

Changing society and landscapes: Forestry in Asia and the Pacific in 2030 and beyond

Outline of the report and key themes proposed to be addressed

KEY FINDINGS AND MESSAGES (2 PAGES)

EXECUTIVE SUMMARY (4 PAGES)

PART I: BACKGROUND (25 pages)

1. Introduction (5 pages)

- Our changing world
- The purpose of the outlook studies
- History of outlook studies; previous outlook studies in forestry, their findings and how they have been used
- Objectives of APFSOS III
- Approaches and methodology
- Structure of the report

2. Current state of forests and forestry: An overview (15-20 pages)

This chapter will provide an overview of the present state of forests and forestry specifically indicating how the current situation has evolved in the context of the larger societal changes. Asia-Pacific region is a changing mosaic of diverse social, economic, technological, political conditions with their associated diversity in land use and forestry. An assessment will be made on how this mosaic has evolved during the recent decades setting the stage for an in-depth analysis of the pathways of change during the next 10 years and beyond.

- Forests in the global policy agenda – How forests have moved to the centre-stage of various global initiatives (UNCED, CBD, UBFCCC, UNCCD, Paris Agreement, Bonn Challenge, SDGs, etc.).
- Society and forests: The larger context of socio-economic and land use change
- Forest cover changes and forest degradation during the last few decades and the present situation
- Trees outside forests – Integration of tree cropping in different farming systems
- General trends in the evolution of forest governance (policies, legislation and institutions) in recent decades
 - Global trends in forest governance, e.g. international agreements, treaties, conventions, etc.
 - Global institutions dealing with forests, e.g. UNFF, CPF, etc.
 - Decentralization and devolution, e.g. changes in forest tenure and people's participation, indigenous people, women, etc.

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- Forest management – Broad trends (Outline changes in forest ownership as well as changes in forest management objectives)
- Forest management for wood production – Increasing dependence on planted forests – changes in the sources of wood supply – Emergence of small holder wood production.
- Trends in forest productivity – To what extent countries have improved forest productivity and how far are they from realizing the full productivity potential.
- Key developments in wood processing and trade – Asia- Pacific emerging as a major producer and consumer of wood and wood products and how production has shifted between different regions and countries and how did this happen.
- Forests and non-wood forest products: Old and new value chains and recent trends – From subsistence production and consumption to more organized commercial production, processing and trade.
- Biomass energy and forests: Energy transition in the recent decades – Extent of dependence on forests for energy.
- Forest derived ecological services – Current state of forest management focusing on water, climate change, biodiversity, amenity values; and why the ES continues to be undervalued?
- Forests and livelihoods – Role of forests in food security.
- An overview – what has changed and what has not – and to what extent actual developments during the post-2010 period compare with what was envisaged in APFSOS II.

PART II: MEGATRENDS AND THE CHANGING LANDSCAPE OF FORESTRY (80 - 100 pages)

This part will focus on some of the fundamental changes taking place in the Asia-Pacific region and their implications on forests and forestry. Specifically this section will analyze how Asia-Pacific in 2030 will be different from what it is now and the potential impacts of different drivers on forests and forestry. Particular attention will be given to assess demographic, economic, environmental and technological changes and the larger governance situation, all of which are collectively reshaping the society – forest relationship.

3. Demographic changes

Demographic changes - population growth, urbanization, migration, ageing, etc. – have played important roles in bringing about changes in land use including forests and these will continue to have an overwhelming impact in the coming decades. Other drivers will

Important questions/ issues relating to changes in demography:

1. What will be changes in population and population density in Asia-Pacific by 2030?
2. In what way population change is expected to impact land use and forests in particular?
3. What will moderate/ accentuate the impact of population growth on land use?
4. Likely variation as regards population density and growth in the Asia-Pacific region and their implications on land use.
5. In what way urbanization has impacted land use including forests? What will be its impact on land use?
6. Urbanization and its impact on amenity values and the growing demand for nature based recreation.
7. What is the future of international migration and remittances and how these may affect land use?
8. In what way ageing will affect land use (including forestry)?
9. What are the critical demographic issues that could impact forestry directly and indirectly in the coming decades?

possibly moderate or accentuate demography-driven impacts. Demographic transition along with economic change plays a key role in forest transition. This chapter will assess the demographic changes taking place in Asia and the Pacific and assess how they will impact forests and forestry focusing on the following:

- Population trends and its variation between countries/ regions.
- Potential impact of population growth on land use and forests in different countries.
- Linkage between demographic transition and forest transition.
- Trends in urbanization in the Asia-Pacific and their impact on land use including forests. Give concrete examples of how urbanization has impacted land use in general and forests in particular.
- Internal (within the country) and external migration and their varied impacts including how remittances have influenced the use of natural resources.
- Changing age structure and the direct and indirect impacts of ageing population on economy, resource use and forests.-
- Ageing population and what it means to land use and changing demands on forests – Availability of labour and its impacts on forests.
- Summing up – How the demographic mosaic of Asia-Pacific may look like in 2030 and how this may impact the economy, land use and forests.

4. The changing socio-economic context: income growth, structural changes and investment trends

What happens to forests and forestry will be largely influenced by the pathways of economic development pursued by the countries. Here again a mosaic of varied developments can be observed with significant inter and intra-country differences considering the divergent development approaches being pursued by different countries. Pockets of high income exist along with low-productivity-low-income segments. Similarly highly organized sectors linked to global value chains co-exist with unorganized, informal sectors totally focused on local production and consumption. A key to economic growth is the level of investments as

Critical economic issues

1. What will be the overall economic situation in the Asia-Pacific region in 2030 in relation to the rest of the world? What are the key uncertainties as regards growth of income?
2. Changes in per capita income in Asia-Pacific countries and its impact on demand for forest products and services.
3. What could we expect as regards the structure of Asia-Pacific economies in terms of the relative share of different sectors and how this could impact forests and forestry?
4. What are the general trends in investments and who is driving investments? What share of investments is going to sustainable management of natural resources (or rebuilding natural capital) as opposed to disinvestment in natural capital?
5. What are the key elements of agricultural strategies especially to meet the growing demand for agricultural products? To what extent agriculture growth will rely on expansion of cultivation to new areas including forests?
6. What are the probable paths of industrial development in the Asia-Pacific economies and what are the direct and indirect implications on natural resource use?
7. Impacts of infrastructure development on the Asia-Pacific economies (for example **one-belt-one-road**) and how land use, forests and forestry could be affected positively and negatively.
8. What are the future scenarios of globalization and their direct and indirect impacts on forestry? Are we going to witness a continued acceleration of the pace of globalization and the growth of global value chains resulting in shifts in industry location, investments, technology transfer and increasing trade volumes/ values?
9. What are the implications of a slow-down in international trade if some of the recent protectionist tendencies persist?
10. Trends in poverty and inequality in the Asia-Pacific; probable situation in 2030 and what it means as regards management of natural resources? Will there be any significant change in forest dependence?

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influenced by the motives of different investors which could have differing impacts on natural resources as a whole and forests in particular. This chapter will assess a number of key economic issues that may unfold in the coming decades and how these could impact forests and forestry. Specifically a detailed assessment will be done on the following focusing on the opportunities and challenges and how the situation may differ between and within countries highlighting the various uncertainties:

- Growth of income and probable changes in the size of the economies and per capita income;
- Trends in poverty and inequality and their impact on land use including forests;
- Trends in investments and to what extent investments – both public and private – are altering the stock of forest capital;
- Structural changes in the economy – changes in the share of key sectors as regards gross value added and employment - and how this may impact forests and forestry;
- Emerging trends in agricultural development and what it means to forests – Agriculture – forest interface issues – Future demand for food, agricultural strategies and how they may impact forests and forestry. Extensive agriculture vs intensive agriculture and how the impact of choices in agriculture on forests – Climate change – agriculture – forest linkages.
- Industrial development and its direct and indirect impacts on forests – Forests as a source of raw material and its impacts – Nature of industrialization and its impact (Old and new industries and how they affect forests and forestry positively and negatively).
- Growth of the services sector – For example tourism – in particular ecotourism – and its impact on forests (For example recreational and healing values of forests are gaining more attention than production of wood and other products).
- Trends in investment (both domestic and foreign) and their direct and indirect impacts on forests and forestry: Changes in the share of investments that go to rebuild the natural capital including through rehabilitation and restoration of degraded lands – Willingness and ability of different investors (governments, corporate investors, local communities, etc.) to invest in rehabilitation of degraded ecosystems.
- Future of globalization and how it may affect forests and forestry- Emerging issues relating to trade and its potential impacts on forest products trade. Global and regional trade agreements/ economic blocks and how these are impacting forests and forestry.
- Key social issues and how forestry is being impacted/ responding to:
 - Trends in poverty and income inequality in the region and what it means for natural resource use including forests;
 - Why we have an overlap between distribution of forests and distribution of poverty.
 - Women and forests – General trends as regards women’s involvement in natural resources management.
 - Indigenous people and forests: Livelihood of forest dependent communities – Efforts to secure the rights of indigenous communities – Future scenarios of redefining the relationship between indigenous communities and forests.

5. Environmental crises and societal responses

Rapid economic growth during the last few decades have resulted in a host of environmental challenges, in particular climate change stemming from green-house gas emission, declining water supplies and loss of

biodiversity. A consequence of these are the increasing frequency and severity of natural disasters – in particular extreme temperature fluctuations, droughts, floods, mudslides, cyclones, etc. Coastal areas and small island nations are particularly facing the challenges from rising sea levels. How society responds to these challenges will have direct and indirect implications on land use and forests. This chapter will consider the different environmental drivers and how these may impact forests and forestry at the regional, national and local levels.

Climate change

Undoubtedly climate change has become the defining environmental challenge that humanity has to confront in the 21st century. Being a global issue affecting all countries, addressing climate change requires efforts at all levels cutting across spatial, temporal and sectoral boundaries. Although the seriousness of climate change on account of green-house gas emissions has been recognized, many challenges exist in the pursuit of appropriate and effective responses. The Paris Agreement has provided a momentum and forestry's mitigation potential has been widely recognized, though major gaps exist between realization and implementation.

Some of the issues that need to be considered in assessing the future of forests in the context of climate change are:

- Overall responses to climate change at the local, national and global levels and thrust areas of mitigation and adaptation efforts.
- Perception about forestry's role in green-house gas emission reduction and sequestration efforts;
- Potential of forestry playing a major role in climate change mitigation and adaptation;
- Possible changes in forestry's trajectory in the context of society's climate change responses;
- Strengths, weaknesses, opportunities and threats in making forestry a key to climate change mitigation and adaptation.
- Future of some of the ongoing efforts in forestry (for example REDD+).
- Carbon market outlook and forests.
- NDCs and forests.
- Forests and forestry under different climate change response scenarios

Water challenges

Fresh water availability is becoming a major concern for most of the Asia-Pacific countries affecting every aspect of life. Local, national, regional and global water scenarios point to major challenges in the coming

Climate change and forests

1. What are the available assessments as regards climate change?
2. What are the direct and indirect implications of climate change on forests and biodiversity?
3. In what way forest and biodiversity derived services are expected to be affected by climate change?
4. What has been the responses at the global, national and local levels to address climate change? What are the uncertainties in society's responses to climate change?
5. What has been the overall role of forests in climate change mitigation and adaptation?
6. How effective have been forestry and biodiversity responses in climate change mitigation and adaptation? Are the benefits commensurate with the efforts and what has been the overall impact of forestry interventions in the larger context of climate change mitigation and adaptation?
7. What are the probable climate change responses by various players in the next two decades in the context of Paris Agreement? How are NDCs being developed and implemented?
8. What will be the future of forestry and biodiversity in the NDCs of Asia-Pacific countries?

decades and it is in this context a detailed assessment of the role of forests in enhancing/ stabilizing/ reducing water supply becomes relevant. This chapter will address the following issues:

- Water scenarios in Asia and the Pacific.
- Perceptions about forests- water linkages – Myths and realities.
- Managing forests for water – Implications.
- Will water become a key driver of forest management?
- Water, climate change and forests nexus.
- Payment for watershed services and forests.
- Integrated Water Resources Management (IWRM)

Biodiversity conservation

One of the outcomes of economic development and associated changes in natural resource use is the rapid decline in biodiversity. Widespread realization about the negative consequences of biodiversity loss has led to substantial national and international efforts to protect biodiversity. Almost all countries in the Asia-Pacific have developed their strategies and action plans for conservation of biological diversity in line with the Aichi biodiversity targets. In many countries there are strong grass roots level initiatives to protect biodiversity. Establishment of protected area has been one of the major focus of biodiversity conservation and there has been a significant increase in the proportion of land set aside for protection, although there are signs of its pace slowing down. Further the approach to biodiversity conservation is also undergoing changes and increasingly an inclusive approach involving participation of local communities is being pursued. Evidently biodiversity conservation efforts will form an important driver impacting forests and forestry in the coming decades also. This section will assess how biodiversity conservation efforts are likely to become an important driver impacting forests and forestry in the coming decades.

Water challenges in Asia and the Pacific

1. What is the current state of water supply and demand in Asia and the Pacific and how the situation is expected to change in the next few decades?
2. What are the responses at the regional, national and local levels to address the water crisis?
3. To what extent forests are being considered in addressing the water crisis?
4. Are such considerations being mainstreamed in national/ local level land and water management plans?
5. Capability to mainstream water related interventions in the management of forests.

Developments in biodiversity conservation and their impacts on forests and forestry

1. In what way biodiversity conservation efforts have impacted forests and forestry?
2. What are the recent developments and trends in biodiversity conservation?
3. What is the role of forestry in national biodiversity conservation strategies?
4. Will there be any significant increase in the extent of area earmarked for biodiversity conservation?
5. Will there be any increased willingness and ability to invest in biodiversity conservation in the next couple of decades?
6. What are the new developments in biodiversity conservation that could have significant direct and indirect impacts on forests and forestry?

- Trends in biodiversity conservation in Asia and the Pacific.
- Impact of biodiversity conservation on land use – in particular agriculture, forests and marine ecosystems.
- Key trends in biodiversity conservation
- Reconciling conflicting interests in biodiversity conservation
- Probable scenarios for biodiversity conservation

Land degradation and desertification

Land degradation has emerged as a major problem in the Asia-Pacific region and all the indications are that this problem will intensify in the context of climate change. Declining productivity, especially through soil erosion, increasing water stress, and desertification would have multiple impacts on land use. As more lands are degraded losing productivity, in addition to investing in their restoration/ rehabilitation, new lands will have to be found to compensate the loss of production. Land degradation also severely undermines the environmental functions. This section will assess the trends in land degradation and how Asia-Pacific countries are responding to the challenges of rehabilitation of degraded lands:

- Current state of land degradation in the Asia-Pacific and its impact on society.
- Probable scenarios of land degradation in the Region.
- Responses to land degradation and the role of forests and trees in land restoration.
- Success stories of degraded land restoration in Asia and the Pacific and lessons therefrom.
- Changing objectives of rehabilitation of degraded lands and its implications on the approach to landscape restoration.
- Emerging issues in restoration and rehabilitation of degraded ecosystems.

Natural disasters and forests

1. Recent trends in the occurrence of natural disasters and their impacts.
2. Areas that are regularly impacted by natural disasters.
3. Forests and forestry in preventing or reducing the occurrence/ impact of natural disasters.
4. Future scenarios of natural disasters in Asia and the Pacific
5. Enhancing resilience of ecosystems and communities to natural disasters: Opportunities and challenges.

Natural disasters

Increasing frequency and severity of natural disasters are affecting almost every country derailing development process, directly and indirectly affecting forests and forestry. While forests are sometimes affected by natural disasters, under certain circumstances forestry could help in disaster mitigation. This section will analyze the implications of different disaster scenarios and what they mean as regards forests.

- Time line and location of important natural disasters in the last two decades.
- Disaster management strategies.
- Forests and forestry in disaster management.
- Implications on forests.
- Factoring disaster preparedness and management in land management in the Asia-Pacific.

6. Science and technology in 2030 and their potential impacts

Developments in science and technology will be a major driver of change and it could have significant direct and indirect impacts on forestry. The last two decades have witnessed key developments in information and communication technologies as also biotechnology. In addition to the deepening impacts of these technologies, it is important to consider how some of the technologies in the horizon could take forestry in a different trajectory of development. A recent report suggests that wider application of artificial intelligence and robotics could result in a loss of 800 million jobs by 2030. This chapter will examine the larger technology scenarios and how these could impact forests and forestry. Particular attention will be given to:

- Artificial intelligence and its potential impacts – Reality vs hype – Its potential impact on forestry.
- Application of genomic engineering in forestry – Potentials for enhancing productivity including adaptation to environmental stresses.
- 3 D printing - additive/ layered processing – applications in forestry: Potentials for transforming forest industry, including small and medium enterprises.
- Developments in remote sensing, GIS applications and real-time monitoring of forest changes including carbon fluxes.
- Impact of emerging information and communication technologies - Social media, mobile phone and forestry agenda.
- Developments in material science and emergence of new products.
- New wood and non-wood based products especially in the context of development of bio-refineries, nano-cellulosic materials, etc.

In assessing developments in science and technology particular attention will be given to the spread of innovation and potential technology gaps between and within countries. While some countries/ sectors will be in a better position to adapt and apply new technologies rapidly, others may not be able to do so enhancing the technology divide between and within countries. An effort will be made to assess the possible technology scenarios that may unfold in Asia-Pacific forestry.

7. Governance trends and challenges

Issues in the development and application of technologies

1. What is the current state of forestry technologies in terms of improving productivity/ conserving resources?
2. What is the rate of absorption of new technologies? How does it differ between and within countries?
3. What will determine the development and application of different technologies?
4. In what way new technological developments are likely to affect forestry? What will determine their spread/ adoption?
5. Which are the countries/ sectors that are likely to benefit fully from the emergence and adoption of new technologies?
6. What are the technology scenarios that could emerge by 2030?
7. Are we likely to witness major changes in the state of technology by 2030? Or will some of advancements will remain confined to small pockets?

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During the last few decades the overall governance situation has undergone major changes at all levels - local, national and global. Though somewhat chequered, there has been increased democratization enabling communities, private sector and civil society organizations to play an important role in natural resource management. Policies and legislations have been revised and so are institutional changes enhancing opportunities for increased community participation. This chapter will examine how governance in general and forestry governance are expected to evolve in response to the larger changes. Specifically the following aspects will be analyzed:

- People’s participation in natural resource management: Probable developments in community participation in natural resources management in the next decade and beyond.
- Forest policy reforms – What could be expected in the coming years.
- Reform of forest laws – Increased opportunities for people’s participation?
- Forest ownership changes – Who will control forests?
- Institutional changes – Are we going to see a different institutional mosaic in 2030.
- Indigenous communities and forests
- Women and forests – Past trends and possible developments
- International initiatives and their impacts
- Alternative governance arrangements in the context of emerging technologies (In what way technologies are expected to affect governance arrangements)

Realization that no country can exist in isolation and that there are several global issues that needs to be addressed collectively has led to a multitude of international initiatives. These include setting broad developmental goals (as in the case of MDGs and its successor SDGs) or very specific initiatives (as in the case of climate change, biodiversity conservation, forest law enforcement, etc.). Depending on the degree of commitments to pursue such initiatives we could visualize different scenarios resulting in varied outcomes on the forest front. Some of the issues that needs to be considered include:

- Trends in global initiatives and their impacts on forests.
- Forests in the context of SDGs
- Forest law enforcement, governance and trade
- Global environmental governance – Probable trajectories and their impacts on forests
- Emerging uncertainties as regards global environmental governance.

Evolution of governance at all levels – local, national, global - however is subject to a number of uncertainties especially as the forces of centralization and decentralization work in opposing directions. Often decentralized policy making could lead to policy paralysis while highly centralized approaches could neglect local realities. In many situations forest governance has become a “wicked problem” and current institutional arrangements have not been able to address them. Of particular interest is how E, governance could affect current forest governance systems (An important issue being whether we are digitizing existing governance arrangements or developing totally new models of governance based on digital technologies).

PART III: ALTERNATIVE SCENARIOS AND THE OUTLOOK FOR 2030 (100 - 120 pages)

Synthesizing the different drivers outlined in part II, this part will discuss the probable scenarios of developments and assess the alternative paths of development of the forest sector at the regional and sub-regional levels. After discussing the probable scenarios that may emerge by 2030 this section will outline how forests and forestry may look like in 2030 and beyond. An overview of the situation at the regional level will be elaborated in the subsequent chapters focusing on the specific issues confronting the different sub-regions.

8. Probable scenarios

Considering the fact that APFSOS II was implemented in the backdrop of the 2007/ 2008 global economic crisis and its continued impact on most countries in the Asia-Pacific we had visualized three probable scenarios namely:

- High economic growth and recovery – the boom scenario
- Low income growth and bust scenario ; and
- Green economy scenario characterized by moderate growth and environmental and social stability.

It is important to assess whether these scenarios will continue to be relevant for APFSOS III also and what kind of refinements are required. We should also consider sub-scenarios under the above three scenarios and under what conditions these sub-scenarios could emerge and where they are likely to manifest.

- Scenario analysis – An overview and examples of scenario analysis in natural resource management including forestry.
- Principles and approaches to undertaking scenario analysis.
- Key elements that will determine forestry scenarios in the Asia-Pacific region.
- Probable scenarios and sub-scenarios that could unfold in the Asia-Pacific.
- Where and under what circumstances different scenarios could emerge.

9. Forests and forestry in Asia and the Pacific: The regional outlook

Synthesizing the collective impacts of the different drivers and the probable scenarios, this chapter will provide an overview of what could possibly happen to forests and forestry in the Asia-Pacific region by 2030 and beyond. An attempt will be made to answer a number of questions relating to the state of forests and forestry including progress in implementing sustainable forest management, changes in the demand for forest products and services, trends in investments in forestry and how forests and forestry will be positioned in the evolving human-nature relationship.

State of forests and trees

- Forests in the larger landscape.
- Overall trends in forest cover – Forest transition scenarios – Reversing deforestation and forest degradation.

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- Countries where forest area will stabilize and recover.
- Countries that could face continued deforestation and forest degradation.
- Future of planted forests - Productivity and production -
- Trees outside forests – Trees in farms and their economic, social and ecological significance.

Forests for ecosystem services

Wider understanding of the importance of biodiversity conservation has led to setting aside more areas for conservation purposes and international conventions like CBD and the various initiatives like preparation of national biodiversity strategy and action plan have led to a better understanding of the need to protect biodiversity. Extensive tracts of forests have been set aside as protected areas, although the pace of protected area expansion has slowed down in recent years. While there is considerable awareness about the importance of biodiversity conservation and a host of policies and legislations are in place, many challenges persist in making biodiversity conservation effective. This chapter will consider the following aspects:

- Society's perception about conservation and what is being done.
- Climate change mitigation and adaptation – How forests and forestry are likely to be reshaped?
- Forests for water – Probable directions of development and what could be seen 2030.
- Ongoing efforts to conserve biodiversity – (in-situ and ex-situ efforts).
- Changes in the extent of protected area – regional and national situation
- Emerging trends – people's participation and inclusive approaches –
- Conflicts in conservation – Human-wildlife conflicts and their impact
- Sharing conservation benefits with local communities
- The future of biodiversity conservation

Amenity value of forests

Tourism has become one of the fastest growing sectors and natural landscapes including forests have become important assets resulting in the rapid growth of ecotourism. A wide array of amenity values are offered by forests and other natural landscapes, all of which are expected to register rapid growth. There is also increased recognition of the healing value of natural landscapes. Urban planning is expected to undergo major changes and urban planners are giving greater thrust to developing green spaces to provide a range of amenity values. This chapter will examine the emerging demand for a wide range of amenity values and its implications on landscape planning – both in urban, rural and forest settings. Specifically the following aspects will be examined:

- Changing demand for amenity values and future scenarios
- Health and wellness and natural landscapes.
- Growth of ecotourism and emerging opportunities for forest management
- Emerging models of urban green space development
- People in peace with nature – A new way of life and its impacts on forests

Wood demand trends and their impact

Wood has been one of the most important forest products and historically forest management has primarily focused on wood production and its processing. One could visualize a number of different scenarios as regards wood value chains in the future and the role that Asia-Pacific countries will play in wood value chains. Some of the issues that will require in-depth assessment are:

- The overall situation as regards wood production and processing in Asia-Pacific.
- Which of the Asia-Pacific countries will remain a dominant player in wood production, processing and trade?
- Impact of labour costs on forest industry – Relocation to low wage countries / technology upgradation?
- The future of small and medium forestry enterprises.
- Considering the emphasis on more environment friendly materials, will wood become a preferred raw material for a wide array of products?
- Where and who will grow most of the wood?
- Will there be major shifts in the direction of trade of wood and wood products in the coming decades?
- Green products and bio-refineries – The future of wood use.

Possible changes in in wood demand in Asia-Pacific

- China had become the largest importer of timber and the leading producer of wood products.
- There are signs of Chinese market cooling down.
- A key question is which other country will fill up the demand reduction from China?
- India is sometimes being considered as another country with a huge market potential for timber. But will the demand from India help to compensate the decline in Chinese demand?
- Or will there be a sustained increase in demand in the context of the increasing emphasis on the use of wood as a more environmental friendly product?

Emerging energy scenarios and the future of biomass energy in Asia and the Pacific

Although there has been a shift towards the use of fossil fuels and other more convenient sources of energy, wood still remains an important source of energy for a large section of population in many developing Asia-Pacific countries. Nearly half of the wood produced annually is used as fuel. While historically energy transition involved a move away from biomass in favour of fossil fuels, it is important to consider whether biomass including woodfuel may become a preferred option in the context of climate change mitigation strategies. A number of countries are switching over from the more polluting coal to wood pellets as part of their green-house gas reduction strategy. This chapter will assess the long term potential for biomass energy and how different energy scenarios could impact forests and forestry.

- Energy scenarios in Asia and the Pacific in 2030
- Trends and prospects for traditional use of biomass as energy.
- Energy transition in different countries and its impacts on forests.
- Recent developments in biomass energy use (for example wood pellets, gasification, etc.) and its impacts.
- Emerging opportunities and challenges.

Changing value chains of non-wood forest products

Non-wood forest products – which includes food, beauty and healthcare products, cultural artifacts, etc. have played an important role in the rural economy of many Asia-Pacific countries. A wide array of value chains are found in the NWFP domain – some directly contributing to subsistence consumption while many others have complex value chains transcending several countries. This section will outline the long term trends in the development of NWFP value chains, factors that will impact different value chains and what will be implications of such developments in value chains. The major issue that will be considered is how the NWFP scene will evolve in the coming years. Some of the important issues that will have to be addressed are:

- Changing nature of NWFP value chains in response to developments in technology and markets.
- Products/ processes that may fade out.
- Domestication trends vs. collection from the wild
- Emergence of new value chains.
- Implications on collection, processing and their contribution to livelihoods.

People, livelihood and forests in 2030

This section will assess some of the broader implications of change especially as regards the livelihoods of rural communities, in particular forest-dependent people.

- Indigenous peoples and forests in Asia and the Pacific - What future?
- Future of forests in providing livelihood security
- Women and forests – Women as users, protectors and managers of forests.

10. Outlook for forests and forestry in East Asia

This chapter will examine how the East Asian forestry will be different from the larger Asia-Pacific situation and what may lead to the differing pathways of development:

- East Asia specific challenges and opportunities.
- Probable scenarios for forests and forestry in East Asia
- How these scenarios could vary from the regional scenarios.
- Forest transition in East Asia
- Coping up with the East Asian demand for wood and wood products.
- Will the region/ countries will achieve self-reliance on wood production? Linkage with rest of Asia-Pacific and the world.
- Managing forests for provision of ecological services in East Asia –
- Potential conflicts and their resolution.
- Forests and forestry in meeting SDGs.
- Opportunities and challenges for forestry in East Asia

11. Outlook for Pacific forests and forestry

This chapter will outline some of the unique pathways of development of forestry in the Pacific and in what way it could deviate from the regional scenarios. Specifically the following aspects will be discussed.

- Key issues impacting forests and forestry in the Pacific...
- Probable scenarios for Pacific forests and forestry.
- Linkages with other sub-regions and countries in Asia-Pacific and the world
- Forest transition in the Pacific in the context of competing demands on forests
- Transition from unsustainable logging to sustainable management of forests
- Wood production – Emerging trends and their implications
- Governance issues and how they could result in alternative outcomes
- Technological changes and their impacts
- Alternative visions of forests and forestry in the Pacific.
- Forests and forestry in meeting SDGs.
- Opportunities and challenges confronting Pacific countries

12. Outlook for forests and forestry in South Asia

This chapter will outline how the South Asian forestry situation is expected to unfold in the next decade and beyond and how it may differ from the mainstream regional scenarios.

- Defining factors impacting forests and forestry and recent trends in South Asia.
- Probable scenarios and how these are different from the regional scenarios.
- Forest transition in South Asian countries.
- Future of sustainable forest management in South Asia – Progress and set-backs
- Scenarios for production and processing of wood and non-wood forest products – How South Asia will meet its increasing demand for wood and the extent of external dependence.
- Future of wood energy in South Asia.
- Forests and ecological services – Willingness and ability to invest to enhance supply of ecosystem services.
- Governance scenarios and their implications.
- Forests and forestry in the context of meeting SDGs.
- Opportunities and challenges confronting South Asian countries

13. Outlook for Southeast Asian forests and forestry

The Southeast Asia chapter will outline the probable forest sector scenarios giving due consideration to the sub-regional specific trends.

- In what way the Southeast Asian forestry development is likely to be different from rest of Asia and the Pacific.
- Linkages with other sub-regions in Asia-Pacific and rest of the world.
- Commonalities and uniqueness of Southeast Asia.

APFSOS III – Proposed Report Outline (Draft for discussion – 13 April)

- Forests and forestry in the context of meeting SDGs.
- Forest transition in Southeast Asian countries.
- Demand for products and services.
- Opportunities and challenges confronting Southeast Asian countries.

PART IV: FORESTRY IN THE SERVICE OF HUMANITY (30 pages)

14. An overview of the future

- Possible forestry futures.
- What is the probability of different forestry futures in different countries/ regions?
- Forest transition in Asia and the Pacific – Where and how transition will take place and where transition will be delayed.
- Asia-Pacific forests and forestry in the new bio-economy
- Key uncertainties

15. Making forestry an integral component of the solution to challenges facing society

- Policies and strategies for enhancing the role of forests and trees in accomplishing Sustainable Development Goals:
 - Reducing poverty and hunger
 - Forests for addressing water crisis
 - Clean energy and forests
 - Gender equality and forests
 - Sustainable cities and communities
 - Climate action
 - Vibrant and resilient terrestrial ecosystems
 - Forestry and employment
 - Responsible production and consumption
 - Forestry for enhancing resilience of ecosystems and communities
- Governance interventions: Options for improving governance within and outside the forest sector.
- Technological improvements: Options for technological improvements in different areas/ contexts.
- Investments – What should be done to improve investments that help to improve/ rebuild forest capital and enhance sustainability?
- Interventions appropriate to different contexts – How to bring about changes in the trajectory of forestry development enhancing societal welfare.

REFERENCES

ANNEXES