733	*	0.1605	*
dbf2	-0.0447	*	-0.0336	*
dbf3	-0.0156		0.0391	*
dbf4	-0.0599	*	-0.0189	
dbf5	-0.0456	*	-0.0169	**
rural	0.0686	*	0.1165	*
seas1	-0.0142	**	-0.0497	*
seas3	-0.0219	*	-0.3770	*
seas4	-0.0202	*	-0.2132	*

** Siginificant at 1%*
*** Siginificant at 5%*

Urbanization affects rice consumption. Households who lived in rural areas had rice consumption higher than households who lived in urban areas.

Rice consumption is affected by season. Rice consumption during August and February was lower than rice consumption in May. Rice consumption in November was higher than in May.

Socio-economic classification of households also affects rice consumption. Households belonging to socio-economic class D had rice consumption lower than households belonging to socio-economic class E. Likewise, those households who belonged to socio-economic classes AB and C had much lower rice consumption compared to households under socio-economic class E.

Female household members consumed less rice than males. As the number of female members increases relative to male members, household rice consumption will tend to decrease.

Households in Visayas and Mindano had rice consumption higher than households in Luzon. This is one of the important findings because all the while households in Visayas and Mindanao were expected to be major consumers of corn and cassava, hence, less consumption of rice. But the results revealed otherwise.

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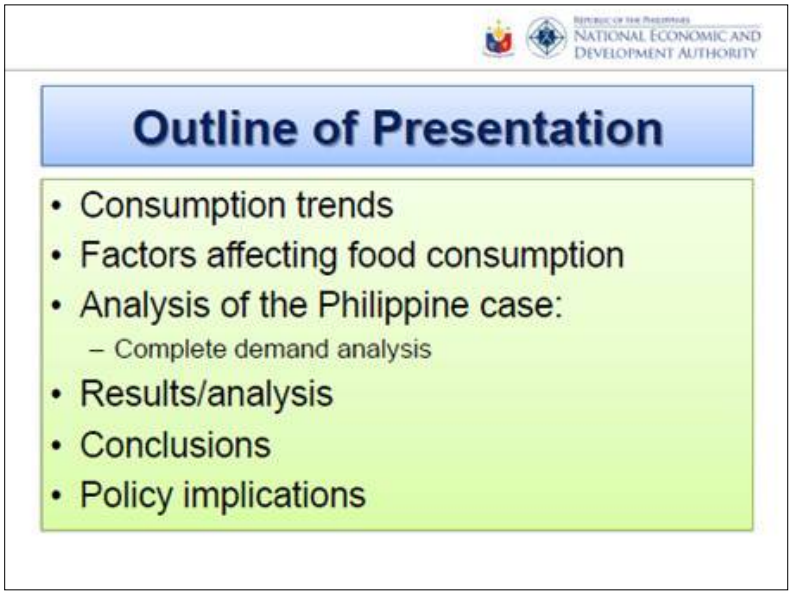
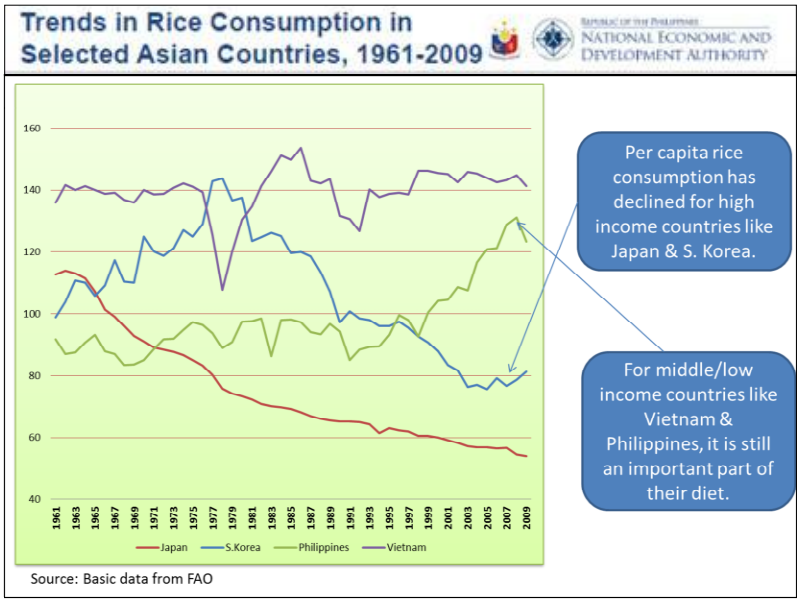
3 FACTORS THAT INFLUENCE RICE DEMAND CHANGES

Mercedita A. Sombilla, PhD [3]

SLIDE 1



SLIDE 2



Transcription

In theory, as income grows, staple food consumption should be declining. However, in the case of the Philippines, per capita consumption has been increasing despite the income growth. Similarly, Viet Nam has stabilized their food per capita consumption. On the other hand, developed countries like Korea and Japan, have a declining per capita consumption for their staple food, which follows the economic theory.

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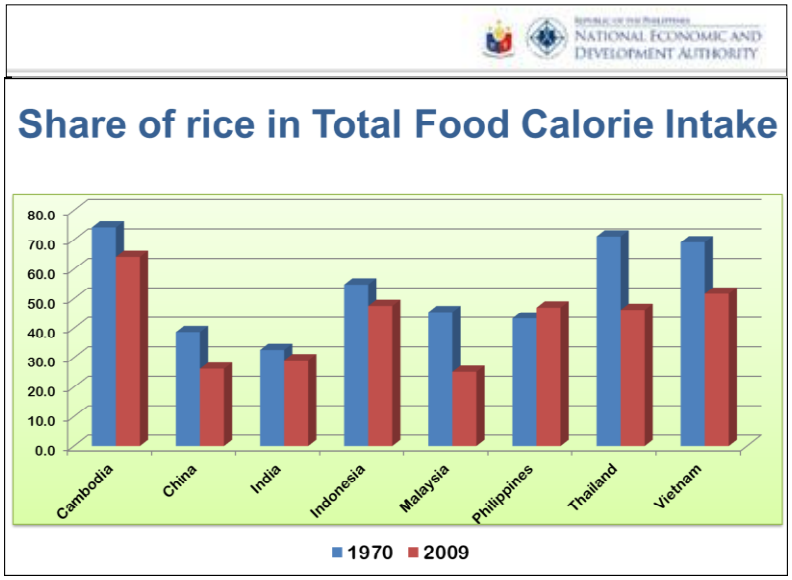
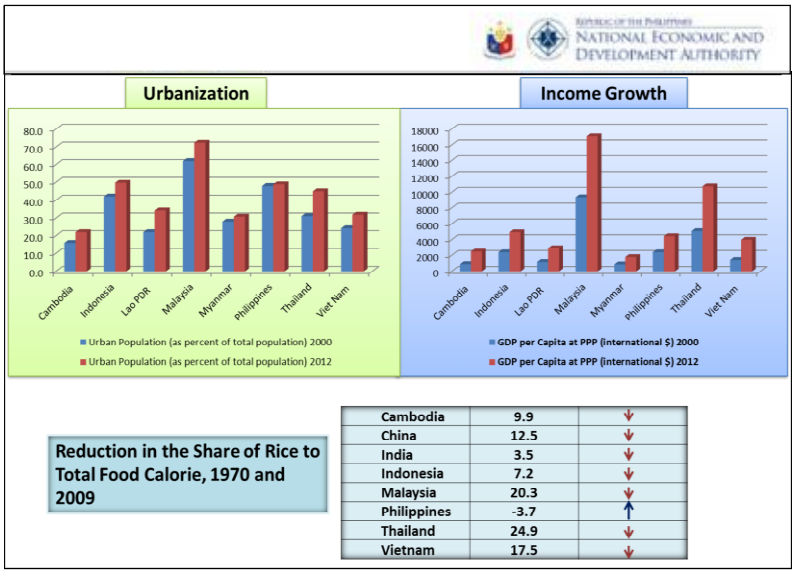
SLIDE 3



Transcription

The graph shows the share of rice in total food calorie intake. Note that in the Philippines, the share of rice to total calorie intake has been increasing from 1970 to 2009. Whereas, other countries like Cambodia, Vietnam, China, India, Indonesia, Malaysia, and Thailand have decreasing share.

SLIDES 4 and 5



Cambodia	9.9	↓
China	12.5	↓
India	3.5	↓
Indonesia	7.2	↓
Malaysia	20.3	↓
Philippines	-3.7	↑
Thailand	24.9	↓
Vietnam	17.5	↓

Transcription

Factors contributing to the declining share of rice to total calorie intake in selected Asian countries:
High economic growth and urbanization -Income growth and urbanization are among the factors on declining share of rice to total calorie intake for most Asian countries. Note that as urbanization increases the food consumption patterns of people living in the urban areas may also change because of their busy life. They usually shift away from consuming rice. As income grows, people tend to go for good with higher value.

The increase in number of supermarket and malls in urban areas have contributed to the availability and accessibility of rice

substitutes. From the periods 1970 and 2009, the share of rice to total food calorie intake in the Philippines increased as compared with other Asian countries. This is primarily due to urbanization and income growth.

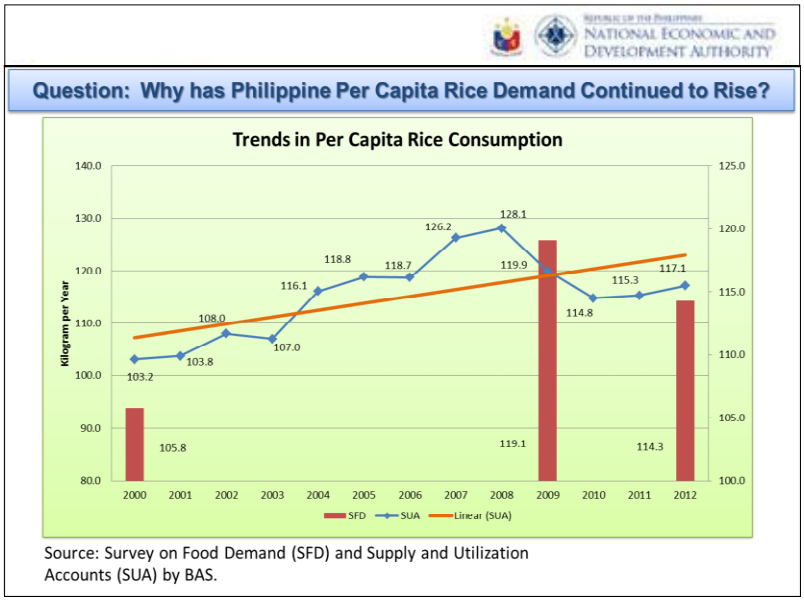
Super market revolution in Asia - The availability of more choices in the supermarkets especially in the urban areas urges some consumers to choose other food commodities over rice.

Change in Taste and Preferences - The increase in purchasing power because of increased income partly induced consumers to diversify their diet. In some part of the country, like the Visayas regions, like to eat maize rather than rice. Other South Asian countries prefer to eat wheat and other staple food. Change in taste and preference occurs when per capita income rises, allowing consumers to diversity their food consumption.

Socio-Demographic - As people age, they become more health conscious, hence, shifting preference from carbohydrates to protein-based diets (Wailes & Chavez, 2012). Demographic variables have an influence on the consumption of food; older persons would eat less rice.

Geographic - Since the 1970s, rice demand of rural consumers has been more sensitive to income changes but less sensitive to rice price changes (Kunkel et al. 1972; Goldman and Ranade 1976; Bouis 1989; Llanto 1996). For geographic differences, some countries or even regions in a country, preferred staple food like wheat, root crops, and maize. This also affects the consumption of the commodities.

SLIDE 6

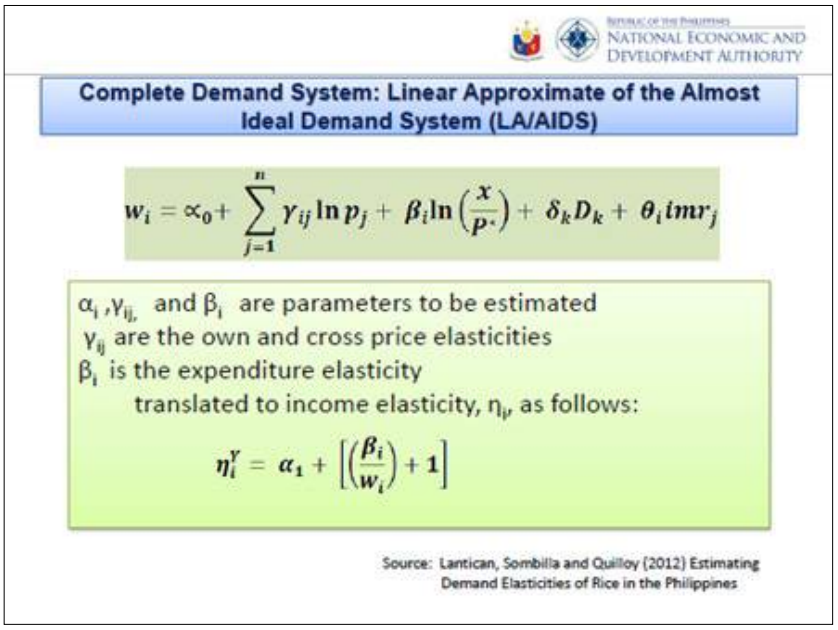


Source: Survey on Food Demand (SFD) and Supply and Utilization Accounts (SUA) by BAS.

Transcription

Why does the Philippines' per capita rice demand continue to rise despite growth in income and urbanization? Based on the Bureau of Agricultural Statistics' (BAS) Survey on Food Demand (SFD) and the Supply and Utilization Accounts (SUA), per capita rice consumption had been increasing. Per capita rice consumption peaked in 2008 and then declined to 117.1 kg per person per year based on SUA and 114.3 kg per person per year based on SFD in 2012.

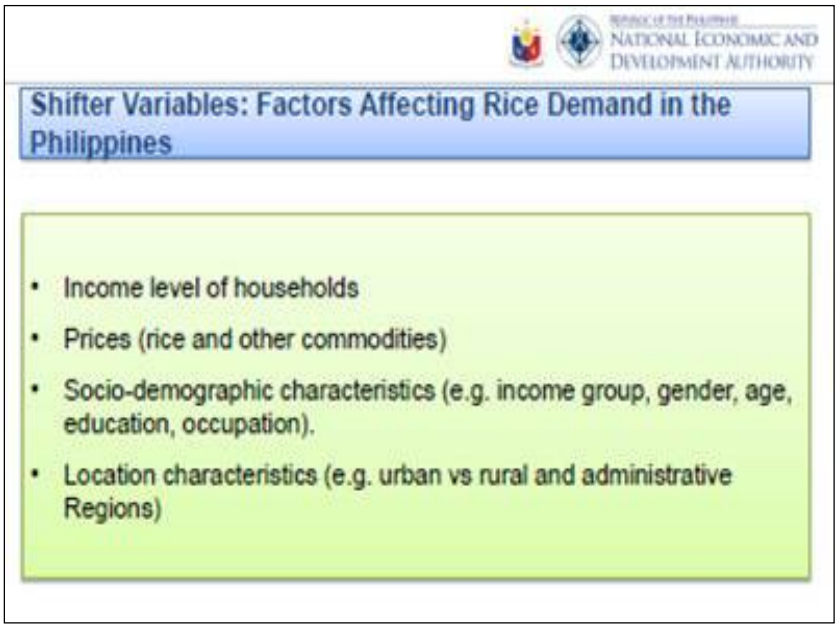
SLIDE 7



Transcription

What are the probable reasons for the increasing trend in per capita rice consumption? To answer that, we did an analysis using a Complete Demand System, the equation that we used in that particular methodology is a Linear Approximate of Almost Ideal Demand System (LA/AIDS). The equation is composed of shares of expenditures of various commodities as explained by different factors including prices, income and some socioeconomic variables. Since this is expenditure, we translated it in income elasticity based on the formula.

SLIDE 8



SLIDE 9

NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Per Capita Consumption (Kg/Year)

Characteristics	2008-2009 Survey on Food Demand	Characteristics	2012 Survey on Food Demand
Classification		***Classification***	
Urban	102.47	Urban	111.47
Rural	113.88	Rural	117.60
Per Capita Income Group		***Per Capita Income Group***	
PhP16,000 and below	112.02	≤ Php80,000	111.36
PhP16,001 to PhP26,000	112.85	Php80,001 to Php 135,000	115.34
PhP26,001 to PhP96,000	109.56	Php135,001 to Php 500,000	116.51
PhP96,001 to PhP196,000	101.8	Php500,001 to Php1,000,000	113.68
more than PhP196,000	80.85	> Php 1,000,000	122.58
Socioeconomic class		***Socioeconomic class***	
Lower classes (D & E)	112.71	Lower classes (D & E)	111.62
Upper classes (A, B & C)	101.34	Upper classes (A, B & C)	120.28

Transcription

The slide shows the comparison of 2008-09 and 2012 survey results on food demand. Based on 2008-2009 survey, the lower income group has 112 kg per capita per year going down to 80.85 kg per capita per year as you go up the income ladder. You can see also the differences between the rural and urban areas, the former are consuming much bigger than those in the urban areas. This is also the same in terms of socioeconomic classes. The lower classes (D&E) belongs to the bottom income groups which consume much bigger (113kg/capita/year) as compared to the upper classes (A,B&C).

SLIDE 10

NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Own-Price and Income Elasticity of Rice

Commodity	Mean Budget Share (%)	Income Elasticity	Own-Price Elasticity	
			Marshallian	Hicksian
Rice	49.97	0.4722	-0.5046	-0.2650
Corn	0.01	0.4579	-0.9615	-0.9583
Sweet potato	1.26	0.5742	-0.9612	-0.9734
Potato	0.32	2.1433	-1.0123	-1.0069
Taro	0.36	1.7972	-1.0049	-0.9981
Cassava	0.89	0.0772	-0.9539	-0.9534
Milkfish	4.60	2.1445	-1.0261	-0.9462
Tilapia	3.70	1.7393	-1.0057	-1.0010
Pork	10.84	1.9055	-1.0359	-0.7554
Chicken	11.39	2.1068	-1.1365	-0.9302
Banana	3.99	0.9654	-0.9939	-0.9550
Mango	1.91	1.4772	-0.9940	-0.9650
Pineapple	0.55	1.9283	-1.0024	-0.9923
Eggplant	1.58	0.9844	-0.9870	-0.9716
Bitter gourd	1.37	1.5261	-1.0230	-1.0030

Source: Basic data was taken from BAS (2009)

Transcription

These are the elasticities that were estimated using the Linear Approximate of the Almost Ideal Demand System (LA/AIDS). Note that rice is still a normal necessity good with positive income elasticity, resulted to a small but positive value. This implies that a percentage increase in income would induce 0.47% increase in the consumption of rice. The computed own-price elasticities were Marshallian and the Hicksian elasticities. Marshallian own-price elasticity is uncompensated which means that when the price increases, the real income goes down. On the other hand, Hicksian is the compensated demand which means that if you compensate the income from the effect of the increase in price of rice, then the decrease in rice demand is smaller than the values resulted from Marshallian elasticity.

SLIDES 11 and 12

NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Effect of Socio-Demographic Variables (Part 1)

Socio-demographic Variables	Income Elasticity	Own-Price Elasticity	
		Marshallian	Hicksian
Per capita income group			
PHP 16,000 and below	0.5785	−0.5019	−0.1655
PHP 16,001 to PHP 26,000	0.5087	−0.4883	−0.2434
PHP 26,001 to PHP 96,000	0.4830	−0.4301	−0.3570
PHP 96,001 to PHP 196,000	0.4468	−0.5554	−0.4143
More than PHP 196,000	0.4448	−0.7497	−0.5681
Socioeconomic class			
Lower classes	0.4877	−0.4814	−0.2235
Upper classes	0.4520	−0.5159	−0.3126
Sex			
Male	0.4775	−0.5040	−0.2592
Female	0.4502	−0.5154	−0.3008

NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Effect of Socio-Demographic Variables (Part 2)

Socio-demographic Variables	Income Elasticity	Own-Price Elasticity	
		Marshallian	Hicksian
Age group			
17 to 21 years old	0.5889	−0.5451	−0.2243
22 to 35 years old	0.4831	−0.4278	−0.1790
36 to 46 years old	0.4705	−0.5087	−0.2658
47 to 55 years old	0.4916	−0.5390	−0.2909
56 to 65 years old	0.4538	−0.5177	−0.2926
66 years old and above	0.4168	−0.5139	−0.3100
Educational attainment			
Did not finish high school	0.5418	−0.4987	−0.1939
At least high school graduate	0.4438	−0.5466	−0.3494
Type of occupation			
White-collar jobs	0.4996	−0.4894	−0.2226
Blue-collar jobs	0.4817	−0.5496	−0.3348
Average	**0.4722**	**-0.2637**	**-0.2650**

Transcription

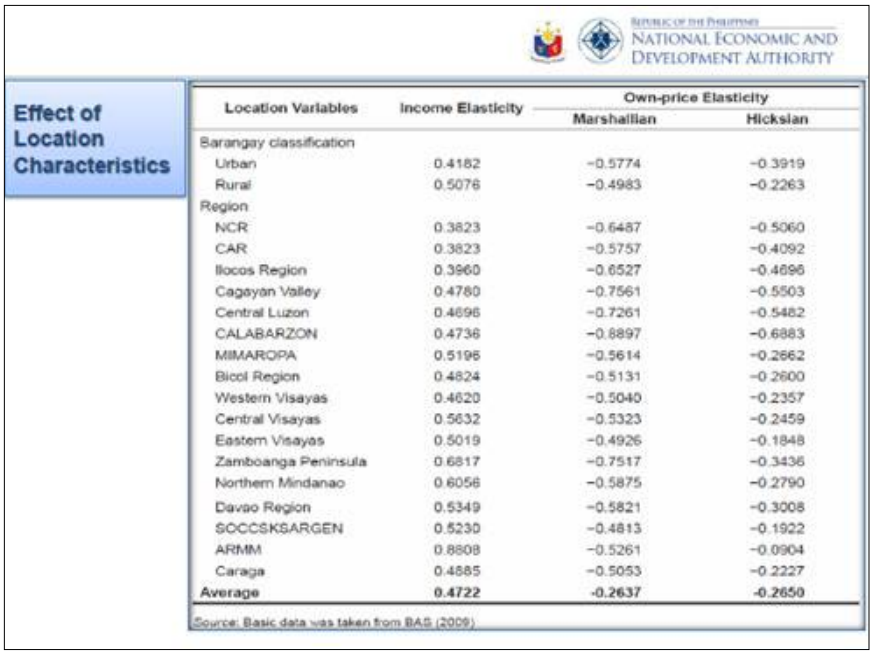
Rice demand is inelastic to both price and income regardless of their socio-demographic characteristic. However, the magnitude of the changes differs across the categories of socio-demographic variables.

Rice is still a "necessity" good even among higher income group, such that a 1% increase in the income would lead to 0.44% increase in the demand for rice. However, the effect is greater for low-income with 0.58% increase in rice demand for every 1% increase in income.
Results from Marshallian and Hicksian greatly differ across the income group. When compensated, people from the lower income group will continue to eat rice even if the price of rice increases.

As price of rice increase, the effect or change in rice demand is very small. However, for higher income group, even if they compensate the change in income to the change in price of rice, they will still substitute since their tendency to shift their consumption to other commodities will be much bigger. This shows how important prices are to the lower income group. That is why in one of our policies, it states that the price of rice should be stable or be maintained at a lower level, primarily because of food security.

In terms of age group, income elasticity becomes smaller as the age group increases. Same result with the educational attainment and type of occupation, wherein those who have at least graduated from high school and those with blue collar jobs have lower income elasticity.

SLIDE 13



NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Effect of Location Characteristics

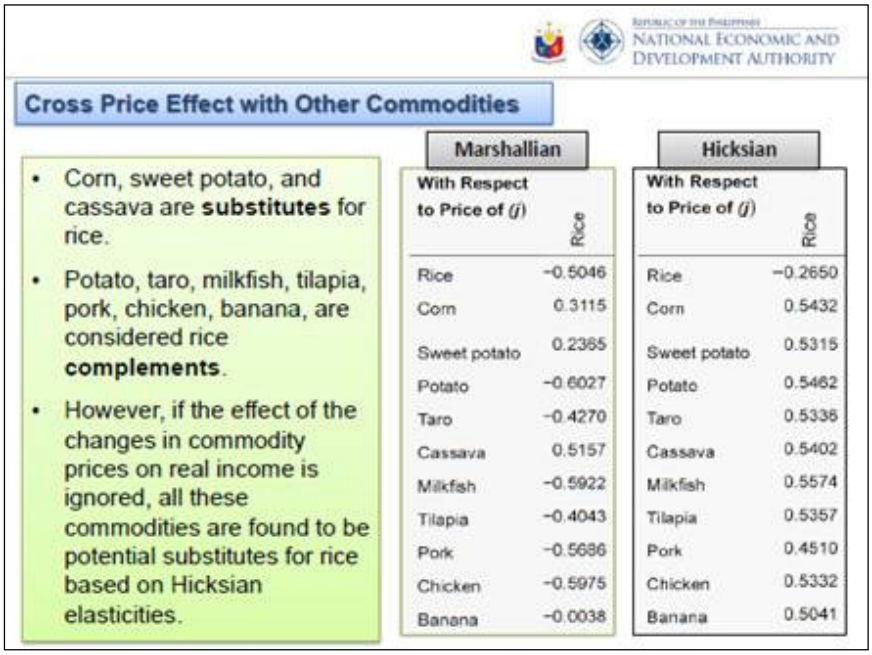
Location Variables	Income Elasticity	Own-price Elasticity	
		Marshallian	Hicksian
Barangay classification			
Urban	0.4182	−0.5774	−0.3919
Rural	0.5076	−0.4983	−0.2263
Region			
NCR	0.3823	−0.6487	−0.5060
CAR	0.3823	−0.5757	−0.4092
Ilocos Region	0.3960	−0.6527	−0.4696
Cagayan Valley	0.4780	−0.7561	−0.5503
Central Luzon	0.4696	−0.7261	−0.5482
CALABARZON	0.4736	−0.8897	−0.6883
MIMAROPA	0.5196	−0.5614	−0.2662
Bicol Region	0.4824	−0.5131	−0.2600
Western Visayas	0.4620	−0.5040	−0.2357
Central Visayas	0.5632	−0.5323	−0.2459
Eastern Visayas	0.5019	−0.4926	−0.1848
Zamboanga Peninsula	0.6817	−0.7517	−0.3436
Northern Mindanao	0.6056	−0.5875	−0.2790
Davao Region	0.5349	−0.5821	−0.3008
SOCCSKSARGEN	0.5230	−0.4813	−0.1922
ARMM	0.8808	−0.5261	−0.0904
Caraga	0.4885	−0.5053	−0.2227
Average	**0.4722**	**-0.2637**	**-0.2650**

Source: Basic data was taken from BAS (2009)

Transcription

Rural consumers have higher income elasticity and lower own-price elasticity than the urban consumers. An increase in income of a rural consumer may induce more consumption of rice, which they consider the most important part of their diet, as they become capable of purchasing an additional amount of this staple food. The greater dependence on rice as a source of energy of the rural consumers may be the main reason why their quantity demanded for rice is less sensitive to any adjustment in the price of rice.

SLIDE 14



NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Cross Price Effect with Other Commodities

- Corn, sweet potato, and cassava are **substitutes** for rice.
- Potato, taro, milkfish, tilapia, pork, chicken, banana, are considered rice **complements**.
- However, if the effect of the changes in commodity prices on real income is ignored, all these commodities are found to be potential substitutes for rice based on Hicksian elasticities.

Marshallian

With Respect to Price of (*j*)	Rice
Rice	−0.5046
Corn	0.3115
Sweet potato	0.2365
Potato	−0.6027
Taro	−0.4270
Cassava	0.5157
Milkfish	−0.5922
Tilapia	−0.4043
Pork	−0.5686
Chicken	−0.5975
Banana	−0.0038

Hicksian

With Respect to Price of (*j*)	Rice
Rice	−0.2650
Corn	0.5432
Sweet potato	0.5315
Potato	0.5462
Taro	0.5336
Cassava	0.5402
Milkfish	0.5574
Tilapia	0.5357
Pork	0.4510
Chicken	0.5332
Banana	0.5041

SLIDE 15

NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Summary of Results/Conclusions

Why per capita rice consumption is not declining despite income growth.

- Per capita rice consumption: does not vary much across income groups (110 to 112 kgs), except with those in the highest income group (80 kgs).
- Rice remains a normal and a necessity good for consumers, which indicates the continuing importance of rice in the diet of Filipinos. Inelastic with respect to income at an average of 0.47%. Rises to 58% at low income levels.
- 63 provinces out of 81 have poverty incidence at 20% and above, despite the country's good economic growth performance. 85% of the agri households belong to the 5 poorest deciles (NSO 2009).
- Exacerbated by unemployment and underemployment rates that remains relatively high at 7.3% and 19.2%, respectively.

SLIDE 16

NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Summary of Results/Conclusions continued....

- Increases in rice prices reduce the consumption of rice. While true for all income classes, the impact on food security and nutrition especially among the poor income classes could be severe.
- On the average, about a quarter of the change in quantity demanded for rice is due to the change in purchasing power or real income caused by a price change. It goes as high as more than 50% among the poor income groups.
- If purchasing power of consumers is adjusted to remain at the same level after a price increase, a smaller rate of change in quantity demanded for rice for every percentage change in the price of rice could be expected especially among the poor income groups.
- This is not the case among the rich income groups: whether or not their purchasing power is compensated after a price increase, the tendency is to substitute rice for other food.

SLIDE 17

NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

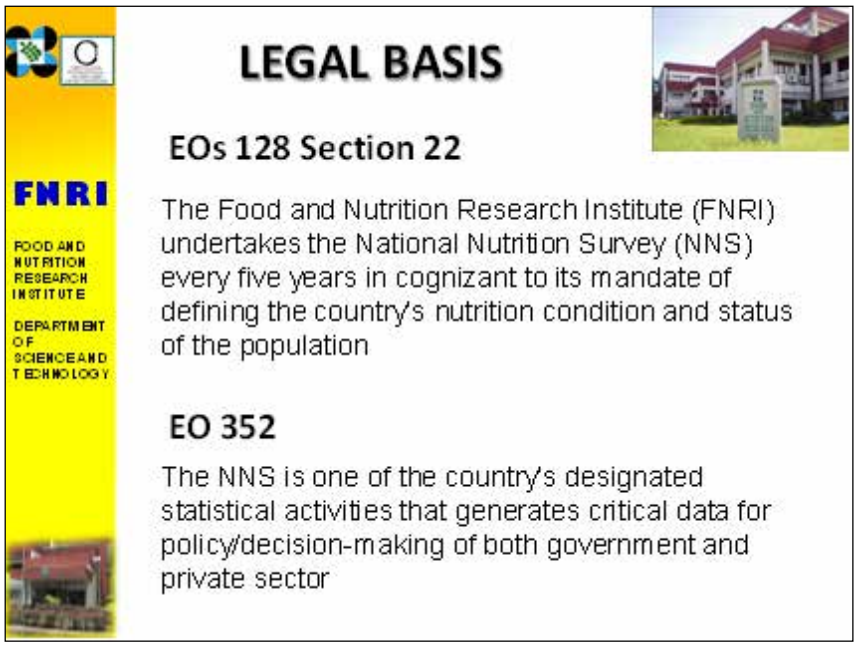
Policy Implications

- Increase incomes through livelihood-generation interventions that provide full employment.
- Maintain stable rice prices by increasing supply. Domestic production has to be more cost efficient to lower prices.
- Short-term and targeted price/income subsidy intervention (CCT type) applied primarily to the poor income groups and in areas where these are most abundant (e.g. Eastern Visayas, Caraga, ARMM and the Bicol Region-- poverty incidence is very high.
- Increase production/availability of close rice substitutes (e.g. corn, cassava and sweet potato). Improved/better food preparation technologies needed to promote their use. Information drive to disseminate nutritional value.

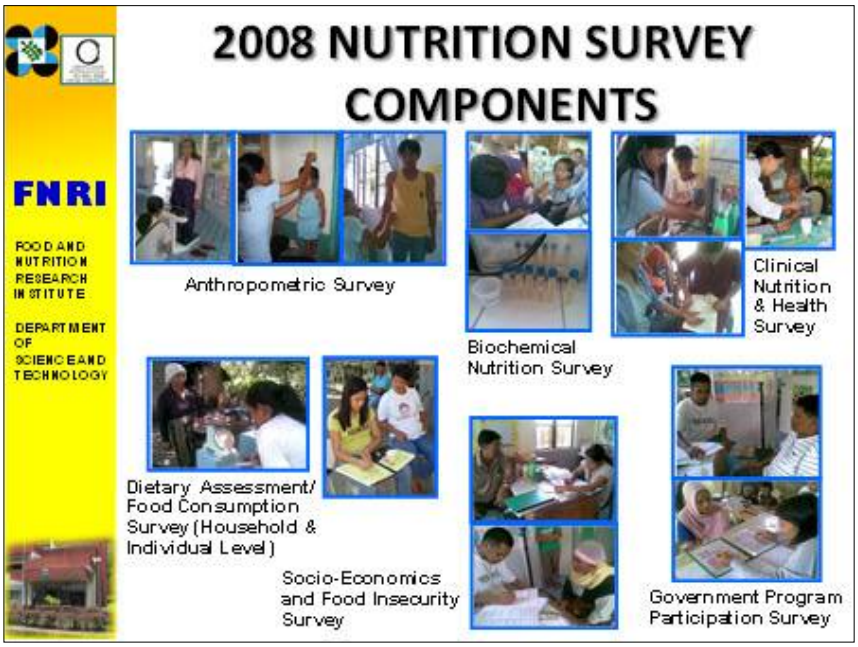
4 HOUSEHOLD FOOD WASTAGE FNRI NATIONAL NUTRITION SURVEY: TRENDS IN TABLE WASTAGE

Mario V. Capanzana [4]

SLIDE 1



SLIDE 2



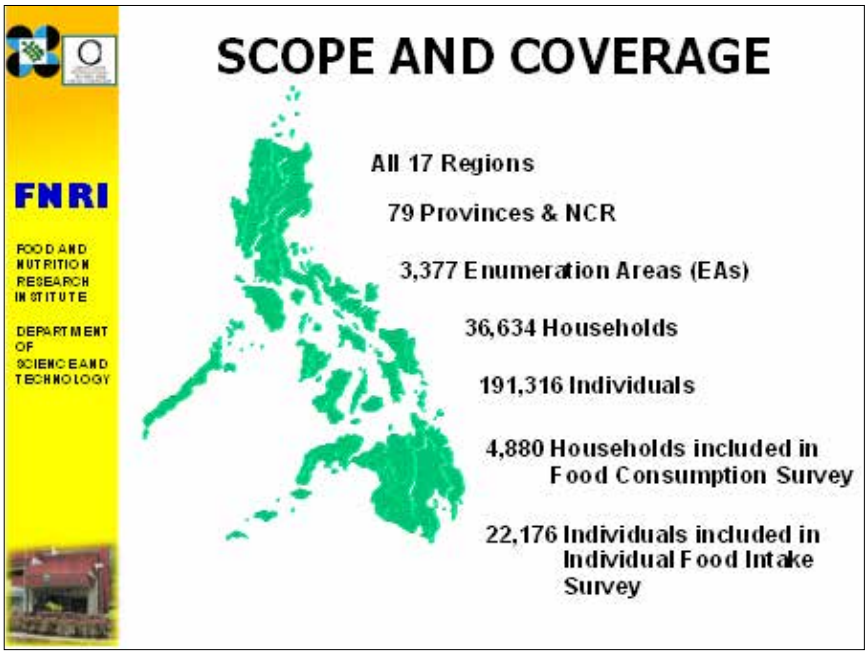
Transcription

The National Nutrition Survey component particularly in 2008 is composed of:

- Anthropometric Survey includes the height and weight
- Biochemical Nutrition Survey -blood, urine and other data
- Clinical Nutrition & Health Survey -blood pressure, blood glucose level and other health indicator
- Dietary Assessment / Food Consumption Survey (Household & Individual Levels)
- Socio-Economics and Food Insecurity Survey
- Government Program Participation Survey

[4]Director, Food and Nutrition Research Institute (FNRI).

SLIDE 3

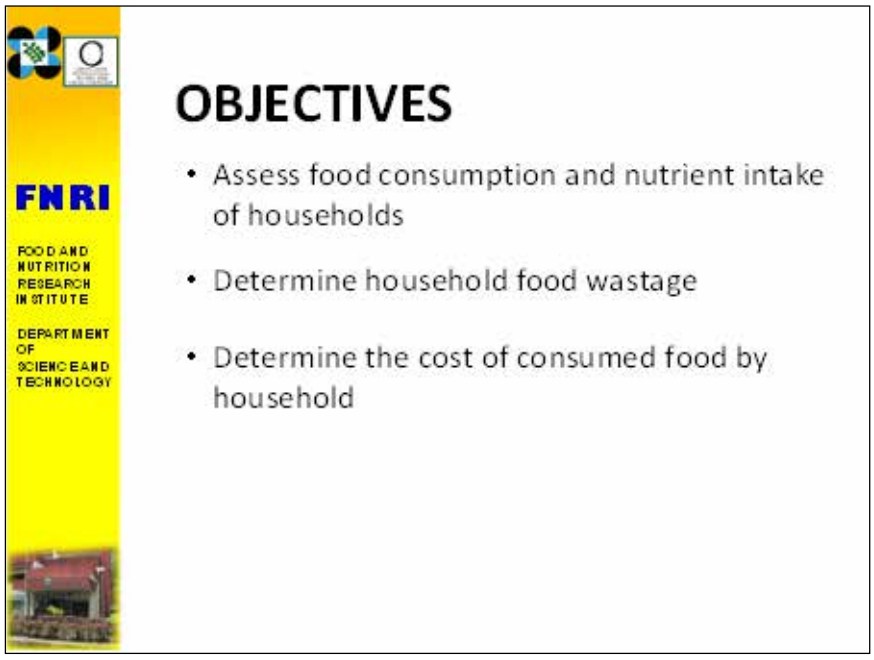


Transcription

The survey covered 17 Regions, 79 provinces plus the NCR. This totals to 3,377 Enumeration Areas (EAs). A total of 191,316 individuals were interviewed.

Food Consumption Survey (Household Level)

SLIDE 4



SLIDE 5

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Methodology 1: HOUSEHOLD CONSUMPTION

Actual Food Weighing

- Consumption refers to the foods available in the kitchen, including inedible and edible wastage
- Consumption is expressed as "as purchased" or at retail in grams

C = Food weighed – (GO + LO)

Where:
C = Consumption
GO = Given-Out
LO = Leftovers

SLIDE 6

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Actual Food Weighing

- foods served and eaten raw
- cooked or processed foodstuffs served directly on the dining table
- non-perishable items such as coffee, sugar, cooking oil and the like.
- Plate-waste, leftovers and foods given out

SLIDE 7

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Terms and Definition

Leftovers	the food items cooked/raw, weighed during survey period which can still be eaten usually after the survey period.
Given-Out	the amount of food cooked or raw previously weighed for household consumption but is given away to other persons or other families outside the household.
Plate-waste	the edible portions of food which are left on the dining table or in the plates after the family has finished eating and are usually given to household pets or discarded.

SLIDE 8

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HOUSEHOLD CONSUMPTION

Actual Food Weighing

- All foods to be cooked and served for the entire day is weighed, from breakfast to dinner including snacks

- Results are expressed as raw "as purchased" foods to be cooked for each meal

SLIDE 9

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Actual Food Weighing

- Number of visitations in a day – at most 6 times depending on household practice of preparing meals
- Dietary Researchers – professionals in Nutrition and related field
- Training – 5 days with reliability test and practicum

SLIDE 10

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Food Inventory

- Weighing of foods customarily kept in stock and frequently served and used in cooking (salt, cooking oil, condiments, sugar, coffee)
- **Beginning inventory**
  – done before household used the above foods in cooking or serving
- **Ending inventory**
  – done after all household members had eaten dinner or night snacks

SLIDE 11

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Weighing of Leftovers after the weighing period

SLIDE 12

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Weighing of Plate-waste after each meal

SLIDE 13

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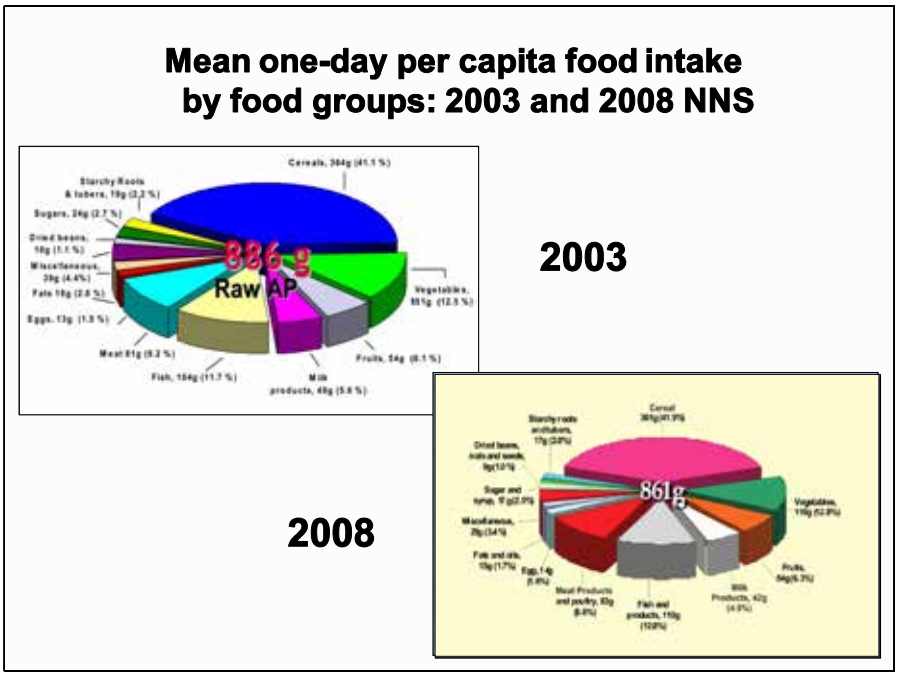
Computation to determine weight of food, plate waste and left-overs

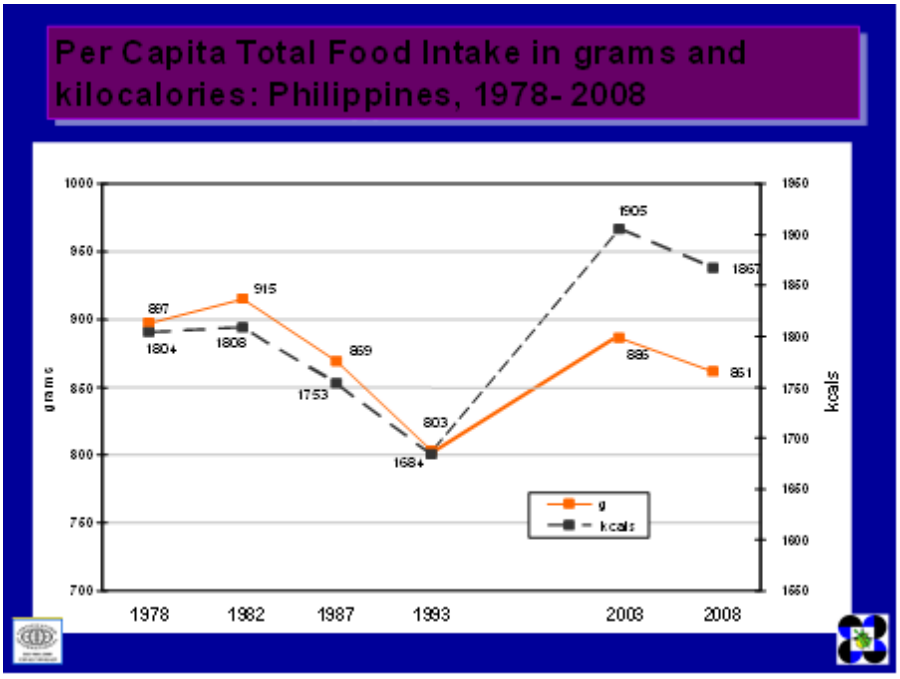
SLIDE 14



Transcription

Mean one-day per capita food intake by food group in 2003 and 2008 was almost the same: (a) 41% for cereals, (b) 12% for vegetables, and (c) 13% for fish and products.

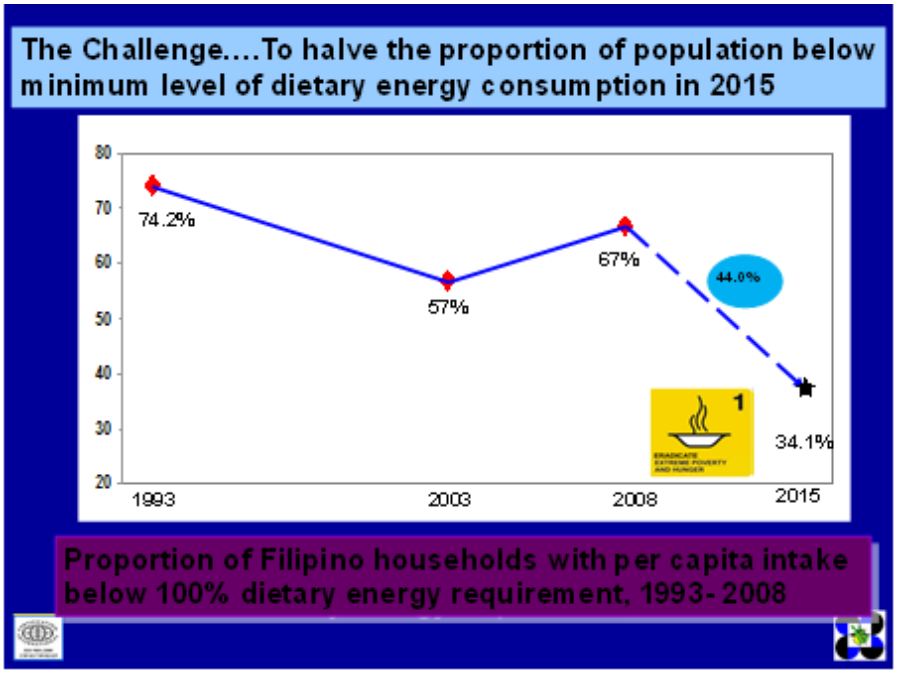
SLIDE 15



Transcription

It is very important to look at the caloric contribution of food. This slide shows that food intake in grams and in kilocalories follow the same trend starting in 1978.

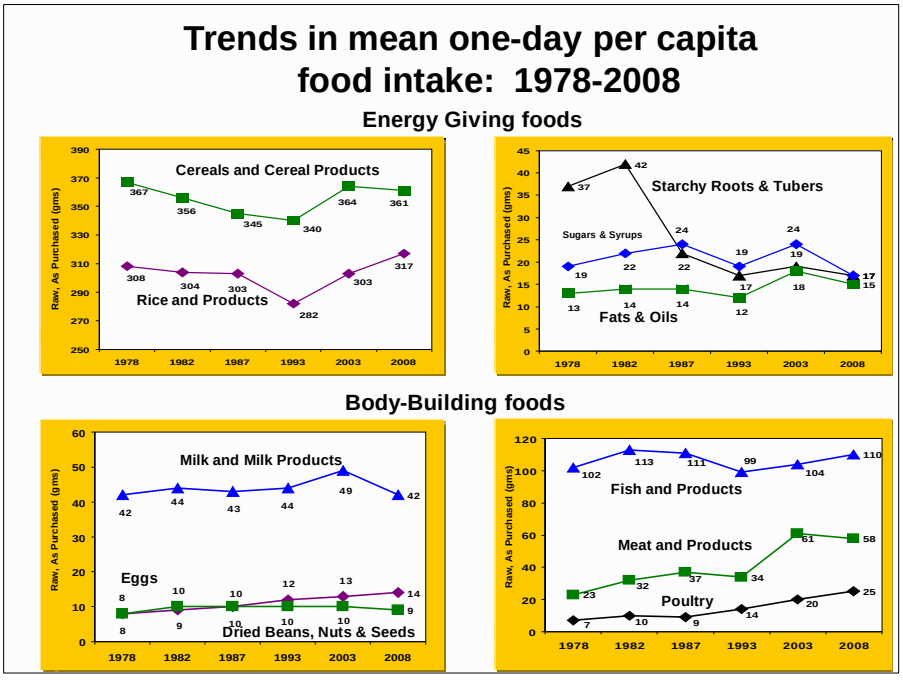
SLIDE 16



Transcription

At this stage, the agency is subscribing to the millennium development goal. The challenge is to halve the proportion of population falling below the minimum level of dietary energy consumption by 2015. The target in 2015 is 34% of the population falling below the per capita dietary intake.

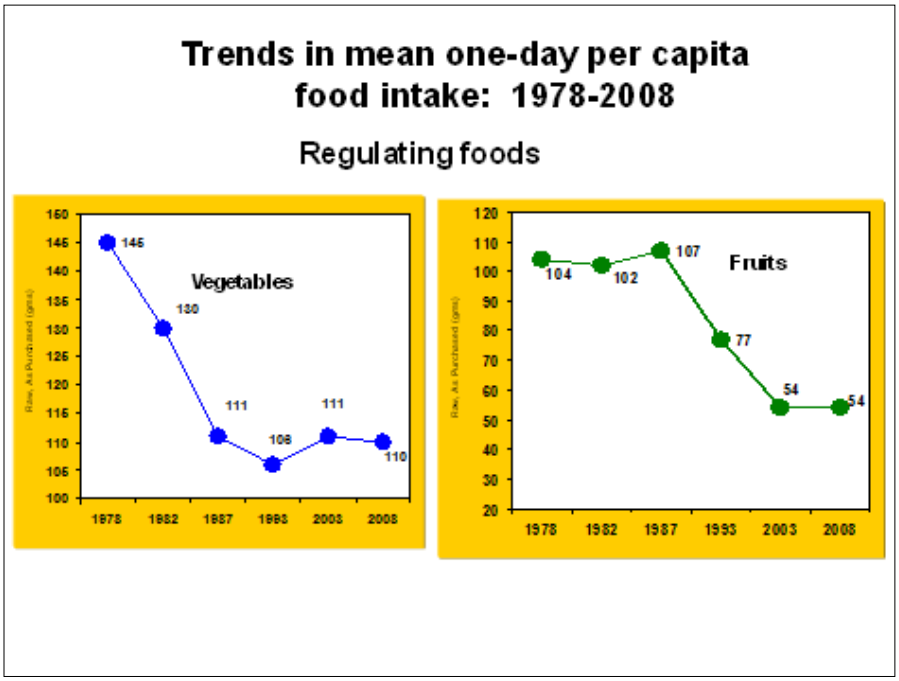
SLIDE 17



Transcription

In 2008, the mean one-day per capital intake of cereals and other cereal products is 361. Meanwhile, rice and by-products increased from 303 grams per capita per day in 2003 to 317 grams in 2008.

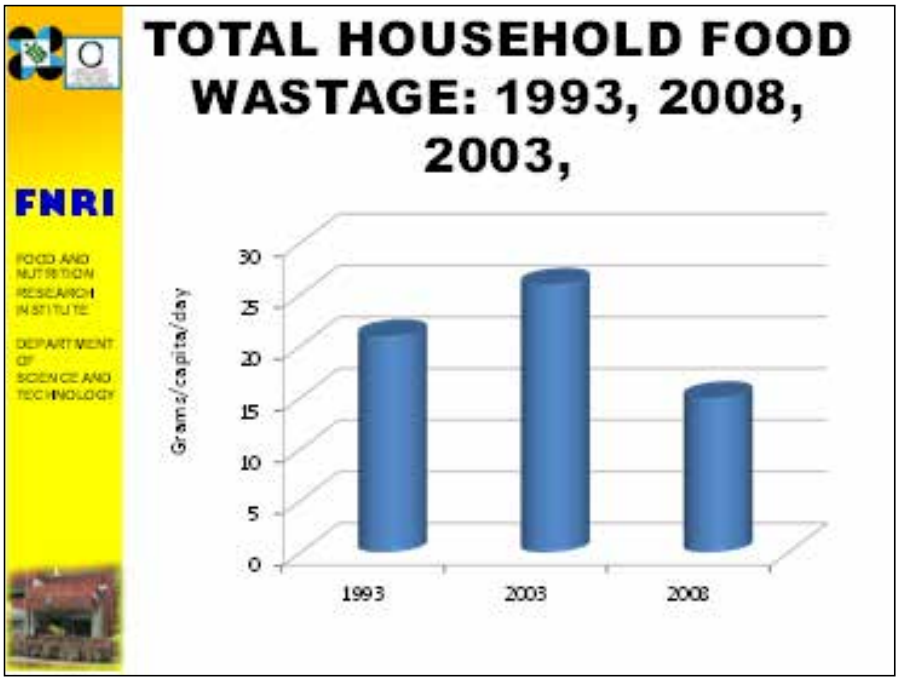
SLIDE 18



Transcription

Data shows that consumption fo vegetables and fruits is decreasing. A big campaign was then launched to increase fruits and vegetable intake of the populatin. Moreover, there is high incidence of micro-nutrient deficiency in the country.

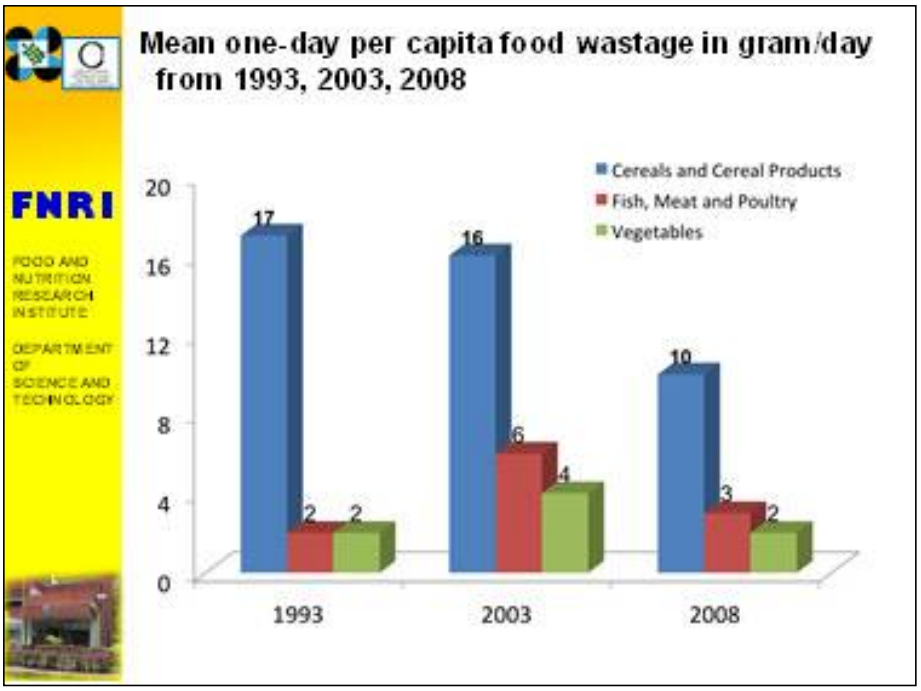
SLIDE 19



Transcription

Based on the methodology, the total household food wastage decreased from 2003 to 2008 (15.5 grams per capita per day).

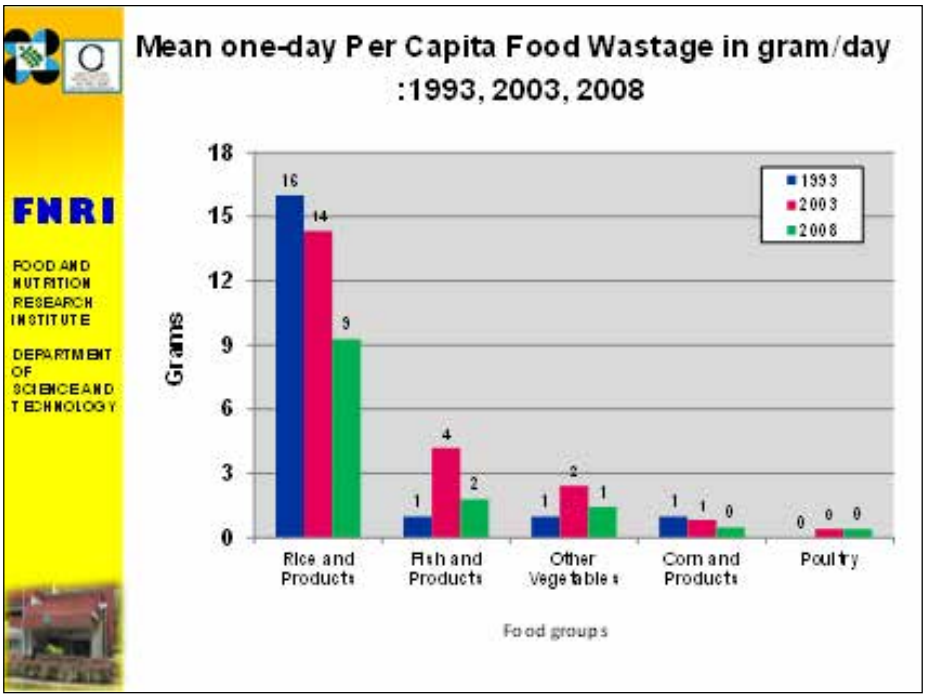
SLIDE 20



Transcription

There is a decreasing trend in food wastage from 1993 to 2008. These food items include cereals and cereal products, fish, meat and poultry, and vegetables. In 2008, there was 10 gm/day food wastage for cereals.

SLIDE 21



Transcription

Specifically, per capita rice wastage in 2008 is 9 grams per day. Same decreasing trend can be noted in other food items like fish, vegetable and corn from 2003 to 2008.

SLIDE 22

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Mean one-day per capita food wastage in gram/day from 1993, 2003, 2008

Food Group/ Sub-group	1993	2003	2008
Cereals and Cereal Products	17	16	10
Rice and Products	16	14	9
Corn and Products	1	1	0
Other Cereals and Products	0	0	0
Fish, Meat and Poultry	2	6	3
Fish and Products	1	4	2
Meat and Products	0	1	1
Vegetables	2	4	2
Green Leafy and Yellow Vegetables	1	1	1
Other Vegetables	1	2	1
TOTAL	**21**	**26**	**15**

SLIDE 23

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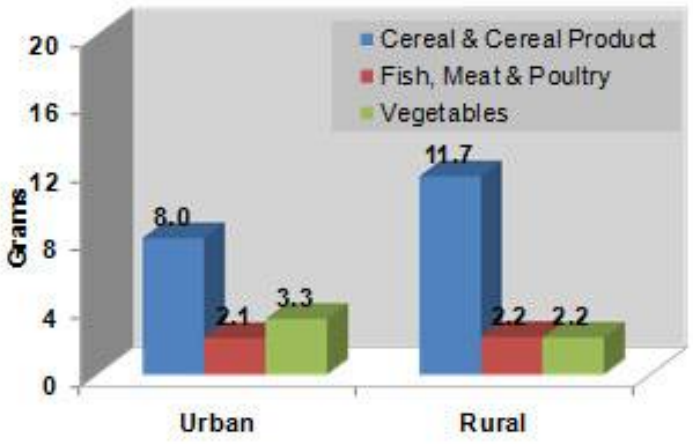
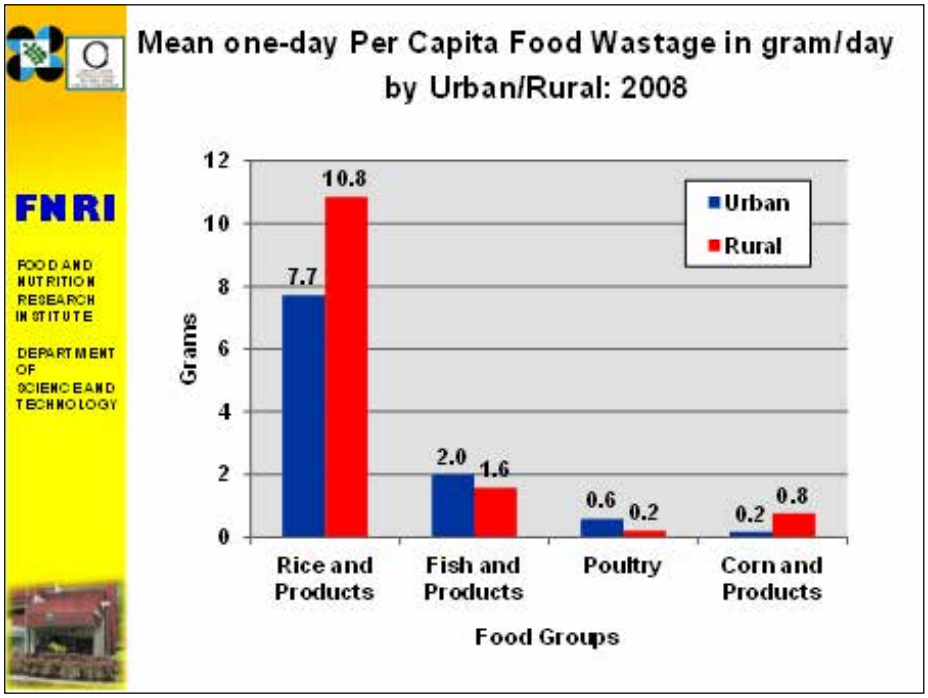
Mean one-day per capita food wastage in gram/day urban & rural: Philippines, 2008



Transcription

Data shows that in 2008, cereal and cereal products wastage in the rural areas was greater than in the urban areas. Meanwhile, only slight wastage difference between fish, meat and poultry, and vegetables was observed among these groups.

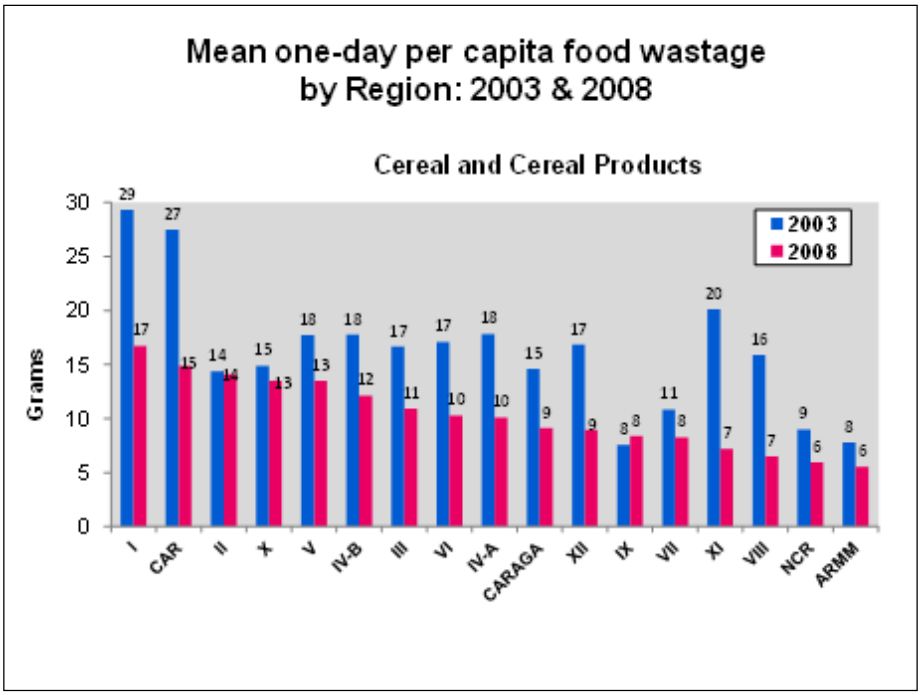
SLIDE 24



Transcription

In 2008, per capita rice wastage in the rural areas (11 grams per day) was relatively higher than in the urban areas (8 grams per day). Less wastage can be observed for fish, poultry, and corn.

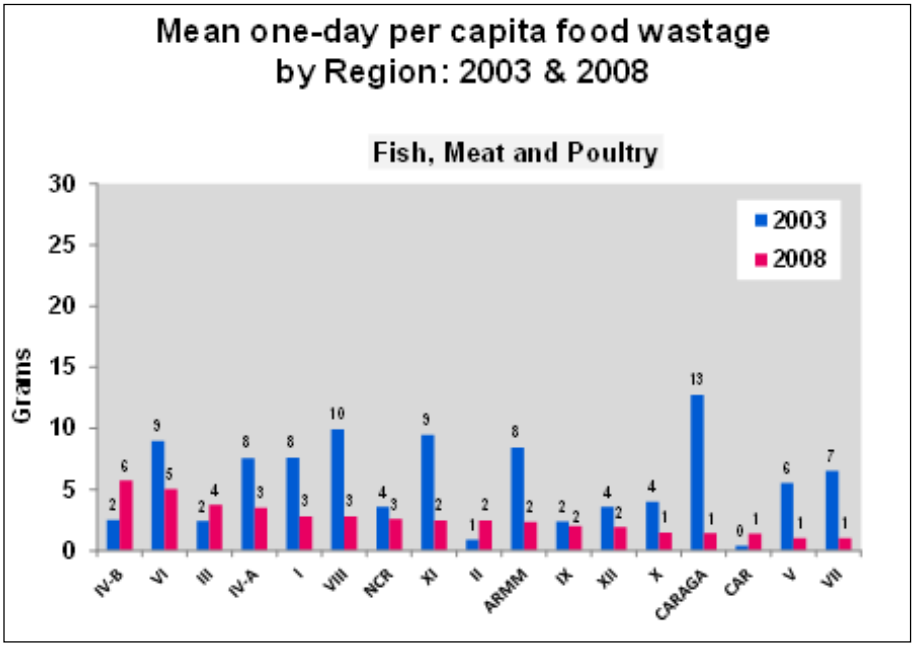
SLIDE 25



Transcription

There was a reduction in wastage of cereal and cereal products from 2003 to 2008 for all regions. Wastage, however, was highest in Regions I, CAR, and Region II; lowest in Regions VIII, NCR, and ARMM.

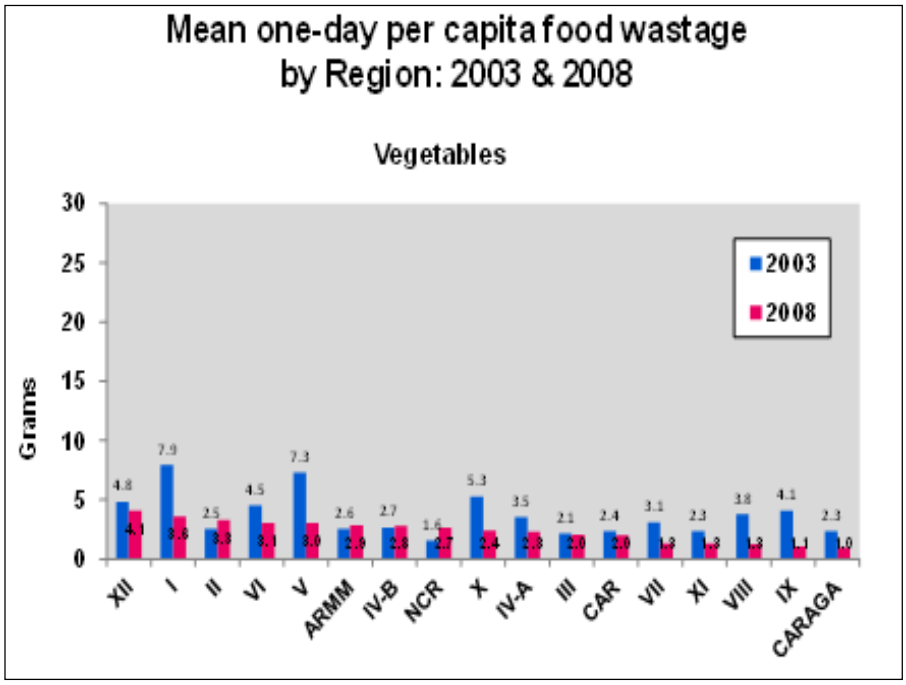
SLIDE 26



Transcription

Generally, per capita food wastage on fish, and meat and poultry decreased from 2003 to 2008 for all regions, except for Region IV-B.

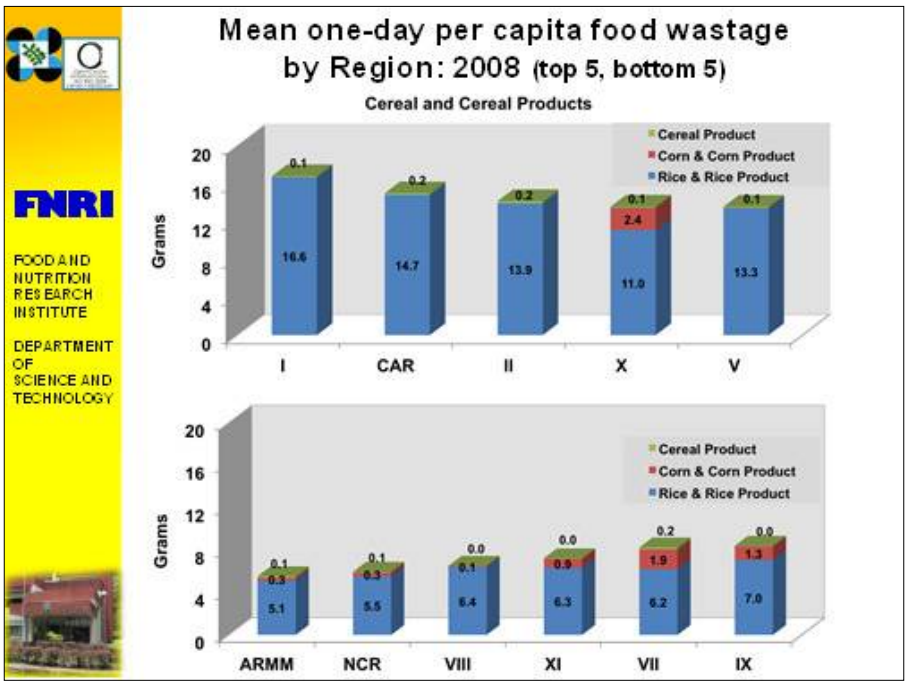
SLIDE 27



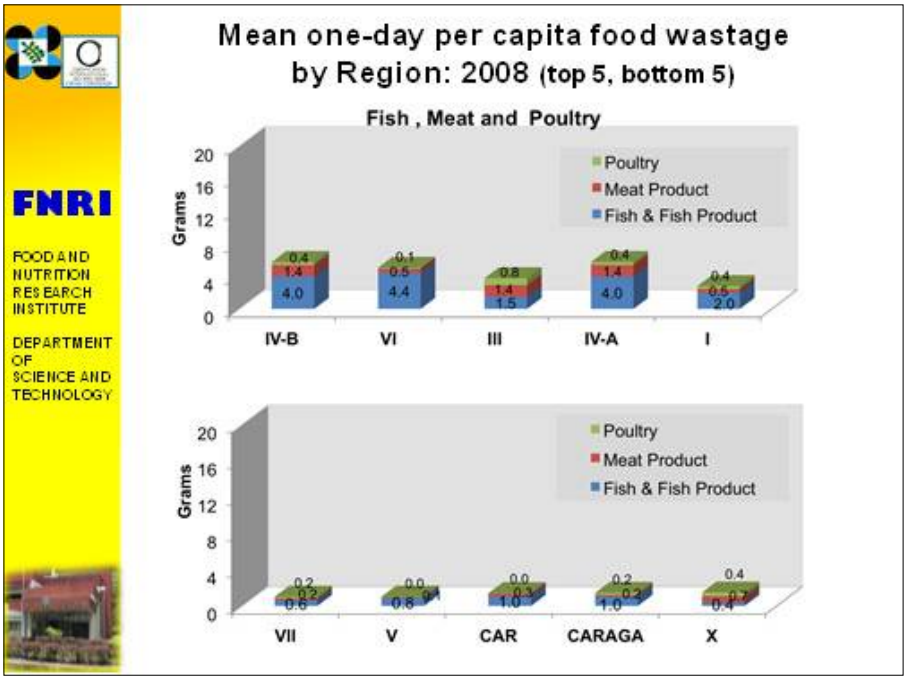
Transcription

Region XII has the highest while CARAGA region has the least vegetable wastage in 2008.

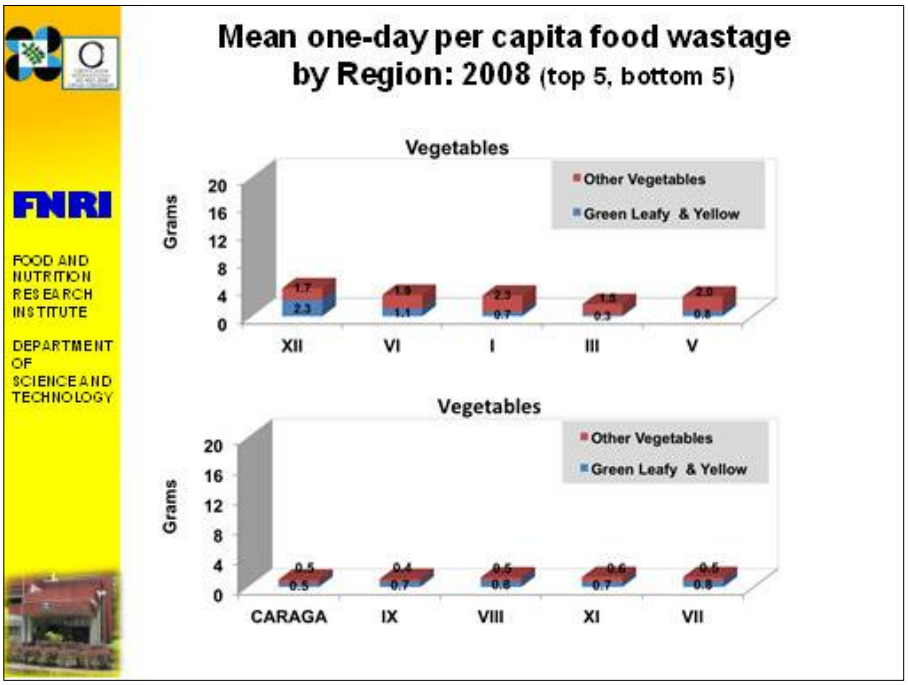
SLIDE 28



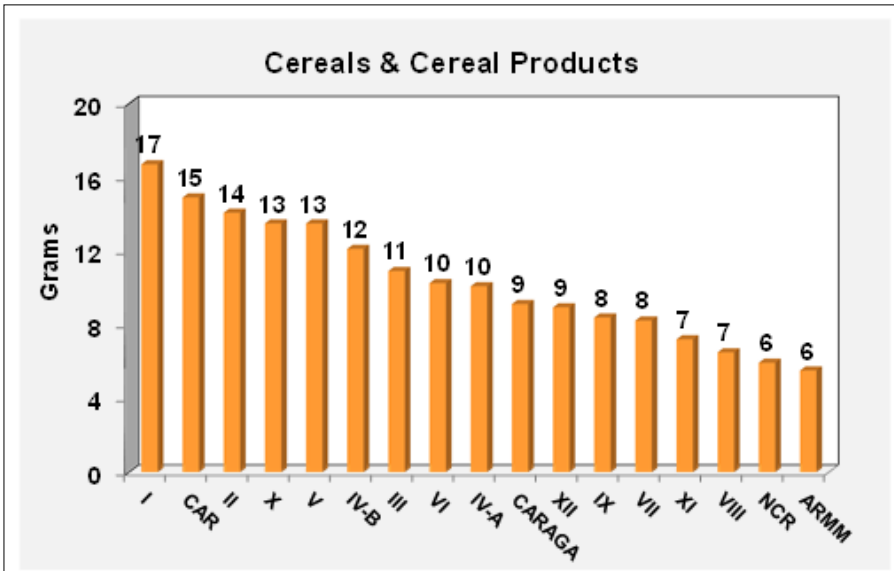
SLIDE 29



SLIDE 30

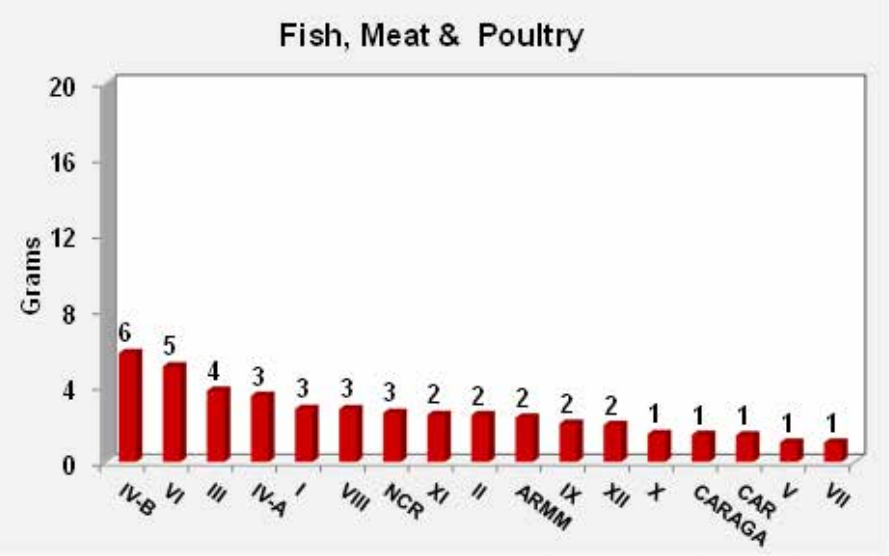


SLIDE 31



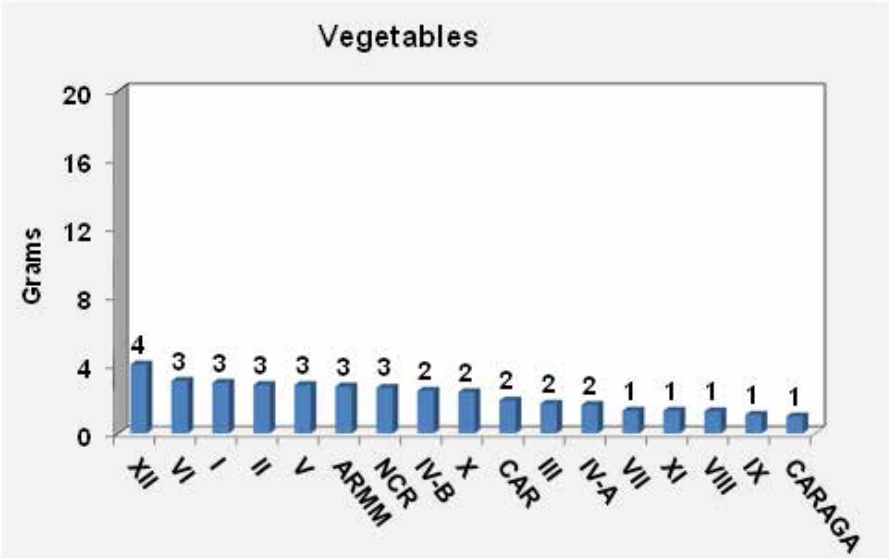
Mean one-day per capita food wastage by Region: Philippines and 2008

SLIDE 32



Mean one-day per capita food wastage by Region: Philippines and 2008

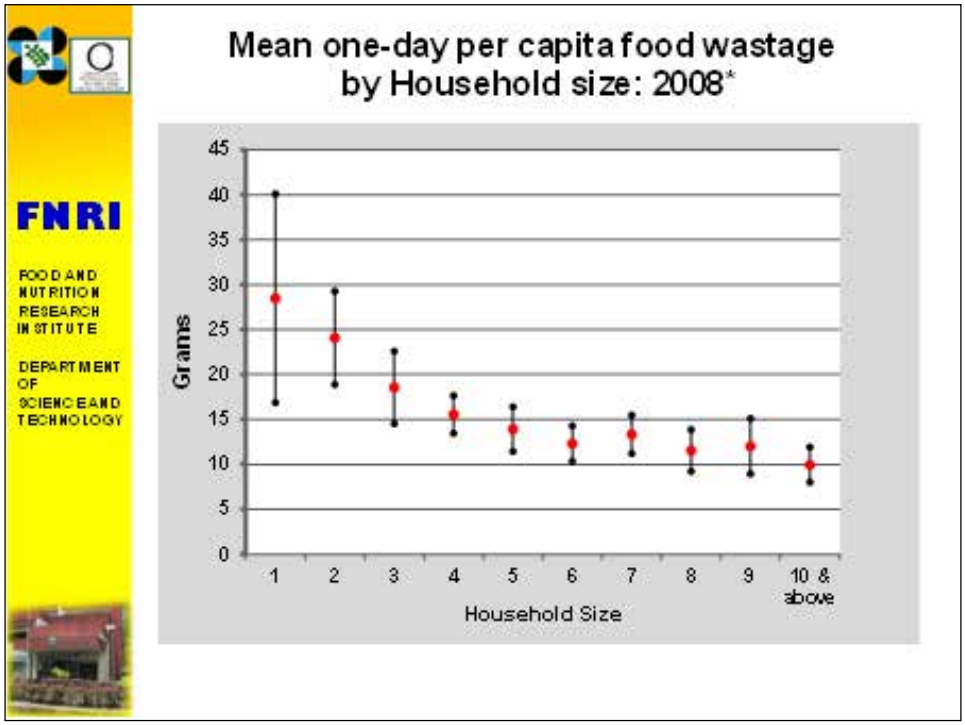
SLIDE 33



Mean one-day per capita food wastage by Region: Philippines and 2008

Factors affecting household food waste

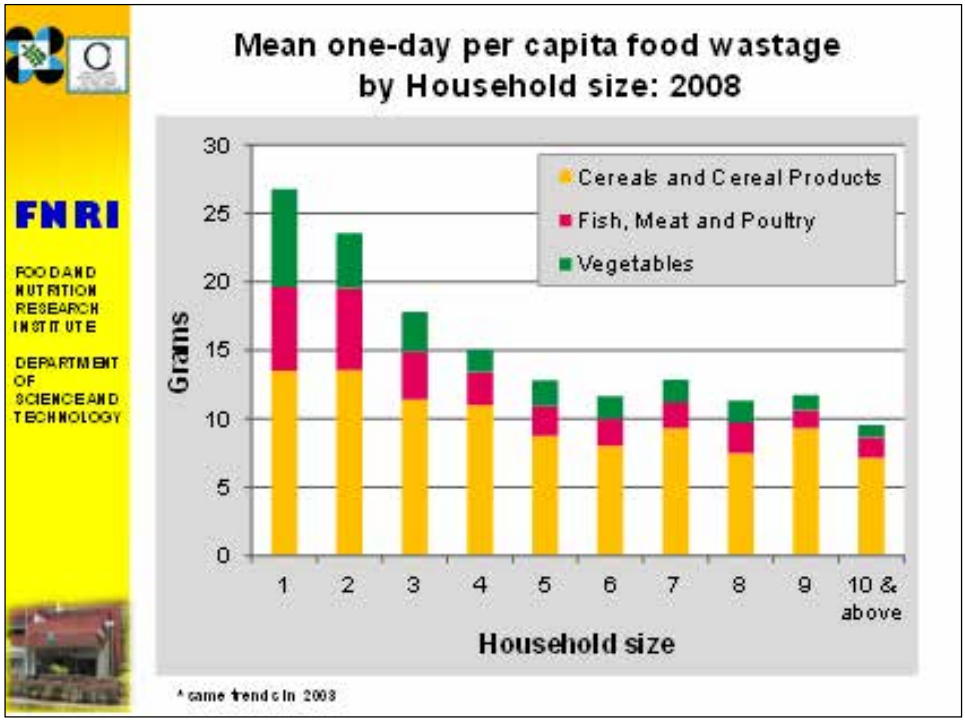
SLIDE 34



Transcription

A cross tabulation of food wastage in 2008 by household size was done. Results show that household size of 1-3 has higher food wastage compared with household size of 10 and above.

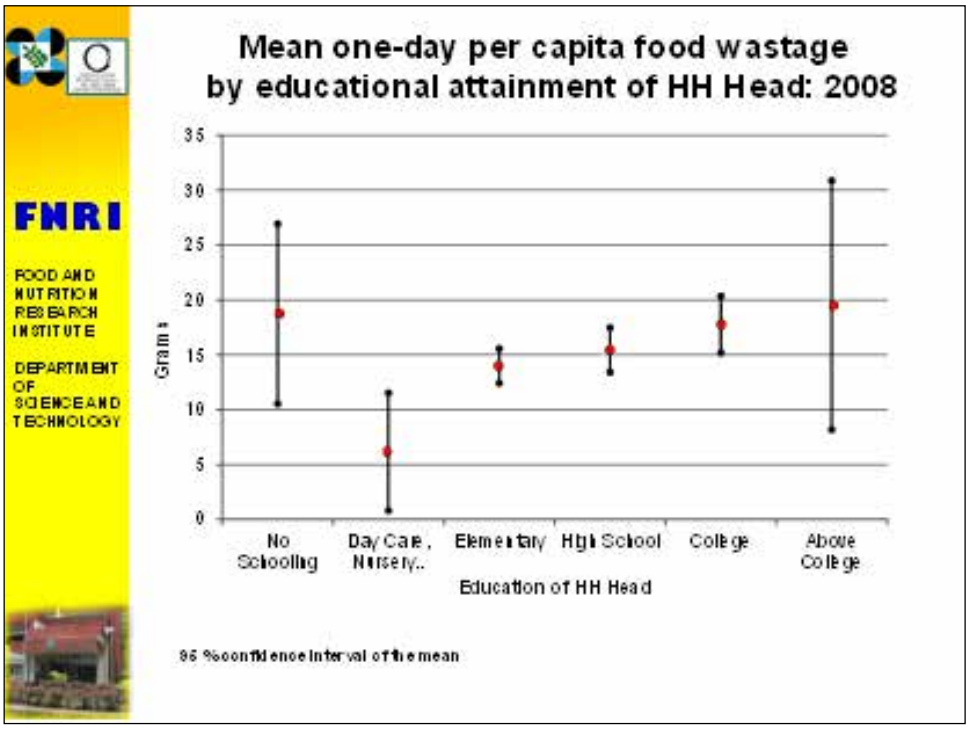
SLIDE 35



Transcription

Majority of food wastage was on cereal and cereal products.

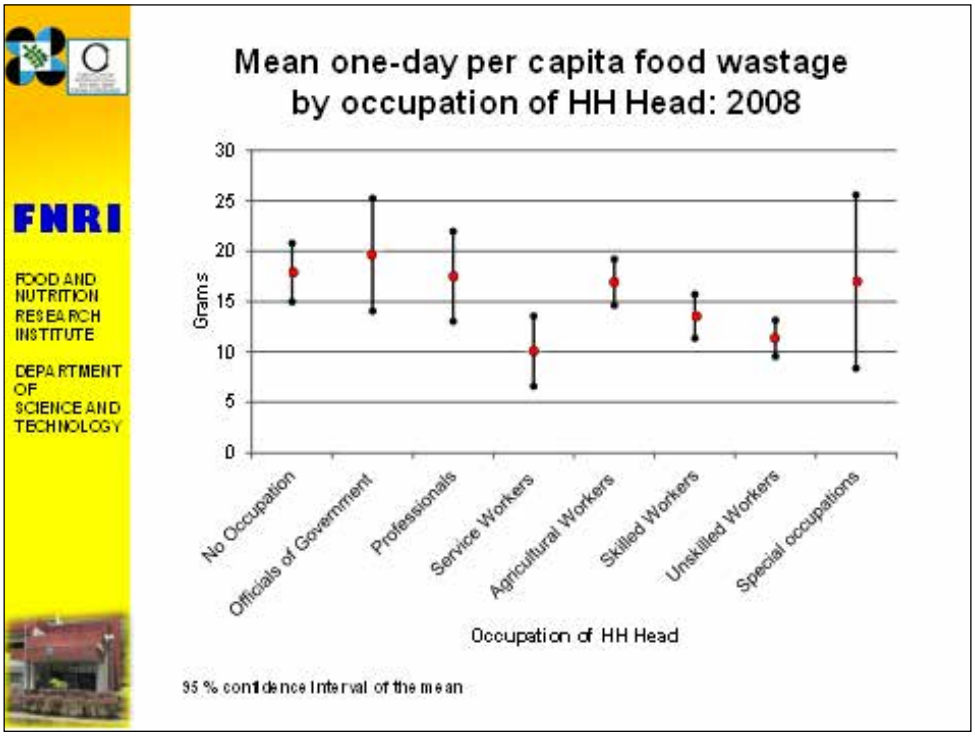
SLIDE 36



Transcription

In 2008, household heads who are at least college graduate had the highest food wastage followed by those who had no formal schooling.

SLIDE 37



SLIDE 38

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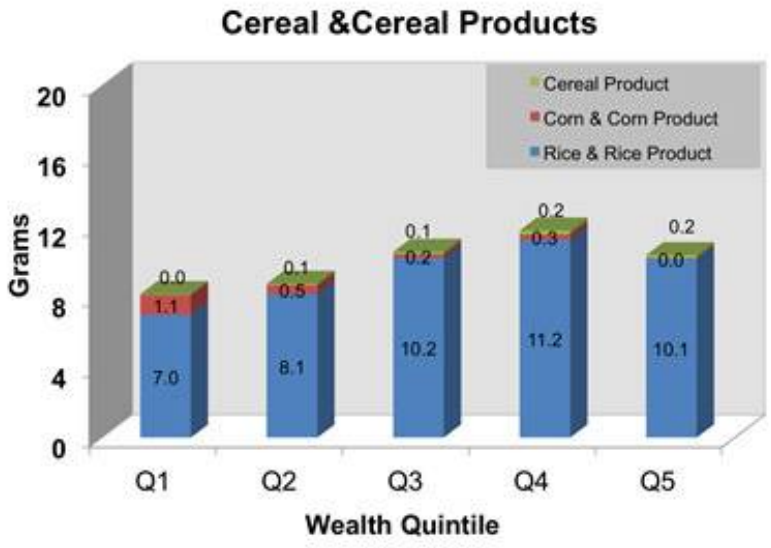
Mean one-day per capita food wastage by wealth quintile: 2008



SLIDE 39

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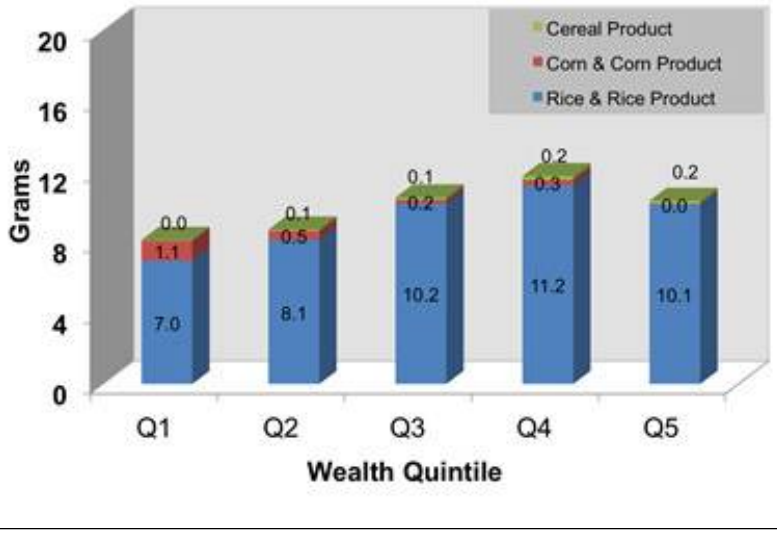
Mean one-day per capita food wastage by wealth quintile: 2008



SLIDE 40

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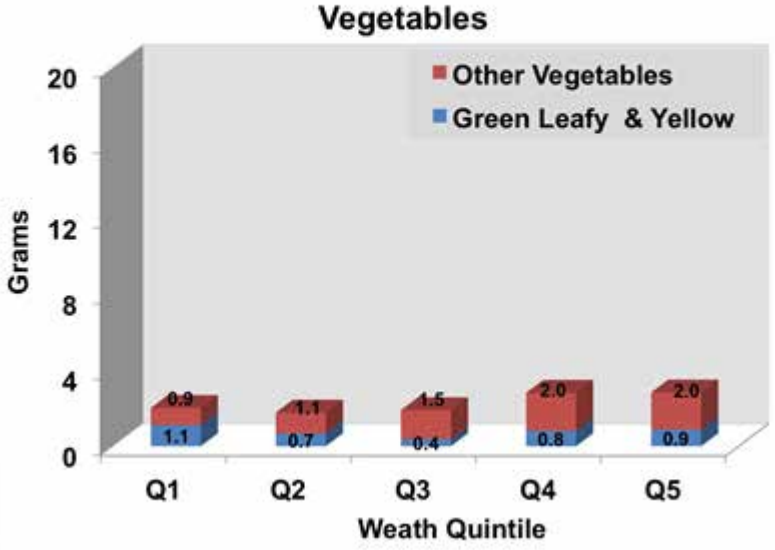
Mean one-day per capita food wastage by wealth quintile: 2008



SLIDE 41

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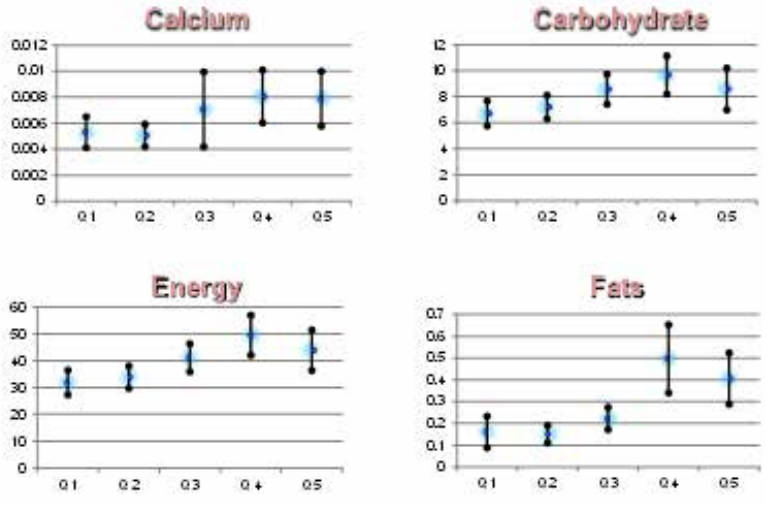
Nutrient Loss On Food Wastage by Wealth Quintile: 2008



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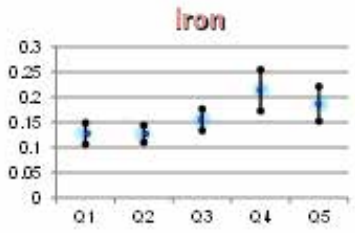
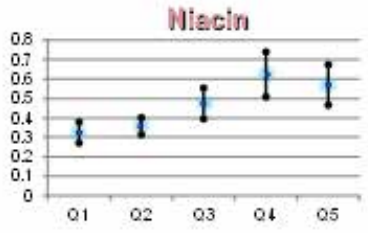
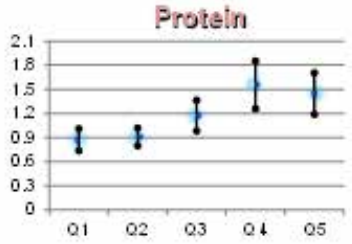
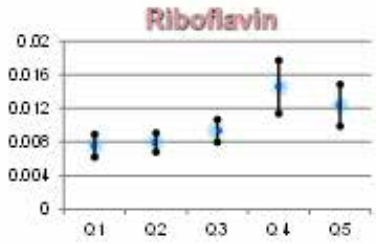
Nutrient Loss On Food Wastage by Wealth Quintile: 2008









SLIDE 43

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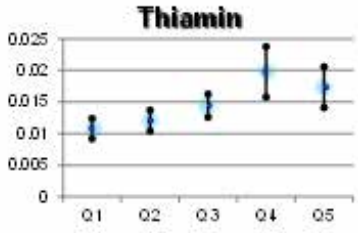
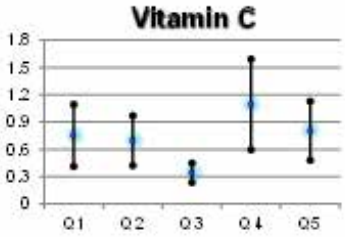
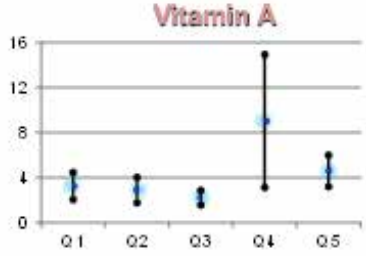
Nutrient Loss On Food Wastage by Wealth Quintile: 2008







SLIDE 44

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SUMMARY

- The Food Consumption Survey revealed that the average Filipino diet remained basically rice (41.9%), vegetable (12.8%) and fish (12.8%) in 2008. Similar combination was noted in 2003;
- The per capita food intake of Filipino decreased from 886 g/cap/day (2003) to 861 g/cap/day (2008);
- Total household food wastage decreased from 2003 (26 g/cap/day) to 2008 (15g/cap/day)

SLIDE 45

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SUMMARY

- Mean on day per capita food wastage from cereal and cereal products decreased significantly from 1993 (17g/cap/day) to 2008 (10g/per cap/day). Rice and rice products, being the highest proportion of food wastage, decreased from 16g/cap/day (1993) to 9g/cap/day (2008).
- Rural areas (11.7g/cap/day) has significantly higher cereal and cereal products wastage compared with urban areas (8g/cap/day) in 2008, specifically rice and products for rural (10g/cap/day) versus urban (7.7g/cap/day)

SLIDE 46

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SUMMARY

- In general, there was significant decreased in mean-one-day per capita food wastage (cereal and products; fish, meat and poultry and products; and vegetables) by region from 2003 to 2008;
- High mean-one-day per capita food wastage in 2008 for cereal and products was noted in Region 1 (17g), CAR (15g), Region 2 (14g), Regions 5 and 10 (13g);
- Factors affecting Household food wastage in 2008 were household size (least no. of household members, the more food wastage) and socio-economic status (the rich has higher mean per capita food wastage than poor)

SLIDE 47

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FOOD AND NUTRITION RESEARCH INSTITUTE

DEPARTMENT OF SCIENCE AND TECHNOLOGY

SUMMARY

- Higher nutrient losses were noted among households with higher socio economic status (SES) compared with households with low socio economic status

5 EXISTING STRATEGIES TO REDUCE RICE WASTAGE: THE NYR ADVOCACY

Hazel V. Antonio [5]

SLIDE 1

Transcription

The topic is in context with the National Year of Rice advocacy campaign. Data showed that in 2010 every Filipino wasted about 9 grams of uncooked rice daily and that is equivalent to 2-3 tablespoon cooked rice. Consequently, the rice wastage in 2010 was 13 percent of the total rice imports amounting to about PhP 6.2 billion. This indicates that achieving rice self-sufficiency is not only a farmers' concern but the consumers as well. Every Filipino should play an important role in order to achieve rice self-sufficiency. Thus, President Aquino declared 2013 as National Year of Rice under Proclamation 494 (dated October 2012) which calls on every Filipino to take part in the rice self-sufficiency program.

SLIDE 2

Transcription

The NYR logo symbolizes four things: (1) rice plants represent rice self-sufficiency; (2) colors represent the Philippine flag; (3) 3 personages represent the producers, policy-makers, and consumers; and (4) the letters NYR represent the National Year of Rice advocacy campaign.

[5]Director, National Year of Rice Program, Philippine Rice Research Institute, Maligaya, Science City of Munoz, Nueva Ecija

In essence, the NYR program believes that Philippines can be rice self-sufficient if the producers, policy-makers, and consumers will help in achieving this goal by heeding the advocacies being promoted by the National Year of Rice.

SLIDE 3-5

Transcription

NYR aimed to help achieve rice self-sufficiency not only through increasing farmers' productivity but also by managing the demand side of rice.

SLIDE 6 and 7

Transcription

NYR has a unifying message which is "Be RICEponsible". This can be achieved if every consumer does not waste rice.

SLIDE 8 and 9

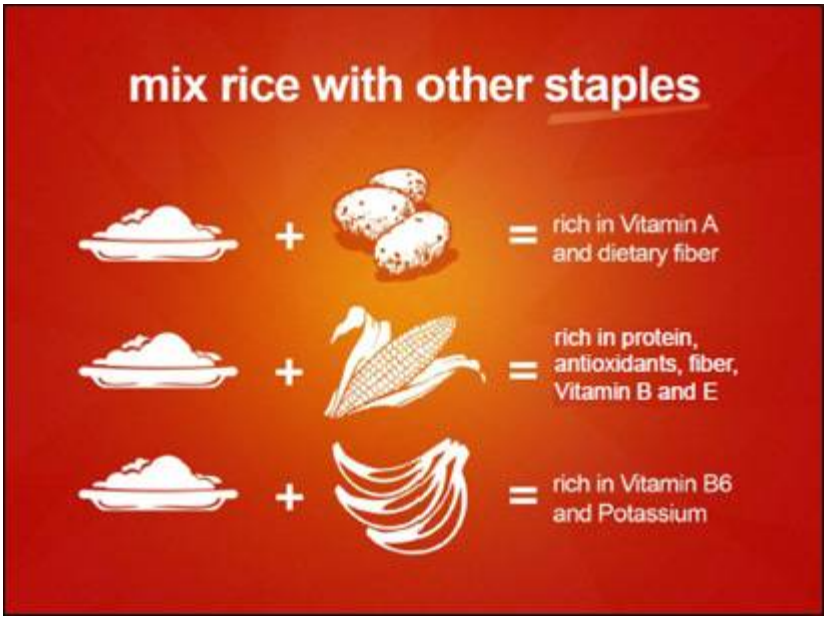
Transcription

Mixing rice with other staples will not only lessen the demand for rice but also can improve the consumers' health. On average, we are eating 4 ½ cup of rice a day while in fact we can eat 3 cups of rice and mix it with other staples like banana, corn, cassava and others.

SLIDE 10 and 11

Transcription

There are various rice-mixes that consumers can try that include rice-corn, rice-camote, or rice-adlai. Other staples have nutrient contents that are not present in rice.



SLIDE 12

Transcription

Acknowledge the rice farmers by literally saying thank you and by valuing the fruits of their labor so that boils down to not wasting each grain.

SLIDE 13

Transcription

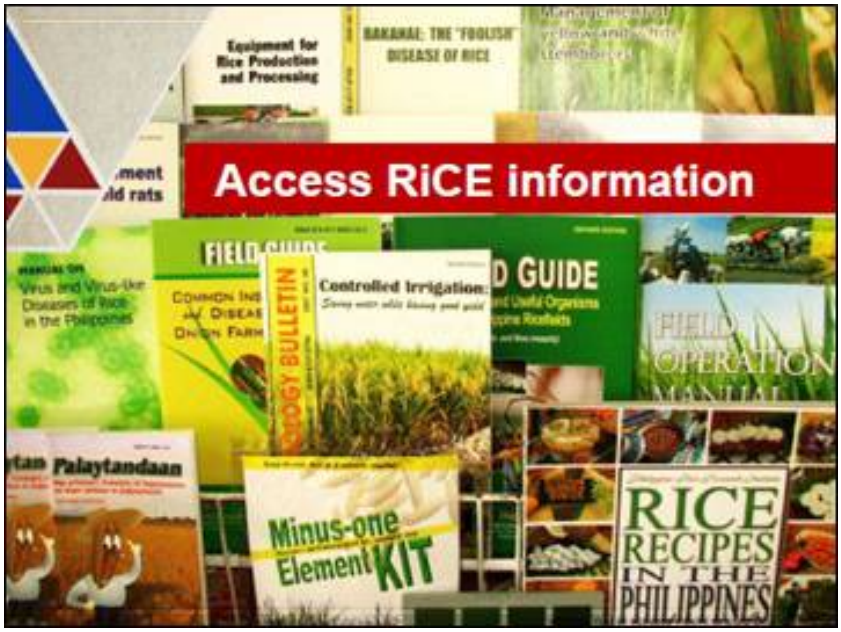
Second message is to encourage farmers to be more RiCEponsible. Farmers should be proud for feeding the whole nation. They are the key to achieving rice self-sufficiency.

SLIDE 14

Transcription

Use efficient technologies to increase their productivity and to reduce production-related wastage or losses.

SLIDE 15



Transcription

Access RiCE information - solutions to problems in crop management can be accessed from different rice publications such as technology bulletins, insect pest diagnostic kits, and *PalayCheck.*

SLIDE 16

Transcription

Pinoy RiCE knowledge bank can be accessed through www.pinoyrkb.com which contains materials such as videos, leaflets, manuals, and photo.

SLIDE 17

Transcription

For those who do not have an access to internet, offline version is also available and is planned to be updated quarterly. Techno-videos are also available such as *PalayCheck* and *Usapang magsasaka* to provide technical assistance and information.

SLIDE 18

Transcription

Registered farmers get to receive free technology tips regularly. This aims to help farmers manage their farms effectively.

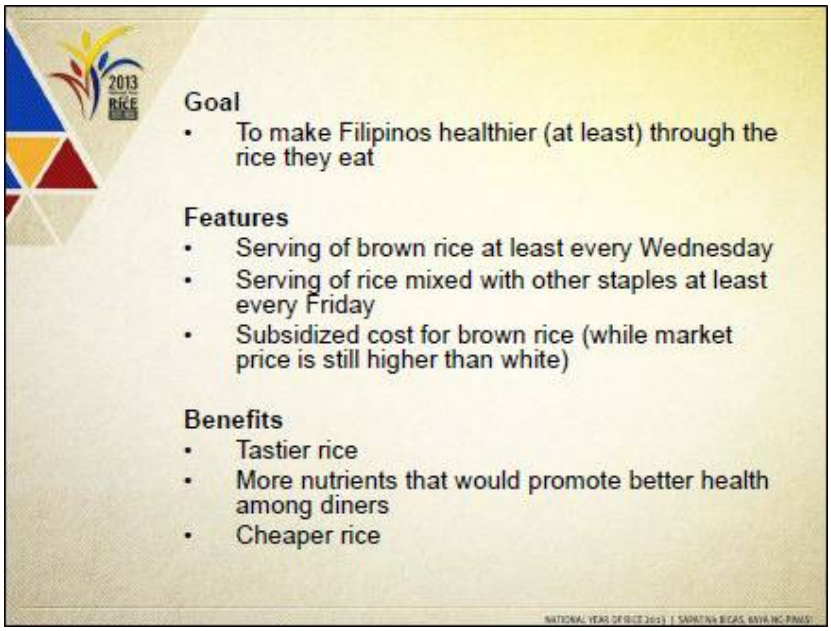
SLIDE 19 and 20

Transcription

The goal of the policy bill is primarily to reduce rice wastage. Consumers are given the option of half cup but are not strictly prohibited to consume half cup of rice only.

SLIDE 21

SLIDE 22

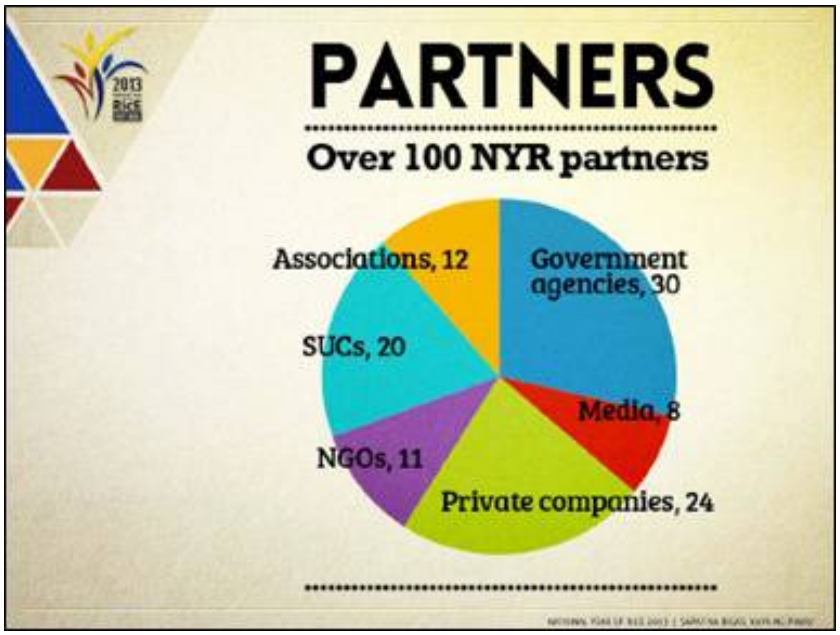


SLIDE 23

Transcription

There should be a strict implementation when it comes to unlimited rice or eat-all-you-can promos. People with left-over food on their plates should really be sanctioned.

SLIDE 24 and 25

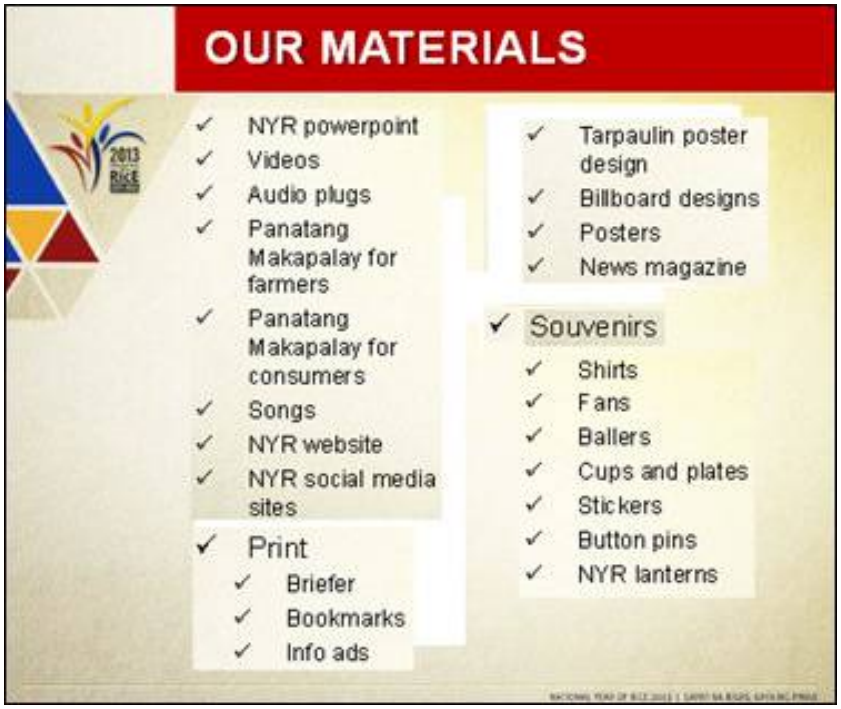


Transcription

Create partnerships with different agencies to help promote NYR advocacy campaign. Displaying NYR tarpaulin in the institutions indicates strong support to the government program.

One of the tools used is the Presidential Proclamation 494 declaring 2013 as the National Year of Rice.

SLIDE 26



SLIDE 27-29

Transcription

DepEd issued a memo to recite the Panatang Makapalay in all schools and all government offices.

SLIDE 30 and 36

- Presentation of the NYR campaign in national workshops/conferences and inclusion of NYR ads and panata in the souvenir programs
- NYR messages in Billboards (around 50 c/o QC circle; FREE)
- LED billboard (c/o AFP; FREE)

DISPLAY OF NYR MESSAGES AND PLAYING OF THE NYR VIDEO IN AIRPORTS (FREE)

PERMANENT EXHIBIT AT THE MIND MUSEUM (FREE)

- Exhibits (FREE or at a minimal cost)
- Playing of NYR messages in buses (c/o Baliwag Transit; FREE)
- Playing of video on wastage during the PBA semi-finals and grand finals (FREE)

- Promotion through TV and radio interviews
- Playing of NYR radio plugs in some radio stations (e.g. DZAS, DZMM, DZBB; FREE)
- Playing of NYR video ads in TV
  - ABS-CBN's Why Not (every Saturday c/o NNC) (FREE)
  - GMA 7 and GNTV (FREE)
  - ABS-CBN regional network from March-May (Reg XIII)

- Promotion of non-wastage of rice in church masses
- Mass texting of NYR messages c/o Sun cellular
- Promotion of NYR messages during different events:
  - Rice Festival in Eastwood (c/o Megaworld)
  - End Hunger Concert (c/o NNC)
  - Hunger Summit (c/o NNC)

- Promotion of NYR messages in hospitals and clinics (c/o Phil, Hospital Assoc, Nueva Ecija Medical Society, Rotarian Group of Doctors)
- Promotion of NYR advocacies in different municipalities, cities, provinces (c/o DILG)
- Encouraging LGU officials to pass the half-cup ordinance (c/o DILG and VMLP)

SLIDE 37 and 39

INITIAL EFFECT

AWARENESS OF THE PUBLIC ON THEIR ROLE IN RICE SELF-SUFFICIENCY

- One very good way is by avoiding wastage

RICEponsibility

	Responses	
	n	Percent
magsaing ng sapat lamang	55	81%
sisiguraduhing tama ang pagkakaluto ng kanin	44	65%
kukuha ng kaya lamang ubusin upan wlang matirang kanin sa pinggan	57	84%
subukang kainin ang brown rice	44	65%
subukan ang rice mixes	21	31%
ituro sa iba ang responsableng pagkonsumo ng kanin	44	65%
magpasalamat sa isang magsasaka para sa pagod niya sa pagtanim	39	57%

SLIDE 40

Transcription

After the NYR program, campaign on Be RiCEponsible will be continued. This will be in partnership with other agencies, schools, and private and public stakeholders.

SLIDE 41

Transcription

Rice self-sufficiency can be achieved through increased level of productivity, strong support from policy-makers, and own initiative of consumers on being a RICEponsible person.

6 POST-HARVEST LOSSES AND STRATEGIES FOR THEIR REDUCTION

Rex L. Bingabing, PhD[6] presented by Renita SM. Dela Cruz, PhD[7]

CONCEPTS

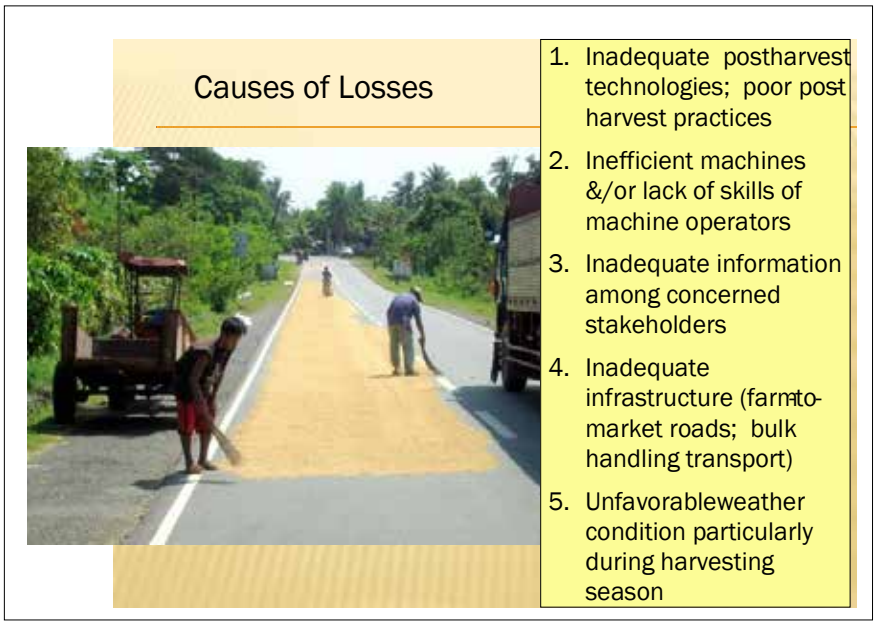
The following concepts are presented to situate PHilMech's activities in relation to reducing PH losses particularly in rice.

1. Post-harvest loss - decrease in the amount of food available for people as food moves from farmer to the market (where PHilMech is heavily involved; on-farm operations).

2. Food waste - refers to food that is perfectly suited for consumption, but is discarded by consumers (PhilRice and other agency is heavily involved; off-farm operations).

*The context is limited to post-harvest losses in the on-farm operations of rice.

SLIDE 1



[6]Director IV, Philippine Center for Postharvest Development & Mechanization CLSU Cpd., Science City of Muñoz, Nueva Ecija, Philippines.
[7]Chief, Socio-Economic and Policy Research Division, Philippine Center for Postharvest Development & Mechanization CLSU Cpd., Science City of Muñoz, Nueva Ecija, Philippines.

SLIDE 2

Losses in Durables

Commodity Player/ Operations	Qty. Loss (% of dry weight)	
	Paddy	Maize
1. Farmers		
• harvesting/ piling	2.11	1.05
• threshing	2.18	0.52
• drying	5.87	4.54
• hauling/ marketing	trace	0.56
2. Traders/Millers		
• storage	0.62	0.51
• milling	5.52	na
Total	16.29	7.18

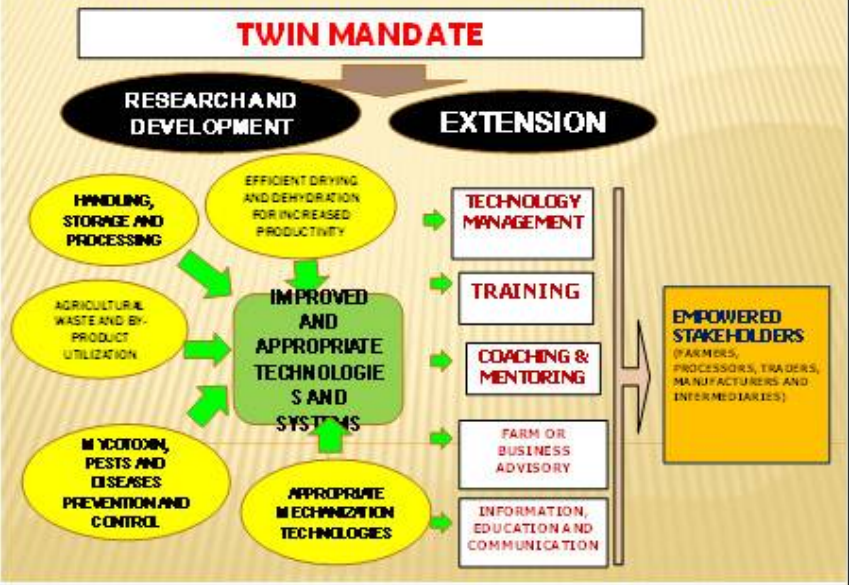
SLIDE 3

Loss reduction strategies are anchored on PHilMech functional areas specifically for rice

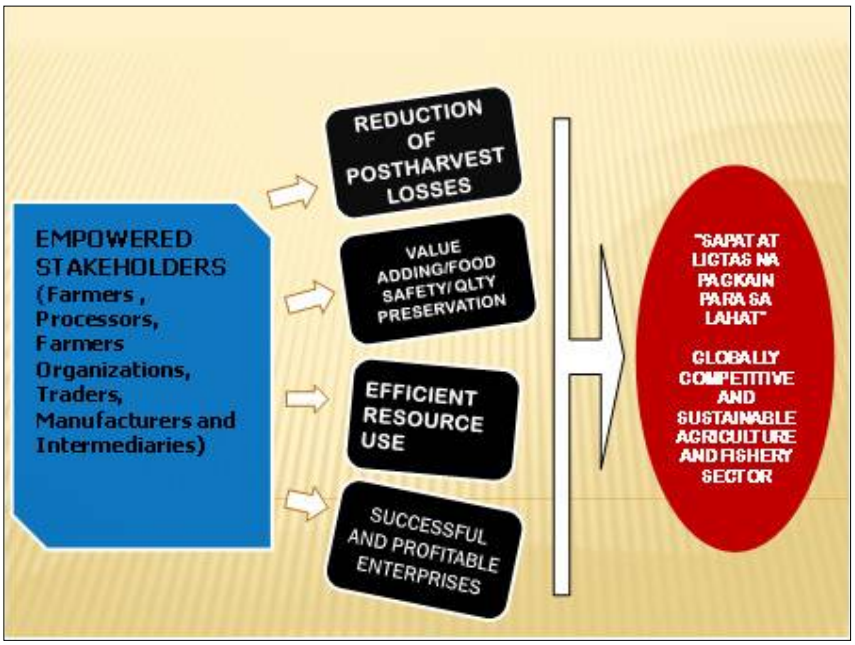
1. Research and Development
   - Drying, dehydration & appropriate mechanization technologies
   - Handling, storage and processing
   - Food Protection-Mycotoxin, pests and diseases
   - Agri-waste and by-product utilization
   - Socioeconomics and policy research
2. Extension Support, Education & Training Services (ESETS)
   - Training, extension and entrepreneurship
3. Postharvest & Mechanization Services

SLIDE 4

DEVELOPMENT FRAMEWORK OF PHILMECH



SLIDE 5

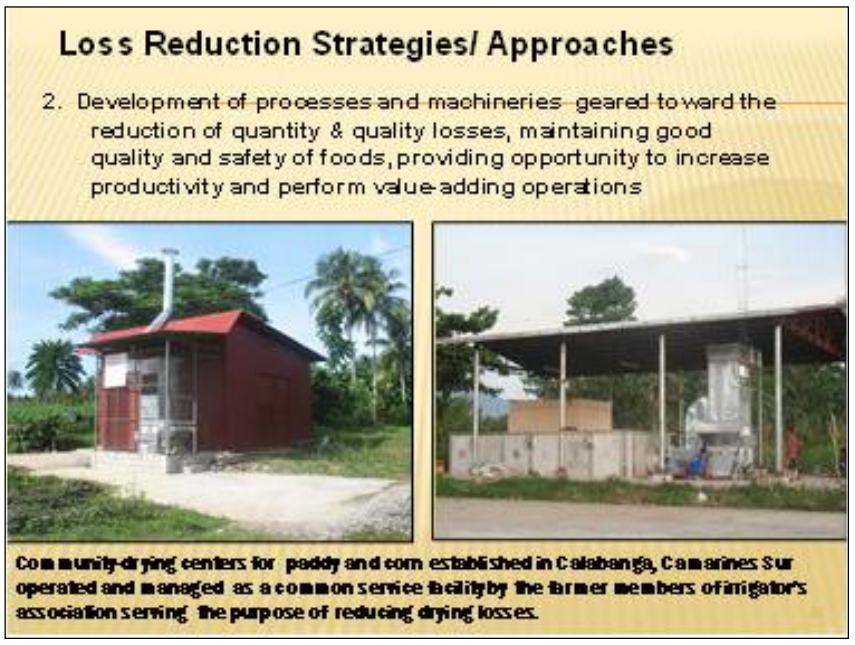


SLIDE 6

Transcription

The interventions on drying, milling, and harvesting were out of the results of the paddy loss assessments conducted in three periods.

SLIDE 7



Transcription

Community drying centers for paddy and corn were established in Calabanga, Camarines Sur. These custom drying facilities are managed and operated by an irrigators' association.

SLIDE 8

Transcription

Tramline is another postharvest facility developed by PhilMech that was originally intended for perishable commodities. This is a hauling facility that transports agricultural commodities in hard-to-reach areas (e.g., mountainous rugged production areas separated by ravines or wide streams of water). It reduces drudgery in hauling and increases productivity through proper use of input requirements.

SLIDE 9

SLIDE 10

Loss Reduction Strategies/Approaches

3. Education campaign among stakeholders through television, print, radio and electronic media (messages: how to reduce PH losses; success stories)

4. Introduction or enhancement of entrepreneurial skills of farmers engaged in custom service provision of loss-reducing technologies(e.g., dryers)

SLIDE 11

Loss Reduction Strategies/Approaches

5. Preparation and/or updating GIS-based decision support systems for postharvest development and mechanization

6. Policy formulation and advocacy at the national and local levels (e.g., develop protocols and guidelines on the provision of postharvest and mechanization facilities)

SLIDE 12

Case: Banning Highway Drying (HD) in the early 1990s used multi-disciplinary, multi-stakeholder approach

SLIDE 13

Case: Banning Highway Drying (HD) in the early 1990s used multi-disciplinary, multi-stakeholder approach

1. R&D : Establish degree of loss in highway drying; identified appropriate dryers for farmers or farmers' organizations

SLIDE 14

Case: Banning Highway Drying in the early 1990s used multi-disciplinary, multi-stakeholder approach

2. Extension activities:

- consultative meetings (LGU & highway patrol officials)
- regular information dissemination through tri-media, public hearings (attended by concerned sectors: farmers, traders, millers, local government units, traffic enforces);
- billboards - installed along highway lane sides with messages warning or reminding those practicing highway drying (HD) of the ordinance prohibiting the practice
- information on alternatives to Highway Drying

SLIDE 15

Case: Banning Highway Drying in the early 1990s used multi-disciplinary, multi-stakeholder approach

3. Policy advocacy through the DA policy makers
   - Implemented a program on alternatives to highway drying like the establishment of multi-purpose drying pavements or mechanical dryers using biomass fuels

Transcription

Multi-purpose drying pavements and flat-bed dryers were identified as better alternatives than drying on highways.

SLIDE 16

Case: Banning Highway Drying in the early 1990s used multi-disciplinary, multi-stakeholder approach

4. Close coordination with policy implementers through the local government units
   - enlisted the support of local government units in the implementation of existing law on highway obstruction
   - ban HD under the LGU's respective jurisdictions

SLIDE 17

EMERGING PH TECHNOLOGIES FOR RICE (REDUCTION OF QUANTITY AND QUALITY LOSSES)

1. Combine harvester for small-scale rice farmers (facilitate harvesting thereby reducing the risk of quality deterioration especially during the wet season)
2. Just-on-time rice hulling technology
3. Parboiling technology-there are provinces that are wet to very wet climate sometimes the palay is soaked with the parboiling technology we can rescue and this is already practiced in Agusan.
4. Fluidized-bed dryer-a two stage drying

SLIDE 18

ENCOURAGE THE USE OF COMBINE RICE HARVESTER

Why?

- Significant reduction in loss for reaping/piling and threshing operation (2 – 2.5%)
- In areas where laborers are insufficient: Reduction in required person-days per hectare (4 person-days/ha as compared to 28 person-days/ha for trditional reaping/piling and threshing)

SLIDE 19

ENCOURAGE THE USE OF COMBINE RICE HARVESTER

Why?

- Reduces the risks of exposing paddy to quantity and quality losses during wet harvesting season

How?

- Conduct techno-demo and lectures to show advantages of using combine harvester

SLIDE 20

ENCOURAGE THE USE OF MODERN MULTI-PASS RICE MILL

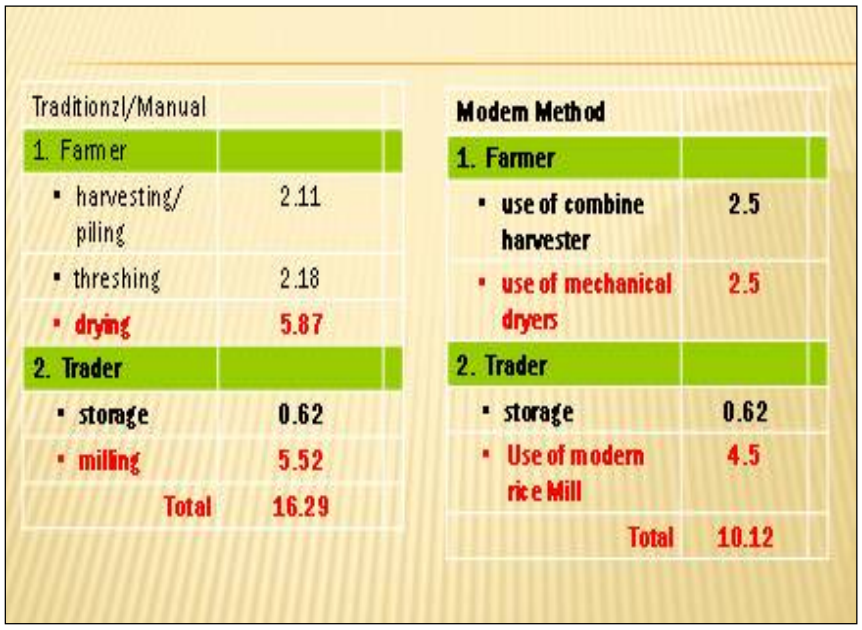
- Under the Rice Mechanization Program, DA will establish Modern Rice Mills (RPC1,2 &3) all over the country
- RPC's must meet at least 65% milling recovery

SLIDE 21

ENCOURAGE THE USE OF MODERN MULTI-PASS RICE MILL

- 65% milling recovery compared to
- less than 60% for single pass

SLIDE 22



Traditionzl/Manual	
1. Farmer	
▪ harvesting/ piling	2.11
▪ threshing	2.18
▪ drying	5.87
2. Trader	
▪ storage	0.62
▪ milling	5.52
Total	16.29

Modern Method	
1. Farmer	
▪ use of combine harvester	2.5
▪ use of mechanical dryers	2.5
2. Trader	
▪ storage	0.62
▪ Use of modern rice Mill	4.5
Total	10.12

Transcription

Results show that postharvest losses significantly reduced from 19.29 (traditional method) to 10.12 (modern method). As of September 2011, through government's rice program, PhilMech has distributed multi-purpose drying pavements of about 46,225 units all over the country, 3,506 units (mechanical dryers flat bed and recirculating type), 245 combine-harvesters, 100 units of rice mill multi-pass.

SLIDE 23

7 FACTORS AFFECTING FARMERS' SEED USE*

Ronell B. Malasa [8] and Cheryl C. Launio [9]

INTRODUCTION

Most demand for rice (89%) is used for food (PhilRice 2011). The rest, 11%, are allocated for seeds (2%), processed rice products (3%), and as feeds and wastage (6%). The demand to have more food triggered the development of modern varieties (MV) in the 1960s which increased cereal grain production (Sombilla et al., 2002). The Supply and Utilization Accounts (SUA) estimate by the Bureau of Agricultural Statistics (BAS), shows that in the total rice demand the contribution of rice to be used as seeds is very small. However, this paper argues that its incremental benefit in monetary and absolute terms cannot be disregarded.

The advent of MV lead to the growth of the rice seed industry thereby establishing a new seed classification system through the process of certification (PhilRice 1996; Masajo et al. 2004). Rice seeds are now classified as: 1) breeders' seeds (BS), 2) foundation seeds (FS), 3) registered seeds (RS), 4) certified seeds (CS), 5) good seeds, and 6) farmers' seeds (PhilRice 2002). The BS, FS, RS, and CS are referred high quality seeds (PhilRice 2010). High quality seeds undergo rigid inspection under the National Seed Industry Council (NSIC) (refer to Figure 1 for more details) (Norton and Francisco 2006). On the other hand, farmers' or good seeds are usually acquired through exchange with co-farmers or obtained from the preceding standing crops (also known as home grown seeds). These seeds are considered to have inferior quality thus, considered as *low quality seeds.*

In line with promoting the use of high quality seeds, The Philippine Rice Research Institute (PhilRice) is advocating to reduce the seeding rates from 120-160 kg ha-1 to 40 kg ha-1 and even as low as 20 kg ha-1 (PhilRice 2000; PhilRice 2002). PhilRice researchers contend that high quality seeds have high seedling vigor and germination rate (85%). Even with 50% germination, the optimum plant population can still be attained which will not reduce the yield levels. Using lower seeding rate will also lessen the cost for seeds.

This paper aimed to identify the factors that could influence the seeding rate and adoption of high quality seeds. The paper showed the seeding rate trend base on the PhilRice-BAS survey. Lastly, it provided evidence on the potential benefits if farmers planting inbred rice used lower seeding rates.

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* This is a revised version of the paper presented in the Seminar

[8]Science Research Specialist II, Socioeconomics Division, Philippine Rice Research Institute (PhilRice)
[9]Supervising Science Research Specialist, Socioeconomics Division, Philippine Rice Research Institute (PhilRice)

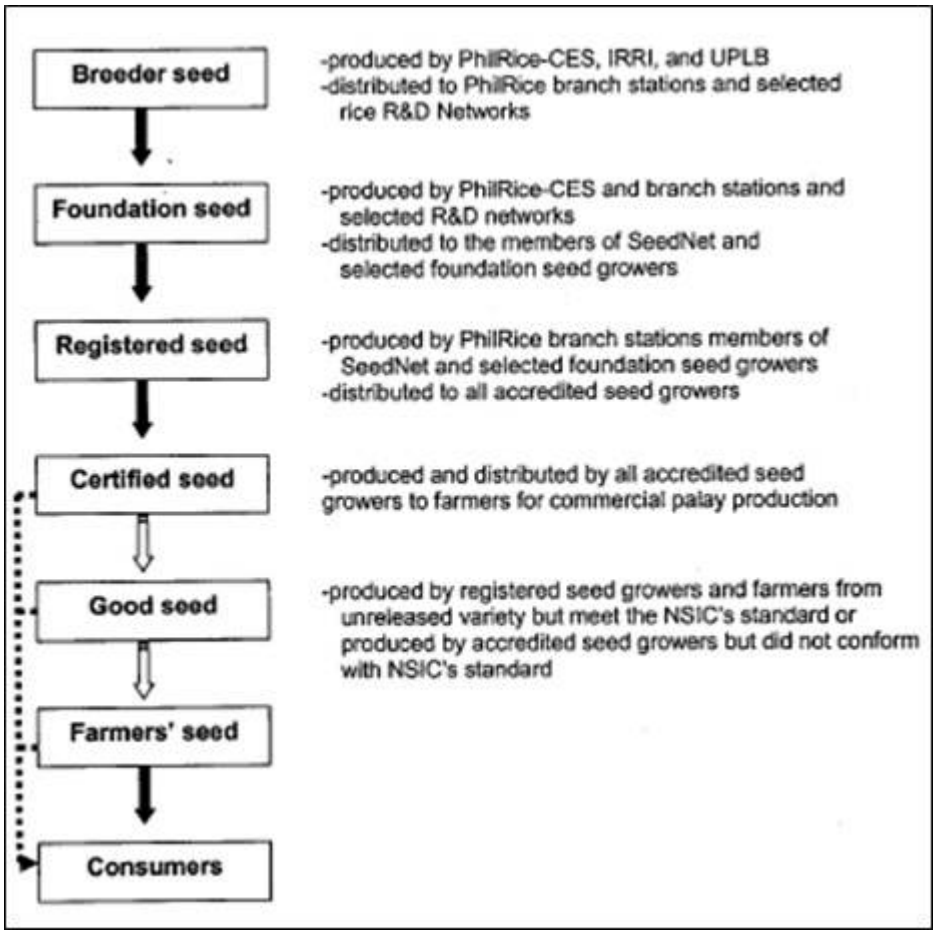

Figure 1.Flow of seeds and seed source (Source: Norton, GW and Francisco SR. 2006. "Seed System, Biotechnology, and Nutrition" In Securing Rice, Reducing Poverty, AM Balisacan and LS Sebastian (eds.). Science City of Munoz: Philippine Rice Research Institute.

DATA SOURCE AND METHODOLOGY

Most of the data used in the study came from the compiled statistical series of BAS-PhilRice and the Rice-based Farm Household Survey (RBFHS) from 1996 wet season (WS) harvest to 2007 dry season (DS) harvest.[10] The RBFHS is a quinquennial survey conducted in 33 provinces by the Socioeconomics Division of PhilRice in collaboration with BAS. To determine the factors influencing the seeding rate of farmers and adoption of high quality seeds, the data used came from the 2006-2007 RBFHS survey round. A multiple linear and binomial logistic regression models were used to identify the factors affecting the seeding rates and adoption of high quality seeds, respectively.

[10] RBFHS defines DS harvest as rice harvested from January to June and WS harvest as rice harvested from July to December.

Table 1. RBFHS list of provinces.

Provinces			
1	Ilocos Norte	18	Leyte
2	Pangasinan	19	Northern Samar
3	Cagayan	20	Zamboanga del Norte
4	Isabela	21	Zamboanga del Sur
5	Bulacan	22	Zamboanga Sibugay
6	Nueva Ecija	23	Bukidnon
7	Pampanga	24	Davao del Norte
8	Tarlac	25	Davao del Sur
9	Aurora	26	Davao Oriental
10	Laguna	27	Compostela Valley
11	Mindoro Occidental	28	South Cotabato
12	Mindoro Oriental	29	North Cotabato
13	Quezon	30	Sultan Kudarat
14	Albay	31	Maguindanao
15	Camarines Sur	32	Agusan del Norte
16	Iloilo	33	Agusan del Sur
17	Bohol		

STATUS OF SEED USE

Table 2 shows the seeding rate base on the BAS survey and SUA parameter . It reveals that the seeding rates of farmers from 1998 to 2011 decreased by 38 kg/ha. The seeding rates on the BAS survey are constantly higher compared with the seed-use in the SUA parameter. This implies underestimating the volume of seeds used for production. One implication would be undervaluing the total demand for rice or overestimating the available supply of rice dispensed as food (PhilRice 2012). This paper however, will focus on this dilemma but emphasize more on the potential of the "wasted" rice used for seeds as additional source of food.

Table 2. Comparison of SUA and BAS-survey seed use, 1998-2011.

Year	Seeding rate *(kg/ha)*		Difference *(kg/ha)*
	Survey	SUA Parameter	Survey - SUA (b - c)
a	b	c	d
1998	121.27	75.00	46.27
1999	110.24	75.00	35.24
2000	110.09	75.00	35.09
2001	108.65	75.00	33.65
2002	107.74	75.00	32.74
2003	104.03	75.00	29.03
2004	107.07	75.00	32.07
2005	106.76	75.00	31.76
2006	79.08	75.00	4.08
2007	83.04	75.00	8.04
2008	83.85	75.00	8.85
2009	76.55	75.00	1.55
2010	81.39	75.00	6.39
2011	83.37	75.00	8.37

[11] SUA parameter of BAS for seeds is constant at 75 kg ha-1 (PhilRice 2012).

A quinquennial survey, referred as RBFHS, conducted by PhilRice-BAS in 33 provinces from 1996 to 2007 also revealed a declining trend in the seeding rate (Figure 2). Within 10 years since the farmers were monitored, there was a 20 kg ha-1decline in the seeds they use regardless of cropping season. The RBFHS results is consistent with the BAS survey in showing empirical evidence that farmers' seeding rate higher is compared with the SUA parameter on rice used as seeds.

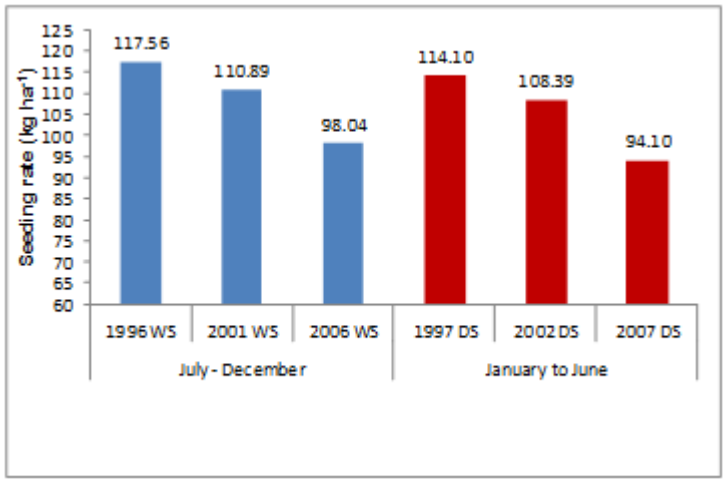

Figure 2. Seeding Rate by season, 1996-2007.

Regardless, even if seeding rate only compose 2% of the SUA, the assumptions below shows the impact of lowering the seeding rate for inbred rice alone. Table 3 shows a decreasing trend in the area allotted for low quality seeds although it still compose more than more than half of the farms. Table 4 displays the different scenarios (with its corresponding benefits) where areas allocated for low quality inbred rice are planted with high quality inbred rice seeds. The increase in the areas planted with high quality inbred rice seeds were simulated at 25%, 35%, and 50% based on current area harvested together with employing lower seeding rates.[12] The additional rice supply base on seeds saved could feed at least 100,000 to 350,000 people. Moreover, the government could save at least a quarter of a million pesos to more than nine hundred million pesos.

Table 3. Distribution of farms (%) by type of seeds used, 2008-2011.

Year	Type of Seeds Used (%)			
	Hybrid	High Quality (Inbred)	Low Quality	Traditional
2008	4.47	26.75	66.11	2.66
2009	3.36	32.20	61.19	3.25
2010	3.88	35.80	57.97	2.35
2011	3.22	38.01	55.92	2.84

Source : PhilRice-BAS, 2012

[12] The additional rice supply based on potential yield increases was not considered in this analysis.

Table 4. Benefits of decreasing seeding rate.

Items	Low quality inbred production area		
40kg/ha seeding rate			
% of area shifting to high quality seeds	25%	35%	50%
seed saved (kg)	31,953,488	44,734,883	63,906,975
milled rice (kg)	20,769,767	29,077,674	41,539,534
no. of consumers	179,050	250,670	358,099
savings in import (PhP)	464,079,671	649,711,539	928,159,342
60kg/ha seeding rate			
seed saved (kg)	17,751,938	24,852,713	35,503,875
milled rice (kg)	11,538,759	16,154,263	23,077,519
no. of consumers	99,472	139,261	198,944
savings in import (PhP)	257,822,039	360,950,855	515,644,079

Assumptions:

Effective area =	*4,530,000*	*ha*
Area allocated for hybrid rice (5%) =	*226,500*	*ha*
Area allocated for inbred rice (95%) =	*4,303,500*	*ha*
Area allocated for low quality inbred (55%) =	*2,366,925*	*ha*
Seeding rate	*94*	*kg/ha*
Milling recovery =	*65*	*%*
per capita consumption =	*116*	*kg*
Import price per ton (based on FAO)	$532	
Exchange rate	*PhP 42*	

**Derived data base on 2011 BAS data*

FACTORS INFLUENCING SEED USE

Seeding rate

A multiple linear regression model using the software package Statistical Product and Service Solutions (SPSS) was used to determine the factors affecting the farmers' seeding rate. The value of the R2 of the model is 0.343 which means that the model accounts for 34% in explaining the variation in seeding rate (Table 5). Except for the sex of the respondents, all the factors used in the model were significant in determining the seeding rate of farmers.

Table 5. Factors that determine seeding rate.

Factors	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
(Constant)	149.46	3.20	
season***	4.46	1.38	0.05
ecosystem***	4.92	1.54	0.05
sex	-1.21	2.21	-0.01
farming experience***	-0.15	0.05	-0.04
membership in organization***	-6.41	1.42	-0.07
attendance in training***	-4.68	1.46	-0.05
land ownership*	2.34	1.40	0.02
area***	-3.19	0.82	-0.06
per capita income***	5.403E-05	0.00	0.04
price of seed***	-.75	0.06	-0.22
seed class used***	-14.98	1.72	-0.15
crop establishment***	-44.59	1.54	-0.43

***significant @ 0.01

**significant @ 0.05

*significant @ 0.10

Environmental factors. The data shows that season affects farmers' seeding rate. The sign of the coefficient show that farmers use more seeds in the WS than in the DS. Figure 2 supports this since the trend in the WS in all the RBFHS survey round shows that it is constantly higher relative to the DS.

The village ecosystem is also a determinant of seeding rate. Farmers in the irrigated ecosystem have a higher seeding rate than farmers in non-irrigated ecosystem.

Human and social capital. As farmers gain more experience in rice farming they tend to reduce their seeding rate. Membership in rice-based organizations and attendance/participation in trainings on rice production also made farmers use less seeds.

Economic factors. Farmers who own land apply more seeds per hectare than farmers who do not have their own land to till. The model also shows that as farmers increase the area that they cultivate they tend to decrease the amount of seeds that they use. Furthermore, for every peso increase in the per capita income of a farmer they tend to apply more seeds. Lastly, the price of seeds have an inverse relationship with seeding rate.

Farm practices. Farmers who use high quality seeds tend to have a lower seeding rate. Those who also use the transplanting method use fewer seeds than those who employ direct seeding.

High quality seeds

The use of high quality seeds is one of the determinants to reduce the seeding rates. Thus, it is also important to determine what would influence farmers to adopt the innovation. The role of seeds in adoption of other production technologies is supported by the literature. According to Castillo (1975), modification of farmers' rice production practices were initiated by the adoption of MVs. The technology package for MVs is designed to take advantage of the full potential of the rice variety being planted. Thus, farmers started adopting the yield enhancing practices in rice production. Farmers in Mexico adopted the package of modern agricultural technologies in a stepwise manner such that farmers started using fertilizers and herbicides 3-5 years after the adoption of MVs (Byerlee and de Polanco 1986). In the Philippines, farmers planting hybrid rice modified their crop management practices, although it has not yet established if farmers fully adopted the recommended package of technology (Gonzales et al. 2007).

A binomial logistic regression model using the software package Statistical Product and Service Solutions (SPSS) was used to determine the factors affecting the adoption of high quality seeds. Without the factors used and only the constant in the model, it properly classifies 70% of the farmers whether they will use or not use high quality seeds. However, with the variables included in the overall accuracy of classification increased to 88%. The factors identified to influence adoption of high quality seeds are season, ecosystem, farming experience, attendance in training, per capita income, price difference, and crop establishment (Table 6).

Table 6. Factors affecting adoption of high quality seeds.

Factors	B	Exp(B)
season***	.35	1.42
ecosystem**	.25	1.28
sex	.16	1.17
farming experience*	-.01	.99
membership in organization	-.08	.92
attendance in training***	.58	1.79
land ownership	-.02	.98
area	.06	1.06
per capita income***	.00	1.00
price difference***	-.35	.71
crop establishment***	.61	1.84
(Constant)	1.95	7.02

***significant @ 0.01

**significant @ 0.05

*significant @ 0.10

Environmental factors. The data shows that season affects farmers' adoption of high quality seeds. More farmers tend to use high quality seeds in WS than in DS. It could be because there is assurance of water in the WS thus lessening the risk of damaged crop. The availability of water is also supported by the model as a factor in adoption of high quality seeds since the farmers located in irrigated ecosystem/villages have higher possibility of adopting the technology than those in non-irrigated ecosystems.

Human and social capital. The sign of the coefficient indicate an inverse relationship between farming experience and adoption of high quality seeds. This could be because farming experience is associated with age and young farmers are the ones more receptive to new technologies. Attendance/participation in training on rice production also influence farmers to adopt high quality seeds. This could be because they are more knowledgeable particularly in managing the technology.

Economic factors. The model also shows a positive relationship between per capita income and adoption of high quality seeds. This could be because the price of high quality seeds is higher than low quality seeds thus those who have financial capital were the ones who could initially adopt high quality seeds. This is supported by the price differential between high quality and low quality seeds. As the price between the seed types increase, there is a greater probability of non-adoption of high quality seeds.

Farm practices. Farmers who transplant their crops are more likely to adopt high quality seeds than low quality seeds. Although there might be association between crop establishment and use of high quality seeds, it could also be possible that farmers who use high quality seeds tend to practice transplanting. This could be because there is less risk in transplanted rice than in direct seeded.

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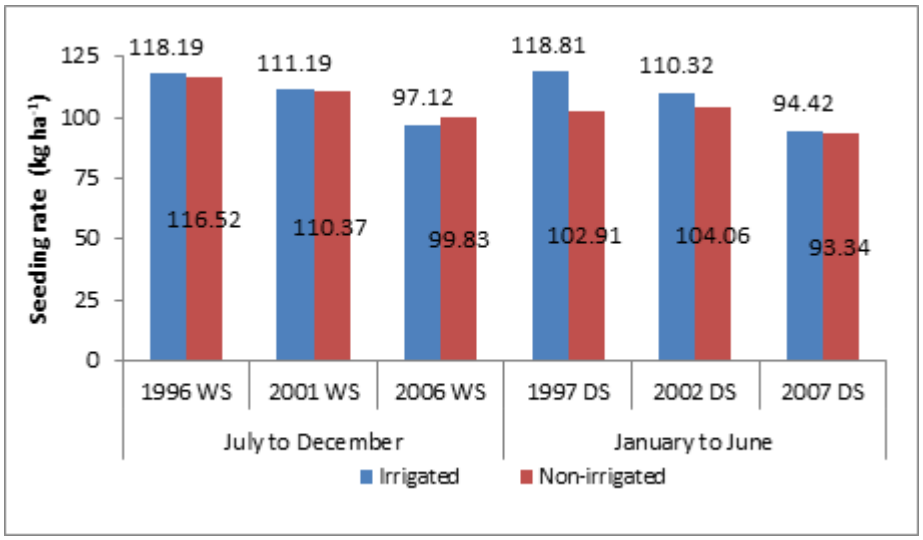
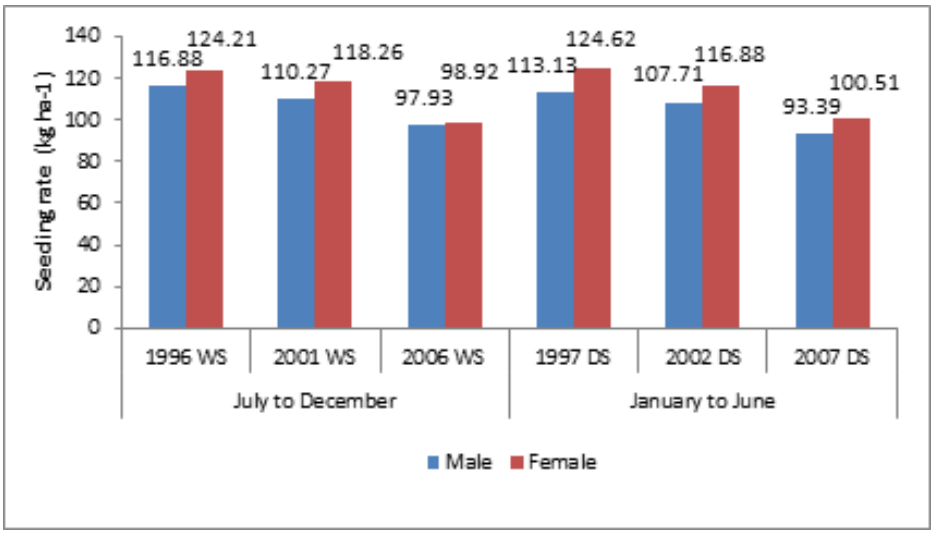
Appendix Figures: Empirical Evidence of Seeding Rate Trends



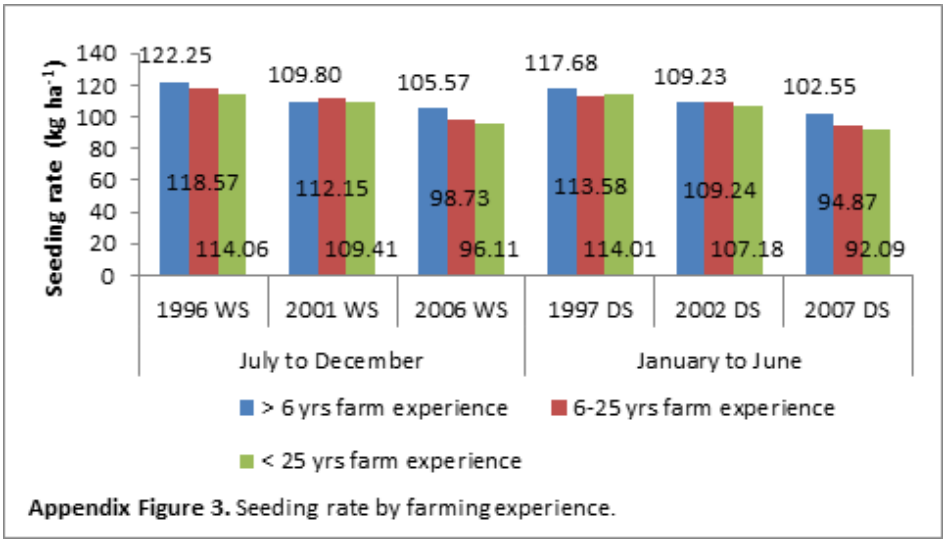
Appendix Figure 1. Seeding rate by ecosystem.

Based on ecosystem, the trend showed that farmers in irrigated areas used more seeds than in non-irrigated areas. However, it could be observed that within WS from 1996-2006, the seeding rate regardless of ecosystem, was almost the same. It is in the DS that a pronounced difference in seeding rate could initially be observed between irrigated and non-irrigated farmers. However within a decade, the DS seeding rate gap between the ecosystems diminished.



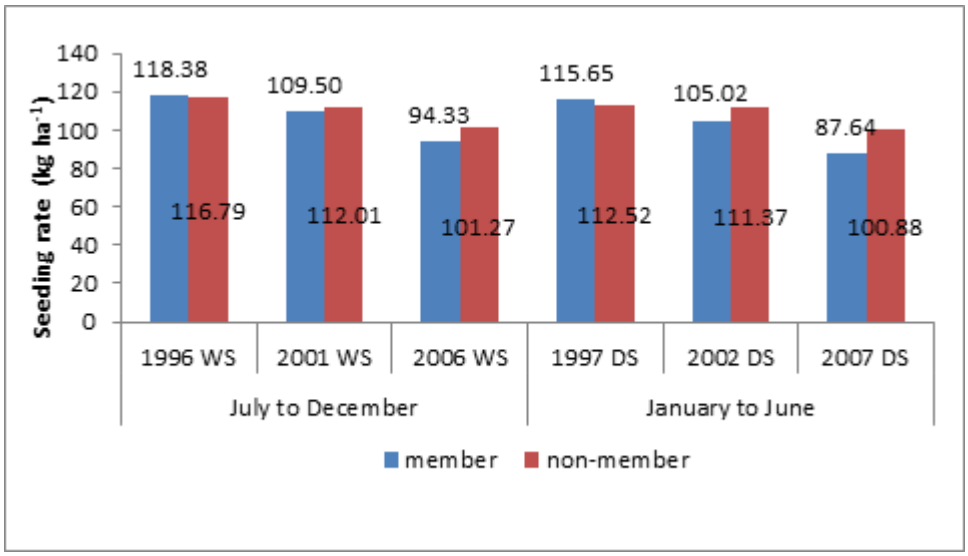
Appendix Figure 2. Seedling rate by sex of farmer.

Female farmers consistently apply higher seeding rate than males regardless of season.



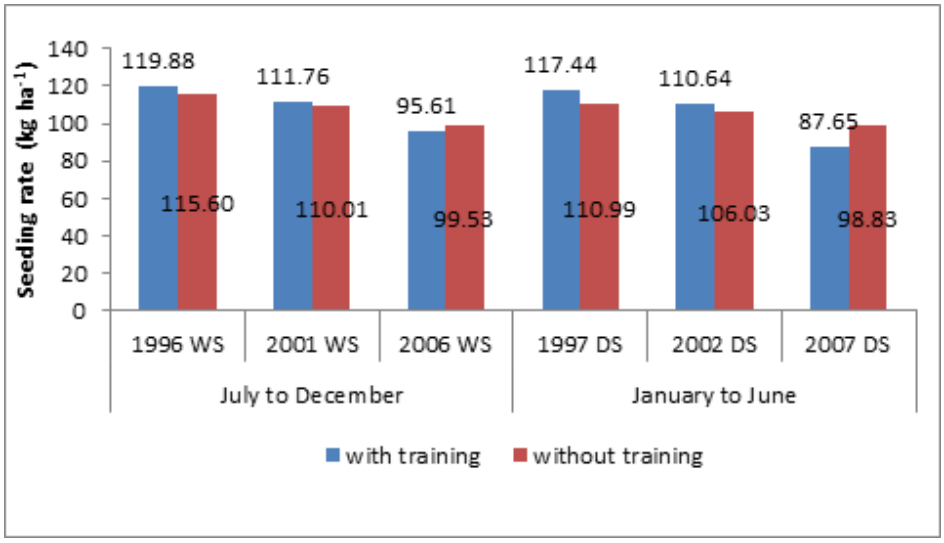
Appendix Figure 3. Seedling rate by farming experience.

Consistently across the three surveys of the RBFHS, farmers who have higher farming experience tend to have lower seeding rate.



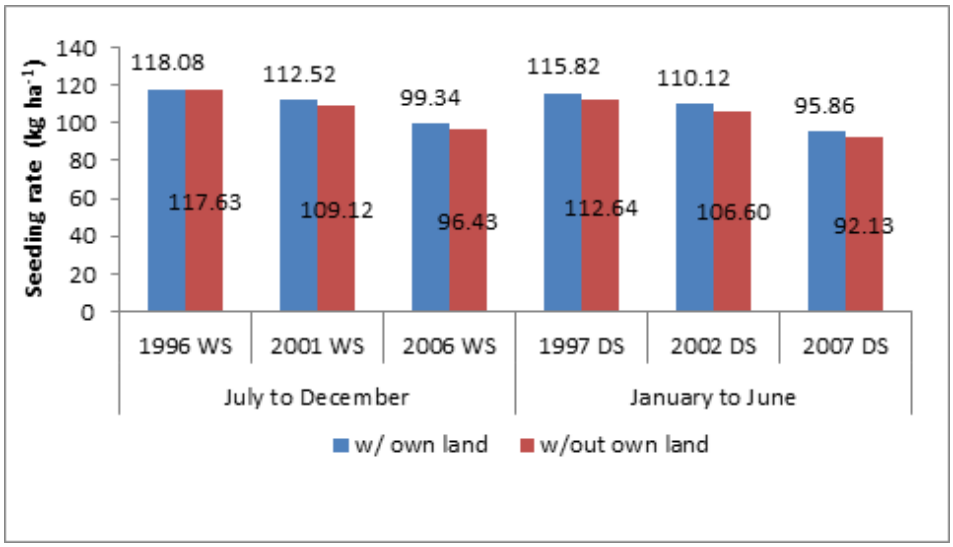
Appendix Figure 4. Seeding rate by organizational membership.

At the start of 2002 DS, the lower seeding rate among farmers who were members of farm organizations became more pronounced.



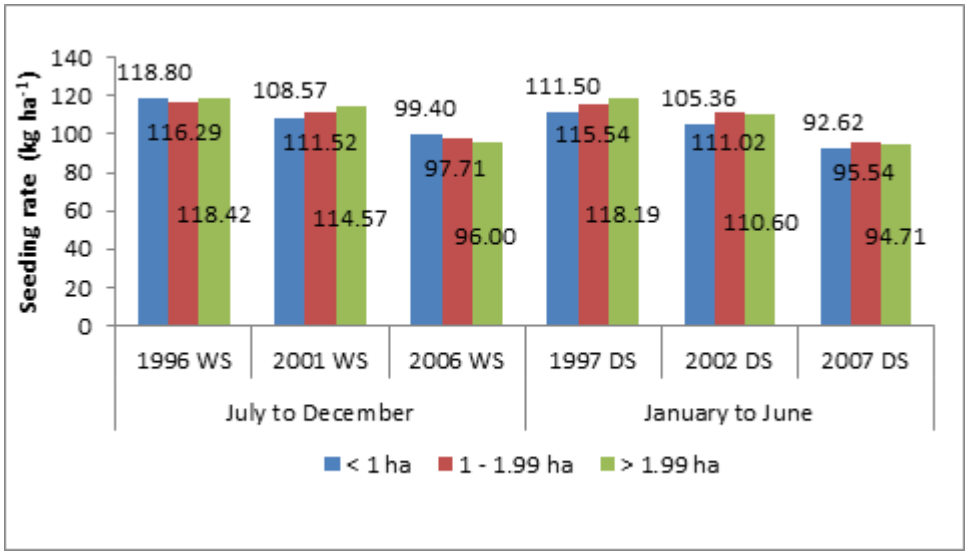
Appendix Figure 5. Seeding rate by participation in training/seminar.

From 1996 WS to 2002 DS, farmers who had attended training/seminars in rice production tend to have higher seeding rates compared to farmers without training. It was only in 2006 WS and 2007 DS that farmers with training had lower seeding rates.



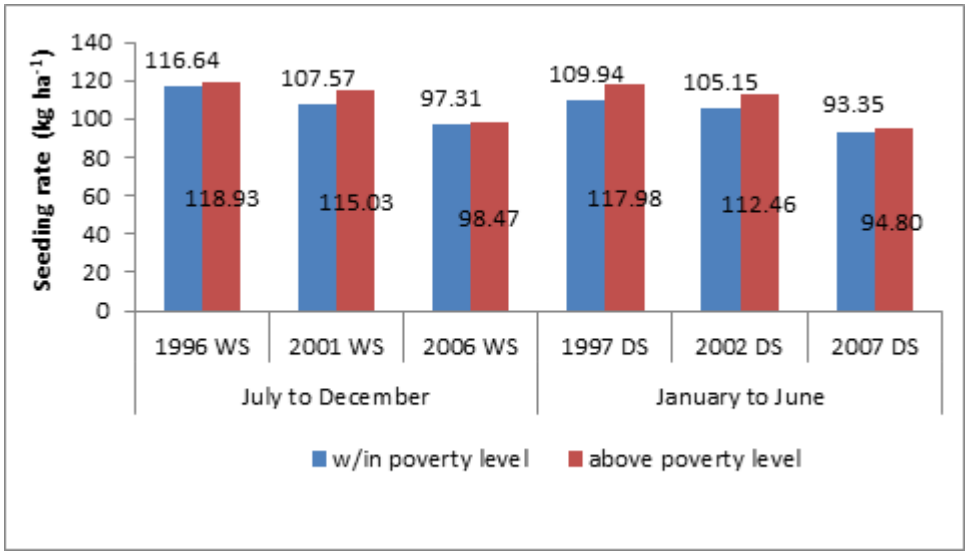
Appendix Figure 6. Seeding rate by tenurial status.

The 10-year survey showed that farmers who do not have their own land tend to use lower quality seeds.



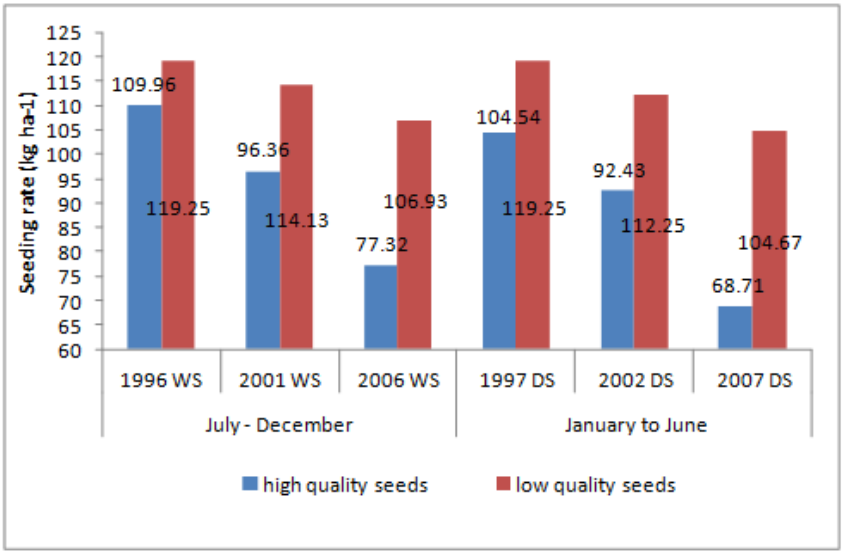
Appendix Figure 7. Seeding rate by farm size.

Farmers with small farm sizes generally employ lower seeding rates. It is however, difficulty to observe a clear-cut pattern among farmers cultivating a 1-1.99 ha and those operating at least 2.0 ha.



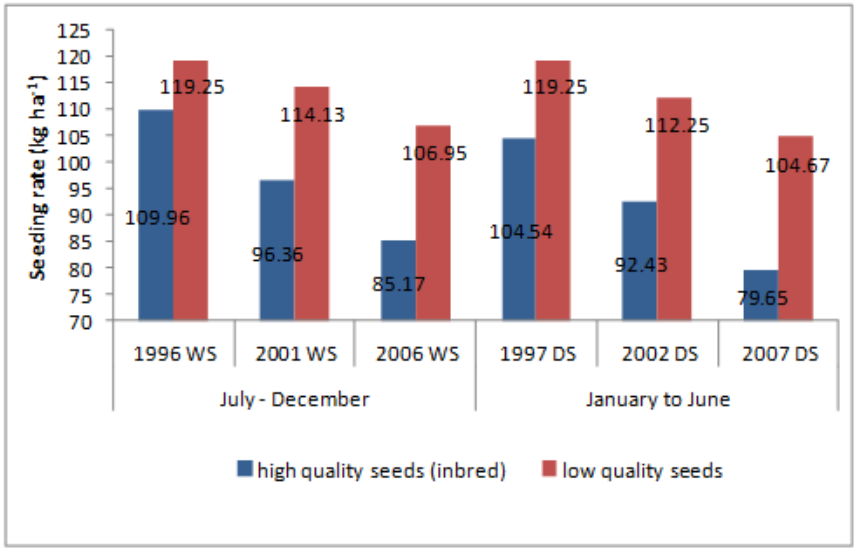
Appendix Figure 8. Seedling rate by poverty level.

Poor farmers generally have lower seeding rates than non-poor farmers. However, in 2006 WS and 2007 DS, the seeding rate differential is not that pronounced which could be brought about by the introduction of hybrid seeds.



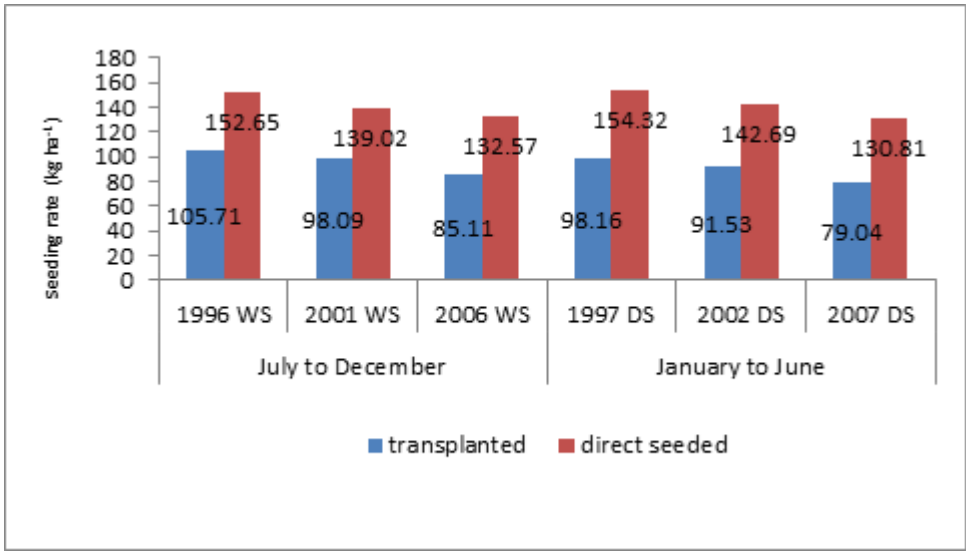
Appendix Figure 9. Seeding rate by seed class.

Farmers using low quality seeds are consistently using more seeds per hectare than farmers using high quality seeds (including hybrid).



Appendix Figure 10. Seeding rate by seed class (inbred varieties).

Excluding hybrid in comparing the seeding rates (particularly in 2006 and 2007 survey round), there is still 20-25 kg lesser seeds being used by farmers using low quality seeds.



Appendix Figure 11. Seeding rate by crop establishment.

Farmers who practice direct seeded rice consistently have higher seeding rates than those practicing transplanting.

OPEN FORUM

Topic 1: Status of Rice Supply and Utilization Accounts (SUA)
Topic 2: Factors Affecting per Capita Rice Consumption

Updating SUA parameters

The target release of updated SUA parameters used in food balance sheet is in 2014. It will prioritize commodities and its important parameters such as seeds, feeds and waste, and processing. This process will involve surveys, workshops and research studies, in collaboration with other concerned agencies. Back-tracking or re-calculating previous data is not necessary since these were the parameters that have been developed and estimated in the past. Updating process will reflect the changes that occurred due to changes in the environment.

Smuggling

Local news, through the Bureau of Customs (BOC), has reported thousands of metric tons of seized smuggled rice. Unfortunately, these reports were unofficial data which cannot be included in the SUA. SUA on rice is composed of domestic production, imports and beginning inventory stocks. During the discussion, it was pointed out that smuggled rice should definitely be part of the SUA as it affects the prices and domestic supply of rice. One recommendation is for government agencies, like BAS, DA, and BOC, to have a comparison of data that is available from their respective offices. At present, BAS coordinates their activities with other agencies.

Migration

Population plays an important part in the SUA calculation. With the increasing number of Filipinos migrating abroad, a discussion was made on whether migration was included in the population data used in SUA. Official data on population comes from the National Statistics Office (NSO). It is assumed that NSO has coordinated with the Bureau of Immigration (BOI) regarding the data on migration.

Use of age category is not necessary since the data usually presented are the average of the total population. Thus, aging people tends to eat less rice and so are the babies that either eats less rice or none at all.

Milling Recovery

The 64 percent milling recovery used by BAS is actually acceptable for computation. Usually big rice millers reported that they could get as high a 7 percent depending on the quality of

palay coming in. Assuming that only 20 percent of the total palay production was retained for home consumption (assumed to be the percentage of total population going through the village level rice mill), then the remaining 80 percent is still included in the 64 percent milling recovery (there was already a considerable allowance).

Production loss is affected by what is in the system and the type of operations that have been accounted for. In PhilMech, the 16.29 percent is accounted for harvesting and threshing. If BAS data started with what comes out after threshing, then they have to include drying, transportation and small percentage of storage losses. Definitely, it depends on where the production was cut off. If they considered a 14 percent reference point then they only have to consider the transportation and storage losses.

Basis for ending stocks identification

BAS conducts a monthly survey on household stocks while NFA conducts the commercial and NFA stock inventories. Eventually, the ending stock this year will be the beginning stock next year.

Rice self-sufficiency

The production forecast of BAS is lower than the production target of the rice program. The final estimates of BAS on production were until the third quarter round survey only. The production estimates for the fourth quarter was only based on the standing crop.

Topic 3: Factors that Influence Rice Demand Changes

Maintaining stable rice prices by increasing supply

An increase in domestic supply of rice does not necessary imply that its prices will decrease or stabilize. Production of domestic palay is more expensive than if the country imports rice from Vietnam or Thailand. This is consistent with the recommendation of Dr. Balisican that in order to reduce the cost of domestic rice, it is encouraged to import since it is much cheaper. This is also the reason why one of the policy implications was to maintain stable rice prices by increasing the supply (not only the domestic supply). Rice prices are relatively higher now, even if we don't import, because those that are available in the market are the better quality domestic rice which are more expensive. In this regard, it is recommended to increase domestic production but at the same time it should be cost efficient in order to reduce the price of rice.

Short-term and targeted price/ income subsidy intervention

Other rice exporting countries such as Vietnam, China and India continue to provide subsidy to rice farmers while in the Philippines, it is currently being recommended to provide subsidy to consumers. Short-term and targeted price/income subsidy to consumers would be helpful since most of the producers are also the consumers. However, the government is also currently considering the CCT type of subsidy to rice producers.

Banana as substitute for rice

In 2012 survey data, banana commodity was grouped into two: table banana and saba. Saba or plantain banana is considered as one of the rice substitutes that is being promoted by the government's program on diversifying food plate.

Promotion of other staple food

It is a challenge for government policy to make the rice price affordable and cheap, and at the same time promote other food staples especially to those who belong to low income group. Going against the culture is another challenge but it is also important to make these staples available in the market. There are consumers who are willing to buy other staples, unfortunately, supply is very limited. The focus should be both on the demand and supply sides. Promotion and encouragement on the demand side while improving and increasing the production of other staple food on the other. Therefore, it is recommended that the production and supply chain programs for rice and other staple food should be equally promoted.

ASEAN integration

With ASEAN integration, current policies on rice and in agriculture will continually be implemented. There will be an increased focus on crop diversification aside from rice production. Removal of Quantitative Restrictions (QRs) and going to tarification is under discussion noting its advantages and disadvantages.

Convergence among agencies

Convergence among agencies should be done in order to have a direct impact on the demand for rice and other staple food. Exchange of information, statistical data and knowledge on different technologies should be the main focus. One approach is for PSA to put together all the statistical offices in different agencies. In this way, good, accurate and realistic data will be available in order to plan and formulate policies that are effective and valuable to the development agenda.

Topic 4: Household Food Wastage FNRI NNS: Trend in Table Wastage

Definition of food wastage

Food wastage is also known as the plate waste. These wastes are typically food left on the plate and are intended to be thrown away. According to the statisticians and nutrition units of FNRI, the food that are set aside for consumption (other household member or for domestic animals) are not considered as food wastage.

Data on food wastage are used to compute consumption and nutrient intake. This data is also used to conduct an assessment analysis on agriculture such as estimates of pesticide intake based on the risk assessment principles.

Ideal rice per capita consumption

There is a need to come up with a balance estimates not only on rice but as well as on other sources of carbohydrates. Initially, there is an idea of introducing Filipino food plate "Pinggang Pinoy" which will prescribe the amount of cereal and cereal products in terms serving portion.

Methodology in the conduct of survey

The data presented came from surveys with five years interval on each survey. There are concerns that with the immediate change in eating habits, trend in people engaging on diet programs, and with the increasing supply of instant food in the market, the direct impact on food wastage may not be accurate.

Conducting surveys requires big budgetary requirements which oftentimes are lacking in any agency. But generally, even with ten years interval, dietary portion is not changing. It always includes fish, poultry, cereals and vegetables. Still, there is a need to think of a new methodology that will provide a quick assessment on the food intake, e.g. is the use of electronic data collection.

Food wastage campaign

The policy implication on food wastage should not contradict the government's program to reduce incidence of non-contagious diseases as part of the health concern in the country. It is still important to maintain a proper diet.

In 2003, rice wastage resulted to about 21 million per day. At present, there is also considerable food wastage from the supply chain and food-away-from-home. The need for a campaign on the proper food wastage management among food service providers leads to FNRI's advocacy on the serving portion, hence, "Pinggang Pinoy".

Topic 5: Existing Strategies to Reduce Rice Wastage: The NYR Advocacy

Encouraging consumers to eat brown rice poses difficulty given the high market price. Brown rice is more expensive and has shorter shelf life compared to regular milled rice. Therefore, the government through PhilMech is developing low-cost rice miller which will be distributed nationwide. Coordination with various rice millers has been conducted to increase production of brown rice at affordable prices. New research will also be developed to achieve at least 9 months shelf life of the unpolished rice.

One limiting factor in increasing production of brown rice is the type of varieties used. Normally, all type of rice varieties can be used to produce brown rice. However, good inbred varieties are usually the traditional, aromatic, soft and with low amylase content which are oftentimes low-yielding varieties. High-yielding inbred varieties that are processed as brown rice do not have a good eating quality resulting to low consumer demand thus less profitable to farmers.

Topic 6: Postharvest Losses and Strategies for their Reduction

Drying loss computation

Drying loss includes physical weight loss (spillage, eaten by birds/chickens, etc.) and then a 14% transformation of that weight will be divided to the expected yield per hectare. Moisture weight loss is not part of the computation on drying loss, which confuses the farmers and researchers. In line with this, a review on the method and basis for computing the drying loss was recommended during the discussion.

Recommendations

On distribution: The government needs to assess and prioritize the areas where postharvest machines will be dispersed and highly utilized.

Labor displacement: Capacity building on the operation and management of postharvest machines (combined harvester-thresher, reaper, etc.) was recommended with a group of laborers who are assumed to be affected by labor displacement. This aims to minimize or eliminate social effects due to technology adoption.

Policy intervention: Harvests of farmers with high moisture content are usually rejected by the rice traders. One recommendation was to increase the domestic rice procurement of National Food Authority (NFA) from 4% to 10%.

Topic 7: Factors Affecting Farmers' Seed Use

Promoting seed-related technologies

In order to increase awareness and adoption of technologies, promotion should be expanded to other areas and not just concentrated on areas where it was initially introduced. Areas for expansion can be identified using BAS data.

Seeding rates

In 2006-2007 data, results showed that seeding rates were higher under irrigated areas compared to rainfed areas. This did not conform to the assumption that farmers in rainfed areas usually plant more seeds (used farmers seeds, longer germination period, etc.) The introduction of hybrid seeds was one of the contributing factors to this observation.

A standard seeding rate should be discussed among agencies to have a uniform parameter in presenting data. The recommended seeding rate for inbred is 40kg/ha and 18kg/ha for hybrid. The 75kg/ha value used in SUA should be reviewed and discussed if acceptable for computation.

Adoption of High-quality seeds

Unavailability of high-quality seeds within the area is usually one of the predicaments of rice farmers. These quality seeds are also expensive and require abundant supply of water, which often results to low adoption especially for farmers in the rainfed areas. Difference in cropping patterns in each province is also a contributing factor to low adoption of high-quality seeds. There are provinces where NIS's schedule on release of water is earlier than the NSCQS' schedule to release farmers' seeds. Thus, discourages the farmers from adopting the high quality seeds.

THE WORKSHOP

Strengthening Senate Bill 1863

Senate Bill 1863, known as "Anti-Rice Wastage Act of 2013", was introduced by Sen. Ferdinand R. Marcos, Jr. It is an act penalizing the practice of restaurants, hotels, inns, canteens, steakhouses, eateries and the like from refusing to serve order of rice from a customer if it be less than one (1) cup, and for other purposes.

In order for Filipinos to have a healthier diet, there should be an increased effort to promote consumption of other nutritious staples and vegetables like the one in the suggested plate serving. The Bill's aim was to promote a healthy consumption and not just to penalize the stakeholders. One suggestion was the provision of incentives to restaurants who implement the Bill, instead of punishing them for non-compliance.

Part of the Senate Bill's proposal was for the food establishments to offer a menu which includes calorie value of the food they serve. Relative to that, the official data of FNRI will be used to establish and implement the program on "Pinggang Pinoy".

Data showed that household from rural areas resulted to higher food wastage compared to households from the urban areas. However, the study should take into consideration that people from rural areas usually cook and eat their food at home. On the other hand, majority of people living in the urban areas eat or consume their food away from home, usually in restaurants, where high undocumented food wastage also takes place.

In this regard, the program and organizers of the Senate Bill created a partnership with Hotel and Restaurant Association of the Philippines (HRAP). HRAP members were requested to sort or segregate their food wastage for a day, similar to what is being practiced in the cafeteria of Ateneo de Manila University. Unfortunately, data documentation would require longer time.

Actions and suggestions to support the Senate Bill 1863

A discussion should be conducted with owners of hotels, restaurants, and other food industry for them to be aware of the positive effects and benefits of offering a half cup of rice in their respective establishments. The meeting aims to prepare these establishment owners on the pros and cons of the Bill once approved. PhilRice can also provide policy briefs on food wastage to better promote the Senate Bill.

Similarly, in the House Bill 3180, known as "The Food and Food Staples Consumption and Zero Food Waste Management Act of 2013", section 5 indicates the promotion and provision of resources of complete mechanization of agriculture. This aims to address the issue on wastage from harvesting, transporting and packaging periods.

It is also proposed that food establishments should serve other staples as a substitute for rice. Likewise, in supermarkets, other staples such as camote and saba should be placed beside rice to make them more visible to consumers.

Appendix A: Senate Bill

SIXTEENTH CONGRESS OF THE)
REPUBLIC OF THE PHILIPPINES)
First Regular Session)

SENATE
SENATE BILL NO. 1863

Introduced by Senator Ferdinand R. Marcos, Jr.

EXPLANATORY NOTE

Rice is the staple food of the Filipinos. However, data from the Food and Nutrition Research Institute (FNRI) show that each Filipino wastes an average of three (3) tablespoons or nine (9) grams of rice daily, which is equivalent to 3.3 kilos per year. According to the International Rice research Institute (IRR), with 94 million and 9 grams of wasted rice per day, the total wastage is 308,000 tons, 36 percent of 2011 rice imports. The said rice wastage translates to at least US$535,000 (23 million pesos) every day or $223 million a year, an amount sufficient to feed 4.3 million people.

The Philippines is an agricultural country. Ironically, the country is also the world's biggest importer of rice for several years. To date, the government is implementing various programs to attain rice self-sufficiency which remains an elusive goal. Under Proclamation N. 494, series of 2012 which declared the year 2013 as the national year of rice, it was explained that "a sustained and nationwide campaign to boost farmers' morale and motivate them to adopt technologies to further improve farm productivity and encourage the general public to be responsible rice consumers are necessary to complement the government's effort to achieve rice self-sufficiency."

This bill seek to penalize the practice of some restaurants, hotels, inns, canteens, steakhouses, eateries and the like of refusing to serve order of rice from a customer if it be less than one (1) cup. This measure will considerably reduce rice wastage on these business establishments by letting customers to order just the right amount of rice that they can assume.

Thus, the early passage of this bill is earnestly requested

FERDINAND R. MARCOS, JR.

SIXTEENTH CONGRESS OF THE
REPUBLIC OF THE PHILIPPINES
First Regular Session

SENATE
SENATE BILL NO. 1863

Introduced by Senator Ferdinand R. Marcos, Jr.

AN ACT OF PENALIZING THE PRACTICE OF RESTAURANTS, HOTELS, INNS, CANTEENS, STEAKHOUSES, EATERIES AND THE LIKE FROM REFUSING TO SERVE ORDER OF RICE FROM A CUSTOMER IF IT BE LESS THAN ONE (1) CUP, AND FOR OTHER PURPOSES.

Be it enacted by the Senate and House of Representative of the Philippines in congress assembled:

SECTION 1.- *Short Title*- This Act shall be known as the "Anti-Rice Wastage Act of 2013."

SECTION 2.- *Punishable Act*.- It is hereby declared unlawful for restaurants, hotels, inns, canteens, steakhouses, eateries and the like to refuse to serve order of rice from a customer if it be less than one (1) cup.

SECTION 3.- *Penalties*.- Any business establishment who is found violating this Act shall be meted a fine in the amount of Twenty Thousand Pesos (Php20,000.00) for the first offense; Fifty Thousand Pesos (Php50,000.00) for the Second Offense; and One Hundred Thousand Pesos (Php100,000) for the Third and so-forth Offense.

SECTION 4.- *Rules and Regulations*. - The Department of Agriculture shall issue the necessary rules and regulations to implement this Act.

SECTION 5.- *Repealing Clause*. - All laws, executive orders, issuances, rules and regulations inconsistent with this Act are hereby amended, repealed or modified accordingly.

SECTION 6.- *Effectivity Clause*. - This Act shall take effect fifteen (15) days after its publication in any newspaper of general circulation.

Approved,

NOTE: Legislative status: Pending in the Committee (10/23/2013) (As of November 27, 2014).

Appendix B: House Bill

SIXTEENTH CONGRESS OF THE PHILIPPINES)
REPUBLIC OF THE PHILIPPINES)
First Regular Session)

HOUSE OF REPRESENTATIVES
H. B. No. 3180

Introduced by Honorable Agapito H. Guanlao

EXPLANATORY NOTE

Managing the country's per capita rice consumption is an important strategy in attaining rice self-sufficiency. With the ballooning of the country's population to 95.8 million in 2012, it is very doubtful that the country's current state of food sufficiency can absorb such. The Food Staples Sufficiency Program (FSSP) targets a 120 kg annual per capita consumption as a component strategy that requires the involvement of all sectors of the society and all under the state's machinery.

Wastes, however, are generated not by consumption alone but in the gamut of processes involved from production of food staples, rice for that matter, until it is consumed by the population.

According to a report of the Food and Agriculture Organization of the United Nations (FAO), an estimated 120,000 for every one million metric tons (MT) of palay produced by farmers are wasted due to the lack of proper post-harvest facilities. This is equivalent to about 6 percent of post harvest losses or about 1,200,000 metric tons a year. This translates to P19,200,000 at present farm gate price of palay.

At the other end, are the significant losses resulting from wasteful consumption of rice. This according to the International Rice Research Institute (IRRI) translates to losses worth more than P22.5 million a day, or about P8.4 billion a year. The wastage on the table (cooked rice) alone according to the Food and Nutrition research Institute (FNRI) is on an average three (3) tablespoons or 9 grams or 3.3 kilograms a year. Luzon wastes about 16 grams, the Visayas and Mindanao waste 12 grams per capita. This translates to roughly 318,645 tons a year, assuming that 97 million Filipinos waste 16 grams a day. This may also mean an importation of the same volume a year.

Wasteful consumption of rice underscores the need for understanding food wastage in general. Wastage of other foods may not be far behind. Food wastage is also related with consumers' capacity to spend more because the more they have the capacity to purchase food, the higher their propensity for generating wastes.

Food wastes are also generated during its consumption such as in consumption that is based on unhealthy and uninformed eating habits. Unhealthy in the sense that food consumption intake is driven by excessive quantities and not by the body's requirement. It is observed that left-overs or even untouched food end-up as wastes in food establishments. Restaurants, fast

food joints, and even canteens and cafeterias in offices and schools have become repositories of huge volumes of left-overs. Some food establishments that offer buffets and serve unlimited food such as rice are also fast becoming waste generators.

Wastage may also be a result of improper labelling of packaged food. With more consumers becoming more aware of purchasing healthy and natural food, Improperly labelled food and drink packages especially those that do not contain expiry dates, or such labelled in foreign language end-up as wastes. But reports had it that expired packaged food are sold in the market by unscrupulous traders posing detriment to the public's health and safety.

This proposed legislation also addresses the wasteful consumption of food in the context of promoting and enhancing wellness as a matter of attaining food security. It intends to reinvent the food consumption patterns of people and at the same time, enjoin food establishments to participate by supporting the food security initiatives of the government. Furthermore, it shall help develop health and well-being consciousness among consumers.

It may be superfluous for the moment to delve into exact estimates of the magnitude of the food wastes generated in the country. Suffice it to say that deeper studies must be conducted as bases for indentifying and implementing programs and initiatives that must be undertaken and for that matter all food and food staples must be considered.

The processes in the food value chain generate wastes. Effecting therefore a sound management of food and food staples consumption and minimizing wastes will later redound to contributions towards a development goal of delivering accessible and affordable food and food staples for the population and the promotion of a healthy citizenry, thus approval of this measure is earnestly sought.

SIXTEENTH CONGRESS OF THE PHILIPPINES)
REPUBLIC OF THE PHILIPPINES)
First Regular Session)

HOUSE OF REPRESENTATIVES
H. B. No. 3180

Introduced by Honorable Agapito H. Guanlao

AN ACT
ESTABLISHING MECHANISMS TOWARD SOUND MANAGEMENT OF FOOD AND FOOD STAPLES CONSUMPTION, ZERO FOOD-WASTE MANAGEMENT PURSUANT TO FOOD SECURITY AND APPROPRIATING FUNDS THEREFORE

Section 1. Short Title. - The Food and Food Staples Consumption and Zero Food- Waste Management Act of 2013.

Section 2. Declaration of State Policy. - It shall be the policy of the State to promote programs and projects that ensure food security. In so doing, it shall pursue a thrust for the sustainable utilization of our limited agricultural and food resources. In order to initiate efforts to ensure food security, the State shall promote sound consumption and zero food-waste management in the production, handling, distribution and consumption of food and food staples. It shall likewise provide mechanisms that will prevent the wasteful consumption of food and at the same time, encourage the development of better eating and health habits among consumers.

Section 3. Creation of a Zero Food-Waste Management Program. - There is hereby created a Zero Food-Waste Management Program to be implemented by the government. It shall have different components, ail of which shall be directed towards institutionalizing measures intended to attain Zero Food-Waste.

Section 4. Promotion of Healthy Food Consumption. - This component of the program addresses the generation of wastes and excesses in the consumption of food and food staples. It focuses on informing and educating consumers on healthy food consumption.

> **Section 4.1.** Food establishments such as, but not limited to restaurants, fast food chains, as well as canteens and cafeterias in schools and offices, whether owned and operated by government or private entities, are hereby required to provide and post visible and readable information, in a language that is understood by the majority of its customers, on the specific caloric contents of the food and drinks sold and served. These information shall be based on the Food Pyramid prepared by the Food and Nutrition Research Institute and the National Nutrition Council.
>
> **Section 4.2.** Food establishments are also required to adjust the measurements, volume of servings and price of the food served and sold, depending on the preference of their customers. Depending on the standard of measurements as may

be prescribed by this Act, all food establishments are required to serve (1) whole, three-fourths (3/4) or one half (1/2) of the standard measurements prescribed.

Section 4.3. The Department of Health, Department of Trade and Industry, and the Department of Interior and Local Government through LGU offices tasked with the issuance and control of business permits and licenses of food establishments, shall be responsible to update and revise existing guidelines in implementing the provisions of this law.

Section 5. Promotion and Provision of Resources for Complete Mechanization of Agriculture - The program intends to achieve zero waste of agricultural products from production, packing and to distribution using state of the art technology and packaging materials that preserve and food quality. This will include, but not limited to vaccum packed sacks, and the like. Machineries and equipment shall be identified and provided for by the Department of Agriculture (DA) that shall function as lead agency in this initiative. The DA shall provide a list of existing harvest and postharvest facilities, such as but not limited to solar dryers, threshers, hollers, milling facilities, and the like, it is already distributing through its numerous assistance programs. The DA shall be responsible to draft policies and guidelines concerning the purchase and distribution of these equipment, and shall include such in this law's implementing rules and regulations.

Section 6. Promotion of Food Safety Through Proper Packaging and Labelling, - Guided by the provisions under Chapter IV on Labelling and Fair Packaging of Republic Act 7394 or the Consumers Act of the Philippines, guidelines and policies that will improve the said law shall be formulated with the Department of Trade and Industry taking the lead.

6.1. Required information in food labels and packages:
- **6.1. a.** Nutritional facts,
- **6.1. b.** Source of the products - location of farms, country of origin, etc.
- **6.1. c.** Packaging materials used,
- **6.1. d.** Required dates of manufacture and expiry
- **6.1. e.** Others to be determined

Section 7. Inter-Agency Implementing Body. - To implement the law, an inter-agency body shall be created and shall be composed by the following government agencies:

Department of Health through the National Nutrition Council (NNC), Food and Nutrition Research Institute (FNR1) and the Bureau of Food and Drugs (BFAD)- as Chairperson of the Body
Department of Agriculture - as Vice-chairperson
Department of Trade and Industry - Member
Department of Education/Health and Nutrition Center - Member
Commission on Higher Education - Member
Department of Interior and Local Government - Member

Section 8. Roles and Responsibilities. - Each of the following agencies that are included in the implementing body shall perform the following roles and responsibilities:

1. Set standards for food consumption vis-a-vis required calorie content depending on age, bodily composition, and the like.

2. Set standards specific food types or groups vis-a-vis calorie content and volume/quantities, to include, but not limited to serving sizes;
3. Develop and implement policies on standards for food consumption vis-a-vis agriculture and food resource availability, including projections based on natural considerations such as calamities, planting, harvesting and production cycles per agricultural and livestock crop/products, etc;
4. Develop guidelines that shall govern food establishments in terms of licensing and permits to sell specific food items;
5. Draft and implement guidelines pertinent to the publication and display of information on required food calorie requirements in food establishments;
6. Develop a pricing system that shall be used in assigning costs of food orders and servings; and.
7. Draft and Implement a system of penalties, that include, but not limited to payment of reasonable fines, frequency of violations, and the like; and,
8. Specifically, the Department of Education shall formulate guidelines on the inclusion of food consumption and saving related topics to be included in the curriculum of public and private elementary and high schools.
9. Specifically, the Commission on Higher Education shall draft guidelines to effect the inclusion of subject matters related to food consumption and preparation in the specific curricula of specific degrees/courses such as, but not limited to Agriculture, Hotel and Restaurant Management/Administration, Culinary Arts, Nursing, Allied Medicine, and the like.

Section 9. - Zero-Food Waste Information and Education Campaign Program. - An Information and Education Campaign Program shall be launched wherein all of the agencies composing the Inter-Agency Body shall participate. As provided in Section 12 of this Act, separate fund that shall augment the existing funds of agencies that are part of the Inter-Agency Body will be earmarked that shall enable them to implement information and educations initiatives.

Section 10. - Within two (2} months after the enactment of this law, the Secretary of Health through the National Nutrition Council shall immediately convene the inter-agency body.

Section 10.1. The immediate task of the inter-agency body is to draft the implementing rules and regulations.

Section 10.2. It is likewise expected that an initial information/data sheet on the calorie content of specific food, compared with specific food measurement/serving sizes be drafted and distributed to major food establishments.

Section 11. Oversight. - The implementation of this Act shall be monitored by the Inter-Agency, with coordination with the Committees on Agriculture, Health and Economic Affairs of the Senate and the Committees on Agriculture and Food, Health, Trade and industry, Education and the Special Committee on Food Security of the House or Represenatives.

Section 12. Appropriations. - The amount of TEN MILLION PESOS (P 10,000,000.00) shall be appropriated for this purpose and shall its release shall be spread in two years. An amount of FIVE MILLION PESOS (P 5,000,000.00) shall be released to all members of the Inter-Agency Body to augment their existing budgets and such fund shall be solely used solely for information and education purposes.

Section 13. SOURCES OF FUNDS FOR HARVEST AND POST-HARVEST FACILITIES. - For the first two (2) years of this law's implementation, harvest and post-harvest facilities shall be accessed from the Department of Agriculture's existing programs and projects on farm mechanization.

Section 13.1. On the second year of this law's implementation, the Department of Agriculture shall plan, in coordination with the Inter-Agency Body, and the Municipal and Provincial Agricultural Offices, and submit a list of machineries needed to fully implement the said program on farm machineries, and shall proposed a line item in its department's budget in the General Appropriations Act, in the amount of ONE BILLION PESOS (P 1,000,000,000.00)

Section 13.2. Upon the approval in the General Appropriations Act, the Inter-Agency Body, with the Department of Agriculture as lead agency, shall monitor the impact of the mechanization program as provided in this law. It shall submit a report to the Commission on Audit, the Department of Finance and Budget and Management detailing its findings on the impact of the said program.

Section 13.3. Any additional appropriations of the said program shall be dependent on the positive outcomes of the program.

Section 14. Separability Clause. - Should any provision of this Act or any part thereof be declared invalid, the other provisions, so far as they are separabte, shall remain in force and effect.

Section 15. Effectivity. - This Act shall take effect fifteen (30) days after the publication in the Official Gazette and in any two (2) newspapers of general circulation.

Approved,

NOTE: Status: Scheduled for first meeting/hearing on 2014-06-03 (as of November 27. 2014)

Appendix C. Program of Activities

8:00-8:30	Registration	
8:30-9:00	Invocation	**Irene R. Tanzo, Ph.D**
	National Anthem	Video Presentation
	Welcome Remarks	**Eufemio T. Rasco Jr., Ph.D.** Executive Director Philippine Rice Research Institute (PhilRice)
9:01-9:30	Status of Rice Supply and Utilization Accounts (SUA)	
		Ma. Carol G. Duran OIC, Division Chief, Agricultural Accounts and Statistical Indicators Division
9:31-10:00	Factors Affecting per Capita Rice Consumption	
		Eduardo B. Sanguyo Chief, Socio-Economic Statistics Division, Bureau of Agricultural Statistics (BAS)
10:01-10:10	Open Forum: Topic 1 and Topic 2	
10:11-10:20	Snacks/Break	
10:21-10:50	Factors That Influence Rice Demand Changes	
		Mercedita A. Sombilla, Ph.D. Director, Agriculture, Natural Resources and Environment Staff (ANRES) National Economic and Development Authority (NEDA)
10:51-11:00	Open Forum	
11:01-11:30	Household Food Wastage FNRI NNS: Trends in Table Wastage	
		Mario V. Capanzana, Ph.D Director, Food and Nutrition Research Institute (FNRI)
11:31-11:40	Open Forum	
11:41-12:00	Awarding of Tokens and Certificates for the Presenters	
12:01-1:00	Lunch Break	

1:01-1:30 Existing Strategies to Reduce Rice Wastage: The NYR Advocacy

Hazel V. Antonio
Director, National Year of Rice Program
Philippine Rice Research Institute (PhilRice)

1:31-1:40 Open Forum

1:41-2:10 Post-Harvest Losses and Strategies for their Reduction

Renita SM. Dela Cruz, Ph.D.
Chief, Socio-Economic and Policy Research Division
Philippine Center for Postharvest Development and Mechanization (PhilMech)

2:11-2:20 Open Forum

2:21-2:30 Snacks/Break

2:31-3:00 Factors Affecting Farmers' Seed Use

Ronell B. Malasa
Science Research Specialist II
Socio-Economics Division
Philippine Rice Research Institute (PhilRice)

3:01-3:10 Open Forum

3:11-3:20 Awarding of Tokens and Certificates for the Presenters

3:21-4:00 The Workshop

4:01-4:15 Closing Remarks

Eduardo Jimmy P. Quilang, Ph.D.
Deputy Executive Director for Development
Philippine Rice Research Institute (PhilRice)

Master of Ceremonies
Ms. Rhemilyn Z. Relado

Appendix D. List of Participants

Government Sector

Rolly C. Paraguison	Agri-Pinoy Rice Program
MarioPatrinao	BAS
Jacinta Estrada	BAS
Apolinar Alcid	Butil Partylist
Richel Arellano	DSWD
Glen Melvin Gironella	FNRI
Leady Barcelon	NEDA-ANRES
Lenard Martin P. Guevara	NEDA-ANRES
Linda Carrion	NFA
Rachelle Z. Castro	NFA
Ernesto S. Dela Torre	OPAG-Albay
Roehlano M. Briones	Phil. Institute for Development Studies
Hernaiz Malanon	PhilMech
Rolando Paragas	PhilMech
Errol O. Perlas	Rice Report Officer-Albay
Resi Olivarez	UP-Diliman
Vivien Medidas (Senate of the Phil.)	Committee on Agriculture and Food
Novel Bangsal	Congress of the Phil.-Congressional Policy and Budget Department (House of Representative)
Prince Cal Munhot	Congress of the Phil.-Congressional Policy and Budget Department (House of Representative)

Private Sector

Roberto R. Acosta	East-West Seed Foundation

International Sector

Aristeo A. Portugal	FAO
Eulito U. Bautista	FAO
Piedad F. Moya	IRRI
Ma. Shiela Valencia	IRRI

Media

Charlee Delavin	Businessworld
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Diego G. Ramos	PhilRice-Los Baños
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Marivic C. Soriano	Finance
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Arsenio Fontanilla	PhilRice CES
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DEPARTMENT OF AGRICULTURE
PHILRICE
PHILIPPINE RICE RESEARCH INSTITUTE

CERTIFICATION INTERNATIONAL

Philippine Rice Research Institute (PhilRice) is a government corporate entity attached to the Department of Agriculture created through Executive Order 1061 on 5 November 1985 (as amended) to help develop high-yielding and cost-reducing technologies so farmers can produce enough rice for all Filipinos.

The Institute accomplishes this mission through research and development work in our central and six branch stations, coordinating within a network that comprises 57 agencies and 70 seed centers strategically located nationwide.

As proof of the Institute's quality of service, PhilRice received the following certifications: ISO 9001:2008 (Quality Management), ISO 14001:2004 (Environmental Management), and OHSAS 18001:2007 (Occupational Health and Safety Assessment Series.