

Continuous Mixed Forestry and the Citizens Forest Model

J.W. Simon & W. Bode*

Abstract

Climate change, air pollution and especially short-rotation forestry are the main causes for increasing detrimental effects on forests. Therefore, it is urgently necessary to find effective counteractions to this damage so that forests will become resistant, grow sustainably and are more economically effective and thus contribute optimally to the common welfare for all citizens. 'Continuous mixed forestry', in contrast to the normally used short-rotation or age-classed-forestry, is one suitable model to counteract climate change and air pollution in this way on both the local and national level. It is forestry without clear-cuts, biocides and with soft logging by continuous thinning and natural regeneration. The necessary change to this sustainable cultivation model is generally possible and necessary all over Europe and in other areas of the world. A very good chance for this type of forestry is available now within the framework of selling state-owned forests to private investors. This selling is planned by governments in some countries like the Great Britain¹ and has been partly realised on a large scale in Germany.² This article proposes selling the state-owned forests to a central, private national heritage foundation as a first step instead of transferring them with their traditional, mismanaged short rotation or age-classed forestry to private investors who would continue the state mismanagement. The task of the foundation would be to organize the 'citizen forest society' as a social-ethics-based society that is privately owned by citizens and the foundation. This would generate ecological advantages for the forest and moreover long-lasting profits for citizens, because the foundation would establish other organizations where the citizens become responsible owners of 'their' forest without any governmental or third-party influence. This proposal describes a solution to the demands of social-oriented ethics, which are primarily focused on the cooperation of responsible persons, represented by the private ownership of the forests, and directed by a responsible foundation.

* University of London, Institute for Advanced Legal Studies/Centre for Ethics and Law in the Life Sciences, Medical University Hannover. Leit.Min.R., Ministerium für Umwelt und Verbraucherschutz/Saarland, 66121 Saarbrücken, Germany.

- 1 *The Guardian*, 22 December 2010, For sale: all of our forests. Not some of them, nor most of them – the whole lot, 11:55 GMT; Frankfurter Allgemeine Zeitung (2011), In love of the forest (Aus Liebe zum Forst), 4 February, No. 29, p. 5. But the British Government has apparently changed its view, see: *The Guardian*, 17 February 2011, Timber! Cameron in U-turn over forests sell-off, p. 1.
- 2 E.g. Lower House of the German Parliament (2009), answer of the Federal Government to the small question ... Privatisation of forests by the Federal Institute of Real Estate Tasks, 16. Election period, Drucks. 16/14115, 30 September 2009.

Keywords: continuous mixed forestry in Europe, citizen forest society, forest law reform, climate change, social forest ethics.

A. Introduction

Thirty-one per cent of the global landmass is forested. The forests put up 80% of the biodiversity of the world; the common welfare of at least 1.6 billion people depends on this.³ The survival of the forests, the viability of the biodiversity and therefore the welfare of millions of people are severely endangered. Considerable risk factors are thereby the deforesting of the rain forests, depletion and the change of climate. So for example the exploitation of wood and the forests biomass needed for the production of bioenergy increased about 80% in 27 countries of the European Union since 1990. To reach the aim to increase the percentage of renewable energy, the demand on wooden biomass will grow up to the double until the year 2030. Thereby the demand will exceed the supply in 2015. Already an increasing pressure on the ecological system of the European timber forests is a result nowadays.

Aiming to achieve sustainability, the European Union wanted to stop the severe reduction of biodiversity in Europe until the year 2010. Generally known the aim was not achieved at all. Moreover, for example the collected data of the German Federal Agency for Nature Conservation (BfN) revealed the recent aggravation of the environmental indicator biodiversity and the quality of landscape.

The fixed account claimed by the Council of sustainability for the year 2015 will definitely not be attainable at all. The analogy chain data of several part indicators (types of landscape) show either a decreasing or at best a stagnant tendency since 1990. There is no betterment conceivable. If the negotiated environmental agreement, renewed by the European Union to the International Community at the conference of Johannesburg, leastwise should approximately be carried through in later future, political decisions are past due.

Part of the indicator 'forest biodiversity' with a target value attained notably less than 80% in 2007. The indicator tends to decrease and by the slow growth process of the forest it cannot be influenced up to the year 2015.

The 'German Council of Environmental Advisors' (SRU) gives an overall summary, the special expertise on nature protection (SRU 2002), on the loss of species and biotopes. Therefore, suggestions for political decisions according to ecological politics are derived.

According to this expertise

- two thirds of all in Germany existent biotypes are considered to be at a risk;
- a seventh part is even threatened with extinction;
- 39% of all existent animal species are endangered or already extinct; as well as

3 Conservation and Management of Forests for sustainable Development: Where Science meets Policy, Position paper working Group Metaforum Leuven, presented at the Forests 2011 symposium of 24 November 2011, B. Muijs *et al.*, Metaforum Leuven, p. 8.

- 28% of all plant species are at a risk or already extinct.⁴

It can be certified that the species extinction is one of the less, but most persistent, environmental problems, which do not achieve noticeable qualitative improvement in spite of all public and private efforts, made for more than 30 years now. This matter of fact forces politicians to rethink their previous political approaches; the effectiveness of their procedure, the effectiveness of the methods and the means. The lack of internationally coordinated activities – especially through the regulation on global (e.g. United Nations Forum on Forests), European (e.g. Ministerial Conference on the Protection of Forests in Europe) and national level – has to be surveyed.⁵

This contribution presents a new model for the management of forests that is based on social ethics. It is called the ‘citizens forest model’⁶ and mainly consists of two parts. The first part is an environmental one that meets the demands of all different ethical approaches with its goal of effective sustainability for the forests and thus the preservation of natural resources. The second one is the organization of the permanent control over sustainability and the permanently free access to forests for citizens, combined with the component of one great, singular profit for the government by selling the forests to the foundation and a long-lasting profit for the buying citizens.

This article begins with the demand for effective forest sustainability and then develops a concrete model that is mainly focused on the situation in Germany but is equally applicable to other countries in Europe, especially Sweden, Finland, the Czech Republic, etc., and in Asia.

B. The Superiority of Continuous Mixed Forestry

I. *The Recent Situation on the Example of Germany*

In most European countries, forests naturally are the dominant vegetation, so as well in Germany. Thereby, the forests harbour the essential part of the endemic biodiversity of Central Europe. Accordant, the forest should inhabit a central part concerning strategies of biodiversity in Europe and the Member States.

Partly this is fact, although the future perspective concerning the protection of the forests is increasingly bad.⁷ On the one hand, the milieu of the atmosphere

4 W. Bode, *Das NRW-Bürgerwald Konzept*. Gutachten im Auftrag des NABU NRW, Düsseldorf, 2010, pp. 69 *et seq.*

5 Metaforum Leuven e.g. recommends: “In areas like Europe where forest restoration has taken place in recent decades there is a need for growing awareness and state-of-the-art tools to detect and remedy postmodern forest degradation due to continued urbanization and increasingly unsustainable biomass use,” in *Conservation and Management of Forests for Sustainable Development: Where Science meets Policy*, Leuven, Belgium, 2011, p. 12.

6 J.W. Simon & W. Bode, ‘The Citizens Forest model: Climate Change, Preservation of Natural Resources and Forest Ethics’, in T. Potthast & S. Meisch (Eds.), *Climate Change and Sustainable Development. Ethical Perspectives on Land Use and Food Production*, Springer, Wageningen, 2012, pp. 137-141.

7 Bode, 2010, p. 2.

is still transnational contaminated with harmful substances. On the other hand, considerable biological and physical changes are in several ways perceptible in the forest due to the climate change. In case of its longevity, the biotope forest is affected the most by the climate change. Being genetically weakened the cultivated forest has to resist an immense adaption pressure.⁸

Resulting from the changes from conventional forestry, so-called age class forestry, to a mass primary material production, intense in need of capital and energy, those global hazards are intensified.

The administration of the state-owned forestry is most influentially responsible for the degradation in Germany. Contradicting the official aims of the German environmental policy, the conventional practice and organization of the age class forestry, practiced since the 19th century, has been shifted in recent times, indeed,

- by the personnel cutback, 60% to 80% less forest workers compared with the beginning of the 1990s;
- by the high degree of mechanization of the wood harvest with Harvesters, which nowadays already supplies about 50% of timber harvesting;
- by vehicular access and agglomeration up to 30% of each working areas forest soil while timber harvesting;
- by enlargement of the forest districts up to an amount no longer beneficial to biological forestry production;
- by the continuous personnel cutback especially on the level of the district forest management;
- by continuous failing to solve the problem of hoofed game (with special failure in the New Leander);
- by continuous high or partly fast-tracking clearance of old trees at the time of the recent prosperity just before the financial crisis;
- by decreasing selective forest maintenance of the young stock forest causing continuous loss of tree species;
- by overall increase of schematic intervention and loss of the potential of capital growth as well as
- by the tendentious orientation on mass assortments of goods and a continuous decline of the depth of added value.

Those and many other changes in forestry practice have been realized in several European countries. In Germany, the changes significantly started in state-owned forestry and have been transferred by the help of so called unit forestry administration onto many private forest owners. Insofar the state-owned forestry is not proclaimed 'best practice'-company by the legislative authority. Instead they are defeated by the environmental associations as a negative example of forest cultivation, announced not to be sustainable, because of being intense in need of capital and energy, and mostly being destructive to nature.⁹

8 *Ibid.*

9 Bode, 2010, pp. 2 *et seq.*

II. *Methods of Forest Cultivation*

Detrimental effects on forests have significantly increased over the last decades and all over the world. This is one reason why the German term 'Waldsterben', for example, has become an internationally known and used term for severe damage to forests. And in spite of some traditionally existing sustainable cultivation methods or newly introduced changes in some regional forestry, it is clear that a fundamental change still has to come about. Such a fundamental change must in all cases be competed with the seemingly remarkable ecological successful recent forms of cultivation. In other words: only by profitable types of business the ecological land usage requested by nature conservation is ensured.¹⁰ This means that only if as well economical as ecological criteria argue for the essential changes of the present types of business those will be enforceable.

The following ecological criteria can be stated:

1. *Continuous forestry, i.e.*, the forest is cultivated free of deforestation and developed to non-coeval high in structure continuous forest stands.
2. *Continuous mixed forestry, i.e.*, the forest cultivation pursues a mixture of mainly site native tree species and a high range of biodiversity.
3. *Preference of natural regeneration, i.e.*, as a priceless natural regeneration preserves the site-adapted genotype of preferable autochthonic tree population, it has to be preferred instead of seeding and planting. Thereby and by the surrender of cutting genetically modified organisms (GVO) the genetic diversity will be ensured.
4. *Abstinence of chemicals, i.e.*, in general no use of pesticide and fertilizer.
5. *Non-invasive technology, i.e.*, operational procedures and techniques will to a large extent be orientated on the needs of a soil friendly as well as energy economic technology (*i.e.* widely manual engine forest operation in use of man and animal), *i.e.*, mainly without the use of soil destructing machines.¹¹

The prevailing and dominant method is the *short-rotation forestry* in sylvan cultural management in European forests. The reason for this is that the demand for timber is increasing tremendously. In spite of extensive forest plantation, Great Britain, for example, is only able to harvest around a quarter of the annual growth of timber from its native woodland and only 60% of its conifer forest each year. That means that an intensive forest plantation with short rotation forestry as well as age class forestry (= monocultures) and the use of big machines seems to be – at first glance – the most suitable, effective and economic cultivation method to get a growing output every year.

This procedure is bit different from the procedure for a field of corn: what short rotation forestry needs is fast-growing species. These species, with mostly identical genomes, are planted in forest areas homogenized with heavy machines. After a short-term mass growth, these woodlands are again harvested with highly mechanized methods. The product will be wood fibre, which functions both as a

¹⁰ *Ibid.*, p. 4.

¹¹ Waldwirtschaft 2020. Perspektiven und Anforderungen aus Sicht des Naturschutzes (2008), Naturschutzbund Deutschland (NABU) e.V., Berlin.

resource and as a low-quality energy source. The goal of short rotation forestry is to produce the biggest mass within the shortest time at the lowest costs. This economic approach contradicts all the requirements of effective sustainability and is costly in terms of labour, energy and capital. At first glance, the attainable timber sales profits are higher in comparison to other forestry models but after a few rotations they need to be supported by a costly nutrient supply. Short rotation forestry in Central Europe is a typical meander which is only profitable under circumstances of short-term profit-seeking for a short time. Biological and ecological costs remain unaddressed and the general public is burdened with these costs.

Age class forestry is based on a forestall-historic heritage with elements of short rotation forestry. It often consists of only one, generally fast-growing forest species such as the common spruce or the Douglas fir. These coeval monocultures (thus the term 'age class forestry') grow to young full-grown trees that are completely harvested after a couple of years. This happens at the end of the main growth period, a long time before the trees' biological maturity at the age of 60 to 80 years. When a new tree generation is planted after a clear-cut, it takes decades to regain the social and cultural functions of adult trees.¹²

Its ineffectiveness is the most serious mortgage credit of the age class forestry. Because it has to pay the interest of the initial costs during the long growth period of the high forest trees, the unhurried growth cannot outgrow the interest charge. More than ever, that is for true if by risk more than 60% of the harvest mass has to be brought to the market earlier for a disadvantageous price. The unavoidable results of age class forestry are a low-average stock of wood, poverty of structure and diversity, fierce habitat competition, retarded nutrient transactions and modification of the forest species.¹³

Both short rotation forestry and age class forestry are characterized by numerous risks, particularly because of their large-area vulnerability to catastrophes caused by hurricanes, insects, summer aridity and snow damage. However, the heaviest burden of age class forestry is its lack of profitability. Because it has to charge interest on its initial costs over the long-lasting period of growth of high forest tree species, the slow tree growth cannot overcome interest rates. This will apply even more if, due to risks, more than 60% of its harvest is to be brought prematurely on the market at unfavourable prices. Age class forestry unavoidably leads to:

- Less average stock of wood,
- Poverty of structure and tree species,
- High habitat competition among the trees and
- Retarded nutrient transactions and a decrease in natural diversity.

Continuous mixed forestry is superior on all counts to the aforementioned forestry types; it is forestry without clear-cuts and biocides and with soft logging by continuous thinning and natural regeneration. Continuous mixed forestry is also

12 W. Bode, 'Ist der Altersklassenwald Biologisch Nachhaltig?', in W. Bode (Ed.), *Naturnahe Waldwirtschaft. Prozessschutz oder biologische Nachhaltigkeit?* Deukalion, Holm, Germany, 1997, pp. 49-75.

13 Bode, 2010, p. 7.

known as ‘common sense forestry’ or ‘sylvan culture close to nature’. This sylvan culture is based especially on domestic and non-genetically modified broad leaf tree species. Continuous mixed forestry exploits its timber in the ecologically rich and solid optimal maturity phase; thus, the trees of the upper stands are allowed to mature to uneven-aged mixed stands and are harvested as healthy full-grown trees in the course of the target diameter harvesting regime at the time of their maximum value tree by tree and free of clear-cuts. As a result of the continuous penetration of the canopy caused by single tree selection, light increase, nutrient transaction, tree species composition and on-going natural regeneration is stimulated. Due to its durable forest stand, continuous mixed forestry provides a continuous woodland biotope with high resilience. These biological advantages increase over time, provided that the operational method is consequently applied. At the same time, the frequency of costly intervention gradually decreases. Finally, there is a highly structured, well-stocked, multi-layered forestry with enormous value added, which replaces the typical forestry techniques necessary in age class forestry by ‘biological automation’ (which works without plantation, forest protection, natural selection, first thinning, etc.). These and other characteristics have made continuous mixed forestry – under the socioeconomic conditions of European high-wage countries – the most profitable forestry model¹⁴ in Central Europe for decades and the most effective one in the fight against climate change.¹⁵

III. Further Questions

Further questions derive from the description of the predominant, economic and ecological aimed cultivation of the forest, concerning the future cultivation of public forests. That is to say:

- Forests are managed for people, but are stakeholders not often excluded from management decisions?¹⁶

14 T. Knoke, ‘Zur finanziellen Attraktivität von Dauerwaldwirtschaft und Überführung: eine Literaturanalyse’, *Schweiz Z Forstwes*, Vol. 160, No. 6, 2009, pp. 152-161; T. Knoke, ‘Economic analysis of the wood production in a mixed, uneven-aged forest’, in A.F.M. Olsthoorn, et al. (Eds.), *Management of Mixed Species Forest: Silviculture and Economics*, IBN-DLO Scientific Contributions, Institute of Forestry and Nature Research, Wageningen, 1999, pp. 294-305; J. Buongiorno et al., ‘Groth and Management of Mixed Species, Uneven-Aged Forests in the French Jura: Implications for Economic Returns and Tree Diversity’, *41 For Sci* 1995, pp. 397-429; M. Hahnwinkel, ‘Comparative Economic Investigations of Even-Aged and Uneven-Aged Silvicultural Systems: A Critical Analysis of Different Methods’, *75 Forestry* 2002, pp. 473-481; Conservation and Management of Forests for sustainable Development: Where Science meets Policy, 2011, pp. 10-11.

15 Bode, 2010, pp. 119 et seq.; W. Bode & M.V. Hohnhorst, *Waldwende – Vom Försterwald zum Naturwald*, C.H. Beck, 4th ed., München, 2000, pp. 198 et seq.; Knoke, 2009; T. Knoke, ‘Finanzielle Betrachtungen im Überblick: Mischwald als Element einer nachhaltigen Waldwirtschaft’, *Allgemeine Forstzeitung/Der Wald* 62, 2007, pp. 119-121; T. Röhrig, N. Bartsch, & V.v. Lüpke, *Waldbau auf ökologischer Grundlage*, 7th ed., Ulmer Verlag, 2006, pp. 479 et seq.

16 Conservation and Management of Forests for sustainable Development: Where Science meets Policy (2011), p.19; “... participatory forest management is more effective in terms of forest cover, social equity and economic benefits than topdown forest management” p. 20. And “The endeavour to address citizens and embrace their stakes takes us into uncharted territory”, p. 21.

- Would it be possible to guarantee the common welfare orientation by a change of the legal form in the future? Is a new legal form of the state-owned forest in public or private law case desirable?
- Which alternative can be offered to achieve a sustainable organization decision?
- Could a change of the legal form be combined with a compulsory re-funding?
- Is there any possibility of permanent funding for the future expense of nature protection policy?
- Is it possible to combine the previous questions with a sufficient forecast, to short or middle term release the public budget from the shortcoming of the forestry management?
- Thereby which immediate discharges of the budget structure and current budget can be made?
- Could the citizen, being a responsible owner, effectually influence the cultivation of 'his' forests?
- How could the citizen be protected against the disposal of the capital majority according to his interest? Can the cultivation of 'his' forests be continuously guaranteed against all means of other capital majorities – protected by law?
- Could the citizen as a shareholder expect an actuarial rate of return? Could he bring his shares to market? If so, how could the citizen be won as a stakeholder and how to oblige him permanently?

Below, those questions are followed up:¹⁷

C. Establishment of a Central Private Natural Heritage Foundation

I. Basic Questions of Privatizations

From the perspective of nature protection, it is both reasonable and necessary to use such a woodland cluster economically in order to both arouse and preserve the local protective interests of citizens or, in other words, to make them local wardens of the countryside. The most efficient, most economical management and maintenance of these areas are assured by transferring the management of these areas to a central and private national heritage foundation (a 'national forest trust'), or for example like in Germany, to foundations of the respective federal states.

The most important question, which must be answered at first, is whether such a privatization coincides with the common welfare duty of public forests, because privatization mainly has got a bad reputation.

This is more than ever imperative since the bank crisis, which has been understood as a systemic failure of our economic market system. Actually, some very good and also some very bad examples of common duties privatization do exist. Without going into detail of the severe, ideological controversy, it can be said that especially those proceedings are controversial, which affect the direct

17 Bode, 2010, p. 68.

market service referring to the citizens and hereafter cause changes in price, extent and supply of this service.

That is not the case with the state-owned forests. In rare cases the forest holding is confronted with the citizen as a buyer of wood. The citizen only uses the forest as a 'customer' in regard to its marketable supplies, namely concerning its so called social welfare function.¹⁸

It is a question of so-called public goods, as for example the recreational value, reduction of CO₂, deposition of harmful substances, biotope habitat for feral plants and animals, quality of landscape, reservation of water, filter function, etc. Another difference between Germany and Great Britain concerns the fact that a concrete citizen cannot be excluded from public utilization by the concrete supply. That applies 'expressis verbis' due to a special law regulation, e.g., the right of forest trespassing in German forest laws.¹⁹

II. *Establishment, Duties and Responsibilities of a Forestry Foundation*

This foundation must undertake the task of establishing and preserving continuous mixed forestry by incorporating the know-how and the responsibility of wildlife charities and their voluntary potential. With all the woodlands for sale, a unique, exemplary and highly productive organization would be established. This organization could, among other things, professionally focus on refinancing its primary costs and generating revenues.²⁰

The establishment of such a long-maintained natural heritage foundation could be self-financing and without increasing the burden on the governmental budget in the course of the transformation of national forestry. The organization of a foundation model has several advantages: its charter is registered in the public registry; it is a corporate entity and enjoys legality without having a beneficial owner and it has a perpetual life. The foundation would be established as a legally independent organization provided with irrevocable assets. It could operate these assets according to its own guidelines, and it is entitled to act economically within its own legal framework. The main task would be the establishment of ecologically and economically optimized effective continuous mixed forestry. As a side effect, it would be a model for how to run private forests profitably. Moreover, considering that the foundation will have to prove itself on the market, it should be more efficient than a bureaucratic governmental organization.

The foundation's primary task would be to pursue the ambition of continuous mixed forestry. This objective must be written irrevocably into its constitution so that it can be altered only if absolutely necessary and all trustees consent. This is because continuous mixed forestry has proven to be the optimum forestry model for more than a century and there will hardly be any reason to refrain from it.

18 Bode, 2010, p. 102.

19 *Ibid.*

20 J. Borchers, *Privatisierung staatlicher Forstbetriebe. Eine ökonomische Analyse zur Deregulierung im Bereich der Forstwirtschaft*, J.D. Sauerländer's Verlag, 1996, pp. 268 *et seq.*

The second task of the foundation would be to organize the 'citizen forest society'. This would be the transformation of public forests into citizens' forests but in such a way that they are truly and privately owned by citizens; this would generate a singular profit for the government, ecological advantages for the forest and, moreover, a long-lasting profit for the citizen.

So far, the benefits of continuous mixed forestry and the taking over of public forests from national property have been presented. Just the last element is missing, namely, that the citizen is able to make use of his forest in the various ways that are due to him. The state or other interest groups would not be allowed to take action; the forest would be ecologically optimized and citizens would benefit from sale profits. These would increase due to the fact that growing demand will make the forests more and more valuable. This is possible because the foundation would establish another organization where the citizens become owners of 'their' forest without any governmental or third-party influence: a public limited company. Forest property would be transferred to the latter, and citizens can acquire shares and become shareholders. At the same time, the public limited company would be unalterably defined according to the corporate purpose of continuous mixed forestry.²¹

This method has several advantages:

1. The state indirectly receives its money from the sale of the forests via return flow from the foundation (singularly and limited to the selling value of the forests).
2. A millionaire or other interest groups would be prevented from acquiring the forests and eventually denying access to citizens. The forests would be purchased by the citizens themselves, who become shareholders. Nevertheless, regulations would have to be implemented hindering the concentration of too many shares in only a few hands. That could be easily stipulated in a constitution so that nobody would obtain more shares than planned.
3. The public limited company would statutorily provide that woodland property must not be made smaller but should be expanded by additional acquisitions. Therefore, citizen forests all over Europe and in other parts of the world will attain great importance for the ecological future of forests at large. Citizen forests could also be an instrument of old-age pensions if citizens invested in shares of the foundation; this would, therefore, serve as an incentive for the government to further expand this sector which would not only be cost free but also a source of tax revenue. In times of sustainable investments, it would be a great opportunity to offer citizens the same prospects, because wood is valuable and will be valuable in the future. Moreover, the wood value would increase, growing from year to year.

21 J. Simon, *Bürgerwald umsetzen: finanzielle und konzeptionelle Aspekte*. Presentation on the conference: *Öffentlicher Wald – zwischen Politik und leeren Kassen. Wege zu einer zukunftsfähigen Entwicklung des Waldes*, Evangelische Akademie Villigst, 21-23 January 2011, Germany.

D. Citizens' Forest, Sustainable Investment and Ethics

I. Sustainability, a Postulate of the 21st Century Financial Market

The citizens' forest model proposed here fulfills all criteria of the discussion on economical sustainability.²²

This applies not only to the continuous mixed forestry as such, but also considering the citizens' participation of their forest. Nowadays, sustainability is a determinant parameter in all means of society. Being a social challenge sustainability is firmly positioned long ago and thereby its gone cannot be imagined on the investment market. A new awareness of the global society concerning the recent growth of ecological and social challenges results of this development. This awareness is globally intensified by an improved information system and by an efficient network of non-governmental organizations. In the future this awareness of sustainability will only be variable in one direction, namely in the direction of a stronger consideration in relation to sustainable aspects. A lower esteem is not improbable, because the global shortage of the ecological service supply is the essential mainspring of this development. This shortage will even increase. This becomes obvious looking at the political discourse since the beginning of the recent economic crisis. As a result of the manifest value and moral conception of society, political and economic policy-makers had to discuss solutions on all levels in relation to sustainability in spite of massive economic interests.

This is very remarkable as the crisis was caused by the destruction of high amounts of capital, so at first it showed up being an economic sudden crisis.

Europe-wide likewise the solution was believed to lie within the ecological orientation of the numerous emergency steps.²³

With regard to sustainability, 'all power derives from the people'. Companies and parties (or politicians) try to distinguish themselves by 'sustainability'. Coincidentally due to a sensitized society they achieve good chances of success, but at the same time are confronted with serious challenges. But the stronger the topic becomes present and the knowledge of the target group increases, the higher are the demands on the respective players.

Although not all statements and promises are immediately verifiable, sustainable action can be compared with sustainable trust. It plays an important role for the respective stakeholder, because he has to cope with sustainable damage to his reputation if he does not sufficiently considers sustainability.²⁴

For a long time, due to the ranking at the financial market, the consideration of sustainable aspects was thought to cause high costs and therefore decrease the

22 See also the debates of the United Nations on environment and development, United Nations (1987), *Our common future, from one earth to one world: Report of the World Commission on Environment and Development*. Available at: <www.un-documents.net/ocf-ov.htm#1.2> (Accessed 10 June 2012); T. Potthast, "Good change' in the Woods: Conceptual and Ethical Perspectives on Integrating Sustainable Land-Use and Biodiversity Protection", in T. Potthast & S. Meisch (Eds.), *Climate Change and Sustainable Development. Ethical Perspectives on Land Use and Food Production*, Springer, Wageningen, 2012, pp. 142-147 (142).

23 Bode, 2010, p. 192.

24 *Ibid.*

actuarial rate of return. Meanwhile those assets named Socially Responsible Investments (SRI) are of interest for the financial market.²⁵ On the one hand, more investors are willing to or are committed to keep to the criteria of sustainability referring to investment. On the other hand the financial market is finally aware of sustainable acting companies achieving long-lasting chances of success in contrast to their competitor.²⁶

The aim must be to achieve the interest of the mainstream investor in citizen forest assets.

Although the single citizen is rarely financially strong, indeed the mass of investors obviously over-compensate this aspect.

Therefore it is to be said: The model of the continuous citizens' forests fulfils all means of a high-ranking sustainable investment considering the three dimensions economy, ecology and social. Regarding the following two aspects, a continuous forestry investment is very poor of risk. The sustainable investments bear a lower risk than other assets. The investment in forest real estate is of a very low systemic risk.

A further argument for the investment in citizens' forestry is that the financial crisis has reached the real economy and therefore positioned its relevance as a new 'substance'. Thereby especially the primary economy achieves a higher social and economic esteem.

The financial crisis caused the awareness that if one wins another loses. Being hollow payments promises, the products of the purely pecuniary economy are too many private investors proverbial 'burnt'.

Within the scope of the common sustainability postulate and the financial crisis the knowledge is awarded that capital is not ethical neutral and that its use is always bound to responsibility. Sustainable acting banks and products are encouraged by the mainstream investors, because they received a trustworthy reputation. They offer transparent products, which support the substance economy instead of complicated asset papers.²⁷

- Sustainable investments are recently not sharply defined. Thereby the criteria of sustainable investments strongly vary. A differentiation with regard to the power of sustainability is past due. It would help to bring citizen forest assets to the market, as a Best-in-Branches and Best-in-Class product.
- Sustainable investment products are continuously encouraged, especially considering the investments in substance economy.

This opens new and up to now unknown chances for the forestry.

- Institutional investors increasingly concern about internalizing their chosen investment objects into their own sustainability strategy. Regarding the investment object the local relation and the individual interest becomes more important.

25 In detail J.H. Böttcher, *The Impact of Socially Responsible Investments (SRI) in Germany: A Win-Win for Ecological, Social, and Corporate Governance Innovation?*, Marburg, 2012.

26 Bode, 2010, pp. 192 *et seq.*

27 *Ibid.*, p. 225.

- Investment in forest and trees are theme investments with a very significant consideration of all three cornerstones of sustainability.

Citizens' forests support efficiency and effectiveness of the forestry. By renunciation of investing in common net yield funds, the investor acts sufficient, by which the three attributes of sustainability, are additionally fulfilled.

- By the sustainable investment in substantial values an amount of investors, who lost their trust due to the crisis, are addressed. Thereby, and by a high rate of legal protection, the citizens' forest investment is especially stable.²⁸

II. Sustainability and Ethics

If sustainability is considered to be a real criteria at the financial market, this results either due to ethic-moral or pecuniary conviction or to a combination of both.

A non-pecuniary decision for a sustainable investment can therefore be an individual ethic or social-moral reason. Ethics can be considered as an individual reflection of social morality, which consists of manners and customs and norms. It considers whether the morality valid to society preserves central human values and supports them.

The moral motivation is influenced by the social change of values, which leads to a stronger ecological social understanding. The enlargement of the sustainability term from ecological-economical compatibility to a social principle is the best indicator.²⁹

What this means in detail has to be explained. Therefore Potthast emphasizes: "Hence, the goals and means of the United Nations' Framework Convention on Climate Change (FCCC; UN 1992³⁰ and the Convention on Biological Diversity (CBD; Un1992)³¹ will have to be integrated, also on national (and European) levels for maintaining and conveying biodiversity as well as for sustainable development under the conditions of climate change ... The most contested issue is the use of agricultural land and crops for fuel production, but also the conversion of forests with old tree stands into short rotation tree farming and the use of almost all biomass from forests hence a loss of wood and leaf litter for decomposition into soil at stake."³²

In this context, not only empiric data or practical proceedings are relevant, but also concepts as well as ethical standards and perspectives play an important part. They influence the shape of the setting and the way the agenda is converted.³³

However, forest ethics has not been intensively discussed in Germany, Europe and other parts of the world. While the discussion that exists in Germany is focused on (Christian) social ethics and is mainly based in one outstanding pub-

28 *Ibid.*

29 *Ibid.*, p. 198.

30 United Nations (1992), Framework Convention on Climate Change. Available at: <<http://unfccc.int/resource/docs/convkp/conveng.pdf>> (Accessed 10 June 2012).

31 United Nations (1992), Convention on Biological Diversity. Available at: <<http://unfccc.int/resource/docs/convkp/conveng.pdf>> (Accessed 10 June 2012).

32 Potthast, 2012, p. 143.

33 *Ibid.*

lication,³⁴ the dialogue on the international level is concentrated on the ethical discussion towards collective global forest ethics, in particular having to do with tropical rainforests. On the one hand, this deficit is due to the ruling anthropocentric view of ethics; on the other hand, it is due to the difficulty of defining plant ethics and the urgent problems of tropical rainforests throughout the whole world.

Social ethics is more or less the mostly discussed ethics model for forests in Germany.³⁵ It is focused on the social (Christian) conditions of a good life. This includes sustainability, for example, as an important part of the further existence of mankind. Thus, social ethics is not primarily focused on single persons with their isolated activities but on the cooperation of responsible persons or groups. And those responsible persons, the citizens, should be enabled by the governments and the possibilities of the different legal systems to cooperate together as citizens who take care of their own assets (here forests) in a sustainable manner. This model takes into account that all life, including that of plants, is a given asset (in the Christian sense by their creation) and should be protected as an important part of this asset.

If we focus on the social (Christian) conditions of a good life with social ethics and ask which model fulfils them best, the answer is obvious: from all points of view, continuous mixed forestry and the citizen's forestry because it includes sustainability, for example, as an important aspect of the further existence of mankind without contradicting economical effectiveness. Continuous mixed forestry is the most effective model of forestry. It takes into account that all life, including that of plants, should be protected as a basis for mankind and, in the Christian sense, as an important part of creation. On the philosophical-ethical level, the model of continuous mixed forestry is universal for all countries with such forests.

34 A.G.H. Hangartner, *Waldethik – Theologisch-ethische Überlegungen zu Wald und Forstwirtschaft, Eine wissenschaftliche Arbeit im Bereich der Umwelt- und Sozialethik*, Herbert Utz, München, 2002, pp. 522 et seq.

35 Considering the further development, see.: L.C. Irland (Ed.), *Ethik in der Forstwirtschaft: Haven Land*, Timber Press, Oregon, 1994, Forstethik als Grundlage einer generellen Wirtschaftsethik, <www.brainworker.ch/waldphilosophie/forstethik.htm>.

Other investigation go on from nature's and landscape's own value according to the example given by the German Federal Nature Conservation Law § 1: "Nature and landscape have on the basis of their own value and as a basis for human life and human health to be protected in respect of generations to come..." See therefore: S. Odparlik, *Die Würde der Pflanze. Ein sinnvolles ethisches Prinzip im Kontext der Grünen Gentechnik?*, Verlag Karl Alber, Freiburg, 2010; S. Odparlik, P. Kunzmann & N. Knoepffler (Eds.), *Wie die Würde gedeiht. Pflanzen in der Bioethik*, Herbert Utz, Freiburg, 2008.

A similar approach (Ethics of respect according to the plant growth) is pursued by A. Kallhoff, *Prinzipien der Pflanzenethik, Die Bewertung pflanzlichen Lebens in Biologie und Philosophie*, Campus Frankfurt, 2002. See also: Federal Ethics Committee on Non-Human Biotechnology (ECNH) (April 2008), The dignity of living beings with regard to plants (ed. Ariane Willemsen), <www.ekah.admin.ch/en/topics/dignity-of-living-beings/index.html> (Accessed 12 July 2012).

From the point of view of biodiversity: K. Jax, 'Warum soll Biodiversität geschützt werden? Das Problem der Bewertung der Biodiversität aus umweltethischer Sicht', *Laufener Seminarbeiträge* 2002, 2/02, pp. 125-133.

This does not mean that there is no growing discussion about plant ethics in general.³⁶ But, so far, this discussion is not well-grounded enough to efficiently contribute to forest ethics. Also the development of common accepted criteria, on the basis of the plants dignity concept considering the dealing with plants according to genetically intervention, was not successful.

But, in this case the dignity of creature was settled in the constitution of Switzerland.

Since Switzerland regulated the dignity of creature in 1992, commissions and academies tried, being more or the less successful, to concretize the term of plant ethics.

In any case, considering the regulation of the Swiss federal constitution it is apparent that by the admission of article 24novies SVB a common standard is given. This standard contains the guarantee to protect the human being and nature, and the protection of the dignity of creature. Thereby plants are especially named.³⁷ The deriving question is, whether plants should be protected in respect of themselves, *i.e.*, protected directly, or in respect of the human being. A direct protection would constitute the duty to respect the dignity of the plant.³⁸

Odparlik explains such a protection with the 'own good' of the living plants,³⁹ *e.g.*, plants have to be seen as a being, which is of an individual personal value 'laid out for growth'.

Thereby the personal good should be considered in respect of dealing with the plants. According to this aspect, the human being as a reasonable and moral being is in duty of respecting them and to treat them proper, without doing it in respect of personal interests (biocentral view).⁴⁰ What does this concretely mean? Besides, several points of view exist.

A plausible and thereon based approach, which was proposed as an alternative formulation during the discussion concerning article 24novies SBV, contains the term of being unharmed or the term of (vulnerable) integrity of a living being, which has to be protected.⁴¹ Integrity is also easier to understand in science. The French version of the Swiss federal constitution replaced the term 'dignity of the creature' by 'intégrité' des organismes vivants'.⁴² Integrity should not be put on an equal footing with 'personal good', but should be understood as 'merely a basic

36 In detail, S. Odparlik, 2010, Inaugural lecture "Das öffentliche Gut im Diskurs der Politischen Ethik", 23 May 2012, about it Martin Kugler, Die Presse v. 26 May 2012 (Online-Nachrichten).

37 Odparlik, 2010, p. 17.

38 *Ibid.*, p. 16.

39 *Ibid.*, pp. 119 *et seq.*

40 *Ibid.*; "Wertverortung im Rahmen des epistemischen Wertanthropozentrismus nach A. Krebs, "Naturethik im Überblick", in A. Krebs (Ed.), *Naturethik. Grundtexte der gegenwärtigen tier- und ökoethischen Diskussion*, Frankfurt a. M., 1997, pp. 337-379.

41 H. Baranzke, *Würde der Kreatur? Die Idee der Würde im Horizont der Bioethik*, Königshausen & Neumann, Würzburg, 2002, p. 349.

42 Therefore the Swiss ethics committee for genetic engineering in extrahuman field (2000), statement to the French version of Article 120 BV, Bern; A. Lötscher, "'Würde der Kreatur' – "intégrité des organismes vivants", Sprachanalytische Betrachtungen zur Bedeutung und Auslegung zweier umstrittener Ausdrücke, in *LEGES 2*, 2000, pp. 137-156; Odparlik, 2010, p. 126.

condition to realize the personal good'.⁴³ The personal good shall be kept in respect of integrity. Thereby Odparlik resumes: "As far as it can absorb and transport information about by which means organisms, which by their characteristics or their origin can be assigned to a certain species, normally maintain their integrity, it (the morphologic species term) can be of help making a statement, whether the intervention harms the integrity of the plant and if up to which state – before intervening."⁴⁴

This argumentation may be legitimate, for example, regarding genetic intervention to a single plant or a bigger group of plants. But, in case of the exploitation of forests, it is hardly possible to approach the argument of the personal good or of integrity, because the timber is planted to fulfil its purpose as a source of wood exploitation someday. Therefore it will be useful to choose a different approach, which includes the whole environment, animals and plants in respect of sustainability as well as according to the precaution principle.

Also the argumentative approach of Kallhoff considering the 'growth' of plants is not effective here. Indeed she increases the approach by saying: "The growth of plants should be morally respected and anthropogenic changes of the vegetative nature should be judged by whether they support the growth or harm it."⁴⁵

If this approach is taken as an ethic reason, the following result can be drawn: For centuries the so called forester wood or age class forestry is a rigorous intervention into vegetative nature in respect of profit. It is the attempt of optimum economic profit as well as the apparent profit for the human being, because the rapid 'follow cultivation' of whole forests seems to be unbeatable.

Exactly this was proofed being absolutely wrong by now. On first sight, it seems to be true that this is a sustainable procedure, because there is not only clear cut, but planting again. This way of cultivation and clear cut though does endanger not only the vegetative nature as a whole for a prolonged period, but also the animal species and human beings, whereas it is proofed and meanwhile commonly accepted by experts that the continuous mixed forestry is the foremost method of cultivation, which optimizes the profit at all and does not harm anyone.

Finally, this proposal is a decisive step towards a sustainable forest economy for many European countries and other countries of the world with such forests as described above, and it is an outstanding example of how to organize a part of a sustainable ethics-based civil society.

To finish with the words of Aldo Leopold: "A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong

43 Odparlik, 2010, p. 135.

44 *Ibid.*

45 A. Kallhoff, Inaugural lecture in Vienna, 23 May 2012, by M. Kugler, Die Presse v. 26 May 2012, (Online-News).

when it tends otherwise.”⁴⁶ This counts for much regarding the continuous mixed forestry model in connection with the establishment of the citizens’ forest. Thereby all requirements of an ethical responsible, sustainable forestry with participation of the citizen as a stakeholder are met. This result of a centuries old successful forestry as well as a modern participation of the citizen should be a regulative established by legislators of the European countries to guarantee the preservation of biodiversity, to face the climate change, and finally to generate maximum profit out of forests.

46 A. Leopold, *A Sand County Almanac*, Oxford University Press, Oxford, 1968, p. 225. According to Conservation and Management of Forests for sustainable Development: Where Science meets Policy (2011), p. 29, Leopold was “the first to advocate direct ethical responsibility to the non-human world. His ideas put an end to the understanding of natural environments as amenities and commodities, instrumental to human societies by fulfilling direct human needs (lumber, paper, cellophane, turpentine, firewood).”