

## Exercises on Asset accounting

### 1. Accounts for forest land and timber resources

#### Part A. Accounts for forest land

Your group has been asked to produce a simplified asset account for the country's forested land for the previous year. Use the data sources described below to create to fill in in the asset account table below.

Data sources:

- The Department of forests recorded a total of 400 hectares of forested land at the beginning of the accounting period, classified as follows:
  - 20 hectares of **primary forest**,
  - 100 hectares of **other naturally regenerated forest**,
  - 150 hectares of **planted forest**, and
  - 130 hectares of **other wooded land**.
- During the year, the Department of forest calculated an expansion of planted forest by 7 hectares through an afforestation effort by volunteer planters in land previously classified as grassland. An additional 3 hectares of land classified as Other naturally regenerated forest were also added to the land cover database due to natural expansion of trees into areas no longer being used for economic purposes.
- However, the Department also reported that 2 hectares of primary forest, 10 hectares of Other naturally regenerated forest and 5 hectares of Other wooded land were deforested during the period in order to clear land for agriculture. An additional 3 hectares of Other wooded land were lost due to natural-causes (forest fires).

## Part B. Timber resources asset account

Using the information on the areas of forest land, you have also been asked to complete an asset account for the associated timber resources. The following additional information and assumptions are available:

- Cultivated timber resources are sourced only from planted forests
- Natural timber resources available for wood supply are from Other naturally regenerated forest and Other wooded land. Timber in primary forest is, in general, not available for wood supply on an ongoing basis, but the clearing of primary forest is recorded as removals of timber resources.
- Availability of timber resources averages 56m<sup>3</sup> per hectare in planted forests, 70m<sup>3</sup> per hectare in primary forest and 35m<sup>3</sup> per hectare elsewhere. Changes in the volume of timber resources due to changes in area of forest land are assessed at the same rates.
- Natural growth of stock held at the beginning of the period is 15% over the full year (except in primary forest where the forest is assumed to be mature and natural growth equals natural losses). Natural losses are 2% of opening stock. There are no catastrophic losses during the year.
- Total fellings (i.e. removals plus felling residues) are known to be 1092m<sup>3</sup> from cultivated timber resources and 1572m<sup>3</sup> from natural timber resources available for wood supply (including fellings due to deforestation). Felling residues are 15% of total fellings. It is assumed that all fellings are removed in the same period.

**Asset account for forest lands (hectares)**

	Primary forest	Other naturally regenerated forest	Planted forest	Other wooded land	Total
Opening stock					
Additions to stock:					
Reductions to stock:					
Closing stock					

**Asset account for timber resources (cubic metres, m3)**

	Cultivated timber resources	Natural timber resources	
		Available for wood supply	Not available for wood supply
<b>Opening stock</b>			
<b>Additions to stock</b>			
<i>Total additions</i>			
<b>Reductions in stock</b>			
<i>Total reductions</i>			
<b>Closing stock</b>			

**Statistics relevant to Himachal Pradesh**

**According to the department of land resources in Himachal Pradesh,** the land utilisation is as follows

Land Use	Area in '000 ha	Percentage
Total geographical area	5,567	
Reporting area for land utilization	4,549	100.00
Forests	1,101	24.21
Not available for cultivation	1,129	24.82
Permanent pastures and other grazing lands	1,496	32.89
Land under misc. tree crops and groves	65	1.43
Culturable wasteland	138	3.03
Fallow lands other than current fallows	15	0.33
Current fallows	64	1.41
Net area sown	541	11.90

Source: Land Use Statistics, Ministry of Agriculture, GOI, 2008-09.

But according to the satellite imagery, the recorded forest area of the state is 37,000 sq.km. The reserved forest constitute 5.13% reserved forest, protected forest 89.46% and unclassified forest 5.41% of the recorded forest area. The forest cover in the state based on satellite imagery estimated the forest cover as 14679 sq.km. The state has 3244 sq.km area under very dense forest, 6381 sq.km area under moderately dense forest and 5074 sq.km area under open forest. The tree cover in TOF is estimated as 623 sq.km. The forest change matrix between 2009 and 2011 is given below: The change has been mostly due to plantation and conservation activities.

2009 Assessment	2011 Assessment					Total 2009
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	3,224	0	0	0	0	3,224
Moderately Dense Forest	0	6,377	2	0	4	6,383
Open Forest	0	4	5,051	1	5	5,061
Scrub	0	0	0	327	0	327
Non-Forest	0	0	21	0	40,657	40,678
<b>Total 2011</b>	<b>3,224</b>	<b>6,381</b>	<b>5,074</b>	<b>328</b>	<b>40,666</b>	<b>55,673</b>
Net Change	0	-2	13	1	-12	

The growing stock of the recorded forest area has been estimated on the basis of the current forest cover map as follows:

Forest – 321314 million cum

TOF- 21146 million cum

The annual extraction of wood is 277991 cubic metres from forests during the year 2009-10 and 245504 cubic metres in 2010-11. Construct the accounts for area and volume and what challenges and constraints do you face ?

