From Figure 7, it can say that the value of an in the allometric equation of the *Paraserianthes* type has a second small value before *Swietenia*, this is due to this type including softwood in small diameter but will grow harder as the diameter increases which causes the value of b to be significant but still lower than *Swietenia*. The allometric equation used for *Paraserianthes* was Y = 27.2 d 2,831 [24]. This lower difference in numbers was due to the type of *Paraserianthes* planted in agroforestry with annual crops, while in the study site, most planted pure.

D. Inventory Results

The calculation result of the carbon number of the primary tree of people forest per zone/research village by type can see in table 5.

TABLE V
NUMBER OF CARBON CONTENT PER TREES PER VILLAGE

Trees	Number of Carbon per species (tonnes) from 3 villages			Total (Tones)	
	Ngiliran	Jabung	Bedagung	Carbon	Percent
Melia	2.358	1.325	2.919	6.602	15.33
Mahagony	2.587	3.845	2.138	8.570	19.86
Tectona	0.416	0.510	0.572	1.498	3.48
Paraserianthes	7.416	10.630	8.380	26.426	61.33
Total	12.777	16.310	14.009	43.096	100.00

Table 5 shows that the most abundant carbon content in Jabung Village is 16,310 tons/ha. This is due to smallholder forest farmers in Jabung Village. Most grown by pure stands rather than agroforestry, and most planted with *Paraserianthes*, *Mahogany, Melia*, and *Tectona*.

Dominant species in the community forest in the study sites were *Paraserianthes* type with 61.33 percentage, and the *Tectona* type was the lowest with 3.48. Because in that area, the kind of *Paraserianthes* is the type favored by local people besides wood, also growth and leaves that can quickly utilize for animal feed. In contrast, the *Tectona* type requires nutrients and space for growth and begins to grow poorly in areas that have altitudes above 500 *masl*. The mean carbon content per hectare presented in table 6.

TABLE VI
CALCULATION OF CARBON CONTENT PER HECTARE

Village	Carbon Content (tonnes)	Wide Forest Area (Ha)	CC x WFA
Ngiliran	12.777	137.63	1758.50
Jabung	16.310	15.76	257.06
Bedagung	14.009	38.77	543.13
T o t a l	41.096	192.16	2558.69

Based on table 6 above, the mean carbon content per hectare at the study site was 2558,69 / 192,16 = 13.32 ton/ha, while the carbon content of community forest in the study site was 2558.69 tons. This result is better thana [25] where the average stand is 7.61 ton/ha; This is because community forest consists of various species and most large-diameter trees, while the Melaleuca tree is short and often harvested. The average carbon stock of community forests reached 72.73 tons/ha [26], while the average carbon reserves of community forests reached 99.92 tons/ha [27]. The difference in the amount of carbon content is because in this study measured only the contents of 4 main types of trees making up community forest, not the whole of the community forest ecosystem.

IV. CONCLUSION

The average biomass per part of the tree ranging from the most substantial portion is the stem with a percentage of 50.28%, followed by branches up to 28.00%, then roots 14.26% and the smallest leaves of 7.46%. The equation model for estimating Mindi tree carbon content is $Y=246,123\ d^{1,986}$, Mahogany $Y=48,389\ d^{2,443}$, Tectona $Y=65,019\ d^{2,370}$ and Paraserianthes $Y = 52,726\ d^{2,116}$. The amount of carbon content in PPHR Lawu Lestari is 2558.69 tons.

REFERENCES

[1] T. A. Ontl *et al.*, "Forest Management for Carbon Sequestration and Climate Adaptation," *J. For.*, vol. 118, no. 1, pp. 86–101, Nov. 2019.

[2] D. Lin and Y. Lin, "Stakeholders of Voluntary Forest Carbon Offset Projects in China: An Empirical Analysis," *Adv. Meteorol.*, vol. 2015, p. 518698, 2015.

[3] E. Yosefi Suryandari, D. Djaenudin, S. Astana, and I. Alviya, "Dampak Implementasi Sertifikasi Verifikasi Legalitas Kayu Terhadap Keberlanjutan Industri Kayu dan Hutan Rakyat," *J. Penelit. Sos. dan Ekon. Kehutan.*, vol. 14, no. 1, pp. 19–37, Apr. 2017.

[4] R. Setiahadi, "How Significant is the Existence of Forest Community Contribution in GHG Emissions Reduction?," *J. Eng. Appl. Sci.*, pp. 4826–4830, 2017.

[5] Z. Chen, G. Yu, and Q. Wang, "Effects of climate and forest age on the ecosystem carbon exchange of afforestation," *J. For. Res.*, vol. 31, no. 2, pp. 365–374, 2020.

[6] S. Ma *et al.*, "Variations and determinants of carbon content in plants: a global synthesis," *Biogeosciences*, vol. 15, no. 3, pp. 693–702, Feb. 2018.

[7] D. Bert and F. Danjon, "Carbon concentration variations in the roots, stem and crown of mature Pinus pinaster (Ait.)," *For. Ecol. Manage.*, vol. 222, no. 1–3, pp. 279–295, Feb. 2006.

[8] V. B. Arifanti, I. W. S. Dharmawan, and D. Wicaksono, "Carbon Stock Potency of Sub Montane Forest Stand in Mount Halimun Salak National Park," *For. Socio Econ. Res. J.*, vol. 11, no. 493, pp. 13–31, 2014.

[9] G. D. Wright, K. P. Andersson, C. C. Gibson, and T. P. Evans, "Decentralization can help reduce deforestation when user groups engage with local government," *Proc. Natl. Acad. Sci.*, vol. 113, no. 52, pp. 14958–14963, Dec. 2016.

[10] E. Union, "Indonesia VPA Annual Report 2016," 2016.

[11] E. Union, "Summary of Indonesia-European Union Action Plan on the Advancement of VPA Implementation_2015," 2015.

[12] E. Yosefi Suryandari, D. Djaenudin, and I. Alviya, "Persepsi Pelaku Hutan Rakyat dan Industri Kayu Skala Kecil-Menengah Terhadap Kesiapan Implementasi SVLK," *J. Anal. Kebijak. Kehutan.*, vol. 14, no. 2, pp. 149–164, Nov. 2017.

[13] A. Sudrajat, Hardjanto, and L. Sundawati, "Farmer Participation on Sustainable Private Forest Management: Case of Cikeusal and Kananga Villages, Kuningan District Partisipasi Petani Dalam Pengelolaan Hutan Rakyat Lestari," *J. Silvikultur Trop.*, vol. 7, no. 1, pp. 8–17, 2016.

[14] Q. M. Ketterings, R. Coe, M. van Noordwijk, Y. Ambagau', and C. A. Palm, "Reducing uncertainty in the use of allometric biomass equations for predicting above-ground tree biomass in mixed secondary forests," *For. Ecol. Manage.*, vol. 146, no. 1–3, pp. 199–209, Jun. 2001.

[15] K. Hairiah, S. Rahayu, and Berlian, "Layanan lingkungan agroforestri berbasis kopi: Cadangan karbon dalam biomasa pohon dan bahan organik tanah (studi kasus dari Sumberjaya, Lampung Barat)," *Agrivita*, vol. 28, no. 3, pp. 298–309, 2006.

[16] I. Sharma and S. Kakchapati, "Linear Regression Model to Identify the Factors Associated with Carbon Stock in Chure Forest of Nepal," *Scientifica (Cairo).*, vol. 2018, p. 1383482, 2018.

[17] D. Maniatis *et al.*, "Evaluating the Potential of Commercial Forest Inventory Data to Report on Forest Carbon Stock and Forest Carbon Stock Changes for REDD+ under the UNFCCC," *Int. J. For. Res.*, vol. 2011, p. 134526, 2011.

[18] M. Iqbal, "Pengolahan Data dengan Regresi Linier Berganda," *Perbanas Inst. Jakarta*, vol. 4, pp. 1985–2000, 2000.

[19] I. Samsoedin, I. W. S. Dharmawan, and C. A. Siregar, "Carbon Biomass Potency of Old Growth Forest and Thirty Year-Old Logged Over Forest in Malinau Research Forest, East Kalimantan," *J. Penelit. Hutan dan Konserv. Alam*, vol. 6, no. 1, pp. 47–56, 2009.

[20] M. Lokbere, H. N. Pollo, and J. S. Tasirin, "Estimasi Biomassa Pohon Mahoni (Swietenia Macrophylla King) di Areal UNSRAT," vol. 23, no. 6, pp. 2–8, 2017.

[21] Chairul, E. Muchktar, Mansyurdin, T. M, and G. Indra, "The Structure of Vegetation Density and The Estimation of Carbon Content in Some Conditions of Forest in Siberut Island, West Sumatera," *J. Biol. Sci.*, vol. III, no. 1, pp. 15–22, Oct. 2016.

[22] G. Kafle, "Vertical Distribution of Soil Organic Carbon and Nitrogen in a Tropical Community Forest of Nepal," *Int. J. For. Res.*, vol. 2019, p. 3087570, 2019.

[23] Marjan, Wardah, and A. Hapid, "Biomassa dan Karbon Pohon di Sekitar Danau Tambing pada Kawasan Taman Nasional Lore Lindu Desa Sedoa Kecamatan Lore Utara Kabupaten Poso," *War. Rimba*, vol. 4, pp. 82–88, 2016.

[24] K. Meilani and N. Wijayanto, "Potential carbon storage in agroforestry-based community forest in Sellawi, Garut, West Java," 2018, vol. 5, no. 5, pp. 113–148.

[25] M. Lukito and R. Purwanto, "Inventarisasi hutan tanaman kayu putih (Mellaleuca cajuputi subsp cajuputi powell) dalam menghasilkan biomassa dan karbon hutan :: Kasus di hutan tanaman kayu putih BKPH Sukun , KPH Madiun Perum erhutani Unit II Jawa Timur," Gadjah Mada University, 2010.

[26] D. Ivando, I. S. Banuwa, and A. Bintoro, "Karbon Tersimpan pada Berbagai Tipe Kerapatan Tegakan di Hutan Rakyat," *J. Belantara*, vol. 2, no. 1, pp. 53–61, Mar. 2019.

[27] L. Ristiara, R. Hilmanto, and D. Duryat, "Estimasi Karbon Tersimpan Pada Hutan Rakyat Di Pekon Kelungu Kabupaten Tanggamus," *J. Sylva Lestari*, vol. 5, no. 1, p. 128, Jan. 2017.