

The Study on Critical Land and Protection Forest Rehabilitation at Tondano Watershed in the Renublic of Indonesia

Japan International Cooperation Agency

Figure J.3.1
Implementation

Year2002 Year2003 Year2004 Year2005 Year2006 Year2006 Year2007 Year2007 Year2008 Year2009 Year2010 Year2011 Year2011 Year2012 Year2013 Year2014 Year2015 Component 1 Physical Watershed Conservation Measures 1.1 Forestry Management and Rehabilitation
(1) Boundary survey for protection forests
(2) Community forestry plan (3) Reforestation plan
(4) Strengthening plan of forest patrol
(5) Research plan for non-wood forest products (5) Research plan for non-wood forest products
(6) Fuel wood planting plan
(7) Timber tree planting plan
(8) Strengthening of extension services

1.2 Agriculture and Agroforestry Improvement Plan (1) Agriculture (2) Agroforestry 1.3 Erosion Control Facilities 2 Institutional Development Plan (1) Community institutional development (2) Technical institutional development (3) Institutional development of forestry fervices (4) Accurate village boundary mapping
 (5) Institutional integration and strengthening
 of legal and regulatory framework (6) Strengthening of watershed conservation capacilty at University of Manado (7) Strengthening of local NGO 3 Community Empowerment Plan (1) Micro planning of sustainable land use (2) Awareness raising and environmental education
 (3) Organizing of local people and reorienting of officials
 (4) Strengthening of social safety network (5) Gender and conservation 4 Monitoring and Evaluation System Development Plan (1) Enginerring items (2) Socio-economic items By Year 60 5 Operation and Maintenace

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Figure J.3.2
Implementation Schedule of Physical Watershell
Conservation Measures (1/2)

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Activity	Work								ear						
	Volume	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1 Forest Boundary															
1.1 Field Survey															
1.2 Boundary Mapping	6 sites														
1.3 Construction of Monuments															
2 Community Forestry															
2.1 Management															
2.2 Survey and Planning															
2.3 Nursery Construction	30 ha														
2.4 Nursery Maintenance	30 na														
2.5 Planting Trees															
2.6 Maintenance of Planting Area															
3 Reforestation															
3.1 Management	1 person														
3.2 Survey and Planning	-				!										
3.3 Nursery Construction	5 sites														
3.4 Nursery Maintenance	3 51105										į				
3.5 Planting	50,000										į				
3.6 Treating of Planted Areas	trees						ļ								
4 Forest Patrol															
4.1 Patrolling	12														
4.2 Construction of Station	persons														
4.3 Maintenance	6 sites														
5 Non-wood Forest Products															
5.1 Research	3 persons														
6 Fuel Wood Plantation	-														
6.1 Delivery Station	7 sites														
6.2 Fuel Wood Plantation	150 ha														
7 Timber Plantation															
7.1 Management	1 person														
7.2 Extension Services	30 persons														
7.3 Nursery Construction															
7.4 Nursery Maintenance	9 sites														
8 Extension Services															
8.1 Training Program	-														

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Implementation Schedule of Physical
Watershed Conservation Measures (2/2),
Institutional Development

Activity Extension Worker Training 1.1 Training for Specialist 1.2 Training for PPL 1.3 Training for Farmers' Leaders	Work Year										
Activity	Volume	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1 Extension Worker Training	-										
1.1 Training for Specialist	-										
1.2 Training for PPL	-										
1.3 Training for Farmers' Leaders	-										
2 Procurement of Equipment for Extention Services	-										
3 Administration	-										

Implementaion Schedule of Physical Watershed Conservation Measures (Agriculture/Agroforestry Improvement)

Activity	Work					Ye	ear				
Activity	Volume	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1 Detailed Design											
1.1 Survey, Design, Tendering and Contract	L.S.										
2 Constuction Works											
2.1 Check Dam	4 sites						l				
2.2 River Bed Protection Works	6 sites										
2.3 River Bank Protection Works	900 m				I						
2.4 Slope Protection Works for Hillside	1 site										
2.5 Slope Protection Works for Road	2 sites										

Implementaion Schedule of Physical Watershed Conservation Measures (Erosion Control Facility Development)

Activity	Work					Υe	ear				
Activity	Volume	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1 Community Institutional Development	- [
2 Technical Institutional Development	- [
3 Institutional Development of Forestry Offices	-										
4 Accurate Village Boundary Mapping	-										
5 Institutional Integration and Legal and Regulatory Frame Work	- 1						l				
6 University of Manado Development	- 1										

Note: discontinuousely

Implementaion Schedule of Institutional Development

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Activity	Work	Work Year										
Activity	Volume	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
1 Micro Planning for Sustainable Land Use												
2 Awareness Raising and Environmental Education												
3 Organizing of Local People and Reorientation of Officials												
4 Strengthening of Social Safety Net												
5 Gender and Conservation												

Implementaion Schedule of Community Empowerment

Activity	Work					Ye	ear				
Activity	Volume	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Engineering Items											
1 Constuction Works of Monitoring Stations											
1.1 Erosion and Sedimentation	3 sites										
1.2 Water Balance Monitoring	35 sites										
2 Purchase of Monitoring Appratus	-										
3 Monitoring of Erosion and Sedimentation	3 Sites										
3.1 Monitoring of Erosion	Weekly										
3.2 Monitoring of SDR	Weekly										
3.3 Monitoring of Sedimentation	Once in five years										
4 Monitoring of Water Quality	38 Sites										
4.1 Monitoring of Water Quality	4times/year										
4.2 Sediment Sampling & Analysis	Once in five years										
5 Monitoring of Water Balance	35 Sites										
6 Monitoring of Torrent and Slope	all area										
Socio-Economic Items											
1 Monitoring and Evaluation		þ									

Implementaion Schedule of Monitoring System Development