

## INDIA: ESTIMATES OF SUPPORT TO AGRICULTURE

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### DEFINITIONS AND SOURCES

**Table 1. Agricultural Support Estimates / Total Transfers** contains country Total Support Estimate (TSE) and derived indicators, which cover all agricultural production, i.e. all agricultural commodities produced in the country. Definitions of basic data sets refer to the specific programmes applied in the country. For the Producer Support Estimate (PSE) and Consumer Support Estimate (CSE), each policy measure is classified according to implementation criteria, which include: the *transfer basis* of support (output, input, area/animal numbers/receipts/income, and non-commodity criteria); whether support is based on *current* or *non-current* basis; whether production *is required* or *not* to receive payment. Each policy measure is also assigned several “labels” indicating additional implementation criteria. "MPS commodities", which vary across countries, are those for which market price support is explicitly calculated in Tables 4.1-4.21. In addition, Table 4.18 provides MPS estimates for the group called “other commodities”, which means those for which MPS estimates per commodity were not made due to a very small share of a given commodity in total value of production (below 1%) or lack of data.

**Table 2. Breakdown of PSE by Commodity and Other Transfers** provides a breakdown of the total PSE into four categories reflecting the flexibility in production choices given to producer receiving support. These categories are: Single Commodity Transfers (SCT); Group Commodity Transfers (GCT); All Commodity Transfers (ACT); and Other Transfers to Producers (OTP). All data sets in Table 2 come from Tables 1 and 3.1-3.21 where definitions are included.

**Tables 3.1.-3.21 Producer Single Commodity Transfers** contain producer SCT by commodity, which are calculated for India for the following commodities: wheat, maize, non-basmati rice, basmati rice, soybeans, rapeseed, groundnuts, chick pea, other pulses, onions, potatoes, tomatoes, mangoes, bananas, sugar cane, cotton, milk, bovine meat, sheep meat, poultry, eggs, provided that the value of production of that commodity exceeds 1% of the total value of agricultural production<sup>1</sup>. In addition, SCT for “other commodities” is also calculated (Table 3.21), which covers transfers *to single commodities other than MPS commodities*. All data sets in the calculation of producer SCT by commodity come from Tables 1 and 4.1-4.21 where definitions are included.

**Tables 4.1-4.21** contain **Market Price Support (MPS)** and **Consumer Single Commodity Transfers** (consumer SCT) by commodity, calculated for the same set of commodities as in **Tables 3.1 to 3.21**. Definitions are provided only for basic data sets from which all the other data sets in this table are derived.

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<sup>1</sup> In certain cases, for specific years and commodities, the value of production may be less than 1%.

Definitions of the indicators, criteria for classification of policy transfers included in support estimates, and methods of calculation are contained in [the PSE Manual](#) (*OECD's Producer Support Estimate, and Related Indicators of Agricultural Support: Concepts, Calculations, Interpretation and Use*).

## **TABLE 1. INDIA: Total Support Estimate**

### ***Definitions:***

**I. Total value of production (at farm gate):** Total agricultural production valued at farm gate prices, i.e. value (at farm gate) of all agricultural commodities produced in the country [1].

*I.1. Of which share of MPS commodities (%):* Share of commodities for which MPS is explicitly calculated (in Tables 4.1-4.21) in the total value of agricultural production.

**II. Total value of consumption (at farm gate):** Consumption of all commodities domestically produced valued at farm gate prices, and estimated by increasing the value of consumption (at farm gate) of the MPS commodities according to their share in the total value of agricultural production  $[(II.1) / (I.1) \times 100]$ .

*II.1. Of which MPS commodities:* Sum of the value of consumption (at farm gate prices) of the MPS commodities as indicated in Tables 4.1-4.21.

**III.1 Producer Support Estimate (PSE):** Associated with total agricultural production, i.e. for all commodities domestically produced [Sum of A to G; when negative, the amounts represent an implicit or explicit tax on producers].

### ***A. Support based on commodity output***

*A.1. Market Price Support:* On quantities domestically produced (excluding for on-farm feed use -- *Excess Feed Cost*) of all agricultural commodities, estimated by increasing the MPS for the MPS commodities according to their share in the total value of agricultural production  $[(\sum \text{MPS for MPS commodities listed in the rows below}) / (I.1) \times 100]$ .

### *A.2. Payments based on output*

### ***B. Payments based on input use***

While payment data refer to financial years as in the respective sources, the presentational convention adopted here is to identify a financial year by its first year only: for example, 2000 refers to financial year 2000-01. The following abbreviations apply to the three departments of the Ministry of Agriculture and Farmers' Welfare, Government of India: DACFW (Department of Agriculture, Cooperation and Farmers' Welfare), DARE (Department of Agricultural Research and Education), and DAHDF (Department of Animal Husbandry, Dairying and Fisheries).

### *B.1. Based on variable input use*

*Rashtriya Krishi Vikas Yojana (RKVY; National Agricultural Development Scheme)* (from 2007): Totally funded by the central government, the scheme makes funds available for the governments of all states to use at their discretion through, for example, subsidies for many kinds of farm inputs and agricultural materials, as elaborated below. While the implementation of these programmes varies widely across states, support is provided mostly for variable input use. Since the diversity of implementation criteria for many different programmes in different states is great, the use of labels as follows is simplified and generalised for each of

the listed payment programmes. Source of RKVY payment data: Annual Report of DACFW [22]. RKVY includes:

- *Crop Development-RKVY*. The states are free to decide how farmers are supported, but the operational guidelines contain a broad description the parameters that have to be observed. Payments support making High-Yielding Variety (HYV)/certified seeds available to farmers, production of breeder seeds, purchase of breeder seed from institutions such as *Indian Council of Agricultural Research (ICAR)*, production of foundation seed, production of certified seed, seed treatment, farmers' field schools at demonstration sites, training of farmers, etc. Payments estimated for 2015 and 2016: payment in previous year multiplied by the mean annual rate of change in 2012-14.

Use of labels: Production limits: NO; Variable payment rates: YES; Input constraints: NO.

Payments are included in GCT for all crops.

- *Horticulture-RKVY*. Payments support nurseries, tissue culture labs, sanitary and phytosanitary infrastructure, vermin compost units, etc. Payments estimated for 2015 and 2016: payment in previous year multiplied by the mean annual rate of change in 2012-14.

Use of labels: Production limits: NO; Variable payment rates: YES; Input constraints: NO.

Payments are included in GCT for all crops.

- *Dairy Development-RKVY (from 2007)*. Payments support the purchase of tractors fitted with fodder block machine, purchase of milking machines, milk collection centres and infrastructure, setting up cold chain for storing and transporting of frozen semen, etc. Payments under this programme are split 33%-67% between PSE and GSSE. Payments estimated for 2015 and 2016: payment in previous year multiplied by the mean annual rate of change in 2012-14.

Use of labels: Production limits: NO; Variable payment rates: YES; Input constraints: NO.

Payments are included in SCT for milk.

*National Mission on Oilseeds and Oil Palm (NMOOP)*: Several schemes were carried forward from the 1990s (Oilseeds production programme; Accelerated maize development programmes; Oil palm development programme; National pulse development project), which in 2004 were consolidated into the Integrated Scheme for Oilseeds, Oil Palm and Maize (ISOPOM). This centrally sponsored scheme was restructured and renamed as NMOOP in 2014-15. The amount of payment under each component of NMOOP obtained through correspondence with DACFW [22]. NMOOP includes:

- *Distribution of planting material-NMOOP (Oil Palm) (from 2014)*. State departments of agriculture or horticulture assist farmers by providing 85% of the cost of planting material. A limit of INR 10 000 per ha applies for the farmer's entire land holding or planting area. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: YES; Input constraints: NO.

Payments are included in SCT for XE (non-MPS commodities).

- *Assistance for cost of cultivation and maintenance during gestation period-NMOOP (Oil Palm) (from 2014)*. Payments support farmers at 50% of the cost during gestation period of 3 years with a ceiling of INR 14 000 per ha. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in SCT for XE (non-MPS commodities).

- *Inputs to intercropping in oil palm fields-NMOOP (Oil Palm) (from 2014)*. Support is provided for 50% of the cost of intercropping in oil palm fields (purchase of seeds, fertilisers, integrated nutrient management, integrated pest management, fertilisation through drip irrigation, tree guards, certain chemicals,

etc.) from the first to the fourth year of plantation. The limit is INR 3 000 per ha. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

- *Establishment of new seed garden, maintenance of seed garden, production of sprouts-NMOOP (Oil Palm)* (from 2014). Payments support the establishment of new seed gardens, maintenance of seed gardens, and production of sprouts. A one-time payment of up to INR 1 million can be provided for the setting up of a new seed garden of 15 ha by oil palm farmers or associations. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

- *Seed Component-NMOOP (Oil Seed)* (from 2014). Payments support the production and distribution of foundation seed, distribution of minikits (packets of a few kilograms of seed) and seed infrastructure development. Payments estimated for 2016: payment in previous year multiplied by the annual rate of change in 2015.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for oilseeds.

- *Seed Component-ISOPOM (Oil Seed)* (in 2012 and 2013). Payments support the production and purchase of breeder seed, foundation seed and certified seed.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for oilseeds.

- *Production Inputs-NMOOP (Oil Seed)* (from 2014). Payments support plant protection equipment, chemicals, insecticides, gypsum, supply of nuclear polyhedrosis virus, farm implements, distribution of sprinkler sets, seed storage bins and seed treatment drums to farmers. Payments estimated for 2016: payment in previous year multiplied by the annual rate of change in 2015.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for oilseeds.

- *Production Inputs-ISOPOM (Oil Seed)* (in 2012 and 2013). Payments support seeds and distribution of gypsum, rhizobium, sprinkler sets, and weedicides to farmers.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for oilseeds.

- *Area Expansion-ISOPOM (Oil Palm)* (2004 to 2011). Payments support input components, including planting material and maintenance costs, for area expansion.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

- *Nursery raising-ISOPOM (Oil Palm)* (2004 to 2008). Payments support the establishment of nursery and raising new of plants.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

*National Food Security Mission (NFSM)*. Launched in 2007, the NFSM supports increased production of rice, wheat, pulses and coarse cereals, restoration of soil fertility and productivity at the individual farm level, and enhancement of the farm level economy. The amount of payment under each component of NFSM was obtained through correspondence with DACFW [22]. NFSM includes:

- *Distribution of Seed-NFSM* (from 2007). Payments support farmers' purchase of seed. This includes hybrids of rice (the lesser of INR 50 per kg and 50% of the cost), hybrids of coarse cereals (INR 50 per kg), rice and wheat varieties less than 10 years old (INR 10 per kg), pulses varieties and coarse cereals varieties less than 10 years old (the lesser of INR 25 and INR 15 per kg, respectively, and 50% of the cost). Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in GCT for cereals and pulses.

- *Lime Gypsum and Micro Nutrients-NFSM* (from 2007). Payments support up to 2 ha of the target crop per farmer at the lesser of 50% of the cost and the following rates: micronutrients: INR 500 per ha; liming or paper mud of acidic soil: INR 1 000 per ha; gypsum or other sources of sulphur: INR 750 per ha; bio-fertilisers, such as Rhizobium and phosphate solubilising bacteria, in pulses: INR 100 per ha. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in GCT for all crops.

- *Sprayer/Chemical-NFSM* (from 2007). Payments support farmers' purchase of sprayers at the lesser of INR 600 per sprayer or 50% of the cost. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in GCT for all crops.

*Cattle Development* (from 2004 to 2013). Payments support the use of concentrate feed by farmers below-the-poverty-line for rearing female calves, insurance coverage for milk yielding animals, training of volunteers in artificial insemination, and cold storage facilities. Payment data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in GCT for livestock.

*National Programme for Bovine Breeding* (from 2014). Payments support artificial insemination services at farmers' doorstep, breeding inputs in the breeding tracts of important indigenous breeds, and the conservation, development and proliferation of selected indigenous bovine breeds of high socio-economic importance. Payment data from DAHDF in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in SCT for beef (bovine meat).

*Feed and Fodder Development* (from 2000 to 2015). Payments support the cultivation of superior variety of fodder for fodder seed, and the development of grassland to encourage farmers to take up perennial fodder cultivation and establish silage-making units. Payment data from DAHDF in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in GCT for livestock.

*Poultry Development* (from 2009 to 2015). Payments support the strengthening of poultry farms, providing them with inputs, and strengthening feed quality monitoring wing and training. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from DAHDF in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in SCT for poultry.

*Sheep and Wool Development* (2009 to 2015). Payments support sheep farming, training and breed improvement. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from DAHDF in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for sheep meat.

*National Livestock Mission* (from 2014). Payments support, for example, greater availability of fodder and feed, promotion of applied research, livestock insurance for farmers, and control and prevention of animal diseases. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from DAHDF in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for livestock.

*Other Programmes for Livestock* (from 2000 to 2015). Payments support a variety of minor livestock programmes. Payment data from [24].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for livestock.

*Oil Seed Production Program* (from 2000 to 2015). Payments support the improvement of quality and variety of seed, pre-sowing treatment, usage of bio-fertilisers, pest and weed control, education of farmers about pest control methods, and field demonstration of production technologies. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for oilseeds.

*Horticulture and Vegetable Crops* (from 2000 to 2008). Payments support the setting up of new gardens and orchards, planting and seed material, training and demonstration of new technology and mechanisation. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for horticulture.

*Other Crop Husbandry Program* (from 2000 to 2015). Payments support a variety of minor crop programmes. Payment data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included for all crops.

*Macro Management of Agriculture* (from 2000 to 2012). Payments support the distribution of hybrid or high yielding seeds, micro nutrients, bio-fertilisers, bio-pesticides, hybrid seeds, minikits, training through farmer's field schools, skill development and extension activities to facilitate crop production. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in AC.

*Irrigation Subsidy* (from 2000). Governments bear the costs of operating and maintaining government irrigation systems. Users of surface water pay less than these costs for water. The irrigation subsidy is revenue expenditure under the heading Irrigation and Flood Control (includes Major and Medium Irrigation, Minor Irrigation, and Flood Control and Drainage) less revenue receipts under the headings Major and Medium Irrigation Projects and Minor Irrigation. This data is reported, respectively, in Appendix II (Revenue Expenditure of States and Union Territories with Legislature – All States) and Appendix I (Revenue Receipts of States and Union Territories with Legislature – All States) in State Finances: A Study of Budgets of (various years), Reserve Bank of India <https://rbi.org.in/Scripts/AnnualPublications.aspx?head=State%20Finances%20:%20A%20Study%20of%20Budgets> . Data for the last three years refers to revised estimates and budget estimates. Note: capital

expenditure on irrigation is a component of Hydrological infrastructure in GSSE. Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for all crops.

*Electricity Subsidy* (from 2000). The electricity subsidy is estimated from the difference between average tariffs for power per unit supplied to agriculture and the unit cost of power supply to all consumers, including agriculture. This difference is multiplied by the apparent supplies for agricultural operations, which is assumed to equal 70% of the total supplies to rural areas (leaving 30% for domestic use in rural areas). Data sources are as follows. For 2000 to 2006: correspondence with Power Division, erstwhile Planning Commission, Government of India. For 2007 to 2009: Table 4.2, Annual Report 2011-12 on The Working on State Power Utilities and Electricity Departments, October 2011, Planning Commission, Government of India [http://planningcommission.nic.in/reports/genrep/arep\\_seb11\\_12.pdf](http://planningcommission.nic.in/reports/genrep/arep_seb11_12.pdf). For 2009 to 2013: Table 4.2, Annual Report (2013-14) on The Working on State Power Utilities and Electricity Departments, February 2014, Planning Commission, Government of India [http://planningcommission.gov.in/reports/genrep/rep\\_arpower0306.pdf](http://planningcommission.gov.in/reports/genrep/rep_arpower0306.pdf). Average tariffs and unit costs are from the respective Chapter 4 and its annexures. For 2014 to 2016: the estimated electricity subsidy in previous year multiplied by the mean annual rate of change in years 2012-14.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in AC.

*Interest Subvention on Short Term Loans* (from 2007). Payments by the Government of India provide subsidies to public sector banks, regional rural banks and co-operative banks in respect of short-term production credit to enable these agencies to deliver credit to farmers at subsidised interest rates. The rate of subsidy has varied over time and for farmers in different kinds of repayment situations. Payment data from the Expenditure Budget, Government of India: 2007 to 2015 under Department of Financial Services, Ministry of Finance; 2016 under Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in AC.

*Diesel Subsidy in Drought and Deficit Rainfall Affected Areas* (in 2009, 2012, 2013, 2015 and 2016). Payments support farmers in providing supplementary irrigation through diesel pump sets in areas affected by drought and deficit rainfall. Payment data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in AC.

*Fertiliser Subsidy* (from 2000). Payments by the Government of India are provide to actors engaged in the supply of fertilisers, such as manufacturers, importers and distributors. This enables the sale of various fertilisers to farmers at controlled prices or with a given subsidy rate under provisions which have evolved differently for urea and for phosphatic (P) and potassic (K) fertilisers since 2000. While very little urea was imported in 2000, compared to consumption, the share supplied by imports had by 2013 risen to 23% (consumption increased by about half). Subsidy payments for domestically manufactured urea are based on the difference between the manufacturing cost and a maximum retail price (MRP). The manufacturing cost is specific to individual manufacturing plants and includes fixed costs and variable costs, mainly for natural gas, some of which is supplied at low administered prices. Subsidy payments for imported urea are based on the difference between the import parity price and the MRP. The MRP has been raised only little from the year 2000 or even before. The bulk of the consumption of P fertilisers and all of the consumption of K fertilisers are accounted for by imports. Up to 2010 the subsidy payments on P and K fertilisers were based on the difference between the import parity price and a fixed retail price. P and K fertilisers were decontrolled after 2010 and maximum retail prices are no longer set for these fertilisers. The subsidy payments for P and K fertilisers are based on a fixed payment rate per tonne of fertiliser. Payment data for 2000 to 2013 refer to

the sum of subsidies under the headings subsidies on indigenous urea, subsidies on imported urea, sale of decontrolled fertiliser with concession to farmers, and (in 2007 and 2008 only) subsidy provided through bond, i.e., the government entered into a payment obligation. Payment data for 2000 to 2013 from Table 1, Rationalizing Fertilizer Subsidy in India: Key Issues and Policy Options, by A. Gulati and P. Banerjee, Working Paper 307, August 2015, Indian Council for Research on International Economic Relations (ICRIER) (source is indicated as Expenditure Budget, Volume I [understood as Demand No. 7], Department of Fertilizers, Government of India). Payment data for 2014 to 2016 from Expenditure Budget, Volume I, Demand No. 7, Department of Fertilizers, Government of India.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT1.

*Development of Pulses* (2000 to 2005). Payments support a short-term duration package of practices in pulses cultivation, production and distribution of breeder seed, and front line demonstration, by ICAR. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from with DACFW [22].  
Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for pulses.

*Subsidy on Crop Insurance* (from 2000). The Government of India has paid part of the premium for crop insurance through a variety of crop insurance schemes since 2000 (and before). They include, e.g., the National Agricultural Insurance Scheme, the Modified National Agricultural Insurance Scheme, the Weather Based Crop Insurance Scheme, the Coconut Palm Insurance Scheme, the National Crop Insurance Program, the Restructured Weather Based Crop Insurance Scheme, and, most recently, the Pradhan Mantri Fasal Bima Yojana. A year's payment data is the sum of expenditures (revised or actual) reported under headings such as Crop Insurance or Crop Insurance Scheme in the Expenditure Budget, Demand No. 1, Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare.  
Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for crops.

*Seeds* (2000 to 2008). Payments support the production and distribution of quality seeds. Payment data from DACFW in [21].  
Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for oilseeds.

*Organic Value Chain for North East Region* (from 2015). Payments support farmers' purchase of such inputs as seeds, bio fertilisers, liquid bio pesticides, and setting up custom hiring centres. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from DACFW in [21].  
Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for crops.

*National Horticulture Mission-Production of Planting Material* (from 2015). Payments support the production and distribution of good quality seeds and planting material to farmers. Some payments support proper fencing, net houses, irrigation facilities and hi-tech green houses. Payments under this programme are split 50%-50% between Variable input use and Fixed capital formation. Payment data from DACFW in [21]. Payments in 2016 assumed same as in 2015.  
Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for crops.

*Agricultural and Rural Debt Relief Scheme* (2008 to 2011). Also called Agricultural Debt Waiver and Debt Relief Scheme. Payments supported the complete waiver of debts held by farmers with landholdings of up to 2 ha (small and marginal farmers) and a one-time relief of 25% of the eligible amount (interest and principal) held by other farmers provided they paid the remaining 75%. Payment data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in AC.

*Custom Hiring- National Food Security Mission (NFSM)* (from 2007). Payments to farmers support the hiring of machines for farm operations from Custom Hiring Centres at a rate of INR 1 500 per ha. Payments estimated for 2014 to 2016: payment in previous year multiplied by the mean annual rate of change in years 2011-13. Payment data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

## *B.2 Based on fixed capital formation*

*Agriculture Mechanization-RKVY* (from 2007). Payments support farmers' purchase of agricultural equipment and machinery. Payment data: see *Rashtriya Krishi Vikas Yojana (RKVY)* above in B.1 Based on variable input use. Payments estimated for 2015 to 2016: payment in previous year multiplied by the mean annual rate of change in 2012-14.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*National Mission on Oilseeds and Oil Palm (NMOOP)*. Payment data: see *NMOOP* above in B.1 Based on variable input use.

- *Supply of Drip Irrigation System-NMOOP (Oil Palm)* (from 2014). Payments support the setting up of on-farm drip irrigation systems. Payments estimated for 2016: payment in previous year multiplied by the annual rate of change in 2015.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

- *Supply of Diesel/Electric Pump Sets for Drip Irrigation System-NMOOP (Oil Palm)* (from 2014). Payments support the installation of pump sets at 50% of the cost, limited to INR 15 000 per pump set, by oil palm growers with at least 2 hectares under oil palm plantation. Assistance is provided for diesel, petrol, or electric pump sets of capacity up to 10 horsepower. Payments estimated for 2016: payment in previous year multiplied by the annual rate of change in 2015.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

- *Construction of Vermi-Compost Units at Oil Palm Fields-NMOOP (Oil Palm)* (from 2014). Payments support 50% of the cost, limited to INR 15 000 per unit, of installing vermi-compost units at oil palm fields and gardens. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

- *Subsidy for Bore Wells at Oil Palm Farm-NMOOP (Oil Palm)* (from 2014). Payments support the construction of bore wells and tube wells at 50% of the cost, limited to INR 25 000 per unit. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

- *Oil Palm Cutter, Chisel, etc.-NMOOP (Oil Palm)* (from 2014). Payments support farmers' acquisition of oil palm cutters at INR 1 500 per unit. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in SCT for XE (non-MPS commodities).

*National Horticulture Mission-Creation of Water Resources* (from 2015). Payments support the creation of water sources through construction of community tanks, farm ponds and reservoirs with plastic or reinforced cement concrete lining for irrigation of horticulture crops. Payment data: see *National Horticulture Mission* above in *B.1 Based on variable input use*. Payments in 2016 assumed same as in 2015.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in ACT.

*Drip Irrigation-ISOPOM (Oil Palm)* (2004 to 2013). Payments support farmers' installation of drip irrigation as per the guidelines of National Mission for Sustainable Agriculture. Payment data: see above in *B.1 Based on variable input use*.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in SCT for XE (non-MPS commodities).

*Diesel Pump Sets-ISOPOM (Oil Palm)* (2004 to 2013). Payments support the installation of pump sets at 50% of the cost, limited to INR 15 000 per pump set. Assistance is provided for diesel, petrol, or electric pump sets of capacity up to 10 horsepower. Payment data: see above in *B.1 Based on variable input use*.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in SCT for XE (non-MPS commodities).

*National Food Security Mission (NFSM)*. See description and payment source above in *B.1 Based on variable input use*.

- *Sprinkler Set-NFSM* (from 2007). Payments support the installation of sprinkler sets at the lower of INR 10 000 per ha or 50% of the cost. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in ACT.

- *Pump Set-NFSM* (from 2007). Payment support the installation of pump sets at the lower of INR 10 000 per pump set or 50% of the cost. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in ACT.

- *Machineries-NFSM* (from 2007). Payments support the acquisition of machinery at the lower of rates between INR 600 (e.g., manual sprayer) and INR 75 000 (e.g., self-propelled paddy transplanter) and 50% of the cost. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments are included in ACT.

- *Water Carrying Pipes-NFSM* (from 2007). Payments support the acquisition of pipes at the lower of a varying rate per metre depending on the material of the pipe (e.g., between INR 25 and INR 50 per metre) and 50% of the cost, up to a limit of 600 metres and a cost of INR 15 000 per farmer. Payments estimated for 2016: payment in previous year multiplied by the mean annual rate of change in 2013-15.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

- *Oil Palm Protective Wire Mesh-NMOOP (Oil Palm)* (from 2014). Payments support farmers' acquisition of oil palm protective wire mesh at INR 15 000 per unit. Payment data for 2014 to 2016 from correspondence with DACFW [22].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

*Sub-Mission on Agriculture Mechanisation* (from 2014). Payments support the procurement of agriculture machinery and equipment, promotion of farm mechanisation in selected villages, establishment of farm machinery banks and promotion of machinery in the North-Eastern region. Data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*National Horticulture Mission-Mechanisation* (from 2015). Payments support the procurement of power operated machines and tools to promote mechanisation of horticulture related activities. Payment data: see *National Horticulture Mission* above in *B.1 Based on variable input use*. Payments in 2016 assumed same as in 2015.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Water Harvesting Structure/Ponds-NMOOP (Oil Palm)* (from 2014). Payments support farmers constructing ponds at 50% of the cost, limited to INR 75 000 in plain areas and INR 90 000 in hilly areas.

Payment data: see *NMOOP* above in *B.1 Based on variable input use*.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for XE (non-MPS commodities).

*National Horticulture Mission - Protected Cultivation* (from 2015). Payments support farmers constructing shade net house, green houses, mulching, and plastic tunnels, and anti-bird and hail nets. Payment data: see *National Horticulture Mission* above in *B.1 Based on variable input use*. Payments in 2016 assumed same as in 2015.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*National Mission on Micro-Irrigation* (2005 to 2014). Payments support farmers setting up drip irrigation, sprinkler systems and irrigation systems for the use of water resources. The cost is split among the central government, state governments and farmers in 40:10:50 proportions. Payment data from DACFW in [21].

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Mobile Rain Gun-NFSM* (from 2007). Payments support farmers acquiring mobile rain guns (pressurised irrigation sprinklers) at the lower of INR 15 000 per mobile rain gun and 50% of cost. Payment data: see *NFSM* above in *B.1 Based on variable input use*.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*National Horticulture Mission-Production of Planting Material* (from 2015). Payments support the production and distribution of good quality seeds and planting material to farmers. Some payments support proper fencing, net houses, irrigation facilities and hi-tech green houses. Payments under this programme

are split 50%-50% between Variable input use and Fixed capital formation. Payment data from DACFW in [21]. Payments in 2016 assumed same as in 2015.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for crops.

*B.3. Based on use of on-farm services*

*[no payments under this heading]*

*C. Payments based on current area planted/animal numbers/receipts/income – production required*

*[no payments under this heading]*

*D. Payments based on non-current area planted/animal numbers/receipts/income – production required*

*[no payments under this heading]*

*E. Payments based on non-current area planted/animal numbers/receipts/income – production not required*

*[no payments under this heading]*

*F. Payments based on non-commodity criteria*

*F.1. Long-term resource retirement*

*[no payments under this heading]*

*F.2. Specific non-commodity output*

*[no payments under this heading]*

*F.3. Other non-commodity criteria*

*[no payments under this heading]*

*G. Miscellaneous payments*

*Special Package for suicide prone districts (2007 to 2014).* Payments ameliorate the conditions of farmers in the identified districts. Payment data from DACFW in [21].

*Lump Sum Provision for Project and Schemes for the Benefit of the North-Eastern Region and Sikkim for Animal Husbandry (2000 to 2008; 2013; 2015).* Payments support animal husbandry projects and schemes in the North-Eastern Region and Sikkim. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from [24].

*Lump Sum Provision for Projects and Schemes for the Benefit of North Eastern Region and Sikkim for Crop Husbandry* (2000 to 2008; 2015). Payments support crop husbandry projects and schemes in the North-Eastern Region and Sikkim. Payments under this programme are split 50%-50% between PSE and GSSE. Payment data from DACFW in [21].

*Dairy Entrepreneurship Development* (from 2015). Payments support farmers setting up small dairy farms and other components to bring structural changes in the dairy sector. Farmers, individual entrepreneurs, non-government organisations, companies, groups of organised and unorganised sectors benefit under this scheme. Payment data from DAHDF in [21].

**III.2 Percentage PSE**  $[100 \times (\text{III.1}) / ((\text{I}) + (\text{Sum of A2 to G}))]$

**III.3 Producer NPC:** For all agricultural commodities the producer NPC is estimated as a weighted average of the producer NPC calculated for the individual MPS commodities and shown in Table 4. For each commodity Producer NPC = [domestic price received by producers (at the farm gate) + unit payments based on output] / border price (also at the farm gate).

**III.4 Producer NAC**  $[1 / (100 - (\text{III.2})) \times 100]$

**IV. General Services Support Estimate (GSSE):** total budgetary expenditure to support general services provided to agriculture [Sum of H to N].

#### ***H. Agricultural knowledge and innovation system***

##### ***H.1. Agricultural knowledge generation***

*Payments to Indian Council of Agricultural Research (ICAR)* (from 2000). Expenditure supports ICAR, an autonomous organisation at the national level responsible for organising and managing research, education and extension in the field of agriculture, animal sciences and fisheries. Its mandate includes crop husbandry, soil and water conservation, animal husbandry and fisheries. Expenditure data from DARE in [21].

*Assistance to Central Agricultural University, Imphal* (2002). Expenditure supports the university set up in Imphal. Expenditure data from DARE in [21].

*Central Agricultural University, Bundelkhand* (2014 and 2015). Expenditure supports the university set up in Bundelkhand. Expenditure data from DARE in [21].

*Central Agricultural University, Bihar* (2014 and 2015). Expenditure supports the university set up in Bihar. Expenditure data from DARE in [21].

*Agriculture Universities and Institutions* (from 2015). Expenditure supports all the agricultural universities in the country, including the accreditation of educational institutions, providing international and national fellowships, and organising training and capacity building programmes for the scientists and faculty of the National Agricultural Research System. Expenditure data from DARE in [21].

*Crop Science* (from 2015). Expenditure supports development of improved crop varieties and hybrids, cost-effective production and environment-friendly protection technologies in different agro-climatic regions. Expenditure data from DARE in [21].

*Horticulture Science* (from 2015). Expenditure supports enrichment of horticultural genetic resources, development of new cultivation with resistance mechanism to biotic and abiotic stresses, appropriate production technology and health management system of horticultural and vegetable crops. Expenditure data from DARE in [21].

*Animal Science* (from 2015). Expenditure supports development of new technologies to support production enhancement, profitability, competitiveness and sustainability of livestock and poultry sector for food and nutritional security. It facilitates need based priority research in livestock and poultry sector in on-going and new emerging areas. Expenditure data from DARE in [21].

*Livestock Census* (2002-04; from 2006). Expenditure supports the conduct of census to collect detailed information on livestock population category-wise, along with age and sex-composition, disaggregated information on poultry, animal operated agricultural implements and machinery and fishery statistics. Expenditure data from DAHDF in [21].

*Manure and Fertiliser* (2000 to 2005). Expenditure supports a variety of activities to develop the use of manure and fertilisers. Expenditure data from DACFW [22].

*Economics Statistics and Management* (from 2015). Expenditure supports research in the areas of agricultural economics and agricultural statistics to address the policy, management and database issues and accordingly provide need-based support to other schemes and agricultural stakeholders. Expenditure data from DARE in [21].

## *H.2. Agricultural knowledge transfer*

### *H.2.a. education*

*Information Technology-RKVY* (from 2007). Expenditure supports Knowledge and Technology Resource Centres. Expenditure estimated for 2015 and 2016: expenditure in previous year multiplied by the mean annual rate of change in years 2012-14. Expenditure data from Annual Report of DACFW [22].

*Research-RKVY* (from 2007). Expenditure supports the strengthening of Krishi Vigyan Kendras (KVK). Expenditure estimated for 2015 and 2016: expenditure in previous year multiplied by the mean annual rate of change in years 2012-14. Expenditure data from Annual Report of DACFW [22].

*Transfer of Technology-ISOPOM (Oil Seed)* (2012 and 2013). Expenditure supports block demonstrations, integrated pest management, training of farmers, extension workers, input dealers and local initiatives. Expenditure data from correspondence with DACFW [22].

*Transfer of Technology-NMOOP (Oil Seed)* (from 2014). Expenditure supports block demonstrations, integrated pest management, training of farmers, extension workers, input dealers and local initiatives. Expenditure estimated for 2016: payment in previous year multiplied by the mean annual rate of change in years 2014-2015. Expenditure data from correspondence with DACFW [22].

*Research and Development of Post Harvest Technology in Oilseeds and Pulses* (2000 to 2003). Expenditure supports research and development through practices such as threshing, shelling or podding and drying. Expenditure data from correspondence with DACFW [22].

*Education & Training* (from 2000). Expenditure supports farmers' training through Krishi Vigyan Kendras, vocational agricultural schools and field demonstrations. Expenditure data from DARE in [21].

*Intensive Cotton Development Programme/Technology Mission on Cotton (2000-15)*. Expenditure supports the improvement of production and productivity of cotton through technology transfer and seed intervention. Expenditure data from DARE in [21].

#### *H.2.b. extension services*

*Extension-RKVY (from 2007)*. Expenditure supports skill development and training in the farming community and revamping existing agricultural extension systems. Expenditure estimated for 2015 and 2016: expenditure in previous year multiplied by the mean annual rate of change in years 2012-14. Expenditure data from Annual Report of DACFW, Expenditure Budget, Government of India.

*Farmers Training-NMOOP (Oil Palm) (from 2014)*. Expenditure supports two-day farmer training at INR 24 000 per batch of 30 farmers (INR 400 per participant per day). Expenditure data from correspondence with DACFW [22].

*Extension Officers Training-NMOOP (Oil Palm) (from 2014)*. Expenditure supports training of extension officials and input dealers in batches of 20 participants at INR 900 per participant per day. Expenditure data from correspondence with DACFW [22].

*Demonstrations-NMOOP (Oil Palm) (from 2014)*. Expenditure supports demonstrations of oil palm cultivation at farmers' fields and at the farms of state governments, state agricultural universities, KVKs, and Indian Council of Agricultural Research. Expenditure data from correspondence with DACFW [22].

*Farmers Training-ISOPOM (Oil Palm) (2004-13)*. Expenditure supports farmer training. Expenditure data from correspondence with DACFW [22].

*Establishment & Staff-ISOPOM (Oil Palm) (2004-13)*. Expenditure supports establishment and staff and other ongoing schemes of seed gardens, leaf analysis lab, training of staff and officers, and testing of genotype. Expenditure data from correspondence with DACFW [22].

*Extension & Publicity-ISOPOM (Oil Palm) (2004-13)*. Expenditure supports extension and publicity. Expenditure data from correspondence with DACFW [22].

*Demonstrations-ISOPOM (Oil Palm) (2004-13)*. Expenditure supports demonstration of cultivation and management practices, plant protection measures and potential yield of oil palm by providing up to INR 10 000 per ha for planting material and up to INR 30 950 per ha for cultivation during gestation period of 4-5 years. Available for up to twenty 1-ha units in blocks where new oil palm plantations of 500 ha or above are located on farmers' fields. Expenditure data from correspondence with DACFW [22].

*Cropping System Based Training-NFSM (from 2007)*. Expenditure supports speedy disseminations of improved cropped production practices. Expenditure estimated for 2016: expenditure in previous year multiplied by the mean annual rate of change in years 2013-15. Expenditure data from correspondence with DACFW [22].

*Cultivation-ISOPOM (Oil Palm) (2004-13)*. Expenditure supports demonstration of cultivation and management practices, plant protection measures and potential yield of oil palm. Expenditure data from correspondence with DACFW [22].

*Demonstrations by NGO-NFSM (2007-11)*. Expenditure supports cluster demonstrations by NGOs reaching out to farmers in remote areas. Expenditure data from correspondence with DACFW [22].

*Demonstrations on improved package-NFSM (from 2007)*. Expenditure supports demonstrations of improved method of rice cultivation (system of rice intensification, direct seeded rice, hybrid rice technology,

stress tolerant varieties and improved package of practices (variety, nutrient management, integrated pest management etc.). Similar demonstrations are done for wheat and pulses. Expenditure data from correspondence with DACFW [22].

*Oil Seed Production Program* (from 2000). Expenditure supports the improvement of quality and variety of seed, pre-sowing treatment, usage of bio-fertilisers, pest and weed control, education of farmers about pest control methods, and field demonstration of production technologies. Expenditures are split 50%-50% between PSE and GSSE. Expenditure data from DACFW in [21].

*Horticulture and Vegetable Crop* (2000-08). Expenditure supports the setting up of new gardens and orchards, planting and seed material, training and demonstration of new technology and mechanisation. Expenditures are split 50%-50% between PSE and GSSE. Expenditure data from DACFW in [21].

*Macro Management of Agriculture* (2000-12). Expenditure supports the distribution of hybrid or high yielding seeds, micro nutrients, bio-fertilisers, bio-pesticides, hybrid seeds, minikits, training through farmer's field schools, skill development and extension activities to facilitate crop production. Expenditures are split 50%-50% between PSE and GSSE. Expenditure data from DACFW in [21].

*National Project on Organic Farming* (from 2015). Expenditure encourages and promotes development of organic agriculture by imparting on certificate system, initiating research and data collection. Expenditure data from DACFW in [21].

*Jute Technology Mission - Mini Mission – II* (2006-14). Expenditure supports production of breeder seed, providing technical knowhow, and co-ordinating activities like services, adaptive research, extension and input supply. Expenditure data from DACFW in [21].

*Minikit Programme for Rice, Wheat and Coarse Cereal* (2000 and 2001). Expenditure supports training, adoption of improved technology and increasing productivity. Expenditure data from DACFW in [21].

*Support to State Extension Services* (2008-13). Expenditure supports ensuring broad based extension delivery mechanisms and encouraging multi-agency extension strategies. Expenditure data from DACFW in [21].

*Mass-Media support to Agricultural Extension* (2009-13). Expenditure supports revamping the extension services in the country using electronic media for transfer of technology. Expenditure data from DACFW in [21].

*Extension Support to Central Institutes of DOE* (2009-13). DOE is Directorate of Extension. Expenditure supports the development of linkages between State Agricultural Universities, Regional and State level institutes and the conduct of research studies. Expenditure data from DACFW in [21].

*Sub-Mission on Agriculture Extension* (2010; from 2014). Expenditure supports awareness creation and use of appropriate technology in agriculture and allied activities. Use of interactive and innovative methods of information dissemination like projectors, low cost films, handheld devices, mobile based services, and Kisan Call Centres (KCCs) are provided to farmers. Expenditure data from DACFW in [21].

*Extension and Training* (2000-08). Expenditure supports disseminating information related to new technologies by enhancing farmers' grasp of crop techniques to improve technology. Expenditure data from DACFW in [21].

*Organic Value Chain for North East Region* (from 2015). Expenditure supports farmers' purchase of such inputs as seeds, bio fertilisers, liquid bio pesticides, and setting up custom hiring centres. Expenditures are split 50%-50% between PSE and GSSE. Expenditure data from DACFW in [21].

*Agriculture Extension* (from 2015). Expenditure supports the dissemination and refinement of frontline agricultural technologies. It includes training of farmers and extension personnel on local technologies, distribution of seed and planting materials and testing of soil and water samples. Expenditure data from DARE in [21].

*Poultry Development* (from 2009). Expenditures support the strengthening of poultry farms, providing them with inputs, and strengthening feed quality monitoring wing and training. Expenditures are split 50%-50% between PSE and GSSE. Expenditure data from DAHDF in [21].

*Sheep and Wool Development* (2009-10; 2012-15). Expenditures support sheep farming, training and breed improvement. Expenditures are split 50%-50% between PSE and GSSE. Expenditure data from DAHDF in [21].

*Development of Pulses* (2000-05). Expenditure supports a short-term duration package of practices in pulses cultivation, production and distribution of breeder seed, and front line demonstration, by ICAR. Payments under this programme are split 50%-50% between PSE and GSSE. Expenditure data from DACFW [22].

*Agriculture Engineering* (from 2015). Expenditure supports research, development and refinement of farm equipment, process and value addition protocols. Expenditure data from DARE in [21].

## ***I. Inspection and control***

### ***I.1. Agricultural product safety and inspection***

*Veterinary Services and Animal Health* (2000-15). Expenditure supports the states for control of animal disease, foot and mouth disease control programme, establishment and strengthening of existing veterinary hospitals and dispensaries. Expenditure data from DAHDF in [21].

*Dairy programme for bovine breeding* (from 2015). Expenditure supports artificial insemination services, breeding inputs in breeding tracts of indigenous breeds, the conservation, development and proliferation of selected indigenous bovine breeds, and the arrangement of breeding through artificial insemination. Expenditure data from DAHDF in [21].

*Animal Husbandry–RKVY* (from 2007). Expenditure is primarily health oriented, including improvement in fodder production, genetic up-grading of cattle and buffaloes, enhancement of milk production, enlarging raw material base for leather industry, improvement in livestock health, etc. Expenditure estimated for 2015 and 2016: expenditure in previous year multiplied by the mean annual rate of change in 2012-14. Expenditure data from Annual Report of DACFW, Government of India.

*Dairy Development–RKVY* (from 2007). Expenditure supports the purchase of tractors fitted with fodder block machine, purchase of milking machines, milk collection centres and infrastructure, setting up cold chain for storing and transporting of frozen semen, etc. Expenditures are split 33%-67% between PSE and GSSE. Expenditure estimated for 2015 and 2016: expenditure in previous year multiplied by the mean annual rate of change in years 2012-14. Expenditure data from Annual Report of DACFW, Government of India.

### ***I.2. Pest and disease inspection and control***

*Integrated Pest Management* (2007-14). Expenditure supports the development of facilities like Disease Forecasting Units, bio-control labs, and plant health clinics. Expenditure data from DACFW [22].

*Plant Protection (2000-08)*. Expenditure supports Integrated Pest Management and availability of safe and quality pesticides for sustaining crop production. Expenditure data from DACFW [22].

*National Horticulture Mission-Integrated Pest Management (from 2015)*. Expenditure supports Integrated Pest Management at 50% of the cost, subject to a maximum of INR 1 000 per ha per beneficiary, developing facilities like disease forecasting units, bio control labs, plant health clinics, etc. Expenditure data from correspondence with DACFW [22].

*Sub-Mission on Plant Protection and Plant Quarantine (from 2014)*. Expenditure supports the keeping of crops disease free using scientific and environment friendly techniques, and the monitoring of pesticide residues in food commodities and environmental samples. Expenditure data from DACFW [22].

*National Livestock Mission (from 2014)*. Expenditure supports, for example, greater availability of fodder and feed, promotion of applied research, livestock insurance for farmers, and control and prevention of animal diseases. Expenditures are split 50%-50% between PSE and GSSE. Expenditure data from DAHDF in [21].

*Dairy development/Dairy Vikas Abhiyan (from 2000)*. Expenditure supports the development of dairy industry, dairy entrepreneurship, livestock and fodder development through the Livestock Health and Disease Control Programme, National Livestock Mission, National Programme for Bovine Breeding, Cattle Development and a scheme of Indigenous Breeds. Expenditure data from DAHDF in [21].

### *1.3. Input control*

*Development and Strengthening of Seed Infrastructure Facilities for Production and Distribution of Seeds (2009-13)*. Expenditure supports the establishment and maintenance of movement of seeds, seed banks and quality control arrangement of seeds. Expenditure data from DACFW in [21].

*Strengthening and Modernisation of Plant Quarantine Facilities in India (2009-13)*. Expenditure supports the prevention of any insect, fungus, or any other pest which may be destructive to crops. Expenditure data from DACFW in [21].

*Strengthening & Modernization of Pest Management Approach in the Country (2009-13)*. Expenditure supports the monitoring and controlling of desert locust, integrated pest management and implementation of the Insecticides Act. Expenditure data from DACFW in [21].

*National Project on Management of Soil, Health and Fertility (2008-10; from 2012)*. Expenditure supports the strengthening of Soil Testing Laboratories, fertiliser quality control laboratories and promotion of integrated nutrient management. Expenditure data from DACFW in [21].

*Soil Health Card and Grants for States and UTs (2013)*. Expenditure supports the strengthening of soil and fertiliser testing facilities, ensuring quality control requirements of fertilisers, bio-fertilisers and organic fertilisers. Expenditure data from DACFW in [21].

*All India Soil and Land Use Survey and Application of Remote Sensing Technology for Soil Survey (2000 and 2001; 2004-15)*. Expenditure supports the conduct of soil survey of various kinds and intensities to provide sound data base for land based developmental programmes to the State user departments and other Government needs. Expenditure data from DACFW in [21].

*Alkali Land Reclamation and Development Programme (2000 and 2001)*. Expenditure supports improving condition and productivity status of alkali and acid soils for restoring optimum crop production. Expenditure data from DACFW in [21].

*Seed–RKVY (2007-16)*. Expenditure supports setting up seed testing labs, seed processing facilities, storage godowns, seed certification agencies and seed multiplication farms. Expenditures estimated for 2015 and 2016: expenditure in previous year multiplied by the mean annual rate of change in 2012-14. Expenditure data from Annual Report of DACFW in [21].

*Fertilizer–RKVY (2007-16)*. Expenditure supports setting up new fertiliser quality control laboratories and strengthening them. Expenditures estimated for 2015 to 2016: expenditure in previous year multiplied by the mean annual rate of change in years 2012-14. Expenditure data from Annual Report of DACFW in [21].

*Implementation of Insecticides Act (2000-15)*. Expenditure supports analysis of pesticide samples, strengthening State Pesticides Testing Laboratories for quality, safe and efficacious pesticides to farming community. Expenditure data from DACFW in [21]. Expenditure in 2016 assumed same as in 2015.

*Sub Mission on Seed and Planting Material (from 2015)*. Expenditure supports the public seed producing organisations to improve their capacity and quality of seed production and seed banks to increase production of quality seeds. Expenditure data from DACFW in [21].

## ***J. Development and maintenance of infrastructure***

### ***J.1. Hydrological infrastructure***

*Micro Irrigation/Micro Irrigation-RKVY (from 2007)*. Expenditure supports farm ponds, field channels, piped water conveyance system, percolation and minor irrigation tanks. Expenditure estimated for 2015 and 2016: expenditure in previous year multiplied by the mean annual rate of change in 2012-14. Expenditure data from Annual Report of DACFW [22].

*National Watershed Development Programme for Rainfed Agriculture (2000)*. Expenditure supports efforts to increase groundwater recharge, tube wells and water bodies, change cropping pattern and improve yields. Components include watershed treatment activities, training and watershed community organisations. Expenditure data from Ministry of Water Resources, River Development and Ganga Rejuvenation.

*Water Management (2001-03)*. Expenditure supports construction of shallow tube-wells with pump sets, lift irrigation points, and electric/diesel pump sets. Expenditure data from Ministry of Water Resources, River Development and Ganga Rejuvenation (name changed from Ministry of Water Resources).

*Watershed Development Council (2000-06; 2008 and 2009)*. Expenditure supports execution of World Bank assisted projects. Expenditure data from Ministry of Water Resources, River Development and Ganga Rejuvenation (name changed from Ministry of Water Resources).

*Soil Conservation in Catchment of River Valley Projects and Flood Prone Areas (2000-06)*. Expenditure supports grant to Damodar Valley Corporation for conducting training programmes. Expenditure data from Ministry of Water Resources, River Development and Ganga Rejuvenation (name changed from Ministry of Water Resources).

*Investment in Damodar Valley Corporation (2002-07)*. This corporation operates under the Ministry of Power and is involved with power generation and transmission, water management and mining. Expenditure data from DACFW in [21].

*Capital Expenditure on Irrigation (from 2000)*. Expenditure on irrigation projects is for the creation of water resources. Capital expenditure on Major and Medium Irrigation Projects (MMI), Minor Irrigation Projects, and Command Area Development (CAD) are added to obtain capital expenditure on irrigation. Data for MMI, Minor and CAD from Financial Aspects of Irrigation Projects in India (December 2015), Information

Systems Organisation, Water Planning & Projects Wing, Central Water Commission (pages 62, 94, 126) [http://www.cwc.gov.in/main/downloads/Final%20FAI\\_11.01.2016.pdf](http://www.cwc.gov.in/main/downloads/Final%20FAI_11.01.2016.pdf). Expenditure for 2014 to 2016: expenditure in previous year multiplied by the mean annual rate of change in 2011-13.

*Pradhan Mantri Krishi Sinchai Yojna (PMKSY)* (from 2015). Expenditure supports faster completion of ongoing major and medium irrigation, creation of new water sources through minor irrigation, command area development, strengthening and creation of distribution networks, rejuvenation of traditional water storage systems, water harvesting structures such as check dams, effective rainfall management, and construction of micro irrigation. Expenditure data from DACFW [22] and Department of Land Resources and Ministry of Water Resources, River Development and Ganga Rejuvenation.

*Rainfed Area Development and Climate Change* (from 2015). Expenditure supports promotion of integrated farming systems to enable farmers to enhance farm returns and to mitigate the impacts of drought, flood or other extreme weather events through conservation technologies and protective and life-saving irrigation. Expenditure data from DACFW [22].

*National Horticulture Mission-Creation of Water Resources* (from 2015). Expenditure supports creating water sources through construction of community tanks, farm ponds and reservoirs with plastic or RCC lining to ensure lifesaving irrigation to horticulture crops. Expenditure in 2016 assumed same as in 2015. Expenditure data from DACFW [22].

*Natural Resource Management-RKVY* (from 2007). Expenditure supports soil and water conservation activities and reclamation of soil problems. Expenditure estimated for 2015: expenditure in previous year multiplied by the mean annual rate of change in years 2012-14. Expenditure in 2016 assumed same as in 2015. Expenditure data from Annual Report of DACFW [22].

## *J.2. Storage, marketing and other physical infrastructure*

*Marketing and Post Harvest Management-RKVY* (from 2007). Expenditure supports construction of market infrastructure facilities, storage facilities, farmers' service centre, food grain procurement centres, etc. Expenditure for 2014 to 2016: expenditure in previous year multiplied by the mean annual rate of change in 2011-13. Expenditure data from Annual Report of DACFW [22].

*Construction of Roads-NMOOP (Oil Palm)* (from 2014). Expenditure supports construction of roads from oil palm fields to nearest processing centres and establishment of oil palm processing units. Expenditure data from correspondence with [22].

*Development and Strengthening of Seed Infrastructure Facilities for Production and Distribution of Seeds* (from 2009). Expenditure supports development and strengthening of infrastructure facilities for production and distribution of quality seeds. Expenditure data from DACFW [22].

*Construction of Rural Godowns* (2009-13). Expenditure supports construction of godowns, a type of storage facility. Expenditure data from DACFW [22].

*Development of Market Infrastructure Grading and Standardisation* (2009-13). Expenditure supports development of market infrastructure. Expenditure data from DACFW [22].

*National Horticulture Mission-Establishment of Marketing Infrastructure* (2009-13). Expenditure supports setting up wholesale markets, rural markets and retail markets, setting up static and mobile vending carts and platforms with cool chamber. Expenditure data from correspondence with DACFW [22].

*Animal Health Institute* (from 2015). Expenditure supports animal quarantine services stations and Chaudhary Charan Singh National Institute of Animal Health. Expenditure data from [24].

*Small Livestock Institute* (from 2015). Expenditure supports Central Poultry Development Organization, Regional Fodder Stations and Central Sheep Breeding Farm. Expenditure data from [24].

*Breed Improvement Institute* (from 2015). Expenditure supports Central Cattle Breeding Farms, Central Herd Registration Scheme and Central Frozen Semen Production & Training Institute. Expenditure data from [24].

*Organic Farming-RKVY* (from 2007). Expenditure supports fruit and vegetable waste and compost production units. Expenditure estimated for 2015: expenditure in previous year multiplied by the mean annual rate of change in 2012-14. Expenditure in 2016 assumed same as in 2015. Expenditure data from Annual Report of DACFW [22].

### *J.3. Institutional infrastructure*

*National Rainfed Area Authority* (2006; 2008; 2010). Expenditure supports the National Rainfed Authority which focuses on problems of rainfed areas of the country. Expenditure data from correspondence with DACFW [22].

*Coconut Development Board* (2009-13). Expenditure supports this board to expand area under coconut and promote integrated farming for productivity improvement. Expenditure data from DACFW [22].

*National Horticulture Board* (2009-13). Expenditure supports this board, with a mandate to promote integrated development in horticulture, to help in co-ordinating, stimulating and sustaining the production and processing of fruits and vegetables. Expenditure data from DACFW [22].

*Grants for matching equity grant to Farmers Producers Organisations (FPOs)* (2013). Expenditure supports FPOs by providing them matching equity grants operated by Small Farmers' Agri-business Consortium (SFAC) to enhance their creditworthiness, viability and sustainability. Expenditure data from DACFW [22].

*Grants to SFAC for Credit Guarantee Fund for Farmers Producers Organisations (FPOs)* (2013). Expenditure supports the protection of eligible lending institutions by extending credit guarantees and covering their lending risks. SFAC is Small Farmers Agri-business Consortium. Expenditure data from DACFW [22].

*National Land Resources Commission/Board* (2000 and 2001; 2004). Expenditure supports national land resources institutions. Expenditure data from DACFW [22].

*National Cooperative Development Cooperation* (2000-02). Expenditure supports planning, promoting and financing programmes for production, processing, marketing, storage, export and import of agricultural produce, food stuffs, certain other notified commodities, e.g. fertilisers, insecticides, agricultural machinery, lac, soap, kerosene oil, textile, rubber etc., supply of consumer goods and collection, processing, marketing, storage and export of minor forest produce through co-operatives, besides an income generating stream of activities such as poultry, dairy, fishery, sericulture, handloom etc. Expenditure data from DACFW [22].

*Development of State Land Development Banks* (2000-01; 2003-12; 2014). Expenditure supports land development banks to raise working capital from share capital, deposits and debentures. Expenditure data from DACFW [22].

*Small Farmers Agri-business Consortium (2009-13)*. Expenditure supports SFAC, which is focused on increasing incomes of small and marginal farmers through aggregation and development of agribusiness. Expenditure data from DACFW [22].

#### *J.4. Farm restructuring*

### **K. Marketing and promotion**

#### *K.1. Collective schemes for processing and marketing*

*Agriculture Marketing (2000-04; 2006-08)*. Expenditure supports strengthening of grading and export quality control, marketing information networks, development of market infrastructure and grading and standardisation. Expenditure data from DACFW [22].

*Integrated Scheme on Agricultural Marketing (from 2014)*. Expenditure supports the promotion of agri-marketing through creation of marketing and agribusiness infrastructure including storage. Expenditure data from DACFW [22].

*Assistance to National Cooperative Development Corporation for Cooperative Development (2000; 2002-13)*. Expenditure supports warehousing, marketing and processing in the co-operative field. Expenditure data from DACFW [22].

*Integrated Scheme on Agricultural Cooperation (from 2015)*. Expenditure supports streamlining the co-operative marketing structure, diversification of activities, capacity building and involving grass-root level co-operatives. Expenditure data from DACFW [22].

#### *K.2. Promotion of agricultural products*

### **L. Cost of public stockholding**

*Cost of public stockholding (from 2000)*. The cost of stockholding of wheat and rice consists of the “carrying cost of buffer stocks”, which is the sum of costs incurred for the buffer stocks held by the Food Corporation of India (FCI) and the FCI expenditure on reimbursement to state governments and agencies of carryover charges. FCI expenditure data from annual reports of the FCI. In addition, the cost of public stockholding includes the part borne by the Government of India of the cost of maintaining buffer stocks of sugar held by state, private and co-operative agencies (based on fixed specific norms). Expenditure data from Union Budget documents. Expenditure estimated for 2016 as mean expenditure in 2013-15.

### **M. Miscellaneous**

*Cooperatives-RKVY (from 2008)*. Expenditure supports co-operatives through the RKVY scheme. Expenditure estimated for 2015: expenditure in previous year multiplied by the mean annual rate of change in 2012-14. Expenditure in 2016 assumed same as in 2015. Expenditure data from Annual Report of DACFW [22].

*Other Programmes for Livestock (2000-15)*. Expenditure supports a variety of livestock programmes. Expenditure data from DACFW [22].

*Lumpsum Provision for Project/Schemes for the Benefit of the North Eastern Region and Sikkim for Animal Husbandry (2000-01; 2003-08; 2013; 2015)*. Expenditure supports animal husbandry projects and schemes in the North-Eastern Region and Sikkim. Expenditure under this programme is split 50%-50% between PSE and GSSE. Expenditure data from DAHDF [24].

*Special Package for Suicide Prone Districts (2007-13)*. Expenditure ameliorates the conditions of farmers in the identified districts. Expenditure data from Annual Report of DACFW [22].

*Other Crop Husbandry Programs (2000-08; 2010; from 2012)*. Expenditure supports a variety of crop husbandry programmes. Expenditure data from correspondence with DACFW [22].

*Lumpsum Provision for Projects/Schemes for the Benefit of North Eastern Region and Sikkim for Crop Husbandry (2000-08; 2015)*. Expenditure supports crop husbandry projects and schemes in the North-Eastern Region and Sikkim. Expenditures are split 50%-50% between PSE and GSSE. Expenditure data from DACFW in [21].

*National Horticulture Mission-Miscellaneous (from 2015)*. Expenditure supports a variety of activities to develop horticulture. Expenditure in 2016 assumed same as in 2015. Expenditure data from correspondence with DACFW [22].

**V.1 Consumer Support Estimate (CSE):** Associated with agricultural production, i.e. for the quantities of commodities domestically produced, excluding the quantities used on-farm as feed -- excess feed cost. [Sum of N to Q; when negative, the amounts represent an implicit tax on consumers].

**N. Transfers to producers from consumers:** Associated with market price support on all domestically produced commodities, estimated by increasing the transfers calculated for the MPS commodities according to their share in the total value of production  $[(N.1) / (I.1) \times 100]$ .

**N.1. Of which MPS commodities:** Sum of the values of transfers from consumers to producers associated with market price support for the MPS commodities as calculated in Tables 4.1 to 4.15.

**O. Other transfers from consumers:** Transfers to the budget associated with market price support on the quantities imported of domestically produced commodities, estimated by increasing the transfers calculated for the MPS commodities according to their share in the total value of production  $[(O.1) / (I.1) \times 100]$ .

**O.1. Of which MPS commodities:** Sum of the transfers to the budget associated with market price support on the quantities imported of the MPS commodities as calculated in Tables 4.1 to 4.15.

**P. Transfers to consumers from taxpayers**

**P.1. Commodity specific transfers to consumers:** Sum of commodity specific transfers from taxpayers to consumers (farm gate level) from commodity MPS tables.

**P.2. Non-commodity specific transfers to consumers:** Sum of non-commodity specific transfers from taxpayers to consumers.

*Total Central Food Subsidy (from 2000)*. Item “Food subsidy” in the budget of the Department of Food and Public Distribution, Ministry of Consumer Affairs, Food and Public Distribution, which includes the subsidy by the central government to the Food Corporation of India for procurement and distribution of wheat and rice under the Targeted Public Distribution System, mid-day meal scheme, and other welfare schemes. It also includes corresponding subsidies to state governments under decentralised procurement and direct cash payment schemes. Expenditure data are “actual” (2016-17: “revised estimate”) from Expenditure Budget [21].

*Total State Food Subsidy (from 2000)*. Sum of expenditure by state governments under the heads (i) Food Subsidies (under Account of Expenditure on Food Storage and Warehousing), and (ii) Consumer

Subsidies (under Account of Expenditure on Civil Supplies), interpreted as expenditures related to the procurement and distribution of wheat and rice under the Targeted Public Distribution System, mid-day meal scheme, and other welfare schemes. Reported in yearly publication “Combined Finance and Revenue Accounts of the Union and State Governments in India”, various years, Comptroller and Auditor General of India. State government expenditures by Gujarat, Haryana, Kerala, Jammu and Kashmir, Maharashtra and West Bengal are not included. Expenditure estimated for 2015 and 2016, respectively, as the mean expenditure in the preceding three years.

**Q. Excess Feed Cost:** Associated with market price support on quantities of domestically produced crops and used on-farm as feed as calculated [Sum of *Excess Feed Cost* in the MPS Tables 4.1, 4.2, 4.3, 4.4, 4.5, 4.9]. Quantities used as feed are from discussions with expert organisations as follows. Maize for poultry, eggs, mutton and milk production: CIRC (Central Institute for Research on Cattle), CIRB (Central Institute for Research on Buffalo), CPDO (Central Poultry Development Organization; Soybean for poultry, eggs, mutton and milk production: CIRC, CIRB, CPDO (quantity converted from oil-cakes to seed by dividing by weight conversion coefficient 0.79); Rapeseed and Mustard for mutton and milk production: SEA (Solvent Extractors Association of India), CIRC, CIRB. Groundnut for milk production: SEA, CIRC, CIRB (quantity converted from oil cakes to seed by dividing by weight conversion coefficient 0.6).

**V.2 Percentage CSE**  $[100 \times (V.1) / ((II) + (P))]$

**V.3 Consumer NPC:** For all agricultural commodities the consumer NPC is estimated as a weighted average of the consumer NPC calculated for the individual MPS commodities and shown in Table 2. For each commodity consumer NPC = domestic price paid by consumers (at the farm gate)/ border price (also at the farm gate).

**V.4 Consumer NAC**  $[(1 / (100 - (V.2)) \times 100]$

**VI. Total Support Estimate**  $[(III.1) + (IV) + (P)]$  and  $[(R) + (S) + (T)]$

**R. Transfers from consumers**  $[(N) + (O)]$

**S. Transfers from taxpayers**  $[(III.1) - (O) + (IV) + (Q)]$

**T. Budget revenues**  $[(O)]$

**TABLE 2. INDIA: Breakdown of PSE by commodity specificity and other transfers**

All data sets in Table 2 come from Tables 1 and 3.1-3.21 where definitions are included.

**Definitions:**

**I. Producer Single Commodity Transfers (producer SCT):** The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm level, arising from policy measures directly linked to the production of a single commodity such that the producer must produce the designated commodity in order to receive the payment. This includes policies where payments are specified on a per-commodity basis [Sum of SCTs for individual commodities from Tables 3.1-3.21].

**Percentage producer SCT:** is the commodity SCT expressed as a share of gross farm receipts for the specific commodities (including support in the denominator). This indicator can be expressed for the total SCT (Table 2), or for a specific commodity (Table 3.1 to 3.18).

$$\%SCT = 100 * SCT / (\text{value of production}_{COM} + A.2_{COM} + B_{COM} + C_{COM} + D_{COM})$$

$$\text{Share in Total PSE (\%): } SCT_{SHARE} = 100 * SCT / PSE$$

**II. Group commodity transfers (GCT):** The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures whose payments are made on the basis that one or more of a designated list of commodities is produced. That is, a producer may produce from a set of allowable commodities and receive a transfer that does not vary with respect to this decision [GCT = B<sub>GROUP</sub> + C<sub>GROUP</sub> + D<sub>GROUP</sub>].

$$\text{Share in Total PSE (\%): } GCT_{SHARE} = 100 * GCT / PSE$$

**Transfers to specific groups of commodities:** The GCT involves the following groups of commodities: all crops; all grains; wheat, maize and soybean; wheat, maize, rice, soybean, cotton and rapeseed; all livestock.

**III. All commodity transfers (ACT):** The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures that place no restrictions on the commodity produced but require the recipient to produce some commodity of their choice [ACT = C<sub>ALL</sub> + B<sub>ALL</sub> + D<sub>ALL</sub>].

$$\text{Share in Total PSE (\%): } ACT_{SHARE} = 100 * ACT / PSE$$

**IV. Other Transfers to Producers (OTP):** The annual monetary value of gross transfers made under policies that do not fall in the above three cases (SCT, GCT, ACT). That is, payments that do not require any commodity production at all. [OTP = E + F + G]

$$\text{Share in Total PSE (\%): } OTP_{SHARE} = 100 * OTP / PSE$$

$$\text{V. Total PSE: } PSE = A+B+C+D+E+F+G = SCT + GCT +ACT + OTP$$

$$\text{Percentage PSE: } \%PSE = 100 * PSE / \text{Total Value of Production at farm gate} + A.2. + B + C + D + E + F + G$$

**TABLE 3. INDIA: Producer Single Commodity Transfers (by commodity)**

Tables 3.1 to 3.22, provide information on Producer Single Commodity Transfers (PSCT) for the following commodities: wheat, maize, non-basmati rice, basmati rice, soybean, rapeseed, groundnuts, chick pea, other pulses, onions, potatoes, tomatoes, mangoes, bananas, sugar cane, cotton, milk, bovine meat, sheep meat, poultry, eggs and “other commodities”. All data sets in the calculation SCT by commodity come from Tables 1 and 4.1-4.22 where definitions are included.

**Definitions:**

**I. Level of production:** Data from respective commodity Tables 4.1-4.22 (Market Price Support tables)

**II. Value of production (at farm gate):** Data from respective commodity Tables 4.1-4.22 (Market Price Support tables)

**III. Producer Single Commodity Transfers:** Sum of transfers to respective single-commodity in categories A, B, C and D.

**A. Support based on commodity output**

*A1. Market Price Support* [Data for respective commodity from Tables 4.1-4.22]

*A2. Payments based on output*

Payments based on output (A.2) provided to respective single commodity [Data from Table 1]. (Note: no payments based on output are recorded for India in the years 2000-2016.)

**B. Payments based on input use, single commodity** [B<sub>1COM</sub>+B<sub>2COM</sub>+B<sub>3COM</sub>]

*B1. Based on variable input use*

Payments based on variable input use (B.1<sub>COM</sub>) provided to respective single commodity [Data from Table 1].

*B2. Based on fixed capital formation*

Payments based on fixed capital formation (B.2<sub>COM</sub>) provided to respective single commodity [Data from Table 1].

*B3. Based on on-farm services*

Payments based on on-farm services (B.3<sub>COM</sub>) provided to respective single commodity [Data from Table 1].

**C. Payments based on current A/An/R/I, production required, single commodity**

Payments based on current A/An/R/I (C<sub>COM</sub>) provided to respective single commodity [Data from Table 1].

**D. Payments based on non-current A/An/R/I, production required, single commodity**

Payments based on non-current A/An/R/I (D<sub>COM</sub>) provided to respective single commodity [Data from Table 1].

**IV. Percentage producer SCT :** %SCT =100\*(III)/((II)+(A.2)+(B<sub>COM</sub>)+(C<sub>COM</sub>)+(D<sub>COM</sub>))

## TABLE 4. INDIA: Market Price Support and Consumer Support Estimate

Tables 4.1 to 4.22 contain calculations of the Market Price Support (MPS) and Consumer Single Commodity Transfers (consumer SCT) for the following commodities: wheat, maize, non-basmati rice, basmati rice, soybean, rapeseed, groundnuts, chick pea, other pulses, onions, potatoes, tomatoes, mangoes, bananas, sugar cane, cotton, milk, bovine meat, sheep meat, poultry, eggs and “other commodities”. The data sets used in calculations of the MPS and consumer SCT by commodity are described below.

**Note:** For the purposes of calculating market price gaps, 20 of the 22 commodities are treated as exported commodities. Only chickpea and other pulses are considered imported. As agricultural domestic and trade policies for pulses are very similar across various commodities that constitute the group of pulses, it was assumed that the ratio of MPS to the value of production for “other pulses” is the same as the one calculated for chickpea for which the MPS is calculated explicitly.

Price gaps are calculated for all commodities and can be positive or negative for any commodity or year. Negative price gaps calculated for sheep meat (2000-16) and chickpeas (2001-14) have been set to zero. For sheep meat, over the period, no trade or domestic policies were identified that could justify the negative price gap. Chickpea is an imported commodity to which policies apply, such as tariffs, but in some years (2001-14) producer prices were nevertheless below the reference prices so, in accordance with the PSE Manual, the negative price gaps were set to zero.

### Definitions:

#### I. Level of production

All production data relates to the Indian financial year, April to March. While data refer to financial years as in the respective sources, the presentational convention adopted here is to identify a financial year by its first year only: for example, 2010 refers to financial year 2010-11.

**Wheat:** Total production of wheat (durum and non-durum). 2000-14 [1]; 2015-16 [3].

**Maize:** Total production of maize (yellow). 2000-14 [1]; 2015-16 [3].

**Rice, non-basmati:** Total production of non-basmati rice (representing on average 93% of total rice production), in milled weight derived by multiplying production of paddy rice by a conversion rate of 0.67. 2000-14 [1]; 2015-16 [3]. [2]

**Rice, basmati:** Total production of basmati rice (representing on average 7% of total rice production), in milled weight derived by multiplying production of paddy rice by a conversion rate of 0.67. [1]; [2].

**Soybean:** Total production of soybean. 2000-14 [1]; 2015-16 [3].

**Rapeseed/Mustard seed:** Total production of rapeseed and mustard seed. 2000-14 [1]; 2015-16 [3].

**Groundnuts:** Total production of groundnuts, in shelled weight, derived by multiplying production of dry groundnuts by a conversion rate of 0.7. . 2000-14 [1]; 2015-16 [3].

**Chickpea:** Total production of chickpea, all varieties. 2000-14 [1]; 2015-16 [3].

**Onions:** Total production of fresh onions. 2000-14 [4]; 2015-16 [5].

**Potatoes:** Total production of fresh potatoes. 2000-14 [4]; 2015-16 [5].

**Tomatoes:** Total production of fresh tomatoes. 2000-14 [4]; 2015-16 [5].

**Mangoes:** Total production of fresh mangoes. 2000-14[4]; 2015-16 [5].

**Bananas:** Total production of bananas 2000-14 [4]; 2015-16 [5].

**Sugar:** Total production of sugar from cane, in refined sugar equivalent: obtained by first multiplying production of cane [6] by a conversion rate of 0.11 to derive the total production in raw sugar equivalent, then converted to refined sugar by using a weight conversion ratio of 0.97 (i.e. multiplying raw sugar production by 0.97).

**Cotton:** Total production of cotton lint, obtained by dividing total production of raw cotton (*kapas*) [7] by the coefficient 2.2 and converted from Lakh Bales to million metric tonnes using a conversion of 1 bale = 170kg.

**Milk:** Total production of liquid milk. 2000-14 [8]; 2015-16 [24].

**Bovine meat:** Total production of bovine meat (mainly buffalo) [9], in carcass weight equivalent, converted from boneless to carcass using a weight conversion factor of 1.8. Buffalo meat accounts for 90% of India's total production of bovine meat.

**Sheep meat:** Total production of sheep meat, including goat meat, in carcass weight equivalent, converted from boneless to carcass using a weight conversion factor of 1.3 [9].

**Poultry:** Total production of poultry (commercial broiler chicken, *i.e.*, chickens bred and raised specifically for meat production, and backyard or family chicken, *i.e.*, small farmer production), in carcass weight equivalent converted from boneless to carcass weight equivalent using a weight conversion factor of 1.75 by multiplying by the coefficient 1.75 [9].

**Eggs:** Total production of eggs in the shell (used for both hatching and other purposes): converted from number to weight by unit weight of 55 grams for one egg [9].

## **II. Producer prices (at farm gate)**

While farm-harvest prices are available from the Ministry of Agriculture and Farmers' Welfare (Directorate of Economics and Statistics), these data are not available for all of the years for which PSE are calculated (from 2000) and they do not identify the variety and quality of the commodity for which a price is reported. Different methodologies and sources were therefore adopted to obtain producer prices for identified varieties and qualities of commodities, as close as possible to the farm-gate level, as required for the 'like with like' comparisons in PSE estimation.

For *wheat, maize, non-basmati rice, basmati rice, soybean, rapeseed and mustard, groundnuts, potatoes, onion, tomatoes, mango and sugar*, a representative yearly price at the country level is derived from monthly data. These monthly data are mainly from Agmarknet, a web portal of the Ministry of Agriculture and Farmers' Welfare (for years when Agmarknet data are not available – mainly 2000 and 2001 – data from the Directorate of Economics and Statistics are used). Agmarknet reports monthly prices for various commodities from markets located very close to the producer or farm gate level.

Yearly country-level representative producer prices are obtained in two steps:

1. For each of the above crops, monthly state-level average price data are observed for the months of the crop's harvest period in a number of selected states, i.e. states that together represent at least half of the national production (see below the months and the states considered for individual commodities). Producers sell more than 90% of output in the market immediately after harvesting due to restrictions on private storage and poor storage infrastructure for farmers. Therefore the first step was to calculate a simple average of the monthly prices in the harvest period in a state, which is considered to represent the crop's average price for the whole financial year in the state.

2. Then, in order to derive a countrywide representative price series for each crop, the individual state-level price series were weighted by the individual share of each state in their combined production of the crop.

For *cotton, milk and eggs*, prices are estimated with the same methodology as for the crops above, using data from other sources (see below).

For *chickpeas, bananas, buffalo meat, sheep meat, and poultry meat*, prices at the producer or farm gate level are obtained by dividing the value of output by the quantity of output (see below).

**Wheat:** The selected states are Punjab, Uttar Pradesh and Haryana, which together represented 61% of total wheat production in 2014-15. The state-level prices are for the months of April to June. [3, 11].

**Maize:** The selected states are Andhra Pradesh, Karnataka, Maharashtra, and Bihar, which together represented 55% of total maize production in 2014-15. The state-level prices are for the months of October to January. [3, 11].

**Rice, non-basmati:** The selected states are West Bengal, Uttar Pradesh, Andhra Pradesh, and Punjab, which together represented 49% of total non-basmati rice production in 2014-15. The state-level prices are for the months of October to January. [3, 11].

**Rice, basmati:** The selected states are Punjab and Uttar Pradesh, which together represented 58% of total basmati rice production in 2014-15. The state-level prices are for the months of October to January. [3, 11].

**Soybean:** The selected state is Madhya Pradesh, which represented 53% of total soybean production in 2014-15. The state-level prices are for the months of October to January. [3, 11].

**Rapeseed/Mustard seed:** The selected states are Rajasthan and Uttar Pradesh, which together represented 57% of total rapeseed/mustard seed production in 2014-15. The state-level prices are for the months of April to June. [3, 11].

**Groundnuts:** The selected states are Andhra Pradesh, Gujarat and Tamil Nadu, which together represented 63% of total groundnuts production in 2014-15. The state-level prices are for the months of October to January. [3, 11].

**Chickpea:** The average producer price of chickpea, all varieties, is obtained by dividing the value of production of chickpea by the total production of chickpea for the financial year. [1, 3, 10].

**Potatoes:** The selected states are West Bengal and Uttar Pradesh, which together represented 56 % of total potato production in 2014-15. The state-level prices are for the months of February and March. [3, 11].

**Onions:** The selected states are Maharashtra, Madhya Pradesh and Karnataka, which together represented 58% of total onion production in 2014-15. The monthly state-level prices are for the entire financial year.

Harvesting can take place all-year round since, depending on the state, onion can be sown during early kharif or kharif (summer season) or rabi (winter season). [3, 11].

**Tomatoes:** The selected states are Andhra Pradesh, Karnataka, Madhya Pradesh, Odisha and Gujarat, which together represented 56 % of total tomato production in 2014-15. The state-level prices are for the months of November to February. [3, 11].

**Mangoes:** The selected states are Maharashtra, Gujarat, Uttar Pradesh and Andhra Pradesh, which together represented 59% of total mango production in 2014-15. The state-level prices are for the month of June. [3, 11].

**Bananas:** The average producer price of bananas is obtained by dividing the value of production of bananas by the total production of bananas for the financial year. [4, 5, 10].

**Sugar, refined equivalent:** The selected states are Andhra Pradesh, Maharashtra and Uttar Pradesh, which together represented 64% of total sugar cane production in the three years ending in 2014-15. The monthly state-level prices are for refined sugar equivalent collected for the entire financial year. [3].

**Cotton:** The selected states are Gujarat and Maharashtra, which together represented 51% of total cotton production in 2014-15. The state-level prices are for the months of October to January. The observed prices are for long staple cotton lint (H4 and S6 varieties). [7, 20].

**Milk:** The country-level producer price is based on the average producer prices for buffalo milk and cow milk from co-operatives and private dairies. The state-level prices are collected for the financial year from 15 states (Haryana, Punjab, Rajasthan, Uttar Pradesh, Bihar, Odisha, West Bengal, Gujarat, Madhya Pradesh, Maharashtra, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Telangana) which together represented 93% of national milk production in 2014-15. Source: [8] and interviews with private dairies.

**Bovine meat:** The average producer price of bovine meat (from buffalo), in carcass weight, obtained by dividing the value of production of bovine meat, carcass equivalent by the total production of bovine meat, carcass equivalent for the financial year. [9, 10].

**Sheep meat:** The average producer price of sheep meat (including goat meat), in carcass weight, obtained by dividing the value of production of sheep meat, carcass equivalent, by the total production of sheep meat, carcass equivalent, for the financial year. [9, 10].

**Poultry:** The average producer price of poultry, in carcass weight, obtained by dividing the value of production of poultry, carcass equivalent, by the total production of sheep meat, carcass equivalent for the financial year. [9, 10].

**Eggs:** The country-level producer price is based on state-level prices calculated for Tamil Nadu and Andhra Pradesh, which represented 50 % of total production in 2014-15. For each state these prices are the simple average of monthly state-level prices for the entire financial year. The shares of states in their combined production of eggs represent the weights for calculating the weighted average price representing the country-level producer price. [3].

**III. Value of production (at farm gate) [(I)\*(II)]**

**IV. Level of consumption (at farm gate)**

Consumption equals total domestic use during the financial year, i.e., total production (, plus imports minus exports [16], minus, for some commodities, change in stocks. Change in stocks (public) is estimated for wheat, non-basmati rice, sugar and cotton as the stock position on 1<sup>st</sup> April of the current year minus that of the previous year. Data on private stocks of wheat and non-basmati rice is not available, but these stocks are estimated to be low in light of trade and market restricting government policies implemented in an *ad hoc* manner. Change in stocks is not included in computing consumption of other commodities than wheat, non-basmati rice, sugar and cotton as data on public and private stocks is not available.

**Wheat; Rice (non-basmati):** Monthly stock levels (public) [12].

**Sugar:** Change in stocks refers to refined sugar (publicly held, private and co-operative). Monthly stock levels [6].

**Cotton:** Change in stocks refers to cotton lint (held by millers, ginners, traders and government; cotton producers sell immediately upon harvesting and do not hold stocks of cotton). Monthly stock levels [13].

#### V. Consumption prices (at farm gate)

Implicit prices corresponding to reference prices plus the unit value of market transfers.

#### VI. Value of consumption (at farm gate) [(IV)\*(V)]

#### VII. Reference prices

**Wheat:** F.o.b. export prices of Wheat US No. 2, Hard Red Winter, US (Gulf), financial year average (April to March) adjusted with transportation costs to the Indian border (freight US gulf to Mundra estimated as 13 % of the F.o.b. export price series<sup>2</sup>). [14].

**Maize:** F.o.b. export prices of Maize (US), no. 2, yellow, US Gulf ports, financial year average (April to March) adjusted with transportation costs to the Indian border (freight US Gulf (Houston) to JNPT (Jawaharlal Nehru Port, state of Maharashtra) estimated as 19 % of the F.o.b export price series<sup>2</sup>). [15].

**Rice, on-basmati:** F.o.b. export prices of rice, Thai 25% broken, financial year average (April to March) adjusted with transportation costs to the Indian border (freight US Gulf to Bangkok to Mundra/Kakinada estimated as 2.1 % of the F.o.b. export price series<sup>2</sup>). [15].

**Rice, basmati:** F.o.b. export unit values of basmati rice (HS 10063020), financial year average (April to March). [16].

**Soybean:** F.o.b. export unit values of soybean (HS 12019000, as from 2007 HS 12010090), financial year average (April to March). [16].

**Rapeseed/Mustard seed:** F.o.b. export unit values of rapeseed/mustard seed (HS 12051000, HS 12059000, HS 12075090), financial year average (April to March). [16].

**Groundnuts:** F.o.b. export unit values of groundnuts, shelled (HS 120242, as from 2007 HS 120220), financial year average (April to March). [16].

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<sup>2</sup> Transportation costs are estimated based on discussions with Indian freight forwarders and logistic companies.

**Chickpea:** C.i.f. import unit values of chickpea (HS 07132000), financial year average (April to March). [16].

**Onions:** F.o.b. export unit values of onions (HS 07031010, HS 07031020), financial year average (April to March) adjusted with a quality coefficient of 0.92 to reflect the quality difference between onions produced and exported - based on interview with traders. [16].

**Tomatoes:** F.o.b. export unit values of tomatoes (HS 07020000), financial year average (April to March), adjusted with a quality coefficient of 0.90 to reflect the quality difference between tomatoes produced and exported - based on interview with traders. [16].

**Potatoes:** F.o.b. export unit values of potatoes (HS 07019000), financial year average (April to March), adjusted with a quality coefficient of 0.92 to reflect the quality difference between potatoes produced and exported - based on interview with traders. [16].

**Mangoes:** F.o.b. export unit values of mangoes (HS 08045020), financial year average (April to March), adjusted with a quality coefficient of 0.90 to reflect the quality difference between mangoes produced and exported - based on interview with traders. [16].

**Bananas:** F.o.b. export unit values of bananas (HS 080300) from Ecuador, annual average, adjusted with transportation costs to the Indian border (estimated as 5% of the F.o.b export price series<sup>2</sup>). [17].

**Sugar:** Export prices of refined sugar, EU f.o.b. (Contract No. 407 (also known as No. 5), London Daily Price, f.o.b. Europe, Intercontinental Exchange (ICE; formerly Euronext, formerly LIFFE). Financial year average (April to March) adjusted with transportation costs to the Indian border (freight Rotterdam to Mundra estimated as 11.7% of the f.o.b export price series). [25]

**Cotton:** Financial year average of cotton price quotations, Cotlook A Index, Middling 1-3/32, Cotton Outlook, CFR Far Eastern adjusted with transportation costs to the Indian border (freight US Gulf to Mundra estimated as 7.8 % of the F.o.b export price series<sup>2</sup>). [18]

**Milk:** Border price of milk is a calculated implicit value. The calculation is based on two assumptions. First, world markets for tradable dairy commodities are competitive, which allows the formation of a single price for each of the solid components of raw milk (milk fat and protein) used to make dairy products. Secondly, each type of dairy product contains a unique and fixed amount of each of those solid components of milk. Under this method, the implicit price of milk at the border ( $P_b$ ) is calculated from the prices of those components:

$$P_b = \left(\frac{a}{b}\right)P_{wb} + \left(\frac{c}{d}\right)P_{ws} \text{ where:}$$

$a$  and  $b$  are milk fat contained in one ton of raw milk and butter respectively,  $c$  and  $d$  are non-fat-solids contained in one ton of milk and skimmed milk powder respectively,  $P_{wb}$  and  $P_{ws}$  are Oceanian F.o.b. Export prices, financial year average (April to March) of butter and skimmed milk powder respectively, adjusted to the Indian border with transportation costs between New Zealand (Wellington) and India (Mundra) as 2.2 % of the F.o.b export price series for SMP and 7 % for butter<sup>2</sup>. The reference price of milk at farm gate ( $P_r$ ) is the implicit milk border price net of processing costs ( $C$ ):

$$P_r = P_b - C$$

$P_{wb}$  and  $P_{ws}$  are from [19].

**Bovine meat:** F.o.b. export unit values, bovine meat from buffalo: boneless, fresh, chilled or frozen (HS 020130 and HS 020230), financial year average (April to March) adjusted for a carcass conversion coefficient provided by Indian experts. [16]. (Exports of beef as well as buffalo fresh, chilled or frozen, as carcasses, half carcasses or other cuts with bone-in, are prohibited. Exports of boneless meat of buffalo fresh, chilled, or frozen, are allowed.)

**Sheep meat:** F.o.b. export unit prices of fresh or chilled sheep carcass, (HS 020421) annual average. As there are no specific policies targeting sheep meat, the price gap has been set to zero in line with the PSE methodology. [17].

**Poultry:** F.o.b. export prices of poultry meat, carcass equivalent from Brazil, financial year average (April to March), adjusted with transportation cost to the Indian border (freight Brazil to JNPT estimated as 8.1% of the F.o.b export price series<sup>2</sup>. [14].

**Eggs:** F.o.b. export unit values of eggs in the shell (HS 04070020), financial year average (April to March). [16].

### **VIII. Margins**

**Marketing margins:** Estimated on the basis of interviews with traders and commodity experts in India. Marketing margin estimates for a given commodity are adjusted where relevant by processing costs and fees paid to intermediary agents. Available technical coefficients were used when needed, for example, quality adjustments to reflect the quality difference between commodities produced and commodities exported (for potatoes, mangoes and tomatoes). The estimates of marketing margins are expressed as a percentage of the producer price, based on which marketing margins are then calculated as absolute values. While it was assumed that the percentage margin remained at the same level over various periods specified below, its equivalent in absolute terms varies depending on the level of producer price in a given year. The absolute value of the margin in a given year was subtracted from the border reference price.

**Port handling costs at the Indian ports:** Refers to the average port handling costs for various crops/commodities at their ports of entry/exit. These costs have been estimated as a percentage of border reference prices, then converted into absolute values and added to the CIF price for imported commodities or subtracted from the FOB price for exported commodities. The data is based on actual publicly available information from the website of the ports examined and discussions with ports staff, various importers, and freight handlers. Section VII provides details on the ports examined for each selected crop.

**Domestic transportation costs** (between the Indian border and domestic wholesale markets): Based on actual data on transportation costs via Indian railways and trucks. While the railway data are from the Ministry of Railways, the data on trucking costs are based on discussions with trucking companies and individual truckers. Domestic transportation costs are estimated for each commodity between the ports mentioned in section VII and major states examined for each selected commodity. Using domestic transportation costs expressed as a percentage of the producer price, these costs are then calculated as absolute values. The absolute value of the domestic transportation cost was added to the CIF price for imported commodities and subtracted from the FOB price for exported commodities.

**Wheat:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 4.6% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 1.5%.

**Maize:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2.6% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 1.5%.

**Rice, non-basmati:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2.2% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 1.3%.

**Rice, basmati:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2.2% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.9%.

**Soybean:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2.5% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 1.4%.

**Rapeseed/Mustard seed:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 1.2%.

**Groundnuts:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 1.1% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.5%.

**Chickpea:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2.5% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 1.3%.

**Potatoes:** Marketing margin (producer to wholesale) as % of producer price: 7% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 3.5% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.9%.

**Onions:** Marketing margin (producer to wholesale) as % of producer price: 7% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.9%.

**Tomatoes:** Marketing margin (producer to wholesale) as % of producer price: 7% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 3.5% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.9%.

**Mangoes:** Marketing margin (producer to wholesale) as % of producer price: 7% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 0.7% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 1%.

**Bananas:** Marketing margin (producer to wholesale) as % of producer price: 7% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 1.7% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 1%.

**Sugar:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 1.2% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.9%.

**Cotton:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 0.5% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.7%.

**Milk:** Total margins including marketing margin, transportation costs and port handling costs as % of producer price for the period 2000-16: 10%. This percentage accounts for marketing margins and processing costs in both private dairies and co-operatives, based on information received from major co-operatives and private dairies in the states where milk price information is collected for the PSE data base.

**Bovine meat:** Marketing margin (producer to wholesale) as % of producer price: 3% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2.8% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.9%.

**Sheep meat:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.9%.

**Poultry:** Marketing margin (producer to wholesale) as % of producer price: 2.5% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 2.5% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 0.9%.

**Eggs:** Marketing margin (producer to wholesale) as % of producer price: 2.7% for the period 2000-16; transportation costs (border – wholesale) as % of farm gate price: 5% for the period 2000-16; port handling costs as % of border price for the period 2000-16: 1.5%.

#### **Sources:**

[1] Agricultural Statistics at a Glance, Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare, Government of India.

[2] All India Rice Exporters' Association.

[3] Directorate of Economics and Statistics, Ministry of Agriculture and Farmers' Welfare, Government of India.

[4] Horticultural Statistics at a Glance, Horticulture Statistics Division, Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare, Government of India.

[5] National Horticulture Board, Government of India.

[6] Indian Sugar Mills Association.

[7] Cotton Association of India.

[8] National Dairy Development Board, Government of India.

[9] Basic Animal Husbandry and Fisheries Statistics, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture and Farmers' Welfare, Government of India.

[10] National Accounts Statistics, Ministry of Statistics and Program Implementation (MOSPI), Government of India.

[11] Agmarknet, Directorate of Marketing and Inspection, Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare, Government of India.

[12] Food Grain Bulletin, Department of Food and Public Distribution, Government of India.

[13] Ministry of Textiles, Government of India.

[14] GIEWS (Global Information and Early Warning System), Food and Agriculture Organization of the United Nations (FAO).

[15] The Pink Sheet (World Bank Commodities Price Data).

[16] DGFT (Directorate General of Foreign Trade), Ministry of Commerce and Industry, Government of India.

[17] UN Comtrade database, United Nations.

[18] UNCTADStat (Free market commodity price indices, monthly, January 1960 – December 2017), United Nations Conference on Trade and Development (UNCTAD).

[19] Agricultural Marketing Service, United States Department of Agriculture.

[20] Cotton Corporation of India.

[21] Expenditure Budget, Government of India.

[22] Department of Agriculture, Cooperation and Farmers' Welfare (DACFW), Ministry of Agriculture and Farmers' Welfare, Government of India.

[23] Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers' Welfare, Government of India.

[24] Department of Animal Husbandry, Dairying and Fisheries (DAHDF), Ministry of Agriculture and Farmers' Welfare, Government of India.

[25] United States Department of Agriculture, Economic Research Service, Sugar and Sweeteners Yearbook Tables, Table 2, <https://www.ers.usda.gov/data-products/sugar-and-sweeteners-yearbook-tables>